-- UPDATED --
POND SITING REPORT

Avalon Road (C.R. 545) PD&E Study
From US 192 to Hartzog Road

Orange County Contract Number Y24-806

(Update to the June 2022 Draft Pond Siting Report)

Orange County, Florida

April 2026

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 4
2.0 INTRODUCTION 7
3.0 PROJECT DESCRIPTION 8
4.0 DESIGN CRITERIA 9
5.0 DATA COLLECTION 10
6.0 ENVIRONMENTAL CHARACTERISTICS 11
6.1 Wetlands and Other Surface Waters 11
6.2 Threatened and Endangered Species 11
7.0 EXISTING DRAINAGE CONDITIONS 12
7.1 Corridor Hydrology and Topography 12
7.2 Floodplains and Floodways 14
7.3 Soils Data & Geotechnical Investigations 14
7.4 Existing ERP Permits 15
7.5 Basin 1 15
7.6 Basin 2 16
7.7 Basin 3 16
7.8 Basin 4 16
7.9 Basin 5 17
7.10 Basin 6 17
7.11 Basin 7 18
8.0 PROPOSED DRAINAGE CONDITIONS 18
8.1 Methodology of Pond Determination 18
8.2 Basin 1A, 1B, & 2 to Pond Alternative 2A or 2B 19
8.3 Basin 3B to Pond Alternative 3B 20
8.4 Basin 3A to Pond Alternative 3A 21
8.5 Stormwater SMF Performance and Design - Summary Tables 22
8.6 Floodplain Impacts 24
9.0 CONCLUSIONS 24

List of Tables

Table 1 Summary of Recommended SMF Areas
Table 7-1 Summary of Existing Drainage Basins
Table 7-2 Summary of Existing Cross Drains
Table 7-3 USDA NRCS Soil Survey Information
Table 8-1 Summary of Proposed Drainage Basins
Table 8-2 Summary of Water Quality Volumes
Table 8-3 Summary of SMF Stages and Discharges
Table 8-4 Summary of Pollutant Loading
Table 8-5 Recommended Stormwater Management Facility Design Summary

Appendices

Appendix A Figures and Exhibits
Appendix B SMF Engineering Summary Table and SMF Evaluation Matrix
Appendix C Cross Drain Summary Table and Field Photos
Appendix D SMF Pre-Developed Calculations
Appendix E SMF Post-Developed Calculations
Appendix F Floodplain Encroachment Calculations
Appendix G Correspondence/Minutes/Exist ERP Permit Excerpts
Appendix H Geotechnical Report (Excerpts)
Appendix I Natural Resources Report (Excerpts)
Appendix J Contamination Report (Excerpts)
Appendix K SAI Reedy Creek Master Plan (Excerpts)

1.0 EXECUTIVE SUMMARY

The objective of this Pond Siting Report (PSR) is to identify stormwater management needs for the proposed Avalon Road roadway improvements from US 192 to Hartzog Road. Orange County proposes widening Avalon Road from two to four lanes between US 192 and Hartzog Road in Orange County, Florida, approximately 1.6 miles in length. The project is in southwest Orange County, within Sections 30 & 31, Township 24S, Range 27E. The entire project lies within the Reedy Creek Watershed and some open and closed sub-drainage basins, with outfall to Davenport Creek, and involves no Outstanding Florida Waters (OFW). Please see **Figure 1**, the **Project Location Map**, provided in **Appendix A**.

The purpose of this PSR is to update the original PSR completed under the RCA and to discuss, analyze, and identify a stormwater management system to serve the proposed roadway improvements, considering hydrology and hydraulics, environmental, and economic factors. An Environmental Resource Permit (ERP) pre-application meeting was held with the South Florida Water Management District (SFWMD) on September 30, 2025, to discuss the proposed project (meeting minutes are provided in Appendix G). The following permit criteria were addressed:

1. Water quality treatment will incorporate presumptive criteria along with net nutrient reduction for phosphorus.
2. Water quantity control will meet the established limiting discharge rate of 0.105 to 0.50 cfs per acre for open basin within the Reedy Creek Watershed in Orange County. Water quantity will also meet Pre versus Post volume for outfall into to closed basins.
3. Floodplain impacts will be compensated on a cup-for-cup basis.

The project is located within the Reedy Creek Watershed and associated sub-basins linked to several local lakes. On the west side of Avalon Road, the interconnected sub-basins/lakes (Mudd Lake, Grass Lake, Lake Austin, and Lake Oliver) drain from north to south and ultimately discharge to Davenport Creek. On the east side, the sub-basins/lakes include Lake Chapin, and the Rexford Lake and Lake Gifford closed basins. Three existing cross drains (CDs) along the corridor allow overflow from larger, more intense storm events to oscillate between the east and west sub-basins.

Seven roadway sub-basins along Avalon Road were identified along the corridor for the pre-developed condition.

- Basin 1 outfalls into Lake Chapin (Open)
- Basin 2 outfalls into Grass Lake (Open)
- Basin 3 outfalls into Wetland No. 3, at Sta 235+00, east side of Avalon Road (Closed)
- Basin 4 outfalls into Lake Austin (Open)
- Basin 5 and Basin 6 outfall into Lake Gifford (Closed)
- Basin 7 outfalls into Lake Oliver (Open)

Some offsite areas drain into the roadway and must be accounted for during the design phase to avoid adverse upstream impacts.

Avalon Road lies within Waterbody ID (WBID) 3170FS – Davenport Creek Headwaters – in the Kissimmee River Basin, per the current 303(d) list. WBID 3170FS is not listed as impaired, see **Figure 4** in **Appendix A**. However, the area falls within the Lake Okeechobee Basin Management Action Plan (BMAP) boundaries (see **Figure 5** in **Appendix A**) and therefore requires net reduction loadings for phosphorus. A water quality nutrient loading analysis has been performed and demonstrates a net reduction in the post phosphorus loadings, see **Appendix E.**

The proposed stormwater management system (ponds and floodplain compensation [FPC] site) complies with Orange County and Florida Department of Transportation (FDOT) drainage and roadway design standards, as well as the regulatory criteria in the SFWMD ERP Applicant's Handbook. The pond siting analysis for each alternative is presented in **Section 8** of this report. All figures and exhibits are included in **Appendix A**. The Pond Alternatives Evaluation Matrix, Cross Drains, Pre-Developed Basin calculations, and Post-Developed Basin and Pond Site calculations are provided in **Appendices B, C, D, and E**, respectively. Additional supporting data and information are included in the remaining appendices.

The recommended stormwater management facilities, shown in **Table 1**, provide the required water quality treatment, allowable limiting discharge attenuation, and volumetric needs through wet detention within each proposed roadway drainage basin. Floodplain compensation is provided at FPC 1, sized using cup-for-cup methodology based on the estimated fill within the 100-year floodplain from the proposed Avalon Road typical section (see **Figure 3**) along the project length. Final volumetric requirements will be updated as the project proceeds through the design phase. An ICPR analysis demonstrates that post-development runoff from each roadway drainage basin meets the limiting discharge rate established for the Reedy Creek Watershed and pre versus post volumes for outfall to closed basins.

Four stormwater management facility (SMF) site alternatives and two Swales (SMFs 2A, 2B, 3A, & 3B) were evaluated along the project limits. SMFs 2A, 3A, and 3B are the recommended pond site alternatives based on the parameters in the SMF Evaluation Matrix (see **Appendix B**, **Table EV-1**). Swales 1A and 1B are located at the beginning of the project on the right side and support attenuation needs in Basin 2 for recommended SMF 2A. FPC 1 is the recommended floodplain compensation site and is also listed in **Table 1**. Swales 1A and 1B, along with the recommended SMFs and floodplain compensation site, are shown on the Post-Developed Drainage Maps (**Figures 10-1** to **10-4** in **Appendix A**).

The primary changes to the original PSR identified SMF sites include the following items.

Basin 2 now includes dry retention Swales 1A and 1B in series with Pond 2A. Pond 2A was expanded slightly within the proposed right-of-way footprint to increase size and accommodate the limiting discharge rate criteria. The final Pond 2A size addresses berm tie-in slopes and a revised SHGWT elevation updated to reflect the latest geotechnical data.

Basin 3A has a larger SMF (Pond 3A) to accommodate the limiting discharge rate criteria which also resulted in a larger right-of-way footprint. The final Pond 3A size addresses berm tie-in slopes and a revised SHGWT elevation updated to reflect the latest geotechnical data.

Basin 3B has a slightly larger SMF (Pond 3A) that was expanded slightly within the proposed right-of-way footprint to increase size and to accommodate the closed basin criteria. The final Pond 3B size addresses berm tie-in slopes and a revised SHGWT elevation updated to reflect the latest geotechnical data.

All elevation references in this report use the NAVD88 vertical datum. The Reedy Creek Master Drainage Plan (see **Appendix K** for excerpts) referenced throughout the report uses the NGVD29 vertical datum; these elevations were converted to NAVD88 by subtracting 0.9 ft (e.g. 10.90 ft NGVD29 - 0.90 ft = 10.00 ft NAVD88).

Table 1 – Recommended Stormwater Management Facilities

SMF Name	SMF Right-of-Way Area (Ac) (Includes Access & Outfall Easements)	Basin Outfall Requirements
Pond 2A & Swales 1A and 1B	4.4	Limiting Discharge Outfalls to Grass Lake
Pond 3A	3.9	Limiting Discharge Outfalls to Lake Austin
Pond 3B	2.0	Limiting Discharge and Closed Basin Volume
FPC 1	2.5	Cup-for-Cup Compensation

Note: SMF recommendations are based on preliminary pond sizes and locations derived from available data, calculations, reasonable engineering judgment, and assumptions. SMF sizes and configurations may be refined during final design as more detailed site information becomes available (e.g. additional geotechnical data, wetland hydrologic data, and final roadway geometry). Refer to **Table 1** for the recommended pond right-of-way area requirements.

2.0 INTRODUCTION

Orange County is conducting a Project Development and Environment (PD&E) Study to evaluate roadway improvement alternatives for Avalon Road (CR 545) between US 192 and Hartzog Road, a length of approximately 1.6 miles. Avalon Road is currently a two-lane, minor collector roadway in southwest Orange County Commission District One, see **Figure 2** in **Appendix A** for the Existing Avalon Road Typical Section. The roadway alignment is generally curvilinear, and the corridor is largely surrounded by open tracts currently in development, wetlands, and other water bodies. Along the project corridor there is significant growth, both commercial and residential developments necessitating additional roadway capacity. The proposed roadway improvements consist of widening the existing two-lane roadway to a four-lane urban facility, adding a 12-foot shared use path and a 6-foot sidewalk, closed storm sewer collection and conveyance, intersection improvements at US 192, and stormwater management facilities. **Figure 3**, the **Proposed Typical Section**, is also provided in **Appendix A**.

The objective of this report is to present a stormwater management plan that will accommodate the proposed roadway improvements and meet South Florida Water Management District (SFWMD) Environmental Resource Permit (ERP) rules. The design of the stormwater management facilities will comply with the SFWMD regulations as well as Orange County and FDOT design criteria. **Figure 1**, the **Project Location Map** is also provided in **Appendix A**.

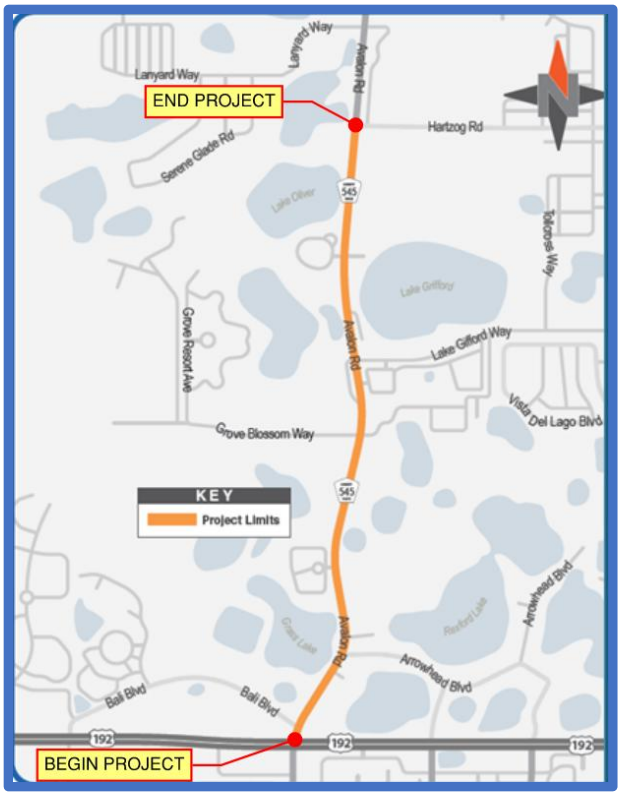


Figure 1 - Location Map

3.0 PROJECT DESCRIPTION

Orange County proposes widening Avalon Road from two to four lanes between US 192 and Hertzog Road in Orange County, Florida, approximately 1.6 miles. The project is in southwest Orange County, within Sections 30 & 31, Township 24S, Range 27E within SFWMD jurisdiction. Because the project corridor is in the Reedy Creek Watershed the proposed stormwater management system will need to meet limiting discharge and volumetric closed basin criteria for this volume sensitive area.

The calculations and analysis for this report are based on the 1988 North American Vertical Datum (NAVD 88). The Conversion equation from NAVD 88 to NGVD 29 is -0.90 feet, for example

10.90 feet (NGVD 29 elevation) - 0.90 feet = 10.00 feet (NAVD 88 elevation)

Within the project limits, Avalon Road is a two-lane collector roadway constructed as a rural section with unpaved shoulders, drainage ditches, and right/left turn lanes at selected intersections. Stormwater runoff is collected in roadside ditches or sheet flows to adjacent wetlands and water bodies. The speed limit throughout the Avalon Road corridor is 55 miles per hour (mph), see **Figure 2** in **Appendix 1**.

The proposed typical section elements are recommended to include an urban section with two 12-foot travel lanes in each direction separated by a 22-foot raised median. Type E curb and gutter will be used along the median and Type F curb and gutter is proposed along the outside lanes. These improvements will require the full reconstruction of Avalon Road. The proposed typical section will also include a six-foot sidewalk on the east side of the roadway and a 10-foot path on the west side and will require a minimum right-of-way width of 120 feet. Please refer to **Figure 2** for the proposed typical section.

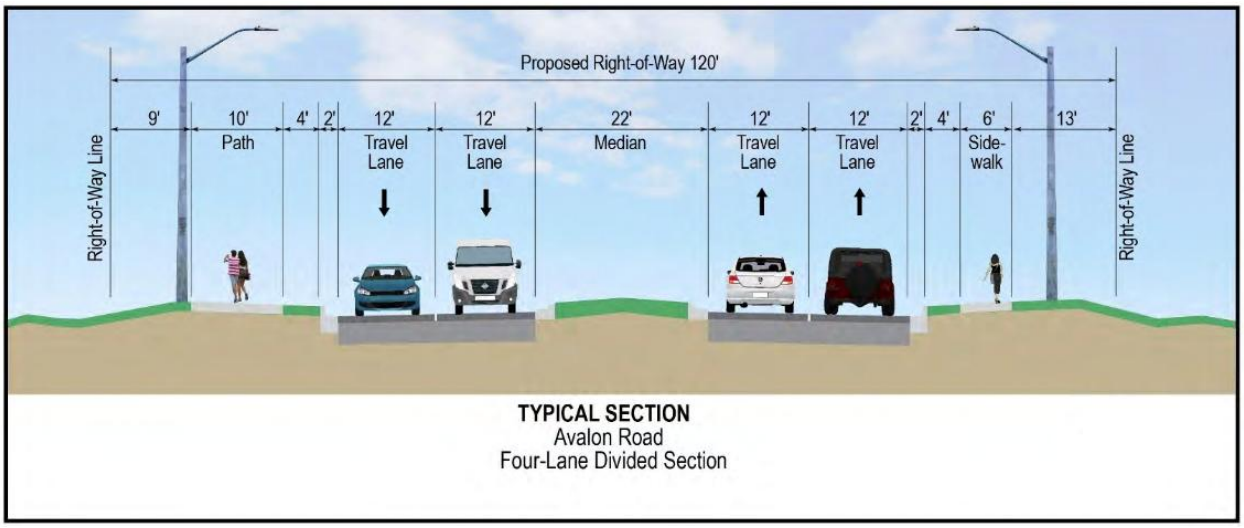


Figure 2 – Proposed Roadway Typical Section

4.0 DESIGN CRITERIA

The design of the stormwater management facilities (SMFs) for this project is based on the jurisdictional rules of the SFWMD, Orange County, and FDOT roadway design criteria. Water treatment and attenuation requirements will comply with guidelines as defined in Chapter 62-330 of the Florida Administration Code (F.A.C.) and the SFWMD ERP manual. Water quality treatment and peak discharge attenuation will be provided in wet detention ponds for each roadway drainage basin. Floodplain encroachment impacts are anticipated and will be mitigated with proposed floodplain compensation on a cup-for-cup basis.

Water Quality Requirements

- For wet detention, the required water quality volume requires one inch (1") over entire developed area or 2.5" over the new impervious area, whichever value is greater. For dry retention the required water quality volume is 50% of the wet detention criteria. For the wet detention recovery, the outfall control structure bleeddown device shall be designed to drawdown a maximum of one-half inch (0.5") of the detention volume within 24 hours. For dry retention recovery, the total water quality volume is required to infiltrate within 72.0 hours.
- Although the project is not within the limits of an impaired waterbody, it is within the Lake Okeechobee BMAP which is impaired for Phosphorus. Therefore, a pre versus post pollutant loading analysis is required to demonstrate a net reduction in post phosphorus loads as part of the ERP permitting process.
- The project does not discharge to and is not located within the boundaries of and OFW, therefore additional water quality treatment is not required for this parameter. Although OFW criteria do not apply, because the project area is within the Lake Okeechobee BMAP, it is noted in Appendix E of the SFWMD Applicant Handbook Volume II, the district will determine whether this project will require the 50% additional water quality volume. Currently, the ponds are sized to account for the 50% additional water quality volume requirement.

Water Quantity Requirements

According to the SFWMD applicant's handbook, offsite discharge rates are limited to historic discharge rates or rates for the 25-year/72-hour storm event, unless local regulations are stricter.

- Because the project is in the in the volume sensitive Reedy Creek Watershed, the project stormwater management system (discharge from wet detention facilities) would be limited to a discharge rate of 0.105 cfs/acre. A pre-application meeting with SFWMD was held in September 2025 to verify permit design criteria for the proposed stormwater management system consisting of ponds, cross drains, and floodplain impacts and compensation, the

meeting minutes are provided in **Appendix G**. The limiting discharge rate was confirmed during a pre-application meeting at the SFWMD in September 2025, the meeting minutes are provided in **Appendix G**.

- In addition to the noted limiting discharge criteria, for discharges within closed basins, the post-developed volume discharged must be less than or equal to the pre-developed discharged volume for the 100-year 24-hour design storm event.
- Although the Orange County code for a Category 3 development requires the 25-year, 24-hr design storm event to be used per Section 30-280 (2)(b) and 30-280(2)(c), the limiting discharge criteria is stricter and therefore governs the design and sizing of the proposed ponds.

Wet Pond Facility Configuration Requirements

- Ponds shall have a minimum area of 0.5 acre and a 100-foot minimum width for linear facilities having a length more than 200-feet (measured at the control elevation).
- Pond will include a minimum 20-foot-wide maintenance berm and provide a minimum 1-foot of freeboard between the Design High Water (DHW) stage and the inside maintenance berm elevation.
- Ponds will have 1:4 (vertical: horizontal) or flatter interior pond side slopes and berm tie-in slopes to existing ground,
- The elevation of the littoral shelf shall be no greater than 3 feet deep below the control elevation and the littoral area shall be the lesser of 20 percent of the wet detention area or 2.5 percent of the total of the detention area (including side slopes) plus the basin contributing area.

5.0 DATA COLLECTION

The following items, manuals, and other references were reviewed and consulted as design resources for this project.

- FDOT Drainage Manual and Drainage Design Guide, 2022 - 2024
- SFWMD Environmental Resource Permit, Applicant's Handbook, Volume I and II
- Federal Emergency Management Agency (FEMA) Firmette Panel 12095C0560F, 2009
- United States Geological Survey (USGS) Quadrangle Maps
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Online Web Soil Survey - Lee County, Florida
- Orange County Property Appraiser's Website (GIS parcel lines)
- Orange County LiDAR (NAVD 88)
- SFWMD Online ERP Permits – Issued ERP Excerpts provided in **Appendix G**

- Geotechnical Report by Nadic Engineering Services Inc. - Excerpts provided in **Appendix H**
- Ecological Summary Report by MSE Group, LLC - Excerpts provided in **Appendix I**
- Contamination Report by Nadic Engineering Services Inc. - Excerpts provided in **Appendix J**
- Singhofen and Associates Reedy Creek Master Plan - Excerpts provided in in **Appendix K**
- Engineer's field reviews of existing conditions

6.0 ENVIRONMENTAL CHARACTERISTICS

An Ecological Summary Report (ESR) has been prepared for the Avalon Road proposed roadway improvements from US 192 to Hartzog Road. This ESR documents ecological features located within the study corridor, such as wetland and/or other surface water communities and the occurrence or potential for occurrence of federally and/ or state-protected wildlife species and their habitat, and the likelihood of involvement of such features during project implementation. Excerpts from this document are provided in **Appendix I**.

6.1 Wetlands and Other Surface Waters

Roadside ditches along Avalon Road convey roadway and offsite runoff to cross drains, adjacent wetlands, and lakes. It is anticipated that the proposed roadway widening will result in minimal wetland impacts. Current ecological conditions within the study corridor were evaluated to determine the potential for adverse wetland impacts, other surface water impacts to three roadway alignment alternatives and six potential stormwater management pond locations. A summary of impacts by type, roadway, and stormwater pond location is provided in **Table ES-1** at the beginning of **Appendix I**.

Wetlands and/or other surface waters were aerially interpreted and verified through ground-truthing activities; these features should be delineated during the final design and permitting phase. Wetlands and other surface waters are regulated by federal, state, and local government policies. Impacts to jurisdictional wetlands and other surface waters will require coordination with regulatory agencies during the permitting of the proposed project and may require mitigation to offset unavoidable adverse impacts. Mitigation credits are available through several mitigation banks within the Reedy Creek drainage basin (summary of currently available mitigation is provided in **Appendix I)**.

6.2 Threatened and Endangered Species

A desktop review of readily available public databases was conducted to evaluate the occurrence or potential for occurrence of federally and/or state-protected wildlife species, followed by visual observations conducted via pedestrian transects throughout suitable habitat. Wildlife observations included direct (visual observation of species, scat, nests,

etc.) and audible detection. A summary of protected species with potential for involvement is provided in Table ES-2 of the report excerpts at the beginning of **Appendix I**.

The Florida Department of Agriculture and Consumer Services (FDACS) regulates the economic use of plant species identified as endangered, threatened, or commercially exploited. A desktop review of readily available public databases of known federally protected, state-protected, or commercially exploited flora was conducted for the study corridor, followed by ground-truthing. One commercially exploited plant was identified within the study corridor:

- Saw palmetto (Serenoa repens)

No federally and/or state-protected plant species were identified during ground-truth activities. FDACS does not regulate disturbance of plant species from construction activities; therefore, the presence of these plants within the study corridor will not require coordination with regulatory agencies.

7.0 EXISTING DRAINAGE CONDITIONS

7.1 Corridor Hydrology and Topography

The project is located within the Reedy Creek Watershed and associated sub-basins linked to several local lakes. On the west side of Avalon Road, the interconnected open basins (Mudd Lake, Grass Lake, Lake Austin, and Lake Oliver) drain from north to south and ultimately discharge to Davenport Creek. On the east side, the sub-basins include Lake Chapin (open basin) and the closed basins Rexford Lake and Lake Gifford. Seven existing roadway sub-basins along Avalon Road were delineated using corridor survey data in conjunction with **Figure 8**, the **Reedy Creek Master Plan Node-Link Connectivity Map** (provided in **Appendix A**). In the pre-developed condition:

- **Basin 1** outfalls to Lake Chapin
- **Basin 2** outfalls to Grass Lake
- **Basin 3** outfalls to Wetland No. 3 (along the east side of Avalon Road near Station 235+00±) and Lake Austin
- **Basin 4** outfalls to Lake Austin
- **Basin 5** outfalls to Unnamed Wetland (east)
- **Basin 6** outfalls to Lake Gifford
- **Basin 7** outfalls to Lake Oliver.

The seven existing roadway basins are summarized in **Table 7-1**. The topography in the project area is relatively flat, with ground elevations ranging from approximately 120 feet at the north end to 110 feet at the south end. Some offsite areas, as shown on the **Pre-Developed Drainage Map** in **Appendix A**, drain into the roadway right-of-way. These contributions must be accounted for during the design phase to prevent adverse upstream impacts.

Table 7-1 Summary of Existing Roadway Basins

Summary of Existing Drainage Basins		
Basin name	Area (Ac.)	CN
Basin 1	1.76	58.70
Basin 2	7.06	49.81
Basin 3	2.91	60.85
Basin 4	2.83	73.85
Basin 5	3.50	51.18
Basin 6	7.84	47.91
Basin 7	1.38	56.02
Total:	27.29	

Three existing cross drains (CDs), detailed in **Table 7-2**, allow overflow from larger, more intense storm events to oscillate between the east and west sub-basins along Avalon Road. The size and geometry of all cross drains have been verified using survey data and field reconnaissance, with photographs from the site visit provided in **Appendix C**.

Table 7-2 Summary of Existing Cross Drains

Cross Drain Number	Exsiting Cross Drain Data						
	CL Const. Avalon Road (Station)	Number of Barrels	Diameter (inches)	Pipe Material Type	Length (ft)	Invert (Elevations)	
						Left	Right
CD-1	224+05	1	18	RCP	68	110.23	110.65
CD-2	235+28	1	18	RCP	69	111.48	111.07
CD-3	273+52	2	24	RCP	53	111.75	111.32
			24	RCP	53	111.65	111.26

Note: All elevations are NAVD 88.

Avalon Road lies within Waterbody ID (WBID) 3170FS, the Davenport Creek Headwaters of the Kissimmee River Basin, per the current 303(d) list. This waterbody is not listed as

impaired (see **Figure 4** in **Appendix A**). However, the project area falls within the Lake Okeechobee Basin Management Action Plan (BMAP) boundaries (see **Figure 5** in **Appendix A**) and therefore requires net reduction loadings for phosphorus.

7.2 Floodplains and Floodways

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), 12095 C0560F for Orange County, Florida dated September 25, 2009, covers the entire project area. Portions of the study area listed below are located within Zone AE (100-Year) floodplain and can be seen on **Figure 7** in **Appendix A.** There are no designated floodways within the project limits.

The SFWMD applicant handbook states that no net encroachment into the floodplain between the average wet season water table and that encompassed by the 100-year event, which will adversely affect the existing rights of others, will be allowed. Anticipated floodplain impacts along the project corridor will be mitigated using the cup-for-cup method within a proposed floodplain compensation site.

7.3 Soils Data & Geotechnical Investigations

The Soil Survey of Orange County, Florida, published by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey has been reviewed for the project vicinity. The Orange County soil survey identified the following seven (7) primary mapping soil units within the limits of the project corridor. The Hydrologic Soil Group (HSG) type and Seasonal High Groundwater Table (SHGWT) soil survey data for the project are provided in **Appendix A**.

The NCRS Soil Survey generally identifies these soil types with poorly to moderately well drained soil, with permeability ranging from poorly to very high. The NRCS Soil Survey predicts the groundwater levels for these soil types to range from the natural ground surface to 80 inches below the natural ground surface. **Table 7-3 – USDA NRCS Soil Survey Information** summarizes and lists the soil types and relevant HSG and SHGWT Information.

A geotechnical evaluation study was performed by NADIC Engineering Services, Inc. along the proposed roadway corridor. Excerpts from the NADIC Geotechnical Report are provided in **Appendix H**, which includes soil classifications, SHGWT elevations, on-site suitability, and construction recommendations.

Table 7-3 USDA NRCS Soil Survey Information

Map Unit Symbol	USDA Soil Name	AASHTO* Group	Seasonal High Groundwater Depth in Natural Conditions (feet)	Hydrologic Soil Group
2	Archbold fine sand, 0 to 5 percent slopes	A-3	3.5 – 6.0	A
3	Basinger fine sand, depressional, 0 to 1 percent slopes	A-3, A-2-4	Ponded	A/D
20	Immokalee sand	A-3, A-2-4	0 – 1.0	A
42	Sanibel muck	A-8	0 – 1.0	B/D
43	St. Lucie fine sand, 0 to 5 percent slopes	A-3, A-2-4	> 6.0	A
46	Tavares fine sand, 0 to 5 percent slopes	A-3	3.5 – 6.0	A
47	Tavares-Millhopper fine sands, 0 to 5 percent slopes	A-3, A-2-4	3.5 – 6.0	A

*AASHTO: American Association of State Highway and Transportation Officials.

7.4 Existing ERP Permits

Several existing permits were used to gain additional information for the project area. These permits are summarized in **Table ERP EX-1** in **Appendix G**. However, the primary purpose of these permits was to eliminate pond sites that would conflict with ongoing development permits along and adjacent to the project corridor.

7.5 Basin 1

Existing Basin 1 extends from the US-192 and Avalon Road intersection (Station 206+00±, CL Const. Avalon Road) to the Arrowhead Boulevard intersection with Avalon Road (Station 220+00±). This basin primarily consists of the northbound travel lane and the adjacent grass covered right-of-way, totaling 1.76 acres. It includes a minor contributing offsite drainage area along the east side of Avalon Road, just north of the Wawa driveway (Station 211+00±), as shown on the Pre-Developed Drainage Maps (**Figures 9-1** to **9-4**) in **Appendix A**.

Runoff from Basin 1 sheet-flows into the right-side roadway ditch along Avalon Road, where it primarily infiltrates with minimal surface discharge. The Wawa driveway acts as a minor drainage divide within this small basin.

- South of the Wawa driveway, when runoff stages up in the right-side ditch, it flows south into the US-192 north-side roadway ditch and continues east before discharging into Lake Chapin.

- North of the Wawa driveway, when runoff stages up, it flows east out of the ditch segment between two residential properties and discharges into Lake Chapin.

In the existing condition, Basin 1 outfalls into ***open basin Lake Chapin*** without formal water quality treatment or attenuation. Soils in this roadway sub-basin are classified as HSG Type A with SHGWT depths of 2–4 feet below natural grade, based on SCS soil survey data (see **Figures 6-1** to **6-4** in **Appendix A**).

7.6 Basin 2

Existing Basin 2 extends from Station 209+00± (CL Const. Avalon Road) to Station 230+00±. This basin totals 7.06 acres of contributing roadway area and consists primarily of the southbound travel lane and the adjacent grass covered right-of-way along the left (west) side. It also includes the northbound travel lane and minor offsite drainage contributions along the east side of Avalon Road (between Stations 220+00± and 228+00±), as shown on the Pre-Developed Drainage Maps (**Figures 9-1** to **9-4**) in **Appendix A**.

Runoff from Basin 2 sheet-flows into the roadway ditches along Avalon Road and is conveyed to Cross Drain CD-1, where it discharges westward into Grass Lake. In the existing condition, Basin 2 outfalls into ***open basin Grass Lake*** without formal water quality treatment or attenuation. Soils in this roadway sub-basin are classified as HSG Type A with SHGWT depths of 2–4 feet below natural grade, based on SCS survey data (see **Figures 6-1** to **6-4** in **Appendix A**).

7.7 Basin 3

Existing Basin 3 extends from Station 230+00± (CL Const. Avalon Road) to Station 243+60±. This basin totals 2.91 acres of contributing roadway area and consists primarily of the northbound and southbound travel lanes and the adjacent grass covered right-of-way. It also includes minor offsite contributing areas, as shown on the Pre-Developed Drainage Maps (**Figures 9-1** to **9-4**) in **Appendix A**.

Runoff from Basin 3 sheet-flows into the roadway ditches along Avalon Road and is conveyed to Cross Drain CD-2, where it discharges eastward into Wetland 3. In the existing condition, Basin 3 outfalls into ***closed basin Wetland 3*** without formal water quality treatment or attenuation. Soils in this roadway sub-basin are classified as HSG Type A with SHGWT depths of 2–4 feet below natural grade, based on SCS soil survey data (see **Figures 6-1 to 6-4** in **Appendix A**).

7.8 Basin 4

Existing Basin 4 extends from Station 242+00± (CL Const. Avalon Road) and extends to station 267+00±. This basin area totals 2.83 acres and is comprised primarily of the

southbound travel lane as well as the grassed right-of-way area along the left (west) side as shown on the Pre-Developed Drainage Maps (**Figures 9-1** to **9-4**), provided in **Appendix A**.

Runoff from Basin 4 sheet-flows into the left-side roadway ditches along Avalon Road and is conveyed to either Wetland 9 or Wetland 10, both located along the west side of Avalon Road. Both wetlands outfall into Lake Austin. In the existing condition, Basin 4 outfalls into ***open basin Lake Austin*** without formal water quality treatment or attenuation. The soil in this roadway sub-basin is classified as HSG Type A with a SHGWT depth of 2-4 feet below natural grade, based on SCS soil survey data (see **Figures 6-1** to **6-4** in **Appendix A**).

7.9 Basin 5

Existing Basin 5 extends from Station 243+60± (CL Const. Avalon Road) to the Lake Gifford Way intersection with Avalon Road (Station 258+50±). This basin totals 3.50 acres of contributing roadway area and consists primarily of the northbound travel lane and the adjacent grassed right-of-way along the right (east) side, as shown on the Pre-Developed Drainage Maps (**Figures 9-1** to **9-4**) in **Appendix A**.

Runoff from Basin 5 sheet-flows into the right-side roadway ditches along Avalon Road and slowly discharges eastward into the Unnamed Wetland East. In the existing condition, Basin 5 outfalls into ***closed basin Unnamed Wetland East*** without formal water quality treatment or attenuation.

Soils in this roadway sub-basin are classified as HSG Type A with SHGWT depths of 2–4 feet below natural grade, based on SCS soil survey data (see **Figures 6-1** to **6-4** in **Appendix A**).

7.10 Basin 6

Existing Basin 6 extends from the Lake Gifford Way intersection with Avalon Road (Station 258+50±) to station 284+00±. This basin totals 7.84 acres of contributing roadway area and consists primarily of:

- the northbound travel lanes for the entire limits
- the southbound travel lane from 267+00± to 275+50±
- the adjacent grassed right-of-way
- an offsite contributing area on the right-side (east) of the project, just north of Lake Gifford

This basin is depicted on the Pre-Developed Drainage Maps (**Figures 9-1** to **9-4**) in Appendix A.

Runoff from the northbound and southbound travel lanes within Basin 6 sheet-flows into the roadside ditches along Avalon Road and is conveyed to Cross Drain CD-3, where it discharges eastward into Lake Gifford. In the existing condition, Basin 6 outfalls into ***closed basin Lake Gifford*** without formal water quality treatment or attenuation. Soils in this roadway sub-basin are classified as HSG Type A with SHGWT depths of 2–4 feet below natural grade, based on SCS survey data (see **Figures 6-1** to **6-4** in **Appendix A**).

7.11 Basin 7

Existing Basin 7 extends from Station 275+50± (CL Const. Avalon Road) to the Hartzog Road intersection with Avalon Road (Station 286+50±). This basin totals 1.38 acres of contributing roadway area and consists primarily of the southbound travel lane and the adjacent grassed right-of-way along the left (west) side, as shown on the Pre-Developed Drainage Maps (**Figures 9-1** to **9-4**) in **Appendix A**.

Runoff from the southbound travel lane within Basin 7 sheet-flows directly into Wetland No. 8 / Lake Oliver. In the existing condition, Basin 7 outfalls into ***open basin Lake Oliver*** without formal water quality treatment or attenuation.

Soils in this roadway sub-basin are classified as HSG Type A with SHGWT depths of 2–4 feet below natural grade, based on SCS soil survey data (see **Figures 6-1** to **6-4** in **Appendix A**).

8.0 PROPOSED DRAINAGE CONDITIONS

8.1 Methodology of Pond Determination

The pond siting analysis considered ponds that will be designed as dry retention and or wet detention facilities. The following items were considered in the selection of potential pond sites:

- Drainage design parameters (e.g. existing topography, stormwater conveyance feasibility, and allowable hydraulic grade line)
- Geotechnical considerations (e.g. soil types, confining layers, and SHGWT elevations)
- Environmental resource impacts (e.g. wetlands and threatened or endangered species)
- Floodplain impacts
- Utility conflicts
- Right-of-way acquisition
- Hazardous material contamination

Please note that the information for potential floodplain, geotechnical, environmental, and hazardous materials contamination are in **Appendices F, H, I, & J**. All the information was gathered and incorporated into the Pond Sites Evaluation Matrix in **Appendix B**.

In the initial Draft Pond Siting Report (by JMT in 2022), offsite ponds were sized based on the required water quality volume plus the increase in runoff volume using the SCS curve number method. For the updated report further hydrologic and hydraulic (H&H) modeling analysis was done, using the Stormwise software, to confirm limiting discharge attenuation as well as pre versus post volumetric requirements are met for each drainage basin at the outfall point.

The proposed roadway typical section (see **Figure 3**, in **Appendix A**) is an urban curb and gutter system which will incorporate a closed storm drain system to collect all the Avalon roadway runoff and convey it to a pond for water quality treatment and peak discharge attenuation (in this case, a limiting discharge rate). Because limiting discharge criterion controls stormwater pond design for this project, the post developed roadway basins are determined by the sizes and hydraulic performance of the proposed ponds and are described as follows and summarized in **Table 8-1**.

8.2 Basin 1A, 1B, & 2 to Pond Alternative 2A or 2B

Proposed Basin 1A extends from the US-192 and Avalon Road intersection (Station 207+00±, CL Const. Avalon Road) to the Wawa Driveway (Station 211+00±). This basin primarily consists of the grassed median, northbound travel lanes, and the grass covered right-of-way, totaling 1.02 acres. This basin is depicted on the Post-Developed Drainage Maps (Figures 10-1 to 10-4) in **Appendix A**.

Basin 1A runoff will be directed to Swale 1A for treatment and attenuation before being routed to Pond 2A for attenuation at the final limiting discharge rate and outfall to Grass Lake on the west side of Avalon Road.

Proposed Basin 1B extends from the Wawa Driveway (Station 211+00± CL Const. Avalon Road) to the Station 216+00±. This basin primarily consists of the grassed median, northbound travel lanes, and the grass covered right-of-way, totaling 1.51 acres. This basin is depicted on the Post-Developed Drainage Maps (**Figures 10-1** to **10-4**) in **Appendix A**.

Basin 1B runoff will be directed to Swale 1B for treatment and attenuation before being routed to Pond 2A for attenuation at the final limiting discharge rate and outfall to Grass Lake on the west side of Avalon Road.

Proposed Basin 2 generally extends from Station 207+00± (CL Const. Avalon Road) to Station 248+00±. Based on the proposed Avalon Road typical section (see Figure 3 in **Appendix A**):

- The left (west) side of the basin begins at Station 207+00 and extends to Station 245+50 ±. It consists of the southbound travel lanes, the shared-use path, and the grassed areas in the median and utility strip.
- The right (east) side of the basin begins at Station 216+00 ± and extends to Station 248+00 ±. It consists of the northbound travel lanes, the 6-foot sidewalk, and the grassed areas in the median and utility strip.

Basin 2 totals 12.42 acres and the combined basin area for Basins 1A, 1B, and 2 is 14.95 acres when considering the limiting discharge rate allowed out of Pond 2A or 2B. Any remaining offsite contributing areas will be bypassed in the proposed condition and will be clarified during final design. Basins 1A, 1B, and 2 are shown on the Post-Developed Drainage Maps (**Figures 10-1** to **10-4**) in **Appendix A**.

Proposed Alternative Pond 2A (Recommended)

Proposed Pond 2A is located immediately adjacent to the east side of Avalon Road between Station 220+00 and 225+00± and is estimated to be 4.40 acres of property (owned by Westgate Resorts, LTD). This pond site is located within HSG Type A soils, with existing ground elevations ranging from 112.1'-115.1'±, and a SHGWT elevation of 110.2' (based on geotechnical boring data provided in **Appendix H**). This site does not require a drainage access easement and is strategically located near CD-1 and Grass Lake, the outfall for this facility. **This is the recommended pond alternative for Basins 1A, 1B, and 2.**

Proposed Alternative Pond 2B

Proposed Pond 2B was identified in the initial Draft Pond Siting Report and is shown on a Post Drainage Map Graphic in Appendix G. This site is located a long distance (1250'±) off the Avalon Road east right of way within a property owned by Westgate Resorts, LTD that is currently under development. This pond site would require 1250± foot drainage access easement along with a similar amount of storm pipe to convey the roadway runoff into this facility. This pond site alternative is **not** the recommended alternative.

8.3 Basin 3B to Pond Alternative 3B

Proposed Basin 3B generally extends from Station 248+00± (centerline of constructed Avalon Road) to Station 285+40±.

Based on the proposed Avalon Road typical section (see **Figure 3** in **Appendix A**), this basin consists of the northbound travel lanes, the 6-foot sidewalk, and the grassed areas in

the median and utility strip. Basin 3B totals 5.93 acres and is depicted on the Post-Developed Drainage Maps (**Figures 10-1** to **10-4**) in **Appendix A**.

Runoff from proposed Basin 3B will be directed to Pond 3B for treatment and attenuation. Because Pond 3B outfalls into land-locked conditions, the discharge attenuation must meet both the limiting discharge rate criteria as well as the pre- versus post-development discharge volume for the 100-year 24-hour design storm event.

Proposed Basin 3B is divided into two land-locked outfall segments:

- The southern segment (south of Lake Gifford Way at Station 258+50±) outfalls to the Unnamed Wetland (East), and
- The northern segment (from Station 258+50± to Station 285+40±) outfalls to cross drain CD-3 / Lake Gifford.

Proposed Alternative Pond 3B (Recommended)
Proposed Pond 3B is located immediately adjacent to the east side of Avalon Road between Station 246+50 and 248+50± and is 1.95 acres. This pond site is located within HSG Type A soils, with existing ground elevations ranging from 113.7'–117.7'±, a SHGWT elevation of 111.10' (based on geotechnical boring data provided in **Appendix H**), and encompasses approximately 1.95 acres of right of way. Pond 3B will require two outfall control structures to meet all the attenuation requirements. One to discharge to Unnamed Wetland (East) and the second to discharge to Lake Gifford.

This pond site does not require a drainage access easement and is strategically located next to the Unnamed Wetland (East), one of the outfalls for this facility. **This is the recommended pond alternative for Basin 3B.**

Note: Based on conclusion found in the RCA, Section 7 and original draft Pond Siting Report, no other pond alternatives were considered for this basin due to limited land availability.

8.4 Basin 3A to Pond Alternative 3A

Proposed Basin 3A generally extends from Station 245+50± (CL Const. Avalon Road) to Station 286+40±. Based on the proposed Avalon Road typical section (see Figure 3 in **Appendix A**), this basin consists of the southbound travel lanes, the shared-use path, and the grassed areas in the median and utility strip. Basin 3A totals 8.81 acres and is depicted on the Post-Developed Drainage Maps (**Figures 10-1** to **10-4**) in **Appendix A**.

Basin 3A runoff will be directed to Pond 3A for treatment and attenuation and any remaining offsite contributing areas will be bypassed in the proposed condition and will be clarified during final design.

Proposed Pond 3A is located immediately adjacent to the west side of Avalon Road between Station 268+00 and 270+50± and is estimated to be 3.90 acres of property (owned by Westgate Resorts, LTD). This pond site is located within HSG Type A soils, with existing ground elevations ranging from 113.0'-117.4'±, and a SHGWT elevation of 111.6' (based on geotechnical boring data provided in **Appendix H**), This site does not require a drainage access easement and is strategically located Weland 9 / Lake Austin, the outfall for this facility. **This is the recommended pond alternative for Basin 3A.**

Note: Based on conclusion found in the RCA, Section 7 and original draft Pond Siting Report, no other pond alternatives were considered for this basin due to limited land availability.

Table 8-1 Summary of Proposed Roadway Basins

Summary of Proposed Drainage Basins		
Basin name	Area (Ac.)	CN
Basin 1A	1.02	56.08
Basin 1B	1.51	47.11
Basin 2	12.42	80.89
Basin 3B	5.93	78.62
Basin 3A	8.81	81.26
Total:	29.69	

8.5 Stormwater SMF Performance and Design - Summary Tables

Tables 8-2 through 8-5 summarize ERP permit performance criteria as well as the design summary for each recommended pond site.

Table 8-2 Summary of Water Quality Volumes

Summary of Water Quality		
Pond	Total Required Water Quality Volume (ac-ft)	Total Provided Water Quality Volume (ac-ft)
Pond 2A	1.13	1.21
Pond 3B	0.68	1.23
Pond 3A	0.34	0.47

Table 8-3 Summary of SMF Stages and Discharges

Summary of Stormwater Management Facility Stages & Discharges						
Pond	Required		Provided		Maximum Elevation for 1' of Freeboard	25-year 72-hour DHW
	0.105 cfs/ac	0.5 cfs/ac	25-year 24-hour	25-year 72-hour		
Pond 2A	1.57 cfs	7.48 cfs	3.46 cfs	4.71 cfs	112.50	112.41
Pond 3B	0.62 cfs	2.97 cfs	1.43 cfs	2.24 cfs	113.50	113.46
Pond 3A	0.92 cfs	4.40 cfs	2.74 cfs	4.13 cfs	113.50	113.49

Table 8-4 Summary of Phosphorus Loading

Summary of Phosphorus Loading		
Basin	Pre-Development Phosphorous Loading (kg/yr)	Post-Development Phosphorous Loading (kg/yr)
Basin 2 (Including 1A & 1B)	0.38	0.05
Basin 3A	0.25	0.01
Basin 3B	0.08	0.03
Total	**0.71**	**0.09**

Table 8-5 Recommended SMF Summary of Design Criteria

Recommended Stormwater Management Facility Design Summary						
Pond	Proposed R/W Area (Ac.)	Berm Area (Ac.)	Inside Edge of Berm Elevation	Control Elevation	Provided Water Quality Stage	Pond Bottom Elevation
Pond 2A	4.40	3.51	113.50	110.20	110.70	102.00
Pond 3B	1.95	1.70	114.50	111.10	112.30	103.00
Pond 3A	3.90	3.34	114.50	111.60	111.80	104.00

8.6 Floodplain Impacts

The Federal Emergency Management Agency (FEMA) has developed a Flood Insurance Rate Map (FIRM) for the study area, FIRM Map 12095 C0560F for Orange County, Florida dated September 25, 2009, can be found in **Appendix A**.

The Zone AE floodplains impacted by the Avalon Road project are located:

- At Grass Lake along the west side of Avalon Road (El. 113.1)
- At Mud Lake along the west side of Avalon Road (El. 113.1)
- At Wetland No. 3 along the east side of Avalon Road (El. 113.1)
- At Lake Austin along the west side of Avalon Road (El. 113.3)
- At Lake Gifford along the east side of Avalon Road (El. 113.1)
- At Lake Oliver along the west side of Avalon Road (El. 113.3)

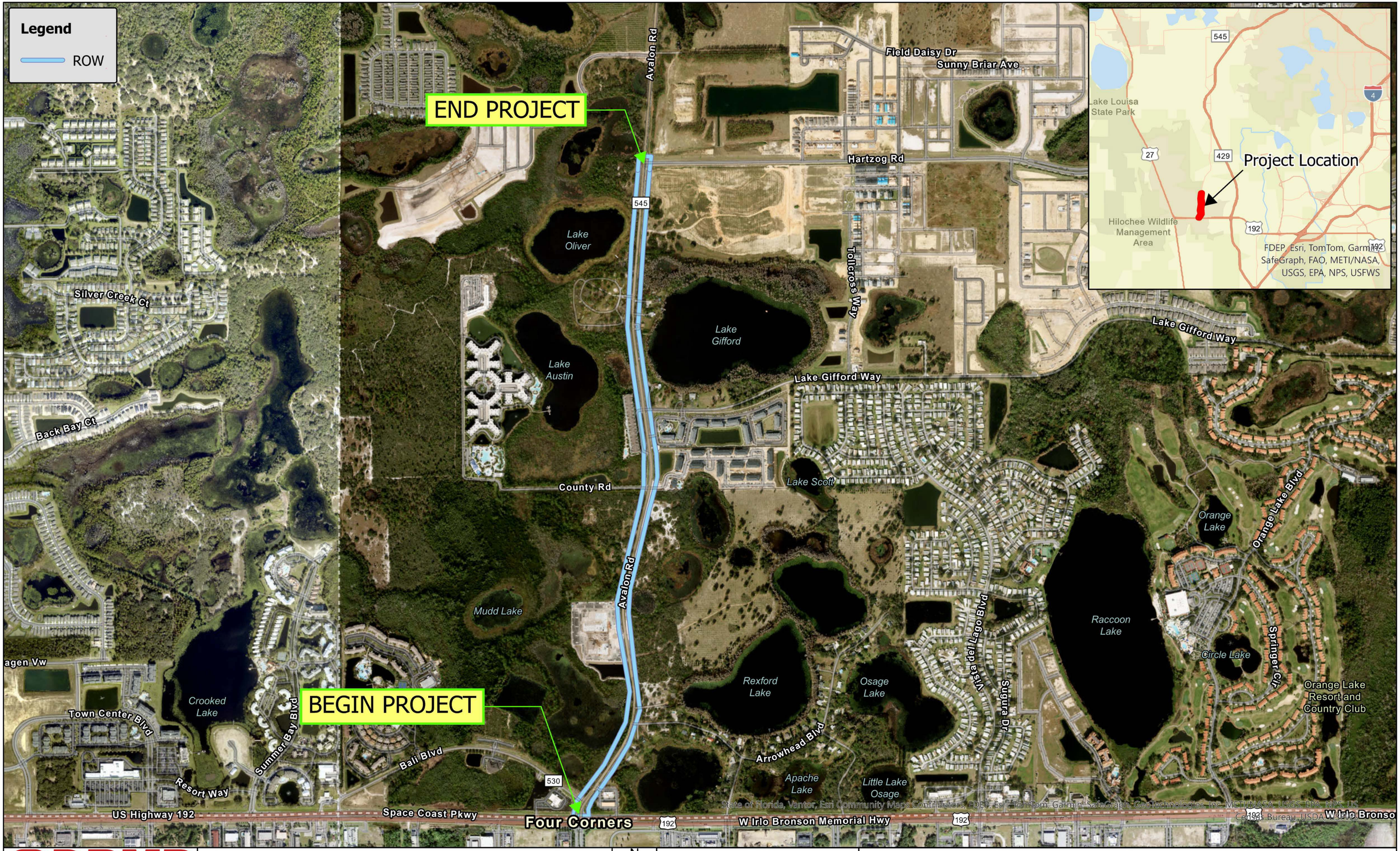
Floodplain compensation was estimated by using the cup-for-cup method after running the proposed typical along the existing alignment of Avalon Road to determine the estimated amount of fill within the 100-year floodplain. The square footage of fill was recorded at each cross section and the average end area formula was used to estimate the volume of fill between each cross section as well as summed to determine the total fill within each of the existing drainage basins.

9.0 CONCLUSIONS

The modifications to drainage structures included in the project will result in an insignificant change in their capacity to carry floodwater. This change will cause minimal increase in flood heights and flood limits. The proposed structures will perform hydraulically in a manner equal to or greater than the existing structure and backwater surface elevations are not expected to increase. As a result, there will be no significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will not be a significant change in potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

Appendix A
Figures and Exhibits

- Figure 1 - Location Map
- Figure 2 - Existing Typical Roadway Section
- Figure 3 - Proposed Typical Roadway Section
- Figure 4 - WBID Map (Impaired Waters)
- Figure 5 - BMAP Map (Lake Okeechobee)
- Figures 6.1 to 6.4 - SCS Soils Map and Data
- Figure 7 - FEMA FIRM Map
- Figure 8 - Reedy Creek Node-Link Map (Avalon Road)
- Figures 9-1 to 9-4 - Pre-Developed Drainage Maps
- Figures 10-1 to 10-4 - Post-Developed Drainage Maps



DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

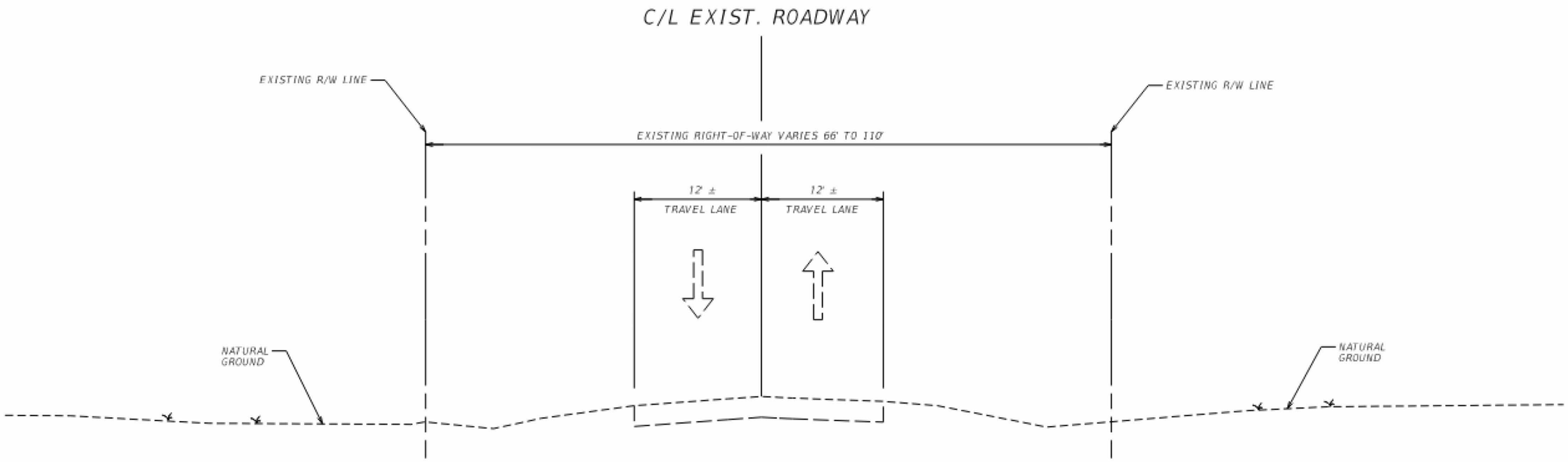
0 500 1,000 2,000 3,000 Feet

N

Date of Aerial Photography: 2023

Figure 1 : Location Map

Avalon Road Existing Typical Section



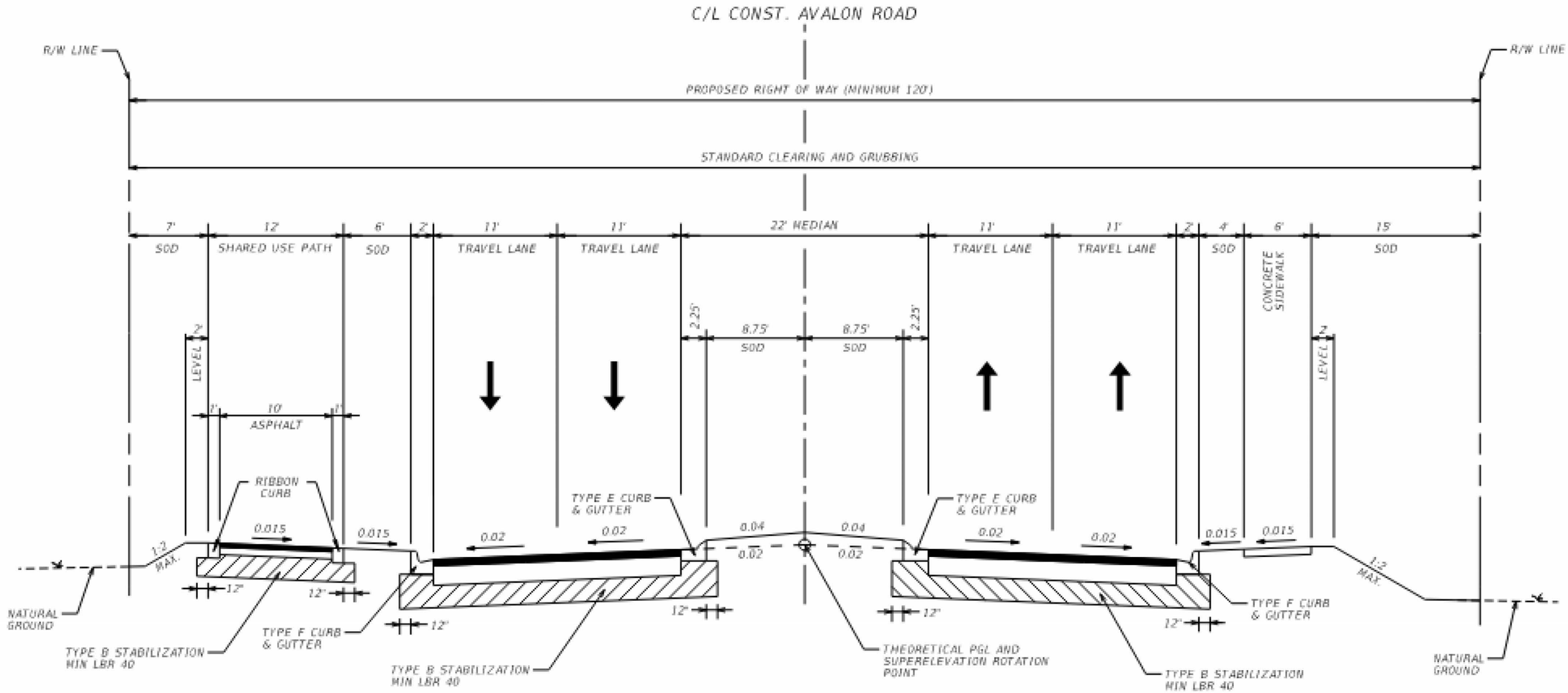
EXISTING TYPICAL SECTION

AVALON ROAD
STA. 207+00.00 TO STA. 285+83.66

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

Figure 2 : Existing Typical Section

Avalon Road Proposed Typical Section



TYPICAL SECTION

AVALON ROAD

STA. 207+00.00 TO STA. 285+83.66

DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

Figure 3 : Proposed Typical Section

Legend

WBID

- 3170F4 - WHITTENHORSE CREEK (NOT IMPAIRED)
- 3170F5 - DAVENPORT CREEK HEADWATERS (NOT IMPAIRED)
- 3170FA - LAKE OLIVER (NOT IMPAIRED)
- 3170FB - LAKE GIFFORD (NOT IMPAIRED)
- 3170FC - REXFORD LAKE (NOT IMPAIRED)
- 3170FD - RACCOON LAKE (NOT IMPAIRED)
- 3170FE - LAKE BRITT (NOT IMPAIRED)
- 3170FF - LAKE OSAGE (NOT IMPAIRED)

END PROJECT

BEGIN PROJECT

Four Corners

Avalon Rd

Field Daisy Dr

Sunny Briar Ave

3170F4

Hartzog Rd

3170FE

Frasier St

Lake Britt

3170FA

Lake Oliver

545

Tollcross Way

Lake Gifford

Lake Gifford Way

Lake Austin

Silver Creek Ct

Back Bay Ct

County Rd

3170F5

Lake Scott

Orange Lake

Orange Lake Blvd

Mudd Lake

Raccoon Lake

Circle Lake

Springer Cir

Orange Lake Resort and Country Club

Rexford Lake

Osage Lake

3170FF

Vista del Lago Blvd

Sugura Dr

Arrowhead Blvd

Apache Lake

Little Lake Osage

Crooked Lake

Town Center Blvd

Summer Bay Blvd

Bali Blvd

Resort Way

US Highway 192

Space Coast Pkwy

W Irlo Bronson Memorial Hwy

192

State of Florida, Vantor, Esri Community Maps Contributors, FDEP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

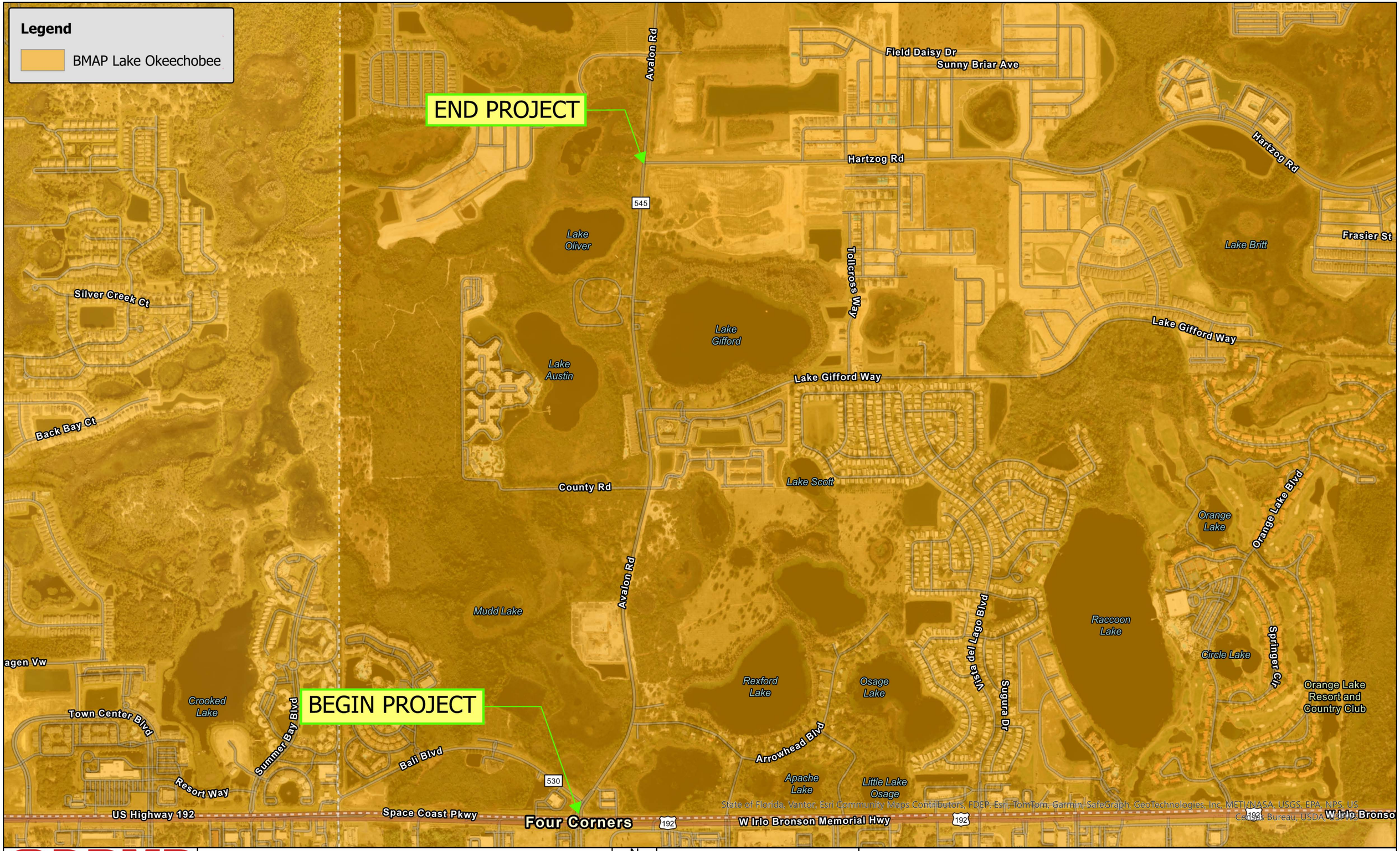
DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

0 500 1,000 2,000 3,000 Feet

N

Date of Aerial Photography: 2023

Figure 4 : Waterbody ID Map



DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

0 500 1,000 2,000 3,000 Feet

N

Date of Aerial Photography: 2023

Figure 5 : BMap

Legend

SOILS

- 15 - Hontoon muck, frequently ponded, 0 to 1 percent slopes
- 16 - Immokalee fine sand, 0 to 2 percent slopes
- 2 - Archold fine sand, 0 to 5 percent slopes
- 20 - Immokalee fine sand
- 3 - Basinger fine sand, frequently ponded, 0 to 1 percent slopes
- 32 - Placid fine sand, frequently ponded, 0 to 1 percent slopes
- 40 - Samsula muck, frequently ponded, 0 to 1 percent slopes
- 42 - Sanibel muck
- 43 - St. Lucie fine sand, 0 to 5 percent slopes
- 46 - Tavares fine sand, 0 to 5 percent slopes
- 47 - Tavares Millhopper fine sands, 0 to 5 percent slopes
- 99 - Water

END PROJECT

BEGIN PROJECT

Avalon Rd
Field Daisy Dr
Sunny Briar Ave
Hartzog Rd
Hartzog Rd
545
Lake Oliver
Tollcross Way
Lake Britt
Frasier St
Silver Creek Ct
Lake Gifford
Lake Gifford Way
Lake Gifford Way
Lake Austin
Back Bay Ct
County Rd
Lake Scott
Orange Lake Blvd
Orange Lake
Avalon Rd
Mudd Lake
Raccoon Lake
Springer Cir
Circle Lake
agen Vw
Rexford Lake
Osage Lake
Vista del Lago Blvd
Sugura Dr
Orange Lake Resort and Country Club
Crooked Lake
Town Center Blvd
Summer Bay Blvd
Bali Blvd
Arrowhead Blvd
Resort Way
530
Apache Lake
Little Lake Osage
US Highway 192
Space Coast Pkwy
Four Corners
192
W Irlo Bronson Memorial Hwy
192
192
W Irlo Bronso

State of Florida, Vantor, Esri Community Maps Contributors, FDEP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

0 500 1,000 2,000 3,000 Feet

N

Date of Aerial Photography: 2023

Figure 6.1 : Soils Map

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

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.

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: Orange County, Florida
Survey Area Data: Version 22, Sep 2, 2025

Soil Survey Area: Osceola County, Florida
Survey Area Data: Version 23, Aug 28, 2025

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 6, 2022—Mar 21, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2	Archbold fine sand, 0 to 5 percent slopes	A	16.7	40.4%
3	Basinger fine sand, frequently ponded, 0 to 1 percent slopes	A/D	2.9	6.9%
20	Immokalee fine sand	B/D	5.5	13.2%
40	Samsula muck, frequently ponded, 0 to 1 percent slopes	A/D	0.0	0.1%
42	Sanibel muck	A/D	2.5	6.1%
46	Tavares fine sand, 0 to 5 percent slopes	A	13.1	31.7%
47	Tavares-Millhopper fine sands, 0 to 5 percent slopes	A	0.6	1.4%
Subtotals for Soil Survey Area			**41.2**	**99.7%**
Totals for Area of Interest			**41.4**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
43	St. Lucie fine sand, 0 to 5 percent slopes	A	0.1	0.3%
Subtotals for Soil Survey Area			**0.1**	**0.3%**
Totals for Area of Interest			**41.4**	**100.0%**

FIGURE 6.3

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
2	Archbold fine sand, 0 to 5 percent slopes	129	16.7	40.4%
3	Basinger fine sand, frequently ponded, 0 to 1 percent slopes	0	2.9	6.9%
20	Immokalee fine sand	20	5.5	13.2%
40	Samsula muck, frequently ponded, 0 to 1 percent slopes	0	0.0	0.1%
42	Sanibel muck	0	2.5	6.1%
46	Tavares fine sand, 0 to 5 percent slopes	127	13.1	31.7%
47	Tavares-Millhopper fine sands, 0 to 5 percent slopes	145	0.6	1.4%
Subtotals for Soil Survey Area			**41.2**	**99.7%**
Totals for Area of Interest			**41.4**	**100.0%**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
43	St. Lucie fine sand, 0 to 5 percent slopes	>200	0.1	0.3%
Subtotals for Soil Survey Area			**0.1**	**0.3%**
Totals for Area of Interest			**41.4**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

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.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

FIGURE 6.4

Legend

Flood Zone

- Zone A
- Zone AE
- Zone AH
- Zone X

END PROJECT

BEGIN PROJECT

Four Corners

EL 110.8 · EL 107.7 · EL 114.7 · EL 114.1 · EL 113.9 · EL 109.9 · EL 114.7 · EL 114.7 · EL 114.7 · EL 114.9 · EL 105.0 · EL 113.1 · EL 108.0 · EL 118.0 · EL 117.6 · EL 117.6 · EL 113.3 · EL 106.0 · EL 105.0 · EL 105.0 · EL 117.0 · EL 116.0 · EL 112.3 · EL 112.3 · EL 112.8 · EL 112.0 · EL 114.8 · EL 113.1 · EL 111.3 · EL 109.6 · EL 113.2 · EL 105.0 · EL 112.0 · EL 116.0 · EL 117.6 · EL 111.3 · EL 112.4 · EL 111.4 · EL 104.9

Avalon Rd · Hartzog Rd · Field Daisy Dr · Sunny Briar Ave · Frasier St · Tollcross Way · Lake Gifford Way · Lake Gifford Way · Silver Creek Ct · Back Bay Ct · County Rd · Avalon Rd · Orange Lake Blvd · Springer Cir · Vista del Lago Blvd · Sugura Dr · Arrowhead Blvd · Summer Bay Blvd · Town Center Blvd · Resort Way · US Highway 192 · Space Coast Pkwy · W Irlo Bronson Memorial Hwy

Lake Oliver · Lake Britt · Lake Gifford · Lake Austin · Lake Scott · Mudd Lake · Raccoon Lake · Circle Lake · Orange Lake · Rexford Lake · Osage Lake · Apache Lake · Little Lake Osage · Crooked Lake

Orange Lake Resort and Country Club

545 · 530 · 192 · 192 · 193

State of Florida, Vantor, Esri Community Maps Contributors, FDEP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

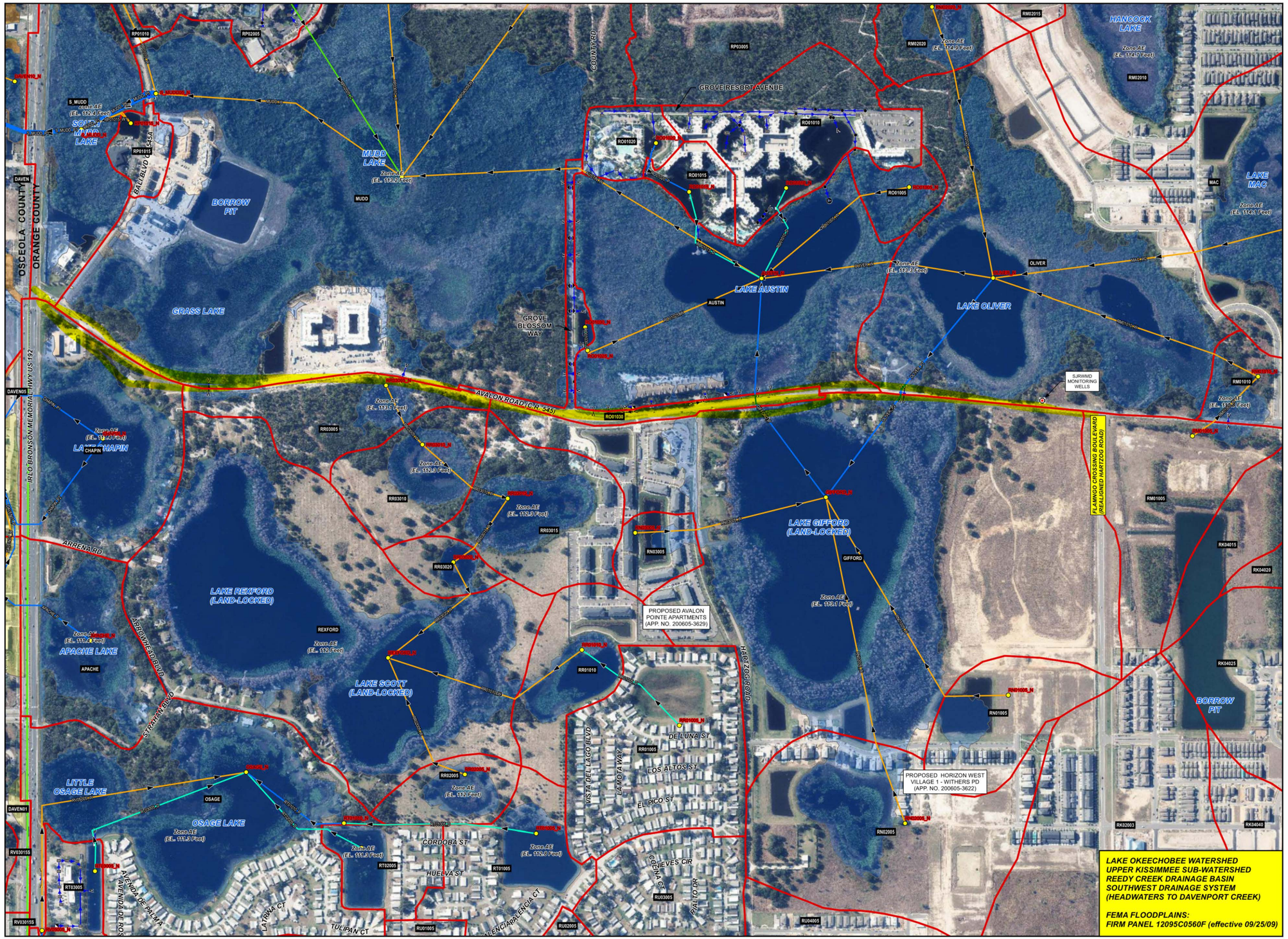
DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

0 500 1,000 2,000 3,000 Feet

N

Date of Aerial Photography: 2023

Figure 7 : Floodplain Map

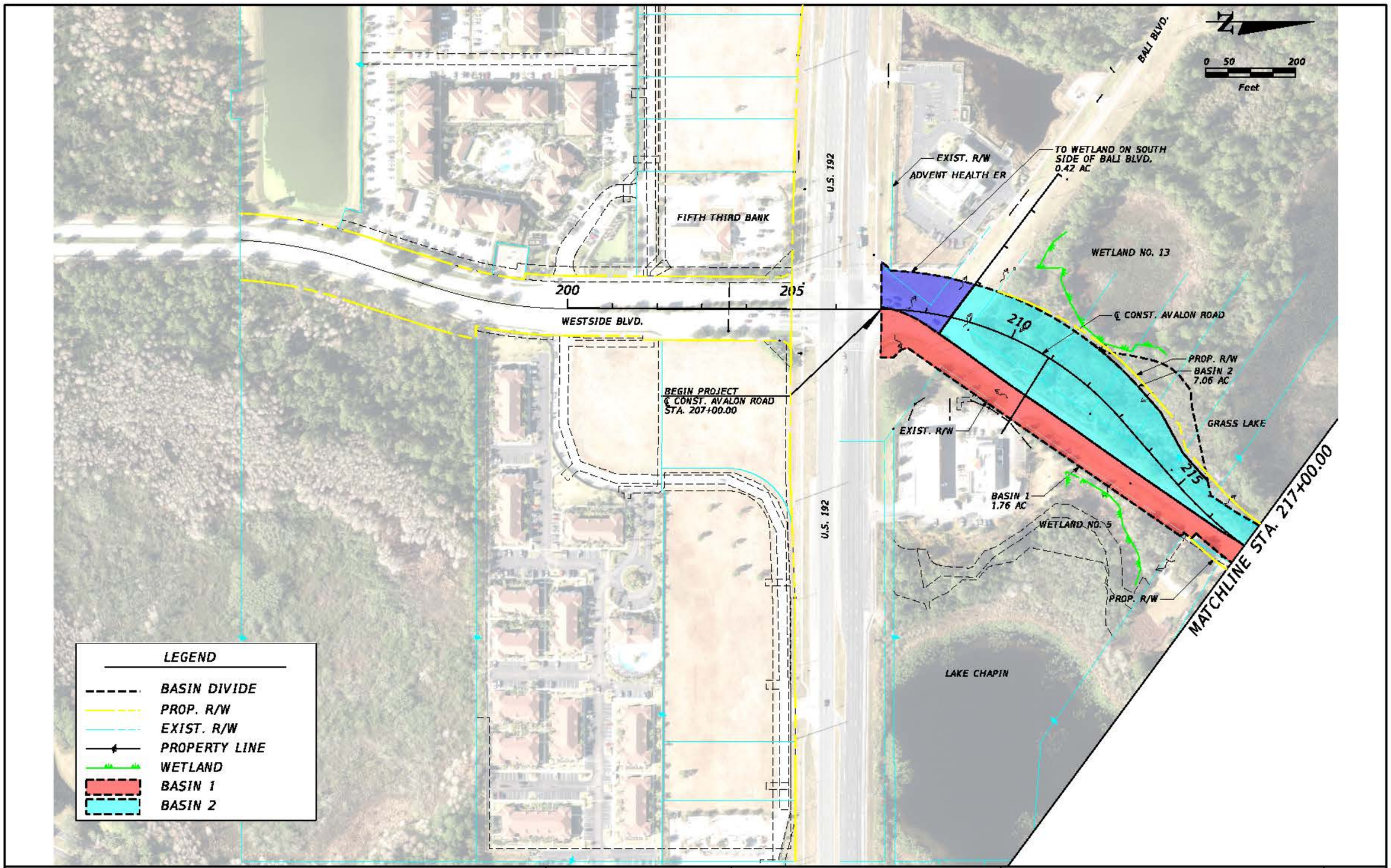


DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

N

Date of Aerial Photography: 2023

Figure 8: Reedy Creek Node Link Map (Avalon Road)



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DRMP

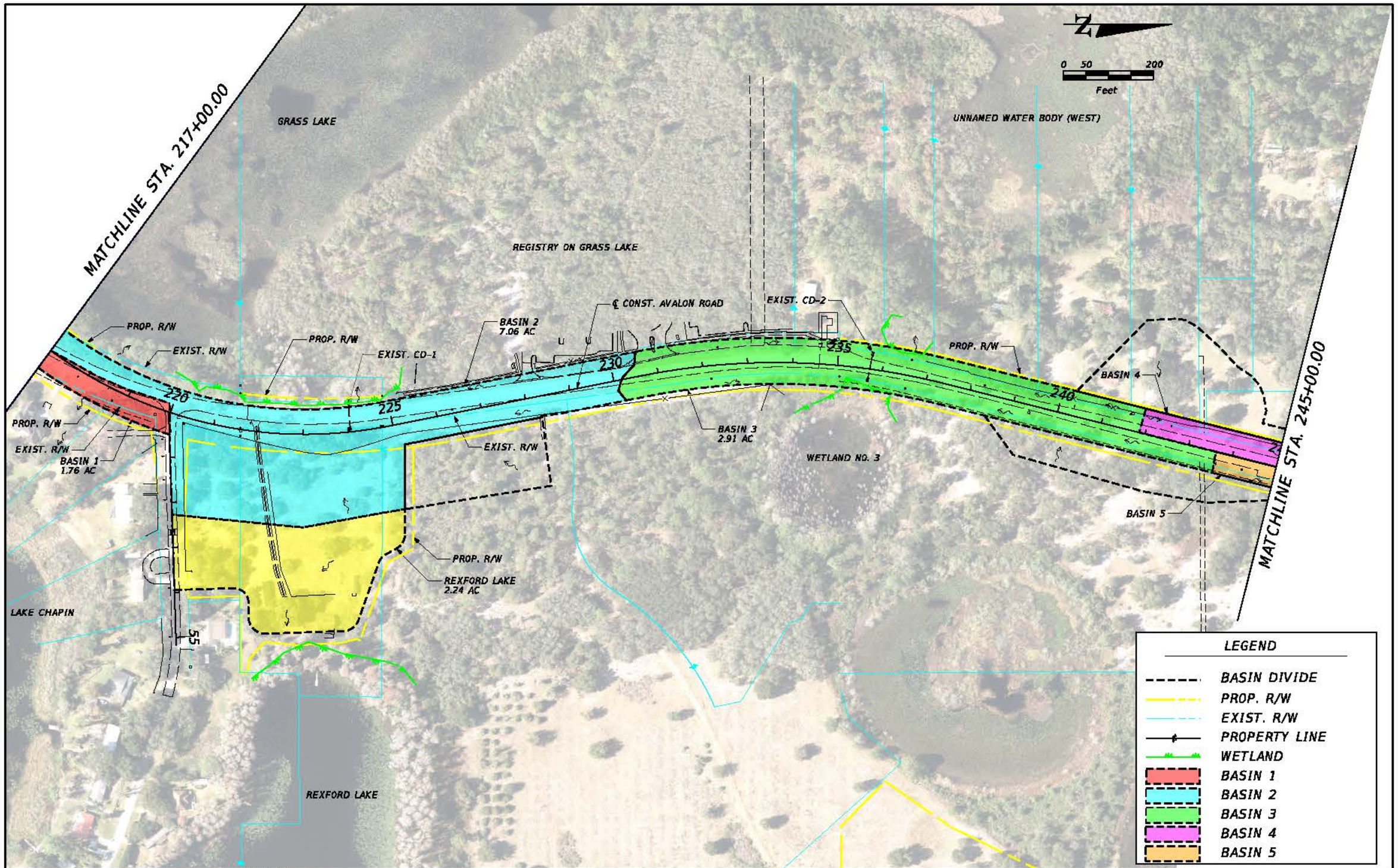
ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

EXISTING DRAINAGE MAPS (1)

SHEET NO.

Kyra.Partridge 4/1/2026 5:42:28 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR02_Pre Sheets.dgn



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DRMP

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

EXISTING DRAINAGE MAPS (2)

SHEET NO.

Kyra.Partridge 4/1/2026 5:42:46 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR02_Pre Sheets.dgn

LEGEND

- BASIN DIVIDE
- PROP. R/W
- EXIST. R/W
- PROPERTY LINE
- WETLAND
- BASIN 4
- BASIN 5
- BASIN 6

0 50 200 Feet

LAKE AUSTIN

GROVE BLOSSOM WAY

MATCHLINE STA. 245+00.00

MATCHLINE STA. 272+00.00

EXIST. R/W

PROP. R/W

WETLAND NO. 10

WETLAND NO. 9

THE PALISADES CONDOMINIUMS

BASIN 4
2.83 AC

BASIN 5
3.50 AC

BASIN 6
7.84 AC

250

255

260

265

270

45

55

E. HAMPSTEAD RD.

AVALON POINTE
PROSE

LAKE GIFFORD

LAKE GIFFORD WAY

UNNAMED WETLAND (EAST)

PROSE HORIZONS VILLAGE

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DRMP

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

EXISTING DRAINAGE MAPS (3)

SHEET NO.

Kyra.Partridge 4/1/2026 5:42:57 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR002_Pre Sheets.dgn

0 50 200
Feet

LAKE OLIVER

PROP. R/W

EXIST. R/W

BASIN 7
1.38 AC

WETLAND NO. 8

WETLAND NO. 7

275

280

285

290

295

EXIST. CD-3

PROP. R/W

EXIST. R/W

BASIN 6
7.84 AC

WETLAND 7
0.14 AC

END PROJECT
℄ CONST. AVALON ROAD
STA. 285+83.66

MATCHLINE STA. 272+00.00

HARTZOG RD

LAKE GIFFORD

LEGEND

- BASIN DIVIDE
- PROP. R/W
- EXIST. R/W
- PROPERTY LINE
- WETLAND
- BASIN 6
- BASIN 7

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DRMP

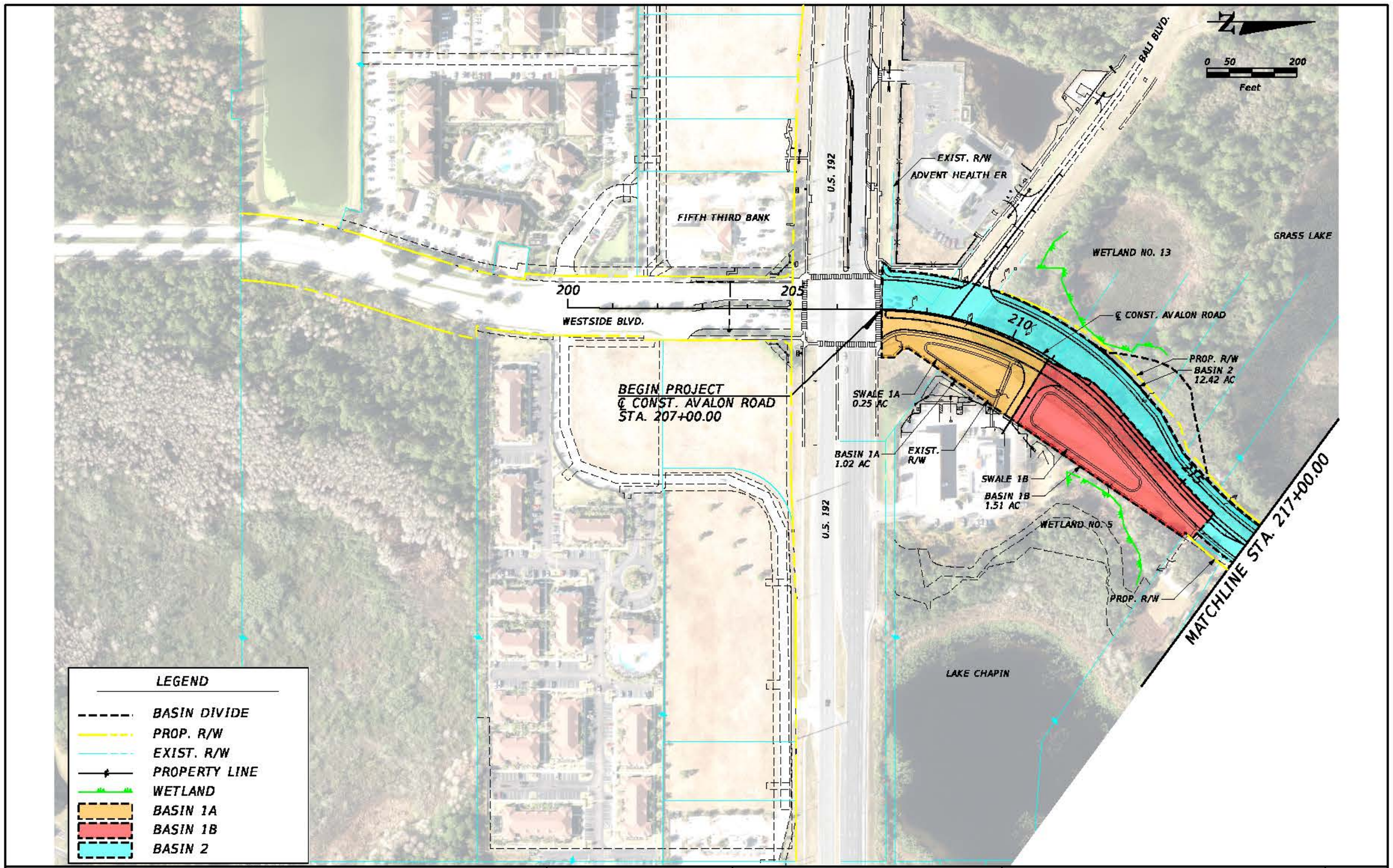
ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

EXISTING DRAINAGE MAPS (4)

SHEET NO.

Kyra.Partridge 4/1/2026 5:43:15 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR002_Pre Sheets.dgn



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DRMP

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

PROPOSED DRAINAGE MAPS (1)

SHEET NO.

Kyra.Partridge 4/1/2026 5:52:20 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR003_Post Sheets.dgn

GRASS LAKE

REGISTRY ON GRASS LAKE

UNNAMED WATER BODY (WEST)

MATCHLINE STA. 217+00.00

MATCHLINE STA. 245+00.00

℄ CONST. AVALON ROAD

PROP. R/W

EXIST. R/W

EXIST. CD-1

EXIST. CD-2

BASIN 2
12.42 AC

WETLAND NO. 3

POND 2A
4.4 AC

LAKE CHAPIN

55'

0 50 200
Feet

LEGEND

- BASIN DIVIDE
- PROP. R/W
- EXIST. R/W
- PROPERTY LINE
- WETLAND
- BASIN 2

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

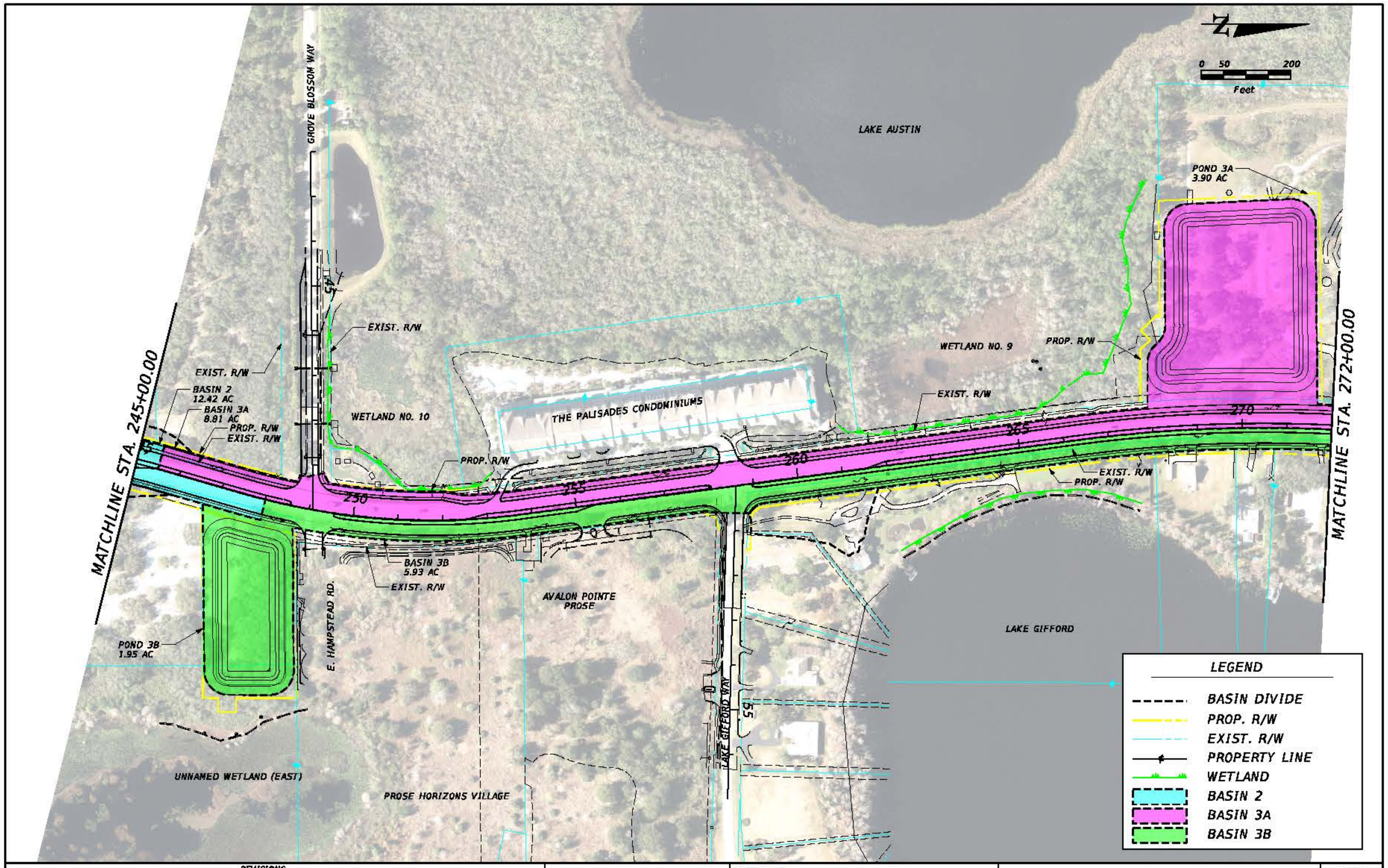
DRMP

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

PROPOSED DRAINAGE MAPS (2)

SHEET NO.

Kyra.Partridge 4/1/2026 5:52:42 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR003_Post Sheets.dgn



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DRMP

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

PROPOSED DRAINAGE MAPS (3)

SHEET NO.

Kyra.Partridge 4/1/2026 5:53:30 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR003_Post Sheets.dgn

N

0 50 200
Feet

LAKE OLIVER

PROP. R/W

COMPENSATION STORAGE POND NO. 1

EXIST. R/W

BASIN 3A
8.81 AC

WETLAND NO. 8

WETLAND NO. 7

EXIST. CD-3

BASIN 3B
5.93 AC

PROP. R/W

EXIST. R/W

MATCHLINE STA. 272+00.00

END PROJECT
℄ CONST. AVALON ROAD
STA 255+83.66

HARTZOG RD

LAKE GIFFORD

LEGEND

- BASIN DIVIDE
- PROP. R/W
- EXIST. R/W
- PROPERTY LINE
- WETLAND
- BASIN 3A
- BASIN 3B

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DRMP

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY PUBLIC WORKS
ENGINEERING DIVISION
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7908

PROPOSED DRAINAGE MAPS (4)

SHEET NO.

Kyra.Partridge 4/1/2026 5:53:48 PM Default C:\Users\Kyra.Partridge\Downloads\avalon\01 Design Files\DRMPR003_Post Sheets.dgn

Appendix B

- SMF Engineering Summary Table
    - SMF Evaluation Matrix

POND SITES EVALUATION

SMF ENGINEERING SUMMARY TABLE

Pond Selections	Basin for Stormwater Treatment Pond/ Floodplain Impact Area for FPC	Location		Existing Ground Elevation (ft)	Soil Names & Hydrologic Groups		Impaired Water Body	BMAP	Wet Detention / Dry Retention	Open / Closed Conveyance System	Estimated SHWT Elevation (ft)	Lowest Edge of Existing Roadway (ft)	Distance From Lowest Edge of Proposed Roadway (ft)	Allowable DHW (ft)	Estimated Allowable Treatment & Attenuation Depth (ft)	Outfall Location	Roadway Drainage Area (ac)	Required Treatment Volume (ac-ft)	Provided Treatment Volume (ac- ft)
		Station	Parcel Number		HSG	Soil Name	YES/NO	YES/NO											
Pond 2A	Basins 1A, 1B, 2	220+00 to 225+00 (Right)	272431000000009, 272431000000063, & 272431030604011	112.1 - 115.1	A	Archbold Fine Sand, Sanibel muck	NO	YES	Wet Detention	Closed	110.20	114.15	4000	112.50	2.30	Grass Lake	12.42 (14.95 total)	1.13	1.21
Storage Swale 1A	Provide Storage for Basin 1A, routed to Pond 2A for Treatment	208+00 to 210+00 (Right)	(Within R/W)	114.0 - 115.0	A	Archbold Fine Sand	NO	YES	N/A	Closed	108.00	114.00	0	-	0.5	Pond 2A, Grass Lake	1.02	-	-
Storage Swale 1B	Provide Storage for Basin 1B, routed to Pond 2A for Treatment	211+00 to 214+00 (Right)	(Within R/W)	114.0 - 115.0	A	Archbold Fine Sand	NO	YES	N/A	Closed	108.00	113.90	0	-	0.5	Pond 2A, Grass Lake	1.51	-	-
Pond 2B	Basins 1A, 1B, 2	220+00 to 225+00 (Right)	272431030604011	Insufficient Data	A	Tavares Fine Sand, Sanibel muck	NO	YES	Wet Detention	Closed	108.50	114.15	5250	-	-	Grass Lake	14.95	1.13	-
Pond 3A	Basin 3A	268+00 to 272+00 (Left)	272430000000023, & 272431000000051	113-117.4	A	Tavares Fine Sand, Sanibel muck, Immokalee Fine sand	NO	YES	Wet Detention	Closed	111.60	114.15	1500	113.50	1.90	Lake Austin	8.81	0.34	0.47
Pond 3B	Basin 3B	244+00 to 248+00 (Right)	272431000000015, 272431000000063, &272431000000012	113.7-117.7	A	Tavares Fine Sand, Archbold Fine Sand, Immokalee Fine sand	NO	YES	Wet Detention	Closed	111.50	115.40	3100	113.50	2.40	Unnamed Wetland & Lake Gifford	5.93	0.68	1.23

SMF Alternatives Evaluation Matrix

SMF Alternative		Land Use							SMF Alternatives Ranking (1 - 5)
	SMF Site (Acres)	Archaeological / Historical Impact Potential	Soils / Geotechnical	Wetland Impacts? (Y/N)	Floodplain Impacts? (Y/N)	Protected Species Impact Potential	Major Utility Conflict Potential (Y/N)	Hazardous Materials & Contamination Potential	
Pond 2A	4.40	Low / None	HSG Type A Soils	No	No	Low	No	Low	1
Storage Swale 1A	N/A	Low / None	HSG Type A Soils	No	No	N/A	No	Low	1
Storage Swale 1B	N/A	Low / None	HSG Type A Soils	No	No	N/A	No	Low	1
Pond 2B	28.40	Low / None	HSG Type A Soils	No	No	High	No	Low	2
Pond 3A	3.90	Low / None	HSG Type A Soils	No	Yes	Moderate	No	Low	1
Pond 3B	2.00	Low / None	HSG Type A Soils	No	No	Moderate	No	Low	1

Appendix C

- Cross Drain Summary Table
- Field Photos

- Wildlife Crossing Location 2 – This location is approximately 1,200 feet south of Grove Blossom Way. Based on the information and analysis presented above and wildlife known to inhabit this area, a wildlife crossing for herptiles (amphibians, reptiles), and small mammals could be supported at this location. Configuration of the components of a wildlife crossing should be determined during final roadway design.

6.0 EXISTING & PROPOSED CONDITIONS

EXISTING CONDITIONS

Basin 1

Basin 1 begins at station 30+00 at the US-192 & Avalon Road intersection extending to station 34+90 at the crown of the Wawa driveway. It also includes offsite area from station 34+90 to 43+90 along the east side of Avalon Road, which sheet flows to a shallow ditch along the east side of Avalon Road where it most likely infiltrates. Any excess runoff eventually stages up before flowing to Lake Chapin, according to the Reedy Creek Master Plan Connectivity Map (**Appendix L**). This basin includes both the northbound and southbound lanes as well as the grassed right-of-way containing 1.72 acres of total right-of-way. The soil in this basin is classified as HSG A with a SHWT depth of 0-2 feet based on web soil survey data.

County LiDAR indicates that Basin 1 ranges in elevation from 112 feet to 115 feet (mean 113.5 feet). Stormwater sheet flows off the road to the roadside ditches where it eventually flows south into the existing FDOT ditch system, which ultimately outfalls to Lake Chapin on the east side of Avalon Road and to an unnamed wetland area between Bali Boulevard and US 192 on the west side of the Avalon Road. Both of these outfalls ultimately discharge towards the Davenport Creek Headwaters, as indicated in the Reedy Creek Master Plan Connectivity Map (**Appendix L**). There is no existing stormwater attenuation or water quality treatment in this basin.



Figure 3 - Roadside ditch facing North (East side of Avalon Road)



Figure 4 - Roadside ditch facing South (East side of Avalon Road)

Basin 2

Basin 2 consists of the paved travel lanes and grassed right-of-way starting at station 34+90 extending to station 72+70. Additionally, offsite area on the east side of Avalon Road between stations 45+80 and 49+50 drains towards the roadway and also contributes to Basin 2. This basin contains 8.03 acres of right-of-way. The soil in this basin is primarily classified as HSG A. The SWHT depth of this basin is 0-2 feet based on web soil surveys data. County LiDAR indicates that Basin 2 ranges in elevation from 112 feet to 115 feet (mean 113.5). Stormwater runoff sheet flows off the road onto the roadside right-of-way flowing towards existing cross drains (CD-1 & CD-2) located at station 47+90 and 59+50 respectively. These cross drains connect the wetlands of Mudd lake, Grass Lake, and Rexford Lake on either side of Avalon Road, allowing overflow to move freely between the wetlands. There is no existing stormwater attenuation or water quality treatment in this basin.



Figure 6 - Existing cross drain (CD-02)



Figure 7 - Roadside ditch facing North

Basin 3A

Basin 3A starts at station 72+70 and extends to 96+00 consisting of the southbound travel lane and western right-of-way. This basin contains 3.18 acres of right-of-way. The soil is classified as HSG A with portions of B/D soil. The SWHT depth of this basin is 0-2 feet based on web soil survey data. County LiDAR indicates that basin 3A ranges in elevation from 113 feet to 116 feet (mean 114.5 feet) Stormwater runoff sheet flows off the road onto the roadside right-of-way running west towards the existing wetlands and ultimately to Lake Austin. There is no existing stormwater attenuation or water quality treatment in this basin.



Figure 8 - Roadside ditch facing North



Figure 9 - Roadside ditch facing South

Basin 3B

Basin 3B starts at station 65+10 extending to 112+40 consisting of the northbound travel lane and eastern right-of-way. This basin contains 7.02 acres of right-of-way. It also contains offsite runoff areas along the east side of Avalon Road at

station 82+80 to 86+80 and station 103+40 to the end of the project limits. The soil is classified as HSG A with portions of B/D soil. The SWHT depth of this basin is 0-2.0 feet based on web soil survey data. County LiDAR indicates that basin 3B ranges in elevation from 113 feet to 116 feet (mean 114.5 feet). Stormwater runoff sheet flows onto the roadside right-of-way running east towards the existing wetlands and ultimately to Lake Gifford. Additional stormwater runoff from a portion of the west side of Avalon Road is conveyed through a ditch to the existing cross drain (CD-3) located at station 97+30. The cross drain connects the west side of Avalon Road to the east side and drains to Lake Gifford. The cross drain also provides connectivity between the wetlands of Lake Austin on the west side of Avalon Road to the wetlands of Lake Gifford on the east side of Avalon Road.



Figure 10 - Roadside facing North



Figure 11 - Roadside ditch facing South



Figure 12 - Existing cross drain (CD-03)

Basin 4

Basin 4 starts at station 99+50 extending to 122+40 consisting of the travel lanes and right-of-way, a total of 1.82 acres of right-of-way. The soil is classified as HSG A. The SWHT depth of this basin is 0-2.0 feet based on web soil survey data. County LiDAR indicates that basin 4 ranges in elevation from 113 feet to 122 feet (mean 117.5 feet). Runoff sheet flows from the west side of Avalon Road to a wetland area and ultimately to Lake Oliver. There is no existing stormwater attenuation or water quality treatment in this basin.



Figure 13 - Roadside facing Northwest towards construction of New Hartzog Road

EXISTING CROSS DRAINS

Three existing cross drains were found during the field review. Table 3, shown below, summarizes the information from each cross drain.

Table 3 - Existing Cross Drain Summary

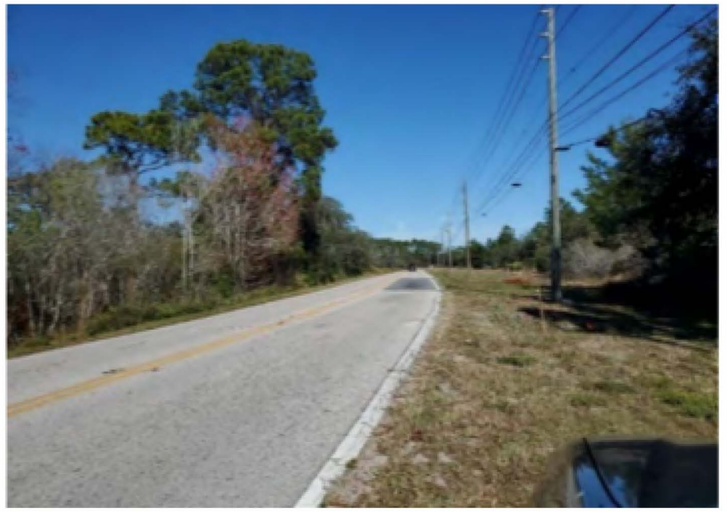
Culvert	Station	Number of Pipes	Size / Type
CD #1	47+90	1	18” RCP
CD #2	59+50	1	18” CMP
CD #3	97+30	2	24” CMP

PROPOSED CONDITIONS

To keep the proposed drainage patterns as similar to the existing conditions as possible, existing outfall locations remain mostly the same in the proposed condition. The main difference is that the existing condition allows roadway runoff to sheet flow to wetlands along Avalon Road. In the proposed condition, the proposed typical includes curb and gutter, which means runoff will be conveyed through storm drainpipes and discharged to treatment ponds at a single point. Basin 1 outfalls to the same FDOT ditch at the northeast corner of the intersection of Avalon Road and US 192. This ditch ultimately drains to Lake Chapin as it did in the existing condition. From here, it drains to the Davenport Creek Headwaters, as indicated in the Reedy Creek Master Drainage Plan Connectivity Map. Basin 2 will be treated with a wet pond, which discharges to a spreader swale, ultimately draining to Rexford Lake. Basins 3A and 3B will also both be treated with wet ponds and discharge spreader swales, ultimately draining to Lake Austin and Lake Gifford respectively. Basin 4 does not exist in the proposed conditions. Due to the limited available space to construct a pond to treat the new impervious from Basin 4, the runoff that once drained to Lake Oliver in Basin 4 is conveyed to Basin 3A in the

CD-1





CD-2



DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

0 500 1,000 2,000 3,000 Feet

N

Date of Aerial Photography: 2023

Figure : CD 1 and 2

CD-3



DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

0 500 1,000 2,000 3,000
Feet

N

Date of Aerial Photography:
2023

Figure : CD-3

Appendix D

- SMF Pre-Developed Hydrology
  - SMF Pre-Developed ICPR

Orange County: Avalon Rd

Pre-Development Hydrology

Basin 1 Station 206+00.00 to 220+00.00

Description: To Lake Chapin

Curve Number

Land Use	Hydrologic Condition	Soil Class	Area (acres)	CN	Product
Open Space	Good	A	1.17	39	45.72
Impervious	Good	A	0.59	98	57.58
		Total =	1.76		103.31
		CN =	59		

Basin 2 Station 209+00.00 to 230+00.00

Description: To Grass Lake & Wetland 13

Curve Number

Land Use	Hydrologic Condition	Soil Class	Area (acres)	CN	Product
Open Space	Good	A	5.77	39	224.88
Impervious	Good	A	1.29	98	126.79
		Total =	7.06		351.67
		CN =	50		

Basin 3 Station 230+00.00 to 243+60.00

Description: To Wetland No. 3 & Unnamed Waterbody (west)

Curve Number

Land Use	Hydrologic Condition	Soil Class	Area (acres)	CN	Product
Open Space	Good	A	1.83	39	71.46
Impervious	Good	A	1.08	98	105.61
		Total =	2.91		177.07
		CN =	61		

Basin 4 Station 242+00.00 to 267+00.00

Description: To Lake Austin

Curve Number

Land Use	Hydrologic Condition	Soil Class	Area (acres)	CN	Product
Open Space	Good	A	1.16	39	45.25
Impervious	Good	A	1.67	98	164.09
		Total =	2.83		209.34
		CN =	74		

Basin 5 Station 243+60.00 to 258+50.00

Description: To Unnamed Wetland (east)

Curve Number

Land Use	Hydrologic Condition	Soil Class	Area (acres)	CN	Product
Open Space	Good	A	2.78	39	108.44
Impervious	Good	A	0.72	98	70.92
		Total =	3.50		179.36
		CN =	51		

Orange County: Avalon Rd

Pre-Development Hydrology

Basin 6 Station 258+50.00 to 284+00.00

Description: To Lake Gifford

Curve Number

Land Use	Hydrologic Condition	Soil Class	Area (acres)	CN	Product
Open Space	Good	A	6.66	39	259.59
Impervious	Good	A	1.18	98	116.02
		Total =	7.84		375.61
		CN =	48		

Basin 7 Station 275+50.00 to 286+00.00

Description: To Lake Oliver

Curve Number

Land Use	Hydrologic Condition	Soil Class	Area (acres)	CN	Product
Open Space	Good	A	0.98	39	38.29
Impervious	Good	A	0.40	98	39.02
		Total =	1.38		77.31
		CN =	56		

Simulation: 100YR-24HR

Scenario: Scenario1
Run Date/Time: 3/26/2026 2:18:10 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	120.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

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

Surface Hydraulics

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

Groundwater

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

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:

Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
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	OF Region Rain Opt:	Global
		Rainfall Name:	~ORANGE
Edge Length Option:	Automatic	Rainfall Amount:	10.40 in
		Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25YR-24HR

Scenario:	Scenario1
Run Date/Time:	3/26/2026 2:18:13 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	120.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

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

Surface Hydraulics

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

Groundwater

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

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
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	OF Region Rain Opt:	Global
		Rainfall Name:	~ORANGE
Edge Length Option:	Automatic	Rainfall Amount:	8.40 in
		Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25YR-72HR

Scenario: Scenario1
Run Date/Time: 3/26/2026 2:18:16 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	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

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

Surface Hydraulics

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

Groundwater

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

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:

Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
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	OF Region Rain Opt:	Global
		Rainfall Name:	~SFWMD-72
Edge Length Option:	Automatic	Rainfall Amount:	9.65 in
		Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simple Basin: Pre Basin 5

Scenario:	Scenario1
Node:	Outfall Pre Basin 5 - Unnamed Wetland (East)
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	3.5000 ac
Curve Number:	49.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment: to Unnamed Wetland East

Simple Basin: Pre Basin 6

Scenario:	Scenario1
Node:	Outfall Pre Basin 6 - Lake Gifford
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	7.8400 ac
Curve Number:	48.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment: to Lake Gifford

Sim	Node Name	Total Inflow Volume [ac_ft]
100YR-24HR	Outfall Pre Basin 5 - Unnamed Wetland (East)	1.08
100YR-24HR	Outfall Pre Basin 6 - Lake Gifford	2.32
25YR-72HR	Outfall Pre Basin 5 - Unnamed Wetland (East)	0.93
25YR-72HR	Outfall Pre Basin 6 - Lake Gifford	2.00

Appendix E

- SMF Post-Developed Hydrology
  - SMF Post-Developed ICPR
- BMP Trains Nutrient Analysis Report

Orange County: Avalon Rd

Post Development Hydrology

Basin 1A Station 207+00.00 to 211+00.00 RT Basin Length = 400.0

Description: To Storage Swale 1A

Curve Number

Land Use	Width	Length	Hydrologic Condition	Soil Class	Area (sq. ft)	Area (acres)	CN	Product
Open Space	14.75	400.0	Good	A	5900	0.14	39	5.28
Open Space: Swale			Good	A		0.36	39	14.01
Driveways			Good		3049	0.07	98	6.86
Travel Lanes	22	400.0	Good		8800	0.20	98	19.80
Sidewalk RT	6	400.0	Good		2400	0.06	98	5.40
Curb/Gutter (Inner & Outer)	6.5	400.0	Good		2600	0.06	98	5.85
					Total=	1.02		57.20
					CN=	56		

Storage Swale to be routed to Pond 2A for treatment

Stage/Storage Swale 1A

	Stage	Area	Inc. Volume	Volume	
Top	113.5	0.25	0.23	0.23	1:4
Bottom	112.5	0.21			

Basin 1B Station 211+00.00 to 216+00.00 RT Basin Length = 500.0
Description: To Storage Swale 1B

Curve Number

Land Use	Width	Length	Hydrologic Condition	Soil Class	Area (sq. ft)	Area (acres)	CN	Product
Open Space	14.75	500.0	Good	A	7375	0.17	39	6.60
Open Space: Swale			Good	A		0.56	39	22.01
Driveways			Good		2779	0.06	98	6.25
Travel Lanes	22	500.0	Good		11000	0.25	98	24.75
Sidewalk RT	6	500.0	Good		3000	0.07	98	6.75
Curb/Gutter (Inner & Outer)	4.25	500.0	Good		2125	0.05	98	4.78
					Total=	1.51		71.14
					CN=	47		

Storage Swale to be routed to Pond 2A for treatment

Stage/Storage Swale 1B

	Stage	Area	Inc. Volume	Volume	
Top	113.4	0.45	0.42	0.42	1:4
Bottom	112.4	0.39			

Orange County: Avalon Rd

Post Development Hydrology

Basin 2	Station	207+00.00	to	245+50.00	LT	Basin Length = 3850.0
Description: To Pond 2A	Station	216+00.00	to	248+00.00	RT	Basin Length = 3200.0
Low point of roadway within basin =		114.15	at	208+00.00		

Curve Number

Land Use	Width	Length	Hydrologic Condition	Soil Class	Area (sq. ft)	Area (acres)	CN	Product
Open Space LT	16.75	3850.0	Good	A	64488	1.48	39	57.74
Open Space RT	14.75	3200.0	Good	A	47200	1.08	39	42.26
Travel Lanes LT	22	3850.0	Good		84700	1.94	98	190.56
Travel Lanes RT	22	3200.0	Good		70400	1.62	98	158.38
Turn Lanes	12	2000	Good		24000	0.55	98	53.99
Transition/Taper Lanes	6	350	Good		2100	0.05	98	4.72
Sidewalk LT	12	3850.0	Good		46200	1.06	98	103.94
Sidewalk RT	6	3200.0	Good		19200	0.44	98	43.20
Curb/Gutter (Inner+Outer) LT	4.25	3850.0	Good		16363	0.38	98	36.81
Curb/Gutter (Inner+Outer) RT	4.25	3200.0	Good		13600	0.31	98	30.60
Pond (NWL)			Good		104039	2.39	100	238.84
Pond Area (Pervious)			Good	A	48774	1.12	39	43.67
					Total=	12.42		1004.71
					CN=	81		

Time of Concentration

PIPE FLOW

Length (ft)=	2400	
Velocity (ft/s)=	2.50	(assumed)
Time of conc. (hr)=	0.433	= 26 min

Water Quantity: Limiting Discharge

Total Attenuated Area =	14.95	acres
0.105 cfs/ac =	1.57	cfs
0.50 cfs/ac =	7.48	cfs

Water Quality Volumes Treatment to be provided for storage swales 1A & 1B routed to Pond 2A

Pre-Development Impervious Area =	3.6	acres	
Post-Development Impervious Area =	7.2	acres	(Sum of impervious from Basins 1A, 1B, & 2A)
New Impervious Area =	**3.62**	acres	
2.5 in. of runoff from new impervious area =	0.75	ac-ft	
* 1.5 Per BMAP Criteria =	**1.13**	**ac-ft**	

Stage/Storage Pond 2A

	Stage	Area	Inc. Volume	Volume	
Top of Berm	113.5	3.51	0.00	8.58	1:4
Bottom of Berm	113.5	2.81	4.07	8.58	
	112.0	2.62	3.30	4.51	
Proposed Weir Elevation	**110.7**	2.45	1.21	1.21	
NWL	110.2	2.39			
	110.2	2.39	4.96	16.64	
	108.0	2.12	11.69	11.69	1:2
Bottom	102.0	1.78			

SHGWT = 110.2

Orange County: Avalon Rd

Post Development Hydrology

Basin 3B Station 248+00.00 to 285+40.00 RT Basin Length = 3740.0

Description: To Pond 3B

Low point of roadway within basin = 115.40 at 279+00.00

Curve Number

Land Use	Width	Length	Hydrologic Condition	Soil Class	Area (sq. ft)	Area (acres)	CN	Product
Open Space	14.75	3740.0	Good	A	55165	1.27	39	49.39
Travel Lanes	22	3740.0	Good	B	82280	1.89	98	185.11
Turn Lanes	12	650	Good	A	7800	0.18	98	17.55
Transition/Taper Lanes	6	135	Good	A	810	0.02	98	1.82
Sidewalk RT	6	3740.0	Good	A	22440	0.52	98	50.48
Curb/Gutter (Inner+Outer) RT	4.25	3740.0	Good	A	15895	0.36	98	35.76
Pond (NWL)			Good	A	42898	0.98	100	98.48
Pond Area (Pervious)			Good	A	31185	0.72	39	27.92
					Total=	5.93		466.52
					CN=	79		

Time of Concentration

PIPE FLOW

Length (ft)= 3600

Velocity (ft/s)= 2.50 (assumed)

Time of conc. (hr)= 0.567 = 34 min

Water Quantity: Limiting Discharge

Total Attenuated Area = 5.93 acres

0.105 cfs/ac = 0.62 cfs

0.50 cfs/ac = 2.97 cfs

Water Quality Volumes

Pre-Development Impervious Area = 0.8 acres

Post-Development Impervious Area = 3.0 acres

New Impervious Area = **2.17** acres

2.5 in. of runoff from new impervious area = 0.45 ac-ft

* 1.5 Per BMAP Criteria = **0.68** **ac-ft**

Stage/Storage Pond 3B

	Stage	Area	Inc. Volume	Volume	
Top of Berm	114.5	1.70	0.00	3.75	1:4
Bottom of Berm	114.5	1.24	2.52	3.75	
Proposed Weir Elevation	**112.3**	1.06	1.23	1.23	
NWL	111.1	0.98			
	111.1	0.98	1.45	6.08	1:2
	109.5	0.83	4.63	4.63	
Bottom	103.0	0.60			
	SHGWT =	111.5			

Orange County: Avalon Rd
Post Development Hydrology

Basin 3A	Station	245+50.00	to	286+28.00	LT	Basin Length = 4078.0
Description: To Pond 3A						
Low point of roadway within basin =		114.15	at	279+00.00		

Curve Number

Land Use	Width	Length	Hydrologic Condition	Soil Class	Area (sq. ft)	Area (acres)	CN	Product
Open Space	16.75	4078.0	Good	A	68307	1.57	39	61.16
Travel Lanes	22	4078.0	Good	B	89716	2.06	98	201.84
Turn Lanes	12	1075	Good	A	12900	0.30	98	29.02
Transition/Taper Lanes	6	150	Good	A	900	0.02	98	2.02
Sidewalk LT	12	4078.0	Good	A	48936	1.12	98	110.09
Curb/Gutter (Inner+Outer) LT	4.25	4078.0	Good	A	17332	0.40	98	38.99
Pond (NWL)			Good	A	101495	2.33	100	233.00
Pond Area (Pervious)			Good	A	43996	1.01	39	39.39
					Total=	8.81		715.52
					CN=	81		

Time of Concentration

PIPE FLOW

Length (ft)=	1700	
Velocity (ft/s)=	2.50	(assumed)
Time of conc. (hr)=	0.356	= 21 min

Water Quantity: Limiting Discharge

Total Attenuated Area =	8.81	acres
0.105 cfs/ac =	0.92	cfs
0.50 cfs/ac =	4.40	cfs

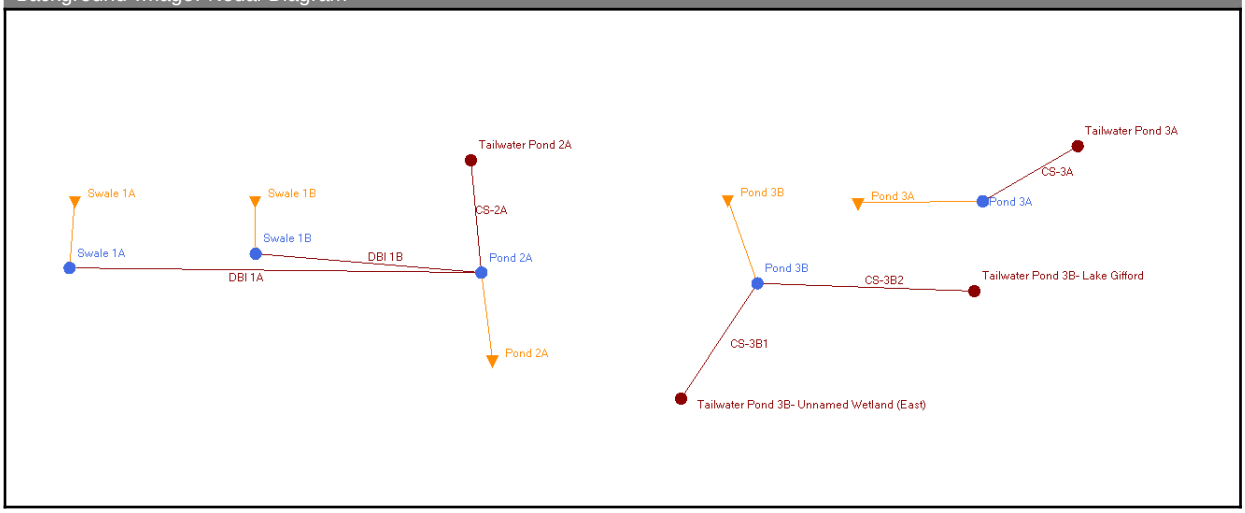
Water Quality Volumes

Pre-Development Impervious Area =	2.8	acres
Post-Development Impervious Area =	3.9	acres
New Impervious Area =	**1.10**	acres
2.5 in. of runoff from new impervious area =	0.23	ac-ft
* 1.5 Per BMAP Criteria =	**0.34**	**ac-ft**

Stage/Storage Pond 3A

	Stage	Area	Inc. Volume	Volume	
Top of Berm	114.5	3.34	0.00	7.28	1:4
Bottom of Berm	114.5	2.69	6.81	7.28	
Proposed Weir Elevation	**111.80**	2.35	0.47	0.47	
NWL	111.6	2.33			
	111.6	2.33	4.64	15.28	
	109.5	2.09	10.64	10.64	1:2
Bottom	104.0	1.78			
	SHGWT =	111.6			

Background Image: Nodal Diagram



Simulation: 100YR-24HR

Scenario:	Scenario1
Run Date/Time:	3/26/2026 1:48:11 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	120.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

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

Surface Hydraulics

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

Groundwater

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

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
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	OF Region Rain Opt:	Global
		Rainfall Name:	~ORANGE
Edge Length Option:	Automatic	Rainfall Amount:	10.40 in
		Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25YR-24HR

Scenario: Scenario1
Run Date/Time: 3/26/2026 1:48:14 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	120.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

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

Surface Hydraulics

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

Groundwater

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

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
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	OF Region Rain Opt:	Global
		Rainfall Name:	~ORANGE
Edge Length Option:	Automatic	Rainfall Amount:	8.40 in
		Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25YR-72HR

Scenario: Scenario1
Run Date/Time: 3/26/2026 1:48:17 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	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

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

Surface Hydraulics

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

Groundwater

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

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
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	OF Region Rain Opt:	Global
		Rainfall Name:	~SFWMD-72
Edge Length Option:	Automatic	Rainfall Amount:	9.65 in
		Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simple Basin: Pond 2A

Scenario: Scenario1

Node:	Pond 2A
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	26.0000 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	12.4200 ac
Curve Number:	81.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Pond 3A

Scenario:	Scenario1
Node:	Pond 3A
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	21.0000 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	8.8100 ac
Curve Number:	81.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Pond 3B

Scenario:	Scenario1
Node:	Pond 3B
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	34.0000 min
Max Allowable Q:	999.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	5.9930 ac
Curve Number:	79.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Swale 1A

Scenario:	Scenario1
Node:	Swale 1A
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	1.0200 ac
Curve Number:	56.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Swale 1B

Scenario:	Scenario1
Node:	Swale 1B
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	1.5100 ac
Curve Number:	47.0

Ia/S: 0.00
% Impervious: 0.00
% DCIA: 0.00
% Direct: 0.00
Rainfall Name:

Comment:

Node: Pond 2A

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 110.20 ft
Warning Stage: 112.50 ft
Alert Stage: 112.50 ft

Stage [ft]	Area [ac]	Area [ft2]
113.50	2.8100	122404
112.00	2.6200	114127
110.20	2.3900	104108
108.00	2.1200	92347
102.00	1.7800	77537

Comment: NWL = 110.2
Max outflow from Pond 2A
< 1.57 cfs (.105 cfs/ac)
<7.48 cfs (.5 cfs/ac)

Node: Pond 3A

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 111.60 ft
Warning Stage: 113.50 ft
Alert Stage: 113.50 ft

Stage [ft]	Area [ac]	Area [ft2]
114.50	2.6900	117176
111.60	2.3300	101495
109.50	2.0900	91040
104.00	1.7800	77537

Comment: NWL = 111.6
Max outflow from Pond 3A
< 0.92 cfs (0.105 cfs/ac)

<4.40 cfs (0.5 cfs/ac)

Node: Pond 3B

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 111.10 ft
Warning Stage: 113.50 ft
Alert Stage: 113.50 ft

Stage [ft]	Area [ac]	Area [ft2]
114.50	1.2400	54014
111.10	0.9800	42689
109.50	0.8300	36155
103.00	0.6000	26136

Comment: NWL = 111.1
Max outflow from Pond 3B
< 0.62 cfs (0.105 cfs/ac)
< 2.97 cfs (0.5 cfs/ac)

Node: Swale 1A

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 112.50 ft
Warning Stage: 113.00 ft
Alert Stage: 113.00 ft

Stage [ft]	Area [ac]	Area [ft2]
113.50	0.2300	10019
112.50	0.2100	9148

Comment: Storage swale south of WAWA driveway

Node: Swale 1B

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 112.40 ft
Warning Stage: 112.90 ft
Alert Stage: 112.90 ft

Stage [ft]	Area [ac]	Area [ft2]
113.40	0.4500	19602
112.40	0.3900	16988

Comment: Storage swale north of WAWA driveway

Node: Tailwater Pond 2A

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 110.10 ft
Warning Stage: 113.80 ft
Alert Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	110.10
0	0	0	30.0000	110.40
0	0	0	60.0000	111.00
0	0	0	90.0000	111.60
0	0	0	120.0000	111.65
0	0	0	150.0000	111.65
0	0	0	180.0000	111.90
0	0	0	210.0000	111.90
0	0	0	240.0000	111.90

Comment: Grass Lake

Node: Tailwater Pond 3A

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 111.70 ft
Warning Stage: 114.20 ft
Alert Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	111.70
0	0	0	40.0000	111.75
0	0	0	70.0000	113.30
0	0	0	80.0000	113.20
0	0	0	120.0000	112.80
0	0	0	160.0000	112.70

Year	Month	Day	Hour	Stage [ft]
0	0	0	200.0000	112.65
0	0	0	240.0000	112.65
0	0	0	280.0000	112.65

Comment: Lake Austin

Node: Tailwater Pond 3B- Lake Gifford

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 111.10 ft
Warning Stage: 114.30 ft
Alert Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	111.10
0	0	0	40.0000	111.20
0	0	0	90.0000	113.10
0	0	0	120.0000	112.80
0	0	0	160.0000	112.70
0	0	0	200.0000	112.65
0	0	0	240.0000	112.65
0	0	0	280.0000	112.65

Comment: Lake Gifford

Node: Tailwater Pond 3B- Unnamed Wetland (East)

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 111.10 ft
Warning Stage: 114.30 ft
Alert Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	111.10
0	0	0	40.0000	111.20
0	0	0	90.0000	113.10
0	0	0	120.0000	112.80
0	0	0	160.0000	112.70
0	0	0	200.0000	112.65
0	0	0	240.0000	112.65

Year	Month	Day	Hour	Stage [ft]
0	0	0	280.0000	112.65

Comment: Unnamed Wetland (East)

Drop Structure Link: CS-2A		Upstream Pipe		Downstream Pipe	
Scenario:	Scenario1	Invert:	108.00 ft	Invert:	107.00 ft
From Node:	Pond 2A	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Tailwater Pond 2A	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 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:	100.00 ft	Top Clip			
FHWA Code:	0	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 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Horizontal	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	112.50 ft	Ref Node:	
Control Elevation:	112.50 ft	Discharge Coefficients	
Max Depth:	3.08 ft	Weir Default:	3.200
Max Width:	4.08 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Grate: FDOT DBI Type D

Weir Component		Bottom Clip	
Weir:	2	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	None	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Circular		

Invert:	110.20 ft
Control Elevation:	110.20 ft
Max Depth:	0.24 ft

Op Table:	
Ref Node:	

Discharge Coefficients

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

Weir Comment: Orifice 2.875" Diameter (minimum)

Weir Component

Weir:	3
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Rectangular
Invert:	110.70 ft
Control Elevation:	110.70 ft
Max Depth:	2.70 ft
Max Width:	0.70 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: Proposed Slot

Drop Structure Comment:

Drop Structure Link: CS-3A

Scenario:	Scenario1
From Node:	Pond 3A
To Node:	Tailwater Pond 3A
Link Count:	1
Pipe Flow Direction:	Both
Solution:	Combine
Increments:	0
Pipe Count:	1
Damping:	0.0000 ft
Length:	100.00 ft
FHWA Code:	0
Entr Loss Coef:	0.50
Exit Loss Coef:	0.50
Bend Loss Coef:	0.00
Bend Location:	0.00 dec
Energy Switch:	Energy

Upstream Pipe

Invert:	108.00 ft
Manning's N:	0.0120

Geometry: Circular

Max Depth:	2.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Downstream Pipe

Invert:	107.00 ft
Manning's N:	0.0120

Geometry: Circular

Max Depth:	2.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Pipe Comment:

Weir Component	
Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Horizontal
Geometry Type:	Rectangular
Invert:	113.50 ft
Control Elevation:	113.50 ft
Max Depth:	3.08 ft
Max Width:	4.08 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: Grate: FDOT DBI Type D

Weir Component	
Weir:	2
Weir Count:	1
Weir Flow Direction:	None
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Circular
Invert:	110.00 ft
Control Elevation:	110.00 ft
Max Depth:	0.24 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: Orifice 2.875" Diameter (minimum)

Weir Component	
Weir:	3
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Rectangular
Invert:	111.80 ft
Control Elevation:	111.80 ft
Max Depth:	1.80 ft
Max Width:	0.80 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:

Drop Structure Link: CS-3B1		Upstream Pipe		Downstream Pipe	
Scenario:	Scenario1	Invert:	109.00 ft	Invert:	108.00 ft
From Node:	Pond 3B	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Tailwater Pond 3B-Unnamed Wetland (East)	Geometry: Circular		Geometry: Circular	
		Max Depth:	1.50 ft	Max Depth:	1.50 ft
		Bottom Clip			
Link Count:	1	Default:	0.00 ft	Default:	0.00 ft
Pipe Flow Direction:	Both	Op Table:		Op Table:	
Solution:	Combine	Ref Node:		Ref Node:	
Increments:	0	Manning's N:	0.0000	Manning's N:	0.0000
Pipe Count:	1	Top Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	100.00 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.50				
Bend Loss Coef:	0.00				
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Horizontal	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	113.50 ft	Ref Node:	
Control Elevation:	113.50 ft	Discharge Coefficients	
Max Depth:	3.08 ft	Weir Default:	3.200
Max Width:	4.08 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Grate: FDOT DBI Type D

Weir Component		Bottom Clip	
Weir:	2	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	None	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Circular	Op Table:	
Invert:	111.50 ft	Ref Node:	
Control Elevation:	109.00 ft	Discharge Coefficients	
Max Depth:	0.24 ft	Weir Default:	3.200
		Weir Table:	
		Orifice Default:	0.600

Orifice Table:	

Weir Comment: Orifice 2.875" Diameter (minimum)

Weir Component	
Weir:	3
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Rectangular
Invert:	112.70 ft
Control Elevation:	112.70 ft
Max Depth:	0.80 ft
Max Width:	0.30 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:

Drop Structure Link: CS-3B2	
Scenario:	Scenario1
From Node:	Pond 3B
To Node:	Tailwater Pond 3B-Lake Gifford
Link Count:	1
Pipe Flow Direction:	Both
Solution:	Combine
Increments:	0
Pipe Count:	1
Damping:	0.0000 ft
Length:	1500.00 ft
FHWA Code:	0
Entr Loss Coef:	0.50
Exit Loss Coef:	0.50
Bend Loss Coef:	0.00
Bend Location:	0.00 dec
Energy Switch:	Energy

Upstream Pipe	
Invert:	109.00 ft
Manning's N:	0.0120

Geometry: Circular	
Max Depth:	1.50 ft

Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Downstream Pipe	
Invert:	106.50 ft
Manning's N:	0.0120

Geometry: Circular	
Max Depth:	1.50 ft

Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Pipe Comment:

Weir Component	
Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft

Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	

Weir Type:	Horizontal
Geometry Type:	Rectangular
Invert:	113.50 ft
Control Elevation:	113.50 ft
Max Depth:	3.08 ft
Max Width:	4.08 ft
Fillet:	0.00 ft

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:

Weir Component

Weir:	2
Weir Count:	1
Weir Flow Direction:	None
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Circular
Invert:	111.10 ft
Control Elevation:	111.10 ft
Max Depth:	0.24 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:

Weir Component

Weir:	3
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Rectangular
Invert:	112.30 ft
Control Elevation:	112.30 ft
Max Depth:	1.20 ft
Max Width:	0.40 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:

Drop Structure Link: DBI 1A	Upstream Pipe	Downstream Pipe

Scenario:	Scenario1	Invert:	105.00 ft	Invert:	102.00 ft
From Node:	Swale 1A	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Pond 2A	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	1.50 ft	Max Depth:	1.50 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:	1225.00 ft	Top Clip			
FHWA Code:	0	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 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:	Horizontal	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	113.00 ft	Op Table:	
Control Elevation:	113.00 ft	Ref Node:	
Max Depth:	3.08 ft	Discharge Coefficients	
Max Width:	4.08 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: FDOT DBI Type D

Drop Structure Comment:

Drop Structure Link: DBI 1B		Upstream Pipe		Downstream Pipe	
Scenario:	Scenario1	Invert:	105.00 ft	Invert:	102.00 ft
From Node:	Swale 1B	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Pond 2A	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	1.50 ft	Max Depth:	1.50 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:	800.00 ft	Top Clip			

FHWA Code:	0	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 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component

Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Horizontal
Geometry Type:	Rectangular
Invert:	112.90 ft
Control Elevation:	112.90 ft
Max Depth:	3.08 ft
Max Width:	4.08 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: FDOT DBI Type D

Drop Structure Comment:

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
Pond 2A	100YR-24HR	22.10	9.1167	10.40	8.03	12.4200
Pond 2A	25YR-24HR	17.00	9.1333	8.40	6.12	12.4200
Pond 2A	25YR-72HR	32.47	60.1667	9.65	7.31	12.4200

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
Pond 3A	100YR-24HR	16.19	9.0667	10.40	8.03	8.8100
Pond 3A	25YR-24HR	12.48	9.0833	8.40	6.12	8.8100
Pond 3A	25YR-72HR	25.73	60.1167	9.65	7.31	8.8100

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
Pond 3B	100YR-24HR	9.81	9.2167	10.40	7.77	5.9930
Pond 3B	25YR-24HR	7.46	9.2333	8.40	5.88	5.9930
Pond 3B	25YR-72HR	13.21	60.2333	9.65	7.06	5.9930

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
Swale 1A	100YR-24HR	1.23	9.0333	10.40	4.67	1.0200
Swale 1A	25YR-24HR	0.83	9.0333	8.40	3.17	1.0200
Swale 1A	25YR-72HR	2.64	60.0333	9.65	4.09	1.0200

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
Swale 1B	100YR-24HR	1.32	9.0333	10.40	3.41	1.5100
Swale 1B	25YR-24HR	0.81	9.0500	8.40	2.16	1.5100
Swale 1B	25YR-72HR	2.93	60.0333	9.65	2.93	1.5100

Node Max Conditions w/ Times [Scenario1]

Node	Sim	Warnin	Alert	Max	Min/Ma	Max	Max	Max	Time to	Time to	Time to	Time to

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Pond 2A	100YR-24HR	112.50	112.50	112.51	0.0010	22.92	5.52	116952	13.4030	7.1944	9.1569	13.4197
Pond 2A	25YR-24HR	112.50	112.50	112.04	0.0010	17.00	3.46	114322	14.1363	7.5048	9.1331	14.1529
Pond 2A	25YR-72HR	112.50	112.50	112.41	0.0010	34.60	4.71	116363	62.4172	60.0777	60.1504	62.3922

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Pond 3A	100YR-24HR	113.50	113.50	113.26	0.0008	16.19	4.03	110445	74.4780	6.3527	9.0672	12.2530
Pond 3A	25YR-24HR	113.50	113.50	113.25	0.0008	12.48	2.74	110444	74.5029	6.6861	9.0837	13.3779
Pond 3A	25YR-72HR	113.50	113.50	113.49	0.0009	25.73	4.13	111733	61.7791	58.6277	60.1162	61.6339

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Pond 3B	100YR-24HR	113.50	113.50	113.53	0.0010	9.81	3.04	50797	12.4947	8.7495	9.2163	12.5364
Pond 3B	25YR-24HR	113.50	113.50	113.20	0.0010	7.46	1.43	49678	14.3029	8.7728	9.2329	14.3279
Pond 3B	25YR-72HR	113.50	113.50	113.46	0.0010	13.21	2.24	50566	62.7672	59.5234	60.2338	62.7505

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Swale 1A	100YR-24HR	113.00	113.00	113.08	0.0006	1.23	1.02	9652	9.4544	8.3721	9.0327	9.4558
Swale 1A	25YR-24HR	113.00	113.00	113.06	0.0005	0.83	0.62	9633	10.1241	8.9360	9.0330	10.1259
Swale 1A	25YR-72HR	113.00	113.00	113.13	0.0010	2.64	2.14	9696	60.1314	59.5780	60.0330	60.1323

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Swale 1B	100YR-24HR	112.90	112.90	112.96	0.0004	1.32	0.65	18448	11.0900	9.0376	9.0339	11.0933
Swale 1B	25YR-24HR	112.90	112.90	112.93	0.0005	0.81	0.19	18363	14.0696	12.5696	9.0505	14.0696
Swale 1B	25YR-72HR	112.90	112.90	112.95	0.0007	2.93	0.45	18416	61.1238	59.9334	60.0330	61.1259

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Tailwater Pond 2A	100YR-24HR	113.80	0.00	111.65	0.0002	5.52	0.75	0	120.0030	30.0114	13.4197	84.3280
Tailwater Pond 2A	25YR-24HR	113.80	0.00	111.65	0.0002	3.46	0.76	0	120.0029	30.0113	14.1529	84.0779
Tailwater Pond 2A	25YR-72HR	113.80	0.00	111.90	0.0002	4.71	0.55	0	180.0005	30.0194	62.3922	90.0005

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Tailwater Pond 3A	100YR-24HR	114.20	0.00	113.30	0.0004	4.03	2.01	0	70.0030	40.0530	12.2530	66.5197
Tailwater Pond 3A	25YR-24HR	114.20	0.00	113.30	0.0004	2.74	2.03	0	70.0029	40.0529	13.3779	66.4696
Tailwater Pond 3A	25YR-72HR	114.20	0.00	113.30	0.0004	4.13	1.12	0	70.0005	40.0194	61.6339	55.9027

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Tailwater Pond 3B-Lake Gifford	100YR-24HR	114.30	0.00	113.10	0.0003	2.03	0.55	0	90.0030	40.0364	12.5364	89.9947
Tailwater Pond 3B-Lake Gifford	25YR-24HR	114.30	0.00	113.10	0.0003	1.09	0.55	0	90.0029	40.0363	14.3279	89.9946
Tailwater Pond 3B-Lake Gifford	25YR-72HR	114.30	0.00	113.10	0.0003	1.60	0.39	0	90.0005	40.0277	62.7422	90.0005

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta	Time to Max Total Inflow	Time to Max Total Outflow

Node Name	Sim 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]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Tailwater Pond 3B-Unnamed Wetland (East)	100YR-24HR	114.30	0.00	113.10	0.0003	1.01	0.21	0	90.0030	40.0364	12.5364	90.0030
Tailwater Pond 3B-Unnamed Wetland (East)	25YR-24HR	114.30	0.00	113.10	0.0003	0.34	0.21	0	90.0029	40.0363	14.3279	90.0029
Tailwater Pond 3B-Unnamed Wetland (East)	25YR-72HR	114.30	0.00	113.10	0.0003	0.64	0.16	0	90.0005	40.0277	62.7755	90.0005

Link Min/Max Conditions with Times [Scenario1]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
CS-2A - Pipe	100YR-24HR	5.52	-0.75	0.01	0.00	0.00	13.4197	84.3280	11.1602	0.0000	0.0000
CS-2A - Weir: 1	100YR-24HR	0.06	0.00	0.00	0.00	0.00	13.4030	0.0000	13.6030	0.0000	0.0000
CS-2A - Weir: 2	100YR-24HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-2A - Weir: 3	100YR-24HR	5.46	-0.75	0.00	4.31	4.31	13.4030	84.3280	15.7114	13.4030	13.4030
CS-2A - Pipe	25YR-24HR	3.46	-0.76	0.00	0.00	0.00	14.1529	84.0779	10.0904	0.0000	0.0000

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
CS-2A - Weir: 1	25YR-24 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-2A - Weir: 2	25YR-24 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-2A - Weir: 3	25YR-24 HR	3.46	-0.76	0.00	3.70	3.70	14.1363	84.0696	10.0709	14.1363	14.1363
CS-2A - Pipe	25YR-72 HR	4.71	-0.55	0.00	0.00	0.00	62.3922	90.0005	60.2444	0.0000	0.0000
CS-2A - Weir: 1	25YR-72 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-2A - Weir: 2	25YR-72 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-2A - Weir: 3	25YR-72 HR	4.71	-0.55	0.00	3.94	3.94	62.3839	90.0005	56.2361	62.3255	62.3255

Link Min/Max Conditions with Times [Scenario1]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
CS-3A - Pipe	100YR-24HR	4.03	-2.01	0.01	0.00	0.00	12.2530	66.5197	73.1114	0.0000	0.0000
CS-3A - Weir: 1	100YR-24HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3A - Weir: 2	100YR-24HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3A - Weir: 3	100YR-24HR	4.03	-2.01	0.01	3.72	3.72	12.1697	66.5197	73.0280	12.1697	12.1697
CS-3A - Pipe	25YR-24 HR	2.74	-2.03	0.01	0.00	0.00	13.3779	66.4696	73.1446	0.0000	0.0000
CS-3A - Weir: 1	25YR-24 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3A - Weir: 2	25YR-24 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3A - Weir: 3	25YR-24 HR	2.74	-2.03	0.01	3.27	3.27	13.2946	66.4613	73.0613	13.2946	13.2946
CS-3A - Pipe	25YR-72 HR	4.13	-1.12	0.01	0.00	0.00	61.6339	55.9027	59.5817	0.0000	0.0000
CS-3A - Weir: 1	25YR-72 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3A -	25YR-72	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
Weir: 2	HR										
CS-3A - Weir: 3	25YR-72 HR	4.13	-1.12	0.01	3.06	3.06	61.6299	55.8861	59.5438	61.5088	61.5088

Link Min/Max Conditions with Times [Scenario1]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
CS-3B1 - Pipe	100YR-24HR	1.01	-0.21	0.01	0.00	0.00	12.5364	90.0030	11.8780	0.0000	0.0000
CS-3B1 - Weir: 1	100YR-24HR	0.29	0.00	0.01	0.00	0.00	12.4947	0.0000	11.8697	0.0000	0.0000
CS-3B1 - Weir: 2	100YR-24HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B1 - Weir: 3	100YR-24HR	0.72	-0.21	0.00	3.02	3.02	12.4947	90.0030	11.4786	12.4947	12.4947
CS-3B1 - Pipe	25YR-24 HR	0.34	-0.21	0.00	0.00	0.00	14.3279	90.0029	11.9993	0.0000	0.0000
CS-3B1 - Weir: 1	25YR-24 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B1 - Weir: 2	25YR-24 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B1 - Weir: 3	25YR-24 HR	0.34	-0.21	0.00	2.26	2.26	14.2863	90.0029	95.6446	14.2863	14.2863
CS-3B1 - Pipe	25YR-72 HR	0.64	-0.16	0.00	0.00	0.00	62.7755	90.0005	61.9066	0.0000	0.0000
CS-3B1 - Weir: 1	25YR-72 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B1 - Weir: 2	25YR-72 HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B1 - Weir:	25YR-72 HR	0.64	-0.16	0.00	2.80	2.80	62.7672	90.0005	61.8496	62.7672	62.7672

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
3											

Link Min/Max Conditions with Times [Scenario1]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
CS-3B2 - Pipe	100YR-24HR	2.03	-0.55	0.01	0.00	0.00	12.5364	89.9947	11.8780	0.0000	0.0000
CS-3B2 - Weir: 1	100YR-24HR	0.29	0.00	0.01	0.00	0.00	12.4947	0.0000	11.8697	0.0000	0.0000
CS-3B2 - Weir: 2	100YR-24HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B2 - Weir: 3	100YR-24HR	1.74	-0.55	0.00	3.63	3.63	12.4947	89.9947	11.4786	12.4947	12.4947
CS-3B2 - Pipe	25YR-24HR	1.09	-0.55	0.00	0.00	0.00	14.3279	89.9946	11.9993	0.0000	0.0000
CS-3B2 - Weir: 1	25YR-24HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B2 - Weir: 2	25YR-24HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B2 - Weir: 3	25YR-24HR	1.09	-0.55	0.00	3.03	3.03	14.2863	89.9946	94.3113	14.2863	14.2863
CS-3B2 - Pipe	25YR-72HR	1.60	-0.39	0.00	0.00	0.00	62.7422	90.0005	61.4185	0.0000	0.0000
CS-3B2 - Weir: 1	25YR-72HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B2 - Weir: 2	25YR-72HR	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
CS-3B2 - Weir: 3	25YR-72HR	1.60	-0.39	0.00	3.43	3.43	62.7339	90.0005	80.5922	62.6422	62.6422

Link Min/Max Conditions with Times [Scenario1]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
DBI 1A - Pipe	100YR-24HR	1.02	0.00	0.01	0.00	0.00	9.4558	0.0000	9.0005	0.0000	0.0000
DBI 1A - Weir: 1	100YR-24HR	1.02	0.00	0.01	0.90	0.90	9.4544	0.0000	9.0124	9.4544	9.4544
DBI 1A - Pipe	25YR-24HR	0.62	0.00	0.01	0.00	0.00	10.1259	0.0000	9.7381	0.0000	0.0000
DBI 1A - Weir: 1	25YR-24HR	0.62	0.00	0.00	0.76	0.76	10.1241	0.0000	9.7313	10.1241	10.1241
DBI 1A - Pipe	25YR-72HR	2.14	0.00	0.02	0.00	0.00	60.1323	0.0000	59.9345	0.0000	0.0000
DBI 1A - Weir: 1	25YR-72HR	2.14	0.00	0.01	1.15	1.15	60.1314	0.0000	59.9310	60.1314	60.1314

Link Min/Max Conditions with Times [Scenario1]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Time to Max Flow [hrs]	Time to Min Flow [hrs]	Time to Min/Max Delta Flow [hrs]	Time to Max Us Velocity [hrs]	Time to Max Ds Velocity [hrs]
DBI 1B - Pipe	100YR-24HR	0.65	0.00	0.00	0.00	0.00	11.0933	0.0000	10.2396	0.0000	0.0000
DBI 1B - Weir: 1	100YR-24HR	0.65	0.00	0.00	0.77	0.77	11.0900	0.0000	13.2864	11.0900	11.0900
DBI 1B - Pipe	25YR-24HR	0.19	0.00	0.00	0.00	0.00	14.0696	0.0000	13.0779	0.0000	0.0000
DBI 1B - Weir: 1	25YR-24HR	0.19	0.00	0.00	0.00	0.00	14.0696	0.0000	13.0696	0.0000	0.0000
DBI 1B - Pipe	25YR-72HR	0.45	0.00	0.00	0.00	0.00	61.1259	0.0000	60.6127	0.0000	0.0000
DBI 1B - Weir: 1	25YR-72HR	0.45	0.00	0.00	0.00	0.00	61.1238	0.0000	62.3422	0.0000	0.0000

Sim	Node Name	Total Inflow Volume [ac_ft]
100YR-24HR	Tailwater Pond 3B- Lake Gifford	2.20
100YR-24HR	Tailwater Pond 3B- Unnamed Wetland (East)	0.60
25YR-72HR	Tailwater Pond 3B- Lake Gifford	1.58
25YR-72HR	Tailwater Pond 3B- Unnamed Wetland (East)	0.49

Complete Report (not including cost) Ver 4.3.5

Project: Avalon Road
Date: 3/26/2026 2:31:46 PM

Site and Catchment Information

Analysis: BMP Analysis

Catchment Name	Basin 2 (Including 1A _ 1B)	Basin 3B	Basin 3A
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	52.00	52.00	52.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200	Highway: TN=1.520 TP=0.200	Highway: TN=1.520 TP=0.200
Area (acres)	14.95	5.93	8.81
Rational Coefficient (0-1)	0.02	0.01	0.03
Non DCIA Curve Number	56.00	47.00	58.00
DCIA Percent (0-100)	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.520	1.520	1.520
Phosphorus EMC (mg/l)	0.200	0.200	0.200
Runoff Volume (ac-ft/yr)	1.529	0.308	1.023
Groundwater N (kg/yr)	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	2.865	0.578	1.918
Phosphorus Loading (kg/yr)	0.377	0.076	0.252

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200	Highway: TN=1.520 TP=0.200	Highway: TN=1.520 TP=0.200
Area (acres)	14.95	5.93	8.81
Rational Coefficient (0-1)	0.09	0.10	0.12

Non DCIA Curve Number	77.00	79.00	81.00
DCIA Percent (0-100)	0.00	0.00	0.00
Wet Pond Area (ac)	2.39	0.98	2.33
Nitrogen EMC (mg/l)	1.520	1.520	1.520
Phosphorus EMC (mg/l)	0.200	0.200	0.200
Runoff Volume (ac-ft/yr)	4.996	2.244	3.392
Groundwater N (kg/yr)	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	9.364	4.205	6.357
Phosphorus Loading (kg/yr)	1.232	0.553	0.836

Catchment Number: 1 Name: Basin 2 (Including 1A _ 1B)

Project: Avalon Road
Date: 3/26/2026

Wet Detention Design

Permanent Pool Volume (ac-ft)	16.640
Permanent Pool Volume (ac-ft) for 31 days residence	0.424
Annual Residence Time (days)	1216
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	14.95
Contributing Area (acres)	12.560
Non-DCIA Curve Number	77.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	44
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	96

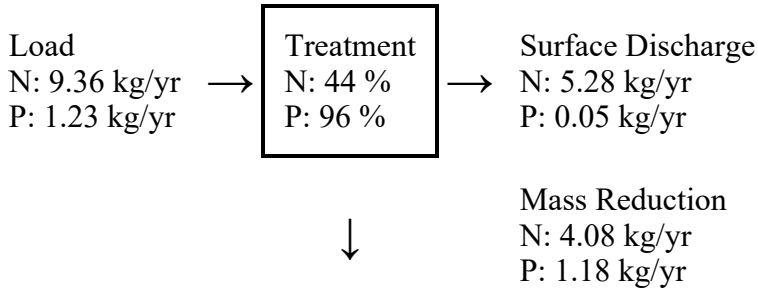
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

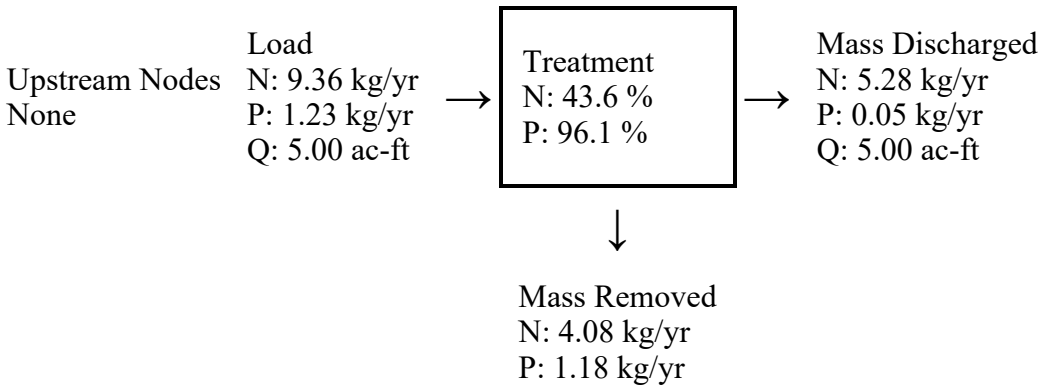
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Catchment Number: 2 Name: Basin 3B

Project: Avalon Road
Date: 3/26/2026

Wet Detention Design

Permanent Pool Volume (ac-ft)	6.080
Permanent Pool Volume (ac-ft) for 31 days residence	0.191
Annual Residence Time (days)	989
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	5.93
Contributing Area (acres)	4.950
Non-DCIA Curve Number	79.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	44
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	94

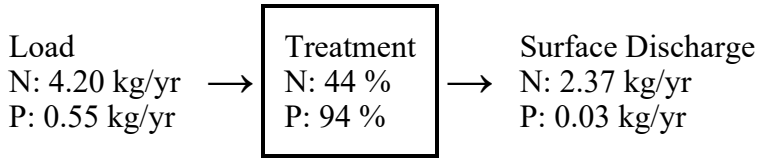
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

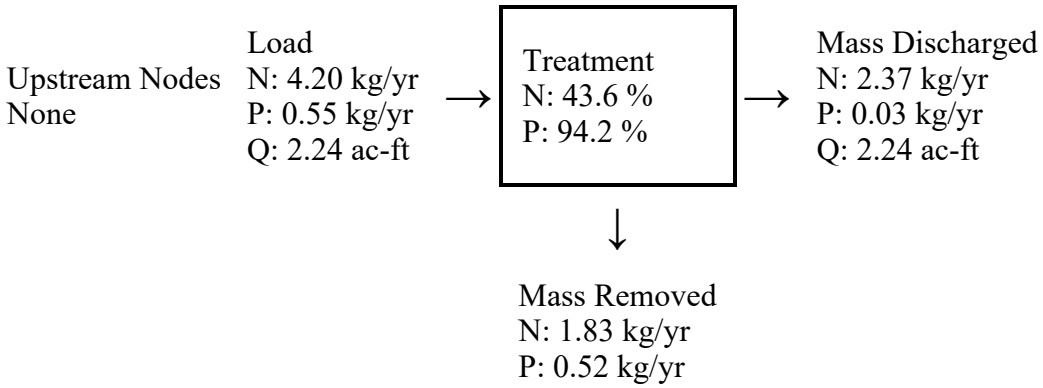
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



↓ Mass Reduction
N: 1.83 kg/yr
P: 0.52 kg/yr

Load Diagram for Wet Detention (As Used In Routing)



Catchment Number: 3 Name: Basin 3A

Project: Avalon Road
Date: 3/26/2026

Wet Detention Design

Permanent Pool Volume (ac-ft)	15.280
Permanent Pool Volume (ac-ft) for 31 days residence	0.288
Annual Residence Time (days)	1644
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	8.81
Contributing Area (acres)	6.480
Non-DCIA Curve Number	81.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	44
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	99

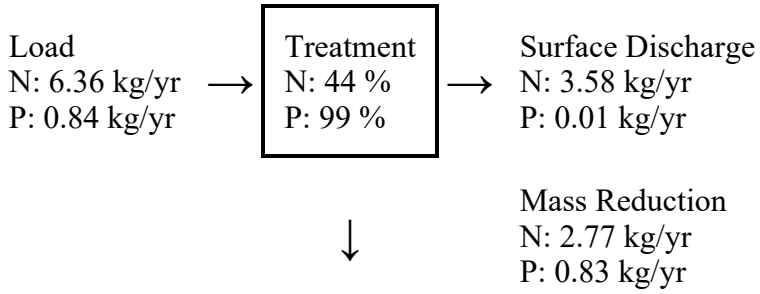
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

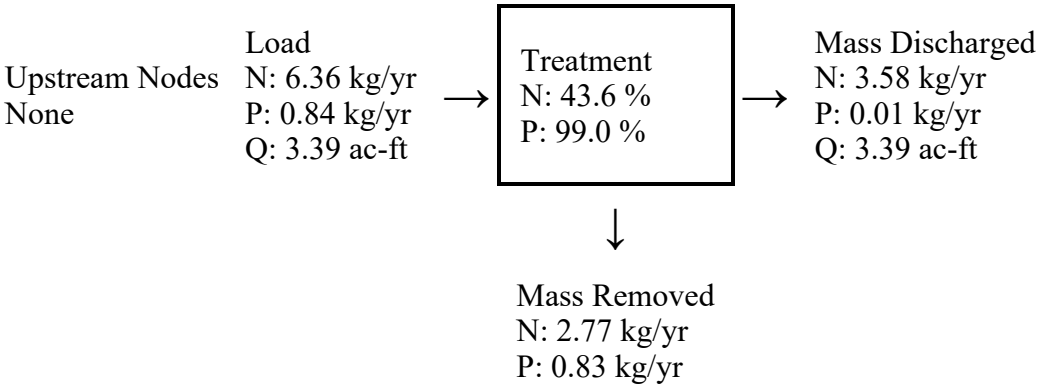
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Avalon Road

Analysis Type: BMP Analysis
BMP Types:
Catchment 1 - (Basin 2 (Including 1A _ 1B)) Wet Detention
Catchment 2 - (Basin 3B) Wet Detention
Catchment 3 - (Basin 3A) Wet Detention
Based on % removal values to the nearest percent

Date:3/26/2026

Routing Summary
Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet

Summary Report

Nitrogen

Surface Water Discharge		
Total N post load	19.93 kg/yr	
Percent N load reduction	44 %	
Provided N discharge load	11.24 kg/yr	24.78 lb/yr
Provided N load removed	8.69 kg/yr	19.16 lb/yr

Phosphorus

Surface Water Discharge		
Total P post load	2.622 kg/yr	
Percent P load reduction	97 %	
Provided P discharge load	.088 kg/yr	.19 lb/yr
Provided P load removed	2.534 kg/yr	5.587 lb/yr

Appendix F

- Floodplain Encroachment Calculations

FIGURE F-1

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS Zone 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by Orange County, Florida.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

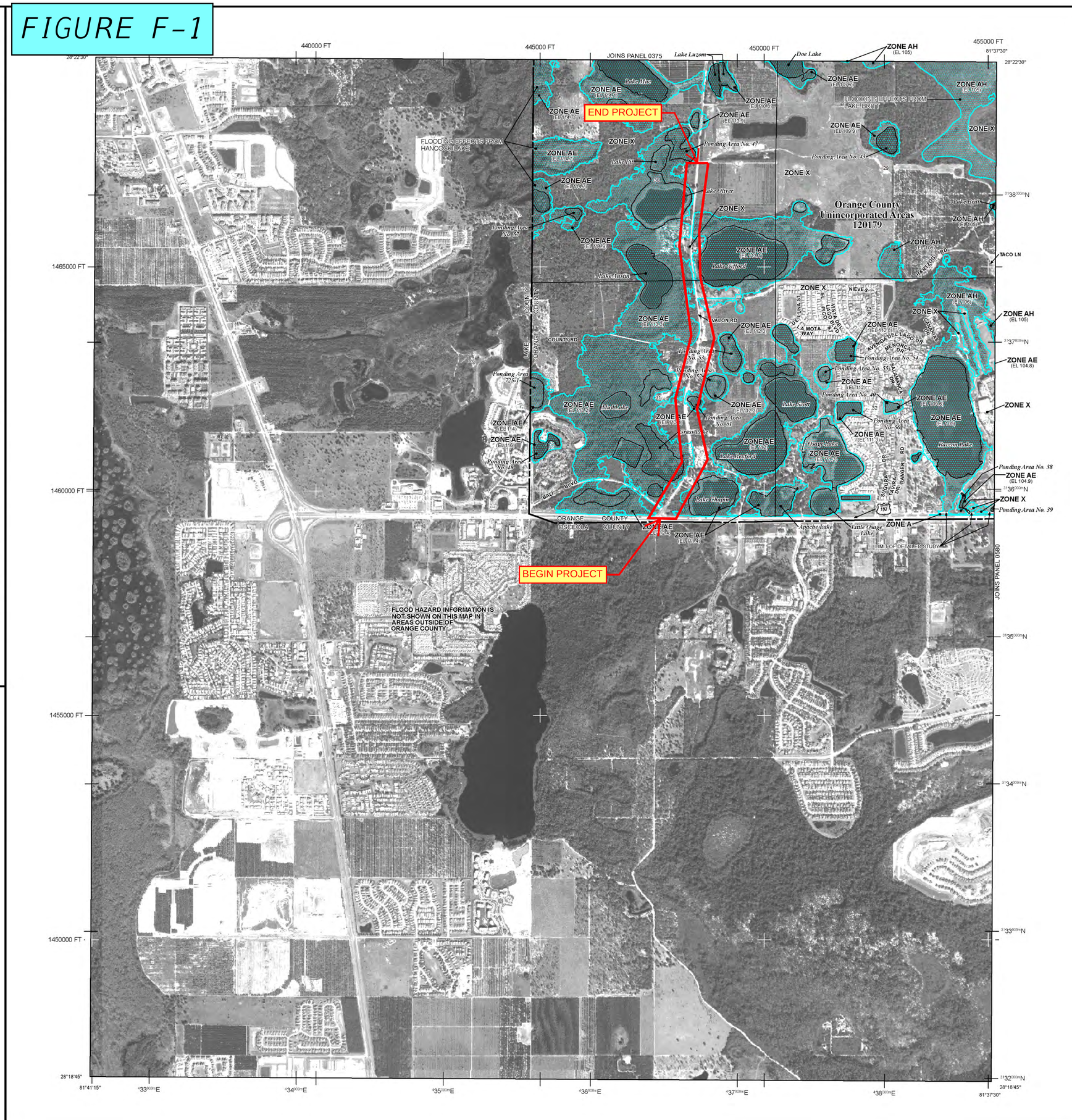
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

NGVD29 to NAVD88 Vertical Datum Conversion Table (feet)

Watershed Name	Minimum Conversion	Maximum Conversion	Average Conversion	Maximum Offset
Big Econlockhatchee River	-1.03	-1.15	-1.09	0.06
Boggy Creek	-0.91	-1.01	-0.96	0.05
Cypress Creek	-0.87	-0.91	-0.89	0.02
Howell Branch	-0.96	-1.05	-0.98	0.07
Lake Apopka	-0.87	-0.97	-0.91	0.06
Lake Hart	-0.97	-1.07	-1.02	0.05
Little Econlockhatchee River	-0.92	-1.07	-1.01	0.09
Little Wekiva River	-0.91	-1.02	-0.95	0.07
Reedy Creek	-0.86	-0.89	-0.88	0.02
Shingle Creek	-0.88	-0.95	-0.91	0.04
St. Johns River	-1.08	-1.33	-1.19	0.14
Wekiva River	-0.88	-1.01	-0.94	0.07


440000 FT
445000 FT
450000 FT
455000 FT
28°22'30"
81°37'30"
1465000 FT
1460000 FT
1455000 FT
1450000 FT
28°18'45"
81°41'15"
JOINS PANEL 0375
JOINS PANEL 0560
END PROJECT
BEGIN PROJECT
Lake Luzon
Doe Lake
Lake Mac
Lake Pitt
Lake Oliver
Lake Austin
Lake Gifford
Lake Britt
Lake Scott
Lake Rexford
Lake Chapin
Shell Lake
Grass Lake
Osage Lake
Raccoon Lake
Apache Lake
Little Osage Lake
Ponding Area No. 47
Ponding Area No. 43
Ponding Area No. 57
Ponding Area No. 53
Ponding Area No. 52
Ponding Area No. 55
Ponding Area No. 54
Ponding Area No. 40
Ponding Area No. 51
Ponding Area No. 49
Ponding Area No. 38
Ponding Area No. 39
Orange County Unincorporated Areas 120179
FLOODING EFFECTS FROM HANCOCK LAKE
FLOODING EFFECTS FROM LAKE BRITT
FLOOD HAZARD INFORMATION IS NOT SHOWN ON THIS MAP IN AREAS OUTSIDE OF ORANGE COUNTY
LIMIT OF DETAILED STUDY
ORANGE COUNTY
OSCEOLA COUNTY
LAKE COUNTY
ORANGE COUNTY
COUNTY RD
VALON RD
TACO LN
HARTZOG RD
BAILEY BLVD
SUGARLOAF DR
MURRAY DR
RANGER RD
NIEVE S
DE LA MOTA WAY
AVENIDA DEL LAGO DR
MENORCA DR
PANAMA
CHARLES
ZONE AE (EL 114)
ZONE AE (EL 114.7)
ZONE AE (EL 114.9)
ZONE AE (EL 114.3)
ZONE AE (EL 114.6)
ZONE AE (EL 113.3)
ZONE AE (EL 112.3)
ZONE AE (EL 112.6)
ZONE AE (EL 112.7)
ZONE AE (EL 113.2)
ZONE AE (EL 113.7)
ZONE AE (EL 113.8)
ZONE AE (EL 113.9)
ZONE AE (EL 114.2)
ZONE AE (EL 114.4)
ZONE AE (EL 114.5)
ZONE AE (EL 114.8)
ZONE AE (EL 115)
ZONE AE (EL 115.2)
ZONE AE (EL 115.3)
ZONE AE (EL 115.5)
ZONE AE (EL 116.3)
ZONE AE (EL 116.4)
ZONE AE (EL 116.5)
ZONE AE (EL 116.6)
ZONE AE (EL 116.7)
ZONE AE (EL 116.8)
ZONE AE (EL 117)
ZONE AE (EL 117.1)
ZONE AE (EL 117.2)
ZONE AE (EL 117.3)
ZONE AE (EL 117.4)
ZONE AE (EL 117.5)
ZONE AE (EL 117.6)
ZONE AE (EL 117.7)
ZONE AE (EL 117.8)
ZONE AE (EL 117.9)
ZONE AE (EL 118.3)
ZONE AE (EL 118.7)
ZONE AE (EL 119.2)
ZONE AE (EL 119.4)
ZONE AE (EL 119.5)
ZONE AE (EL 119.6)
ZONE AE (EL 119.7)
ZONE AE (EL 119.8)
ZONE AE (EL 120.1)
ZONE AE (EL 120.2)
ZONE AE (EL 120.3)
ZONE AE (EL 120.4)
ZONE AE (EL 120.5)
ZONE AE (EL 120.6)
ZONE AE (EL 120.7)
ZONE AE (EL 120.8)
ZONE AE (EL 120.9)
ZONE AE (EL 121)
ZONE AE (EL

* For Cut and Fill calulations the existing centerline stationing was used.

** % increase represents the difference between the proposed floodplain fill from applying the proposed typical to the existing alignment and the estimated proposed floodplain fill required by applyig the proposed typical to the preferred alignment.

Total Net Fill in Existing Basins						
Basin No.	Station to Station *			Volume (Ac-Ft)	% Increase from Alignment Shift**	Perfered align total (Ac-FT)
Basin 1	10+80.00	TO	14+60.00	0.128	95.31%	0.25
Basin 2	14+60.00	TO	52+20.00	1.444	16.22%	1.68
Basin 3	44+50.00	TO	75+50.00	0.806	3.14%	0.83
Basin 4	75+50.00	TO	92+20.00	0.373	13.12%	0.42
Total				2.751	-	3.18

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
12+40.00	0	1.32	20	26.4	0.000606061
12+60.00	2.64	4.015	20	80.3	0.001843434
12+80.00	5.39	6.9	20	138	0.003168044
13+00.00	8.41	4.205	20	84.1	0.00193067
13+20.00	0	0	20	0	0
Fill From new Aligment	-	-	-	5227.2	0.12
Total Flood Compensation Required between			18+00.00	29+00.00	0.127548209

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
18+00.00	11.88	12.965	100	1296.5	0.029763545
19+00.00	14.05	10.345	100	1034.5	0.023748852
20+00.00	6.64	16.515	100	1651.5	0.037913223
21+00.00	26.39	36.79	100	3679	0.084458219
22+00.00	47.19	32.92	100	3292	0.075573921
23+00.00	18.65	17.26	100	1726	0.039623508
24+00.00	15.87	57.46	100	5746	0.131910009
25+00.00	99.05	97.98	100	9798	0.224931129
26+00.00	96.91	98.76	100	9876	0.226721763
27+00.00	100.61	92.08	100	9208	0.211386593
28+00.00	83.55	41.775	100	4177.5	0.095902204
29+00.00	0	0	100	0	0

Total Flood Compensation Required between	18+00.00	29+00.00	1.181932966

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
37+60.00	0.09	6.135	20	122.7	0.002816804
37+80.00	12.18	18.46	20	369.2	0.008475666
38+00.00	24.74	30.97	20	619.4	0.014219467
38+20.00	37.2	37.495	20	749.9	0.017215335
38+40.00	37.79	42.04	20	840.8	0.019302112
38+60.00	46.29	54.095	20	1081.9	0.024837006
38+80.00	61.9	63.005	20	1260.1	0.028927916
39+00.00	64.11	67.43	20	1348.6	0.030959596
39+20.00	70.75	64.29	20	1285.8	0.029517906
39+40.00	57.83	54.675	20	1093.5	0.025103306
39+60.00	51.52	49.78	20	995.6	0.022855831
39+80.00	48.04	42.175	20	843.5	0.019364096
40+00.00	36.31	26.655	20	533.1	0.012238292
40+20.00	17	8.5	20	170	0.003902663
40+40.00	0	0	20	0	0
40+60.00	0	0	20	0	0
40+80.00	0	0	20	0	0
41+00.00	0	3.075	20	61.5	0.001411846
41+20.00	6.15	3.075	20	61.5	0.001411846
Total Flood Compensation Required between			38+60.00	41+20.00	0.262559688

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
52+80.00	4.19	10.17	20	203.4	0.004669421
53+00.00	16.15	17.16	20	343.2	0.007878788
53+20.00	18.17	23.9	20	478	0.01097337
53+40.00	29.63	30.315	20	606.3	0.013918733
53+60.00	31	33.415	20	668.3	0.015342057
53+80.00	35.83	39.3	20	786	0.018044077
54+00.00	42.77	43.47	20	869.4	0.019958678
54+20.00	44.17	47.525	20	950.5	0.021820478
54+40.00	50.88	52.665	20	1053.3	0.024180441
54+60.00	54.45	53.24	20	1064.8	0.024444444
54+80.00	52.03	50.775	20	1015.5	0.023312672
55+00.00	49.52	48.855	20	977.1	0.022431129
55+20.00	48.19	49.025	20	980.5	0.022509183

55+40.00	49.86	49.51	20	990.2	0.022731864
55+60.00	49.16	49.005	20	980.1	0.0225
55+80.00	48.85	47.96	20	959.2	0.022020202
56+00.00	47.07	37.665	20	753.3	0.017293388
56+20.00	28.26	14.13	20	282.6	0.006487603
Total Flood Compensation Required between			52+80.00	56+20.00	0.320516529

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
61+00.00	8.12	6.79	20	135.8	0.003117539
61+20.00	5.46	13.33	20	266.6	0.006120294
61+40.00	21.2	14.04	20	280.8	0.006446281
61+60.00	6.88	3.44	20	68.8	0.001579431
Total Flood Compensation Required between			61+00.00	61+40.00	0.017263545

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
62+60.00	0	7.495	20	149.9	0.00344123
62+80.00	14.99	8.775	20	175.5	0.004028926
63+00.00	2.56	1.36	20	27.2	0.000624426
63+20.00	0.16	0.28	20	5.6	0.000128558
63+40.00	0.4	3.065	20	61.3	0.001407254
63+60.00	5.73	12.14	20	242.8	0.005573921
63+80.00	18.55	18.65	20	373	0.008562902
64+00.00	18.75	9.375	20	187.5	0.004304408
Total Flood Compensation Required between			62+60.00	64+00.00	0.028071625

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
64+00.00	18.75	18.985	100	1898.5	0.043583563
65+00.00	19.22	35.855	100	3585.5	0.082311754
66+00.00	52.49	43.41	100	4341	0.099655647
67+00.00	34.33	27.52	100	2752	0.063177227
68+00.00	20.71	26.98	100	2698	0.061937557
69+00.00	33.25	19.36	100	1936	0.044444444
70+00.00	5.47	11.17	100	1117	0.025642792
71+00.00	16.87	8.435	100	843.5	0.019364096
Total Flood Compensation Required between			64+00	71+00	0.44011708

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
75+20.00	5.35	61.915	100	6191.5	0.142137282
76+20.00	118.48	105.97	100	10597	0.243273646
77+20.00	93.46	64.815	100	6481.5	0.148794766
78+20.00	36.17	28.605	100	2860.5	0.065668044
79+20.00	21.04	10.52	100	1052	0.024150597
Total Flood Compensation Required between			75+20.00	79+20.00	0.624024334

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
79+20.00	21.04	10.52	100	1052	0.024150597
80+20.00	16.19	8.095	100	809.5	0.018583563
81+20.00	0	0	100	0	0
Total Flood Compensation Required between			75+20.00	80+20.00	0.04273416

Net Fill					
Station	Xsect Area (SF)	Average End Area (SF)	Length (FT)	Volume (CF)	Volume (Ac-Ft)
82+60.00	36	47.375	100	4737.5	0.108758035
83+60.00	58.75	63	100	6300	0.144628099
84+60.00	67.25	33.625	100	3362.5	0.077192378
85+60.00	0	0	100	0	0
Total Flood Compensation Required between			82+60.00	85+60.00	0.330578512

Appendix G

- Correspondence / Meeting Minutes
- Existing ERP Permits Summary Table
    - Existing ERP Permits Excerpts

PROJECT MEMORANDUM

To: Pegasus Project File OCC-24056

From: Beth Whikehart, P.E., CFM
Senior Project Engineer

Date: October 3, 2025

Re: **Avalon Road (County Road 545) Improvements from US 192 to Hartzog Road**

Subj: **SFWMD Pre-application Meeting Minutes**

A pre-application Teams meeting was conducted for the above-referenced project at 10:00 am on Tuesday, September 30, 2025. The pre-application meeting participants included:

- Richard Lott, South Florida Water Management District
- Lisa Prather, South Florida Water Management District
- Richard Walker, South Florida Water Management District
- Ghulam Qadir, Orange County
- Rick Vallier, Orange County
- Fursan Munjed, Pegasus Engineering
- David Hamstra, Pegasus Engineering
- Beth Whikehart, Pegasus Engineering
- DJ Silverberg, GAI Consultants

The following points are provided to summarize the main aspects that were discussed during the pre-application meeting.

1. Pegasus introduced the project improvements, which include widening Avalon Road (County Road 545) from US 192 to Hartzog Road from a two to four-lane roadway, including three (3) proposed stormwater ponds and a floodplain compensation area.

2. Pegasus provided information that the County has performed a Roadway Conceptual Analysis (RCA) for this project, which was prepared by JMT and completed in June of 2023.

3. Since the Roadway Conceptual Analysis meets the same intent as FDOT's Project Development & Environment (PD&E) study, Orange County is requesting whether this meets the Stormwater Quality Nutrient Permitting Requirements outlined in Section 8.3 of the Permitting Handbook Volume 1 for public transportation projects which have completed a PD&E Study prior to June 28, 2026. This language allows for utilization of the stormwater design and performance criteria in effect prior to June 28, 2024.

4. SFWMD requested that the County/Pegasus submit a follow-up email including the RCA and articulate why the document should meet the PD&E clause. It should contain any information regarding differences between the two (2) types of studies and whether, or not the differences are important. The email should be sent to Richard Lott and Lisa Prather. SFWMD will use the email to coordinate with FDEP regarding an answer the use of the RCA.

5. Orange County (Ghulam Qadir) pointed out that the RCA went through a Public Hearing process, was approved by the Orange County Board of County Commissioners (BOCC), and sets up the basis for acquiring property and eminent domain for the project.

6. Regarding the water quantity design criteria, Pegasus (David Hamstra) indicated that the project is located in the Reedy Creek watershed. He went on to further explain that the southeastern portion of the project discharges to the Lake Arrowhead area, which is a land-locked watershed.

7. SFWMD (Richard Lott) indicated that the discharge criteria for the Reedy Creek watershed is a recommended discharge criteria of 67 cfm (approximately 0.105 cfs/acre). He stated; however, that the historic discharges for the area are also considered on a case-by-case basis. The water management district requests that the engineers use their best engineering judgement given the historical discharges and all other considerations (e.g. open versus closed basin). The district will then review the computations very carefully to verify compliance with standards and criteria. He stated that any discharge greater than 0.5 cfs/acre is heavily scrutinized.

8. Pegasus (David Hamstra) stated that give the "urban" and linear nature of the project area, it may be hard to achieve the 0.105 cfs/acre.

9. The current design plan is to replace each cross drain with the equivalent pipe sizes. SFWMD (Richard Lott) pointed out that a maximum 0.1 feet increase is allowed due to the cross-drain replacement.

10. Pegasus stated that there are FEMA floodplains located within the project area. They are FEMA Zone AE, with established Base Flood Elevations (BFEs). SFWMD (Richard Lott) stated that Pegasus will need to provide cross sections with cut/fill labels for the floodplain compensation areas. The floodplain compensation shall be provided between the wet season water table and the BFE elevations.

11. The project is located within the Lake Okeechobee Watershed BMAP area. Therefore, the water quality computations shall consider an additional 50% water quality volume.

12. In addition to the water quality computations, pollutant loading computations shall be performed demonstrating that the project is not contributing to the impairment for Phosphorus. If there are impaired water bodies in the watershed that are impaired for Nitrogen, a similar computation shall be performed for Nitrogen.

If any correction or clarification to the above discussed points is required, please notify the writer within five (5) business days at 407-992-9160, extension 309, or by e-mail at beth@pegasusengineering.net.

END OF MEMO

cc: All Meeting Attendees
Pegasus Project File OCC-24056

Table ERP EX-1 (*Existing ERP Permits)*

Project Name	Agency/Permit Type	Permit No.	Date Issued	Description
Western Way Extension	SFWMD ERP Permit	48-00714-P	11/2/2018	Residential development and road extension
Section 30 Excavation	SFWMD ERP Permit	48-00786-S	6/9/1994	Construction and operation of a surface water management system to serve an expansion of an existing borrow pit site with total on-site retention
Cassis Planned Development Phase I/ Liki Tiki Village	SFWMD ERP Permit	48-01048-P	4/6/1999	Development of hotel and water park
Heart of Florida Hospital Free Standing Emergency Department	SFWMD ERP Permit	48-01782-P	7/26/2018	Construction of a project including a stormwater management system serving Heart of Florida Hospital FSED
Hartzog Road Avalon Road to Disney Property	SFWMD ERP Permit	48-01974-P	8/31/2021	New road construction
Wawa Avalon Road Convenience Store	SFWMD ERP Permit	48-02169-P	7/16/2012	Construction of surface water management system to serve Wawa
Avalon Pointe	SFWMD ERP Permit	48-02757-W	3/4/2021	Dewatering of water table aquifer for installation of stormwater management system for Avalon Point
Horizon West Village I – Jaffers PS – Phase 3 Parcel W-17	SFWMD ERP Permit	48-102896-P	11/19/2020	Continued development of Horizon West Village
Avalon Pointe Apartments (Avalon Grove PD)	SFWMD ERP Permit	48-103624-P	12/20/2021	Site development and stormwater management facility
Withers PD Phase 1	SFWMD ERP Permit	48-104373-P	4/12/2021	Construction of stormwater management system serving residential development Withers PD Phase 1
Karr Sp Mass Grading	SFWMD ERP Permit	48-105378-P	8/13/2021	Construction of stormwater management system serving 36 acres of mass grading known as Karr SP Property
Registry at Grass Lake	SFWMD ERP Permit	48-105977-P	---------	Residential development in process
State Road 530 (US 192) Widening	SFWMD ERP Permit	49-00956-P	9/19/2012	Construction of surface water management system to serve 51.7 acres of SR 530 widening from Lake County Line to Secret Lake Drive

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE PERMIT NO. 48-00714-P
DATE ISSUED: September 27, 2018

PERMITTEE: WALT DISNEY PARKS & RESORTS U.S., INC.
P.O. BOX 10000
LAKE BUENA VISTA, FL 32830

PROJECT DESCRIPTION: Construction and Operation of a stormwater management (SWM) system serving 9.45 acres of commercial development known as Black Lake Hotel.

PROJECT LOCATION: ORANGE COUNTY, SEC 22 TWP 24S RGE 28E
SEC 21 TWP 24S RGE 28E

PERMIT DURATION: See Special Condition No:1.

This is to notify you of the District's agency action for Permit Application No. 180813-1, dated August 13, 2018. This action is taken pursuant to the provisions of Chapter 373, Part IV, Florida Statues (F.S).

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 18 General Conditions (See Pages : 2 - 4 of 5),
3. the attached 11 Special Conditions (See Pages : 5 - 5 of 5) and
4. the attached 3 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT this written notice has been mailed or electronically transmitted to the Permittee (and the persons listed in the attached distribution list) this 27th day of September, 2018, in accordance with Section 120.60(3), F.S. Notice was also electronically posted on this date through a link on the home page of the District's website (my.sfwmd.gov/ePermitting).

BY:_____
Ricardo A. Valera, P.E.
Bureau Chief - Environmental Resource
Orlando Regulatory Office

GENERAL CONDITIONS

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation, June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," (November 16, 2016), (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.

5. Unless the permit is transferred under rule 62-330.340, F.A.C., or transferred to an operating entity under rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms, and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex - "Construction Completion and Inspection Certification for Activities Associated with a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or
   2. For all other activities - "As-Built Certification and Request for Conversion to Operation Phase" [Form 62-330.310(1)].
   3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations, and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which

GENERAL CONDITIONS

the activity is located.
2. Within 30 days of submittal of the as-built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in chapter 62-330, F.A.C.;
2. Convey to the permittee or create in the permittee any interest in real property;
3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
1. Immediately if any previously submitted information is discovered to be inaccurate; and
2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850)245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, F.S. For project

GENERAL CONDITIONS

activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with subsection 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on September 27, 2023.

2. Operation and maintenance of the stormwater management system shall be the responsibility of WALT DISNEY PARKS AND RESORTS U.S., INC.

3. Discharge Facilities:
Structure: POND WEIR
1-30' W X 2.73' H BROAD CRESTED weir with crest at elev. 96.6' NGVD 29.
1-3" dia. CIRCULAR ORIFICE with invert at elev. 94.4' NGVD 29.
Receiving body : RCID master SWM system via wetlands
Control elev : 94.4 feet NGVD 29.

4. Lake side slopes shall be no steeper than 4:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

5. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

6. The following are exhibits to this permit. Exhibits noted as incorporated by reference are available on the District's ePermitting website (http://my.sfwmd.gov/ePermitting) under this application number.

   Exhibit No. 1 Location Map
   Exhibit No. 2 Construction Plans, Pages 1 - 10
   Exhibit No. 3 Environmental Figures, Pages 1 - 4

7. Prior to initiating construction activities associated with this Environmental Resource Permit (ERP), the permittee is required to hold a pre-construction meeting with field representatives, consultants, contractors, District Environmental Resource Compliance (ERC) staff, and any other local government entities as necessary.

   The purpose of the pre-construction meeting is to discuss construction methods, sequencing, best management practices, identify work areas, staking and roping of preserves where applicable, and to facilitate coordination and assistance amongst relevant parties.

   To schedule a pre-construction meeting, please contact ERC staff from the Orlando Service Center at (407) 858-6100 or via e-mail at: pre-con@sfwmd.gov. When sending a request for a pre-construction meeting, please include the application number, permit number, and contact name and phone number.

8. Minimum building floor elevation: BASIN: SITE - 98.34 feet NGVD 29.

9. Minimum parking lot elevation: Basin: SITE - 98.19 feet NGVD 29.

10. Silt screens, hay bales, turbidity screens/barriers or other such sediment control measures shall be utilized during construction. The selected sediment control measure shall be installed landward of the upland buffer zones around all protected wetlands and shall be properly "trenched" etc, in accordance with Exhibit No. 2. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands and upland buffer zones.

11. Prior to commencement of construction and in accordance with the work schedule in Exhibit No. 3, the permittee shall submit documentation from the Reedy Creek Mitigation bank that 1.49 freshwater forested credits have been deducted from the ledger for SFWMD Application No. 180813-1.

NOTICE OF RIGHTS

As required by Sections 120.569 and 120.60(3), Fla. Stat., the following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all of the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a SFWMD decision which affects or may affect their substantial interests shall file a petition for hearing with the Office of the District Clerk of the SFWMD, in accordance with the filing instructions set forth herein, within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, or posting that the SFWMD has or intends to take final agency action, or publication of notice that the SFWMD has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action which materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional Rule 28-106.111, Fla. Admin. Code, point of entry.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Fla. Stat., shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk of the SFWMD. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at SFWMD headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.

- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the SFWMD's security desk does not constitute filing. It will be necessary to request that the SFWMD's security officer contact the Office of the District Clerk. An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document. A party who files a document by e-mail shall (1) represent that the original physically signed document will be retained by that party for the duration of the proceeding and of any subsequent appeal or subsequent proceeding in that cause and that the party shall produce it upon the request of other parties; and (2) be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed.

INITIATION OF AN ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Fla. Stat., and Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, SFWMD file number or any other SFWMD identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401–.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Fla. Stat., and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal with the Office of the District Clerk of the SFWMD in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the clerk of the appropriate district court of appeal.

Last Date For Agency Action: November 17, 2018

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Black Lake Hotel

Permit No.: 48-00714-P

Application No.: 180813-1

Application Type: Environmental Resource (Construction/Operation Modification)

Location: Orange County, S21/T24S/R28E
S22/T24S/R28E

Permittee : Walt Disney Parks & Resorts U.S., Inc.

Operating Entity : Walt Disney Parks & Resorts U.S., Inc.

Project Area: 9.45 acres

Permit Area: 9.45 acres

Project Land Use: Commercial And Services

Drainage Basin: REEDY CREEK

Receiving Body: Lake Buena Vista **Class:** CLASS III

Special Drainage District: Reedy Creek Improvement District

Total Acres Wetland Onsite:		2.73	
Total Acres Impacted Onsite :		2.73	
Offsite Mitigation Credits-Mit.Bank:		1.49	Reedy Creek Mitigation Bank
Conservation Easement To District :	No		
Sovereign Submerged Lands:	No		

PROJECT SUMMARY:

This Environmental Resource Permit Modification authorizes Construction and Operation of a SWM system serving 9.45 acres of commercial development known as Black Lake Hotel.

This project is for construction of a 0.56-acre SWM system and 7.08 acres of impervious area for the renovation of an existing hotel. Improvements include construction of a wet detention pond, hotel tower, pool area, meeting space and additional parking. Stormwater from the project is directed to an onsite wet detention pond prior to discharge into the Reedy Creek Improvement District (RCID) master SWM system for further treatment and attenuation.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The project is located on the west side of Hotel Plaza Boulevard 1,400 feet south of State Road 535 along the northeastern shore of Lake Buena Vista at 2000 Hotel Plaza Boulevard, Orange County. Refer to Exhibit 1 for a location map.

The project is within the area conceptually approved for the Walt Disney World Master Drainage Plan under ERP 48-00714-P, application 100212-12. The site contains a hotel building with parking, drive aisles and amenities.

For information on wetlands and other surface waters within the site, please refer to the Wetlands and Other Surface Waters section of this staff report.

LAND USE:

Construction

Basin : SITE

	Total Basin	
Building Coverage	1.37	acres
Impervious	5.71	acres
Pervious	1.81	acres
Wet Detention	.56	acres
Total:	**9.45**	

WATER QUANTITY :

Discharge Rate :

The project is consistent with the land use and site grading assumptions used during the design of the master SWM system authorized under ERP 48-00714-P.

Finished Floors :

As shown in the following table, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Building Storm Frequency : 100 YEAR-3 DAY Design Rainfall : 14.27 inches

Basin	**Peak Stage (ft, NGVD 29)**	**Proposed Min. Finished Floors (ft, NGVD 29)**	**FEMA Elevation (ft, NGVD 29)**
SITE	97.34	98.34	97.2

Parking Lot Design :

As shown in the following table, minimum parking lot elevations have been set at or above the calculated design storm flood elevation.

Parking Lot Storm Frequency : 10 YEAR-3 DAY Design Rainfall :10.19 inches

Basin	Peak Stage (ft, NGVD 29)	Proposed Min.Parking Elev. (ft, NGVD 29)
SITE	97.19	98.19

Flood Plain/Compensating Storage:

The permittee provided calculations demonstrating that the project meets the compensating storage requirements.

Displaced Volume	Compensating Volume	100-Year Stage Elevation
1.96 ac-ft	2.00 ac-ft	97.2 ft-NGVD 29

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NGVD 29)	WSWT Ctrl Elev (ft, NGVD 29)	Method Of Determination
SITE	9.45	94.4		Wet Season Soil Borings

Receiving Body :

Basin	Str.#	Receiving Body
Site	POND WEIR	RCID master SWM system via wetlands

Discharge Structures: Note: The units for all the elevation values of structures are (ft, NGVD 29)

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
SITE	POND WEIR	1	Broad Crested	30'	2.73'			96.6 (crest)

Water Quality Structures: Note: The units for all the elevation values of structures are (ft, NGVD 29)

Bleeders:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Invert Angle	Invert Elev.
SITE	POND WEIR	1	Circular Orifice				3"		94.4

WATER QUALITY :

Water quality treatment is provided in 0.56 acres of onsite wet detention pond prior to discharge to the RCID master SWM system. The project provides 1.41 acre-feet of required water quality treatment volume based on 2.5 inches times the percent impervious basin area.

The project is consistent with conceptual approval 48-00714-P; therefore, additional water quality treatment volume and a pre- versus post-development phosphorus loading analysis were not required.

The project includes implementation of an Turbidity and Erosion Control Plan (Exhibit 2) as additional reasonable assurance of compliance with water quality criteria during construction and operation.

Basin	Treatment Method			Vol Req.d (ac-ft)	Vol Prov'd
SITE	Treatment	Wet Detention	.56 acres	1.41	1.43

WETLANDS:

Wetlands And Other Surface Waters:

The project site contains 1 wetland totaling 2.73 acres. Please see Exhibit 3 for the wetland location. The wetland can generally be described as a mixed forested wetland. Additional wetland descriptions are available in the ePermitting file.

The project will result in 2.73 acres of wetland impacts as described in the table below. Exhibit 3 identifies the location of the wetland being impacted. Per the Applicant's Handbook Volume 1 Section 10.2.1.1, design modifications to reduce or eliminate wetland impacts were explored but were deemed to be technically impracticable due to the size of the site, necessary stormwater facilities, and site geometry.

Secondary impacts include 0.45 acres to an off-site wetland.

To mitigate for the wetland impacts, the applicant will purchase 1.49 freshwater forested credits from the Reedy Creek Mitigation Bank, as depicted in Exhibit 3. The amount of required mitigation was determined using the Uniform Mitigation Assessment Method in Chapter 62-345, F.A.C. The final scores can be found in the ePermitting file.

The proposed mitigation is located within the same basin as the impacts; therefore, pursuant to Section 10.2.8 of Volume I, the project will not result in unacceptable cumulative impacts to the Reedy Creek Basin.

Wetland Inventory :

CONSTRUCTION MOD -Primary Impact Area

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluccs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluccs	Adj Delta	Functional Gain / Loss
SIA	OFF	630	Secondary	.45	.53	.46					-.070	-.032
PIA	ON	630	Direct	2.73	.53	.00				630	-.530	-1.447
			Total:	3.18								-1.48

Fluccs Code	**Description**
630	Wetland Forested Mixed

MITBANK REEDY CREEK MITIGATION BANK

Type Of Credits	Number Of Credits
	Mitigation Bank Cr Used
Fresh Water Forested	1.49

MITBANK	REEDY CREEK MITIGATION BANK
Total:	**1.49**

CERTIFICATION, OPERATION, AND MAINTENANCE:

Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

RELATED CONCERNS:

Water Use Permit Status:

Reedy Creek Energy Services reclaimed water will be the source for irrigation water for the project.

Dewatering will be conducted in accordance with Water Use Permit 48-01384-W, application 110920-8.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

Reedy Creek Energy Services

Waste Water System/Supplier:

Reedy Creek Energy Services

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

Historical/Archeological Resources:

The District has received correspondence from the Florida Department of State, Division of Historical Resources indicating that no significant archaeological or historical resources are recorded on the site; therefore the project is unlikely to have an effect upon any such resources.

This permit does not release the permittee from complying with any other agencies' requirements in the event that historical and/or archaeological resources are found on the site.

DEO/CZM Consistency Review:

Issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

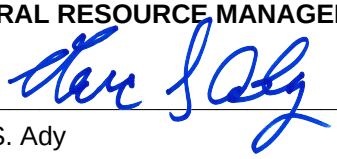
Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

DIVISION APPROVAL:

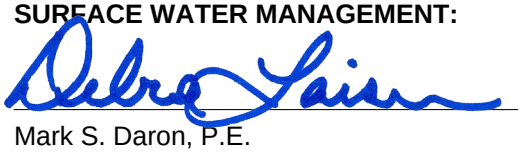
NATURAL RESOURCE MANAGEMENT:



Marc S. Ady

DATE: 9/27/18

SURFACE WATER MANAGEMENT:

for 

Mark S. Daron, P.E.

DATE: Sept. 27, 2018

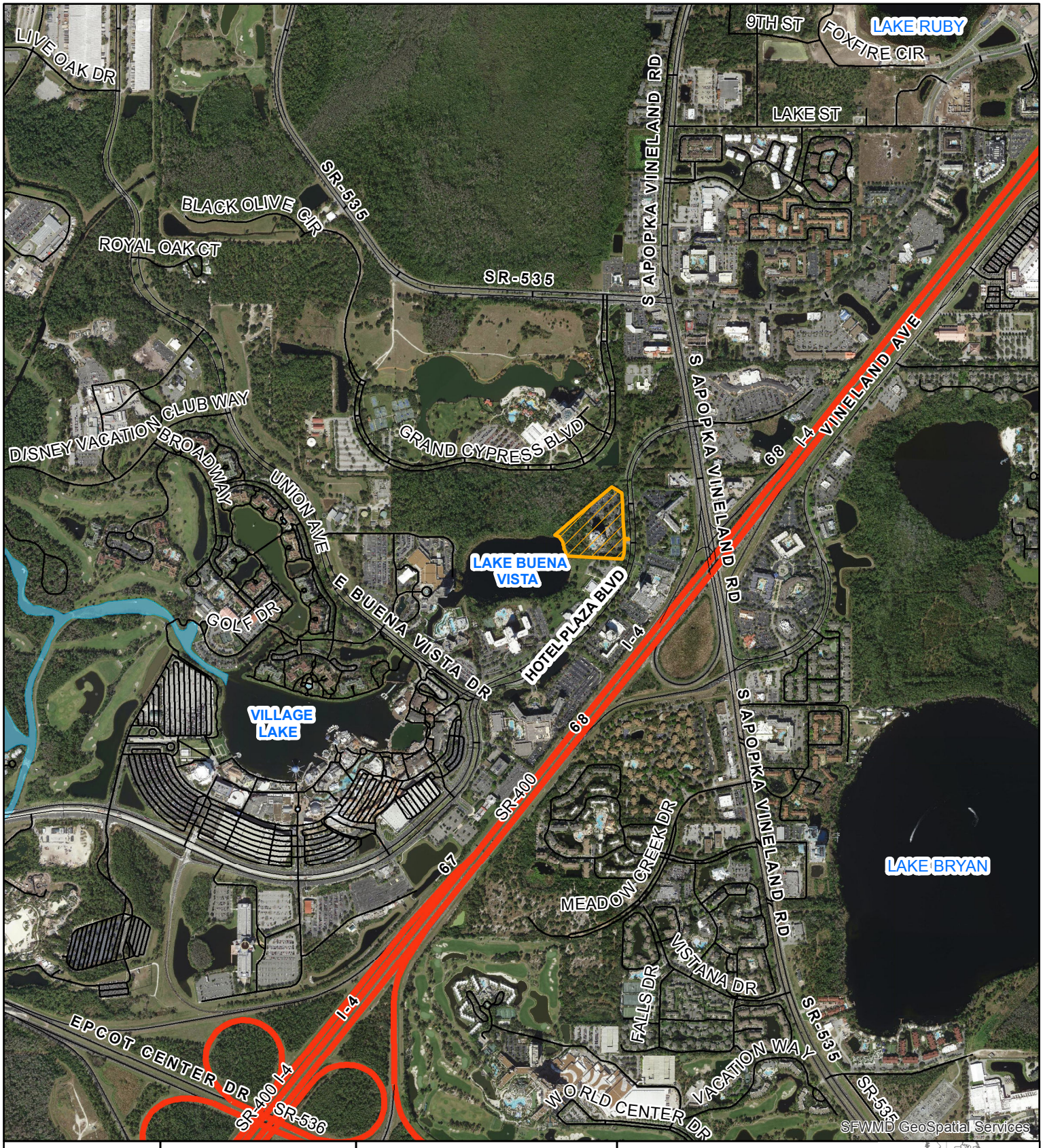


Exhibit No: 1	Exhibit Created On: 2018-09-25	ORANGE COUNTY, FL

REGULATION DIVISION

Project Name: BLACK LAKE HOTEL

Application

Permit No: 48-00714-P

Application Number: 180813-1

0 1,400 2,800 Feet

N

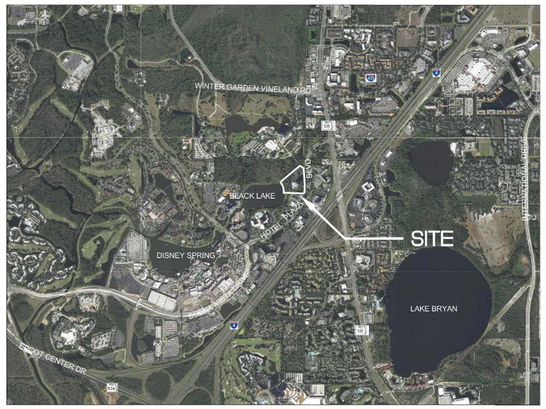
Created by

South Florida Water Management District

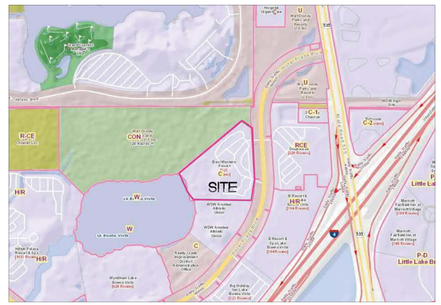
DRURY PLAZA HOTEL

2000 HOTEL PLAZA BLVD,
LAKE BUENA VISTA, FLORIDA 32830

PARCEL ID No.:21-24-28-0000-00-027
ORANGE COUNTY, FLORIDA



VICINITY MAP
SCALE: 1"=2,000'



LAND USE and ZONING
N.T.S.

OWNER

OWNER: WALT DISNEY PARKS AND RESORTS US INC.
TENANT: DRURY DEVELOPMENT CORP.
721 EMERSON ROAD, SUITE 200
ST. LOUIS, MO 63141
PHONE: 314-587-2530
CONTACT: JARED BARBEE

CIVIL ENGINEER

HARRIS CIVIL ENGINEERS, LLC
1200 EAST HILLCREST STREET, SUITE 200
ORLANDO, FLORIDA 32803
PHONE:407-629-4777
CONTACT: TORBEN ABBOTT, P.E.

LANDSCAPE ARCHITECT

VERLANDER LANDSCAPE ARCHITECTURE LLC
706 TURNBULL AVE, SUITE 201
ALTAMONTE SPRINGS, FLORIDA 32701
PHONE:407-834-4104
CONTACT: PAUL VERLANDER

ARCHITECT

DRURY DEVELOPMENT CORP.
721 EMERSON ROAD, SUITE 200
ST. LOUIS, MO 63141
PHONE: 314-587-2508
CONTACT: PAUL GRECO

POTABLE WATER /SANITARY/ RECLAIMED

REEDY CREEK ENERGY SERVICES
5300 N. CENTER DRIVE
LAKE BUENA VISTA, FL 32830
PHONE: 407-824-4759
CONTACT: JASON HERRICK
EMAIL: JASON.D.HERRICK@DISNEY.COM

UTILITIES

REEDY CREEK ENERGY SERVICES
5300 N. CENTER DRIVE
LAKE BUENA VISTA, FL 32830
PHONE: 407-824-4759
CONTACT: TED MCKIM

TRASH/RECYCLING

REEDY CREEK ENERGY SERVICES
5300 N. CENTER DRIVE
LAKE BUENA VISTA, FL 32830
PHONE: 407-824-4596
CONTACT: BILL SCHAEFER

NATURAL GAS

REEDY CREEK ENERGY SERVICES
5300 N. CENTER DRIVE
LAKE BUENA VISTA, FL 32830
PHONE: 321-512-0213
CONTACT: BRIAN TAGGART
EMAIL: BRIAN.L.TAGGART@DISNEY.COM

PHONE

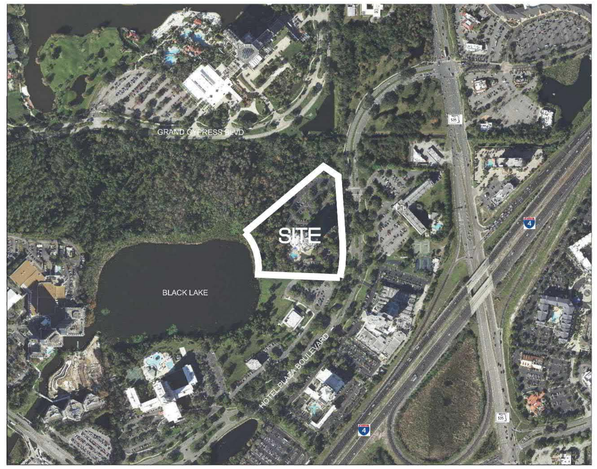
SMART CITY TELECOM
3100 BONNET CREEK ROAD
LAKE BUENA VISTA, FL 32830
PHONE: 407-828-6648
CONTACT: DAVE CAWLEY

ELECTRICAL DISTRIBUTION

REEDY CREEK ENERGY SERVICES
5300 N. CENTER DRIVE
LAKE BUENA VISTA, FL 32830
PHONE: 407-824-4194
CONTACT: JERRY MURPHY
EMAIL: JERRY.MURPHY@DISNEY.COM

TV/INTERNET

SUMMIT BROADBAND
4558 35TH STREET
ORLANDO FL 32881
PHONE: 407-996-6297
CONTACT: JACK LEOPARD
EMAIL: JACK.LEOPARD@SUMMIT-BROADBAND.COM



SITE LOCATION MAP
SCALE: 1"=500'

LEGAL DESCRIPTION:

A PARCEL OF LAND LYING IN SECTION 21, TOWNSHIP 24 SOUTH, RANGE 28 EAST, ORANGE COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 21, TOWNSHIP 24 SOUTH, RANGE 28 EAST, ORANGE COUNTY, FLORIDA, RUN THENCE SOUTH 00°03'19" WEST ALONG THE EAST LINE OF SAID SECTION 21, A DISTANCE OF 224.86 FEET; THENCE SOUTH 89°37'16" WEST PARALLEL TO THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER A DISTANCE OF 19.93 FEET FOR A POINT OF BEGINNING, SAID POINT BEING ON THE WESTERLY RIGHT OF WAY LINE OF HOTEL PLAZA BOULEVARD; RUN THENCE SOUTH 03°55'12" EAST ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 499.07 FEET TO THE POINT OF CURVATURE OF A CURVE, CONCAVE WESTERLY, HAVING A RADIUS OF 854.93 FEET; RUN THENCE ALONG THE ARC OF SAID CURVE AND ALONG SAID RIGHT OF WAY LINE THROUGH A CENTRAL ANGLE OF 17°21'41" A DISTANCE OF 259.06 FEET; THENCE LEAVING SAID RIGHT OF WAY LINE, RUN THENCE NORTH 87°44'47" WEST A DISTANCE OF 616 FEET, MORE OR LESS, TO THE WATERS EDGE OF LAKE BUENA VISTA, SAID POINT BEING DESIGNATED AS POINT A FOR CLARIFICATION; THENCE RETURN TO THE POINT OF BEGINNING; THENCE RUN NORTH 56°03'13" WEST A DISTANCE OF 132.75 FEET; THENCE SOUTH 49°56'25" WEST A DISTANCE OF 766 FEET, MORE OR LESS, TO THE WATERS EDGE OF SAID LAKE BUENA VISTA; THENCE SOUTHERLY ALONG SAID WATERS EDGE A DISTANCE OF 326 FEET, MORE OR LESS, TO CLOSE ON THE AFORESAID POINT A.

TOGETHER WITH THE INGRESS AND EGRESS EASEMENT SET OUT IN THE SPECIAL WARRANTY DEED RECORDED OCTOBER 5, 1971 IN OFFICIAL RECORD BOOK 2125, PAGE 311, OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

THE PROPERTY SHOWN ON THIS SURVEY IS THE SAME AS THAT REFERENCED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY OWNERS POLICY NUMBER 35516-10-6109925-2017.2730609-212052216, DATED AUGUST 14, 2017, AT 8:40 A.M.

DRAWING INDEX

SHEET NUMBER	SHEET TITLE
CIVIL	
C001	COVER SHEET
C002	GENERAL NOTES
C003	SURVEY
C004	SURVEY
C005	DEMOLITION, EROSION CONTROL & SOILS PLAN
C006	TURNING MOVEMENT PLAN - LOADING TRUCK INGRESS
C007	TURNING MOVEMENT PLAN - LOADING TRUCK EGRESS
C008	TURNING MOVEMENT PLAN - FIRE TRUCK
C100	OVERALL SITE PLAN
C101	GEOMETRY SITE PLAN
C102	GEOMETRY SITE PLAN
C103	GEOMETRY SITE PLAN
C104	GEOMETRY SITE PLAN
C200	OVERALL GRADING & DRAINAGE PLAN
C201	GRADING & DRAINAGE PLAN
C202	GRADING & DRAINAGE PLAN
C203	GRADING & DRAINAGE PLAN
C204	GRADING & DRAINAGE PLAN
C300	OVERALL UTILITY PLAN
C301	SITE UTILITY PLAN
C302	SITE UTILITY PLAN
C303	SITE UTILITY PLAN
C304	SITE UTILITY PLAN
C305	NORTH LOADING DOCK AREA UTILITY ENLARGE PLAN
C400	SITE DETAILS
C401	SITE DETAILS
C402	SOIL EROSION CONTROL DETAILS
C403	SITE DETAILS
C404	SITE DETAILS
C405	SITE DETAILS
C406	SITE DETAILS
LANDSCAPE	
LA-1	LANDSCAPE PLAN
LA-2	LANDSCAPE PLAN
LA-3	LANDSCAPE PLAN
LA-4	LANDSCAPE NOTES
LA-5	LANDSCAPE SPECIFICATIONS
LA-6	IRRIGATION SPECIFICATIONS
LI-1	IRRIGATION PLAN
LI-2	IRRIGATION PLAN
LI-3	IRRIGATION PLAN
LI-4	IRRIGATION DETAILS
ELECTRICAL	
E0.1	ELECTRICAL SITE PLAN UNDERGROUND

CALL 48 HOURS BEFORE YOU DIG
IT IS THE LAW.
DIAL 811
Sunshine State One Call 811 of Florida, Inc.

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, "X-CUT" WITH A REPORTED ELEVATION OF 108.76'

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
6	HCE	7/27/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688
FAX: (314) 423-6310

COVER SHEET

DRURY PLAZA HOTEL

The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY:
HCE

SHEET NO:
C001

COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE WITH THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS, LLC SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RIGHTS INCLUDING COPYRIGHTS AND OTHER PROPERTY RIGHTS IN THE DRAWING, OR ANY PART THEREOF. NO PART OF THIS DRAWING MAY BE REPRODUCED, DISCLOSED, FILED WITH GOVERNMENTAL AUTHORITIES, OR USED BY OR DISCLOSED TO ANY PERSON, FIRM OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT THE PRIOR WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS, LLC.

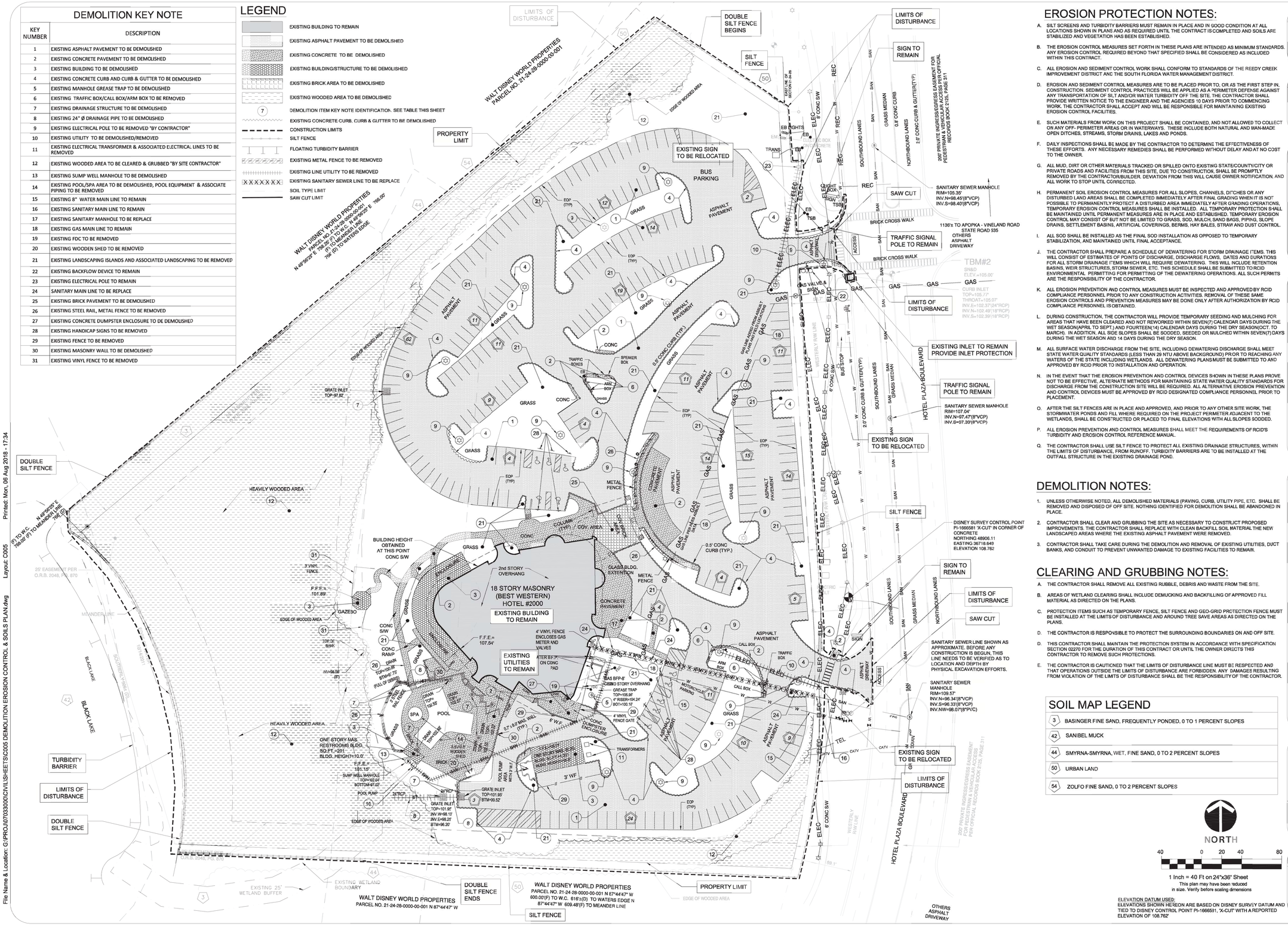
File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C001 COVER SHEET.dwg Layout: C001 Printed: Mon, 06 Aug 2018 - 17:30

DEMOLITION KEY NOTE

KEY NUMBER	DESCRIPTION
1	EXISTING ASPHALT PAVEMENT TO BE DEMOLISHED
2	EXISTING CONCRETE PAVEMENT TO BE DEMOLISHED
3	EXISTING BUILDING TO BE DEMOLISHED
4	EXISTING CONCRETE CURB AND CURB & GUTTER TO BE DEMOLISHED
5	EXISTING MANHOLE GREASE TRAP TO BE DEMOLISHED
6	EXISTING TRAFFIC BOX/CALL BOX/ARM BOX TO BE REMOVED
7	EXISTING DRAINAGE STRUCTURE TO BE DEMOLISHED
8	EXISTING 24" Ø DRAINAGE PIPE TO BE DEMOLISHED
9	EXISTING ELECTRICAL POLE TO BE REMOVED "BY CONTRACTOR"
10	EXISTING UTILITY TO BE DEMOLISHED/REMOVED
11	EXISTING ELECTRICAL TRANSFORMER & ASSOCIATED ELECTRICAL LINES TO BE REMOVED
12	EXISTING WOODED AREA TO BE CLEARED & GRUBBED "BY SITE CONTRACTOR"
13	EXISTING SUMP WELL MANHOLE TO BE DEMOLISHED
14	EXISTING POOL/SPA AREA TO BE DEMOLISHED, POOL EQUIPMENT & ASSOCIATE PIPING TO BE REMOVED
15	EXISTING 8" WATER MAIN LINE TO REMAIN
16	EXISTING SANITARY MAIN LINE TO REMAIN
17	EXISTING SANITARY MANHOLE TO BE REPLACE
18	EXISTING GAS MAIN LINE TO REMAIN
19	EXISTING FDC TO BE REMOVED
20	EXISTING WOODEN SHED TO BE REMOVED
21	EXISTING LANDSCAPING ISLANDS AND ASSOCIATED LANDSCAPING TO BE REMOVED
22	EXISTING BACKFLOW DEVICE TO REMAIN
23	EXISTING ELECTRICAL POLE TO REMAIN
24	SANITARY MAIN LINE TO BE REPLACE
25	EXISTING BRICK PAVEMENT TO BE DEMOLISHED
26	EXISTING STEEL RAIL, METAL FENCE TO BE REMOVED
27	EXISTING CONCRETE DUMPSTER ENCLOSURE TO DE DEMOLISHED
28	EXISTING HANDICAP SIGNS TO BE REMOVED
29	EXISTING FENCE TO BE REMOVED
30	EXISTING MASONRY WALL TO BE DEMOLISHED
31	EXISTING VINYL FENCE TO BE REMOVED

LEGEND

- EXISTING BUILDING TO REMAIN
- EXISTING ASPHALT PAVEMENT TO BE DEMOLISHED
- EXISTING CONCRETE TO BE DEMOLISHED
- EXISTING BUILDING/STRUCTURE TO BE DEMOLISHED
- EXISTING BRICK AREA TO BE DEMOLISHED
- EXISTING WOODED AREA TO BE DEMOLISHED
- (7) DEMOLITION ITEM KEY NOTE IDENTIFICATION. SEE TABLE THIS SHEET
- EXISTING CONCRETE CURB. CURB & GUTTER TO BE DEMOLISHED
- CONSTRUCTION LIMITS
- SILT FENCE
- FLOATING TURBIDITY BARRIER
- EXISTING METAL FENCE TO BE REMOVED
- EXISTING LINE UTILITY TO BE REMOVED
- XXXXXXX EXISTING SANITARY SEWER LINE TO BE REPLACE
- SOIL TYPE LIMIT
- SAW CUT LIMIT



EROSION PROTECTION NOTES:

A. SILT SCREENS AND TURBIDITY BARRIERS MUST REMAIN IN PLACE AND IN GOOD CONDITION AT ALL LOCATIONS SHOWN IN PLANS AND AS REQUIRED UNTIL THE CONTRACT IS COMPLETED AND SOILS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

B. THE EROSION CONTROL MEASURES SET FORTH IN THESE PLANS ARE INTENDED AS MINIMUM STANDARDS. ANY EROSION CONTROL REQUIRED BEYOND THAT SPECIFIED SHALL BE CONSIDERED AS INCLUDED WITHIN THIS CONTRACT.

C. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO STANDARDS OF THE REEDY CREEK IMPROVEMENT DISTRICT AND THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

D. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN, CONSTRUCTION. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTATION OF SILT AND/OR WATER TURBIDITY OFF THE SITE. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE ENGINEER AND THE AGENCIES 10 DAYS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL ACCEPT AND WILL BE RESPONSIBLE FOR MAINTAINING EXISTING EROSION CONTROL FACILITIES.

E. SUCH MATERIALS FROM WORK ON THIS PROJECT SHALL BE CONTAINED, AND NOT ALLOWED TO COLLECT ON ANY OFF- PERIMETER AREAS OR IN WATERWAYS. THESE INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.

F. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE THE EFFECTIVENESS OF THESE EFFORTS. ANY NECESSARY REMEDIES SHALL BE PERFORMED WITHOUT DELAY AND AT NO COST TO THE OWNER.

G. ALL MUD, DIRT OR OTHER MATERIALS TRACKED OR SPILLED ONTO EXISTING STATE/COUNTY/CITY OR PRIVATE ROADS AND FACILITIES FROM THIS SITE, DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR/BUILDER. DEVIATION FROM THIS WILL CAUSE OWNER NOTIFICATION AND ALL WORK TO STOP UNTIL CORRECTED.

H. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES OR ANY DISTURBED LAND AREAS SHALL BE COMPLETED IMMEDIATELY AFTER FINAL GRADING WHEN IT IS NO" POSSIBLE TO PERMANENTLY PROTECT A DISTURBED AREA IMMEDIATELY AFTER GRADING OPERATIONS, TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED. ALL TEMPORARY PROTECTION SHALL BE MAINTAINED UNTIL PERMANENT MEASURES ARE IN PLACE AND ESTABLISHED. TEMPORARY EROSION CONTROL MAY CONSIST OF BUT NOT BE LIMITED TO GRASS, SOD, MULCH, SAND BAGS, PIPING, SLOPE DRAINS, SETTLEMENT BASINS, ARTIFICIAL COVERINGS, BERMS, HAY BALES, STRAW AND DUST CONTROL.

I. ALL SOD SHALL BE INSTALLED AS THE FINAL SOD INSTALLATION AS OPPOSED TO TEMPORARY STABILIZATION, AND MAINTAINED UNTIL FINAL ACCEPTANCE.

J. THE CONTRACTOR SHALL PREPARE A SCHEDULE OF DEWATERING FOR STORM DRAINAGE ITEMS. THIS WILL CONSIST OF ESTIMATES OF POINTS OF DISCHARGE, DISCHARGE FLOWS, DATES AND DURATIONS FOR ALL STORM DRAINAGE ITEMS WHICH WILL REQUIRE DEWATERING. THIS WILL INCLUDE RETENTION BASINS, WEIR STRUCTURES, STORM SEWER, ETC. THIS SCHEDULE SHALL BE SUBMITTED TO RCID ENVIRONMENTAL PERMITTING FOR PERMITTING OF THE DEWATERING OPERATIONS. ALL SUCH PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

K. ALL EROSION PREVENTION AND CONTROL MEASURES MUST BE INSPECTED AND APPROVED BY RCID COMPLIANCE PERSONNEL PRIOR TO ANY CONSTRUCTION ACTIVITIES. REMOVAL OF THESE SAME EROSION CONTROLS AND PREVENTION MEASURES MAY BE DONE ONLY AFTER AUTHORIZATION BY RCID COMPLIANCE PERSONNEL IS OBTAINED.

L. DURING CONSTRUCTION, THE CONTRACTOR WILL PROVIDE TEMPORARY SEEDING AND MULCHING FOR AREAS THAT HAVE BEEN CLEARED AND NOT REWORKED WITHIN SEVEN(7) CALENDAR DAYS DURING THE WET SEASON(APRIL TO OCTOBER) AND FOURTEEN(14) CALENDAR DAYS DURING THE DRY SEASON(OCT. TO MARCH). IN ADDITION, ALL SIDE SLOPES SHALL BE SODDED, SEEDED OR MULCHED WITHIN SEVEN(7) DAYS DURING THE WET SEASON AND 14 DAYS DURING THE DRY SEASON.

M. ALL SURFACE WATER DISCHARGE FROM THE SITE, INCLUDING DEWATERING DISCHARGE SHALL MEET STATE WATER QUALITY STANDARDS (LESS THAN 29 NTU ABOVE BACKGROUND) PRIOR TO REACHING ANY WATERS OF THE STATE INCLUDING WETLANDS. ALL DEWATERING PLANS MUST BE SUBMITTED TO AND APPROVED BY RCID PRIOR TO INSTALLATION AND OPERATION.

N. IN THE EVENT THAT THE EROSION PREVENTION AND CONTROL DEVICES SHOWN IN THESE PLANS PROVE NOT TO BE EFFECTIVE, ALTERNATE METHODS FOR MAINTAINING STATE WATER QUALITY STANDARDS FOR DISCHARGE FROM THE CONSTRUCTION SITE WILL BE REQUIRED. ALL ALTERNATIVE EROSION PREVENTION AND CONTROL DEVICES MUST BE APPROVED BY RCID DESIGNATED COMPLIANCE PERSONNEL PRIOR TO PLACEMENT.

O. AFTER THE SILT FENCES ARE IN PLACE AND APPROVED, AND PRIOR TO ANY OTHER SITE WORK, THE STORMWATER PONDS AND FILL WHERE REQUIRED ON THE PROJECT PERIMETER ADJACENT TO THE WETLANDS, SHALL BE CONSTRUCTED OR PLACED TO FINAL ELEVATIONS WITH ALL SLOPES SODDED.

P. ALL EROSION PREVENTION AND CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF RCID'S TURBIDITY AND EROSION CONTROL REFERENCE MANUAL.

Q. THE CONTRACTOR SHALL USE SILT FENCE TO PROTECT ALL EXISTING DRAINAGE STRUCTURES, WITHIN THE LIMITS OF DISTURBANCE, FROM RUNOFF. TURBIDITY BARRIERS ARE TO BE INSTALLED AT THE OUTFALL STRUCTURE IN THE EXISTING DRAINAGE POND.

DEMOLITION NOTES:

1. UNLESS OTHERWISE NOTED, ALL DEMOLISHED MATERIALS (PAVING, CURB, UTILITY PIPE, ETC. SHALL BE REMOVED AND DISPOSED OF OFF SITE. NOTHING IDENTIFIED FOR DEMOLITION SHALL BE ABANDONED IN PLACE.
2. CONTRACTOR SHALL CLEAR AND GRUBBING THE SITE AS NECESSARY TO CONSTRUCT PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL REPLACE WITH CLEAN BACKFILL SOIL MATERIAL THE NEW LANDSCAPED AREAS WHERE THE EXISTING ASPHALT PAVEMENT WERE REMOVED.
3. CONTRACTOR SHALL TAKE CARE DURING THE DEMOLITION AND REMOVAL OF EXISTING UTILITIES, DUCT BANKS, AND CONDUIT TO PREVENT UNWANTED DAMAGE TO EXISTING FACILITIES TO REMAIN.

CLEARING AND GRUBBING NOTES:

A. THE CONTRACTOR SHALL REMOVE ALL EXISTING RUBBLE, DEBRIS AND WASTE FROM THE SITE.

B. AREAS OF WETLAND CLEARING SHALL INCLUDE DEMUCKING AND BACKFILLING OF APPROVED FILL MATERIAL AS DIRECTED ON THE PLANS.

C. PROTECTION ITEMS SUCH AS TEMPORARY FENCE, SILT FENCE AND GEO-GRID PROTECTION FENCE MUST BE INSTALLED AT THE LIMITS OF DISTURBANCE AND AROUND TREE SAVE AREAS AS DIRECTED ON THE PLANS.

D. THE CONTRACTOR IS RESPONSIBLE TO PROTECT THE SURROUNDING BOUNDARIES ON AND OFF SITE.

D. THIS CONTRACTOR SHALL MAINTAIN THE PROTECTION SYSTEM IN ACCORDANCE WITH SPECIFICATION SECTION 02270 FOR THE DURATION OF THIS CONTRACT OR UNTIL THE OWNER DIRECTS THIS CONTRACTOR TO REMOVE SUCH PROTECTIONS.

E. THE CONTRACTOR IS CAUTIONED THAT THE LIMITS OF DISTURBANCE LINE MUST BE RESPECTED AND THAT OPERATIONS OUTSIDE THE LIMITS OF DISTURBANCE ARE FORBIDDEN. ANY DAMAGES RESULTING FROM VIOLATION OF THE LIMITS OF DISTURBANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

SOIL MAP LEGEND

3	BASINGER FINE SAND, FREQUENTLY PONDED, 0 TO 1 PERCENT SLOPES
42	SANIBEL MUCK
44	SMYRNA-SMYRNA, WET, FINE SAND, 0 TO 2 PERCENT SLOPES
50	URBAN LAND
54	ZOLFO FINE SAND, 0 TO 2 PERCENT SLOPES

NORTH

40 0 20 40 80

1 Inch = 40 Ft on 24"x36" Sheet
This plan may have been reduced in size. Verify before scaling dimensions

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, 'X-CUT' WITH A REPORTED ELEVATION OF 108.762'

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
7	HCE	8/6/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688 FAX: (314) 423-6310

DEMOLITION EROSION CONTROL & SOILS PLAN

DRURY PLAZA HOTEL

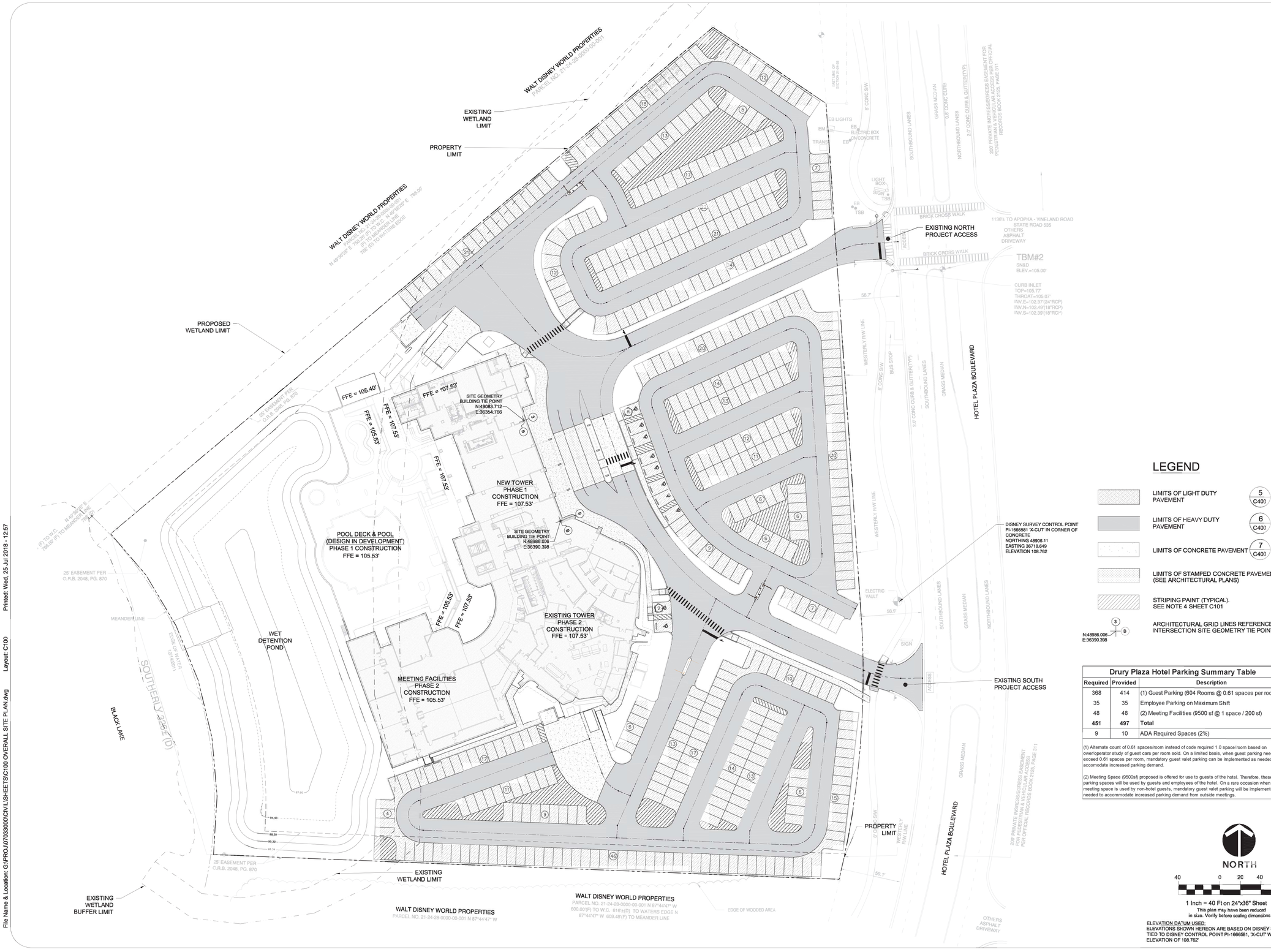
The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C005

File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C005 DEMOLITION EROSION CONTROL & SOILS PLAN.dwg Layout: C005 Printed: Mon, 06 Aug 2018 - 17:34

COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS, AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND ARE THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND FOR THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS ASSUMES NO LIABILITY FOR ANY USE NOT SPECIFICALLY APPROVED IN WRITING BY HARRIS CIVIL ENGINEERS. ALL RIGHTS RESERVED. UNPUBLISHED WORK UNDER U.S. COPYRIGHT LAW. THIS DRAWING IS TO BE RETURNED UPON REQUEST AND IS NOT TO BE REPRODUCED, CHANGED OR ASSIGNED TO ANY PROTECTED PROJECT, OR BE USED IN PART OR AS A WHOLE FOR EXTENSIONS OR ADDITIONS TO THIS PROJECT, OR FOR COMPLETION OF THIS PROJECT BY OTHERS, EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO HARRIS CIVIL ENGINEERS.



Drury Plaza Hotel Parking Summary Table		
Required	**Provided**	**Description**
368	414	(1) Guest Parking (604 Rooms @ 0.61 spaces per room)
35	35	Employee Parking on Maximum Shift
48	48	(2) Meeting Facilities (9500 sf @ 1 space / 200 sf)
451	**497**	**Total**
9	10	ADA Required Spaces (2%)

(1) Alternate count of 0.61 spaces/room instead of code required 1.0 space/room based on owner/operator study of guest cars per room sold. On a limited basis, when guest parking needs exceed 0.61 spaces per room, mandatory guest valet parking can be implemented as needed to accomodate increased parking demand.

(2) Meeting Space (9500sf) proposed is offered for use to guests of the hotel. Therefore, these 48 parking spaces will be used by guests and employees of the hotel. On a rare occasion when meeting space is used by non-hotel guests, mandatory guest valet parking will be implemented as needed to accommodate increased parking demand from outside meetings.

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, 'X-CUT' WITH A REPORTED ELEVATION OF 108.762'

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
6	HCE	07/13/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688 FAX: (314) 423-6310

DRURY PLAZA HOTEL

OVERALL SITE PLAN

The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C100

COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS, AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE WITH THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS, LLC RETAINS ALL COMMON LAW, STATUTORY AND OTHER RIGHTS INCLUDING COPYRIGHTS AND OTHER RIGHTS IN THE DRAWING, IN THE ORIGINAL PROJECT OR PURPOSE FOR WHICH THEY WERE PREPARED. REPRODUCTIONS, CHANGES OR ASSIGNMENT MAY NOT BE MADE WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS.

File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C100 OVERALL SITE PLAN.dwg Layout: C100 Printed: Wed, 25 Jul 2018 - 12:57



LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- DRAINAGE PIPE DIAMETER SHOWN ON PLAN
- DRAINAGE STRUCTURE CURB INLET TYPE 6 (FDOT INDEX NO. 211)
- DRAINAGE INLET STRUCTURE .SEE DRAINAGE TABLE THIS SHEET.
- DRAINAGE STRUCTURE MANHOLE TYPE P (FDOT INDEX NO. 280)
- DRAINAGE STRUCTURE MITERED END SECTION (FDOT INDEX NO. 273)

NOTE

1. DIFFUSED AERATION AIR FLO 3 SYSTEM AF3-242 OR APPROVED EQUAL PER OWNER (COORDINATE PRODUCT ORDER INSTALLATION WITH OWNER).
2. TAPER PROPOSED GRADE TO EXISTING GRADE AT MAXIMUM 3:1 SLOPE.
3. FOR DRAINAGE STRUCTURE BOTTOMS TYPE J, P, CURB INLET TYPE 6 AND DITCH BOTTOM INLET E DETAILS REFER TO FLORIDA D.O.T. "DESIGN STANDARDS" INDEX DRAINAGE DRAWINGS.

DRAINAGE TABLE

D01
FDOT INDEX No. 214
INLET TYPE 9
W/J BOTTOM
RIM: 98.72
INV: 94.04 (NE)
INV: 93.54 (SW)
N: 49206.66
E: 36235.43

D01a
FDOT INDEX No. 200
TYPE MANHOLE
J BOTTOM
RIM: 101.83
INV: 92.98 (NE)
INV: 92.98 (SW)
N: 49131.52
E: 36166.63

D02
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 99.02
INV: 94.50 (NE)
INV: 94.50 (SW)
N: 49256.16
E: 36294.09

D03
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
N: 49326.79
E: 36422.00
INV: 95.89 (SE)
INV: 95.39 (SW)

D04
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 100.84
INV: 96.81 (SE)
INV: 96.81 (NW)
N: 49273.22
E: 36453.94

D05
FDOT INDEX No. 211
CURB INLET TYPE 6
RIM: 102.93
INV: 98.76 (SE)
INV: 98.26 (NW)
N: 49193.29
E: 36511.51

D06
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 103.47
INV: 100.15 (SE)
INV: 100.15 (NW)
N: 49138.19
E: 36536.86

D07
FDOT INDEX No. 232
INLET TYPE C
W/P BOTTOM
RIM: 103.91
INV: 101.13 (SW)
INV: 101.13 (NW)
N: 49029.15
E: 36586.98

D08
FDOT INDEX No. 211
CURB INLET TYPE 6
RIM: 105.47
INV: 101.61 (NE)
N: 48954.50
E: 36510.23

D09
FDOT INDEX No. 214
INLET TYPE 9
W/J BOTTOM
RIM: 98.32
INV: 92.74 (E)
INV: 92.74 (NW)
N: 48658.88
E: 36209.38

D10
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 103.42
INV: 97.53 (E)
INV: 97.78 (N)
INV: 97.03 (W)
N: 48718.36
E: 36458.41

D11
FDOT INDEX No. 232
INLET TYPE C
W/P BOTTOM
RIM: 106.90
INV: 102.16 (W)
N: 48739.29
E: 36643.82

MES1
FDOT INDEX No. 273
36" MES
RIM: 95.75
INV: 92.42 (NE)
N: 49041.96
E: 36115.79

MES2
FDOT INDEX No. 273
30" MES
RIM: 95.43
INV: 92.64 (SE)
N: 48704.71
E: 36160.40

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, 'X-CUT' WITH A REPORTED ELEVATION OF 108.762'

NORTH
40 0 20 40 80
1 Inch = 40 Ft on 24"x36" Sheet
This plan may have been reduced in size. Verify before scaling dimensions

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
7	HCE	8/6/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688 FAX: (314) 423-6310

OVERALL GRADING & DRAINAGE PLAN
DRURY PLAZA HOTEL

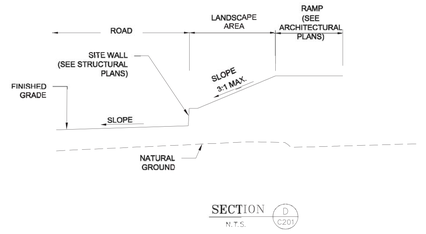
The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C200

COPYRIGHT © 2018 ALL IDEAS, DESIGNS/ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE, OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS, LLC EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE IDEAS, DESIGNS/ARRANGEMENTS AND PLANS. NO PART OF THIS DRAWING MAY BE DISCLOSED TO OTHERS WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS, LLC AND NO PART OF THIS DRAWING SHALL BE USED BY ANY PERSON OR ENTITY FOR ANY PROJECT OTHER THAN THE SPECIFIED PROJECT FOR WHICH IT HAS BEEN PREPARED AND DEVELOPED AS AN INSTRUMENT OF SERVICE. VISUAL CONTACT WITH THESE DRAWINGS SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS. THE SPECIFIED RECIPIENT OR ENTITY AGREES TO INDEMNIFY AND HOLD HARRIS CIVIL ENGINEERS, LLC AND ITS OFFICERS AND EMPLOYEES HARMLESS FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING THEREFROM.

File Name & Location: G:\PROJ\07033000\CIV\LISHEETS\C200 OVERALL GRADING & DRAINAGE PLAN.dwg Layout: C200 Printed: Tue, 07 Aug 2018 - 11:12



SECTION D C201
N.T.S.

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- DRAINAGE PIPE DIAMETER SHOWN ON PLAN
- DRAINAGE STRUCTURE CURB INLET TYPE 6 (FDOT INDEX NO. 211)
- DRAINAGE INLET STRUCTURE .SEE DRAINAGE TABLE THIS SHEET.
- DRAINAGE STRUCTURE MANHOLE TYPE P (FDOT INDEX NO. 200)
- DRAINAGE STRUCTURE MITERED END SECTION (FDOT INDEX NO. 273)
- 98.65 FINISHED GRADE ELEVATION
- 98.65 EXISTING SPOT ELEVATION
- S=2.0% PROPOSED GRADE SLOPE

PAVING, GRADING AND DRAINAGE NOTES:

PAVING

A. THE CONTRACTOR SHALL INSTALL ALL CURBING, PAVEMENT BASE, LEVELING COURSE AND FIRST LIFT OF ASPHALT AT THE EARLIEST POSSIBLE DATE. THE FINAL LIFT OF ASPHALT, INCLUDING PAVEMENT MARKINGS, SHALL NOT BE LAID UNTIL AFTER THE FLOOD TEST IS COMPLETED AND SITE WORK IS SUBSTANTIALLY COMPLETE. THE CONTRACTOR MUST OBTAIN WRITTEN AUTHORIZATION FROM THE OWNER PRIOR TO LAYING THE FINAL LIFT OF ASPHALT. ALL LID COVERS, GRATES, ETC., ARE TO BE LOCATED AND LEVELED TO MATCH FINAL PAVEMENT GRADE.

B. THE CONTRACTOR SHALL REPAIR ANY DAMAGE BASE, ASPHALT OR CURBS PRIOR TO LAYING THE FINAL LIFT OF ASPHALT.

C. CONTRACTOR TO SAWCUT A CLEAN EDGE ON ALL EXISTING PAVEMENT WHICH TIES INTO NEW PAVEMENT.

GRADING

D. TAPER PROPOSED GRADE TO EXISTING GRADE AT MAXIMUM 3:1 SLOPE.

DRAINAGE

1. FOR DRAINAGE STRUCTURE BOTTOMS TYPE J, P, CURB INLET TYPE 5 AND DITCH BOTTOM INLET E DETAILS REFER TO FLORIDA D.O.T. "DESIGN STANDARDS" INDEX DRAINAGE DRAWINGS.

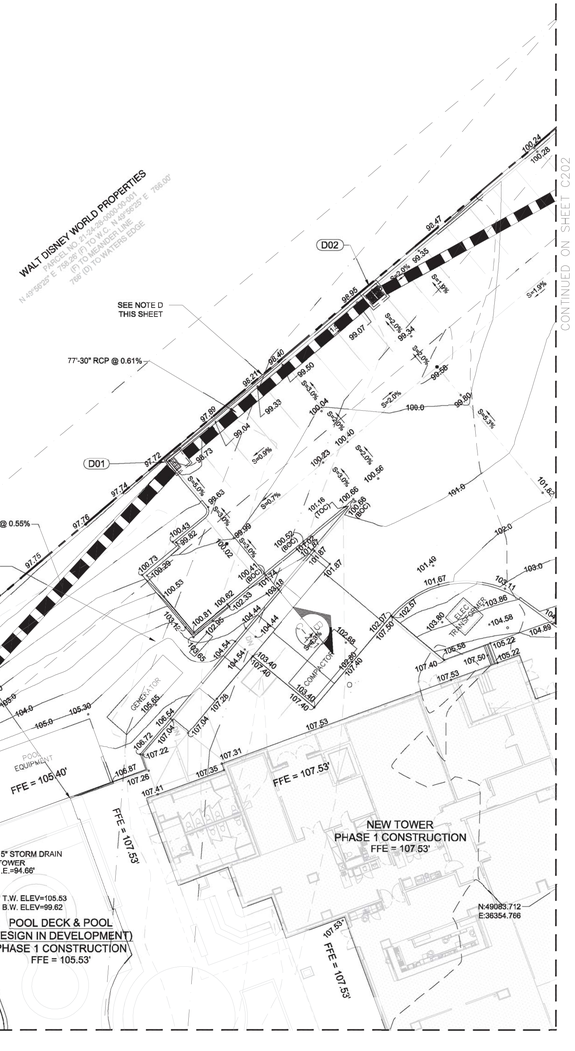
DRAINAGE TABLE

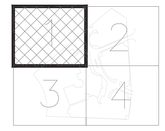
D01
FDOT INDEX No. 214
INLET TYPE 9
W/J BOTTOM
RIM: 98.72
INV: 94.04 (NE)
INV: 93.54 (SW)
N: 49206.66
E: 36235.43

D01a
FDOT INDEX No. 200
TYPE MANHOLE
J BOTTOM
RIM: 101.83
INV: 92.98 (NE)
INV: 92.98 (SW)
N: 49131.52
E: 36166.63

D02
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 99.02
INV: 94.50 (NE)
INV: 94.50 (SW)
N: 49256.16
E: 36294.09

MES1
FDOT INDEX No. 273
36" MES
RIM: 95.75
INV: 92.42 (NE)
N: 49041.96
E: 36115.79





SHEET KEY

NORTH

20 0 10 20 40

1 Inch = 20 Ft on 24"x36" Sheet
This plan may have been reduced in size. Verify before scaling dimensions

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, "X-CUT" WITH A REPORTED ELEVATION OF 108.762

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
7	HCE	8/06/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688
FAX: (314) 423-6310

GRADING & DRAINAGE PLAN

DRURY PLAZA HOTEL

The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C201

COPYRIGHT © 2018 ALL DECKS, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE WITH THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS, LLC RESERVES COPYRIGHTS AND OTHER RIGHTS RESTRICTING THIS DRAWING FROM BEING USED BY ANY PERSON OR ENTITY FOR ANY PURPOSE OTHER THAN THE ORIGINAL PROJECT OR PURPOSE FOR WHICH IT WAS PREPARED. REPRODUCTIONS, CHANGES OR ASSIGNMENTS ARE PROHIBITED WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS.

File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C201_C204 GRADING & DRAINAGE PLAN.dwg Layout: C201 Printed: Tue, 07 Aug 2018 - 11:22



LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- DRAINAGE PIPE DIAMETER SHOWN ON PLAN
- DRAINAGE STRUCTURE CURB INLET TYPE 6 (FDOT INDEX NO. 2:1)
- DRAINAGE INLET STRUCTURE .SEE DRAINAGE TABLE THIS SHEET.
- DRAINAGE STRUCTURE MANHOLE TYPE P (FDOT INDEX NO. 200)
- DRAINAGE STRUCTURE MITERED END SECTION (FDOT INDEX NO. 273)
- 98.65 FINISHED GRADE ELEVATION
- 98.65 EXISTING SPOT ELEVATION
- S=2.0% PROPOSED GRADE SLOPE

PAVING, GRADING AND DRAINAGE NOTES:

PAVING

A. THE CONTRACTOR SHALL INSTALL ALL CURBING, PAVEMENT BASE, LEVELING COURSE AND FIRST LIFT OF ASPHALT AT THE EARLIEST POSSIBLE DATE. THE FINAL LIFT OF ASPHALT, INCLUDING PAVEMENT MARKINGS, SHALL NOT BE LAID UNTIL AFTER THE FLOOD TEST IS COMPLETED AND SITE WORK IS SUBSTANTIALLY COMPLETE. THE CONTRACTOR MUST OBTAIN WRITTEN AUTHORIZATION FROM THE OWNER PRIOR TO LAYING THE FINAL LIFT OF ASPHALT. ALL LID COVERS, GRATES, ETC., ARE TO BE LOCATED AND LEVELED TO MATCH FINAL PAVEMENT GRADE.

B. THE CONTRACTOR SHALL REPAIR ANY DAMAGE BASE, ASPHALT OR CURBS PRIOR TO LAYING THE FINAL LIFT OF ASPHALT.

C. CONTRACTOR TO SAWCUT A CLEAN EDGE ON ALL EXISTING PAVEMENT WHICH TIES INTO NEW PAVEMENT.

GRADING

D. TAPER PROPOSED GRADE TO EXISTING GRADE AT MAXIMUM 3:1 SLOPE.

DRAINAGE

1. FOR DRAINAGE STRUCTURE BOTTOMS TYPE J, P, CURB INLET TYPE 6 AND DITCHBOTTOM INLET E DETAILS REFER TO FLORIDA D.O.T. "DESIGN STANDARDS" INDEX DRAINAGE DRAWINGS.

DRAINAGE TABLE

D03
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 99.71
INV: 95.89 (SE)
INV: 95.39 (SW)
N: 49326.79
E: 36422.00

D04
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 100.84
INV: 96.81 (SE)
INV: 96.81 (NW)
N: 49273.22
E: 36453.94

D05
FDOT INDEX No. 211
CURB INLET TYPE 6
RIM: 102.93
INV: 98.76 (SE)
INV: 98.26 (NW)
N: 49193.29
E: 36511.51

D06
FDOT INDEX No. 232
INLET TYPE E
W/J BOTTOM
RIM: 103.47
INV: 100.15 (SE)
INV: 100.15 (NW)
N: 49138.19
E: 36536.86

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, "X-CUT" WITH A REPORTED ELEVATION OF 108.762'

SHEET KEY

NORTH

20 0 10 20 40
1 Inch = 20 Ft on 24"x36" Sheet
This plan may have been reduced in size. Verify before scaling dimensions

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
7	HCE	8/6/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688 FAX: (314) 423-6310

GRADING & DRAINAGE PLAN

DRURY PLAZA HOTEL

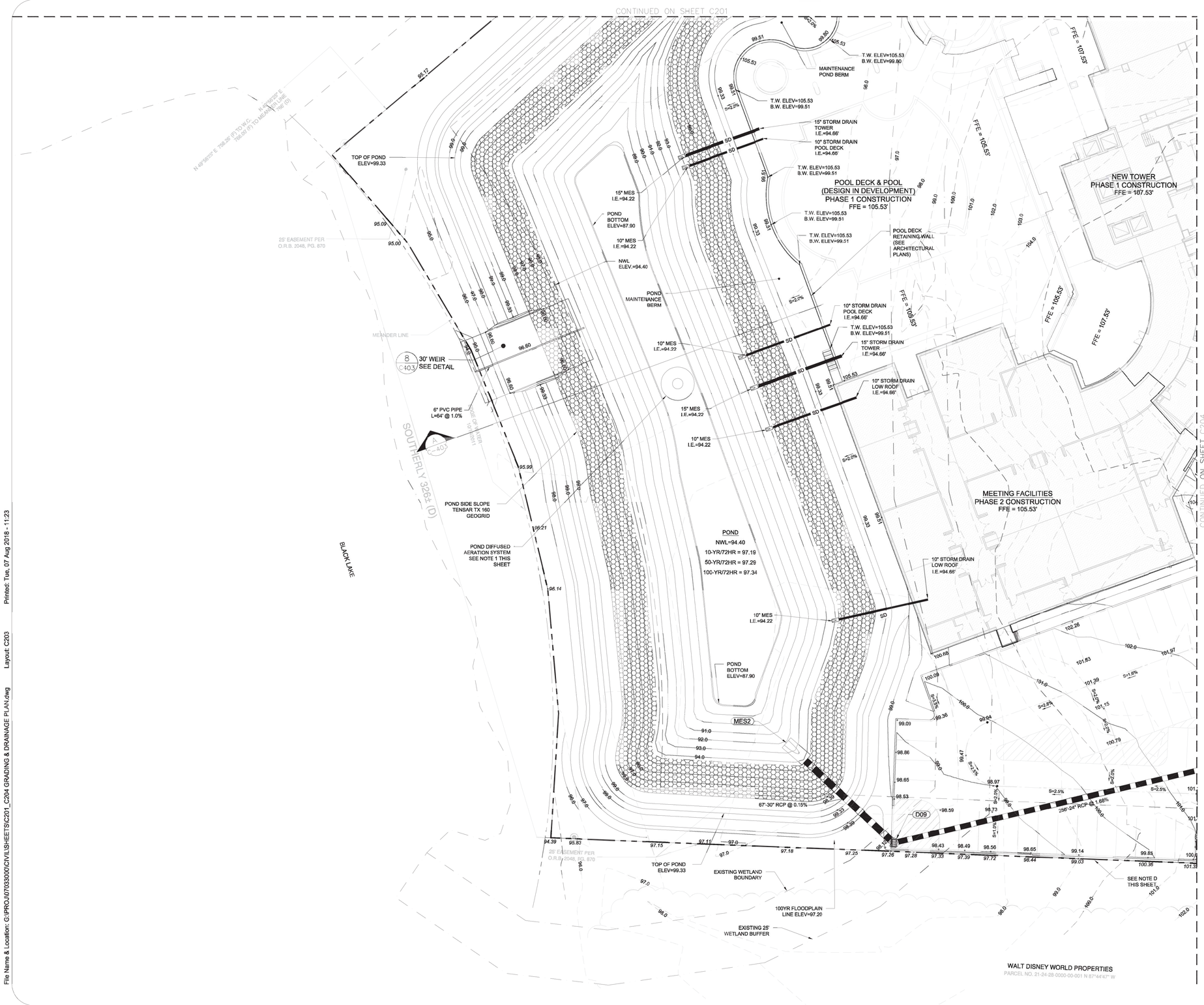
The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C202

COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS, AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND IN CONNECTION WITH THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS, LLC SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RIGHTS, INCLUDING COPYRIGHTS, IN THE DRAWING. NO PART OF THIS DRAWING SHALL BE DISCLOSED, COPIED OR ASSIGNED, NOR PROVIDED WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS, LLC. VISUAL CONTACT WITH THIS DRAWING SHALL CONSTITUTE CONCLUSIVE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS. THIS DRAWING IS TO THE ORIGINAL PROJECT ON PURPOSE, DIM. BASIS, SIZE, PREPARED, REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS, LLC.

File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C201_C204 GRADING & DRAINAGE PLAN.dwg Layout: C202 Printed: Tue, 07 Aug 2018 - 11:23



LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- DRAINAGE PIPE DIAMETER SHOWN ON PLAN
- DRAINAGE STRUCTURE CURB INLET TYPE 6 (FDOT INDEX NO. 211)
- DRAINAGE INLET STRUCTURE .SEE DRAINAGE TABLE THIS SHEET.
- DRAINAGE STRUCTURE MANHOLE TYPE P (FDOT INDEX NO. 200)
- DRAINAGE STRUCTURE MITERED END SECTION (FDOT INDEX NO. 273)
- 98.65 FINISHED GRADE ELEVATION
- 98.65 EXISTING SPOT ELEVATION
- S=2.0% PROPOSED GRADE SLOPE

PAVING, GRADING AND DRAINAGE NOTES:

PAVING

A. THE CONTRACTOR SHALL INSTALL ALL CURBING, PAVEMENT BASE, LEVELING COURSE AND FIRST LIFT OF ASPHALT AT THE EARLIEST POSSIBLE DATE. THE FINAL LIFT OF ASPHALT, INCLUDING PAVEMENT MARKINGS, SHALL NOT BE LAID UNTIL AFTER THE FLOOD TEST IS COMPLETED AND SITE WORK IS SUBSTANTIALLY COMPLETE. THE CONTRACTOR MUST OBTAIN WRITTEN AUTHORIZATION FROM THE OWNER PRIOR TO LAYING THE FINAL LIFT OF ASPHALT. ALL LID COVERS, GRATES, ETC., ARE TO BE LOCATED AND LEVELED TO MATCH FINAL PAVEMENT GRADE.

B. THE CONTRACTOR SHALL REPAIR ANY DAMAGE BASE, ASPHALT OR CURBS PRIOR TO LAYING THE FINAL LIFT OF ASPHALT.

C. CONTRACTOR TO SAWCUT A CLEAN EDGE ON ALL EXISTING PAVEMENT WHICH TIES INTO NEW PAVEMENT.

GRADING

D. TAPER PROPOSED GRADE TO EXISTING GRADE AT MAXIMUM 3:1 SLOPE.

DRAINAGE

1. DIFFUSED AERATION AIR FLO 3 SYSTEM AF3-2/42 OR APPROVED EQUAL PER OWNER. (COORDINATE PRODUCT ORDER INSTALLATION WITH: OWNER).
2. FOR DRAINAGE STRUCTURE BOTTOMS J, P, CURB INLET TYPE 6 AND DITCH BOTTOM INLET E DETAILS REFER TO FLORIDA D.O.T. "DESIGN STANDARDS" INDEX DRAINAGE DRAWINGS.

DRAINAGE TABLE

D09
FDOT NDEX No 214
INLET TYPE 9
W/J BOTTOM
RIM: 98.32
INV: 92.74 (E)
INV: 92.74 (NW)
N: 48658.88
E: 36269.38

MES2
FDOT NDEX No. 273
30" MES
RIM: 99.43
INV: 92.64 (SE)
N: 48704.71
E: 36160.40

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, "X-CUT" WITH A REPORTED ELEVATION OF 108.762'

SHEET KEY

NORTH

20 0 10 20 40
1 Inch = 20 Ft on 24"x36" Sheet
This plan may have been reduced in size. Verify before scaling dimensions

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
7	HCE	8/6/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688 FAX: (314) 423-6310

GRADING & DRAINAGE PLAN

DRURY PLAZA HOTEL

The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C203

COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE, OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS, LLC AND ARE NOT TO BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT, WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS, LLC.

File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C201_C204 GRADING & DRAINAGE PLAN.dwg Layout: C203 Printed: Tue, 07 Aug 2018 - 11:23



LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- DRAINAGE PIPE DIAMETER SHOWN ON PLAN
- DRAINAGE STRUCTURE CURB INLET TYPE 6 (FDOT INDEX NO. 211)
- DRAINAGE INLET STRUCTURE .SEE DRAINAGE TABLE THIS SHEET.
- DRAINAGE STRUCTURE MANHOLE TYPE P (FDOT INDEX NO. 200)
- DRAINAGE STRUCTURE MITERED END SECTION (FDOT INDEX NO. 273)
- 98.65 FINISHED GRADE ELEVATION
- 98.65 EXISTING SPOT ELEVATION
- S=2.0% PROPOSED GRADE SLOPE

PAVING, GRADING AND DRAINAGE NOTES:

PAVING

A. THE CONTRACTOR SHALL INSTALL ALL CURBING, PAVEMENT BASE, LEVELING COURSE AND FIRST LIFT OF ASPHALT AT THE EARLIEST POSSIBLE DATE. THE FINAL LIFT OF ASPHALT, INCLUDING PAVEMENT MARKINGS, SHALL NOT BE LAID UNTIL AFTER THE FLOOD TEST IS COMPLETED AND SITE WORK IS SUBSTANTIALLY COMPLETE. THE CONTRACTOR MUST OBTAIN WRITTEN AUTHORIZATION FROM THE OWNER PRIOR TO LAYING THE FINAL LIFT OF ASPHALT. ALL LID COVERS, GRATES, ETC., ARE TO BE LOCATED AND LEVELED TO MATCH FINAL PAVEMENT GRADE.

B. THE CONTRACTOR SHALL REPAIR ANY DAMAGE BASE, ASPHALT OR CURBS PRIOR TO LAYING THE FINAL LIFT OF ASPHALT.

C. CONTRACTOR TO SAWCUT A CLEAN EDGE ON ALL EXISTING PAVEMENT WHICH TIES INTO NEW PAVEMENT.

GRADING

D. TAPER PROPOSED GRADE TO EXISTING GRADE AT MAXIMUM 3:1 SLOPE.

DRAINAGE

1. FOR DRAINAGE STRUCTURE BOTTOMS TYPE J, P, CURB INLET TYPE 6 AND DITCH BOTTOM INLET E DETAILS REFER TO FLORIDA D.O.T. "DESIGN STANDARDS" INDEX DRAINAGE DRAWINGS.

DRAINAGE TABLE

D07	D10
FDOT INDEX No. 232	FDOT INDEX No. 232
INLET TYPE C	INLET TYPE E
W/P BOTTOM	W/J BOTTOM
RIM: 103.91	RIM: 103.42
INV: 101.13 (SW)	INV: 97.53 (E)
INV: 101.13 (NW)	INV. 97.78 (N)
N: 49029.15	INV. 97.03 (W)
E: 36586.98	N: 48718.36
	E: 36458.41

D08	D11
FDOT INDEX No. 211	FDOT INDEXNo. 232
CURB INLET TYPE 6	INLET TYPE C
RIM: 105.47	W/P BOTTOM
INV: 101.61 (NE)	RIM: 106.90
N: 48954.50	INV. 102.16 (W)
E: 36510.23	N: 48739.29
	E: 36643.82

ELEVATION DATUM USED:
ELEVATIONS SHOWN HEREON ARE BASED ON DISNEY SURVEY DATUM AND TIED TO DISNEY CONTROL POINT PI-1666581, "X-CUT" WITH A REPORTED ELEVATION OF 108.762'

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
7	HCE	8/6/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688 FAX: (314) 423-6310

GRADING & DRAINAGE PLAN

DRURY PLAZA HOTEL

SHEET KEY

The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

NORTH

20 0 10 20 40
1 Inch = 20 Ft on 24"x36" Sheet
This plan may have been reduced in size. Verify before scaling dimensions

DRAWN BY: HCE

SHEET NO: C204

COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE, OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS RESERVES COPYRIGHTS AND OTHER RIGHTS RESTRICTING THIS DRAWING TO THE ORIGINAL PROJECT OR PURPOSE FOR WHICH IT WAS PREPARED. REPRODUCTIONS, CHANGES OR ASSIGNMENTS ARE PROHIBITED WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS.

File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C201_C204 GRADING & DRAINAGE PLAN.dwg Layout: C204 Printed: Tue, 07 Aug 2018 - 11:24

Erosion Prevention and Control construction Notes

A. All erosion prevention and control measures must be inspected and approved by RCID compliance personnel prior to any construction activities. Removal of these same erosion controls and prevention measures may be done only after authorization by RCID compliance personnel is obtained.

B. During construction the contractor will provide temporary seeding and mulching for areas that have been cleared and not reworked within 7 calendar days during the wet season (April through September) and 14 calendar days during the dry season (October through March). Also, all sides slopes shall be sodded or seeded or mulched within 7 days during the wet season and 14 days during the dry season.

C. All surfaces water discharge from this site, including dewatering discharge shall meet state water quality standards (less than 29 NTU above background) prior to reaching any waters of the state, including wetlands.

D. In the event that the erosion prevention and control devices shown in these plans prove not to be effective, alternate methods for maintaining state water quality standards for discharge from the construction site will be required. One effective alternative method includes the induction of Aluminum Sulfate (Alum) into the discharge from the construction site. Note that any alternate erosion prevention and control devices must be approved by RCID compliance personnel prior to placement.

NOT TO SCALE

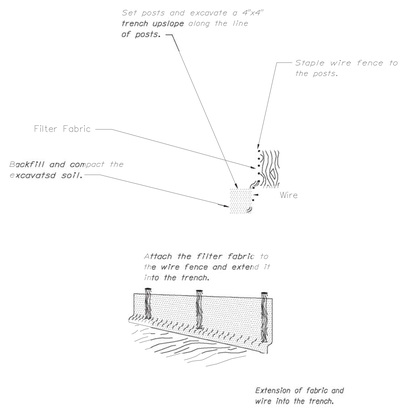
Civil Engineering Department
P.O. BOX 10000,
Lake Buena Vista Florida 32830-1000
Certificate of Authorization No. 27841

EROSION PREVENTION CONTROL CONSTRUCTION NOTES

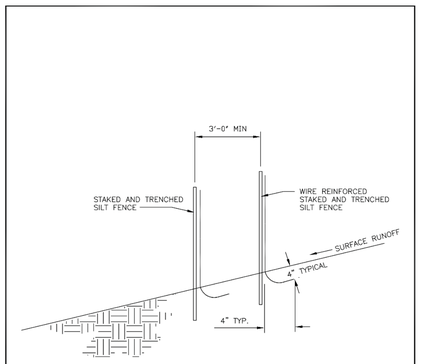
DESIGNED FOR: Reedy Creek Improvement District

ISSUE	APPR	DATE	ISSUED FOR
2	JH	3/22/2018	TITLE BLOCK UPDATED

FIGURE: G-12



SILT FENCE INSTALLATION DETAIL
N.T.S.
2 C402



NOT TO SCALE

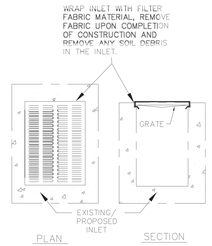
Civil Engineering Department
P.O. BOX 10000,
Lake Buena Vista Florida 32830-1000
Certificate of Authorization No. 27841

DOUBLE ROW STAKED SILT FENCE

DESIGNED FOR: Reedy Creek Improvement District

ISSUE	APPR	DATE	ISSUED FOR
2	JH	3/22/2018	TITLE BLOCK UPDATED

FIGURE: G-11

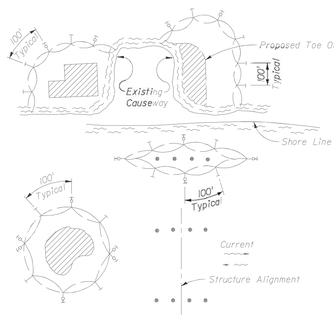


INLET PROTECTION FILTER FABRIC DETAIL
N.T.S.
4 C402

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.

NOTICE: COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS



LEGEND
- Pile Locations
- Dredge Or Fill Area
- Mooring Buoy w/Anchor
- Anchor
- Barrier Movement Due To Current Action

NOTES:
1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
2. Number and spacing of anchors dependent on current velocities.
3. Deployment of barrier around pile locations may vary to accommodate construction operations.
4. Navigation may require segmenting barrier during construction operations.
5. For additional information see Section 104 of the Standard Specifications.

FLOATING TURBIDITY BARRIER
N.T.S.
5 C402

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
6	HCE	07/13/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6888 FAX: (314) 423-6310

SOIL EROSION CONTROL DETAILS

DRURY PLAZA HOTEL

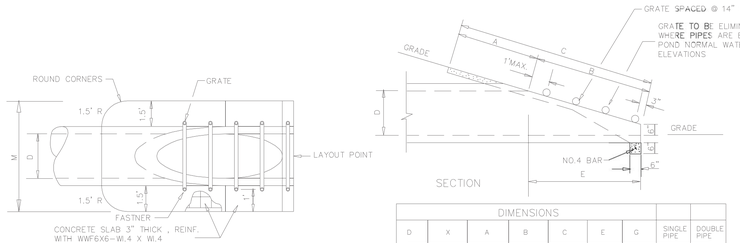
The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C402

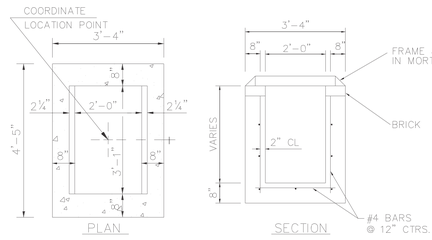
COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS AND PLANS INDICATED, OR REPRESENTED BY, THIS DRAWING ARE, OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS RESERVES COPYRIGHTS AND OTHER RIGHTS RESTRICTING THIS DRAWING TO THE ORIGINAL PROJECT OR PURPOSE FOR WHICH THEY WERE PREPARED. REPRODUCTIONS, CHANGES OR ASSIGNMENTS ARE PROHIBITED WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS.

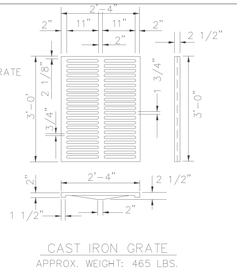
File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C-400_C406 SITE DETAILS.dwg Layout: C402 Printed: Wed, 25 Jul 2018 - 10:49



DIMENSIONS								
D	X	A	B	C	E	G	SINGLE PIPE	DOUBLE PIPE
15"	2'-7"	2.27'	4.09'	6.36'	4.03'	1.22'	4.63'	7.21'
18"	2'-10"	2.36'	5.12'	7.48'	5.03'	1.41'	4.92'	7.79'
24"	3'-5"	2.53'	7.18'	9.71'	7.03'	1.73'	5.50'	8.92'
30"	4'-3"	2.70'	9.25'	11.75'	9.03'	2.00'	6.08'	10.03'
36"	5'-1"	2.87'	11.31"	14.81'	11.03'	2.24'	6.67'	11.75'
42"	6'-0"	3.05'	13.37'	16.42'	13.03'	2.45'	7.25'	13.25'
48"	6'-9"	3.22'	15.43'	18.63'	15.03'	2.65'	7.83'	14.58'
54"	7'-8"	3.39'	17.49'	20.88'	17.03'	2.83'	8.42'	16.08'

MITERED END SECTION
FDOT INDEX NO. 273
N.T.S.
1 C403





RECOMMENDED MAXIMUM PIPE SIZE:
2'-0" WALL - 18" PIPE
3'-1" WALL - 24" PIPE

APPROX. WEIGHT: 465 LBS.

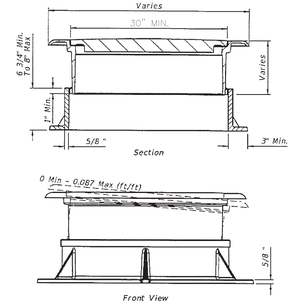
NOTE: GRATE MUST BE CAPABLE OF SUPPORTING H-20 HIGHWAY LOADS
USE USF FRAME & GRATE #4160 & #6212

NOTES: 1. FOR PRECAST STRUCTURES WALL THICKNESS CAN BE 6" MIN.
2. INVERTS TO BE GROUTED & FORMED PER F.D.O.T. INDEX NO. 201

TYPE "C" INLET DETAIL
FOR USE WITHIN PAVED AREAS
NTS
FDOT STD. INDEX 232
4 C403

NOTES:
1. SEE FDOT INDEX 200 FOR MANHOLE DIMENSION AND REINFORCING REQIREMENTS
2. SEE FDOT INDEX 201 FOR SUPPLEMENTARY DETAILS FOR MANHOLES AND INLETS
3. ALL MANHOLES SHALL BE PRECAST UNLESS STATED OTHERWISE ON PLANS
4. SEE SHEET C4.2 FOR STANDARD PVC CONNECTION DETAILS TO MANHOLE

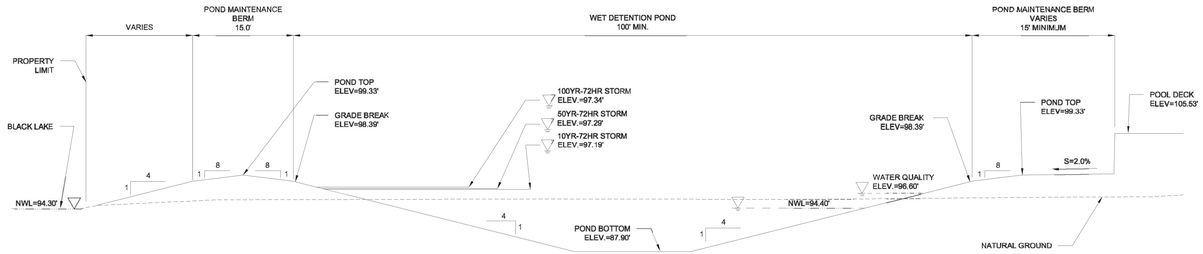
TYPE 'P & J'
FOR INLETS, MANHOLES AND JUNCTION BOXES
FDOT INDEX No. 200 & 201
NTS
2 C403



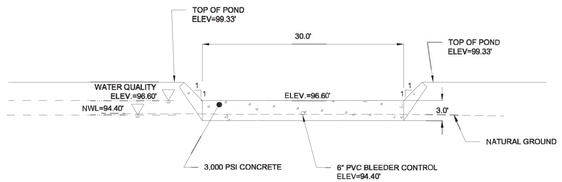
WEIGHT OF CASTINGS (lb)						
Frame Type	3' OPENING					
	Frame	Cover (Std.)	Frame	2-Piece Cover		
				Inside	Outside	Total
1 *			220	190	220	410

* Includes Type 1 Adjustable

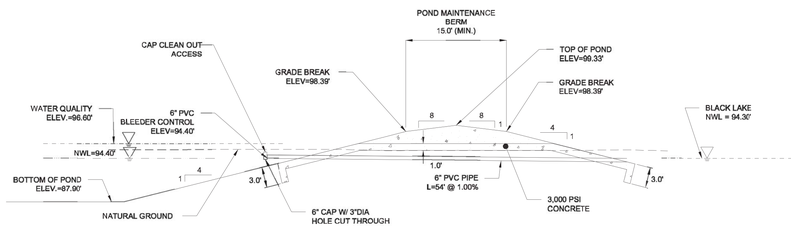
MANHOLE FRAME AND COVER
FDOT INDEX No. 201
NTS
3 C403



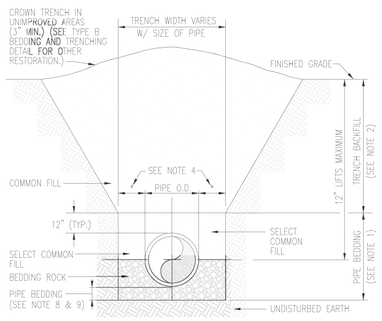
WET DETENTION POND SECTION A
7 C403



FRONT VIEW
SCALE: 1"=10'

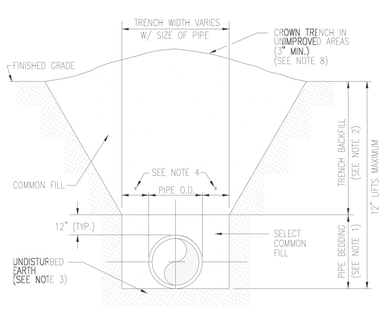


SECTION 30' POND WEIR DETAIL
SCALE: 1"=10'
8 C403



NOTES:
1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. USE TYPE A BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE COUNTY.
4. (*): 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX (12" MIN.)FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. REFER TO SECTION 32.5 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
8. GRAVITY SEWERS SHALL UTILIZE TYPE A BEDDING, IF REQUIRED BY THE COUNTY. BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER LESS THAN 15", AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
9. DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL COVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. COUNTY SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.
10. SEE PROJECT SPECIFICATIONS, SECTION 31 23 16.13 FOR ADDITIONAL DETAILS ON TRENCHING AND BACKFILL REQUIREMENTS.

TYPE 'A'
BEDDING & TRENCHING DETAIL
N.T.S.
5 C403



NOTES:
1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE COUNTY.
4. (*): 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. (12" MIN.) FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. REFER TO SECTION 32.5 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
8. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.
9. SEE PROJECT SPECIFICATIONS, SECTION 31 23 16.13 FOR ADDITIONAL DETAILS ON TRENCHING AND BACKFILL REQUIREMENTS.

TYPE 'B'
BEDDING & TRENCHING DETAIL
N.T.S.
6 C403

ARCHITECT:
DDC DESIGN, INC.
721 EMERSON RD. STE. 200
ST. LOUIS, MO 63141
TEL: (314) 587-2508
FAX: (314) 989-3408
ATTN.: JARED BARBEE

CIVIL ENGINEER:
Harris Civil Engineers, LLC
1200 E. Hillcrest Street
Suite 200
Orlando, Florida 32803
Phone: (407) 629-4777
EB 9814

SHEET ISSUED:

#	By	Date	Description
7	HCE	8/6/18	CD PLAN

PROPERTY OWNER:
DRURY DEVELOPMENT CORPORATION
721 EMERSON RD. STE. 200, ST. LOUIS, MO 63141
TEL: (314) 423-6688 FAX: (314) 423-6310

SITE DETAILS

DRURY PLAZA HOTEL

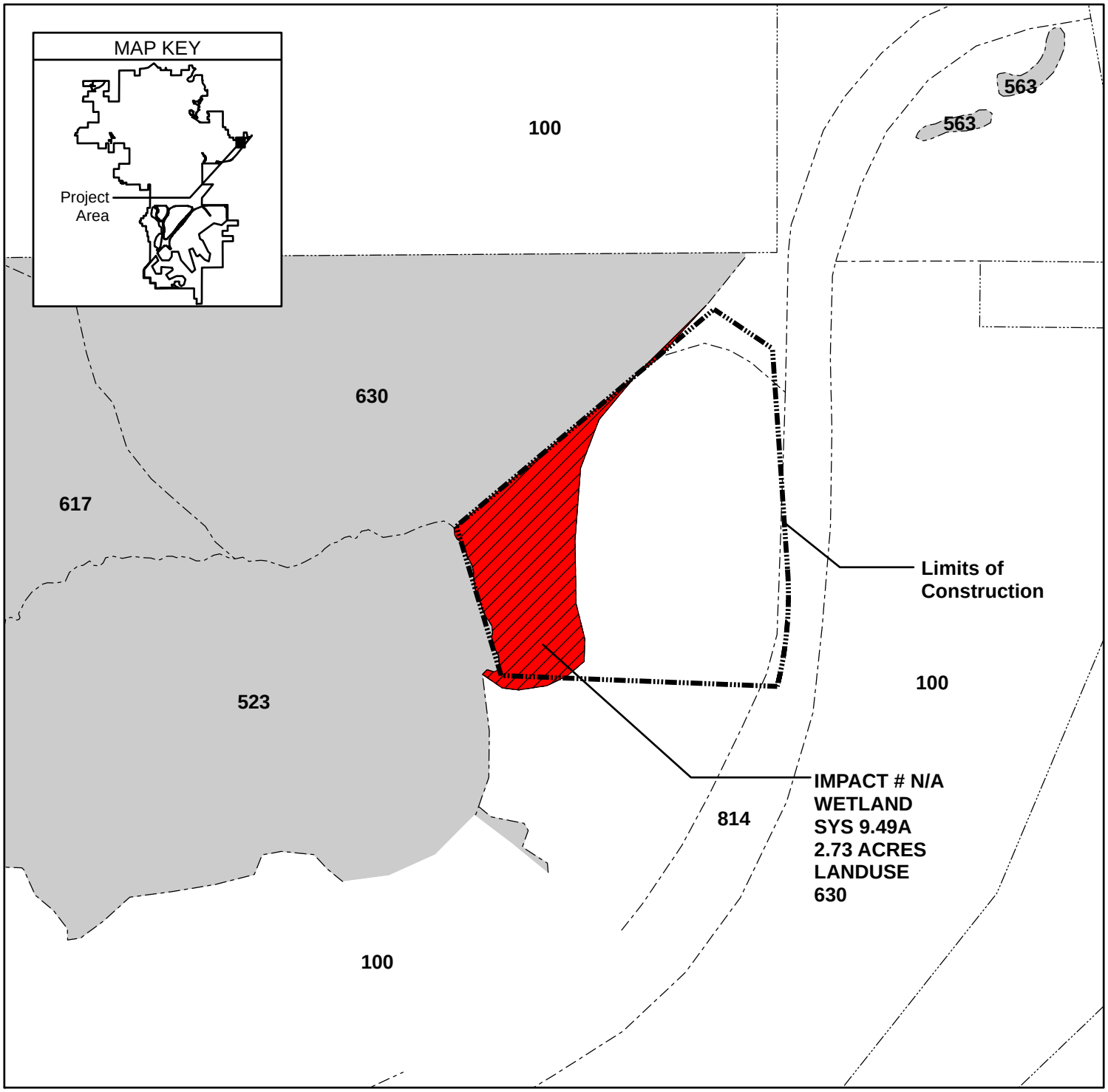
The Professional Engineer's seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

DRAWN BY: HCE

SHEET NO: C403

COPYRIGHT © 2018 ALL IDEAS, ARRANGEMENTS, AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF HARRIS CIVIL ENGINEERS, LLC AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE WITH THE SPECIFIED PROJECT. HARRIS CIVIL ENGINEERS RECEIVES COPYRIGHT AND OTHER RIGHTS RESTRICTING THIS DRAWING TO THE ORIGINAL PROJECT OR PURPOSE FOR WHICH IT WAS PREPARED. REPRODUCTIONS, CHANGES OR ASSIGNMENTS ARE PROHIBITED WITHOUT THE WRITTEN PERMISSION OF HARRIS CIVIL ENGINEERS.

File Name & Location: G:\PROJ\07033000\CIVIL\SHEETS\C-400_C406 SITE DETAILS.dwg Layout: C403 Printed: Mon, 06 Aug 2018 - 18:09



WETLAND IMPACT # N/A			
WETLAND SYS No.	TOTAL SYSTEM ACRES	ACTUAL IMPACT ACRES	REMAINING SYSTEM ACRES
9.49A	19.71 AC	2.73 AC	16.98 AC

LEGEND

- PHOTO INTERP
- SURVEY
- OU LIMITS
- VEGETATION
- PRESENT IMPACT
- APPROVED/TAKING
- WETLAND AREA
- 630 COVER TYPE

AGENCY	PHOTO INTERP SURVEYED	EXHIBIT DATE
S.F.W.M.D.	(Y) / N Y / (N)	08/03/2017

NOTE: THIS EXHIBIT IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY. MITIGATION IS PROVIDED THRU THE REEDYCREEK MITIGATION BANK, NOT TABLE-11.

Drury Plaza Hotel

Project

TABLE 1 - PROJECT WETLAND (WL) AND OTHER SURFACE WATER (SW) AND IMPACT SUMMARY

WL & SW ID	UMAM ASSESSMENT AREA NAME(S)	WL & SW TYPE	WL & SW SIZE (acres)	WL & SW NOT IMPACTED (acres)	TEMPORARY WL & SW IMPACTS		PERMANENT WL & SW IMPACTS		MITIGATION ID
					IMPACT SIZE (acres)	IMPACT TYPE	IMPACT SIZE (acres)	IMPACT TYPE	
9.49A	Primary Impact Area	630	2.73	0.0			2.73	D, F	Reedy Creek MB
9.49A	Secondary Impact Area	630	0.45	0.0			0.45	D, F	Reedy Creek MB
PROJECT TOTALS:			**3.18**	**0.0**			**3.18**		

Comments:

Codes (multiple entries per cell not allowed):

- Wetland & Surface Water ID: Include ID on submitted wetland and surface water impact maps
- Wetland Type: from an established wetland classification system
- Impact Type: D=dredge; F=fill; H=change hydrology; S=shading; C=clearing; O=other

August 23, 2018

Subject: Reservation of Credits for Project Blacklake
SFWMD Application Number: 180813-1
USACOE Application Number: TBD

Dear Mr. Barbee,

I am writing in reference Project Black Lake's need for 1.49 state (UMAM) and federal (M-WRAP) mitigation credits from Reedy Creek Mitigation Bank. This letter confirms that Reedy Creek Mitigation Bank; South Florida Water Management District Permit No. 53-00002-M and U.S. Army Corps of Engineers Permit No. 199507852 (IP-ME); has 1.49 freshwater forested wetland credits reserved for the Blacklake project.

Once final payment and permits are issued, the mitigation credits will be transferred.

If you should have questions or require additional information, please do not hesitate to contact me.

Sincerely,

V Colangelo

Victoria Colangelo

THE MITIGATION BANKING GROUP, INC

3208 W. State Road 426 | Suite 1020 | Oviedo, Florida 32765

www.mitigationbankinginc.com

South Florida Water Management District

Work Schedule Requirements

Application No : 180813-1

Mitigation Plan ID: RCMB

Activity	Due Date
SUBMIT MITIGATION BANK DOCUMENTATION	30-NOV-18

Exhibit No :

STAFF REPORT DISTRIBUTION LIST

BLACK LAKE HOTEL

Application No: 180813-1

Permit No: 48-00714-P

INTERNAL DISTRIBUTION

X David Howe
X Debra Laisure
X Marc S. Ady
X Mark S. Daron, P.E.
X A. Waterhouse, P.E.

EXTERNAL DISTRIBUTION

X Permittee - Walt Disney Parks & Resorts U S Inc
X Engr Consultant - Harris Civil Engineers L L C
X Other Interested Party - Reedy Creek Improvement District
X Other Interested Party - Reedy Creek Improvement District

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 3 - Chelsey Sprouse, FDEP
X Orange County Engineer Public Works Division Dvlpmnt Engineering Dept.
X US Army Corp of Engineers Cocoa Regulatory Field Office

South Florida Water Management District

Orlando Service Center • 1756 Orlando Central Parkway, Orlando, FL 32809 • (407) 858-6100

CON 24-06

February 05, 1995

BISHOP AND BUTTREY, INC.
1310 W. COLONIAL, SUITE 3
ORLANDO FL 32804

Subject: Notification of Complete Application

Project Name:	PIT #5 EXPANSION
Application #:	940915-6
Permit No:	48-00786-S
Sec/Twp/Rge:	29,30 24 27
County:	ORANGE
Board Date:	03/09/95

Dear Applicant:

This is to inform you that your application for a Surface Water Management permit is now complete. Your application will be reviewed by the Governing Board on the above mentioned date or earlier. A copy of the staff report on this application will be sent to you for review prior to the date on which it will be presented to the Governing Board.

Thank you for your cooperation in this matter.

Sincerely,

Alan Leavens
Staff Civil Engineer
Orlando Service Center
Regulation Department

cc: MONTVERDE ENGINEERING INC.
Orange County Engineer
Orange County Environmental Protection Agency
Orange County Public Utilities
U.S.EPA, Wetland Protection Section - South Unit

bcc: Jim Show, William Stimmel, Area Engineer, Enforcement, Field Rep, Colavecchio, Day File, Permit File, Alan Leavens

Governing Board:
Valerie Boyd, Chairman
Frank Williamson, Jr., Vice Chairman
Annie Betancourt
William Hammond
Betsy Krant
Allan Milledge
Eugene K. Pettis
Nathaniel P. Reed
Leah G. Schad
Samuel E. Poole III, Executive Director
Michael Slayton, Deputy Executive Director

SCANNED

PERMIT NO.: 48-00786-S

PROJECT NAME: Pit #5 Expansion

APPLICATION NO.: 940915-6

REVIEWER: A. Leavens

APPROVED AT 3/9/95 GOVERNING BOARD MEETING

SCANNED

940915-960

BISHOP & BUTTREY
INCORPORATED

William L. Bishop
807 South Rome Avenue
Tampa, Florida 33606

(813) 251-5856
(813) 254-9929 FAX

John W. Buttrey
1310 W. Colonial Drive, Suite 3
Orlando, Florida 32804

(407) 872-0780
FAX (407) 872-7876

April 5, 1995

POSTED

RECEIVED
APR 14 1995

South Florida Water Management District
Field Engineering Division
P. O. Box 24680
3301 Gun Club Rd.
West Palm Beach, Fl. 33416-4680

Subject: B&B Borrow Pit # 5 Expansion
Commencement of Operations
48-00786-S

Gentlemen:

As called for in the permit conditions, we are notifying you that we will start work on the subject project on April 5, 1995.

We started work on the initial permit in early 1994 and the first phases are nearing completion.

Also attached is a copy of the permit granted by Florida Game & Fresh Water Fish Commission approving the relocation of tortoises from this property. This has been completed by Coleman Holt.

Also, the permitee, Harry E. Clark, Jr., has had a change of address. His new address is: 359 Florida Ave., Sewanee, Tn. 37375.

If we can provide you further information, don't hesitate to contact me.

RECEIVED
APR 18 1995
ORLANDO SERVICE CENTER

Sincerely,

John Buttrey
JB/sal

RECEIVED
APR 18 1995
ORLANDO SERVICE CENTER

cc: Harry E. Clark
Coleman Holt
Bill Bishop

RECEIVED
APR 18 1995
ORLANDO SERVICE CENTER

SCANNED

PERMIT

Issued Under Authority of the Wildlife Code of the State of Florida
(Title 39, Florida Administrative Code) by the

STATE OF FLORIDA GAME AND FRESH WATER FISH COMMISSION
620 South Meridian Street, Tallahassee, FL 32399-1600, 904/488-3831

RECEIVED
APR 14 1995

Permit No. WR95078 Issuance Date 27 March 1995 Expiration Date 30 June 1995
Permit Type Tortoise Relocation Specific Rule Authority 39-25.002; 39-27.002
Permittee Coleman Holt Affiliation Coleman Holt, M.F.S.
P.O. Box 1114
Winter Park, FL 32790-1114

Signature*_____
*Signature indicates acceptance and understanding of the provisions/conditions listed below. This original should be signed and retained. A copy of the signed original should be returned to this office.

Provisions/Conditions:

1. Up to 40 gopher tortoises may be live-captured by nonharmful means in association with excavation activities at the Bishop and Buttrey Pit #9, Orange County, relocated to and released on the Rogers Tract, Lake County. Any gopher tortoise burrow commensals encountered in the capture operation may likewise be live-captured, relocated and released. However, no more than one indigo snake *(Drymarchon corais)*, or 10 each of Florida mice *(Podomys floridanus)* and gopher frogs *(Rana areolata)* may be relocated. Should additional specimens of those listed species be encountered, the capture operation is to be suspended and this office contacted for instructions. Issuance of this permit is predicated and conditioned on the information and assurances provided in the permittee's 1 February 1995 application, herein incorporated by reference.

2. Captures/relocations may be undertaken only subsequent to all other permits for the project which may be required by local, state and/or federal agencies being issued.

3. Tortoises may not be captured/relocated on any day, through two consecutive days thereafter, for which the overnight low temperatures are forecast by the U.S. National Weather Service to be below 50°F. This permit does not authorize access to any public or private properties. Any required permission accordingly must be secured from the appropriate landholders prior to undertaking any work on such properties.

4. This permit is subject to revocation at any time pursuant to Chapter 120, Florida Statutes. It is nontransferable and must be readily available for inspection at all times while engaging in the permitted activities. Other qualified personnel may assist in the permitted activities, but when any such assistance is to be provided in the absence of your direct supervision, those assistants are to be designated by letter of authorization from you to each designee, with this office provided a copy of such letter(s).

5. A report detailing the capture/relocation is to be submitted within 30 days of release of the tortoises involved. A report form is attached for use in that regard. Any request for permit renewal or extension should be submitted at least 30 days prior to the time it is needed.

Allan L. Egbert, Ph.D.
Executive Director

By: Frank Montalbano
Frank Montalbano III, Director
Division of Wildlife

Attachment
W666-13/BM/666-3718.a/rk
LIC 6-20
cc: Lt. Colonel Robert Butler
Mr. Brad Hartman
Mr. Michael Abbott
Ms. Julie Hovis

SCANNED

Form #0157
Rev 4-91

RECEIVED
APR 14 1995

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
MODIFICATION OF SURFACE WATER MANAGEMENT PERMIT NO.
CERTIFICATION FOR STORMWATER DISCHARGE 48-00786-S

Date Issued: MARCH 9, 1995

Issued To: HARRY E. CLARK, JR.
(PIT #5 EXPANSION)
4115 EAST ROARK'S COVE ROAD
DECHERD, TN 37324

Located In: ORANGE COUNTY, SEC. 29,30 TWP. 24S RGE. 27E

Original Authorization: CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM TO SERVE A 25.43 ACRE EXPANSION OF AN EXISTING BORROW PIT SITE WITH TOTAL ON-SITE RETENTION. (NOTE: ORIGINAL PERMIT WAS ISSUED AS A G.P. #48-00786-S DATED SEPTEMBER 28, 1993.)

Approved Modification: CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM TO SERVE AN 80.0 ACRE EXPANSION OF AN EXISTING BORROW PIT SITE WITH TOTAL ON-SITE RETENTION OF THE 100 YEAR 24 HOUR STORM.

This Permit Modification is approved pursuant to Application No. 940915-6 dated September 16, 1994. Permittee agrees to hold and save the South Florida Water Management District and its successors harmless from any and all damages, claims or liabilities which may arise by reason of the construction, operation, maintenance or use of any work or structure involved in this Permit. The original Permit, including all plans and specifications attached thereto, as addressed by the staff report and those addressed by the Modification Staff Report are by reference made a part hereof.

All specifications and Special and Limiting Conditions attendant to the original Permit, unless specifically recinded by this or previous Modifications, remain in effect.

Special Conditions:
SEE SHEETS 2-3 OF 6 - 11 SPECIAL CONDITIONS.
SEE SHEETS 4-6 OF 6 - 19 LIMITING CONDITIONS.

Original Permit Issued: JUNE 9, 1994

Filed with the Clerk of the South
Florida Water Management District

On 3-17-95

By _____
Deputy Clerk

Anthony M. Waterhouse, P.E.
Acting Director
Surface Water Management Division
Regulation Department

SCANNED

BISHOP & BUTTREY
INCORPORATED

William L. Bishop
807 South Rome Avenue
Tampa, Florida 33606

(813) 251-5856
(813) 254-9929 FAX

John W. Buttrey
1310 W. Colonial Drive, Suite 3
Orlando, Florida 32804

(407) 872-0780
FAX (407) 872-7876

December 29, 1994

Mr. Carlos DeRojas, P.E.
South Florida Water Management District
1756 Orlando Central Parkway
Orlando, FL 32809

Subject: Bishop & Buttrey Pit No. 5 Expansion (B&B No. 9)
SFWMD Permit Application No. 940915-6, mod No. 48-00786-S

Dear Mr. DeRojas:

I am enclosing Stormwater Calculations on the subject project by Arthur Nix, P.E. These calculations show all storm water will be retained on-site, with no runoff.

Three of these are original signed and sealed drawings, one is a Xerox copy. If you have any questions, do not hesitate to call either myself, Coleman Holt, or Arthur Nix.

Sincerely,

John Buttrey

JB/cdp

cc: Bill Bishop
Arthur Nix
Coleman Holt

RECEIVED
DEC 30 1994
ORLANDO SERVICE CENTER

SCANNED

Montverde Engineering , Inc.
P.O. Box 560116
Montverde, FL 34756-0116
(407) 469-4829

Job: 9416
Bishop/Buttrey Pit C.R. 545
Calc. By: A. Nix, P.E.
Date: 12/26/94

Sheet No. 1 of 2 **SFMWD Stormwater Calculations-100 Year Storm Freq.**

Calculations for additional parcel to be included in present permit #48-00786-S

Original Permit Parcel Size=	50.77 Acres
Additional Parcel Size =	80 Acres
Total Size All Phases	130.77 Acres
Actual Excavated Area Current Perm	41.29 Acres
Additional Area to be excavated =	51.87 Acres
Total Water Management Area =	***93.16 Acres***

Retention Characteristics

Elevation	Area (acres)	Volume
115.00	51.77	
		53.89 acre-ft
116.00	56.00	

Soil Storage Calculations:

Average Depth to WSWT = 2 FT

From Soil Storage Table Compacted Water Storage = 1.88"

Convert available soil storage to site- wide moisture storage "S"

Ground Storage = 1.88" x (1 ft/12 in) x 93.16 Acres
= 14.60 Acre-ft

S= (14.59 ac-ft x 12 in/l ft) /93.16 ac
S= 1.88 inches (SINCE 100% PERVIOUS)

CN= 1000/ (1.88 +10)
CN = *84*

Results of ADICPR Run (see attached page)

Volume 100 Year 24 hour storm = 8.99 inches

12/26/94
SCANNED

Montverde Engineering , Inc.
P.O. Box 560116
Montverde, FL 34756-0116
(407) 469-4829

Job: 9416
Bishop/Buttrey Pit C.R. 545
Calc. By: A. Nix, P.E.
Date: 12/26/94

SFMWD Stormwater Calculations-100 Year Storm Freq.

Total Volume = ***69.79 acre-ft***

Set berm at an elevation to retain 100 year storm without discharge to wetland conservation area. Approximate by setting area of stage storage information as follows:

Retention Characteristics

Elevation	Area (acres)	Volume
115.00	51.77	
		53.89 acre-ft
116.00	56.00	
		109.89 acre-ft
117.00	56.00	

Approx. Stage for 100% retention volume

Stage= (69.79-53.89)/(109.89-53.89) + 116.00

Stage = 116.28 feet

Therefore set berm top elevation at 116.40 ' and 100% retetion will be achieved for 100 year storm.

12/26/99

SCANNED

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

545 PIT CALCC
9/13/94

BASIN NAME	1
NODE NAME	1
UNIT HYDROGRAPH	UH484
PEAKING FACTOR	484.
RAINFALL FILE	SCSII-24
RAIN AMOUNT (in)	11.00
STORM DURATION (hrs)	24.00
AREA (ac)	93.16
CURVE NUMBER	84.00
DCIA (%)	.00
TC (mins)	10.00
LAG TIME (hrs)	.00
BASIN STATUS	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
1	1050.91	12.02	8.99	POST DEVELOPMENT 25 YEAR 24 HOUR ST

based on SFWMD
100 Year - 1 day freq. map

12/26/94
SCANNED

COLEMAN HOLT, M.F.S.

Private Consultant

P.O. BOX 1114
WINTER PARK, FLORIDA 32790-1114
(407) 645-2022

ENVIRONMENTAL REGULATION
FORESTRY SERVICES

RECEIVED

DEC 27 1994

ORLANDO SERVICE CENTER

December 23, 1994

Mr. Carlos DeRojas, P. E.
South Florida Water Management District
1756 Orlando Central Parkway
Orlando, Florida 32809

Re: Bishop & Buttrey Pit No. 5 Expansion [Excavation Site No. 9]; S29, 30, T24S, R27E: South Florida Water Management District Permit Application No. 940915-6; Permit (Mod.) No. 48-00786-S; Response to Request for Additional Information(dated October 5, 1994).

Dear Mr. DeRojas:

The following are responses to SFWMD Comments 1 through 11, of the above dated request for additional information. Comments are quoted verbatim; responses follow. We trust these responses provide sufficient information to allow staff review to continue to completion.

Comment 1: **The project site appears to contain suitable habitat for gopher tortoises. Please provide the status of your coordination with the Florida Game and Fresh Water Fish Commission for addressing protection for this listed species.**

Response: A 100% pedestrian tortoise burrow census utilizing census and population estimation guidelines of the Florida Game and Fresh Water Fish Commission (FGFWFC), conducted on September 6 and 7, 1994, revealed an estimated 40 tortoises currently living within the 62.3 acres of suitable tortoise habitat on the project site. A 30 acre relocation site in northern Lake County comprised of suitable tortoise habitat for an estimated 2.00 tortoises per acre, as determined by experienced biologists using methods of habitat evaluation recommended by the FGFWFC, has been scheduled to receive the 40 tortoises after March 1, 1995 when it will be possible to transfer tortoises to locations north of Fl. Hwy. 50. A relocation permit application will be submitted to the FGFWFC within sufficient lead time to obtain approval before March 1, 1995 and will be copied to the District when submitted, and, when approved. The pending relocation has been discussed with the game biologist responsible for the Orange County area who anticipates processing the application when submitted during the month of January. The relocation permit application will be forwarded to Tallahassee for final approval as soon as District and County permits are awarded the applicant.

SCANNED

Comment 2: **Please field delineate that landward extent of wetlands and upland buffer zones on the project site for verification by District environmental staff. Please contact Marc Ady at the letterhead address to arrange for a site inspection.**

Response: The landward extent of areas which meet federal, state and regional wetlands delineation criteria were delineated on October 19 - 20, 1994. A survey of lines as flagged has been carried out by Bishop & Buttrey, subject to agency approval. A letter requesting District environmental staff field verification was submitted to the South Florida Water Management District Orlando field office on 12-18-94.

Comment 3: **Please label and number all of the wetland areas within the project/phase on the wetland boundary survey. Also, please provide the acreage for all of the wetland and upland areas within this project/phase. Labeling should also designate if the wetland are under the jurisdiction of SFWMD and/or other regulatory agencies.**

Response: See Map A, Vegetation and Land-Use (Proposed & Existing) Map (attached) for appropriate vegetation community numbering, labeling, SFWMD wetland jurisdiction and acreages within the immediate project area.

Comment 4: **Please provide a description of the vegetative cover and a vegetation map (at the same scale as the topographic map) which includes all existing wetland and native upland areas, identifies which type of wetland and/or upland is present and provides an acreage figure for each of the designated areas. The description should also include details of the dominant canopy and understory plant species. The vegetation map should utilize FLUCFCS Level 3 categories.**

Response: The following corresponds to information presented on Map A: Vegetation & Land-Use (Proposed & Existing) Map (attached); drawn at 1" = 200 ft.

Unit No.	FLUCFCS Code	FLUCFCS Type	Acres*	Dominant Vegetation	Agencies Exerting Wetlands Jurisdiction
1	261	Fallow Cropland (Citrus)	56.02	Natalgrass, camphorweed, bahia, dog fennel; other ruderal grasses and forbs.	
2	434	Hardwood-Conifer Mix	1.98	Live oak, sand live oak, longleaf pine, slash pine, southern magnolia, swamp bay, red maple, wax myrtle, saw palmetto, smilax, blackberry, muscadine, American beauty berry; bedded muscadine on east extremity	
3	524	Lake<10 ac.	0.90 (9.95 Total)	shoreline emergents; water lily, cattail, sawgrass, etc.	SFWMD, USACOE, FDEP, Orange Co.

SCANNED

Unit No.	FLUCFCS Code	FLUCFCS Type	Acres*	Dominant Vegetation	Agencies Exerting Wetlands Jurisdiction
4	615	Stream & Lake Swamp	2.71	Sweetbay, red maple, swamp bay, cypress, cabbage palm, pond pine, slash pine, smilax, saw palmetto, lizards tail	SFWMD, USACOE, FDEP, Orange County
5	641	Freshwater Marsh	0.99	Maidencane, pickerelweed, other emergent sedges, water lily; surrounded by narrow band of cypress, blackgum, wax myrtle.	SFWMD, USACOE, FDEP, Orange Co.

*[Acres given are for portions below wetland delineation survey closure line; see Map A, attached, and Boundary & Location Survey (Accuright Surveys of Orlando, Inc.; dated 11-18-94].

Comment 5: **Please clearly delineate the limits of proposed work on all construction plans.**

Response: These are delineated on Sheet 1 of 2 of the revised drawings attached herewith.

Comment 6: **Please provide clear details of profile along the buffer between the pit and Doe Lake.**

Response: These are depicted on Sheet 2 of 2 of the drawings attached herewith.

Comment 7: **Please provide documentation of the seasonal high water and normal wet season water elevations within the wetlands. Such documentation may consist of lichen lines, algal mats, or rafted debris and buttressed tree trunks, etc. Such information is necessary in order to determine the appropriate wetland control elevation.**

Response: Topographic contours (See attached aerial photo) suggest that basin capacity is limited by the low (elev. 109 or less) pop-off to the swamp to the north. Based upon an interpretation of topographic contours and the relatively abrupt division between wetlands and uplands in the project area due to land form, the seasonal high water elevation is estimated at about 109.5 and the normal wet season elevation at 109.0.

Comment 8: **Please provide the results of soil borings conducted in and adjacent to the wetlands. The results should include the lithologic log, water table elevation, permeability, dates of the borings and other relevant information.**

Response: These are presented in Universal Engineering Sciences letter report no. 40551; their project No. 17862-001-01, dated August 29, 1994, attached herewith.

SCANNED

Comment 9: **District criteria requires a buffer zone around wetlands to be protected or incorporated into a surface water management system. Please provide a 25' and 15' minimum upland buffer zone adjacent to all wetland areas. The buffer zone must be clearly delineated on construction plans.**

Response: The buffer is shown on Sheet of 2 of the drawings attached herewith. **Minimum upland buffer zone width** is approximately **50 feet** from excavation project boundary to flagged, agency-unverified landward limits of wetlands; approximately 80 feet from toe of berm.

Comment 10: **It is recommended that an emergency overflow structure be installed in the berm below the top of berm elevation to allow for high level discharges in storms exceeding the 25 yr 24 hr event to prevent erosion of the berm. The structure should incorporate a spreader swale which will allow sheet flow at velocities less than one foot per second. Please include all necessary calculations.**

Response: Project engineering design reported as allowing no discharge off-site based on the 100 year/ 24 hr. storm event..

Comment 11: **The calculations, on sheet 1 of 2, show an elevation of 155.14 which appears to be in error, please correct.**

Response: So noted; and corrected on the attached calculations. The correct figure is **115.44**

CLOSURE:

This completes our responses to SFWMD Comments 1 through 11. If you should have any questions, please call as soon as possible.

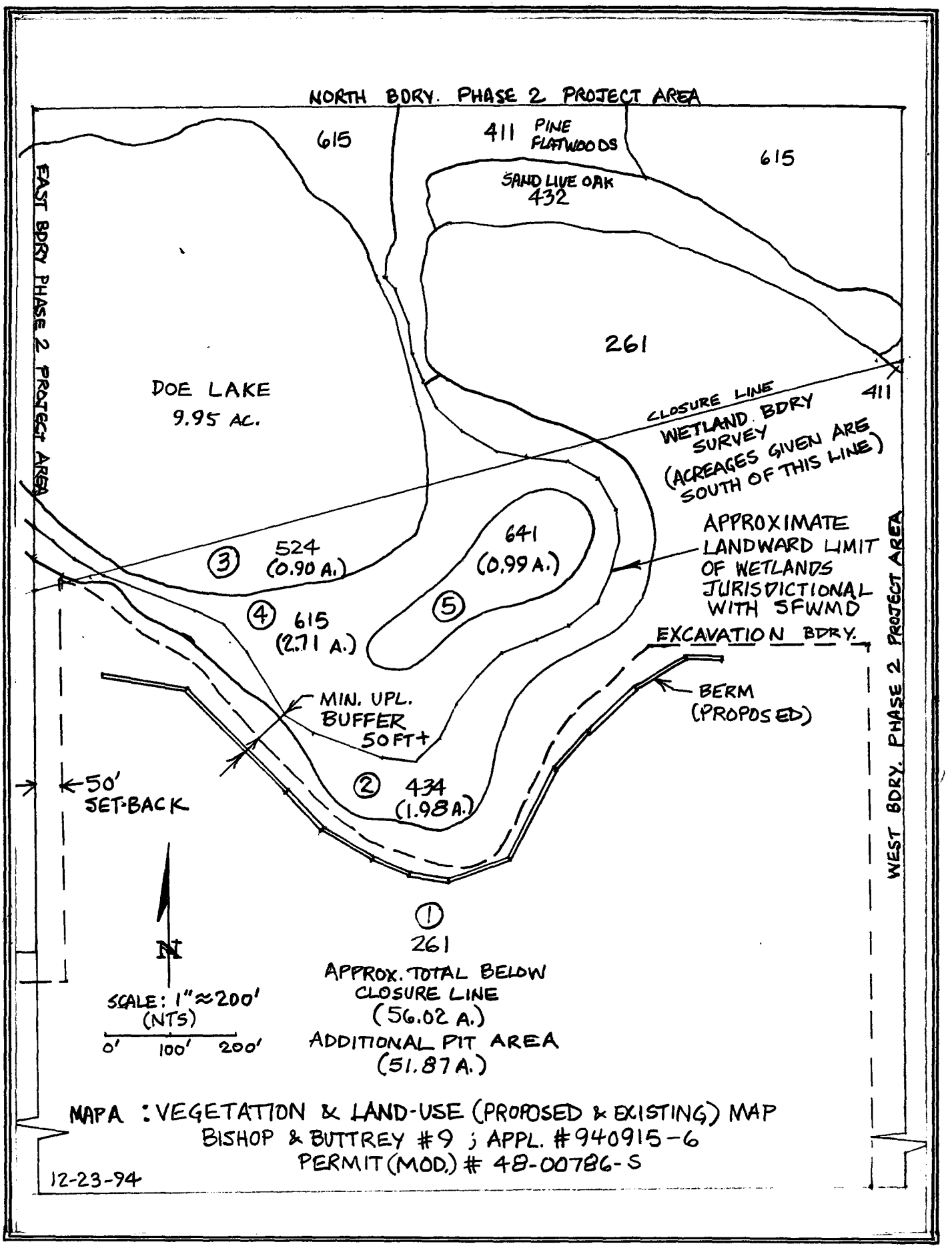
Sincerely,

Coleman Holt, M. F.S.
Principal, Environmental Consultant

Attachments: Map A: Vegetation and Land-Use (Proposed and Existing) Map
Borrow Pit Exploration Report No. 40551(08-29-94): Univ. Eng. Sci.
SFWMD Stormwater Calculations (9-13-94): Monteverde Engineering, Inc.
Boundary & Location Survey (11-18-94) File No. 29-24-27: Accuright Surveys
Reedy Creek Basin Aerial (S29, T24S, R27E) 02-03-84
Sheets 1 and 2 of 2: Excavation Plan & Cross-sections; Excavation Site No. 9 (09-08-94; rev./94): Monteverde Engineering, Inc.

cc: Mr. John Buttrey, P. E.
Mr. William L. Bishop
Mr. Arthur C. Nix, P. E.

SCANNED



MAPA : VEGETATION & LAND-USE (PROPOSED & EXISTING) MAP
BISHOP & BUTTREY #9 ; APPL. #940915-6
PERMIT (MOD.) # 48-00786-S

12-23-94

COLEMAN HOLT, M.F.S.
ENVIRONMENTAL & FORESTRY CONSULTANT
P.O. BOX 1114 - 1800 TAYLOR AVENUE
WINTER PARK, FLORIDA 32790-1114
(407) 645-2022

SCANNED

COLEMAN HOLT, M.F.S.
ENVIRONMENTAL & FORESTRY CONSULTANT
P.O. BOX 1114 - 1800 TAYLOR AVENUE
WINTER PARK, FLORIDA 32790-1114

(407) 645-2022

LETTER OF TRANSMITTAL

DATE	JOB NO.
12-23-94	

ATTENTION ~~Carlos DeRojas, P. E.~~ Alan

RE: Bishop & Buttrey Pit No. 9

TO Soth Florida Water Management District
1756 Orlando Central Parkway
Orlando, Florida 32809

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☒ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
4	12-23-94	1	Response Package: Request For Additional Information
			Bishop & Buttrey Pit No. 5 Expansion (Pit No. 9)
			SFWMD Permit Application No. 940915-6
			Permit (Mod.) No. 48-00786-S
			(RAI Date: 10-05-94)

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19_____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

RECEIVED
DEC 27 1994
ORLANDO SERVICE CENTER

Thank you,

COPY TO _____

SIGNED: _____

SCANNED

40% Pre-Consumer Content • 10% Post-Consumer Content

PRODUCT 240 NEBS Inc., Groton, Mass. 01471

If enclosures are not as noted, kindly notify us at once.

Montverde Engineering , Inc.
P.O. Box 560116
Montverde, FL 34756-0116
(407) 469-4829

Job: 9416

Calc. By: A. Nix, P.E.
Date: 9/13/94

Sheet No. 1 of 2

SFMWD Stormwater Calculations

Calculations for additional parcel to be included in present permit #48-00786-S

Original Permit Parcel Size=	50.77 Acres
Additional Parcel Size =	80 Acres
Total Size All Phases	130.77 Acres
Actual Excavated Area Current Permit=	41.29 Acres
Additional Area to be excavated =	51.87 Acres
Total Water Management Area =	***93.16 Acres***

Retention Characteristics

Elevation	Area (acres)	Volume
115.00	51.77	
		53.89 acre-ft
116.00	56.00	

Retention Volume Requirements= 1"/12 x 93.16 Acres
= ***7.76 acre-ft***

Revised 10/14/94

Stage at above volume= ***115.14*** **feet**
Stage at 50% required Volume= ***115.07*** **feet**
Discharge elevation into Lake Doe is at 116.00. SFWMD volume requirement at satisfied.

Soil Storage Calculations:

Average Depth to WSWT = 2 FT

From Soil Storage Table Compacted Water Storage = 1.88"

Convert available soil storage to site- wide moisture storage "S"

Ground Storage = 1.88" x (1 ft/12 in) x 93.16 Acres
= 14.60 Acre-ft

S= (14.59 ac-ft x 12 in/l ft) /93.16 ac
S= 1.88 inches (SINCE 100% PERVIOUS)

RECEIVED
ORLANDO SERVICE CENTER
SCANNED

Montverde Engineering , Inc.
P.O. Box 560116
Montverde, FL 34756-0116
(407) 469-4829

Job: 9416

Calc. By: A. Nix, P.E.
Date: 9/13/94

CN= 1000/ (1.88 +10)
CN = *84*

Results of ADICPR Run (see attached page)

Volume 24/72 hour storm = 6.09 inches

Total Volume = ***47.28 acre-ft***

Approx. Stage at above volume = ***115.88 feet***

Recovery Calculations

Volume to Recover 25 year/24 hour storm

Vol. Recover= 6.09"/12*93.16 Acres: ***47.28 acre-ft***

Rate of Permeability-Use 6.0 inches per hour bases on SCS recommendations for Tavares and Candler Soils.

Retention Area of Basin=51.7 Acres

Rate of Discharge= 51.7 Acres *43560 *6.0 in/hour/12 " per foot
hr x 60 min/hr x 60 sec/min
= 313 cfs

Recovery Time = 51.7 acre-ft *43560/313 cfs *1/60=
= 119 min.
= 2.0 hours

Summary: Recovery Time for 25 year storm event = 2.0 hours

SCANNED 9/14/94

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

545 PIT CALCC
9/13/94

BASIN NAME	1	2
NODE NAME	1	2
UNIT HYDROGRAPH	UH484	UH484
PEAKING FACTOR	484.	484.
RAINFALL FILE	SCSII-24	SCSII-24
RAIN AMOUNT (in)	8.00	8.00
STORM DURATION (hrs)	24.00	72.00
AREA (ac)	93.14	93.14
CURVE NUMBER	84.00	84.00
DCIA (%)	.00	.00
TC (mins)	10.00	10.00
LAG TIME (hrs)	.00	.00
BASIN STATUS	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
1	730.18	12.02	6.09	POST DEVELOPMENT 25 YEAR 24 HOUR ST
2	262.22	36.00	6.09	POST DEVELOPMENT 25 YEAR 72 HOUR ST

SCANNED

Form 0648-C22

SFWMD ONLY

N A I M

DRAINAGE BASIN(S) TABLE

	BASIN NO. 1 PROJECT (ACRES)	BASIN NO. 1 OFF-SITE (ACRES)	BASIN NO. ____ PROJECT (ACRES)	BASIN NO. ____ OFF-SITE (ACRES)	TOTAL DRAINAGE AREA (ACRES)
IMPERVIOUS					
BUILDINGS	0	0			0
OTHERS	0	0			0
WATER MANAGEMENT					
WET	0	0			0
DRY	93.16				93.16
PERVIOUS	93.16				93.16
TOTAL	93.16				93.16
NUMBER OF DWELLING UNITS (ALLOWED/ PROPOSED)	0/0		1		0/0
SQUARE FOOTAGE OF:					
COMMERCIAL	NA		NA		NA
INDUSTRIAL	NA		NA		NA

PHASE(S) TABLE

	CONSTRUCTION AND OPERATION: ALL PAST PHASES PROJECT (ACRES)	ALL PAST PHASES OFF-SITE (ACRES)	THIS PHASE PROJECT (ACRES)	THIS PHASE OFF-SITE (ACRES)	TOTAL PROJECT AREA (ACRES)
IMPERVIOUS					
BUILDINGS	NA	NA	0	0	0
OTHERS	NA	NA	0	0	0
WATER MANAGEMENT					
WET *	0	0	0	0	
DRY	41.29		51.87		93.16
PERVIOUS	41.29	NA	51.87	0	93.16
TOTAL	41.29	NA	51.87		93.16
NUMBER OF DWELLING UNITS (ALLOWED/ PROPOSED)	0/0		0/0		0/0
SQUARE FOOTAGE OF:					
COMMERCIAL	0		0		0
INDUSTRIAL	0		0		0

* 20.04 Acres of Lake area not in excavation area

10/12/94

SCANNED

Form 0645-G23

SFWMD ONLY
NAIM

☐ BASIN NUMBER 1 OR ☐ PHASE NUMBER _____ ☐☐☐☐

FOR FIRST INCH:
1 IN. x 1 FT / 12 IN. x 93.16 (PROJECT AREA, ACRES) = [7.76] AC-FT ☐☐☐☐

FOR 2.5 IN. TIMES PERCENT IMPERVIOUS (ALL AREA UNITS IN ACRES):

SITE AREA: _____ (PROJECT AREA) - (_____ LAKES + _____ ROOFS) = _____ SITE AREA ☐☐☐☐

IMPERVIOUS AREA: _____ SITE AREA - _____ PERVIOUS AREA = _____ IMPERVIOUS AREA ☐☐☐☐

PERCENT IMPERVIOUS: IMPERVIOUS AREA (_____) / SITE AREA (_____) x 100% = _____ % PERCENT IMPERV. ☐☐☐☐ ☐☐☐☐

2.5 IN. x % IMPERVIOUS: 2.5 IN. x _____ PERCENT IMPERVIOUS = _____ IN. INCHES TO BE TREATED ☐☐☐☐

INCHES TO BE TREATED TIMES AREA TO BE TREATED:
_____ INCHES TO BE TREATED IN. x (_____ PROJECT AREA - _____ LAKES) x 1 FT / 12 IN. ☐☐☐☐
= [ ] AC-FT ☐☐☐☐

REQUIRED WET DETENTION = LARGER OF TWO [ ] VALUES
NA - No planned development = _____ AC-FT ☐☐☐☐

WILL SYSTEM UTILIZE DRY DETENTION?
☒ NO ☐☐☐☐
☐ YES: ☐☐☐☐
REQUIRED DRY DETENTION = 0.75 x _____ REQUIRED WET DETENTION = _____ AC-FT ☐☐☐☐

WILL SYSTEM UTILIZE RETENTION?
☒ NO ☐☐☐☐
☐ YES: ☐☐☐☐
REQUIRED RETENTION = 0.5 x 7.76 REQUIRED WET DETENTION = 3.88 AC-FT ☐☐☐☐

ACTUAL DETENTION/RETENTION TO BE PROVIDED = 53.89 AC-FT ☐☐☐☐
IT WILL BE PROVIDED BETWEEN CONTROL ELEVATION = 115 FT,NGVD ☐☐☐☐
AND ELEVATION = 116 FT,NGVD ☐☐☐☐

PARCEL DISCHARGES TO OFW AND IS GREATER THAN 40% IMPERVIOUS?
☐ YES: SEE "DRY PRETREATMENT" BELOW. ☐☐☐☐
☒ NO ☐☐☐☐

PARCEL IS ZONED COMMERCIAL OR INDUSTRIAL?
☐ YES, BUT ITEM IV-6 (ASSURANCES) IS ATTACHED. ☐☐☐☐
☐ YES, BUT ITEM IV-6 (ASSURANCES) IS WAIVED. ☐☐☐☐
SEE "DRY PRETREATMENT" BELOW.
☒ NO ☐☐☐☐

DRY PRETREATMENT
VOLUME REQUIRED: NA
0.5 IN. x (_____ PROJECT AREA - _____ LAKES) AC x 1 FT / 12 IN. = ___ AC-FT ☐☐☐☐

METHOD: _____ ☐☐☐☐

SCANNED

Form 0845-024

SFWMD ONLY
N A I M

☐ BASIN NUMBER 1 OR ☐ PHASE NUMBER _____ ☐☐☐☐
AVERAGE DEVELOPED SITE PERVIOUS AREAS ELEVATION: 116 FT, NGVD ☐☐☐☐
WET SEASON WATER TABLE (WSWT), ELEVATION: - 114 FT, NGVD* ☐☐☐☐
THEREFORE, AVERAGE DEPTH TO WSWT: 2 FT ☐☐☐☐
*THIS IS BASED ON:
☒ ON-SITE BORING DONE (DATE) 6/28/93 ; OR ☐☐☐☐
☐ SFWMD PERMIT (NUMBER) _____ ; OR ☐☐☐☐
☐ OTHER: _____ ☐☐☐☐
RESULTING SITE-WIDE SOIL STORAGE:
93.14 PERVIOUS UNCOMPACTED ACRES x 1.88 IN. = 175.10 AC-IN. ☐☐☐☐
0 PERVIOUS COMPACTED ACRES x 0 IN. = 0 AC-IN. ☐☐☐☐
93.14 TOTAL PERVIOUS ACRES TOTAL = 175.10 AC-IN. ☐☐☐☐
SITE SOIL STORAGE = TOTAL AC-IN. / TOTAL PERVIOUS ACRES = 175.10 AC-IN. / 93.14 AC = 1.88 IN. ☐☐☐☐

☐ BASIN NUMBER _____ OR ☐ PHASE NUMBER _____ ☐☐☐☐
AVERAGE DEVELOPED SITE PERVIOUS AREAS ELEVATION: _____ FT, NGVD ☐☐☐☐
WET SEASON WATER (WSWT), ELEVATION: - _____ FT, NGVD* ☐☐☐☐
THERFORE, AVERAGE DEPTH TO WSWT: _____ FT ☐☐☐☐
*THIS IS BASED ON:
☐ ON-SITE BORING DONE (DATE) _____ ; OR ☐☐☐☐
☐ SFWMD PERMIT (NUMBER) _____ ; OR ☐☐☐☐
☐ OTHER: _____ ☐☐☐☐
RESULTING SITE-WIDE SOIL STORAGE:
_____ PERVIOUS UNCOMPACTED ACRES x _____ IN. = _____ AC-IN. ☐☐☐☐
_____ PERVIOUS COMPACTED ACRES x _____ IN. = _____ AC-IN. ☐☐☐☐
_____ TOTAL PERVIOUS ACRES TOTAL = _____ AC-IN. ☐☐☐☐
SITE SOIL STORAGE = TOTAL AC-IN. / TOTAL PERVIOUS ACRES = _____ AC-IN. / _____ AC = _____ IN. ☐☐☐☐

NA — 100% Retention

PROPOSED DISCHARGE TABLE ☐☐☐☐

PROJECT BASIN OR OFF-SITE AREA NUMBER	RECEIVING BODY NAME	RECEIVING BODY TAILWATER ELEVATION (FT,NGVD)	ALLOWABLE DISCHARGE AMOUNT (CFS)	ALLOWABLE DISCHARGE METHOD* NUMBER	
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐

* FOR EXAMPLE:
1. HISTORIC DISCHARGE (COMMONLY "PRE-VERSUS POST") (PROVIDE CALCULATIONS IN "UNDEVELOPED BASIN AND HISTORIC SHEETFLOW COMPUTATIONS" BELOW.)
2. PREVIOUS DISTRICT PERMITS
3. DISTRICT CRITERIA
4. OTHER: _____ ☐☐☐☐

SCANNED

Form 0945-C25

SFWMD ONLY

N A I M

UNDEVELOPED BASIN AND PROJECT HISTORIC SHEETFLOW COMPUTATIONS*

BASIN NO. 1 ☐☐☐☐

BASIN-WIDE

25-YEAR, 24-HOUR RAINFALL (P): 8 IN. ☐☐☐☐

AVERAGE DEPTH TO WET SEASON WATER TABLE (DWT): 2 FT ☐☐☐☐

RUNOFF LENGTH: 0.24 MI ☐☐☐☐

LAND SLOPE: 162 FT/MI (3.07%) ☐☐☐☐

LAND SLOPE CORRECTED TO ACCOUNT FOR ANY DOWNSTREAM TAILWATER CONDITIONS: NA FT/MI See Calcs ☐☐☐☐

RUNOFF RATE CURVE (FIGURE NUMBER): C-11- . ☐☐☐☐

*THIS METHOD SHOULD BE USED ONLY FOR 25-YEAR, 72-HOUR STORMS.

PEAK SHEETFLOW DISCHARGE RATE, UNCONVERTED FOR EXCESS DEPRESSION STORAGE: _____ CFS/SQ MI ☐☐☐☐

PEAK SHEETFLOW DISCHARGE RATE TIMES BASIN AREA:

= _____ CFS/SQ MI x _____ SQ MI See Attached Calcs ☐☐☐☐

= 0 CFS. THIS IS Q, THE BASIN-WIDE PEAK SHEETFLOW DISCHARGE. ☐☐☐☐

AMOUNT (IF ANY) OF BASIN IN EXCESS DEPRESSION STORAGE: _____% ☐☐☐☐

DEPTH (IF ANY) OF EXCESS DEPRESSION STORAGE (MUST EXCEED 8 INCHES): _____ IN. ☐☐☐☐

CONVERT AMOUNT AND DEPTH (TO UTILIZE FIGURE C-11-17):

(DEPTH/8 IN.) x AMOUNT

= (_____ IN./8 IN.) x _____ % ☐☐☐☐

= _____ x _____ % ☐☐☐☐

= _____ % CORRECTED PONDED AREA ☐☐☐☐

FROM FIGURE C-11-17, C_R = _____ ☐☐☐☐

$Q_R = C_R \times Q$

= _____ x _____ CFS ☐☐☐☐

Q_R = _____ CFS FOR THE BASIN ☐☐☐☐

PROJECT PEAK DISCHARGE: $Q_R \times \frac{\text{PROJECT AREA}}{\text{BASIN AREA}}$

= _____ CFS x _____ ☐☐☐☐

= _____ CFS PRE-DEVELOPED PROJECT SITE 25-YEAR, 72-HOUR STORM PEAK DISCHARGE ☐☐☐☐

SCANNED

Form 0845-G28

SFWMD ONLY

N A I M

FLOOD ROUTING SUMMARY TABLE

☐ BASIN NO. _____ OR ☐ PHASE NO. _____ ☐☐☐☐

	RAINFALL AMOUNT (INCHES)	
ROADS		
DISTRICT 5-YEAR, 24-HOUR NA	_____	☐☐☐☐
OTHER: _____-YEAR, _____-HOUR	NA	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLOOD CONTOUR: _____ FT, NGVD		☐☐☐☐
MINIMUM GRADE: _____ FT, NGVD		☐☐☐☐
PARKING LOTS WITH TRENCH		
DISTRICT 5-YEAR, 1-HOUR NA	_____	☐☐☐☐
OTHER: _____-YEAR, _____-HOUR	NA	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLODD CONTOUR: _____ FT, NGVD		☐☐☐☐
MINIMUM GRADE: _____ FT, NGVD		☐☐☐☐
BASIN DESIGN		
STANDARD 25-YEAR, 72-HOUR	_____	☐☐☐☐
OTHER: _____-YEAR, _____-HOUR	NA	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLOOD CONTOUR : _____ FT, NGVD		☐☐☐☐
MINIMUM PERIMETER SITE GRADE: _____ FT, NGVD		☐☐☐☐
PEAK DISCHARGE		
ALLOWABLE: _____ CFS		☐☐☐☐
DESIGN : _____ CFS		☐☐☐☐

BUILDING FLOORS

DISTRICT 100-YEAR, 72-HOUR, 0-DISCHARGE	NA	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLOOD CONTOUR : _____ FT, NGVD*		☐☐☐☐
MINIMUM FLOOR : _____ FT, NGVD		☐☐☐☐
FEMA FLOOD : _____ FT, NGVD		☐☐☐☐

100-YEAR 72-HOUR, 0-DISCHARGE STORM CALCULATIONS

*P = _____ (72-HOUR RAINFALL) IN. ☐☐☐☐

S = _____ (SOIL STORAGE) IN. ☐☐☐☐

$$Q = \frac{(P - 0.2S)^2}{P + 0.8S} = \frac{(____ \text{ IN.} - (0.2 \times ____ \text{ IN.}))^2}{____ \text{ IN.} + (0.8 \times ____ \text{ IN.})}$$ ☐☐☐☐

$$= \frac{(____ \text{ IN.} - ____ \text{ IN.})^2}{____ \text{ IN.} + ____ \text{ IN.}} = \frac{(____ \text{ IN.})^2}{____ \text{ IN.}} = \frac{____ \text{ IN.}^2}{____ \text{ IN.}} = ____ \text{ IN.}$$ ☐☐☐☐

RUNOFF VOLUME: _____ (Q) IN. × _____ (SITE AREA) AC × 1 FT / 12 IN. = _____ AC-FT ☐☐☐☐

STAGE TO RETAIN RUNOFF VOLUME: _____ FT, NGVD ☐☐☐☐

SCANNED

Form 0845-C27

SFWMD ONLY

NAIM

FLOODPLAIN IMPORTER/EXPORTER TABLE

PREDEVELOPMENT RUNOFF VOLUME :	0	AC-FT	☐☐☐☐
PREDEVELOPMENT STORAGE VOLUME: -	0	AC-FT	☐☐☐☐
DIFFERENCE:	0	AC-FT	☐☐☐☐

LAND USE TABLE

TYPE(S) AND ACREAGE(S) OF LAND USE PROPOSED WITHIN THE PROJECT OR PRESENT PHASE:

	ACRES	TOTAL BUILDING SQUARE FOOTAGE		
AGRICULTURE (TYPE OF CROP):				☐☐☐☐
_____	_____			☐☐☐☐
_____	_____			☐☐☐☐
COMMERCIAL	_____	_____		☐☐☐☐
DEWATERING, LONG TERM	_____			☐☐☐☐
DEWATERING, SHORT TERM	_____			☐☐☐☐
GOLF COURSE	_____			☐☐☐☐
HIGHWAY (PUBLIC FUNDED)	_____			☐☐☐☐
INDUSTRIAL	_____	_____		☐☐☐☐
INSTITUTIONAL	_____	_____		☐☐☐☐
(SCHOOL, HOSPITAL, ETC)	_____	_____		☐☐☐☐
LANDFILL				☐☐☐☐
MINING	93.16			☐☐☐☐
OFFICE	_____	_____		☐☐☐☐
PARK/GREENSPACE	_____			☐☐☐☐
RECREATIONAL	_____			☐☐☐☐
RESIDENTIAL	_____		_____ (NUMBER OF DWELLINGS)	☐☐☐☐
SURFACE WATER MGMT.	_____			☐☐☐☐
OTHER: _____	_____	_____	_____	☐☐☐☐
OTHER: _____	_____	_____	_____	☐☐☐☐
TOTAL	_____	_____		☐☐☐☐

SCANNED

file

South Florida Water Management District

Orlando Service Center • 1756 Orlando Central Parkway • Orlando, FL 32809 • (407) 858-6100

CON 24-06-02

Application No. 940915-6
Permit (Mod) No. 48-00786-S
Regulation Department

October 5, 1994

Mr. Arthur C. Nix, P.E.
Montverde Engineering, Inc.
PO Box 560116
Montverde, FL 34756-0166

Dear Mr. Nix:

Subject: Pit #5 Expansion, Orange County, S29,30/T24S/R27E

The staff has completed a preliminary review of the above referenced application. According to Rule 40E-40, Florida Administrative Code (FAC), the satisfactory answers to the following 11 comments must be provided before our review can continue.

1. The project site appears to contain suitable habitat for gopher tortoises. Please provide the status of your coordination with the Florida Game and Fresh Water Fish Commission for addressing protection of this listed species.

2. Please field delineate that landward extent of wetlands and upland buffer zones on the project site for verification by District environmental staff. Please contact Marc Ady at the letterhead address to arrange for a site inspection.

3. Please label and number all of the wetland areas within the project/phase on the wetland boundary survey. Also, please provide the acreage for all of the wetland and upland areas within this project/phase. Labeling should also designate if the wetland are under the jurisdiction of SFWMD and/or other regulatory agencies.

4. Please provide a description of the vegetative cover and a vegetation map (at the same scale as the topographic map) which includes all existing wetland and native upland areas, identifies which type of wetland and/or upland is present and provides an acreage figure for each of the designated areas. The description should also include details of the dominant canopy and understory plant species. The vegetation map should utilize the FLUCCS Level 3 categories.

5. Please clearly delineate the limits of proposed work on all construction plans.

6. Please provide clear details of profile along the buffer between the pit and Doe Lake.

Governing Board:
Valerie Boyd, Chairman
Frank Williamson, Jr., Vice Chairman
Annie Betancourt
William Hammond
Betsy Krant
Allan Milledge
Eugene K. Pettis
Nathaniel P. Reed
Leah G. Schad
Tilford C. Creel, Executive Director
Thomas K. MacVicar, Deputy Executive Director

SCANNED

7. Please provide documentation of the seasonal high water and normal wet season water elevations within the wetlands. Such documentation may consist of lichen lines algal mays or rafted debris, and buttressed tree trucks, etc. Such information is necessary in order to determine the appropriate wetland control elevation.

8. Please provide the results of soil borings conducted in and adjacent to the wetlands. The results should include the lithologic log, water table elevation, permeability, dates of the borings and other relevant information.

9. District criteria requires a buffer zone around wetlands to be protected or incorporated into a surface water management system. Please provide a 25' and 15' minimum upland buffer zone adjacent to all wetland areas. This buffer zone must be clearly delineated on construction plans.

10. It is recommended that an emergency overflow structure be installed in the berm below the top of berm elevation to allow for high level discharges in storms exceeding the 25 yr 24 hr event to prevent erosion of the berm. The structure should incorporate a spreader swale which will allow sheet flow at velocities of less than one foot per second. Please include all necessary calculations.

11. The calculations, on sheet 1 of 2, show an elevation of 155.14 which appears to be in error, please correct.

In accordance with 40E-1.603(8)(a) FAC, if the requested information is not received within 90 days of the date of this letter, this application may be processed for denial, if not withdrawn by the applicant. Please use the enclosed transmittal form and submit FOUR (4) copies of the requested information to the Orlando Service Center and include additional copies of your cover letter. Also, in order to process your application as expeditiously as possible, please collate your response into separate complete packages. Should you have any questions, please call Alan Leavens or Marc Ady at (407) 858-6100.

Sincerely,

Carlos DeRojas, P.E.
Supervising Professional
Surface Water Management Division

CD/AL

c: Orange County Engineer
John Buttrey

bc: B Colavecchio/D Goss/K Wallace

SCANNED

THE "CLARK SITES"
AUTHORIZATION TO APPLY FOR PERMITS
IN CONNECTION WITH BISHOP & BUTTREY PIT #9

August 1, 1994

South Florida Water Management District
1756 Orlando Central Parkway
Orlando, Florida 32809

Re: Our Property In:
Section 29, Township 24 South, Range 27 East
Orange County, Florida

To Whom It May Concern:

This letter authorizes Bishop & Buttrey, Incorporated, and its' officers, representatives, associates, and subcontractors, to have access to the above-referenced site for the purpose of permitting it for borrow pit purposes. We also authorize William L. Bishop and/or John W. Buttrey to sign permit applications on our behalf in connection with the proposed permitting of the site for borrow pit purposes. All application fees and/or permitting fees shall be borne by Bishop & Buttrey, Incorporated.

By: _____
Harry E. Clark, Jr.

State of Tennessee
County of Coffee

The foregoing instrument was acknowledged before me this August 8, 1994, by Harry E. Clark, Jr., who is personally known to me or who has produced TNDL as identification.

Janice McCormick
Notary Public
Printed Name: Janice McCormick
Commission #:
Commission Expires: 10-17-94

SCANNED

MEMORANDUM OF CONTRACT TO PURCHASE FILL MATERIAL

On August 1st, 1994, a Contract to Purchase Fill Material was entered into by and between Bishop & Buttrey, Incorporated, (hereinafter "B&B") and Lucile Watson, Elizabeth K-S Clark, Reynold K-S Clark, Harry E. Clark, Jr., and Catherine B. Clark (hereinafter collectively referred to as "Seller"). This instrument represents a memorandum of that Contract.

1. Address of Bishop & Buttrey, Incorporated, as set forth in the Contract:

   807 South Rome Avenue
   Tampa FL 33606

2. Address of Seller as set forth in the Contract:

   Harry E. Clark, Jr.
   4115 East Roark's Cove Road
   Decherd TN 37324

3. Date of Contract: August 1, 1994

4. Nature of Contract:

Contract provides for sale by Seller to B&B of fill material located on certain real property located in Orange County described as follows:

Parcel A: The northwest quarter of the northwest quarter of Section 29, Township 24 South, Range 27 East, Orange County, Florida, comprising approximately 40 acres;

Parcel B: The southwest quarter of the northwest quarter of Section 29, Township 24 South, Range 27 East, Orange County, Florida, comprising approximately 40 acres;

(the Excavation Property) upon the occurrence and fulfillment of certain conditions set forth in the Contract. Said Contract also grants B&B certain rights in and to the Excavation Property for conducting excavation activities in accordance with the terms and conditions set forth in the Contract. In connection with the commencement of its excavation activities, B&B shall also be granted certain temporary easements and temporary license rights over and across certain other properties owned by Seller.

5. Term of Contract:

The Contract shall commence as of the date of closing of the Contract and shall expire upon B&B's completion of its excavation of fill material from the Excavation Property, and the reclamation thereof over a period of time not to exceed three (3) years from the date of closing.

DATED this 1st day of August, 1994.

Rita W. Thigpin
Witness
Rita W. Thigpin
Print Name

John F. Moler
Witness
JOHN F. MOLER
Print Name

Ann Carter Hatchett
Witness
Ann Carter Hatchett
Print Name

Catherine Zimmerman
Witness
Catherine Zimmerman
Print Name

John F. Moler
Witness
JOHN F. MOLER
Print Name

Lucile Watson 7.25.94
Lucile Watson

Elizabeth K-S Clark 7.17.94
Elizabeth K-S Clark

Reynold K-S Clark 7.13.94
Reynold K-S Clark

12 July 1994
Harry E. Clark, Jr.

7/7/94
Catherine B. Clark

Please return to: William L. Bishop
Bishop & Buttrey
807 S. Rome Ave.
Tampa, Fl. 33606

SCANNED

UNIVERSAL
ENGINEERING SCIENCES
Consultants in: Geotechnical Engineering • Environmental Sciences • Construction Materials Testing

Offices in:
• Orlando
• Gainesville
• Fort Myers
• Merritt Island
• St. Augustine
• Daytona Beach
• West Palm Beach

August 29, 1994

Bishop & Buttrey, Inc.
1310 West Colonial Drive, Suite 3
Orlando, FL 32804

Attention: Mr. John Buttrey

Reference: Borrow Pit Exploration
Bishop and Buttrey Pit Nos. 5 and 9
Orange County, Florida
Project No. 17862-001-01
Report No. 40551

Dear Mr. Buttrey:

INTRODUCTION

At your request, Universal Engineering Sciences, Inc. has performed the geotechnical investigation pertaining to Borrow Pit Nos. 5 and 9. The borrow pits are located east of State Road 545, in Sections 29 and 30, in Orange County, Florida. The site is surrounded by Doe Lake to the north, Lake Oliver to the west, and Lake Gifford to the south. A Site Location Plan is presented in Appendix A. The site consists of a hill, whose highest elevation is 50 feet above the lowest elevation along the boundary of the permitted site. It is our understanding the borrow pits are intended to be excavated to a depth of about 4 feet above the estimated seasonal high water table.

The purposes of this investigation were:

- to define the general soil profile and classify the soils across the borrow pits;
- to define the existing and the anticipated seasonal high groundwater levels at the site, after the pit excavation; and
- To identify possible constraints to the borrow pit operation.

FIELD INVESTIGATION

The subsurface conditions were investigated with 10 wash borings advanced to various depths while performing the Standard Penetration Test. At Borrow Pit No. 9, two borings were performed to the depths of 35, 50, and 60 feet, and one boring was performed to a depth of 25 feet.

3532 Maggie Blvd. • Orlando, FL 32811 • (407) 423-0504
SCANNED

One wash boring advanced to a depth of 60 feet was performed at Borrow Pit No. 5. The depths of the borings were selected according to the topography of the site. Deeper borings were performed at higher ground surface elevations.

We performed the Standard Penetration Test according to the procedures of ASTM D-1586; however, we used continuous sampling to detect slight variations in the soil profile at shallow depths. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler 1 foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

We were provided with aerial photographs dated March 2, 1984, of Reedy Creek Basin, which we used in our field investigation. The contours indicated on the aerial photographs represented the ground surface elevations existing at that time. Our drilling crew located the borings based upon estimated distances and relationships to obvious landmarks. The indicated locations and depths should therefore be considered approximate.

Jar samples of the soils encountered will be held in our laboratory for your inspection for 60 days unless we are notified otherwise.

LABORATORY INVESTIGATION

The soil samples recovered from the soil test borings were returned to our laboratory and then a geotechnical engineer visually examined and reviewed the field descriptions. We selected representative soil samples for laboratory testing consisting of 24 wash No. 200 analyses.

We performed these tests to aid in classifying the soils and to help to evaluate the general engineering characteristics of the site soils. See Appendix B: Boring Logs and Description of Testing Procedures, for further data and explanations.

FINDINGS

GENERAL

A Universal Engineering Sciences representative performed a visual site inspection of the subject property to gain a "hands-on" familiarity with the project area.

At this time, site specific topographic information has been provided, it is apparent that the site containing Borrow Pit Nos. 5 and 9 is relatively hilly over the central region and slopes down radially towards the surrounding territory. Vegetation on the site consists mainly of citrus groves.

We examined U.S.G.S. topographic quadrangle maps and the USDA Soil Conservation Service Soil Survey of Orange County for relevant information about the site. A review of the

SCANNED

USDA soil survey of the site indicates the presence of Candler Fine Sand with 0 to 5 percent slopes. According to the soil survey, the seasonal high water table in this region is at a depth greater than 6 feet.

SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix B: Boring Location Plan and Boring Logs. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples and a limited number of laboratory tests. Also, see Appendix B: Soils Classification Chart, for further explanation of the symbols and placement of data on the Boring Logs.

The soil profile at the boring locations varies considerably due to the change in topography over the whole site. The surface soil layer consists of a very loose to medium dense, yellow to orange fine sand. Typically, the soil is found to be more dense and becomes progressively silty at greater depths. The sand layer is generally followed by a layer of medium dense clayey sand or medium dense silty sand, and represents a restricting layer for the infiltrating water. The depth to this restricting layer varies from 32 to 17 feet across the site, with deeper layer encountered near the hilly areas.

At locations where deeper borings were performed, the restricting layer was followed by layers of medium dense yellow-orange or gray to brown sand with silt or silty sand layer. The demarcation between the restricting and the subsequent layers was poorly defined at some locations.

We encountered groundwater at depths varying from 15 to 43 feet below existing grades at the time of our investigation. Generally, groundwater was encountered at greater depths in the hilly area and at shallow depths near the site boundary.

GROUNDWATER

The groundwater table will fluctuate seasonally depending on the local rainfall. The rainy season in Central Florida is normally between June and September. Based on our experience in regional hydrogeology of Orange County, it is our opinion that the seasonal high groundwater table could be on the order of 1 foot over the existing water table at the test boring locations. Please refer to the boring logs for the existing and estimated seasonal high groundwater table of each boring location, which is included in Appendix B: Boring Logs.

The excavation of surface soil layers in the site may initially lower the groundwater table due to evaporation. It is our opinion this would be a temporary situation since there will be groundwater recharge from the surrounding area. If the excavation is carried out to a depth of 4 feet above the existing groundwater table, the surficial soil layer after excavation will consist of confining clayey sand or silty sand at some locations. The presence of this confining layer at some locations will cause the rainwater to perch temporarily there before

SCANNED

it flows laterally and infiltrate down to regions where the soil has a higher vertical conductivity.

It is our opinion the borrow pit excavation will not adversely affect the existing groundwater conditions in the region. Overall, a one foot rise in the existing groundwater levels is anticipated due to the borrow pit operation. A summary of depths and elevations of existing and anticipated seasonal high groundwater level is presented in Appendix C:

CONSTRAINTS

Based on the available data, we believe the site subsurface conditions do not pose any significant constraints to the borrow pit operations. However, suitable side slope may be necessary while excavating the surface sand layer.

Although we do not anticipate significant groundwater fluctuations, temporary dewatering may become necessary at this site if construction proceeds during the wet season and rainwater perches on the clayey soils. We recommend that the contract documents provide for any remedial dewatering which may be required.

CLOSURE

We appreciate the opportunity to have worked with you on this project and look forward to our continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you in this matter.

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES, INC.

S. Shridhar

Shridhar S. Rao
Staff Engineer

8/26/94

R. Kenneth Derick, P.E.
P.E. No. 37711
Vice President

SSR/RKD:esj

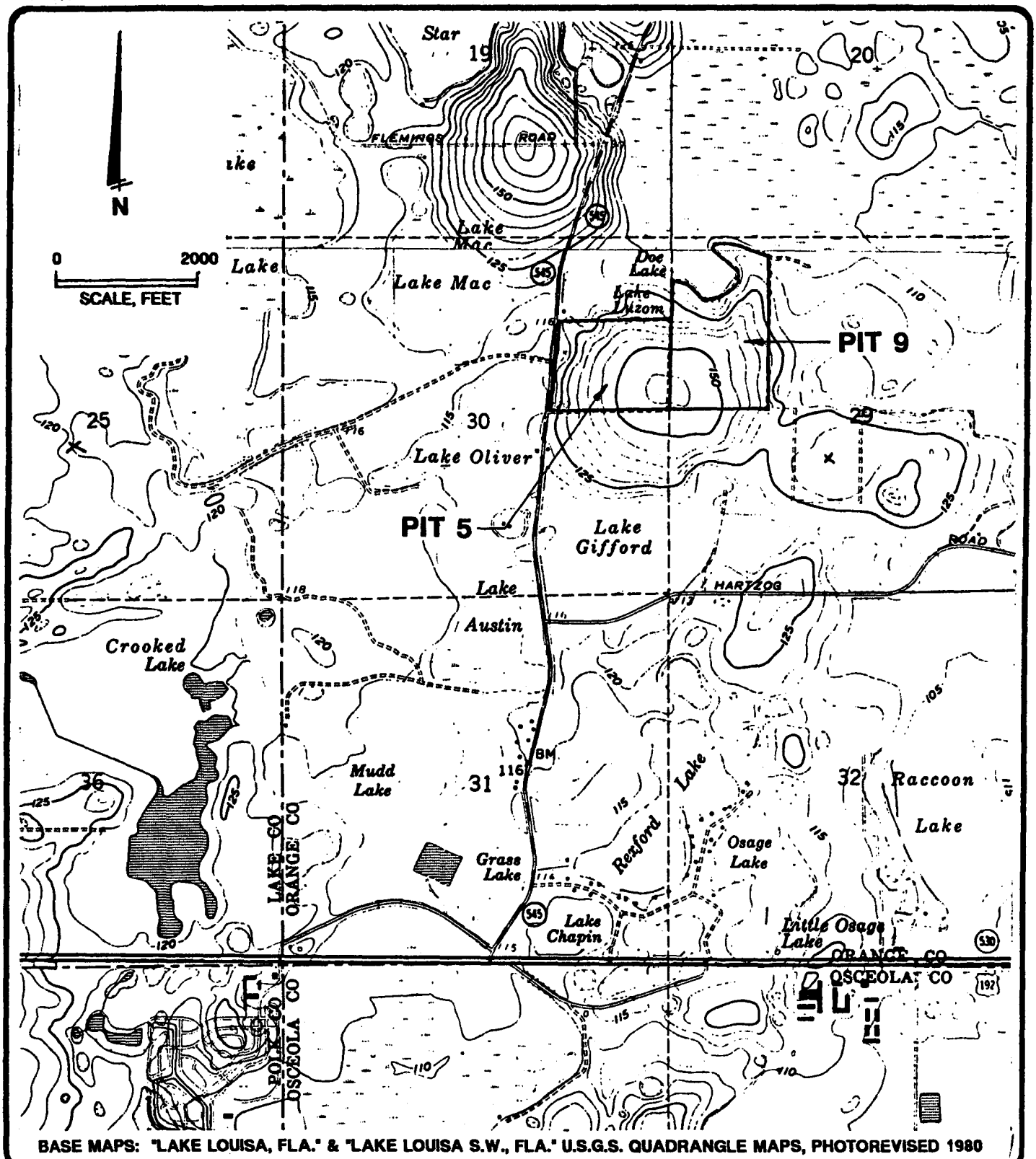
cc: Client (2)

Attachments: Appendix A-1 Site Location Plan
Appendix B-1 Boring Location Map
Appendix B-2 Boring Logs
Appendix B-3 Key to Borings
Appendix B-4 Description of Testing Procedures
Appendix C-1 Summary of Depths and Elevations of Groundwater Table
Appendix C-2 Groundwater Contours Map

SCANNED

APPENDIX A

SCANNED



BASE MAPS: "LAKE LOUISA, FLA." & "LAKE LOUISA S.W., FLA." U.S.G.S. QUADRANGLE MAPS, PHOTOREVISED 1980

UNIVERSAL
ENGINEERING SCIENCES

BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

U.S.G.S. SITE LOCATION MAP

DRAWN BY:	G.B.	DATE:	8/23/94	CHECKED BY:	S.S.R	DATE:	Aug 26, 94
SCALE:	AS SHOWN	ORDER NO:	17862-001-01	REPORT NO:	40551	PAGE NO:	A-1

SCANNED

APPENDIX B

SCANNED

LEGEND

⊕ STANDARD PENETRATION TEST BORING LOCATION

BORINGS PERFORMED 8/16-8/18/94

331136

FOR: BISHOP & BUTTREY, INC.

DRAWN BY: G.B. DATE: 8/23/94

CHECKED BY: DATE:

SCALE: AS SHOWN

ORDER NO: 17862-001-01 REPORT NO: 40551

BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

BORING LOCATION PLAN

UNIVERSAL ENGINEERING SCIENCES

PAGE NO: B-1

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.1

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: **B-1** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 155.00 DATE STARTED: 8/16/94
WATER TABLE (ft): 42.5 DATE FINISHED: 8/16/94
DATE OF READING: 8/16/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 41.5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
	X	2-2-1	3			Very loose orange-brown fine SAND						
	X	1-1-1	2									
5	X	2-1-1	2				3					
	X	1-2-2	4									
	X	2-3-3	6			-- loose, light orange						
10	X	3-3-3	6									
						Medium dense light orange fine SAND						
15	X	3-5-5	10									
						-- medium dense						
20	X	8-8-12	20									
25	X	8-10-8	18									
						Loose orange-red clayey SAND						
30	X	3-3-4	7				20					
						Loose orange-red SAND;some silt						
35	X	4-4-4	8									
						-- medium dense, mottled with yellow						
40	X	4-7-6	13				10					
				▽								
				▼		Dense light orange SAND with silt						
45	X	4-14-17	31									
						-- light brown to white						
50	X	16-17-16	33									
						-- light yellow-brown						
55	X	16-18-19	37									
60	X	13-14-17	31									
						BORING TERMINATED AT 60.0'						
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.2

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: **B-2** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 152.00 DATE STARTED: 8/16/94
WATER TABLE (ft): 39.3 DATE FINISHED: 8/16/94
DATE OF READING: 8/16/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 38.3 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
	X	3-2-1	3			Very loose orange SAND						
	X	2-1-1	2									
5	X	2-1-1	2									
	X	2-2-2	4				3					
	X	3-2-2	4									
	X	2-2-3	5			-- loose						
10												
						Medium dense orange fine SAND						
15	X	4-5-7	12									
20	X	4-5-7	12									
25	X	4-4-5	9			Loose orange-red clayey SAND	21					
30	X	4-4-6	10									
						Medium dense orange-red silty SAND						
35	X	8-10-10	20									
				▽								
40	X	10-14-13	27	▼		Medium dense orange SAND with seams of yellow sand						
						Medium dense light tan SAND with silt						
45	X	9-10-13	23				7					
50	X	11-15-11	26			-- light gray to white						
						Medium dense mottled light gray-white & pink SAND						
55	X	9-10-10	20									
						-- light pink						
60	X	8-8-10	18									
						BORING TERMINATED AT 60.0'						
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.3

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: **B-3** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 148.00 DATE STARTED: 8/17/94
WATER TABLE (ft): 34.5 DATE FINISHED: 8/17/94
DATE OF READING: 8/17/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 33.5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
	X	2-2-2	4			Very loose orange fine SAND						
	X	1-1-1	2									
5	X	1-2-1	3									
	X	1-2-2	4									
	X	2-3-3	6			-- loose						
	X	1-2-3	5									
10												
	X	4-4-5	9									
15												
	X	5-7-12	19			Medium dense orange fine SAND						
20												
	X	7-10-11	21			-- light yellow	3					
25												
	X	11-12-13	25									
30												
	X	9-9-13	21	▽		Medium dense mottled light yellow & red clayey SAND	26					
35												
	X	9-9-9	18			Medium dense orange-red silty SAND						
40												
	X	8-11-12	23			-- orange, light gray to white & yellow						
45												
	X	8-9-12	21				7					
50						BORING TERMINATED AT 50.0'						
55												
60												
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.4

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: B-4 SHEET: 1 of 1
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 143.00 DATE STARTED: 8/17/94
WATER TABLE (ft): 31.5 DATE FINISHED: 8/17/94
DATE OF READING: 8/17/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 30.5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
	X	2-2-2	4			Very loose orange fine SAND						
	X	2-2-1	3									
5	X	2-2-2	4									
	X	2-2-2	4			-- loose						
	X	3-3-5	8									
10	X	2-4-3	7									
						Medium dense orange fine SAND						
15	X	3-5-6	11									
20	X	6-10-10	20									
25	X	8-10-11	21				3					
						-- light yellow						
30	X	8-11-12	23	▽								
						Medium dense orange-red clayey SAND						
35	X	8-8-9	17				19					
						Medium dense light yellow mottled silty SAND						
40	X	6-5-7	12				12					
						-- light gray to white						
45	X	7-7-10	17									
50	X	7-7-10	17									
						BORING TERMINATED AT 50.0'						
55												
60												
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.5

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

BORING DESIGNATION: **B-5** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft): 136.00 DATE STARTED: 8/17/94
WATER TABLE (ft): 27.0 DATE FINISHED: 8/17/94
DATE OF READING: 8/17/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 26.0 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
	X	2-1-2	3			Very loose orange fine SAND						
	X	2-1-1	2									
5	X	2-1-1	2									
	X	2-1-2	3									
	X	2-3-3	6			-- loose						
	X	3-2-2	4			-- very loose						
10												
	X	4-4-5	9			-- loose						
15												
						Medium dense light yellow to orange fine SAND	3					
	X	7-10-13	23									
20												
	X	1-9-13	22			-- yellow						
25				▽								
				▼								
	X	7-9-9	18									
30												
						Medium dense light gray to brown silty fine SAND	10					
	X	8-8-11	19									
35						BORING TERMINATED AT 35.0'						
40												
45												
50												
55												
60												
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.6

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: **B-6** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 136.00 DATE STARTED: 8/18/94
WATER TABLE (ft): 26.7 DATE FINISHED: 8/18/94
DATE OF READING: 8/18/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 25.7 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
		1-0-1	1			Very loose light brown fine SAND						
		1-0-1	1			-- orange						
5		1-0-1	1									
		2-2-2	4									
		2-2-3	5			-- loose -- light orange						
		2-3-3	6									
10												
						Medium dense light orange fine SAND						
15		4-5-6	11									
20		6-7-8	15									
25		8-9-9	18	▽								
				▼		Medium dense orange-red silty fine SAND						
30		7-8-9	17				17					
						-- light yellow						
35		5-6-7	13				6					
						BORING TERMINATED AT 35.0'						
40												
45												
50												
55												
60												
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.7

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: B-7 SHEET: 1 of 1
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 124.00 DATE STARTED: 8/18/94
WATER TABLE (ft): 15.3 DATE FINISHED: 8/18/94
DATE OF READING: 8/18/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 14.3 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
	X	2-1-1	2			Very loose orange fine SAND						
	X	1-0-1	1									
5	X	1-1-1	2									
	X	2-2-2	4									
	X	4-3-3	6			-- loose						
	X	3-3-3	6			-- light orange						
10												
	X	4-6-8	14	▽		Medium dense light orange to yellow fine SAND w/ silt						
15												
	X	2-4-5	9			Loose orange silty SAND	11					
20												
	X	8-8-11	19			-- yellow						
25												
	X	5-5-5	10			-- loose, pink	10					
30						BORING TERMINATED AT 30.0'						
35												
40												
45												
50												
55												
60												
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.8

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

BORING DESIGNATION: **B-8** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft): 126.00 DATE STARTED: 8/18/94
WATER TABLE (ft): 17.2 DATE FINISHED: 8/18/94
DATE OF READING: 8/18/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 16.2 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
	X	2-1-1	2			Very loose orange fine SAND						
	X	1-1-1	2									
5	X	1-2-2	4									
	X	3-2-2	4									
	X	2-2-2	4			-- loose						
	X	2-3-2	5									
10												
						Medium dense light orange fine SAND						
	X	4-6-7	13									
15				▽								
						-- light yellow						
	X	9-8-11	19				3					
20												
	X	7-10-11	21									
25												
						Medium dense light brown to white fine SAND with silt						
	X	7-7-9	16									
30						BORING TERMINATED AT 30.0'						
35												
40												
45												
50												
55												
60												
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.9

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: **B-9** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 123.00 DATE STARTED: 8/18/94
WATER TABLE (ft): 13.8 DATE FINISHED: 8/18/94
DATE OF READING: 8/18/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 12.8 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
	X	2-1-1	2			Very loose orange fine SAND						
	X	2-1-2	3									
5	X	1-1-1	2									
	X	2-1-2	3									
	X	2-2-1	3									
	X	1-0-1	1			-- light orange						
10				▽								
				▼		Medium dense tan fine SAND						
	X	4-5-7	12									
15												
	X	6-9-11	20									
20												
	X	3-3-5	8			Loose brown silty fine SAND	7					
25						BORING TERMINATED AT 25.0'						
30												
35												
40												
45												
50												
55												
60												
65												

00298

SCANNED

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	17862-001-01
REPORT NO.:	40551
PAGE:	B-2.10

PROJECT: BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

CLIENT: BISHOP & BUTTREY, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: **B-10** SHEET: **1 of 1**
SECTION: 29,30 TOWNSHIP: 24 RANGE: 27

G.S. ELEVATION (ft): 150.00 DATE STARTED: 8/18/94
WATER TABLE (ft): 37.0 DATE FINISHED: 8/18/94
DATE OF READING: 8/18/94 DRILLED BY: UES - ORLANDO
EST. W.S.W.T. (ft): 36.0 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
	X	2-2-1	3			Very loose brown fine SAND – orange-brown						
	X	2-1-2	3			– orange						
5	X	1-1-2	3				5					
	X	2-3-4	7			– loose						
	X	2-2-3	5									
	X	2-2-3	5									
10												
	X	3-3-3	6			Loose orange fine SAND with silt						
15												
	X	4-5-5	10			Loose orange silty SAND	8					
20						– light orange						
	X	6-7-9	16									
25												
	X	8-11-12	23			Medium dense light gray fine SAND						
30												
	X	8-12-16	28				5					
35				▽								
	X	14-14-18	32			– dense						
40												
	X	12-14-19	33									
45												
	X	12-14-15	29			– medium dense						
50												
	X	13-14-15	29									
55												
	X	11-13-16	29			Medium dense light orange silty fine SAND with silt	9					
60						BORING TERMINATED AT 60.0'						
65												

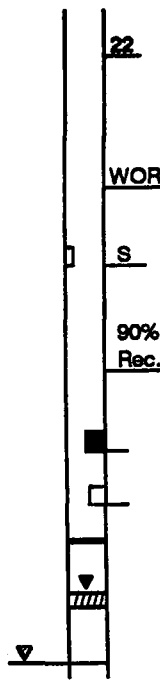
00298

SCANNED

UNIVERSAL
ENGINEERING SCIENCES

KEY TO BORING LOGS

SYMBOLS



22	Number of Blows of a 140-lb Weight Falling 30 in. Required to Drive Standard Spoon One Foot
WOR	Weight of Drill Rods
S	Thin-Wall Shelby Tube Undisturbed Sampler Used
90% Rec.	Percent Core Recovery from Rock Core-Drilling Operations
	Sample Taken at this Level
	Sample Not Taken at this Level
	Change in Soil Strata
	Free Ground Water Level
	Seasonal High Ground Water Level

RELATIVE DENSITY (sand-silt)

Very Loose - Less Than 4 Blows/Ft.
Loose - 4 - 10 Blows/Ft.
Medium - 10 to 30 Blows/Ft.
Dense - 30 to 50 Blows/Ft.
Very Dense - More Than 50 Blows/Ft.

CONSISTENCY (clay)

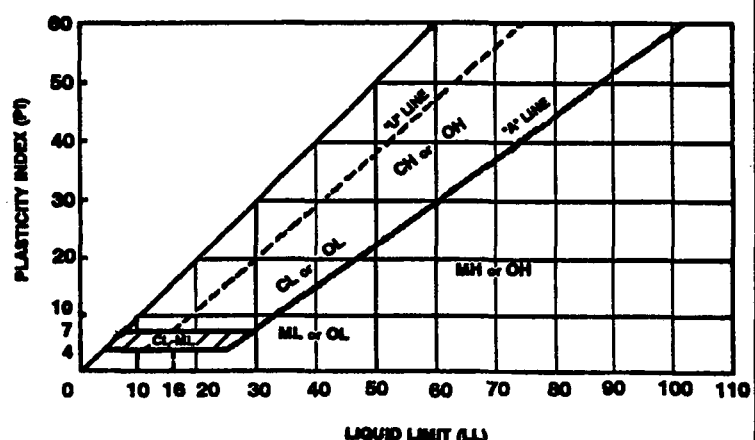
Very Soft - Less Than 2 Blows/Ft.
Soft - 2 to 4 Blows/Ft.
Medium - 4 to 8 Blows/Ft.
Stiff - 8 to 15 Blows/Ft.
Very Stiff - 15 to 30 Blows/Ft.
Hard - More Than 30 Blows/Ft.

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75-mm) sieve.

PLASTICITY CHART



SCANNED

DESCRIPTION OF LABORATORY TESTING PROCEDURES

WASH 200 TEST

The Wash 200 test is performed by passing a representative soil sample over a No. 200 sieve and rinsing with water. The percentage of the soil grains passing this sieve is then calculated.

SCANNED

APPENDIX C

SCANNED

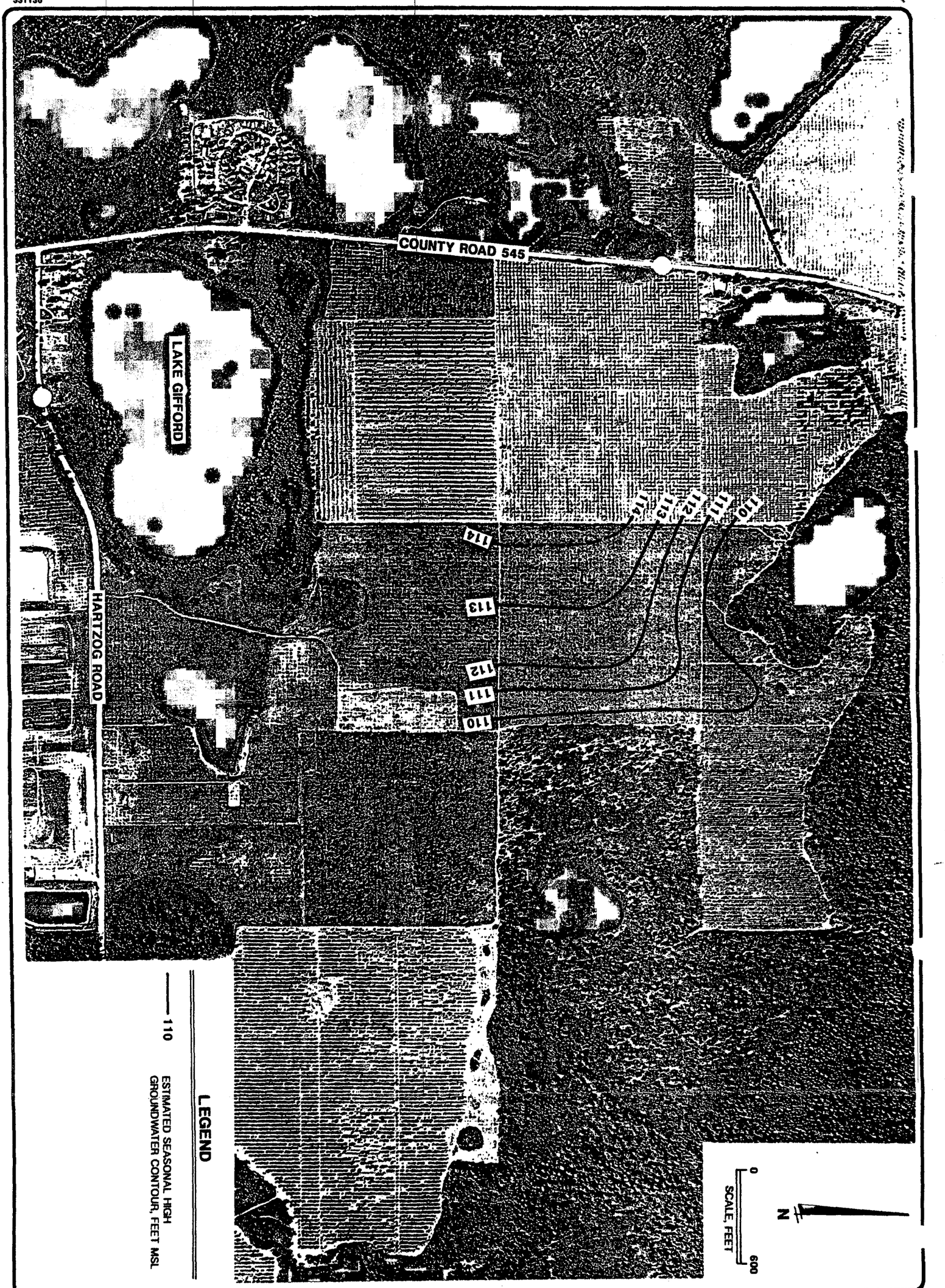
BISHOP & BUTTREY BORROW PIT Nos. 5 and 9

Boring Location #	Estimated Existing Ground Elev. (feet)	Estimated Exist. depth of G.W.T (feet)	Estimated Existing G.W.T Elev. (feet)	Estimated Seasonal High G.W.T Elev. (feet)
1	155.0	42.5	112.5	113.5
2	152.0	39.3	112.7	113.7
3	146.0	34.5	111.5	112.5
4	143.0	31.5	111.5	112.5
5	136.0	27.0	109.0	110.0
6	136.0	26.7	109.3	110.3
7	124.0	15.3	108.7	109.7
8	126.0	17.2	108.8	109.8
9	123.0	13.8	109.2	110.2
10	150.0	37.0	113.0	114.0

G.W.T - Ground Water Table

SCANNED

331136



BORROW PIT EXPLORATION
BISHOP & BUTTREY PIT NO.'S 9 & 5
ORANGE COUNTY, FLORIDA

ESTIMATED SEASONAL HIGH GROUNDWATER CONTOUR MAP

FOR: **BISHOP & BUTTREY, INC.**

DRAWN BY:	G.B.	DATE:	8/25/94
CHECKED BY:	S.S.R	DATE:	Aug 26, 94
SCALE:	AS SHOWN		
ORDER NO:	17862-001-01	REPORT NO:	40551

UNIVERSAL ENGINEERING SCIENCES

PAGE NO: C-2

SCANNED

MONTVERDE
ENGINEERING, INC.
P.O. BOX 560116 • MONTVERDE, FL 34756-0116 • (407) 469-4829

RECEIVED

SEP 15 1994

ORLANDO SERVICE CENTER

Storm Drainage Calculations for Modification to SFWMD Permit #48-00786-S

Project Description: Modification to existing excavation site. Fill excavated and removed for construction fill.

Project Location: C.R. 545
Existing Permit Section 31, Township 24 South, Range 27 East
Modification Proposed: Section 29, Township 24 South, Range 27 East

Existing Water Management Area = 41.29 Acres
Proposed Addition Water Management Area = 51.87 Acres

Total Water Management Area = 93.16 Acres

9/13/94

SCANNED

Current Permit Boundary
Permit 48-00786-S
41.29 Acres

Proposed Excavation Total Parcel = 80.00 Acres

Proposed Excavation Boundary
51.89 Acres

Total Acreage Current Permit Parcel = 50.77Ac

N

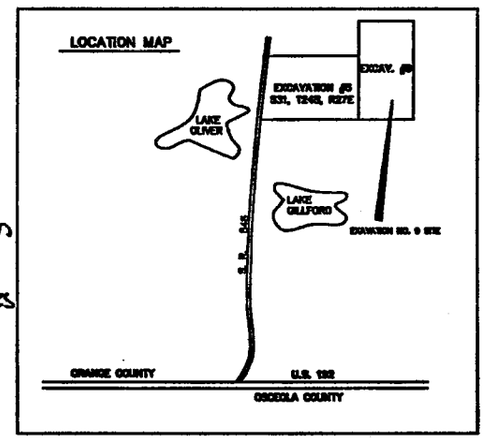
Scale 1" = 200 ft

REV.	REVISION DESCRIPTION	DATE

PROJECT NUMBER: 9418
DATE: SEPT. 8, 1994
SCALE: GRAPHIC

EXCAVATION PLAN
EXCAVATION SITE NO. 9

LOCATION MAP



DOE LAKE
LAKE SHORELINE
PIT NO. 9
FRAME A – 1000 TO 1007
FRAME B – 1000 TO 1009
FRAME I – 1004 TO 1005
CROSS-SECTION A SHEET 07
CROSS-SECTION C SHEET 07
EAST R.R. 545 R/W
1762.69 FT

2" Type S Asphalt
12" Limerock Base
Compacted Sub-Base
DETAIL PAVED SECTION HAUL ROAD TO R/W LINE

PAVE TO R/W LINE
PROPERTY LINE
HAUL ROAD
DETAIL OF HAUL ROAD ENTRANCE

Drainage Map and Depiction of Works

EXCAVATION NOTES

Excavation depths are limited to a minimum of 1' above the crown of S.R. 545.

No dewatering is anticipated.

1-1/2" 10 ft. tall pine trees will be planted around perimeter of excavation.

All excavated areas will be seeded with bahia and millet grass seed.

GENERAL NOTES

All work shall be in accordance with Orange County Ordinance Number 85-32 with amendments 88-18 and 89-13.

Plan of Reclamation: All disturbed areas shall be seeded, mulched and fertilized, a dense stand of grass shall be established.

Warning signs of at least six square feet shall be posted permanently on each side of the excavation, ten feet inside the excavation fence lines. Signs shall be placed at each corner of the fence line and not more than five hundred feet apart along the fence line. On the sign shall be printed in letters of not less than five inches in height, the words "NO TRESPASSING" or other approved appropriate warning and the name of the owner, lessee, or occupant of said land. The signs shall be positioned as to be clearly visible from outside of the fence line.

No slopes shall exceed 3:1 (horizontal:vertical) ratio. Final excavation limits and elevations are shown on the plans. No construction dewatering is planned. All excavation is to be above the HSWT.

Soil Borings were performed by American Testing Laboratories, Inc. Reference their report dated June 28, 1993 for more information.

LEGEND

- 4' HIGH FIELD FENCE
- PROPERTY LINE
- EXISTING TOPO LINE
- FINAL DESIGN TOPO LINE
- CA — CANDLER SOIL (SCS-4)
- TV — TAVARES SOIL (SCS-46)
- SOIL BORING
- FINISHED SPOT ELEVATION
- PIT NO. 9 EXCAVATION LIMITS
- EXCAVATION PHASE LINE

Owner and Permittee: Harry E. Clark, Jr.
4113 East Rosie's Cove Road
Dechard, TN 37324
ATTENTION: Mr. H.E. Clark, Jr.

Contractor: Bishop and Buttrey, Inc.
1310 W. Colonial, Suite 3
Orlando, FL 32804
(407) 872-0780
ATTENTION: Mr. John Buttrey

Engineer: Arthur C. Nix, P.E.
John Buttrey, P.E.
Montverde Engineering, Inc.
P.O. Box 560116
Montverde, FL 34756
(407) 469-4829
ATTENTION: Mr. John Buttrey
1310 W. Colonial, Suite 3
Orlando, FL 32804
(407) 872-0780

TOTAL EXCAVATION AREA=50.48 ACRES
TOTAL PROPERTY AREA=80.00 ACRES

LEGAL DESCRIPTION

PARCEL A: THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 19, TOWNSHIP 24 SOUTH, RANGE 27 EAST, ORANGE COUNTY, FLORIDA, CONTAINING APPROXIMATELY 40 ACRES.

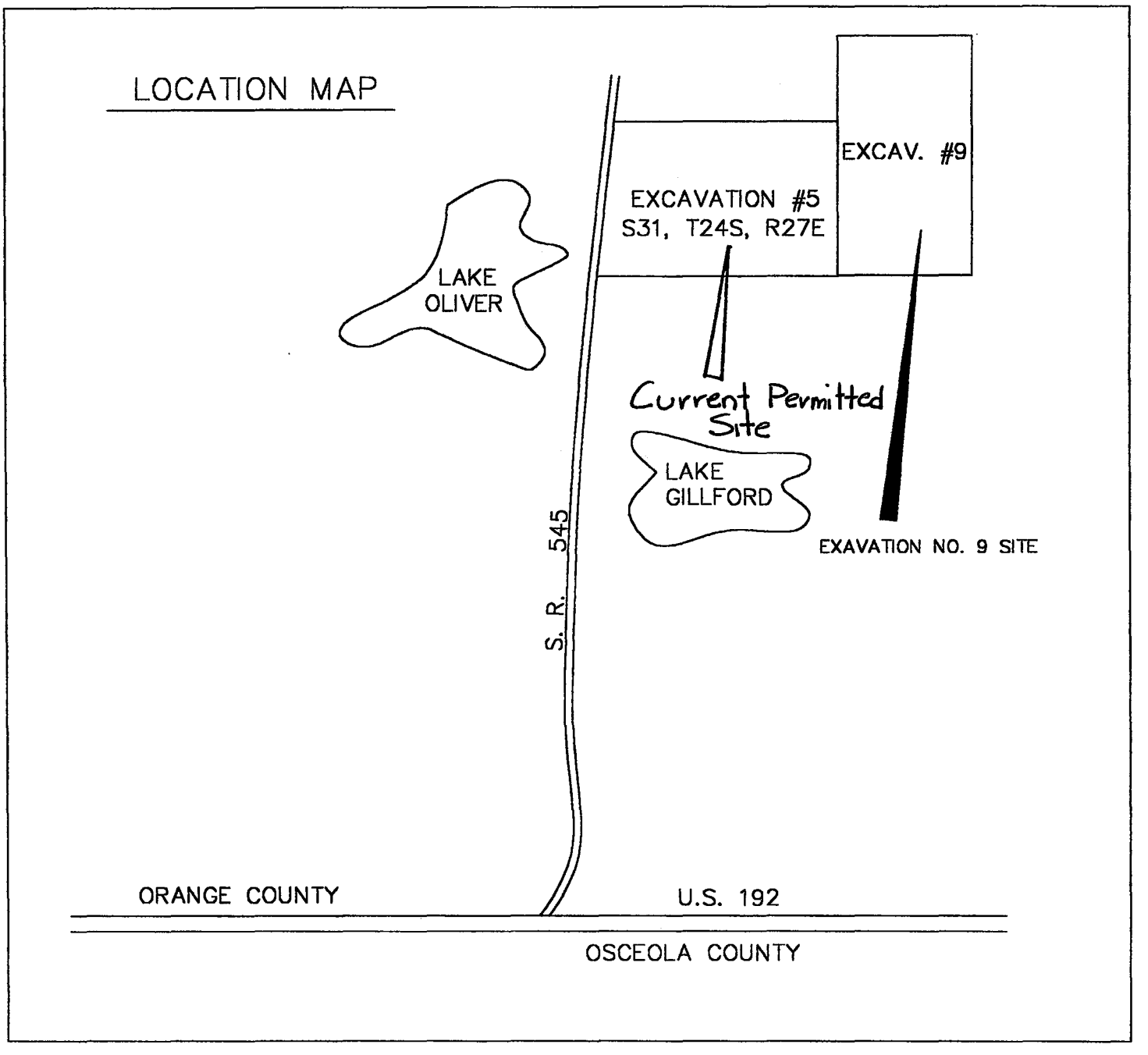
PARCEL B: THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 19, TOWNSHIP 24 SOUTH, RANGE 27 EAST, ORANGE COUNTY, FLORIDA, CONTAINING APPROXIMATELY 40 ACRES.

BISHOP AND BUTTREY, INC.

Montverde Engineering, Inc.
P.O. Box 560116 Montverde, FL 34756
(407) 469-4829

SCANNED

Location Sketch Item 1-1



SCANNED

Montverde Engineering , Inc.
P.O. Box 560116
Montverde, FL 34756-0116
(407) 469-4829

Job: 9416

Calc. By: A. Nix, P.E.
Date: 9/13/94

Sheet No. 1 of 2

SFMWD Stormwater Calculations

Calculations for additional parcel to be included in present permit #48-00786-S

Original Permit Parcel Size=	50.77 Acres
Additional Parcel Size =	80 Acres
Total Size All Phases	130.77 Acres
Actual Excavted Area Current Permit=	41.29 Acres
Addtional Area to be excavated =	51.87 Acres
Total Water Management Area =	***93.16 Acres***

Retention Characteristics

Elevation	Area (acres)	Volume
115.00	51.77	
		53.89 acre-ft
116.00	56.00	

Retention Volume Requirements= 1"/12 x 93.16 Acres
= ***7.76 acre-ft***

Stage at above volume= ***155.14*** **feet**
Stage at 50% required Volume= ***115.07*** **feet**
Discharge elevation into Lake Doe is at 116.00. SFWMD volume requirement at satisfied.

Soil Storage Calculations:

Average Depth to WSWT = 2 FT

From Soil Storage Table Compacted Water Storage = 1.88"

Convert available soil storage to site- wide moisture storage "S"

Ground Storage = 1.88" x (1 ft/12 in) x 93.16 Acres
= 14.60 Acre-ft

S= (14.59 ac-ft x 12 in/l ft) /93.16 ac
S= 1.88 inches (SINCE 100% PERVIOUS)

9/ SCANNED

Montverde Engineering , Inc.
P.O. Box 560116
Montverde, FL 34756-0116
(407) 469-4829

Job: 9416

Calc. By: A. Nix, P.E.
Date: 9/13/94

CN= 1000/ (1.88 +10)
CN = *84*

Results of ADICPR Run (see attached page)

Volume 24/72 hour storms = 6.09 inches

Total Volume = ***47.28 acre-ft***

Approx. Stage at above volume = ***115.88 feet***

Recovery Calculations

Volume to Recover 25 year/24 hour storm

Vol. Recover= 6.09"/12*93.16 Acres: ***47.28 acre-ft***

Rate of Permeability-Use 6.0 inches per hour bases on SCS recommendations for Tavares and Candler Soils.

Retention Area of Basin=51.7 Acres

Rate of Discharge= 51.7 Acres *43560 *6.0 in/hour/12 " per foot
hr x 60 min/hr x 60 sec/min
= 313 cfs

Recovery Time = 51.7 acre-ft *43560/313 cfs *1/60=
= 119 min.
= 2.0 hours

Summary: Recovery Time for 25 year storm event = 2.0 hours

9/15/11 SCANNED

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

545 PIT CALCC
9/13/94

BASIN NAME	1	2
NODE NAME	1	2
UNIT HYDROGRAPH	UH484	UH484
PEAKING FACTOR	484.	484.
RAINFALL FILE	SCSII-24	SCSII-24
RAIN AMOUNT (in)	8.00	8.00
STORM DURATION (hrs)	24.00	72.00
AREA (ac)	93.14	93.14
CURVE NUMBER	84.00	84.00
DCIA (%)	.00	.00
TC (mins)	10.00	10.00
LAG TIME (hrs)	.00	.00
BASIN STATUS	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
1	730.18	12.02	6.09	POST DEVELOPMENT 25 YEAR 24 HOUR ST
2	262.22	36.00	6.09	POST DEVELOPMENT 25 YEAR 72 HOUR ST

SCANNED

Form 0645-0122

SFWMD ONLY

N A I M

DRAINAGE BASIN(S) TABLE

	BASIN NO. 1		BASIN NO.		TOTAL DRAINAGE AREA (ACRES)
	PROJECT (ACRES)	OFF-SITE (ACRES)	PROJECT (ACRES)	OFF-SITE (ACRES)	
IMPERVIOUS					
BUILDINGS	0	0			0
OTHERS	0	0			0
WATER MANAGEMENT					
WET	0	0			0
DRY	93.16				93.16
PERVIOUS	93.16				93.16
TOTAL	93.16				93.16
NUMBER OF DWELLING UNITS (ALLOWED/ PROPOSED)	010		1		010
SQUARE FOOTAGE OF:					
COMMERCIAL	NA		NA		NA
INDUSTRIAL	NA		NA		NA

PHASE(S) TABLE

	CONSTRUCTION AND OPERATION				TOTAL PROJECT AREA (ACRES)
	ALL PAST PHASES		THIS PHASE		
	PROJECT (ACRES)	OFF-SITE (ACRES)	PROJECT (ACRES)	OFF-SITE (ACRES)	
IMPERVIOUS					
BUILDINGS	NA	NA	0	0	0
OTHERS	NA	NA	0	0	0
WATER MANAGEMENT					
WET *	0	0	0	0	
DRY	41.29		51.87		93.16
PERVIOUS	41.29	NA	51.87	0	93.16
TOTAL	41.29	NA	51.87		93.16
NUMBER OF DWELLING UNITS (ALLOWED/ PROPOSED)	010		010		010
SQUARE FOOTAGE OF:					
COMMERCIAL	0		0		0
INDUSTRIAL	0		0		0

* 20.04 Acres of Lake area not in excavation area.

SCANNED 9/13/94

Form 0845-G23

SFWMD ONLY

N A I M

☐ BASIN NUMBER 1 OR ☐ PHASE NUMBER _____ ☐☐☐☐

FOR FIRST INCH:

1 IN. x 1 FT / 12 IN. x 93.16 (PROJECT AREA, ACRES) = [7.76] AC-FT ☐☐☐☐

FOR 2.5 IN. TIMES PERCENT IMPERVIOUS (ALL AREA UNITS IN ACRES):

SITE AREA: _____ (PROJECT AREA) - (_____ (LAKES) + _____ (ROOFS)) = _____ (SITE AREA) ☐☐☐☐

IMPERVIOUS AREA: _____ (SITE AREA) - _____ (PERVIOUS AREA) = _____ (IMPERVIOUS AREA) ☐☐☐☐

PERCENT IMPERVIOUS: IMPERVIOUS AREA (_____) / SITE AREA (_____) x 100% = _____ % (PERCENT IMPERV.) ☐☐☐☐ ☐☐☐☐

2.5 IN. x % IMPERVIOUS: 2.5 IN. x _____ (PERCENT IMPERVIOUS) = _____ (INCHES TO BE TREATED) IN. ☐☐☐☐

INCHES TO BE TREATED TIMES AREA TO BE TREATED:

_____ (INCHES TO BE TREATED) IN. x (_____ (PROJECT AREA) - _____ (LAKES)) x 1 FT / 12 IN. ☐☐☐☐

= [ ] AC-FT ☐☐☐☐

REQUIRED WET DETENTION = LARGER OF TWO [ ] VALUES

NA - No planned development = _____ AC-FT ☐☐☐☐

WILL SYSTEM UTILIZE DRY DETENTION?

☒ NO ☐☐☐☐

☐ YES: ☐☐☐☐

REQUIRED DRY DETENTION = 0.75 x _____ (REQUIRED WET DETENTION) = _____ AC-FT ☐☐☐☐

WILL SYSTEM UTILIZE RETENTION?

☒ NO ☐☐☐☐

☐ YES: ☐☐☐☐

REQUIRED RETENTION = 0.5 x 7.76 (REQUIRED WET DETENTION) = 3.88 AC-FT ☐☐☐☐

ACTUAL DETENTION/RETENTION TO BE PROVIDED = 53.89 AC-FT ☐☐☐☐

IT WILL BE PROVIDED BETWEEN CONTROL ELEVATION = 115 FT,NGVD ☐☐☐☐

AND ELEVATION = 116 FT,NGVD ☐☐☐☐

PARCEL DISCHARGES TO OFW AND IS GREATER THAN 40% IMPERVIOUS?

☐ YES: SEE "DRY PRETREATMENT" BELOW. ☐☐☐☐

☒ NO ☐☐☐☐

PARCEL IS ZONED COMMERCIAL OR INDUSTRIAL?

☐ YES, BUT ITEM IV-6 (ASSURANCES) IS ATTACHED. ☐☐☐☐

☐ YES, BUT ITEM IV-6 (ASSURANCES) IS WAIVED. ☐☐☐☐

SEE "DRY PRETREATMENT" BELOW.

☒ NO ☐☐☐☐

DRY PRETREATMENT

VOLUME REQUIRED: NA

0.5 IN. x (_____ (PROJECT AREA) - _____ (LAKES)) AC x 1 FT / 12 IN. = ___ AC-FT ☐☐☐☐

METHOD: _____ ☐☐☐☐

9/13/94

SCANNED

Form 0645-Q24

SFWMD ONLY

N A I M

☐ BASIN NUMBER 1 OR ☐ PHASE NUMBER _____ ☐☐☐☐

AVERAGE DEVELOPED SITE PERVIOUS AREAS ELEVATION: 116 FT, NGVD ☐☐☐☐

WET SEASON WATER TABLE (WSWT), ELEVATION: - 114 FT, NGVD* ☐☐☐☐

THEREFORE, AVERAGE DEPTH TO WSWT: 2 FT ☐☐☐☐

*THIS IS BASED ON:

☒ ON-SITE BORING DONE (DATE) 6/28/93; OR ☐☐☐☐

☐ SFWMD PERMIT (NUMBER) _____; OR ☐☐☐☐

☐ OTHER: _____ ☐☐☐☐

RESULTING SITE-WIDE SOIL STORAGE:

93.14 PERVIOUS UNCOMPACTED ACRES x 1.88 IN. = 175.10 AC-IN. ☐☐☐☐

0 PERVIOUS COMPACTED ACRES x 0 IN. = 0 AC-IN. ☐☐☐☐

93.14 TOTAL PERVIOUS ACRES TOTAL = 175.10 AC-IN. ☐☐☐☐

SITE SOIL STORAGE = TOTAL AC-IN. = 175.10 AC-IN. = 1.88 IN. ☐☐☐☐

TOTAL PERVIOUS ACRES 93.14 AC

☐ BASIN NUMBER _____ OR ☐ PHASE NUMBER _____ ☐☐☐☐

AVERAGE DEVELOPED SITE PERVIOUS AREAS ELEVATION: _____ FT, NGVD ☐☐☐☐

WET SEASON WATER (WSWT), ELEVATION: - _____ FT, NGVD* ☐☐☐☐

THERFORE, AVERAGE DEPTH TO WSWT: _____ FT ☐☐☐☐

*THIS IS BASED ON:

☐ ON-SITE BORING DONE (DATE) _____; OR ☐☐☐☐

☐ SFWMD PERMIT (NUMBER) _____; OR ☐☐☐☐

☐ OTHER: _____ ☐☐☐☐

RESULTING SITE-WIDE SOIL STORAGE:

_____ PERVIOUS UNCOMPACTED ACRES x _____ IN. = _____ AC-IN. ☐☐☐☐

_____ PERVIOUS COMPACTED ACRES x _____ IN. = _____ AC-IN. ☐☐☐☐

_____ TOTAL PERVIOUS ACRES TOTAL = _____ AC-IN. ☐☐☐☐

SITE SOIL STORAGE = TOTAL AC-IN. = _____ AC-IN. = _____ IN. ☐☐☐☐

TOTAL PERVIOUS ACRES AC

NA 100% Retention

PROPOSED DISCHARGE TABLE ☐☐☐☐

PROJECT BASIN OR OFF-SITE AREA NUMBER	RECEIVING BODY NAME	RECEIVING BODY TAILWATER ELEVATION (FT,NGVD)	ALLOWABLE DISCHARGE AMOUNT (CFS)	ALLOWABLE DISCHARGE METHOD* NUMBER	
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐
					☐☐☐☐

* FOR EXAMPLE:

1. HISTORIC DISCHARGE (COMMONLY "PRE-VERSUS POST") (PROVIDE CALCULATIONS IN "UNDEVELOPED BASIN AND HISTORIC SHEETFLOW COMPUTATIONS" BELOW.)
2. PREVIOUS DISTRICT PERMITS
3. DISTRICT CRITERIA
4. OTHER: _____ ☐☐☐☐

9/13/94

SCANNED

Form 0945-025

SFWMD ONLY

N A I M

UNDEVELOPED BASIN AND PROJECT HISTORIC SHEETFLOW COMPUTATIONS*
BASIN NO. 1 ☐☐☐☐
BASIN-WIDE

25-YEAR, 24-HOUR RAINFALL (P): 8 IN. ☐☐☐☐

AVERAGE DEPTH TO WET SEASON WATER TABLE (DWT): 2 FT ☐☐☐☐

RUNOFF LENGTH: 0.24 MI ☐☐☐☐

LAND SLOPE: 162 FT/MI (3.07%) ☐☐☐☐

LAND SLOPE CORRECTED TO ACCOUNT FOR ANY DOWNSTREAM TAILWATER CONDITIONS: NA FT/MI See Calcs ☐☐☐☐

RUNOFF RATE CURVE (FIGURE NUMBER): C-11- . ☐☐☐☐

*THIS METHOD SHOULD BE USED ONLY FOR 25-YEAR, 72-HOUR STORMS.

PEAK SHEETFLOW DISCHARGE RATE, UNCONVERTED FOR EXCESS DEPRESSION STORAGE: _____ CFS/SQ MI ☐☐☐☐

PEAK SHEETFLOW DISCHARGE RATE TIMES BASIN AREA:

= _____ CFS/SQ MI x _____ SQ MI See Attached Calcs ☐☐☐☐

= 0 CFS. THIS IS Q, THE BASIN-WIDE PEAK SHEETFLOW DISCHARGE. ☐☐☐☐

AMOUNT (IF ANY) OF BASIN IN EXCESS DEPRESSION STORAGE: _____% ☐☐☐☐

DEPTH (IF ANY) OF EXCESS DEPRESSION STORAGE (MUST EXCEED 8 INCHES): _____ IN. ☐☐☐☐

CONVERT AMOUNT AND DEPTH (TO UTILIZE FIGURE C-11-17):

(DEPTH/8 IN.) x AMOUNT

= (_____ IN./8 IN.) x _____ % ☐☐☐☐

= _____ x _____ % ☐☐☐☐

= _____ % CORRECTED PONDED AREA ☐☐☐☐

FROM FIGURE C-11-17, C_R = _____ ☐☐☐☐

$Q_R = C_R \times Q$

= _____ x _____ CFS ☐☐☐☐

Q_R = _____ CFS FOR THE BASIN ☐☐☐☐

PROJECT PEAK DISCHARGE: $Q_R \times \frac{\text{PROJECT AREA}}{\text{BASIN AREA}}$

= _____ CFS x _____ ☐☐☐☐

= _____ CFS PRE-DEVELOPED PROJECT SITE 25-YEAR, 72-HOUR STORM PEAK DISCHARGE ☐☐☐☐

SCANNED

Form 0646-G26

SFWMD ONLY

N A I M

FLOOD ROUTING SUMMARY TABLE

☐ BASIN NO. _____ OR ☐ PHASE NO. _____ ☐☐☐☐

	RAINFALL AMOUNT (INCHES)	
ROADS		
DISTRICT 5-YEAR, 24-HOUR NA	_____	☐☐☐☐
OTHER: _____-YEAR, _____-HOUR	~~NA~~	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLOOD CONTOUR: _____ FT, NGVD		☐☐☐☐
MINIMUM GRADE: _____ FT, NGVD		☐☐☐☐
PARKING LOTS WITH TRENCH		
DISTRICT 5-YEAR, 1-HOUR NA	_____	☐☐☐☐
OTHER: _____-YEAR, _____-HOUR	~~NA~~	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLODD CONTOUR: _____ FT, NGVD		☐☐☐☐
MINIMUM GRADE: _____ FT, NGVD		☐☐☐☐
BASIN DESIGN		
STANDARD 25-YEAR, 72-HOUR	_____	☐☐☐☐
OTHER: _____-YEAR, _____-HOUR	~~NA~~	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLOOD CONTOUR : _____ FT, NGVD		☐☐☐☐
MINIMUM PERIMETER SITE GRADE: _____ FT, NGVD		☐☐☐☐
PEAK DISCHARGE		
ALLOWABLE: _____ CFS		☐☐☐☐
DESIGN : _____ CFS		☐☐☐☐

BUILDING FLOORS		
DISTRICT 100-YEAR, 72-HOUR, 0-DISCHARGE	~~NA~~	☐☐☐☐
OTHER: _____	_____	☐☐☐☐
FLOOD CONTOUR : _____ FT, NGVD*		☐☐☐☐
MINIMUM FLOOR : _____ FT, NGVD		☐☐☐☐
FEMA FLOOD : _____ FT, NGVD		☐☐☐☐
100-YEAR 72-HOUR, 0-DISCHARGE STORM CALCULATIONS		
*P = _____ IN. (72-HOUR RAINFALL)		☐☐☐☐
S = _____ IN. (SOIL STORAGE)		☐☐☐☐
$Q = \frac{(P - 0.2S)^2}{P + 0.8S} = \frac{(____ \text{ IN.} - (0.2 \times ____ \text{ IN.}))^2}{____ \text{ IN.} + (0.8 \times ____ \text{ IN.})}$		☐☐☐☐
$= \frac{(____ \text{ IN.} - ____ \text{ IN.})^2}{____ \text{ IN.} + ____ \text{ IN.}} = \frac{(____ \text{ IN.})^2}{____ \text{ IN.}} = \frac{____ \text{ IN.}^2}{____ \text{ IN.}} = ____ \text{ IN.}$		☐☐☐☐
RUNOFF VOLUME: _____ IN. (Q) × _____ AC (SITE AREA) × $\frac{1 \text{ FT}}{12 \text{ IN.}}$ = _____ AC-FT		☐☐☐☐
STAGE TO RETAIN RUNOFF VOLUME: _____ FT, NGVD		☐☐☐☐

9/13/96

SCANNED

Form 0845-C27

SFWMD ONLY

NAIM

FLOODPLAIN IMPORTER/EXPORTER TABLE

PREDEVELOPMENT RUNOFF VOLUME :	0	AC-FT	☐☐☐☐
PREDEVELOPMENT STORAGE VOLUME: -	0	AC-FT	☐☐☐☐
DIFFERENCE:	0	AC-FT	☐☐☐☐

LAND USE TABLE

TYPE(S) AND ACREAGE(S) OF LAND USE PROPOSED WITHIN THE PROJECT OR PRESENT PHASE:

	ACRES	TOTAL BUILDING SQUARE FOOTAGE		
AGRICULTURE (TYPE OF CROP):				☐☐☐☐
_____	_____			☐☐☐☐
_____	_____			☐☐☐☐
COMMERCIAL	_____	_____		☐☐☐☐
DEWATERING, LONG TERM	_____			☐☐☐☐
DEWATERING, SHORT TERM	_____			☐☐☐☐
GOLF COURSE	_____			☐☐☐☐
HIGHWAY (PUBLIC FUNDED)	_____			☐☐☐☐
INDUSTRIAL	_____	_____		☐☐☐☐
INSTITUTIONAL	_____	_____		☐☐☐☐
(SCHOOL, HOSPITAL, ETC)	_____	_____		☐☐☐☐
LANDFILL				☐☐☐☐
MINING	93.16			☐☐☐☐
OFFICE	_____	_____		☐☐☐☐
PARK/GREENSPACE	_____			☐☐☐☐
RECREATIONAL	_____			☐☐☐☐
RESIDENTIAL	_____		_____ (NUMBER OF DWELLINGS)	☐☐☐☐
SURFACE WATER MGMT.	_____			☐☐☐☐
OTHER: _____	_____	_____	_____	☐☐☐☐
OTHER: _____	_____	_____	_____	☐☐☐☐
TOTAL	_____			☐☐☐☐

SCANNED

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
RC-1A ADMINISTRATIVE INFORMATION FOR SURFACE WATER MANAGEMENT PERMIT APPLICATIONS AND/OR WATER USE PERMIT APPLICATIONS

Form 0645-A01
10/92

RECEIVED
SEP 15 1994
ORLANDO SERVICE CENTER

I. GENERAL INFORMATION

THIS IS AN APPLICATION FOR (PLEASE CHECK APPROPRIATE BOXES):

[X] A SURFACE WATER MANAGEMENT PERMIT [ ] A WATER USE PERMIT

OWNER	APPLICANT (IF DIFFERENT FROM OWNER)
NAME: Harry E. Clark, Jr.	NAME: Bishop and Buttrey, Inc.
ADDRESS: 4115 East Roark's Cove Road	ADDRESS: 1310 W. Colonial, Suite #3
CITY, STATE, ZIP: Decherd, TN 37324	CITY, STATE, ZIP: Orlando, FL 32804
TELEPHONE: (615) 598-5536	TELEPHONE: (407) 872-0780
PROJECT ENGINEER, CONSULTANT OR AGENT	**PRE-APPLICATION MEETING**
NAME OF FIRM: Montverde Engineering, Inc.	HAVE ANY PRE-APPLICATION MEETINGS BEEN HELD WITH DISTRICT STAFF? [ ] YES [X] NO
NAME OF CONTACT PERSON: Arthur C. Nix, P.E.	DATE(S): NA
ADDRESS: P.O. Box 560116	LOCATION(S): NA
CITY, STATE, ZIP: Montverde, FL 34756-0116	NAME(S) OF KEY DISTRICT STAFF: NA
TELEPHONE: (407) 469-4829	NAME(S) OF PROJECT REPRESENTATIVE(S):

PROJECT INFORMATION

NAME (INCLUDING THE PHASES COVERED BY THIS APPLICATION): ~~Excavation #9 (New), Excavation #5 (existing permit)~~ PIT #5 EXPANSION

TOTAL PROJECT ACREAGE, INCLUDING ALL PHASES: 130.77 (50.77 Acres in existing permit)

PHASE AREAS (IF APPLICABLE): 80.00

CITY, TOWN, OR VILLAGE (IF APPLICABLE): NA

COUNTY: Orange

SECTION(S) OR GOVERNMENT LOT(S): 29,30 TOWNSHIP: 24 S RANGE: 27 E

SECTION(S) OR GOVERNMENT LOT(S): _____ TOWNSHIP: _____ S RANGE: _____ E

SECTION(S) OR GOVERNMENT LOT(S): _____ TOWNSHIP: _____ S RANGE: _____ E

II. SURFACE WATER MANAGEMENT

FORM OF PERMIT (PLEASE CHECK ONLY ONE BOX)

[ ] A NEW INDIVIDUAL PERMIT, PURSUANT TO RULE 40E-4, FLORIDA ADMINISTRATIVE CODE (F A C)	[ ] A NEW GENERAL PERMIT, PURSUANT TO RULE 40E-40, F A.C.
[X] A MODIFICATION OF EXISTING INDIVIDUAL PERMIT NO 48-00786-S	[ ] A MODIFICATION OF EXISTING GENERAL PERMIT NO _____

DESCRIBE IN GENERAL TERMS THE REQUESTED CHANGE(S) OR NEW WORK(S)

SCANNED

Form 0645-A02

TYPE OF PERMIT (PLEASE CHECK AT LEAST ONE BOX)

☐ CONCEPTUAL APPROVAL OF A SURFACE WATER MANAGEMENT SYSTEM WHICH WILL SERVE THE ENTIRE _____- ACRE SITE. (PLEASE FILL IN THE ACREAGE OF YOUR ENTIRE PROJECT.)

☐ CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM WHICH WILL SERVE THE ENTIRE _____- ACRE SITE. (PLEASE FILL IN THE ACREAGE OF YOUR ENTIRE PROJECT.)

☒ *PHASES OF THE SITE: CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM WHICH WILL SERVE 80.00 ACRES (PLEASE FILL IN THE ACREAGE OF THE PART OF YOUR PROJECT FOR WHICH A CONSTRUCTION AND OPERATION PERMIT IS SOUGHT.) OF THE ENTIRE 130.77 ACRE SITE. (PLEASE FILL IN THE ACREAGE OF YOUR ENTIRE PROJECT.)

☐ OPERATION OF AN EXISTING SURFACE WATER MANAGEMENT SYSTEM WHICH SERVES THE ENTIRE _____- ACRE SITE. (PLEASE FILL IN THE ACREAGE OF YOUR ENTIRE PROJECT.)

☐ *PHASES OF THE SITE: OPERATION OF AN EXISTING SURFACE WATER MANAGEMENT SYSTEM WHICH SERVES _____ ACRES (PLEASE FILL IN THE ACREAGE OF THE PART OF YOUR PROJECT FOR WHICH AN OPERATION PERMIT IS SOUGHT.) OF THE ENTIRE _____- ACRE SITE. (PLEASE FILL IN THE ACREAGE OF YOUR ENTIRE PROJECT.)

*IF THIS IS THE CASE, YOU MUST ALSO USE THIS FORM TO APPLY FOR OTHER TYPES OF PERMITS FOR THE REST OF THE SITE, TO ASSURE THAT THE ENTIRE SITE IS COVERED BY THIS APPLICATION.

III. WATER USE

FORM OF PERMIT (PLEASE CHECK ONLY ONE BOX):

☐ A NEW INDIVIDUAL PERMIT PURSUANT TO RULE 40E-2.101, FLORIDA ADMINISTRATIVE CODE (F.A.C.)	☐ A NEW GENERAL PERMIT, PURSUANT TO RULE 40E-20, F.A.C.
☒ A MODIFICATION OF EXISTING PERMIT NO 48-00786-S	☐ RENEWAL OF EXISTING PERMIT NO. _____

THE PURPOSE OF THIS REQUEST: To expand existing excavation site with parcel contiguous to permitted site.

TYPE OF PERMIT (PLEASE CHECK AT LEAST ONE BOX):

☐ AGRICULTURAL IRRIGATION ☐ LANDSCAPING IRRIGATION ☐ GOLF COURSE IRRIGATION

☐ PUBLIC WATER SUPPLY ☐ MINING/DEWATERING ☐ INDUSTRIAL/COMMERCIAL

☐ RECREATIONAL ☐ AQUACULTURE ☐ OTHER (PLEASE DESCRIBE) _____

SOURCE OF WATER (PLEASE CHECK AT LEAST ONE BOX):

SURFACE WATER FROM THE FOLLOWING WATER BODY(IES).

☒ ON-SITE RETENTION POND(S) OR LAKE(S) ☐ ADJACENT LAKE, CANAL, RIVER, OR CREEK: _____ (NAME)

GROUND WATER FROM THE FOLLOWING NAMED AQUIFER(S) (PLEASE INDICATE, FOR EACH AQUIFER, WHETHER IT IS SHALLOW OR DEEP):

IV. CERTIFICATION

I hereby certify that, to the best of my knowledge, the total project acreage listed above is owned or controlled by me and encompasses the project referenced in this permit application. In addition, I agree to provide entry to the project site for South Florida Water Management District inspectors with proper identification or documents as required by law for the purpose of making preliminary analyses of the site. Further, I agree to provide entry to the project site for such inspectors to monitor permitted work if a permit is granted.

_____ 9-16-94

Signature (if not the owner, certify below) Date

I hereby certify that I am an authorized agent of the owner

_____

(Title) Date

FOR DISTRICT USE ONLY

APPLICATION NUMBER	940915-6
FEE REQUIRED	Yes
FEE PAID	2050.00
RECEIPT NUMBER	14918

Form 0645 - 501
01/90

RC-1S APPLICATION FOR A SURFACE WATER MANAGEMENT PERMIT

RECEIVED
SEP 15 1994
ORLANDO SERVICE CENTER

FOR SFWMD USE ONLY

Application No. 940915-6

SECTION I - SITE INFORMATION

			SFWMD ONLY N A I M
✓	A	LOCATION SKETCH IS SUBMITTED AS ITEM I-1.	☐ ☒ ☐ ☐
✓	B	AERIAL PHOTOGRAPH IS SUBMITTED AS ITEM I-2.	☐ ☒ ☐ ☐
	C	WETLANDS	
✓		EXISTING COVER IS SUBMITTED AS ITEM I-3.	☐ ☐ ☐ ☐
✓		PROPOSED PRESERVATION TECHNIQUES ARE SUBMITTED AS ITEM I-4.	☐ ☐ ☐ ☐
NA		WETLANDS CONTROL ELEVATION TABLE IS SUBMITTED AS ITEM I-5.	☐ ☐ ☐ ☐

Mare

SECTION II - PROJECT INFORMATION

	A	PROJECT DESCRIPTION IS SUBMITTED AS ITEM II-1A.	☐ ☐ ☐ ☐
		STAFF GUIDANCE DOCUMENTS ARE SUBMITTED AS ITEM II-1B.	☐ ☐ ☐ ☐
✓	B	TOPOGRAPHIC MAP IS SUBMITTED AS ITEM II-2. See Plans	☐ ☐ ☐ ☐
✓	C	DRAINAGE MAP IS SUBMITTED AS ITEM II-3.	☐ ☐ ☐ ☐
	D	WATER ELEVATION	
		BASIN WATER TABLE ELEVATION TABLE IS SUBMITTED AS ITEM II-4A.	☐ ☒ ☐ ☐
✓		SUPPORTING INFORMATION IS SUBMITTED AS ITEM II-4B.	☐ ☒ ☐ ☐
✓		DESCRIPTION OF AFFECTED SYSTEMS IS SUBMITTED AS ITEM II-5.	☐ ☒ ☐ ☐
✓		FLOODPLAIN INFORMATION IS SUBMITTED AS ITEM II-6.	☒ ☐ ☐ ☐
✓	E	PERCOLATION DATA ARE SUBMITTED AS ITEM II-7.	☒ ☐ ☐ ☐
NA	F	WATER WITHDRAWAL IS SUBMITTED AS ITEM II-8.	☒ ☐ ☐ ☐

SECTION III - MASTER PLAN

	A	MASTER PAVING, GRADING, AND DRAINAGE PLANS	
		CONCEPTUAL APPROVAL, PLANS NOT SUBMITTED. ☐ YES ☐ NO	☐ ☐ ☐ ☐
		MASTER PAVING, GRADING, AND DRAINAGE PLANS ARE SUBMITTED AS ITEM III-1.	☐ ☒ ☐ ☐
✓	B	DRAINAGE PLAN DETAILS ARE SUBMITTED AS ITEM III-2.	☐ ☒ ☐ ☐
✓	C	RECEIVING BODY LIST IS SUBMITTED AS ITEM III-3.	☒ ☐ ☐ ☐
	D	CONSTRUCTION TECHNIQUES DESCRIPTION	
		CONCEPTUAL APPROVAL, STATEMENT NOT REQUIRED. ☐ YES ☐ NO	☐ ☐ ☐ ☐
		CONSTRUCTION TECHNIQUES DESCRIPTION IS SUBMITTED AS ITEM III-4.	☐ ☒ ☐ ☐

SCANNED

Form 0645 - S02

SECTION III - MASTER PLAN (CONTINUED)

SFWMD ONLY

N A I M

	E	LEGAL RESERVATIONS	
		CONCEPTUAL APPROVAL, RESERVATIONS NOT REQUIRED. ☐ YES ☑ NO	☐☐☐☐
		LEGAL RESERVATIONS ARE SUBMITTED AS ITEM III-5.	☐☐☐☐
✓	F	AFFECTED FACILITIES ANALYSIS IS SUBMITTED AS ITEM III-6.	☐☒☐☐

SECTION IV - SURFACE WATER MANAGEMENT ANALYSIS

	A	FACILITIES	
		DESCRIPTION OF EXISTING FACILITIES IS SUBMITTED AS ITEM IV-1.	☒☐☐☐
		DESCRIPTION OF PREVIOUSLY APPROVED/PERMITTED FACILITIES IS SUBMITTED AS ITEM IV-2.	☒☐☐☐
		DESCRIPTION OF PROPOSED FACILITIES FOR THE ENTIRE PROJECT IS SUBMITTED AS ITEM IV-3.	☒☐☐☐
		DESCRIPTION OF PROPOSED FACILITIES FOR THIS PHASE IS SUBMITTED AS ITEM IV-4.	☒☐☐☐
		FACILITY DETAILS FOR EXFILTRATION TRENCH ARE SUBMITTED AS ITEM IV-5.	☒☐☐☐
		PERCOLATION TESTS AND CALCULATIONS ARE SUBMITTED AS ITEM IV-6.	☒☐☐☐
		EXFILTRATION TRENCH COMPUTATIONS ARE SUBMITTED AS ITEM IV-7.	☒☐☐☐
		FACILITY DETAILS FOR GRAVITY DISCHARGE STRUCTURE(S) ARE SUBMITTED AS ITEM IV-8.	☒☐☐☐
		STAGE-DISCHARGE CALCULATION IS SUBMITTED AS ITEM IV-9.	☒☐☐☐
		SPREADER SWALE VELOCITY CALCULATION IS SUBMITTED AS ITEM IV-10.	☒☐☐☐
	B	A STAGE-DISCHARGE, A STAGE-STORAGE, AND A LAND COVERAGE TABLE FOR EACH BASIN ARE SUBMITTED AS ITEM IV-11.	☐☒☐☐
✓	C	DRAINAGE BASIN(S) AND/OR PHASE(S) TABLES ARE SUBMITTED AS ITEM IV-12.	☐☒☐☐
	D	WATER QUALITY BEST MANAGEMENT PRACTICES DESCRIPTION IS SUBMITTED AS ITEM IV-13A.	☐☒☐☐
		RETENTION/DETENTION VOLUME CALCULATIONS FOR EACH BASIN OR PHASE ARE SUBMITTED AS ITEM IV-13B.	☐☒☐☐
✓	E	WET SEASON WATER TABLE AND SOIL STORAGE CALCULATIONS ARE SUBMITTED AS ITEM IV-13C.	☐☒☐☐
✓	F	ALLOWABLE DISCHARGE SUPPORTING CALCULATIONS ARE SUBMITTED AS ITEM IV-14.	☒☐☐☐
✓	G	FLOOD ROUTINGS ARE SUBMITTED AS ITEM IV-15.	☐☐☐☐
	H	FLOODPLAIN ENCROACHMENT	
		CONVEYANCE PREDEVELOPMENT CONDITIONS ARE SUBMITTED AS ITEM IV-16.	☒☐☐☐
		CONVEYANCE POST-DEVELOPMENT CONDITIONS ARE SUBMITTED AS ITEM IV-17.	☒☐☐☐
		STORAGE PREDEVELOPMENT SITE RUNOFF CONDITIONS ARE SUBMITTED AS ITEM IV-18.	☒☐☐☐
		STORAGE PREDEVELOPMENT BASIN STORAGE CONDITIONS ARE SUBMITTED AS ITEM IV-19.	☒☐☐☐
		FLOODPLAIN ☐ IMPORTER ☐ EXPORTER SUPPORTING INFORMATION IS SUBMITTED AS ITEM IV-20	☒☐☐☐

Form 0645 - 503

SECTION V - LEGAL AND INSTITUTIONAL

SFWMD ONLY

			N	A	I	M
✓	A	PROOF OF OWNERSHIP SUPPORTING INFORMATION IS SUBMITTED AS ITEM V-1.	☐	X	☐	☐
✓	B	RESPONSIBLE ENTITY(IES) SUPPORTING INFORMATION IS SUBMITTED AS ITEM V-2.	☐	☐	☐	☐
	C	UTILITIES				
NA		WATER UTILITIES SUPPORTING INFORMATION IS SUBMITTED AS ITEM V-3.	X	☐	☐	☐
NA		SEWERAGE SUPPORTING INFORMATION IS SUBMITTED AS ITEM V-4.	X	☐	☐	☐
	D	RECEIVING BODY(IES)				
		LEGAL AVAILABILITY DOCUMENTATION IS SUBMITTED AS ITEM V-5.	☐	X	☐	☐
		PHYSICAL CAPACITY DOCUMENTATION IS SUBMITTED AS ITEM V-6.	X	☐	☐	☐
		RIGHT OF WAY PERMIT APPLICATION IS SUBMITTED NOW. ☐	X	☐	☐	☐
		RIGHT OF WAY PERMIT IS APPLIED FOR, APPLICATION NO. _____	X	☐	☐	☐
		PROJECT IS PERMITTED FOR RIGHT OF WAY, PERMIT NO. _____	X	☐	☐	☐
	E	LAND USE TABLE IS SUBMITTED AS ITEM V-7.	X	X	☐	☐
	F	DEVELOPMENT OF REGIONAL IMPACT STATUS INFORMATION IS SUBMITTED AS ITEM V-8.	X	☐	☐	☐
✓	G	BOUNDARY SURVEY IS SUBMITTED AS ITEM V-9.	X	X	☐	☐

SECTION VI - PUBLIC NOTICING INFORMATION

✓	A	DEPICTION OF WORKS AND FACILITIES IS SUBMITTED AS ITEM VI-1.	☐	☐	☐	☐
✓	B	PROJECT MAP IS SUBMITTED AS ITEM VI-2.	☐	☐	☐	☐
NA	C	WETLANDS STATEMENT IS SUBMITTED AS ITEM VI-3.	☐	☐	☐	☐
NA	D	MITIGATION STATEMENT IS SUBMITTED AS ITEM VI-4.	☐	☐	☐	☐

SECTION VII - WORKS OF THE DISTRICT SURFACE WATER IMPROVEMENT AND MANAGEMENT (SWIM)

NA	A	PROJECT IS PERMITTED FOR WORKS OF THE DISTRICT (SWIM). PERMIT NO: _____	☐	☐	☐	☐
NA	B	WORKS OF THE DISTRICT (SWIM) PERMIT IS APPLIED FOR, APPLICATION NUMBER: _____	☐	☐	☐	☐
	C	WORKS OF THE DISTRICT (SWIM) PERMIT IS NOT REQUIRED. ☑	☐	☐	☐	☐

SCANNED

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Environmental Resource/Surface Water Management Permit Construction Commencement Notice

FORM 0960
08/95

POSTED

RECEIVED
APR 10 1997
ORLANDO SERVICE CENTER

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
Field Engineering Division - *Please see page 2 of 2

PROJECT NAME: Bishop & Buttrey Pit # 52 PHASE: 2

I hereby notify the South Florida Water Management District Field Engineering Division that construction of the surface water management system, authorized by Environmental Resource/Surface Water Management Permit No. 48-00786-S under Application No._____ has commenced/is expected to commence on March 20 1997 and will require a duration of approximately 12 /months _____/weeks _____/days to complete. Should the construction term extend beyond one year, I will submit Form No. 0961, Environmental Resource/Surface Water Management Permit Annual Status Report for Surface Water Management System Construction, to the District.

PLEASE NOTE: If the actual construction commencement date is not known, District staff should be so notified in writing. This will eliminate the necessity of further post permit compliance action concerning satisfaction of the Permit condition.

Jim Bass
Permittee's or Authorized Agent's Signature

President - Bishop & Buttrey, Inc.
Title and Company

407-246-0016
Phone

4-8-97
Date

SCANNED

*Projects in the following counties should respond to the corresponding SFWMD Service Center



Broward, Dade, Highlands, Martin, Monroe, Okeechobee, Palm Beach, and St. Lucie Counties - Please respond to the West Palm Beach Service Center:

SFWMD
Field Engineering Division
P.O. Box 24680
West Palm Beach, FL 33416-4680

Charlotte, Collier, Glades, Hendry, and Lee Counties - Please respond to the Ft. Myers Service Center:

SFWMD
Field Engineering Division
1342 Colonial Blvd., Suite 81
Ft. Myers, FL 33907

✓ Orange, Osceola and Polk Counties - Please respond to the Orlando Service Center:

SFWMD
Field Engineering Division
1756 Orlando Central Parkway
Orlando, FL 32809

File

South Florida Water Management District

3301 Gun Club Road, West Palm Beach, Florida 33406 • (407) 686-8800 • FL WATS 1-800-432-2045

CON 24-06

48-00786-S

December 29, 1995

Bishop & Buttrey, Inc.
6239 Edgewater Drive, Suite D-1
Orlando, FL 32810

Dear Sir or Madam:

Subject: Application 950814-1
Bishop & Buttrey Pit #5 Expansion
Orange Counry
Section 29,30, Township 24 South, Range 27 East

We received $2050 from you as payment of the permit application processing fee for a Surface Water Management General Permit. A review of the application determined that the project qualified for a General Permit modification, for which the fee is $500. For this reason we are issuing the enclosed refund check in the amount of $1550.

If you have any questions, please contact Mrs. Beth Colavecchio at 407/687-6905.

Sincerely,

Anne Roth

Anne Roth, Director
Regulatory Information Management Division
Regulation Department

AR/BC/ls

Enclosure

Governing Board:
Valerie Boyd, Chairman
Frank Williamson, Jr., Vice Chairman
William E. Graham
William Hammond
Betsy Krant
Richard A. Machek
Eugene K. Pettis
Nathaniel P. Reed
Miriam Singer
Samuel E. Poole III, Executive Director
Michael Slayton, Deputy Executive Director

SCANNED

South Florida Water Management District

BEG. PERMIT NUMBER 48-01048-P

APPLICATION NO.
980522-3

48-01048-P

FORM #0190
Rev. 8/85

APPLICATION/PERMIT FILE RECORD & ACTION SHEET

Name: Delmar Properties, Inc. (Cassis Planned Development Phase I) Permit No. 48-01048-P

Application No. 980522-3

This file contains:

☐ ORIGINAL APPLICATION ☐ PERMIT ☐ SPECIAL CONDITION SHEET(S)

☐ STAFF CALCULATION SHEET(S) ☐ DRAWING(S) ☐ STAFF REPORT

Chronological Correspondence/Action Record

Date	Subject	By	Comments
6/2/99	Staff Report Mailed	JB	M. Daron, P.E., S. Elfers
6/10/99	Permit Issued		

Form #0145
Rev 08/95

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE PERMIT NO. 48-01048-P
DATE ISSUED: JUNE 10, 1999

PERMITTEE: DELMAR PROPERTIES, INC
(CASSIS PLANNED DEVELOPMENT PHASE I)
2442 MERRICK ROAD,
BELLMORE , NY 11710

PROJECT DESCRIPTION: ENVIRONMENTAL RESOURCE PERMIT FOR CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM TO SERVE 24 ACRES OF A 59.3 ACRE TIME SHARE RESORT.

PROJECT LOCATION: ORANGE COUNTY , SECTION 31 TWP 24S RGE 27E

PERMIT DURATION: Five years from the date issued to complete construction of the surface water management system as authorized herein. See attached Rule 40E-4.321, Florida Administrative Code.

This Permit is issued pursuant to Application No. 980522-3 , dated May 22, 1998. Permittee agrees to hold and save the South Florida Water Management District and its successors harmless from any and all damages,claims or liabilities which may arise by reason of the construction, operation, maintenance or use of activities authorized by this Permit. This Permit is issued under the provisions of Chapter 3 3 , Part IV Florida Statutes(F.S.), and the Operating Agreement Concerning Regulation Under Part IV , Chapter 373 F.S., between South Florida Water Management District and the Department of Environmental Protection. Issuance of this Permit constitutes certification of compliance with state water quality standards where neccessary pursuant to Section 401, Public Law 92-500, 33 USC Section 1341 , unless this Permit is issued pursuant to the net improvement provisions of Subsections 373.414(1)(b), F.S., or as otherwise stated herein.

This Permit may be transferred pursuant to the appropriate provisions of Chapter 373, F.S, and Sections 40E-1.6107(1) and (2), and 40E-4.351(1),(2),and (4), Florida Administrative Code (F.A.C.). This Permit may be revoked, suspended, or modified at any time pursuant to the appropriate provisions of Chapter 373, F.S and Sections 40E-4.351(1), (2), and (4), F.A.C.

This Permit shall be subject to the General Conditions set forth in Rule 40E-4.381,F.A.C., unless waived or modified by the Governing Board. The Application, and the Environmental Resource Permit Staff Review Summary of the Application, including all conditions, and all plans and specifications incorporated by reference, are a part of this Permit. All activities authorized by this Permit shall be implemented as set forth in the plans, specifications, and performance criteria as set forth and incorporated in the Environmental Resource Permit Staff Review Summary. Within 30 days after completion of construction of the permitted activity, the Permittee shall submit a written statement of completion and certification by a registered professional engineer or other appropriate individual, pursuant to the appropriate provisions of Chapter 373, F.S. and Sections 40E-4.361 and 40E-4,381, F.A.C.

In the event the property is sold or otherwise conveyed, the Permittee will remain liable for compliance with this Permit until transfer is approved by the District pursuant to Rule 40E-1.6107, F.A.C.

SPECIAL AND GENERAL CONDITIONS ARE AS FOLLOWS:
SEE PAGES 2-3 OF 7 (15 SPECIAL CONDITIONS).
SEE PAGES 4-7 OF 7 (19 GENERAL CONDITIONS).

FILED WITH THE CLERK OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT

ON Original signed by:

BY Vern Kaiser
DEPUTY CLERK

SOUTH FLORIDA WATER MANAGEMENT DISTRICT, BY ITS GOVERNING BOARD

By Original signed by TONY BURNS
ASSISTANT SECRETARY

6/22/99

SPECIAL CONDITIONS

1. MINIMUM BUILDING FLOOR ELEVATION: 118 FEET NGVD.

2. MINIMUM ROAD CROWN ELEVATION: 114.5 FEET NGVD.

3. MINIMUM PARKING LOT ELEVATION: 114.5 FEET NGVD.

4. DISCHARGE FACILITIES:

   1-6' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 112.5' NGVD.

   RECEIVING BODY : ONSITE WETLANDS

   CONTROL ELEV : 112.5 FEET NGVD.

5. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY EROSION, SHOALING OR WATER QUALITY PROBLEMS THAT RESULT FROM THE CONSTRUCTION OR OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM.

6. MEASURES SHALL BE TAKEN DURING CONSTRUCTION TO INSURE THAT SEDIMENTATION AND/OR TURBIDITY PROBLEMS ARE NOT CREATED IN THE RECEIVING WATER.

7. THE DISTRICT RESERVES THE RIGHT TO REQUIRE THAT ADDITIONAL WATER QUALITY TREATMENT METHODS BE INCORPORATED INTO THE DRAINAGE SYSTEM IF SUCH MEASURES ARE SHOWN TO BE NECESSARY.

8. LAKE SIDE SLOPES SHALL BE NO STEEPER THAN 5:1 (HORIZONTAL:VERTICAL) TO A DEPTH OF TWO FEET BELOW THE CONTROL ELEVATION. SIDE SLOPES SHALL BE NURTURED OR PLANTED FROM 2 FEET BELOW TO 1 FOOT ABOVE CONTROL ELEVATION TO INSURE VEGETATIVE GROWTH.

9 FACILITIES OTHER THAN THOSE STATED HEREIN SHALL NOT BE CONSTRUCTED WITHOUT AN APPROVED MODIFICATION OF THIS PERMIT.

10. OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM SHALL BE THE RESPONSIBILITY OF THE PERMITTEE. PRIOR TO TRANSFER OF TITLE FOR ANY PORTION OF THE PROJECT TO A THIRD PARTY, MODIFICATION OF THE PERMIT WILL BE REQUIRED.

11. SILT SCREENS, HAY BALES OR OTHER SUCH SEDIMENT CONTROL MEASURES SHALL BE UTILIZED DURING CONSTRUCTION. THE SELECTED SEDIMENT CONTROL MEASURES SHALL BE INSTALLED LANDWARD OF THE UPLAND BUFFER ZONES AROUND ALL PROTECTED WETLANDS. ALL AREAS SHALL BE STABILIZED AND VEGETATED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION INTO THE WETLANDS AND UPLAND BUFFER ZONES.

12. THE WETLAND CONSERVATION AREAS AND UPLAND BUFFER ZONES AND/OR UPLAND PRESERVATION AREAS SHOWN ON EXHIBIT(S) 2, 3, AND 4 MAY IN NO WAY BE ALTERED FROM THEIR NATURAL STATE. ACTIVITIES PROHIBITED WITHIN THE CONSERVATION AREAS INCLUDE, BUT ARE NOT LIMITED TO: CONSTRUCTION OR PLACING OF BUILDINGS,

ON OR ABOVE THE GROUND; DUMPING OR PLACING SOIL OR OTHER SUBSTANCES SUCH AS TRASH; REMOVAL OR DESTRUCTION OF TREES, SHRUBS, OR OTHER VEGETATION - WITH THE EXCEPTION OF EXOTIC/NUISANCE VEGETATION REMOVAL; EXCAVATION, DREDGING, OR REMOVAL OF SOIL MATERIAL; DIKING OR FENCING; AND ANY OTHER ACTIVITIES DETRIMENTAL TO DRAINAGE, FLOOD CONTROL, WATER CONSERVATION, EROSION CONTROL, OR FISH AND WILDLIFE HABITAT CONSERVATION OR PRESERVATION.

13. ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE WETLAND MITIGATION, MONITORING AND MAINTENANCE SHALL BE IN ACCORDANCE WITH THE FOLLOWING WORK SCHEDULE. ANY DEVIATION FROM THESE TIME FRAMES SHALL REQUIRE FORMAL SFWMD APPROVAL. SUCH REQUESTS MUST BE MADE IN WRITING AND SHALL INCLUDE (1) REASON FOR THE MODIFICATION; (2) PROPOSED START/FINISH DATES; AND (3) PROGRESS REPORT ON THE STATUS OF THE EXISTING MITIGATION EFFORTS.

COMPLETION DATE	ACTIVITY
JULY 30, 1999	SUBMISSION OF THE RECORDED CONSERVATION EASEMENT

14. A MAINTENANCE PROGRAM SHALL BE IMPLEMENTED FOR THE PRESERVED/ENHANCED WETLAND AREAS ON A REGULAR BASIS TO ENSURE THE INTEGRITY AND VIABILITY OF THE CONSERVATION AREAS AS PERMITTED. MAINTENANCE SHALL BE CONDUCTED IN PERPETUITY TO ENSURE THAT THE CONSERVATION AREAS ARE FREE FROM INVASIVE EXOTIC VEGETATION (AS DEFINED BY THE FLORIDA EXOTIC PEST PLANT COUNCIL AT THE DATE OF PERMIT ISSUANCE) IMMEDIATELY FOLLOWING A MAINTENANCE ACTIVITIY AND SHALL CONSTITUTE NO MORE THAN 5% OF VEGETATIVE COVER BETWEEN MAINTENANCE ACTIVITIES. NUISANCE PLANT SPECIES SHALL CONSTITUTE NO MORE THAN 10% OF TOTAL COVER.

15. NO LATER THAN JULY 30, 1999, THE PERMITTEE SHALL RECORD A CONSERVATION EASEMENT OVER THE REAL PROPERTY DESIGNATED AS CONSERVATION EASEMENT AREA ON ATTACHED EXHIBIT 4. THE EASEMENT SHALL BE GRANTED FREE AND CLEAR OF ENCUMBRANCES OR INTERESTS WHICH THE DISTRICT DETERMINES ARE CONTRARY TO THE INTENT OF THE EASEMENT. THE CONSERVATION EASEMENT SHALL BE GRANTED TO THE DISTRICT USING THE APPROVED FORM ATTACHED HERETO AS EXHIBIT 6A - 6F. ANY PROPOSED MODIFICATIONS TO THE APPROVED FORM MUST RECEIVE PRIOR WRITTEN CONSENT FROM THE DISTRICT. UPON RECORDATION, THE PERMITTEE SHALL FORWARD THE ORIGINAL RECORDED EASEMENT TO THE NATURAL RESORCE MANAGEMENT POST PERMIT COMPLIANCE STAFF IN THE ORLANDO SERVICE CENTER.

GENERAL CONDITIONS

1. ALL ACTIVITIES AUTHORIZED BY THIS PERMIT SHALL BE IMPLEMENTED AS SET FORTH IN THE PLANS, SPECIFICATIONS AND PERFORMANCE CRITERIA AS APPROVED BY THIS PERMIT. ANY DEVIATION FROM THE PERMITTED ACTIVITY AND THE CONDITIONS FOR UNDERTAKING THAT ACTIVITY SHALL CONSTITUTE A VIOLATION OF THIS PERMIT AND PART IV, CHAPTER 373, F.S.

2. THIS PERMIT OR A COPY THEREOF, COMPLETE WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND MODIFICATIONS SHALL BE KEPT AT THE WORK SITE OF THE PERMITTED ACTIVITY. THE COMPLETE PERMIT SHALL BE AVAILABLE FOR REVIEW AT THE WORK SITE UPON REQUEST BY THE DISTRICT STAFF. THE PERMITTEE SHALL REQUIRE THE CONTRACTOR TO REVIEW THE COMPLETE PERMIT PRIOR TO COMMENCEMENT OF THE ACTIVITY AUTHORIZED BY THIS PERMIT.

3. ACTIVITIES APPROVED BY THIS PERMIT SHALL BE CONDUCTED IN A MANNER WHICH DOES NOT CAUSE VIOLATIONS OF STATE WATER QUALITY STANDARDS. THE PERMITTEE SHALL IMPLEMENT BEST MANAGEMENT PRACTICES FOR EROSION AND POLLUTION CONTROL TO PREVENT VIOLATION OF STATE WATER QUALITY STANDARDS. TEMPORARY EROSION CONTROL SHALL BE IMPLEMENTED PRIOR TO AND DURING CONSTRUCTION, AND PERMANENT CONTROL MEASURES SHALL BE COMPLETED WITHIN 7 DAYS OF ANY CONSTRUCTION ACTIVITY. TURBIDITY BARRIERS SHALL BE INSTALLED AND MAINTAINED AT ALL LOCATIONS WHERE THE POSSIBILITY OF TRANSFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATERBODY EXISTS DUE TO THE PERMITTED WORK. TURBIDITY BARRIERS SHALL REMAIN IN PLACE AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND SOILS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED. ALL PRACTICES SHALL BE IN ACCORDANCE WITH THE GUIDELINES AND SPECIFICATIONS DESCRIBED IN CHAPTER 6 OF THE FLORIDA LAND DEVELOPMENT MANUAL; A GUIDE TO SOUND LAND AND WATER MANAGEMENT (DEPARTMENT OF ENVIRONMENTAL REGULATION, 1988), INCORPORATED BY REFERENCE IN RULE 40E-4.091, F.A.C. UNLESS A PROJECT-SPECIFIC EROSION AND SEDIMENT CONTROL PLAN IS APPROVED AS PART OF THE PERMIT. THEREAFTER THE PERMITTEE SHALL BE RESPONSIBLE FOR THE REMOVAL OF THE BARRIERS. THE PERMITTEE SHALL CORRECT ANY EROSION OR SHOALING THAT CAUSES ADVERSE IMPACTS TO THE WATER RESOURCES.

4. THE PERMITTEE SHALL NOTIFY THE DISTRICT OF THE ANTICIPATED CONSTRUCTION START DATE WITHIN 30 DAYS OF THE DATE THAT THIS PERMIT IS ISSUED. AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ACTIVITY AUTHORIZED BY THIS PERMIT, THE PERMITTEE SHALL SUBMIT TO THE DISTRICT AN ENVIRONMENTAL RESOURCE PERMIT CONSTRUCTION COMMENCEMENT NOTICE FORM NO. 0960 INDICATING THE ACTUAL START DATE AND THE EXPECTED COMPLETION DATE.

5. WHEN THE DURATION OF CONSTRUCTION WILL EXCEED ONE YEAR, THE PERMITTEE SHALL SUBMIT CONSTRUCTION STATUS REPORTS TO THE DISTRICT ON AN ANNUAL BASIS UTILIZING AN ANNUAL STATUS REPORT FORM. STATUS REPORT FORMS SHALL BE SUBMITTED THE FOLLOWING JUNE OF EACH YEAR.

6. WITHIN 30 DAYS AFTER COMPLETION OF CONSTRUCTION OF THE PERMITTED ACTIVITY, THE PERMITTEE SHALL SUBMIT A WRITTEN STATEMENT OF COMPLETION AND

CERTIFICATION BY A REGISTERED PROFESSIONAL ENGINEER OR OTHER APPROPRIATE INDIVIDUAL AS AUTHORIZED BY LAW, UTILIZING THE SUPPLIED ENVIRONMENTAL RESOURCE PERMIT CONSTRUCTION COMPLETION/CONSTRUCTION CERTIFICATION FORM NO.0881. THE STATEMENT OF COMPLETION AND CERTIFICATION SHALL BE BASED ON ONSITE OBSERVATION OF CONSTRUCTION OR REVIEW OF ASBUILT DRAWINGS FOR THE PURPOSE OF DETERMINING IF THE WORK WAS COMPLETED IN COMPLIANCE WITH PERMITTED PLANS AND SPECIFICATIONS. THIS SUBMITTAL SHALL SERVE TO NOTIFY THE DISTRICT THAT THE SYSTEM IS READY FOR INSPECTION. ADDITIONALLY, IF DEVIATION FROM THE APPROVED DRAWINGS ARE DISCOVERED DURING THE CERTIFICATION PROCESS, THE CERTIFICATION MUST BE ACCOMPANIED BY A COPY OF THE APPROVED PERMIT DRAWINGS WITH DEVIATIONS NOTED. BOTH THE ORIGINAL AND REVISED SPECIFICATIONS MUST BE CLEARLY SHOWN. THE PLANS MUST BE CLEARLY LABELED AS "ASBUILT" OR "RECORD" DRAWING. ALL SURVEYED DIMENSIONS AND ELEVATIONS SHALL BE CERTIFIED BY A REGISTERED SURVEYOR.

7. THE OPERATION PHASE OF THIS PERMIT SHALL NOT BECOME EFFECTIVE: UNTIL THE PERMITTEE HAS COMPLIED WITH THE REQUIREMENTS OF CONDITION (6) ABOVE, HAS SUBMITTED A REQUEST FOR CONVERSION OF ENVIRONMENTAL RESOURCE PERMIT FROM CONSTRUCTION PHASE TO OPERATION PHASE FORM NO.0920; THE DISTRICT DETERMINES THE SYSTEM TO BE IN COMPLIANCE WITH THE PERMITTED PLANS AND SPECIFICATIONS; AND THE ENTITY APPROVED BY THE DISTRICT IN ACCORDANCE WITH SECTIONS 9.0 AND 10.0 OF THE BASIS OF REVIEW FOR ENVIRONMENTAL RESOURCE PERMIT APPLICATIONS WITHIN THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT - AUGUST 1995, ACCEPTS RESPONSIBILITY FOR OPERATION AND MAINTENANCE OF THE SYSTEM. THE PERMIT SHALL NOT BE TRANSFERRED TO SUCH APPROVED OPERATION AND MAINTENANCE ENTITY UNTIL THE OPERATION PHASE OF THE PERMIT BECOMES EFFECTIVE. FOLLOWING INSPECTION AND APPROVAL OF THE PERMITTED SYSTEM BY THE DISTRICT, THE PERMITTEE SHALL INITIATE TRANSFER OF THE PERMIT TO THE APPROVED RESPONSIBLE OPERATING ENTITY IF DIFFERENT FROM THE PERMITTEE. UNTIL THE PERMIT IS TRANSFERRED PURSUANT TO SECTION 40E-1.6107, F.A.C., THE PERMITTEE SHALL BE LIABLE FOR COMPLIANCE WITH THE TERMS OF THE PERMIT.

8. EACH PHASE OR INDEPENDENT PORTION OF THE PERMITTED SYSTEM MUST BE COMPLETED IN ACCORDANCE WITH THE PERMITTED PLANS AND PERMIT CONDITIONS PRIOR TO THE INITIATION OF THE PERMITTED USE OF SITE INFRASTRUCTURE LOCATED WITHIN THE AREA SERVED BY THAT PORTION OR PHASE OF THE SYSTEM. EACH PHASE OR INDEPENDENT PORTION OF THE SYSTEM MUST BE COMPLETED IN ACCORDANCE WITH THE PERMITTED PLANS AND PERMIT CONDITIONS PRIOR TO TRANSFER OF RESPONSIBILITY FOR OPERATION AND MAINTENANCE OF THE PHASE OR PORTION OF THE SYSTEM TO A LOCAL GOVERNMENT OR OTHER RESPONSIBLE ENTITY.

9. FOR THOS' SYSTEMS THAT WILL BE OPERATED OR MAINTAINED BY AN ENTITY THAT WILL REQUIRE A EASEMENT OR DEED RESTRICTION IN ORDER TO ENABLE THAT ENTITY TO OPERATE OR MAINTAIN THE SYSTEM IN CONFORMANCE WITH THIS PERMIT, SUCH EASEMENT OR DEED RESTRICTION MUST BE RECORDED IN THE PUBLIC RECORDS AND SUBMITTED TO THE DISTRICT ALONG WITH ANY OTHER FINAL OPERATION AND MAINTENANCE DOCUMENTS REQUIRED BY SECTIONS 9.0 AND 10.0 OF THE BASIS OF REVIEW FOR ENVIRONMENTAL RESOURCE PERMIT APPLICATIONS WITHIN THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT - AUGUST 1995, PRIOR TO LOT OR UNIT SALES OR PRIOR TO THE COMPLETION OF THE SYSTEM, WHICHEVER OCCURS FIRST. OTHER DOCUMENTS CONCERNING THE ESTABLISHMENT AND AUTHORITY OF THE OPERATING ENTITY MUST BE FILED WITH THE SECRETARY OF STATE WHERE APPROPRIATE. FOR THOSE SYSTEMS WHICH ARE PROPOSED TO BE MAINTAINED BY THE COUNTY OR MUNICIPAL ENTITIES, FINAL OPERATION AND MAINTENANCE DOCUMENTS MUST BE RECEIVED BY THE

DISTRICT WHEN MAINTENANCE AND OPERATION OF THE SYSTEM IS ACCEPTED BY THE LOCAL GOVERNMENT ENTITY. FAILURE TO SUBMIT THE APPROPRIATE FINAL DOCUMENTS WILL RESULT IN THE PERMITTEE REMAINING LIABLE FOR CARRYING OUT MAINTENANCE AND OPERATION OF THE PERMITTED SYSTEM AND ANY OTHER PERMIT CONDITIONS.

10. SHOULD ANY OTHER REGULATORY AGENCY REQUIRE CHANGES TO THE PERMITTED SYSTEM, THE PERMITTEE SHALL NOTIFY THE DISTRICT IN WRITING OF THE CHANGES PRIOR TO IMPLEMENTATION SO THAT A DETERMINATION CAN BE MADE WHETHER A PERMIT MODIFICATION IS REQUIRED.

11. THIS PERMIT DOES NOT ELIMINATE THE NECESSITY TO OBTAIN ANY REQUIRED FEDERAL, STATE, LOCAL AND SPECIAL DISTRICT AUTHORIZATIONS PRIOR TO THE START OF ANY ACTIVITY APPROVED BY THIS PERMIT. THIS PERMIT DOES NOT CONVEY TO THE PERMITTEE OR CREATE IN THE PERMITTEE ANY PROPERTY RIGHT, OR ANY INTEREST IN REAL PROPERTY, NOR DOES IT AUTHORIZE ANY ENTRANCE UPON OR ACTIVITIES ON PROPERTY WHICH IS NOT OWNED OR CONTROLLED BY THE PERMITTEE, OR CONVEY ANY RIGHTS OR PRIVILEGES OTHER THAN THOSE SPECIFIED IN THE PERMIT AND CHAPTER 40E-4 OR CHAPTER 40E-40, F.A.C.

12. THE PERMITTEE IS HEREBY ADVISED THAT SECTION 253.77, F.S. STATES THAT A PERSON MAY NOT COMMENCE ANY EXCAVATION, CONSTRUCTION, OR OTHER ACTIVITY INVOLVING THE USE OF SOVEREIGN OR OTHER LANDS OF THE STATE, THE TITLE TO WHICH IS VESTED IN THE BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND WITHOUT OBTAINING THE REQUIRED LEASE, LICENSE, EASEMENT, OR OTHER FORM OF CONSENT AUTHORIZING THE PROPOSED USE. THEREFORE, THE PERMITTEE IS RESPONSIBLE FOR OBTAINING ANY NECESSARY AUTHORIZATIONS FROM THE BOARD OF TRUSTEES PRIOR TO COMMENCING ACTIVITY ON SOVEREIGNTY LANDS OR OTHER STATE-OWNED LANDS.

13. THE PERMITTEE MUST OBTAIN A WATER USE PERMIT PRIOR TO CONSTRUCTION DEWATERING, UNLESS THE WORK QUALIFIES FOR A GENERAL PERMIT PURSUANT TO SUBSECTION 40E-20.302(4), F.A.C., ALSO KNOWN AS THE "NO NOTICE" RULE.

14. THE PERMITTEE SHALL HOLD AND SAVE THE DISTRICT HARMLESS FROM ANY AND ALL DAMAGES, CLAIMS, OR LIABILITIES WHICH MAY ARISE BY REASON OF THE CONSTRUCTION, ALTERATION, OPERATION, MAINTENANCE, REMOVAL, ABANDONMENT OR USE OF ANY SYSTEM AUTHORIZED BY THE PERMIT.

15. ANY DELINEATION OF THE EXTENT OF A WETLAND OR OTHER SURFACE WATER SUBMITTED AS PART OF THE PERMIT APPLICATION, INCLUDING PLANS OR OTHER SUPPORTING DOCUMENTATION, SHALL NOT BE CONSIDERED BINDING UNLESS A SPECIFIC CONDITION OF THIS PERMIT OR A FORMAL DETERMINATION UNDER SECTION 373.421(2), F.S., PROVIDES OTHERWISE.

16. THE PERMITTEE SHALL NOTIFY THE DISTRICT IN WRITING WITHIN 30 DAYS OF ANY SALE, CONVEYANCE, OR OTHER TRANSFER OF OWNERSHIP OR CONTROL OF A PERMITTED SYSTEM OR THE REAL PROPERTY ON WHICH THE PERMITTED SYSTEM IS LOCATED. ALL TRANSFERS OF OWNERSHIP OR TRANSFERS OF A PERMIT ARE SUBJECT TO THE REQUIREMENTS OF RULES 40E-1.6105 AND 40E-1.6107, F.A.C. THE PERMITTEE TRANSFERRING THE PERMIT SHALL REMAIN LIABLE FOR CORRECTIVE ACTIONS THAT MAY BE REQUIRED AS A RESULT OF ANY VIOLATIONS PRIOR TO THE SALE, CONVEYANCE OR OTHER TRANSFER OF THE SYSTEM.

17. UPON REASONABLE NOTICE TO THE PERMITTEE, DISTRICT AUTHORIZED STAFF WITH

PROPER
TEST TH
APPROVE

18. IF HIST
PROJECT
DISTRIC

19. THE PER
PREVIOU

PROPER IDENTIFICATION SHALL HAVE PERMISSION TO ENTER, INSPECT, SAMPLE AND TEST THE SYSTEM TO INSURE CONFORMITY WITH THE PLANS AND SPECIFICATIONS APPROVED BY THE PERMIT.

18. IF HISTORICAL OR ARCHAEOLOGICAL ARTIFACTS ARE DISCOVERED AT ANY TIME ON THE PROJECT SITE, THE PERMITTEE SHALL IMMEDIATELY NOTIFY THE APPROPRIATE DISTRICT SERVICE CENTER.

19. THE PERMITTEE SHALL IMMEDIATELY NOTIFY THE DISTRICT IN WRITING OF ANY PREVIOUSLY SUBMITTED INFORMATION THAT IS LATER DISCOVERED TO BE INACCURATE.

40E-4.321 Duration of Permits

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C. is as follows:

(a) For a conceptual approval, two years from the date of issuance or the date specified as a condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project. If an application for an environmental resource permit is filed, then the conceptual approval remains valid until final action is taken on the environmental resource permit application. If the application is granted, then the conceptual approval is valid for an additional two years from the date of issuance of the permit. Conceptual approvals which have no individual or standard general environmental resource permit applications filed for a period of two years shall expire automatically at the end of the two year period.

(b) For a conceptual approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive plan amendment, the duration of the conceptual approval shall be two years from whichever one of the following occurs at the latest date:

1. the effective date of the local government's comprehensive plan amendment.
2. the effective date of the local government development order.
3. the date on which the District issues the conceptual approval, or
4. the latest date of the resolution of any Chapter 120.57, F.A.C., administrative proceeding or other legal appeals.

(c) For an individual or standard general environmental resource permit, five years from the date of issuance or such amount of time as made a condition of the permit

(d) For a noticed general permit issued pursuant to Chapter 40-E-400, F.A.C., five years from the date the notice of intent to use the permit is provided to the District.

(2)(a) Unless prescribed by special permit condition, permits expire automatically according to the timeframes indicated in this rule. If application for extension is made in writing pursuant to subsection (3), the permit shall remain in full force and effect until:

1. the Governing Board takes action on an application for extension of an individual permit, or
2. staff takes action on an application for extension of a standard general permit.

(b) Installation of the project outfall structure shall not constitute a vesting of the permit.

(3) The permit extension shall be issued provided that a permittee files a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environmental impacts which require a detailed review.

(5) Substantial modifications to individual or standard general environmental resource permits issued pursuant to a permit application extend the duration of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit modifications do not extend the duration of a conceptual approval.

(6) Permit modifications issued pursuant to subsection 40E-4.331(2)(b), F.A.C. (letter modifications) do not extend the duration of a permit.

(7) Failure to complete construction or alteration of the surface water management system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted.

Specific authority 373.044, 373.113 F.S. Law Implemented 373.413, 373.416, 373.419, 373.426 F.S. History—New 9-3-81, Amended 1-31-82, 12-1-82, Formerly 16K-4.07(1), Amended 4/20/94, 10-3-95

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE PERMIT NO. 48-01782-P
DATE ISSUED: July 26, 2018

PERMITTEE: HAINES CITY H M A L L C
4000 MERIDIAN BOULEVARD
FRANKLIN, TN 37067

PROJECT DESCRIPTION: Construction and operation of a project that includes a stormwater management system serving 4.21 acres of a commercial development known as Heart of Florida Hospital FSED.

PROJECT LOCATION: ORANGE COUNTY, SEC 31 TWP 24S RGE 27E

PERMIT DURATION: See Special Condition No:1.

This is to notify you of the District's agency action for Permit Application No. 180625-11, dated June 25, 2018. This action is taken pursuant to the provisions of Chapter 373, Part IV, Florida Statues (F.S).

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 18 General Conditions (See Pages : 2 - 4 of 5),
3. the attached 11 Special Conditions (See Pages : 5 - 5 of 5) and
4. the attached 2 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT this written notice has been mailed or electronically transmitted to the Permittee (and the persons listed in the attached distribution list) this 26th day of July, 2018, in accordance with Section 120.60(3), F.S. Notice was also electronically posted on this date through a link on the home page of the District's website (my.sfwmd.gov/ePermitting).

BY:_____
Ricardo A. Valera, P.E.
Bureau Chief - Environmental Resource
Orlando Regulatory Office

GENERAL CONDITIONS

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation, June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," (November 16, 2016), (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.

5. Unless the permit is transferred under rule 62-330.340, F.A.C., or transferred to an operating entity under rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms, and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex - "Construction Completion and Inspection Certification for Activities Associated with a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or
   2. For all other activities - "As-Built Certification and Request for Conversion to Operation Phase" [Form 62-330.310(1)].
   3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations, and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which

GENERAL CONDITIONS

the activity is located.
2. Within 30 days of submittal of the as-built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in chapter 62-330, F.A.C.;
2. Convey to the permittee or create in the permittee any interest in real property;
3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
1. Immediately if any previously submitted information is discovered to be inaccurate; and
2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850)245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, F.S. For project

GENERAL CONDITIONS

activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with subsection 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on July 26, 2023.

2. Operation and maintenance of the stormwater management system shall be the responsibility of HAINES CITY HMA LLC.

3. Discharge Facilities:

1-5" W X 4" H RECTANGULAR NOTCH weir with crest at elev. 112.4' NAVD 88.

Receiving body : Proposed Floodplain Compensating Storage Area
Control elev : 110.44 feet NAVD 88.

4. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

5. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

6. The following are exhibits to this permit. Exhibits noted as incorporated by reference are available on the District's ePermitting website (http://my.sfwmd.gov/ePermitting) under this application number.
Exhibit No. 1 Location Map
Exhibit No. 2 Construction Plans, Pages 1 - 13

7. Minimum building floor elevation: BASIN: B-1 - 115.00 feet NAVD 88.

8. Minimum road crown elevation: Basin: B-1 - 113.70 feet NAVD 88.

9. Minimum parking lot elevation: Basin: B-1 - 113.70 feet NAVD 88.

10. Prior to initiating construction activities associated with this Environmental Resource Permit (ERP), the permittee is required to hold a pre-construction meeting with field representatives, consultants, contractors, District Environmental Resource Compliance (ERC) staff, and any other local government entities as necessary.

The purpose of the pre-construction meeting is to discuss construction methods, sequencing, best management practices, identify work areas, staking and roping of preserves where applicable, and to facilitate coordination and assistance amongst relevant parties.

To schedule a pre-construction meeting, please contact ERC staff from the Orlando Service Center at (407) 858-6100 or via e-mail at: pre-con@sfwmd.gov. When sending a request for a pre-construction meeting, please include the application number, permit number, and contact name and phone number.

11. Flood plain compensation storage for this phase of construction shall be constructed and operational prior to the placement of any fill between the average wet season water table elevation and the 100 year flood elevation that would adversely affect the rights of others

NOTICE OF RIGHTS

As required by Sections 120.569 and 120.60(3), Fla. Stat., the following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all of the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a SFWMD decision which affects or may affect their substantial interests shall file a petition for hearing with the Office of the District Clerk of the SFWMD, in accordance with the filing instructions set forth herein, within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, or posting that the SFWMD has or intends to take final agency action, or publication of notice that the SFWMD has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action which materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional Rule 28-106.111, Fla. Admin. Code, point of entry.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Fla. Stat., shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk of the SFWMD. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at SFWMD headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.

- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the SFWMD's security desk does not constitute filing. It will be necessary to request that the SFWMD's security officer contact the Office of the District Clerk. An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document. A party who files a document by e-mail shall (1) represent that the original physically signed document will be retained by that party for the duration of the proceeding and of any subsequent appeal or subsequent proceeding in that cause and that the party shall produce it upon the request of other parties; and (2) be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed.

INITIATION OF AN ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Fla. Stat., and Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, SFWMD file number or any other SFWMD identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401–.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Fla. Stat., and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal with the Office of the District Clerk of the SFWMD in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the clerk of the appropriate district court of appeal.

Last Date For Agency Action: September 16, 2018

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Heart Of Florida Hospital F S E D

Permit No.: 48-01782-P

Application No.: 180625-11

Application Type: Environmental Resource (Construction/Operation Modification)

Location: Orange County, S31/T24S/R27E

Permittee : Haines City H M A L L C

Operating Entity : Haines City Hma LLC

Project Area: 4.21 acres

Permit Area: 4.21 acres

Project Land Use: Government Or Institutional

Special Drainage District: NA

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT SUMMARY:

Modification of an Environmental Resource Permit to authorize construction and operation of a project that includes a stormwater management system serving 4.21 acres of a commercial development known as Heart of Florida Hospital FSED.

The stormwater management system and compensating storage area are being modified due to a new site configuration. The proposed modification is for construction of a building with associated parking and driveway entrances. The post-development runoff will be directed to the proposed dry retention pond for water quality treatment and attenuation. The stormwater pond will discharge into the proposed 100-year floodplain compensating storage pond before discharging into the adjacent wetland system.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C..

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The project is located at the northwest corner of the intersection of U.S. 192 (SR 500) and County Road 545 in western Orange County. Refer to Exhibit 1 for a location map.

There are permitted water management facilities within the project site, Permit Number 48-01782-P, Application No. 140826-3 was issued in March 2015, for the project site, which was previously known as Liki Tiki Village 3 Commercial Mass Grading.

There are no wetlands or other surface waters located within the project site or affected by this project.

LAND USE:

Conceptual

		Area (ac)
Site	Building Coverage	.29
	Impervious	1.04
	Other	2.12
	Pervious	.37
	Dry Retention Bottom	.39
	Total:	**4.21**

WATER QUANTITY :

Discharge Rate :

As shown on Page 3 of 6 , the project discharge is within the allowable limit for the area.

Discharge Storm Frequency : 25 YEAR-1 DAY Design Rainfall : 7.5 inches

Basin	Allow Disch (cfs)	Method Of Determination	Peak Disch (cfs)	Peak Stage (ft, NAVD 88)
B-1	.73	Previously Permitted	.68	113.6

Finished Floors :

As shown in the following table, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Basin	Peak Stage (ft, NAVD 88)	Proposed Min. Finished Floors (ft, NAVD 88)	FEMA Elevation (ft, NAVD 88)
B-1	114.03	115	112.4

Road Design :

As shown in the following table, minimum road center line elevations have been set at or above the calculated design storm flood elevation.

Basin	Peak Stage (ft, NAVD 88)	Proposed Min. Road Crown (ft, NAVD 88)
B-1	113.19	113.7

Parking Lot Design :

As shown in the following table, minimum parking lot elevations have been set at or above the calculated design storm flood elevation.

Basin	Peak Stage (ft, NAVD 88)	Proposed Min.Parking Elev. (ft, NAVD 88)
B-1	113.19	113.7

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NAVD 88)	WSWT Ctrl Elev (ft, NAVD 88)	Method Of Determination
B-1	4.21	110.44	109.44	Wet Season Soil Borings

Receiving Body :

Basin	Str.#	Receiving Body
B-1	CS-1	Proposed Floodplain Compensating Storage Area

Water Quality Structures: Note: The units for all the elevation values of structures are (ft, NAVD 88)

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
B-1	CS-1	1	Rectangular Notch	5"	4"			112.4 (crest)

WATER QUALITY :

The project is required to provide 0.31 acre-feet of water quality based on 2.2 inch(es) over the controlled basin area(s) due to impaired waterbody requirements. The proposed dry retention pond is designed to provide 0.35 acre-feet, which is slightly above the required treatment volume.

Pursuant to Appendix E of Environmental Resource Permit Applicant's Handbook Volume II, the provided water quality treatment includes an additional 50% treatment volume above the requirements in Section 4.2 of Volume II as reasonable assurance that the project will not have an adverse impact on the downstream waterbody.

In addition to the required water quality treatment volume, the applicant provided site specific pollutant loading calculations demonstrating that the SWM system reduces the post development loading of pollutants (specifically phosphorus) to levels less than the loadings generated under the pre-development condition. The pollutant loading calculations are based upon the removal characteristics associated with the system.

Basin		Treatment Method	Vol Req.d (ac-ft)	Vol Prov'd
B-1	Treatment	Dry Retention	.31	.35

CERTIFICATION, OPERATION, AND MAINTENANCE:

Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that Toho Water Authority will be used as a source for irrigation water for the project.

The applicant has indicated that dewatering is not required for construction of this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

Toho Water Authority

Waste Water System/Supplier:

Toho Water Utility

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources on the site or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

This permit does not release the permittee from complying with any other agencies' requirements in the event that historical and/or archaeological resources are found on the site.

DEO/CZM Consistency Review:

Issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

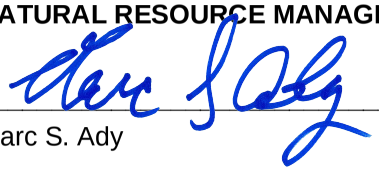
Enforcement:

A pending enforcement action was initiated for construction of works without prior permit authorization. This case can be traced in the District's e-Permitting Portal under the e-Enforecment tab by entering Cost Code 11232.

STAFF REVIEW:

DIVISION APPROVAL:

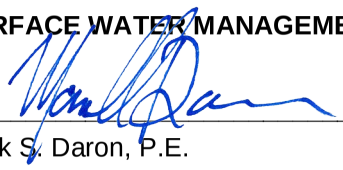
NATURAL RESOURCE MANAGEMENT:



Marc S. Ady

DATE: 7/26/18

SURFACE WATER MANAGEMENT:



Mark S. Daron, P.E.

DATE: July 26, 2018

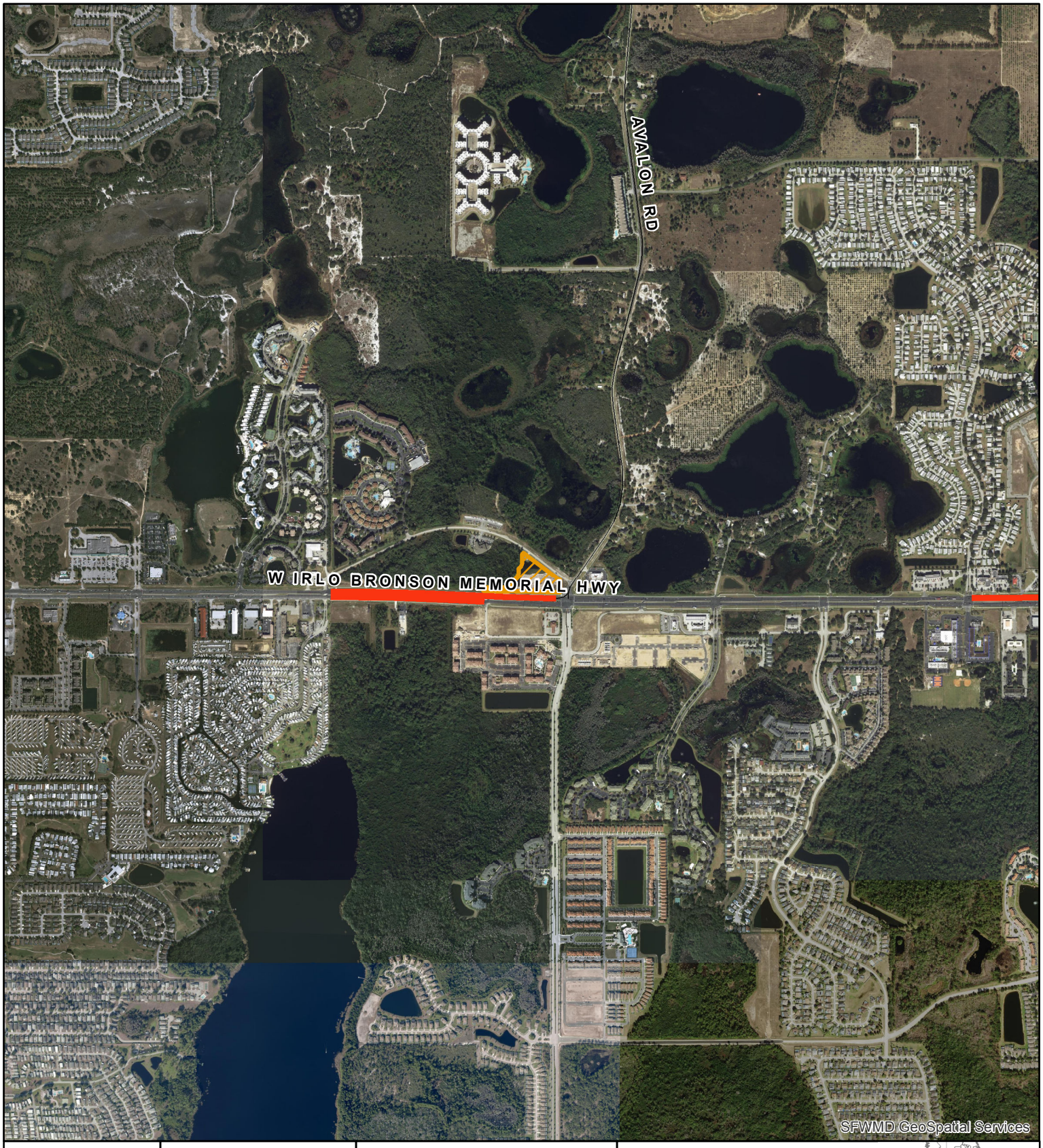


Exhibit No: 1

Exhibit Created On: 2018-07-24

ORANGE COUNTY, FL

Application

Permit No: 48-01782-P

Application Number: 180625-11

REGULATION DIVISION

Project Name: HEART OF FLORIDA HOSPITAL

F S E D

sfwmd.gov

0 1,450 2,900 Feet

N

Created by

GEOSPATIAL SERVICES

South Florida Water Management District

Drawn By:
Checked By:
Approved By:

Construction Plans

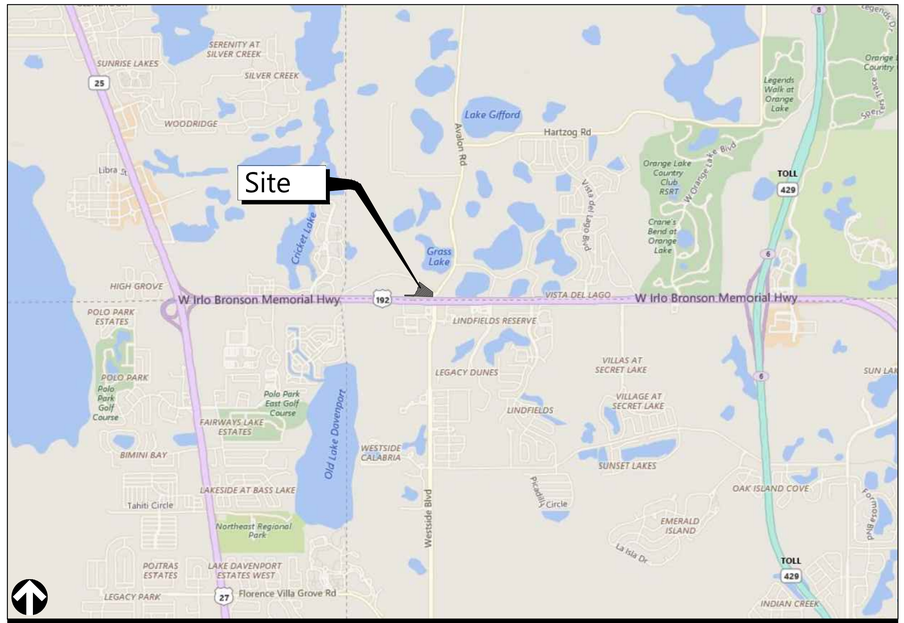
Issued for	**Construction Plan Approval**
Date Issued	**June 18, 2018**
Latest Issue	**June 18, 2018**

Heart of Florida Hospital
Free Standing Emergency Department

Development Plan No. DP 17-09-271

Parcel ID No. 31-24-27-0000-00-033

Cassis PD/Parcel A
Orange County, Florida



Location Map — **Not to Scale**

Owner
Haines City HMA, LLC
Elizabeth Moser
40100 US Hwy 27
Davenport, FL 32837
615.465.7394
elizabeth_moser@chs.net

Engineer
VHB
John A. Eveland, PE
501 E. Kennedy Blvd.
Tampa, FL 33602
813.327.5437
jeveland@vhb.com

Contractor
Wehr Constructors, Inc.
Matt Valentine
9423 Corporate Lake Drive
Tampa, FL 33634
813.872.0408
mvalentine@wehrconstructors.com

Architect
Gresham Smith & Partners
Michael Willis, AIA
302 Knights Run Avenue, Suite 900
Tampa, FL 33602
813.251.6838
michael_willis@gspnet.com

Surveyor
Avid Engineering
John Waby, PLS
2300 Curlew Road, Suite 201
Palm Harbor, FL 34683
727.789.9500

LEGAL DESCRIPTION:

THAT PORTION OF THE EAST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 31, TOWNSHIP 24 SOUTH, RANGE 27 EAST, ORANGE COUNTY, FLORIDA, LYING SOUTH OF THE PUBLIC ROAD RIGHT-OF-WAY FOR BALI ROAD (OLD STATE ROAD NO. 530) AS RECORDED IN O.R.BOOK 845, PAGE 454, OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA AND LYING NORTH OF THE PUBLIC ROAD RIGHT-OF- WAY FOR U.S. HIGHWAY NO. 192 (NEW STATE ROAD NO. 530) AS RECORDED IN O.R. BOOK 1763, PAGES 272 AND 273, OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

LESS AND EXCEPT:
LOT 1 AND TRACT A OF LIKI TIKI VILLAGE 111 SOUTH, ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 71, PAGE 104, OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

CONSISTING OF A TOTAL OF 4.21 ACRES.

SITE NOTES:

1. THE DUMPSTER ENCLOSURE AND GENERATOR ENCLOSURE DEPICTED HEREON ARE PART OF THIS OVERALL PROJECT. AS REQUIRED BY ORANGE COUNTY, A SEPARATE AND INDIVIDUAL BUILDING PERMIT APPLICATION WILL BE APPLIED FOR EACH ENCLOSURE.

IN ACCORDANCE WITH SECTION 38-1227, ANY VARIATIONS FROM COUNTY CODE MINIMUM STANDARDS REPRESENTED ON THIS PLAN THAT HAVE NOT BEEN EXPRESSLY APPROVED BY THE BCC ARE INVALID.

Sheet Index

No.	Drawing Title	Latest Issue
C000	Cover Sheet	6/25/2018
C001	GENERAL NOTES	6/25/2018
C100	EXISTING CONDITIONS PLAN	6/25/2018
C300	SITE PLAN	6/25/2018
C400	GRADING & DRAINAGE PLAN	6/25/2018
C500	UTILITIES PLAN	6/25/2018
C600	EROSION & SEDIMENTATION CONTROL PLAN	6/25/2018
C700 - C702	SITE DETAILS	6/25/2018
C703 - C705	UTILITY DETAILS	6/25/2018
L200 - L603	LANDSCAPE PLANS AND DETAILS	
A301 - A302	EXTERIOR ELEVATIONS	
E010	SITE PLAN ELECTRICAL	
E011	SITE PLAN PHOTOMETRICS	
E012	SITE LIGHTING CUT SHEETS	
G301	SIGN DETAILS	
S501	MASONRY DETAILS	

Reference Drawings

No.	Drawing Title	Latest Issue
Sv-1	Existing Conditions Plan of Land	January 23, 2014
Sv-2	Property Line Plan	January 23, 2014

G S & P
Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS
Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838
FIRM'S FLORIDA CERT. NO.
AAFX000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT
US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND LICENSE No. 56841 6/25/2018 STATE OF FLORIDA PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

C000

PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:38:44 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\cad\xl\Planset\C0.0 - COVER SHEET - VHB.dwg

Drawn By:
Checked By:
Approved By:

GENERAL CONSTRUCTION NOTES

1. UNLESS OTHERWISE NOTED HEREIN, THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE FOLLOWING DOCUMENTS

   A. ORANGE COUNTY LAND DEVELOPMENT CODE.
   B. COUNTY WATER, WASTEWATER, AND RECLAIMED WATER TECHNICAL MANUAL AND TECHNICAL SPECIFICATIONS
   C. FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   D. FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS

   THE ABOVE NOTED DOCUMENTS SHALL BE THE TECHNICAL SPECIFICATIONS FOR THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL OBTAIN AND FULLY FAMILIARIZE HIMSELF WITH THE CONTENTS OF SAID SPECIFICATIONS. IN THE EVENT THAT A DISCREPANCY OCCURS BETWEEN THESE PLANS AND THE AFOREMENTIONED SPECIFICATIONS, THE SPECIFICATIONS SHALL TAKE PRECEDENCE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN WRITING. THE CONTRACTOR SHALL HAVE A SET OF THESE PLANS MARKED "APPROVED FOR CONSTRUCTION" ALONG WITH A COPY OF ALL THE DOCUMENTS NOTED ABOVE ON THE PROJECT SITE AT ALL TIMES.

2. ALL SPECIFICATIONS AND DOCUMENTS REFERRED TO IN THESE PLANS SHALL BE OF THE LATEST REVISION.

2. PRIOR TO CONSTRUCTION COMMENCEMENT, THE CONTRACTOR SHALL OBTAIN FROM THE ENGINEER AND/OR THE OWNER COPIES OF ALL PERTINENT PERMITS AND APPROVALS RELATED TO THIS PROJECT. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE PERMIT CONDITIONS AND INSPECTION REQUIREMENTS SPECIFIED BY THE PERMITS AND VARIOUS GOVERNMENTAL AGENCIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY POST ALL PERMITS ON-SITE AND TO ASSURE ALL CONSTRUCTION ACTIVITIES ARE IN COMPLIANCE WITH THE CONDITIONS OF ALL PERMITS AND APPROVALS. THE CONTRACTOR SHALL SCHEDULE ANY NECESSARY INSPECTIONS ACCORDING TO AGENCY INSTRUCTIONS.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES WHETHER OR NOT THEY ARE INDICATED ON THESE PLANS, AND SHALL NOTIFY ALL UTILITY OWNERS A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION COMMENCEMENT. THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL UTILITY COMPANIES AND GOVERNING AGENCIES NECESSARY FOR CONSTRUCTION OF THE PROJECT, INCLUDING BUT NOT LIMITED TO ORANGE COUNTY, FLORIDA POWER & LIGHT (FPL), VERIZON, AND COMCAST NETWORKS. CALL SUNSHINE ONE (1-800-432-4770) PRIOR TO ANY EXCAVATION.

4. THE CONTRACTOR SHALL ASSURE AND BE RESPONSIBLE FOR THE PROPER PLACEMENT AND MAINTENANCE OF ALL TRAFFIC CONTROL DEVICES REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT.

5. AREAS DISTURBED BY THE CONTRACTOR OUTSIDE OF THE CONSTRUCTION SITE SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION; THIS INCLUDES LANDS OWNED BY THE DEVELOPER.

6. THE CONTRACTOR SHALL NOT UNDERTAKE ANY WORK HE FEELS WILL CONSTITUTE A CHANGE ORDER WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER AND THE OWNER.

7. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR HIS REVIEW, ALL SHOP DRAWINGS A MINIMUM OF SEVEN (7) WORKING DAYS IN ADVANCE OF THE CONTRACTOR'S NEED FOR SAME.

8. PRIOR TO BIDDING, CONTRACTOR SHALL VERIFY THE TOPOGRAPHICAL INFORMATION AS SHOWN ON THE CONSTRUCTION DRAWINGS AND ACCEPT THE SITE (ACCURATE TO 0.5 FEET OF THE CONTOUR INTERVAL AND 0.2 FEET OVERALL) AS REPRESENTED. COMMENCEMENT OF SITE IMPROVEMENTS SHALL BE INTERPRETED AS ACCEPTANCE BY CONTRACTOR OF ALL REPRESENTATIONS IN CONTRACT DOCUMENTS.

9. THE CONTRACTOR SHALL MAINTAIN A SET OF FIELD "AS BUILTS" FOR ALL IMPROVEMENTS NOTING ANY FIELD ADJUSTMENTS. THE "AS BUILT" SHALL INCLUDE VERTICAL AND HORIZONTAL LOCATIONS OF ALL GRAVITY UTILITY SYSTEMS INCLUDING SLOPE OF PIPES; TYPES OF PIPE FOR UTILITY SYSTEMS IF DIFFERENT FROM DESIGN; TOP OF BANK AND TOE OF SLOPE FOR ALL STORMWATER PONDS; STORMWATER CONTROL STRUCTURE AND OUTFALL PIPE DATA (WIER WIDTHS AND ELEVATIONS, ORIFICE SIZES AND ELEVATIONS, TOP OF STRUCTURE ELEVATIONS, INVERT ELEVATION OF OUTFALL PIPE, ETC.); UTILITY CROSSING DETAILS IF DIFFERENT FROM DESIGN; HORIZONTAL LOCATION OF PRESSURE PIPE SYSTEMS IF DIFFERENT FROM DESIGN LOCATIONS; AND ALL OTHER DATA INDICATING DEVIATIONS FROM DESIGN AS APPLICABLE. PRIOR TO FINAL INSPECTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT A CERTIFIED SET OF "AS BUILTS", PREPARED IN ACCORDANCE WITH F.A.C. RULE 61G17-6.004(2)(b). EACH SHEET OF THE PLANS SHALL BE SIGNED, SEALED AND DATED BY A PROFESSIONAL LAND SURVEYOR LICENSED TO PERFORM LAND SURVEYING SERVICES IN THE STATE OF FLORIDA. THE ENGINEER SHALL REVIEW THE "AS BUILTS" AND CONVERT THEM INTO RECORD DRAWINGS.

10. CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS FOR BURNING ON SITE, IF ALLOWED.

11. CONTRACTOR SHALL PROVIDE SOILS AND MATERIALS TESTING SERVICES FROM A LICENSED GEOTECHNICAL ENGINEER AT HIS OWN EXPENSE. CONTRACTOR SHALL COOPERATE WITH THE OWNER'S GEOTECHNICAL ENGINEER AND SHALL NOTIFY THE GEOTECHNICAL ENGINEER AT LEAST 24 HOURS PRIOR TO ANY TESTING REQUIRED BY THE PLANS, SPECIFICATIONS, REPORTS, AND/OR GOVERNMENTAL AGENCIES, OR AS RECOMMENDED BY GEOTECHNICAL ENGINEER. IF A FAILURE IN ANY OF THE CONTRACTOR'S SYSTEMS RELATED TO SOILS OR MATERIALS TESTING OCCURS, THE CONTRACTOR SHALL IMMEDIATELY REMEDY THE FAILURE AT HIS EXPENSE AND RE-SCHEDULE THE RE-TESTING AS NECESSARY. ALL RE-TESTING FEES FROM THE GEOTECHNICAL ENGINEER RESULTING FROM THE AFORESAID FAILURES SHALL BE AT THE CONTRACTOR'S EXPENSE.

12. OWNER AND CONSULTANT CONTACT INFORMATION:

OWNER:
HAINES CITY HMA, LLC
4000 MERIDIAN BOULEVARD
FRANKLIN, TENNESSEE 37067
TELEPHONE: (615) 465-7394

ARCHITECT:
GRESHAM SMITH & PARTNERS
302 KNIGHTS RUN AVENUE
SUITE 900
TAMPA, FL 33602
TELEPHONE: (813) 251-8838

ENGINEER:
VHB
501 E KENNEDY BLVD SUITE 1010
TAMPA, FLORIDA 33602
ATTENTION: JOHN A. EVELAND, P.E.
TELEPHONE: (813) 327 -5437

13. WORK PERFORMED BY THE CONTRACTOR SHALL INTERFACE SMOOTHLY WITH OTHER WORK BEING PERFORMED ON SITE OR ADJACENT TO THE SITE BY OTHER CONTRACTORS AND UTILITY COMPANIES. IT WILL BE NECESSARY FOR THE CONTRACTOR TO COORDINATE AND SCHEDULE HIS ACTIVITIES WITH OTHER CONTRACTORS AND UTILITY COMPANIES, INCLUDING BUT NOT LIMITED TO FPL, VERIZON, AND COMCAST NETWORKS.

14. OVERALL SITE CLEANUP SHALL BE ACCOMPLISHED BY THE CONTRACTOR IN ACCORDANCE WITH POLK COUNTY STANDARDS, OR AS DIRECTED BY THE ENGINEER AND OWNER.

15. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ACCESS TO PRIVATE PROPERTY IN THE AREAS WHERE WORK IS OCCURRING. ANY DAMAGE CAUSED BY THE CONTRACTOR IN THE PERFORMANCE OF THEIR WORK SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND THE OWNER AT THE CONTRACTOR'S EXPENSE.

16. ANY DAMAGE TO STATE, COUNTY, OR LOCAL ROADS CAUSED BY THE CONTRACTOR'S HAULING OR EXCAVATION EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, THE OWNER, AND THE APPLICABLE GOVERNMENTAL AGENCY.

17. ANY U.S.C. & G.S. MONUMENT WITHIN LIMITS OF CONSTRUCTION IS TO BE PROTECTED BY THE CONTRACTOR.

LAND SURVEYING

1. BOUNDARY, TREE, AND TOPOGRAPHIC SURVEY INFORMATION WAS PROVIDED BY AVID ENGINEERING, DATED 12/22/2015.

2. ALL BENCHMARKS USED FOR CONSTRUCTION LAYOUT SHALL BE VERIFIED BY A PROFESSIONAL SURVEYOR AND MAPPER, PRIOR TO USE, TO VERIFY THEIR ACCURACY. ANY DISCREPANCIES DISCOVERED MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING.

3. MONUMENTS AND OTHER SURVEY CONTROL POINTS SHALL BE PROTECTED FROM DAMAGE AND DISTURBANCE. IF ANY CONTROL POINTS ARE DAMAGED OR DISTURBED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE THE CONTROL POINTS TO THEIR ORIGINAL CONDITION AT HIS OWN EXPENSE.

4. ALL ELEVATIONS REFER TO THE NAVD 1988, U.S. SURVEY FEET.

5. 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. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES AFFECTING THIS WORK PRIOR TO CONSTRUCTION OR ORDERING STRUCTURES.

SAFETY

1. DURING THE CONSTRUCTION AND MAINTENANCE OF THIS PROJECT, ALL SAFETY REGULATIONS ARE TO BE ENFORCED. THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR THE CONTROL AND SAFETY OF THE TRAVELING PUBLIC AND THE SAFETY OF HIS PERSONNEL.

2. LABOR SAFETY SHALL CONFORM TO THE PROVISIONS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

3. CONTRACTOR SHALL PROVIDE AND MAINTAIN ITS OWN SAFETY EQUIPMENT IN ACCORDANCE WITH ITS HEALTH & SAFETY PROGRAM AND ALL OTHER APPLICABLE LEGAL AND HEALTH AND SAFETY REQUIREMENTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING ITS EMPLOYEES AND SUBCONTRACTORS WITH ADEQUATE INFORMATION AND TRAINING TO ENSURE THAT ALL EMPLOYEES AND SUBCONTRACTORS' EMPLOYEES COMPLY WITH ALL APPLICABLE REQUIREMENTS. CONTRACTOR SHALL REMAIN IN COMPLIANCE WITH ALL OCCUPATION SAFETY AND HEALTH REGULATIONS AS WELL AS THE ENVIRONMENTAL PROTECTION LAWS. THE FOLLOWING IS NOT TO BE PERCEIVED AS THE ENTIRE SAFETY PROGRAM BUT JUST BASIC REQUIREMENTS.

4. ALL EXCAVATIONS BY THE CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF THE DEPARTMENT OF LABOR'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS. PARTICULAR ATTENTION MUST BE PAID TO THE CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR PART 1926, SUBPART P. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXCAVATIONS AGAINST COLLAPSE AND WILL PROVIDE BRACING, SHEETING OR SHORING AS NECESSARY. DEWATERING METHODS SHALL BE USED AS REQUIRED TO KEEP TRENCHES DRY WHILE PIPE AND APPURTENANCES ARE BEING PLACED. ALL SUBSURFACE CONSTRUCTION SHALL COMPLY WITH THE STATE OF FLORIDA'S TRENCH SAFETY ACT (F.S. 553.60).

5. DURING CONSTRUCTION, ALL SAFETY REGULATIONS OF THE FDOT SHALL BE OBSERVED AND THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY IN ORDER TO SAFLEY CONDUCT THE PUBLIC, AND WORKMEN, THROUGH THE PROJECT AREA AND PUBLIC RIGHT-OF-WAYS. THE DESIGN APPLICATION, INSTALLATION, MAINTENANCE AND REMOVAL OF ALL TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS SHALL BE PROVIDED IN ACCORDANCE WITH THE FEDERAL MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND FDOT'S DESIGN STANDRDS, INDEXES 600-670.

6. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY AND ENFORCE ALL APPLICABLE SAFETY REGULATIONS. THE ABOVE INFORMATION HAS BEEN PROVIDED FOR THE CONTRACTOR'S INFORMATION ONLY AND DOES NOT IMPLY THAT THE OWNER OR ENGINEER WILL INSPECT AND/OR ENFORCE SAFETY REGULATIONS.

7. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN AREAS OF BURIED UTILITIES AND SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE UTILITY COMPANIES PRIOR TO CONTRACTOR TO OBTAIN FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES. CALL SUNSHINE ONE (1-800-432-4770) TO ARRANGE FIELD LOCATIONS.

EROSION PROTECTION

1. THE CONTRACTOR IS RESPONSIBLE FOR SITE CONDITIONS FROM THE DATE OF NOTICE TO PROCEED, UNTIL THE PROJECT IS ACCEPTED BY THE OWNER, ENGINEER AND ORANGE COUNTY. ACCORDINGLY, THE CONTRACTOR IS SOLELY RESPONSIBLE AND SHALL MANAGE HIS WORK AND TAKE ALL NECESSARY STEPS TO CONTROL FUGITIVE DUST, CONTROL AND PREVENT EROSION, AND TRANSPORT OF SEDIMENT INTO EXISTING WETLANDS, DRAINAGE WAYS, CONSERVATION AREAS, NATURAL AREAS AND OFFSITE AREAS, AS WELL AS NEWLY CONSTRUCTED ROADWAYS, STORMWATER FACILITIES AND MITIGATION AREAS. THIS MAY REQUIRE ADDITIONAL MEASURES FROM THOSE SHOWN ON THE CONSTRUCTION PLANS, SUCH AS WINDROWS, DIVERSION SWALES, SEED & MULCH, STAKED HAY BALES, OR OTHER EROSION CONTROL MEASURES NECESSARY TO REACT TO VARYING SITE CONDITIONS OR INCLEMENT WEATHER. IF EROSION OCCURS, THE CONTRACTOR SHALL IMMEDIATELY REMEDY THE DAMAGE CAUSED BY SUCH EROSION BY CONTROLLED REMOVAL OF SEDIMENTS, REPLANTING IF NECESSARY AND RE-ESTABLISHMENT OF EROSION PROTECTION DEVICES, AT THE CONTRACTOR'S SOLE EXPENSE.

2. SEE PLAN ENTITLED EROSION AND SEDIMENTATION CONTROL PLAN FOR ADDITIONAL REQUIREMENTS.

STATE OF FLORIDA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

THE CONTRACTOR ACKNOWLEDGES THE REQUIREMENT OF THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), WHICH HAS PUBLISHED RULES FOR OBTAINING COVERAGE UNDER THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION GENERIC PERMIT FOR STORMWATER DISCHARGES FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES.

IN OCTOBER 2000, EPA AUTHORIZED THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) TO IMPLEMENT THE NPDES STORMWATER PERMITTING PROGRAM IN THE STATE OF FLORIDA (IN ALL AREAS EXCEPT INDIAN COUNTRY LANDS). DEP'S AUTHORITY TO ADMINISTER THE NPDES PROGRAM IS SET FORTH IN SECTION 403.0885, FLORIDA STATUTES (F.S.). THE NPDES STORMWATER PROGRAM REGULATES POINT SOURCE DISCHARGES OF STORMWATER INTO SURFACE WATERS OF THE STATE OF FLORIDA FROM CERTAIN MUNICIPAL, INDUSTRIAL AND CONSTRUCTION ACTIVITIES. AS THE PERMITTING AUTHORITY, DEP IS RESPONSIBLE FOR PROMULGATING RULES AND ISSUING PERMITS, MANAGING AND REVIEWING PERMIT APPLICATIONS, AND PERFORMING COMPLIANCE AND ENFORCEMENT ACTIVITIES.

THE CONTRACTOR AGREES TO ASSIST THE OWNER IN THE PREPARATION, IMPLEMENTATION, OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE EPA HAS PUBLISHED SUMMARY GUIDANCE FOR: "DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES" (EPA 832-R-92-005, SEPTEMBER 1992).

CLEARING/DEMOLITION

1. PRIOR TO ANY SITE CLEARING, ALL TREES SHOWN TO REMAIN AS INDICATED ON THE CONSTRUCTION PLANS SHALL BE PROTECTED IN ACCORDANCE WITH LOCAL TREE ORDINANCES AND DETAILS CONTAINED IN THESE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE TREES IN GOOD CONDITION. NO TREE SHOWN TO REMAIN SHALL BE REMOVED WITHOUT WRITTEN APPROVAL FROM COUNTY AND THE OWNER.

2. DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE DRIPLINE OF TREES TO REMAIN ON THE SITE UNLESS OTHERWISE APPROVED BY THE COUNTY.

3. RESIDUAL MATERIAL THAT RESULTS FROM CLEARING AND GRUBBING, OR SITE EXCAVATION, IS TO BE UTILIZED ON-SITE AS NECESSARY, PROVIDED THAT THE MATERIAL IS DEEMED SUITABLE FOR CONSTRUCTION BY THE CONTRACTOR'S GEOTECHNICAL/SOILS TESTING COMPANY. EXCESS SUITABLE MATERIAL IS TO BE EITHER STOCKPILED ON THE SITE AS DIRECTED BY THE CONSTRUCTION MANAGER, OWNER, OR HAULED FROM THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS THAT ARE NECESSARY FOR REMOVING EXCESS EARTHWORK FROM THE SITE.

4. ALL CONSTRUCTION DEBRIS AND OTHER WASTE MATERIALS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS.

PAVING AND GRADING

1. ALL DELETERIOUS SUBSURFACE MATERIAL (I.E. MUCK, PEAT, BURIED DEBRIS) IS TO BE EXCAVATED IN ACCORDANCE WITH THESE PLANS OR AS DIRECTED BY THE OWNER OR THE CONTRACTOR'S GEOTECHNICAL CONSULTANT / SOIL TESTING COMPANY. DELETERIOUS MATERIAL IS TO BE REMOVED FROM THE SITE, UNLESS OTHERWISE DIRECTED BY THE OWNER. EXCAVATED AREAS TO BE BACK FILLED WITH SUITABLE MATERIALS AND COMPACTED AS SHOWN ON THESE PLANS, OR AS DIRECTED BY THE CONTRACTOR'S GEOTECHNICAL CONSULTANT / SOIL TESTING COMPANY. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS THAT ARE NECESSARY FOR REMOVING DELETERIOUS MATERIAL FROM THE SITE.

2. ALL NECESSARY FILL AND EMBANKMENT THAT IS PLACED DURING CONSTRUCTION SHALL CONSIST OF SUITABLE MATERIAL SPECIFIED BY THE CONTRACTOR'S GEOTECHNICAL CONSULTANT / SOIL TESTING COMPANY, OR ENGINEER, AND BE PLACED AND COMPACTED ACCORDING TO THESE PLANS OR THE REFERENCED SOILS REPORT.

3. PROPOSED SPOT ELEVATIONS REPRESENT TOP OF FINISHED PAVEMENT OR GROUND SURFACE GRADE UNLESS OTHERWISE NOTED ON DRAWINGS.

4. CONTRACTOR SHALL TRIM, TACK AND MATCH EXISTING PAVEMENT AT LOCATIONS WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.

5. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING NECESSARY TESTING WITH THE CONTRACTOR'S SOILS TESTING COMPANY. TESTS WILL BE REQUIRED, AT A MINIMUM, PURSUANT TO INDIAN RIVER COUNTY TESTING SCHEDULE. UPON COMPLETION OF PROPOSED CONSTRUCTION, SOILS TESTING COMPANY WILL SUBMIT CERTIFICATIONS TO THE OWNER'S ENGINEER STATING THAT ALL REQUIREMENTS HAVE BEEN MET.

6. ALL UNDERGROUND UTILITIES, INCLUDING UTILITY SLEEVES, AND CONDUITS SHALL BE INSTALLED PRIOR TO BASE & PAVEMENT CONSTRUCTION.

7. PER FLORIDA BUILDING CODE (FBC) SECTION 1804.3 SITE GRADING: THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 5% FOR A MINIMUM DISTANCE OF 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE WALL.

STORM DRAINAGE SYSTEM

1. STANDARD INDICES REFER TO THE LATEST EDITION OF COUNTY AND/OR FDOT SPECIFICATIONS.

2. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE, CLASS III, MANUFACTURED IN ACCORDANCE WITH ASTM C-76 UNLESS OTHERWISE NOTED ON PLANS. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH COUNTY AND/OR FDOT DESIGN STANDARDS UNLESS OTHERWISE NOTED ON PLANS.

3. JOINTS FOR CONCRETE PIPE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN ASTM STANDARD C 443.

4. PIPE LENGTHS SHOWN ARE APPROXIMATE AND TO CENTER OF DRAINAGE STRUCTURE WITH THE EXCEPTION OF MITERED AND FLARED END SECTIONS, WHICH ARE INCLUDED IN LENGTHS.

5. ALL DRAINAGE STRUCTURE TOPS AND COVERS SHALL BE TRAFFIC RATED FOR H-20 LOADING, UNLESS OTHERWISE NOTED. ALL STORM DRAINAGE PIPING SHALL BE SUBJECT TO A VISUAL INSPECTION BY THE OWNER'S ENGINEER PRIOR TO THE PLACEMENT OF BACKFILL. CONTRACTOR TO NOTIFY THE ENGINEER 48 HOURS IN ADVANCE TO SCHEDULE INSPECTION.

6. THE CONTRACTOR SHALL MAINTAIN AND PROTECT FROM MUD, DIRT, DEBRIS, ETC. THE STORM DRAINAGE SYSTEM UNTIL FINAL ACCEPTANCE OF THE PROJECT. THE CONTRACTOR MAY BE REQUIRED TO CLEAN PIPES AND INLETS PRIOR TO FINAL ACCEPTANCE.

STORMWATER MANAGEMENT SYSTEM MAINTENANCE OPERATION/MAINTENANCE SCHEDULE

THE OWNER OR HIS ASSIGNS SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE DETENTION AREA AND SUBSURFACE DRAINAGE SYSTEM. THIS WILL REQUIRE INSPECTION, ON AT LEAST AN ANNUAL BASIS, OF THE ON-SITE DRAINAGE SYSTEM, INCLUDING BUT NOT LIMITED TO, INLETS, STORM MANHOLES, DETENTION AREAS, AND CONTROL STRUCTURES, MAKING SURE THAT THE SYSTEM IS FREE FROM EXCESS SILT, DEBRIS AND SEDIMENTATION BUILD-UP. THIS MAY REQUIRE PERIODIC FLUSHING OF THE SUBSURFACE DRAINAGE SYSTEM, CUTTING AND REMOVAL OF VEGETATION FROM AND AROUND STRUCTURES, AND REMOVAL OF ACCUMULATED SEDIMENTS FROM THE BOTTOM OF THE DETENTION AREAS AND STRUCTURES AS NEEDED TO MAINTAIN THE VIABILITY OF THE ORIGINAL DESIGN INTENT. THE DESIGNATED LITTORAL ZONE SHALL BE MAINTAINED AS A FUNCTIONAL BIOLOGICAL FILTRATION AREA (I.E. VEGETATED ZONE) AND SHALL NOT BE LESS THAN 35% OF THE POND SURFACE.

GENERAL MAINTENANCE

1. ALL STORM WATER PIPES, INLETS, CATCH BASINS, MANHOLES, FLUMES, POND INFLOW AND OUTFALL STRUCTURES (INCLUDING OIL SKIMMERS), AND DISCHARGE PIPES SHOULD BE INSPECTED ON A REGULAR BASIS (MONTHLY OR QUARTERLY) AND AFTER MAJOR RAINFALLS. THEY SHOULD BE MAINTAINED BY REMOVING BUILT-UP DEBRIS AND VEGETATION AND REPAIRING DETERIORATING STRUCTURES.

2. CHEMICALS, OILS, GREASES, OR SIMILAR WASTES ARE NOT TO BE DISPOSED OF DIRECTLY TO THE STORMWATER FACILITY OR THROUGH STORM SEWERS. TREATMENT PONDS ARE DESIGNED TO TREAT NORMAL ROAD, PARKING LOT, ROOF AND YARD RUNOFF ONLY. SOME CHEMICALS MAY INTERFERE WITH A TREATMENT POND'S FUNCTIONS OR KILL VEGETATION AND WILDLIFE. DISPOSE OF THESE POTENTIALLY DANGEROUS MATERIALS PROPERLY BY TAKING THEM TO RECYCLING FACILITIES OR TO LOCAL "ANNESTY DAYS" SPONSORED BY MANY LOCAL GOVERNMENTS. ALSO, DO NOT DISPOSE OF GRASS CLIPPINGS IN SWMS. GRASS CLIPPINGS POSE PROBLEMS BY SMOTHERING DESIRABLE VEGETATION, CLOGGING OUTFALL STRUCTURES, AND WHEN THEY DECOMPOSE, MAY CAUSE UNSIGHTLY ALGAE BLOOMS THAT CAN KILL FISH.

3. ACCUMULATED POND SEDIMENTS MAY CONTAIN HEAVY METALS SUCH AS LEAD, CADMIUM AND MERCURY, AS WELL AS OTHER POTENTIALLY HAZARDOUS MATERIALS. THEREFORE, SEDIMENTS REMOVED FROM STORM SEWERS, INLETS, PIPES AND PONDS SHOULD BE DISPOSED OF AT AN APPROVED FACILITY (CHECK WITH THE COUNTY SOLID WASTE DEPARTMENT OR THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR DISPOSAL FACILITIES APPROVED TO ACCEPT TREATMENT POND SEDIMENT).

4. DURING ANY REPAIR OR MAINTENANCE ACTIVITY USE CARE TO AVOID CAUSING EROSION OR SILTATION TO ADJACENT OR OFF-SITE AREAS.

5. ALTERATIONS (FILLING, ENLARGING, ETC.) OF ANY PART OF THE STORMWATER FACILITY IS NOT PERMITTED WITHOUT PRIOR APPROVAL FROM ALL APPLICABLE GOVERNING AGENCIES.

6. THE APPROVED OPERATION AND MAINTENANCE PERMIT AND AS-BUILT DRAWINGS ARE AVAILABLE AT YOUR LOCAL DISTRICT SERVICE OFFICE. REFER TO THOSE PLANS AND PERMITS FOR ADDITIONAL RESTRICTIONS, INSTRUCTIONS AND CONDITIONS.

7. IT IS USUALLY MORE COST EFFECTIVE TO MONITOR AND PERFORM ROUTINE MAINTENANCE ON A SWMS, RATHER THAN LET IT FAIL AND HAVE TO RECONSTRUCT THE ENTIRE SYSTEM.

8. MOSQUITO GROWTH CAN BE MINIMIZED IN A SWMS BY THE FOLLOWING MEASURES:
   A. DO NOT DUMP GRASS CLIPPINGS OR OTHER ORGANIC DEBRIS INTO SWMS - DECAYING GRASS CLIPPINGS AND OTHER DECOMPOSING VEGETATION CREATE IDEAL CONDITIONS FOR BREEDING MOSQUITOS.
   B. CLEAN OUT ANY OBSTRUCTIONS WHICH GET INTO THE SYSTEM. DEBRIS CAN OBSTRUCT FLOW AND HARBOR MOSQUITO EGGS AND LARVAE.
   C. REMOVE WATER LETTUCE AND WATER HYACINTH, WHICH NOURISH AND SHELTER MOSQUITO LARVAE.
   D. STOCK PONDS WITH PREDATORY "MOSQUITOFISH"- GAMBUSIA MINNOWS

WET DETENTION POND MAINTENANCE

1. ALL SHOALED SIDE SLOPES AND BERMS SHOULD BE MAINTAINED BY THE PROCEDURE OUTLINED FOR DITCHES AND SWALES. INFLOW STRUCTURES SHOULD BE MAINTAINED BY THE PROCEDURES OUTLINED UNDER "GENERAL MAINTENANCE".

2. MAINTAIN, RATHER THAN REMOVE, WETLAND VEGETATION THAT BECOMES ESTABLISHED IN THE LITTORAL ZONE.THE REMOVAL OF LITTORAL SHELF VEGETATION (INCLUDING CATTAILS) FROM WET DETENTION PONDS IS PROHIBITED UNLESS OTHERWISE APPROVED BY THE SWFWMD, REMOVAL RESULTING IN SIGNIFICANT REDUCTION IN MAINTAINING THESE CUTTING, AND THE INTRODUCTION OF GRASS CARP. ANY QUESTIONS REGARDING AUTHORIZED ACTIVITIES WITHIN WET DETENTION PONDS SHALL BE ADDRESSED TO THE DISTRICT'S SURFACE WATER REGULATION MANAGER, TAMPA SERVICE OFFICE.

3. WHEN WET DETENTION POND LITTORAL ZONES ARE INTENTIONALLY PLANTED FOR AESTHETIC PURPOSES OR TO OFFSET WETLANDS IMPACTS, REMOVAL OF WEEDY OR EXOTIC VEGETATION MAY BE REQUIRED AND ACCOMPANIED BY REPLANTING OF DESIRABLE VEGETATION. CHECK WITH THE LOCAL DISTRICT SERVICE OFFICE TO DETERMINE SPECIFIC REQUIREMENTS.

4. ON A MONTHLY OR QUARTERLY BASIS AND AFTER SEVERE RAINFALL EVENTS, CHECK THE AREA IN FRONT OF THE OUTFALL CONTROL STRUCTURE FOR BUILT-UP SEDIMENTS AND VEGETATION THAT IMPAIR THE OPERATION OF THE STRUCTURE. REMOVE SEDIMENT AND VEGETATION TO AN APPROVED DISPOSAL SITE.

5. WHEN LITTORAL ZONE VEGETATION AND SEDIMENT ACCUMULATE TO SUCH AN EXTENT THAT WATER DEPTH DECREASES, THE LITTORAL ZONE MAY NEED TO BE REGRADED AND REVEGETATED. WHEN IT APPEARS THAT A POND HAS REACHED THIS STATE, IT IS BEST TO CONTACT A DISTRICT REPRESENTATIVE PRIOR TO LARGE SCALE MAINTENANCE.

DITCH & SWALE MAINTENANCE

SOME ERP PERMITS REQUIRE THAT THE VEGETATION IN SOME DITCHES BE PROTECTED TO OFFSET WETLAND IMPACTS PERMITTED DURING CONSTRUCTION OR FOR WATER QUALITY TREATMENT. THE PERMIT OR APPROVED CONSTRUCTION SHOULD CLEARLY IDENTIFY WHICH DITCH VEGETATION MUST BE PRESERVED. IF YOU'RE UNSURE, CONTACT THE LOCAL DISTRICT SERVICE OFFICE. IF VEGETATION IS NOT REQUIRED TO BE PRESERVED, DITCHES AND SWALES SHOULD BE PERIODICALLY MOWED AND CLEANED OF ACCUMULATED REFUSE. DURING THE MOWING OPERATIONS, DITCHES AND SWALES SHOULD BE INSPECTED FOR BARE SPOTS, DAMAGE OR EROSION. BARE AREAS SHOULD BE SODDED OR SEEDED TO REPLACE THE GRASS COVER. IN THE CASE OF EROSION, REPLACE THE MISSING SOILS AND BRING THE AREA BACK TO GRADE. SOME DITCHES ARE DESIGNED TO STORE RUNOFF FOR SHORT PERIODS OF TIME UTILIZING DITCH BLOCKS OR RAISED INLETS. THESE DITCH BLOCKS OR INLETS SHOULD NOT BE REMOVED OR ALTERED. IF YOU ARE UNABLE TO IDENTIFY WHAT TYPE OF TREATMENT METHOD SERVES YOUR DEVELOPMENT, CONTACT THE DISTRICT SERVICE OFFICE.

HOW TO OPERATE AND MAINTAIN THE STORMWATER MANAGEMENT SYSTEM

THE STORMWATER MANAGEMENT SYSTEM (SWMS) IS DESIGNED AND CONSTRUCTED TO COMPLY WITH CERTAIN ENVIRONMENTAL PROTEC

Drawn By:
Checked By:
Approved By:

R=1382.69 ARC = 48.57 Δ = 2°00'46"(F)
CB = S53°51'56"E CH = 48.57 (F)

EXISTING 5' CONC SIDEWALK
EXISTING SERVICE DRIVE TO TOHO LIFT STATION
EXISTING 8" SANITARY FORCE MAIN (TOHO WATER AUTH.)
EXISTING 8" POTABLE WATER MAIN (TOHO WATER AUTH.)
EXISTING 12" POTABLE WATER MAIN (TOHO WATER AUTH.)
EXISTING 8" SANITARY FORCE MAIN (TOHO WATER AUTH.)
PROPERTY LINE (TYP.)
EXISTING EOP (TYP.)

N35°58'36"E(F)
11.77'(F)
EXISTING TOHO WATER AUTH. REGIONAL LIFT STA.

R=25.00 ARC = 14.03 Δ = 32°09'57"(F)
CB = N19°35'43"E CH = 13.85(F)

EXISTING 6' CHAIN LINK FENCE

N03°44'10"E(F)
115.41'(F)

LOT 2
ORB 9321, PAGE 320
EXCEPTION 11

CONSERVATION EASEMENT
OR BOOK 9387, PG 3804

N19°06'43"E(F)
24.67'(F)

EXISTING GRAVITY SEWER MANHOLE STUBOUT

N44°20'02"E(F)
33.92'(F)

EXISTING POND TOP OF BANK

PROPERTY LINE (TYP.)

N07°05'04"E(F)
35.28'(F)

CONSERVATION EASEMENT
EASTERN LINE OF
ORB 9387, PAGE 3804
EXCEPTION 12

N08°55'16"E(F)
37.81'(F)

N30°43'27"E(F)
47.81'(F)

N54°38'26"E(F)
11.73'(F)

183,410 SQ.FT.
4.2105 ACRES

LOT 1
ORB 9321, PAGE 320
EXCEPTION 11

N22°32'26"E(F)
47.66'(F)

N19°54'47"E(F)
22.31'(F)

N27°43'16"E(F)
29.97'(F)

R=5014.50 ARC = 202.89 Δ = 2°19'06"(F)
CB = N89°25'23"W CH = 202.87(F)

PROPERTY LINE (TYP.)

N71°16'58"E(F)
17.29'(F)

N39°40'17"E(F)
16.01'(F)

101.04'(F)
N89°28'13"E(F)

R=25.00 ARC = 18.83 Δ = 43°09'46"(F)
CB = N49°23'43"E CH = 18.39 (F)

N02°11'06"E(F)
36.21'(F)

N87°46'49"W(F)
299.61'(F)

N87°47'17"W(F) 153.75'(F)

S02°34'54"W(F)
9.91'(F)

NORTH RIGHT OF WAY

R=22808.31 ARC = 466.97 Δ = 1°10'23"(F)
CB = N88°23'29"W CH = 466.96 (F)

EXISTING POWER POLE & OVERHEAD ELEC (TO REMAIN)

EXISTING GRAVEL CONSTRUCTION ENTRANCE (TO BE REMOVED)

DIRTPILE

EXISTING EARTH STOCKPILE (TO BE REMOVED)

PROPERTY LINE (TYP.)

EXISTING UNDERGROUND ELECTRIC (TO REMAIN)

S00°15'04"W(F) 1150.64'(F)

BALI BOULEVARD
100.00' R/W
ORB 845, PAGE 454

BASELINE OF SURVEY STATE ROAD 545 SECTION 7522 (ORB 845, PAGE 454)

S52°52'45"E(F)
302.56'(F)

SOUTHERN RIGHT OF WAY
BASIS OF BEARINGS

EAST LINE OF THE SOUTHWEST 1/4

STATE HIGHWAY NO. 530
100.00' R/W
PLAT BOOK X
PAGE 12

AVALON ROAD
(COUNTY ROAD NO. 545)
PLAT BOOK X,PAGE 12
100' R/W

FOR SALE SIGN

STREET SIGN

TURN LN

STOP

STATE HIGHWAY PLAT BOOK

BLOCK "A"
ARROWHEAD LAKES
PLAT BOOK X,PAGE 12
DEDICATED TO STATE OF FLORIDA
ORB 1754, PAGE 830

S00°15'04"W (C)
114.85'(C)

SOUTHEAST CORNER
SOUTHWEST 1/4
NO CORNER FOUND

SOUTH LINE OF THE SOUTHWEST 1/4

STATE ROAD 530 AND US HIGHWAY 192
RIGHT OF WAY VARIES
PUBLIC ROAD

SAW CUT AND REMOVE EXISTING SIDEWALK

EXISTING EOP

EXISTING 5' CONC SIDEWALK

EXISTING BUS STOP

PROPERTY LINE (TYP.)

BUS STOP

FOR SALE

FIBER OPTICS BOX

XWALK SIGNAL

HWY 545

192 WEST

MEMORIAL

SPEED

ONE WAY

172+00

175+00

EY STATE ROAD 530 SECTION 75220 (ORB 1763,PAGE 272)

LEGEND

- = Wood Utility Pole
- = Wood Light Pole
- = Wood Post/Pole
- = Wood Transmission Pole
- = Aerial Target
- = Air Release Valve
- = Bench Mark
- = Back Flow Preventor
- = Cable TV Paint Stripe
- = Cable TV Box
- = Cable TV Pedestal
- = Communications Manhole
- = Concrete Light Pole
- = Concrete Post
- = Concrete Utility Pole
- = Drainage Manhole
- = Electric Box
- = Electric Manhole
- = Electric Transformer
- = Power Paint Stripe
- = Monitor Well
- = Parking Meter
- = Reclaimed Water Paint Stripe
- = Reclaimed Water Box
- = Reclaimed Water Valve
- = Sanitary Sewer Manhole
- = Sanitary Cleanout
- = Sanitary Sewer Paint Stripe
- = Section Corner
- = Siamese Connection
- = Sign
- = Sprinkler Control Box
- = Sprinkler Head
- = Steel Transmission Pole
- = Storm Water Paint Stripe
- = FPC Pedestal
- = Fire Hydrant
- = Flag Pole
- = Gas Line Marker
- = Gas Filler Cap
- = Gas Valve
- = Gas Meter Box
- = Gas Line Paint Stripe
- = Gas Vent
- = Gopher Tortoise Hole
- = Grate Inlet
- = Telephone Manhole
- = Telephone Pedestal
- = Telephone Paint Stripe
- = Telephone Marker
- = Guy Wire
- = Light Pole
- = Mail Box
- = Metal Post
- = Underground Cable Marker
- = Traffic Signal Box
- = Traffic Signal Pole
- = Verizon Box
- = Verizon Marker
- = Water Blow Off Valve
- = Water Line Marker
- = Water Line Paint Stripe
- = Water Meter
- = Water Valve
- = Well

NOTES:

1. BOUNDARY, TREE, AND TOPOGRAPHIC SURVEY INFORMATION WAS PROVIDED BY AVID ENGINEERING, DATED 12/22/2015.
2. ALL BENCHMARKS USED FOR CONSTRUCTION LAYOUT SHALL BE VERIFIED BY A PROFESSIONAL SURVEYOR AND MAPPER, PRIOR TO USE, TO VERIFY THEIR ACCURACY. ANY DISCREPANCIES DISCOVERED MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING.
3. MONUMENTS AND OTHER SURVEY CONTROL POINTS SHALL BE PROTECTED FROM DAMAGE AND DISTURBANCE. IF ANY CONTROL POINTS ARE DAMAGED OR DISTURBED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE THE CONTROL POINTS TO THEIR ORIGINAL CONDITION AT HIS OWN EXPENSE.
4. ALL ELEVATIONS REFER TO THE NAVD 1988, U.S. SURVEY FEET.
5. 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. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES AFFECTING THIS WORK PRIOR TO CONSTRUCTION OR ORDERING STRUCTURES.

0 20 40 80 Feet

6/25/2018 1:39:02 PM \\vhbfdegfs\Tampa\LD\Business Development\Projects\Heart of Florida\cad\dgn\Planset\C1.0 EXISTING CONDITIONS PLAN.dwg

G S & P
Design Services For The Built Environment
Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL
GRESHAM SMITH AND PARTNERS
Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838
FIRM'S FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381
vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

EXISTING CONDITIONS PLAN

C100

PROJECT: 40214.02
DATE: 05/17/2017

Drawn By:
Checked By:
Approved By:

SITE NOTES:

1. THE DUMPSTER ENCLOSURE AND GENERATOR ENCLOSURE DEPICTED HEREON ARE PART OF THIS OVERALL PROJECT. AS REQUIRED BY ORANGE COUNTY, A SEPARATE AND INDIVIDUAL BUILDING PERMIT APPLICATION WILL BE APPLIED FOR EACH ENCLOSURE.
2. THE PROJECT WILL BE COMPLETED IN A SINGLE PHASE.
3. THE SITE HAS BEEN DESIGNED IN ACCORDANCE WITH THE COMMERCIAL DESIGN STANDARDS SET FORTH IN ARTICLE XIII OF CHAPTER 9 OF THE ORANGE COUNTY CODE.
4. SOILS FOUND ONSITE PER SCS SOILS MAP, ORANGE COUNTY, FL: 2 - ARCHBOLD FINE SAND, 20 - IMMOKALEE FINE SAND, 42 - SANIBEL MUCK
5. TRIP GENERATION FOR THE PROJECT IS AS FOLLOWS:
   BASED ON THE ITE TRIP GENERATION (LATEST EDITION) AND PROPOSED USE AS A CLINIC (ITE CODE 630): 11,960 SF CLINIC EQUATES TO A TOTAL OF 376 DAILY TRIPS, WITH A TOTAL PM PEAK OF 62, 31 (IN) & 31 (OUT). THE MAXIMUM ALLOWED PER THE PD FOR THIS SITE IS 148 PEAK TRIPS.
6. BIKE PARKING DESIGN AND SPECIFICATIONS SHALL BE IN ACCORDANCE ORANGE COUNTY SECTION 38-1485.
7. CONSERVATION AREA SIGNAGE SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING NOTE: "CONSERVATION AREA - NO DUMPING, LAND CLEARING , OR OTHER DISTURBANCE TO SOILS OR VEGETATION PERMITTED BEYOND THIS POINT." PLEASE REFER TO THE DETAILS & LOCATIONS PRESENTED ON SHEET G3-0. LOCATIONS ARE 50.0' O.C. AS REQUIRED.
8. BILLBOARDS AND POLE SIGNS SHALL BE PROHIBITED. GROUND FASCIA SIGNS SHALL COMPLY WITH ORANGE COUNTY CODE CHAPTER 31.5.
9. ALL PERMIT CONDITIONS ASSOCIATED WITH THE PREVIOUSLY APPROVED AND ISSUED PERMIT FOR THE ORANGE COUNTY CONSERVATION AREA DETERMINATION (CAD) 93-042 HAVE BEEN MET AND THE SITE IS IN COMPLIANCE. THE PROPOSED PROJECT IS IN COMPLIANCE WITH THESE PERMIT REQUIREMENTS AS WELL.
10. ALL CONSTRUCTION DETAILS ARE CONCEPTUAL AND SUBJECT TO REVIEW AND MODIFICATION DURING THE APPROVAL OF FINAL CONSTRUCTION PLANS.
11. THE PROPOSED PARKING AREAS CONSIST OF ADA HC SPACES DIMENSIONED AT 12' x 18' TYPICAL, AND THE REMAINDER OF THE PARKING AREA WILL CONSIST OF 10' x 18" SPACES PER COUNTY MINIMUM STANDARDS.

HATCH LEGEND

PROPOSED ASPHALT

PROPOSED CONCRETE

SITE DATA

PROJECT TITLE: CHS HEART OF FLORIDA HOSPITAL - FREE STANDING EMERGENCY DEPARTMENT
PARCEL ID No.: 31-24-27-0000-00-033
PARCEL ACREAGE: GROSS ACREAGE = 4.21 AC., DEVELOPABLE ACREAGE: 4.21 AC.
IMPERVIOUS COVERAGE: 0.28 AC. (BUILDING COVERAGE) + 0.98 AC. (VUA) + 0.10 AC. (CONCRETE) = 1.36 AC. (32.30%); (70% MAX.)
OPEN SPACE (35% MIN.):

CATEGORY A: 0.62 AC. (14.73%)

CATEGORY B: 0.00 AC. (0.00%)

CATEGORY C: 1.10 AC. (26.13%)
TOTAL: 1.72 AC. (40.86%)

EXISTING ZONING: PD - TOURIST COMMERCIAL, LIKI TIKI VILLAGE III PD (FKA CASSIS PD)
FUTURE LAND USE: COMMERCIAL
MAXIMUM ALLOWABLE FAR: 1.00 (0.07 PROPOSED)
MAXIMUM ALLOWABLE BUILDING HEIGHT: 60.0 FEET (20.0 FEET PROPOSED)
MINIMUM REQUIRED SETBACKS:
BUILDING SETBACKS:
60.0' ALONG BALI BLVD., US HWY 192 AND CR 535 (AVALON ROAD)
30.0' ALONG WESTERN PROPERTY LINE
PAVEMENT SETBACKS:
25.0' ALONG US HWY 192, WITH EXCEPTION OF 10.0' SETBACK ALONG THE PORTION APPROVED AS A BCC WAIVER
25.0' ALONG BALI BLVD.
20.0' ALONG EASTERN PROPERTY LINE

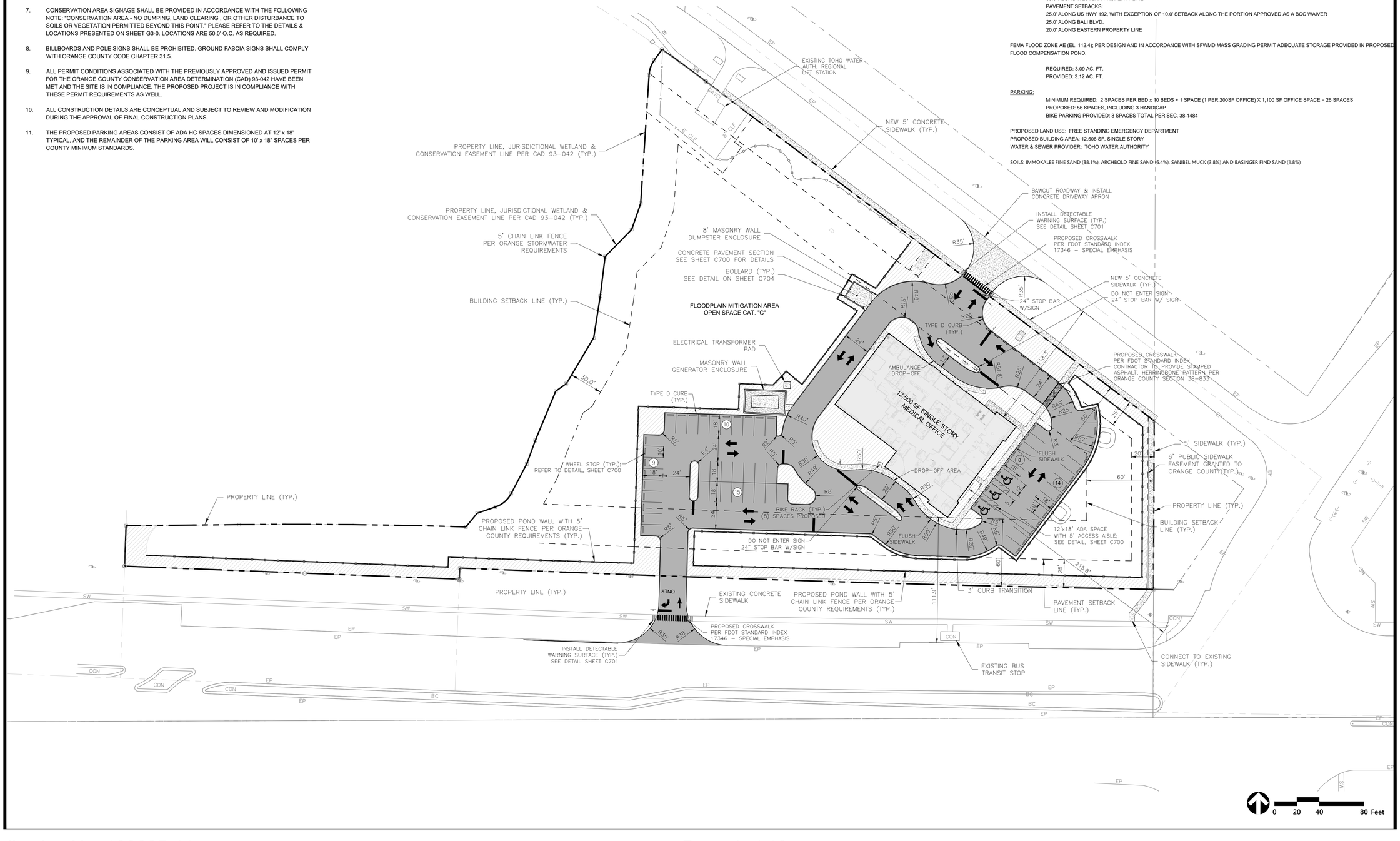
FEMA FLOOD ZONE AE (EL. 112.4); PER DESIGN AND IN ACCORDANCE WITH SFWMD MASS GRADING PERMIT ADEQUATE STORAGE PROVIDED IN PROPOSED FLOOD COMPENSATION POND.

REQUIRED: 3.09 AC. FT.
PROVIDED: 3.12 AC. FT.

PARKING:
MINIMUM REQUIRED: 2 SPACES PER BED x 10 BEDS + 1 SPACE (1 PER 200SF OFFICE) X 1,100 SF OFFICE SPACE = 26 SPACES
PROPOSED: 56 SPACES, INCLUDING 3 HANDICAP
BIKE PARKING PROVIDED: 8 SPACES TOTAL PER SEC. 38-1484

PROPOSED LAND USE: FREE STANDING EMERGENCY DEPARTMENT
PROPOSED BUILDING AREA: 12,506 SF, SINGLE STORY
WATER & SEWER PROVIDER: TOHO WATER AUTHORITY

SOILS: IMMOKALEE FINE SAND (88.1%), ARCHBOLD FINE SAND (6.4%), SANIBEL MUCK (3.8%) AND BASINGER FIND SAND (1.8%)



G S & P
Design Services For The Built Environment
Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS
Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838
FIRMS FLORIDA CERT. NO.
AAP0000340/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT
US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

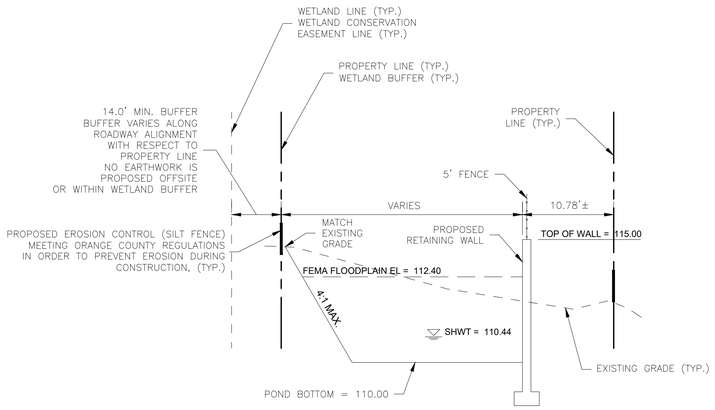
SITE PLAN

C300

PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:39:10 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\cad\pd\Planset\C3.0 - SITE PLAN.dwg

Drawn By:
Checked By:
Approved By:



CROSS SECTION A-A
NOT TO SCALE

CROSS SECTION B-B
NOT TO SCALE

STRUCTURE TABLE

S-1
FDOT TYPE 'E' GRATE INLET
GRATE EL. 113.75
IE (SW)= 109.85
IE (SE)=109.85

S-2
FDOT MANHOLE
RIM EL. = 114.30
IE (NW) = 109.95
IE (NE) = 109.95

S-3
FDOT TYPE 'E' GRATE INLET
GRATE EL. = 114.45
IE (8") = 110.16
IE (NW) = 110.16
IE (SE) = 110.16

S-4
FDOT TYPE 'E' GRATE INLET
GRATE EL. = 113.75
IE (SE) = 110.54

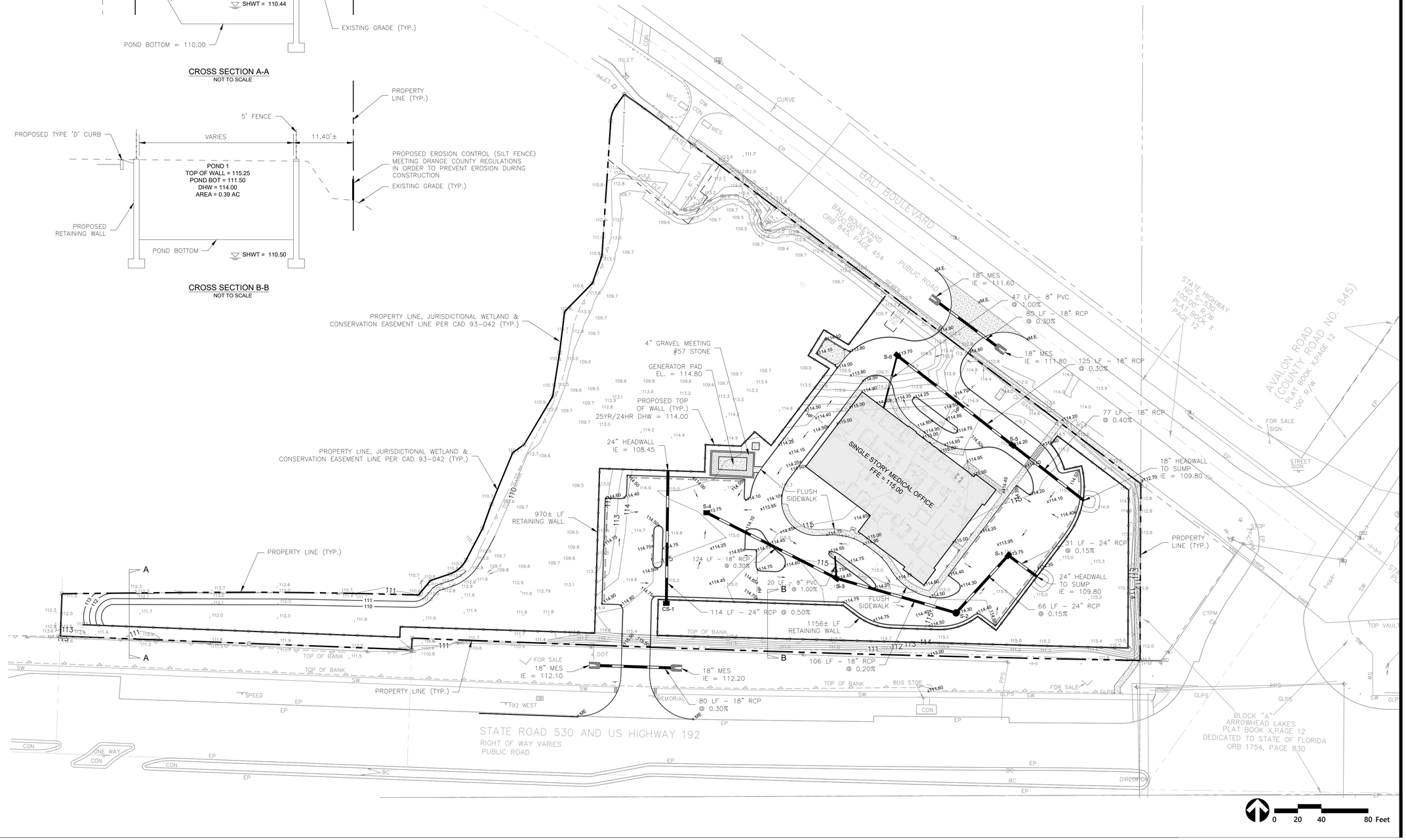
S-5
FDOT TYPE 'E' GRATE INLET
GRATE EL. = 114.30
IE (NW) = 110.11
IE (SE) = 110.11

S-6
FDOT TYPE 'E' GRATE INLET
GRATE EL. = 113.70
IE (8")=110.49
IE (SE) = 110.49

CS-1
MODIFIED FDOT TYPE 'C' GRATE INLET
GRATE EL. = 114.00
IE (N)=109.00
REFER TO DETAIL, SHEET C702

NOTES:

1. ALL STORM DRAIN INLETS CONSTRUCTED AS PART OF NEW DEVELOPMENT PROJECTS IN ORANGE COUNTY SHALL HAVE METAL MEDALLION INLET MARKERS INSTALLED. TEXT ON THE MARKER SHALL BE EVENLY SPACED AND READ "NO DUMPING, ONLY RAIN IN THE DRAIN". MARKERS MUST BE COMMERCIAL GRADE STAINLESS STEEL, ALUMINUM BRASS OR BRONZE AND EITHER STAMPED FROM SHEET METAL OR CAST. METAL MARKER COLOR MUST BE NON-REFLECTIVE BLUE OR GREEN. AQUATIC CREATURE OR SYMBOL SHOWN ON MARKER SHALL BE CONSISTENT THROUGHOUT THE SUBDIVISION. MARKERS MUST BE AFFIXED TO A CLEAN, PREPARED SURFACE WITH ADHESIVES, FASTENERS, OR HEAT AS RECOMMENDED BY THE MANUFACTURER. MARKERS SHALL BE ALIGNED WITH THE CENTER OF DRAINAGE INLETS AT THE TOP OF THE CURB. LETTERING MUST BE BETWEEN 0.4-0.5 INCHES AND THE TOTAL DIAMETER OF THE MARKER BETWEEN 3.75-4.25 INCHES.
2. THIS PROJECT SHALL COMPLY WITH ALL PERMIT CONDITIONS ASSOCIATED WITH PERMIT No. CONSERVATION AREA DETERMINATION (CAD) No. 93-042 AND IMPACT PERMIT No. CAI 07-044.



G S & P

Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS

Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838

FIRM'S FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

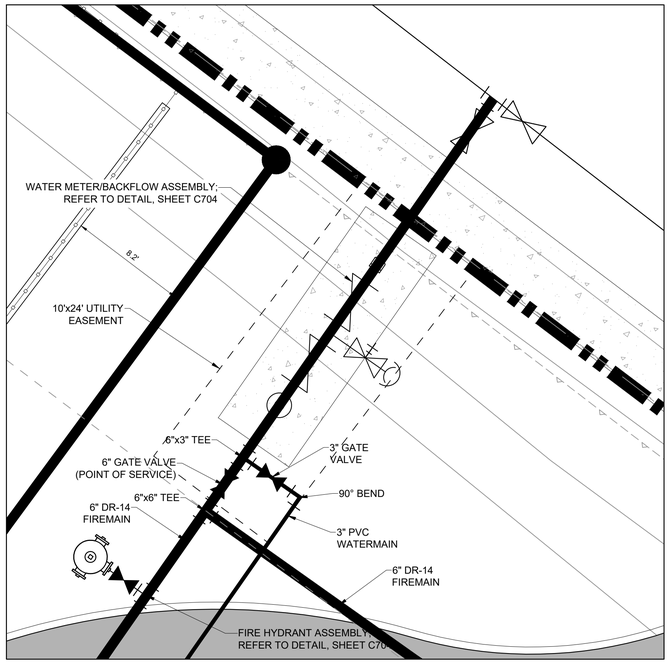
GRADING AND DRAINAGE PLAN

C400

PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:39:31 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\acad\dp\Planset\C4.0 - GRADING & DRAINAGE PLAN.dwg

Drawn By:
Checked By:
Approved By:

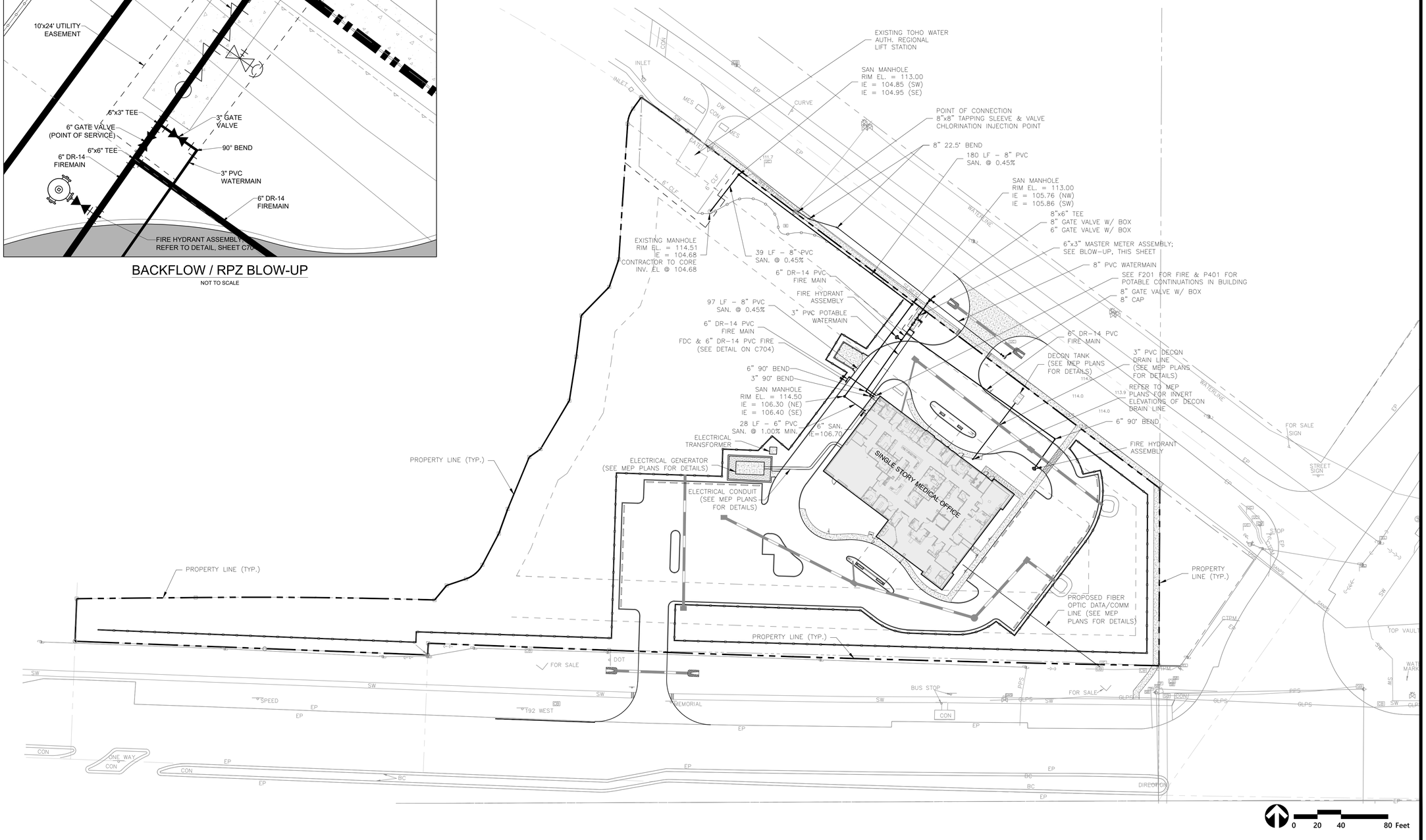


BACKFLOW / RPZ BLOW-UP

NOT TO SCALE

NOTES:

1. SITE FIRE FLOW REQUIREMENT (FIRE HYDRANT ASSEMBLY) OF 2,000 GPM PROVIDED PER CURRENT EDITION, FFCP 5TH EDITION, NFPA 1 101 2012 EDITION CHAPTER 18 AND ORANGE COUNTY SUBDIVISION REGULATIONS (LATEST EDITION). THIS REQUIREMENT IS BEING MET VIA THE TWO PROPOSED HYDRANTS LOCATED ONSITE AS DEPICTED HEREIN.



G S & P

Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS

Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838

FIRMS FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND LICENSE No. 56841 6/25/2018 STATE OF FLORIDA PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

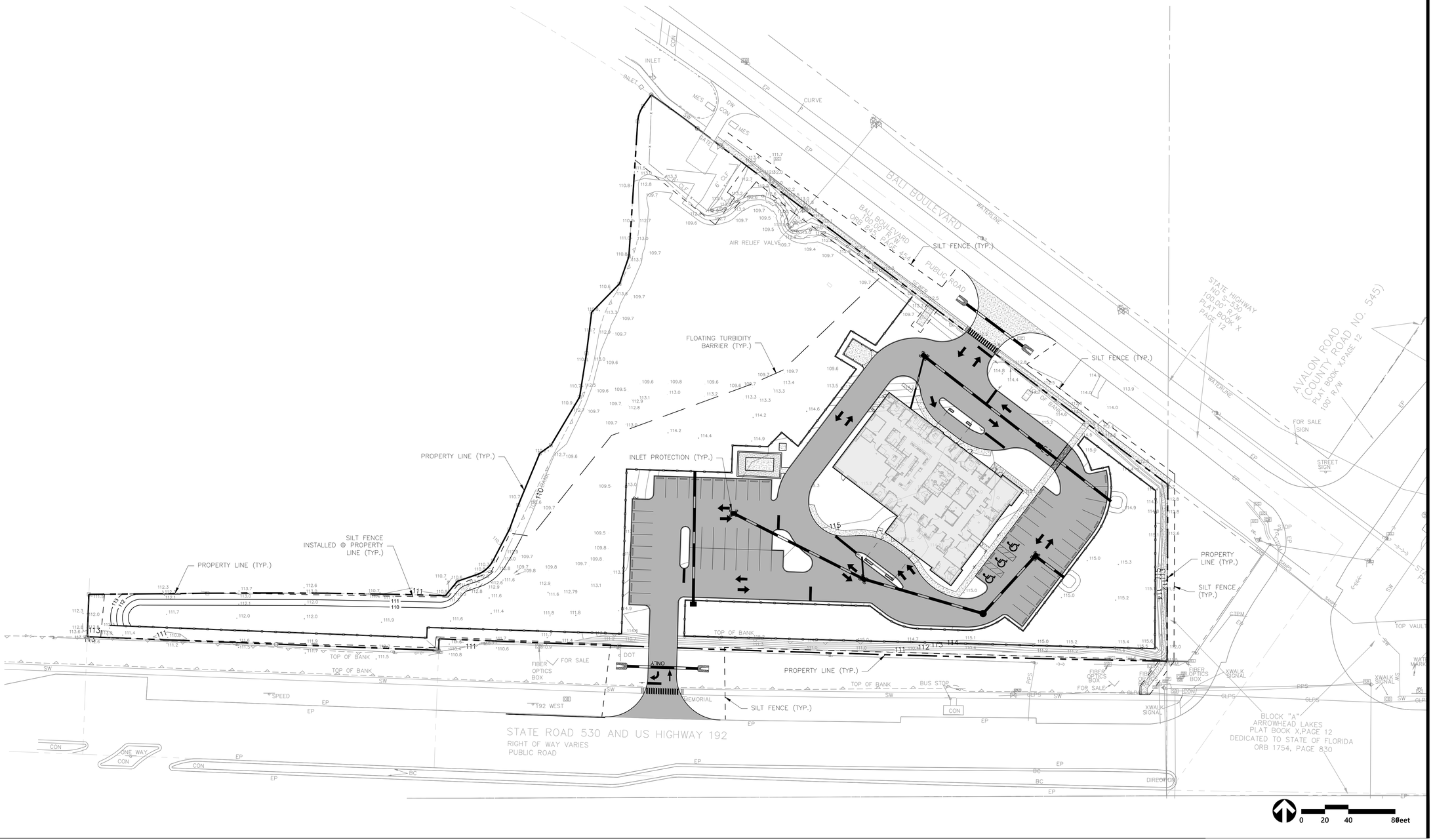
UTILITY PLAN

C500

PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:39:41 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\acad\dgn\Planset\C5.0 - UTILITIES PLAN.dwg

Drawn By:
Checked By:
Approved By:



6/25/2018 1:39:49 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\cadd\Planset\C6.0 - EROSION & SEDIMENTATION CONTROL PLAN.dwg

G S & P

Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS

Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838

FIRMS FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF FLORIDA
PROFESSIONAL ENGINEER

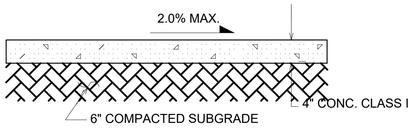
Revision		
No.	Date	Description

EROSION & SEDIMENTATION CONTROL PLAN

C600

PROJECT: 40214.02
DATE: 05/17/2017

Drawn By:
Checked By:
Approved By:

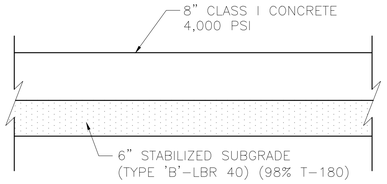


NOTES:

1. 6" SUBGRADE COMPACTION 95% OF AASHTO T-180
2. CONCRETE TO BE 3000 P.S.I. AT 28 DAYS
3. PROVIDE SAWCUT JOINT SPACING @ 5.0'
4. PROVIDE EXPANSION JOINT @ 20' O.C.

SIDEWALK DETAIL

NOT TO SCALE

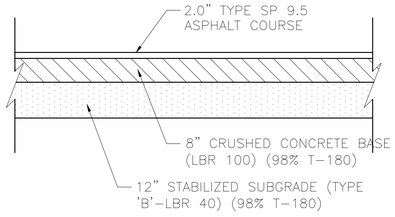


NOTE:

1. JOINT SPACING SHALL BE 1/2" W x 1/2" L

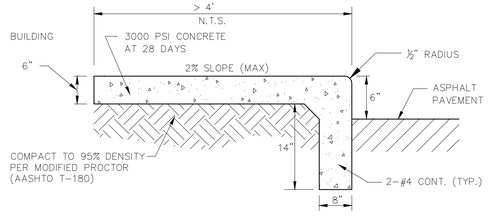
CONCRETE PAVEMENT DETAIL

NOT TO SCALE



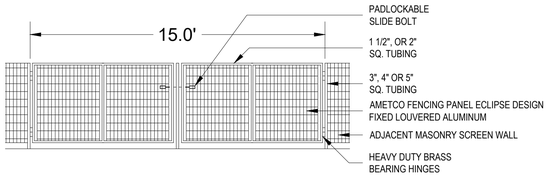
HEAVY DUTY PAVEMENT SECTION DETAIL

NOT TO SCALE



INTEGRAL SIDEWALK & CURB DETAIL

NOT TO SCALE

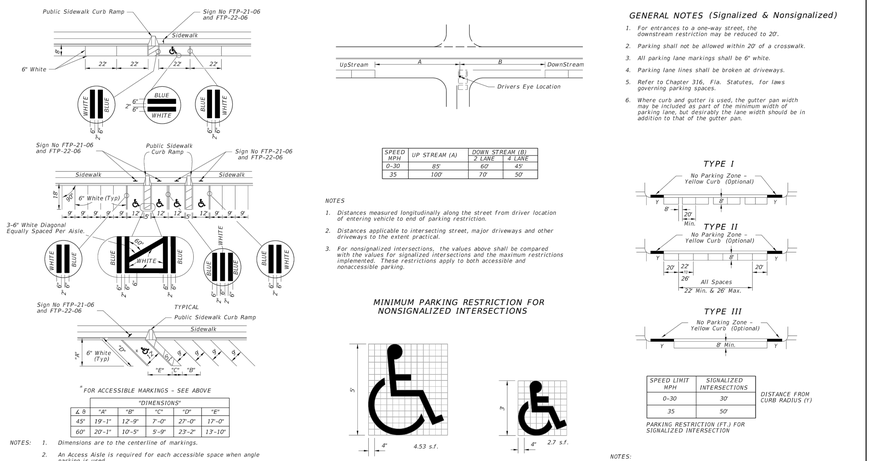


NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.

DOUBLE-SWING GATE DETAIL

NOT TO SCALE



NOTES:

1. Dimensions are to the centerline of markings.
2. An Access Aisle is required for each accessible space when angle parking is used.
3. Criteria for pavement markings only, not public sidewalk curb ramp locations. For ramp locations refer to plans.
4. Blue pavement markings shall be tinted to match shade 15180 of Federal Standards 595a.
5. The FTP-22-06 panal shall be mounted below the FTP-21-06 sign.

PAVEMENT MARKING FOR PUBLIC SIDEWALK CURB RAMPS IN REST AREAS

SPEED MPH	UP STREAM (A)	DOWN STREAM (B) 2 LANE	4 LANE
0-30	85'	60'	45'
35	100'	70'	50'

NOTES

1. Distances measured longitudinally along the street from driver location of entering vehicle to end of parking restriction.
2. Distances applicable to intersecting street, major driveways and other driveways to the extent practical.
3. For nonsignalized intersections, the values above shall be compared with the values for signalized intersections and the maximum restrictions implemented. These restrictions apply to both accessible and nonaccessible parking.

MINIMUM PARKING RESTRICTION FOR NONSIGNALIZED INTERSECTIONS

Use of pavement symbol in accessible parking spaces is optional, when used the symbol shall be 3' or 5' high and white in color.

UNIVERSAL SYMBOL OF ACCESSIBILITY

GENERAL NOTES (Signalized & Nonsignalized)

1. For entrances to a one-way street, the downstream restriction may be reduced to 20'.
2. Parking shall not be allowed within 20' of a crosswalk.
3. All parking lane markings shall be 6" white.
4. Parking lane lines shall be broken at driveways.
5. Refer to Chapter 316, Fla. Statutes, for laws governing parking spaces.
6. Where curb and gutter is used, the gutter pan width may be included as part of the minimum width of parking lane, but desirably the lane width should be in addition to that of the gutter pan.

SPEED LIMIT MPH	SIGNALIZED INTERSECTIONS
0-30	30'
35	50'

DISTANCE FROM CURB RADIUS (T)

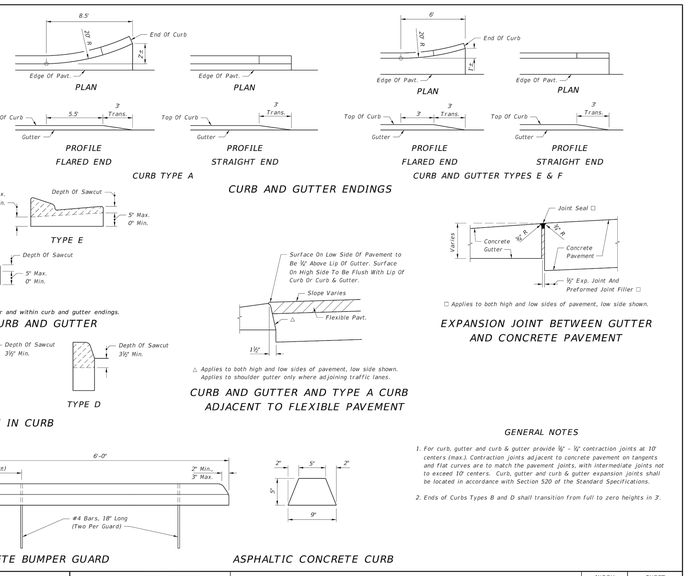
PARKING RESTRICTION (FT.) FOR SIGNALIZED INTERSECTION

NOTES:

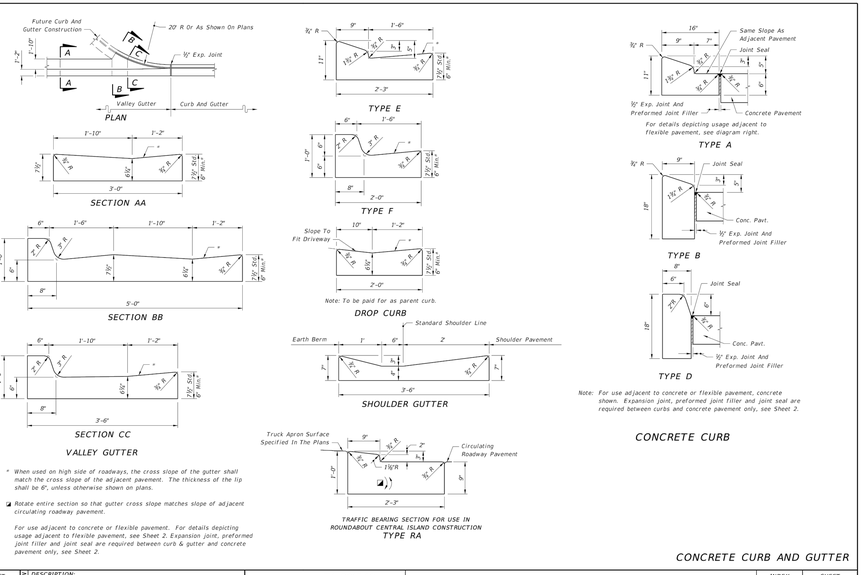
1. Parking restrictions measured from curb radius point.
2. Restrictions for accessible parking are the same as those applied to nonsignalized intersections.

MINIMUM PARKING RESTRICTION FOR SIGNALIZED INTERSECTION

LAST REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	PAVEMENT MARKINGS	INDEX NO.	SHEET NO.
11/01/16				17346	15 of 17



LAST REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	CURB & CURB AND GUTTER	INDEX NO.	SHEET NO.
07/01/00				300	2 of 2



LAST REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	CURB & CURB AND GUTTER	INDEX NO.	SHEET NO.
07/01/00				300	1 of 2

G S & P

Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS

Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838

FIRMS FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

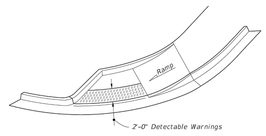
SITE DETAILS

C700

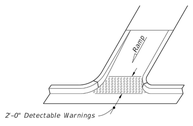
PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:40:06 PM \\hbloptsh\Tampa\LD\Business Development\Projects\Heart of Florida\cadd\dgn\Plansset\C7 0 - SITE DETAILS.dwg

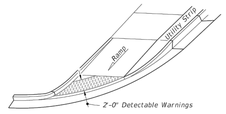
Drawn By:
Checked By:
Approved By:



ISOMETRIC VIEW



ISOMETRIC VIEW



OPTION A

ISOMETRIC VIEW

OPTION B

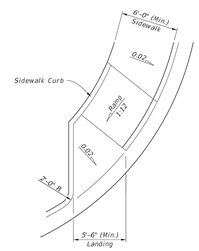
ISOMETRIC VIEW

OPTION A

ISOMETRIC VIEW

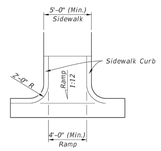
OPTION B

ISOMETRIC VIEW



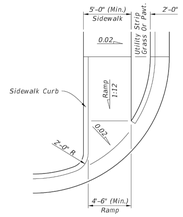
PLAN VIEW

CR-D



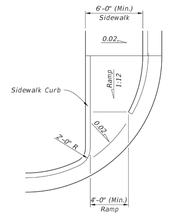
PLAN VIEW

CR-E



PLAN VIEW

CR-F

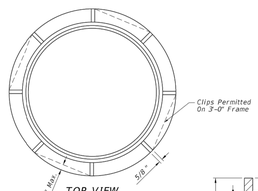


PLAN VIEW

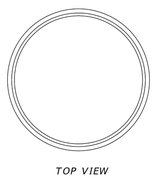
CR-G

SIDEWALK CURB RAMPS CR-D, CR-E, CR-F & CR-G

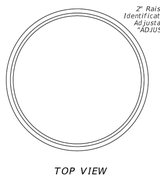
LAST REVISION 11/01/16	DESCRIPTION:	FDOT	FY 2017-18 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 4 of 8



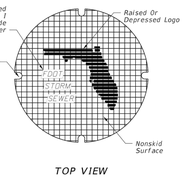
TOP VIEW



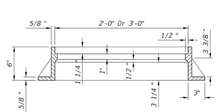
TOP VIEW



TOP VIEW



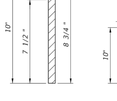
TOP VIEW



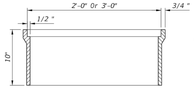
SECTION

For Manholes

TYPE I



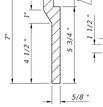
WALL SECTION



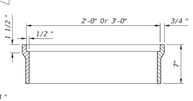
SECTION

For Curb Inlets Types 1, 2, 3, & 4

TYPE II



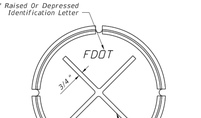
WALL SECTION



SECTION

For Curb Inlets Types 7 & 8

TYPE III



BOTTOM VIEW

WEIGHT OF CASTINGS (lb)						
Frame Type	2' OPENING		3' OPENING			
	Frame	Cover (Std.)	Frame	2-Piece Cover		
				Inside	Outside	Total
I *	155	190	220	190	220	410
II	145	190	255	190	220	410
III	90	190	180	190	220	410

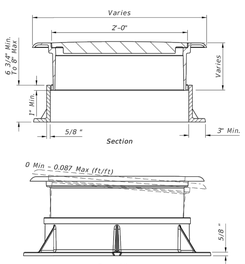
* Includes Type I Adjustable

NOTES (FRAMES, AND COVER)

1. The standard cover is to be used for all frames Types I, II, III and the 2-piece cover, and is the replacement cover for all previous frames with 1½" deep seats (traffic type). The 185 lb. cover (nontraffic type), 1984 Roadway and Traffic Design Standards Index No. 201, is the replacement cover for existing frames with ½" deep seats. Installation of frame with ½" deep seats is not permitted.
2. Use the 2'-0" cover, unless the 2-piece cover is called for in the plans, except at inlets and manholes with sump bottoms use the 2-piece cover when the sump depth exceeds 2', unless otherwise noted.

DESIGNER NOTE:

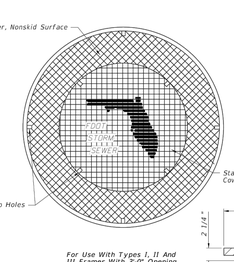
Consider using the 2-piece cover where depths exceed 5' and manual entry may be required for cleaning. Clearly note the requirement for a 2-piece cover, on the Drainage Structure sheets in the plans.



Section

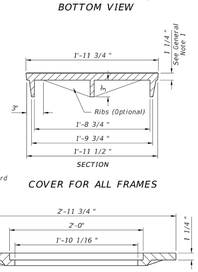
Front View

TYPE I ADJUSTABLE



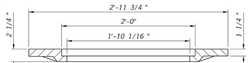
For Use With Types I, II And III Frames With 3'-0" Opening

2-PIECE COVER



SECTION

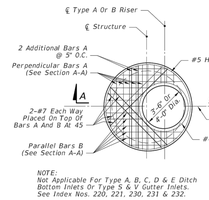
COVER FOR ALL FRAMES



2-PIECE COVER

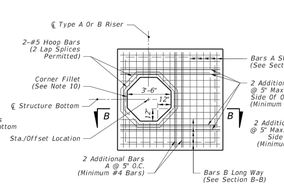
SUPPLEMENTARY DETAILS FOR MANHOLES & INLETS

LAST REVISION 01/01/12	DESCRIPTION:	FDOT	FY 2017-18 DESIGN STANDARDS	SUPPLEMENTARY DETAILS FOR MANHOLES & INLETS	INDEX NO. 201	SHEET NO. 1 of 5

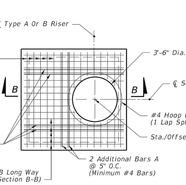


NOTE:
Not Applicable For Type A, B, C, D & E Ditch Bottom Inlets Or Type S & V Gutter Inlets. See Index Nos. 220, 221, 230, 231 & 232.

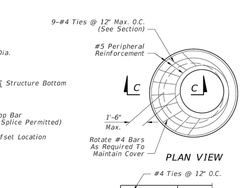
TOP SLAB REINFORCING STEEL DIAGRAM
(ALTERNATE A)



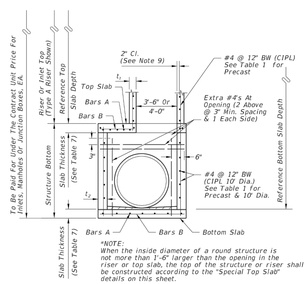
SQUARE OPENING WITH CORNER FILLETS
TOP SLAB REINFORCING STEEL DIAGRAM
(ALTERNATE B)



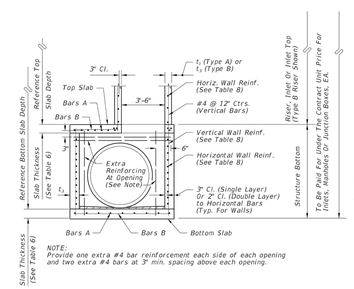
ROUND RISER OPENING



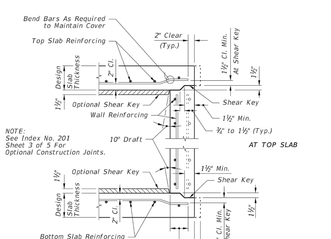
SECTION C-C
SPECIAL TOP SLAB*



SECTION A-A
(ALTERNATE A)

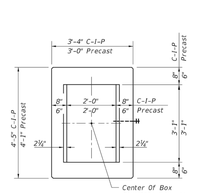


SECTION B-B
(ALTERNATE B)

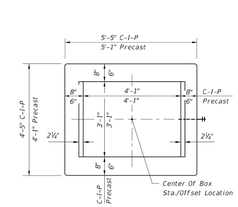


TYPICAL SLAB TO WALL DETAILS
FOR PRECAST STRUCTURES

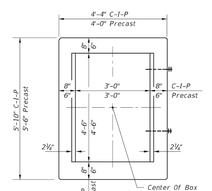
LAST REVISION 11/01/16	DESCRIPTION:	FDOT	FY 2017-18 DESIGN STANDARDS	STRUCTURE BOTTOMS TYPE J AND P	INDEX NO. 200	SHEET NO. 1 of 5



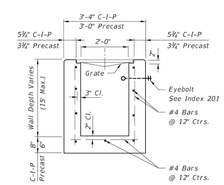
PLAN



PLAN



PLAN



SECTION

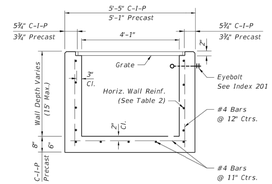
HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 1)

WALL DEPTH	SCHEDULE	AREA (in²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-15'	A12	0.20	12"	8"

TYPE C

Recommended Maximum Pipe Size:

2'-0" Wall - 18" Pipe
3'-1" Wall - 24" Pipe (18" where an 18" pipe enters a 2'-0" wall)



SECTION

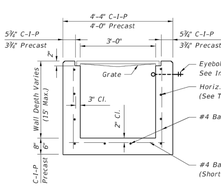
HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 2)

WALL DEPTH	SCHEDULE	AREA (in²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-6"	A12	0.20	12"	8"
6'-10"	A6	0.20	6"	5"
10'-13'	A4	0.20	4"	3"
10'-15'	B5.5	0.24	5½"	5"

TYPE D

Recommended Maximum Pipe Size:

3'-1" Wall - 24" Pipe
4'-1" Wall - 36" Pipe



SECTION

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 3)

WALL DEPTH	SCHEDULE	AREA (in.²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-5'	A12	0.20	12"	8"
0'-7.5'	A6	0.20	6"	5"
7.5'-10'	B5.5	0.24	5½"	5"
10'-15'	C6.5	0.37	6½"	6"

TYPE E

Recommended Maximum Pipe Size:

3'-0" Wall - 24" Pipe
4'-6" Wall - 36" Pipe

DITCH BOTTOM INLET TYPES C, D, E AND H

LAST REVISION 11/01/16	DESCRIPTION:	FDOT	FY 2017-18 DESIGN STANDARDS	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO. 232	SHEET NO. 1 of 7

GS&P
Design Services For The Built Environment
Atlanta GA, Birmingham AL, Cincinnati OH, Columbus OH, Dallas TX, Ft Lauderdale FL, Jackson MS, Jacksonville FL, Knoxville TN, Louisville KY, Memphis TN, Nashville TN, Richmond VA, Tallahassee FL, Tampa FL

GRESHAM SMITH AND PARTNERS
Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838
FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.3275450
Certicate of Authorization Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND LICENSE No. 56841 6/25/2018 STATE OF FLORIDA PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

SITE DETAILS

C701

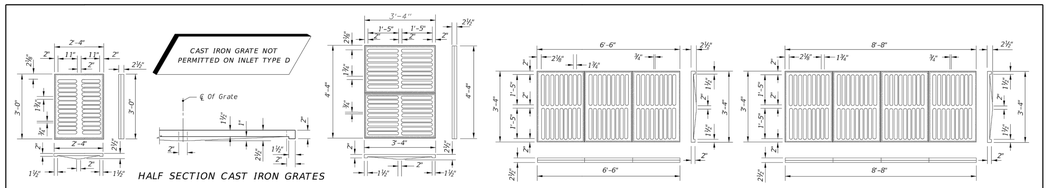
PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:40:12 PM \\vhb\depts\Tampa\LD\Business Development\Projects\Heart of Florida\civil\sd\Plansset\C7 0 - SITE DETAILS.dwg

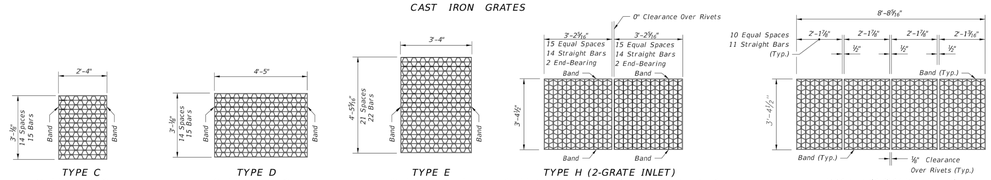
Drawn By:

Checked By:

Approved By:



CAST IRON GRATES



TYPE C
Straight Bars 2"x ⅜"
Reticuline Bars 1½" x ⅜₁₆"
Bands 2" x ½"
Approx. Weight 104 Lbs.

TYPE D
Straight Bars 2" x ½"
Reticuline Bars 1½" x ⅜₁₆"
Bands 2" x ½"
Approx. Weight 190 Lbs.

TYPE E
Straight Bars 2" x ½"
Reticuline Bars 1½" x ⅜₁₆"
Bands 2" x ½"
Approx. Weight 215 Lbs.

TYPE H (2-GRATE INLET)
Straight End-Bearing Bars 2" x ⅜"
Straight Bearing Bars 2" x ½"
Reticuline Bars 1½" x ⅜₁₆"
Banding Bars 2" x ½"
Approx. Total Weight 310 Lbs.

TYPE H (4-GRATE INLET)
Straight End-Bearing Bars 2" x ½"
Reticuline Bars 1½" x ⅜₁₆"
Banding Bars 2" x ⅜₁₆"
Approx. Total Weight 388 Lbs.

STEEL GRATES

NOTE: Steel Grates Are Required On Inlets With Traversable Slots And On Inlets where Bicycle Traffic Is Anticipated.

GENERAL NOTES

1. These inlets are suitable for bicycle traffic and are to be used in ditches, medians and other areas subject to infrequent traffic loadings but are not to be placed in areas subject to any heavy wheel loads. These inlets may be placed in areas subject to occasional pedestrian traffic such as landscaped areas and pavement areas where pedestrians can walk around the inlet.
2. Inlets subject to minimal debris should be constructed without slots. Where debris is a problem inlets should be constructed with slots. Slotted inlets located within roadway clear zones and areas subject to pedestrians shall have traversable slots. The traversable slot modification is not adaptable to inlet Type H. Slots may be constructed at either or both ends as shown on plans. Traversable slots shall not be used in areas subject to occasional bicycle traffic.
3. Steel grates are to be used on all inlets where bicycle traffic is anticipated. Steel grates are to be used on all inlets with traversable slots. Either cast iron or steel grates may be used on inlets without slots where bicycle traffic is not anticipated. Either cast iron or steel grates may be used on all inlets with non-traversable slots. Subject to the selection described above, when Alternate G grate is specified in the plans, either the steel grate, hot dip galvanized after fabrication, or the cast iron grate may be used, unless the plans stipulate the particular type.
4. Recommended maximum pipe sizes shown are for concrete pipe. Size for other types of pipe must be checked for fit.
5. All exposed edges and corners shall be ⅜" chamfer or tooled to ½" radius.
6. Concrete inlet pavement to be used on inlets without slots and inlets with non-traversable slots only when called for in the plans; but required on all traversable slot inlets. Cost to be included in contract unit price for inlets. Quantities shown are for information only.
7. Traversable slots constructed in existing inlets shall be paid for as inlets partial. For conversion work and method of payment see 'TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS'.
8. Sodding to be used on all inlets not located in paved areas and paid for under contract unit price for Performance Turf, ST.
9. For supplementary details see Index No. 201.
10. All reinforcing is Grade 60 bars with 2" min. cover unless otherwise noted. Bars to be cut or bent for 1½" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.

LAST REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO.	SHEET NO.
07/01/10				232	3 of 7

DIMENSIONS AND QUANTITIES

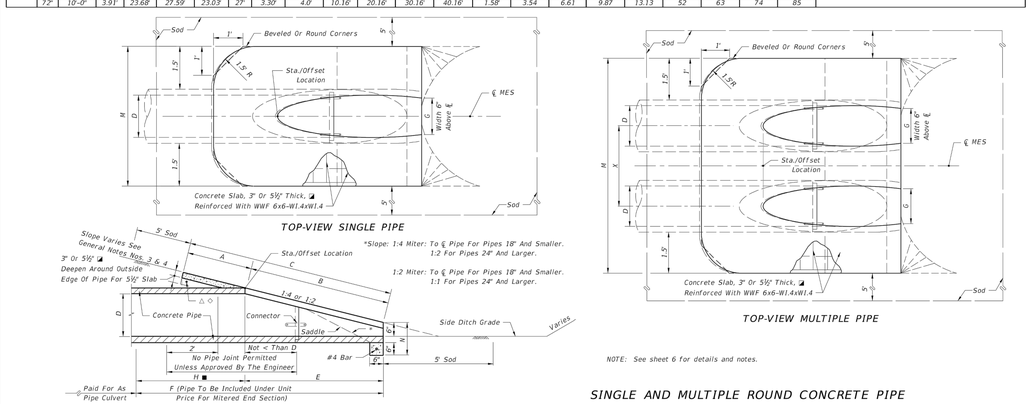
	D	X	A	B	C	E	F	G	H ■	M Single Pipe	M Double Pipe	M Triple Pipe	M Quad. Pipe	N	5½" CONCRETE SLAB (CY) ◪ Single Pipe	5½" CONCRETE SLAB (CY) ◪ Double Pipe	5½" CONCRETE SLAB (CY) ◪ Triple Pipe	5½" CONCRETE SLAB (CY) ◪ Quad. Pipe	SODDING (SY) Single Pipe	SODDING (SY) Double Pipe	SODDING (SY) Triple Pipe	SODDING (SY) Quad. Pipe
1:2 Slope	15"	2'-2"	1.92'	2.18'	4.10'	2.06'	5'	1.22'	2.9'	4.63'	7.21'	9.79'	12.37'	1.19'	0.38	0.58	0.77	0.96	21	24	27	30
	18"	2'-10"	1.97'	2.74'	4.71'	2.56'	6'	1.41'	3.4'	4.92'	7.75'	10.58'	13.42'	1.21'	0.44	0.65	0.87	1.09	22	25	28	31
	24"	3'-5"	2.06'	3.85'	5.91'	3.56'	7'	1.73'	3.4'	5.50'	8.92'	12.33'	15.75'	1.25'	0.54	0.83	1.12	1.42	24	28	32	35
	30"	4'-3"	2.15'	4.95'	7.10'	4.56'	8'	2.00'	3.4'	6.08'	10.33'	14.58'	18.83'	1.29'	0.66	1.09	1.50	1.91	26	31	35	40
	36"	5'-1"	2.25'	6.08'	8.33'	5.56'	9'	2.24'	3.4'	6.67'	11.75'	16.83'	21.92'	1.33'	0.81	1.36	1.95	2.51	28	34	39	45
	42"	6'-0"	2.34'	7.21'	9.55'	6.56'	10'	2.45'	3.4'	7.25'	13.25'	19.25'	25.25'	1.38'	0.97	1.70	2.45	3.19	30	37	43	50
	48"	6'-9"	2.43'	8.33'	10.76'	7.56'	11'	2.65'	3.4'	7.83'	14.58'	21.33'	28.08'	1.42'	1.13	2.04	2.93	3.84	32	39	47	54
	54"	7'-8"	2.52'	9.44'	11.96'	8.56'	12'	2.83'	3.4'	8.42'	16.08'	23.75'	31.42'	1.46'	1.31	2.44	3.58	4.72	34	42	51	59
	60"	8'-6"	2.62'	10.56'	13.18'	9.56'	14'	3.00'	4.4'	9.00'	17.50'	26.00'	34.50'	1.50'	1.51	2.89	4.28	5.68	36	45	55	64
	66"	9'-2"	2.71'	11.68'	14.39'	10.56'	15'	3.18'	4.4'	9.58'	18.75'	27.92'	37.08'	1.54'	1.68	3.25	4.84	6.43	38	48	58	68
	72"	10'-0"	2.80'	12.80'	15.60'	11.56'	16'	3.30'	4.4'	10.16'	20.16'	30.16'	40.16'	1.58'	1.89	3.74	5.59	7.45	40	51	62	73
1:4 Slope	15"	2'-7"	2.27'	4.09'	6.36'	4.07'	8'	1.22'	4.0'	4.63'	7.21'	9.79'	12.37'	1.19'	0.57	0.87	1.15	1.44	23	26	29	32
	18"	2'-10"	2.36'	5.12'	7.48'	5.03'	9'	1.41'	4.0'	4.92'	7.75'	10.58'	13.42'	1.21'	0.66	0.99	1.31	1.65	25	28	31	35
	24"	3'-5"	2.53'	7.18' △	9.71'	7.03' △	11'	1.73'	4.0'	5.50'	8.92'	12.33'	15.75'	1.25'	0.85	1.30	1.75	2.20	28	32	36	40
	30"	4'-3"	2.70'	9.25'	11.95'	9.03'	13'	2.00'	4.0'	6.08'	10.33'	14.58'	18.83'	1.29'	1.10	1.74	2.39	3.05	31	36	41	46
	36"	5'-1"	2.87'	11.31' ◇	14.18'	11.03' ◇	15'	2.24'	4.0'	6.67'	11.75'	16.83'	21.92'	1.33'	1.32	2.21	3.08	3.96	34	40	46	52
	42"	6'-0"	3.05'	13.37'	16.42'	13.03'	17'	2.45'	4.0'	7.25'	13.25'	19.25'	25.25'	1.38'	1.58	2.76	3.91	5.09	38	44	51	58
	48"	6'-9"	3.22'	15.43'	18.65'	15.03'	19'	2.65'	4.0'	7.83'	14.58'	21.33'	28.08'	1.42'	1.85	3.30	4.73	6.17	41	48	56	63
	54"	7'-8"	3.39'	17.49'	20.88'	17.03'	21'	2.83'	4.0'	8.42'	16.08'	23.75'	31.42'	1.46'	2.14	3.95	5.77	7.58	44	52	61	69
	60"	8'-6"	3.56'	19.55'	23.11'	19.03'	23'	3.00'	4.0'	9.00'	17.50'	26.00'	34.50'	1.50'	2.45	4.66	6.87	9.07	47	56	66	75
	66"	9'-2"	3.73'	21.62'	25.35'	21.03'	25'	3.18'	4.0'	9.58'	18.75'	27.92'	37.08'	1.54'	2.88	5.54	8.18	10.84	49	59	69	80
	72"	10'-0"	3.91'	23.68'	27.59'	23.03'	27'	3.30'	4.0'	10.16'	20.16'	30.16'	40.16'	1.58'	3.54	6.61	9.87	13.13	52	63	74	85

◪ See General Note No. 5. See Sheet 5 For 3" Slab Quantities

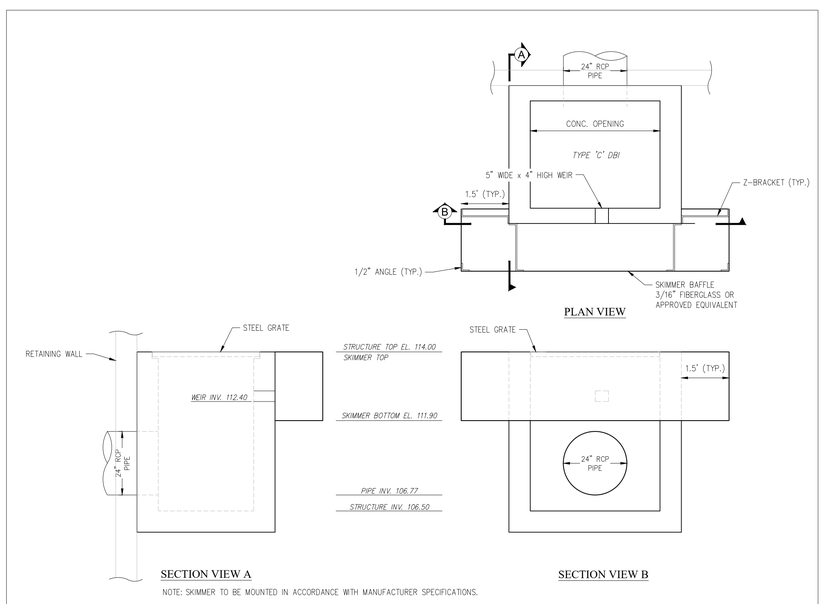
■ Values shown for estimating pipe quantities and are for information only.

B	E	
△ 6.42'	△ 6.25'	Dimensions permitted to allow use of 8' standard pipe lengths.
◇ 10.40'	◇ 10.10'	Dimensions permitted to allow use of 12' standard pipe lengths.

△ ◇ Concrete slab shall be deepened to form bridge across crown of pipe. See section below.



LAST REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	CROSS DRAIN MITERED END SECTION	INDEX NO.	SHEET NO.
11/01/16				272	1 of 6



Control Structure CS-1

N.T.S.

6/25/2018 1:40:15 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\cadd\d\Plansets\C7.0 - SITE DETAILS.dwg

G S & P

Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS

Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838

FIRM'S FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND LICENSE No. 56841 6/25/2018 STATE OF FLORIDA PROFESSIONAL ENGINEER

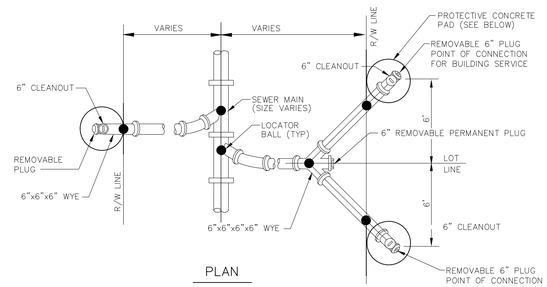
Revision		
No.	Date	Description

SITE DETAILS

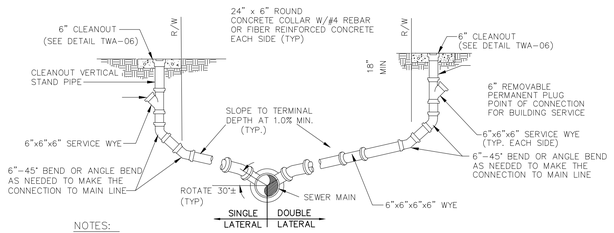
C702

PROJECT: 40214.02
DATE: 05/17/2017

Drawn By:
Checked By:
Approved By:



PLAN

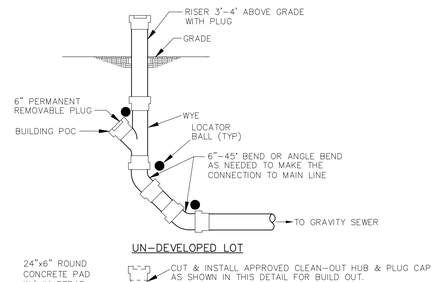


NOTES:

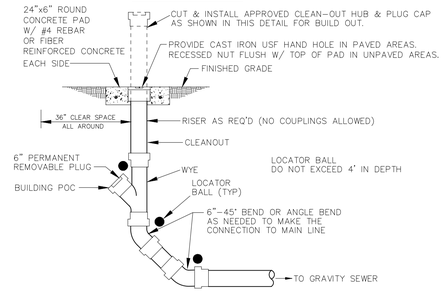
1. LOCATE SINGLE LATERAL WITHIN 24" OF LOT LINE.
2. SERVICE LATERALS SHALL BE 6" MINIMUM DIAMETER.
3. BENDS SHALL BE 45° MAXIMUM.
4. RECONNECT ANY EXISTING SERVICES.
5. LENGTH OF SERVICE LATERALS SHALL BE 100' OR LESS.
6. SERVICE WYE, AT CLEANOUT, SHALL HAVE A MINIMUM OF 24" AND A MAXIMUM OF 48" COVER AT R/W TIE-IN.
7. ETCH CURB WHERE LATERAL CROSSES BENEATH CURB WITH "S".
8. 90° CONNECTIONS ARE NOT ALLOWED.
9. SERVICE LATERAL, WYE & CLEANOUT RISER WITH CAP TO BE INSTALLED BY LICENSED UTILITY CONTRACTOR. CLEANOUTS TO BE INSTALLED BY PLUMBER AT FINISHED GRADE.
10. ALL COMMERCIAL AND RESIDENTIAL LATERALS SHALL HAVE 6" CLEANOUTS.
11. THE SITE DEVELOPER SHALL LEAVE THE CLEANOUT RISER 3'-4' ABOVE GRADE AND IT SHALL REMAIN SO UNTIL LOT BUILD OUT. THE RISER SHALL THEN BE CUT WITH CLEAN-OUT HUB AND PLUG INSTALLED AT FINISHED GRADE WITH A CONCRETE PAD, PER TWA-06 DETAIL.
12. CLEAN-OUTS SHALL NOT BE PLACED WITHIN A PUBLIC ROW OR PUBLIC SIDEWALK.
13. ANY PIPING USED TO CONNECT BUILDING SHALL NOT GO VERTICAL WITHIN (36") INCHES OF TWA VERTICAL PIPE TO CLEAN-OUT HUB & PLUG.
14. CLEANOUTS SHALL NOT BE PLACED IN SIDEWALKS.
15. CLEANOUT DENOTES THE END OF TWA MAINTENANCE RESPONSIBILITY.
16. LOCATOR BALLS ARE REQUIRED AT ALL FITTINGS, DO NOT EXCEED 4' IN DEPTH.
17. CONNECTIONS TO THE CLEAN-OUTS VERTICAL STAND PIPE SHALL NOT BE PERMITTED.

SANITARY SEWER LATERAL DETAILS

TWA-05
2017



UN-DEVELOPED LOT



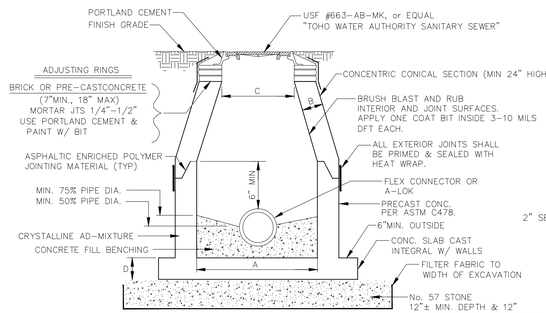
LOT BUILD OUT

NOTE:

1. THE SITE DEVELOPER SHALL LEAVE THE CLEANOUT RISER 3'-4' ABOVE GRADE AND IT SHALL REMAIN SO UNTIL LOT BUILD OUT. THE RISER SHALL THEN BE CUT AND A CLEAN-OUT HUB AND PLUG INSTALLED AT FINISHED GRADE WITH A CONCRETE PAD.
2. ALL CLEANOUTS AND CONCRETE PADS TO BE FLUSH WITH FINISH GRADE.
3. UTILITY CONTRACTOR TO INSTALL & PRESSURE TEST WYE AND INSTALL CLEANOUT RISER. INSTALL CLEANOUT AND CONCRETE PAD AT LOT BUILDOUT.
4. ETCH CURB WITH 3 INCH "S" WHERE LATERAL CROSSES UNDER CURB.
5. ALL LATERALS SHALL HAVE 6" CLEANOUTS.
6. MAINTAIN A MINIMUM OF 3' CLEARANCE FREE OF ALL PLANTINGS & STRUCTURES AROUND CLEANOUT.
7. CLEANOUT CAPS SHALL BE SLOTTED OR HAVE A RECESSED NUT.
8. CONNECTIONS TO THE CLEAN-OUTS RISER PIPE SHALL NOT BE PERMITTED.
9. ANY PIPING USED TO CONNECT BUILDING SHALL NOT GO VERTICAL WITHIN (36") INCHES OF TWA VERTICAL PIPE TO CLEAN-OUT HUB & PLUG.
10. LOCATOR BALLS DO NOT EXCEED 4' IN DEPTH.

SANITARY CLEANOUT DETAIL

TWA-06
2017



NOTES:

1. PRECAST CONCRETE SHALL BE TYPE 2 CEMENT 4000 PSI
2. LIFT HOLES NOT PERMITTED THROUGH PRECAST SECTIONS.
3. ALL OPENINGS SHALL BE SEALED WITH PORTLAND CEMENT.
3A. IF A-LOK CONNECTOR IS USED DO NOT GROUT CONNECTION AT MANHOLE.
4. INSTALL FLOW CHANNEL INSIDE MANHOLES.
5. SERVICE LATERALS SHALL BE PERMITTED DIRECTLY INTO MANHOLES MATCHING CROWN ELEV. OF OUTFLOW PIPE ONLY. NO DROPS OR FILLETED FLUMES.
6. REINFORCING STEEL PER ASTM C478-CURRENT ADDITION.
7. PROVIDE 5' x 5' x 12" CONCRETE COLLAR AROUND COVER FRAME, W/4 #4 REBAR E.W., IN UNPAVED AREAS WHERE CURBS OR OTHER TRAFFIC BARRIERS DO NOT PROVIDE 100% PROTECTION FROM VEHICULAR TRAFFIC OR FUTURE CONSTRUCTION. SLOPE TOP OF CONCRETE AWAY FROM COVER FRAME PER TWA DETAIL 26.
8. MIN. 12" BETWEEN WALL PENETRATIONS.
9. MIN. 50% UNINTERRUPTED WALL AREA ON ANY HORIZONTAL PLANE.
10. INTERIOR LIFT RING PENETRATIONS REMOVED & GROUTED PRIOR TO PAINTING.
11. MANHOLES THAT RECEIVE FORCEMAINS, LIFT STATION JUNCTION MANHOLES, DROP CONNECTION MANHOLES AND ANY MANHOLE WITHIN 400' UPSTREAM AND DOWNSTREAM OF THESE MANHOLES SHALL REQUIRE A TWA APPROVED LINING SYSTEM.
12. CONNECTIONS FROM 0.3"-1.9' ABOVE OUTFLOW INVERT SHALL HAVE CONVERGING FLUME BUILD.

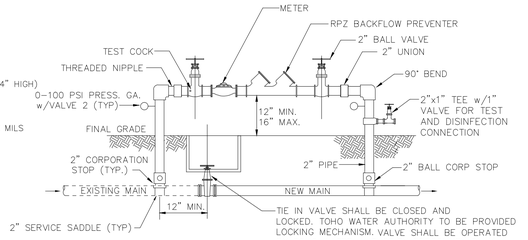
M.H. DEPTH	A*	B	C	D
UP TO 11.99'	48"	6"	36"	8"
>12', < 17.99'	60"	8"	36"	10"
18' & DEEPER	** 72"	8"	36"	14"

*ENTIRE DEPTH EXCEPT CONE.
** CONCENTRIC FLAT SLAB TRANSITION TO CONE SECTION IS ACCEPTABLE.

MANHOLE SIZE:
(UP TO 12" PIPE = 48" ø), (UP TO 24" PIPE = 60" ø), (OVER 24" PIPE = 72" ø).

STANDARD MANHOLE DETAIL

TWA-07
2017



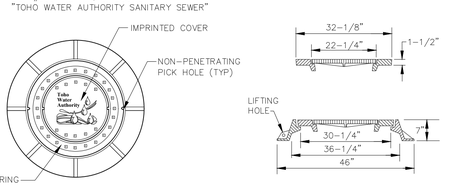
NOTES

1. PROVIDE TEMPORARY PIPE SUPPORTS AS REQUIRED
2. DO NOT USE GALVANIZED PIPE OR ACCESSORIES

1. A TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS.
2. THE DETAIL SHOWN IS TO BE USED FOR FILLING ANY NEW WATER MAIN OF ANY SIZE FROM EXISTING ACTIVE WATER MAINS AND FOR FLUSHING OF NEW MAINS UP TO 8" DIAMETER (2.5 FPS MIN. VELOCITY) AND FOR PULLING BACTERIOLOGICAL SAMPLES FROM ANY NEW WATER MAIN OF ANY SIZE. THE JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER FILLING, FLUSHING, TESTING AND DISINFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) AND OTHER PERTINENT AGENCIES HAS BEEN RECEIVED. PIPE AND FITTINGS USED FOR CONNECTION OF THE NEW PIPE TO THE EXISTING PIPE SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, CURRENT EDITION. SWAB OR SPRAY THE EXTERIOR OF THE MAIN TO BE TAPPED AND THE TAPPING SADDLE WITH 1% HYPOCHLORITE SOLUTION.
3. THE CONTRACTOR SHALL EITHER PROVIDE DOCUMENTATION DEMONSTRATING THAT RPZ BACKFLOW PREVENTION DEVICE HAS BEEN TESTED AND IS IN GOOD WORKING ORDER AT TIME OF INSTALLATION.
4. ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTIONS DEVICE, FITTINGS AND VALVES, ETC., SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. ABANDONED JUMPER CONNECTION POINTS MUST BE INCLUDED IN THE RECORD DRAWINGS.

TEMPORARY JUMPER CONNECTION

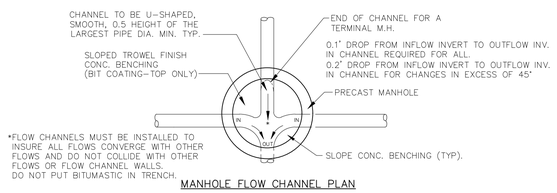
TWA-30
2017



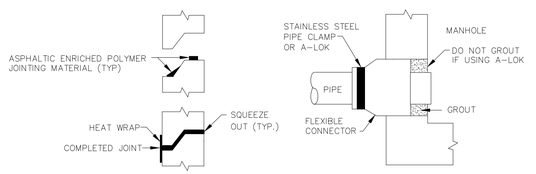
PLAN VIEW

SECTION

FRAME AND COVER DETAILS



MANHOLE FLOW CHANNEL PLAN



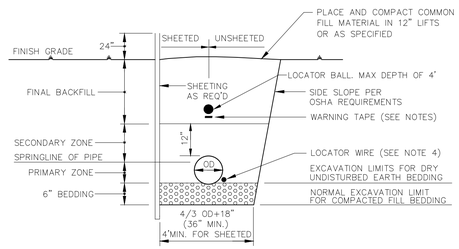
MANHOLE JOINT DETAIL

FLEXIBLE CONN. DETAIL

1. ALL EXTERIOR JOINTS SHALL BE SEALED.
2. TRIM EXCESS JOINT COMPOUND FROM INTERIOR WALLS.
3. MANHOLES THAT RECEIVE FORCEMAINS, LIFT STATION JUNCTION MANHOLES, DROP CONNECTION MANHOLES AND ANY MANHOLE WITHIN 400' UPSTREAM AND DOWNSTREAM OF THESE MANHOLES SHALL REQUIRE A TWA APPROVED LINING SYSTEM.
4. CONNECTIONS TO BRICK MANHOLES SHALL BE COMPLETED UTILIZING SDR 35/26 SAND COLLAR AND 4000 PSI CONCRETE.
5. A-LOK CONNECTORS SHALL BE GROUTED FROM SPRINGLINE OF PIPE DOWN ONLY.

MISCELLANEOUS MANHOLE DETAILS

TWA-08
2017



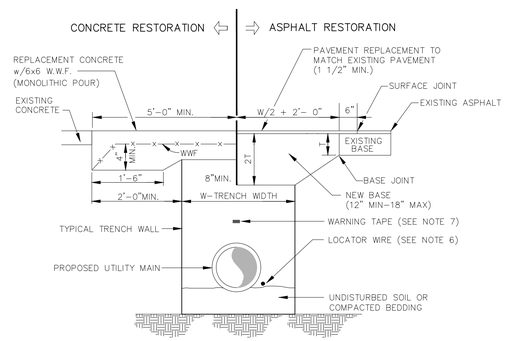
SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTES:

1. BEDDING SHALL BE No. 57 CRUSHED STONE, IF EARTH BEDDING IS YIELDING.
2. PRIMARY AND SECONDARY ZONES SHALL BE INDIVIDUALLY COMPACTED LAYERS OF CLEAN FILL.
3. COMPACTION OF BACKFILL BENEATH STRUCTURES, PAVING AND PARKWAYS, SHALL BE 98% OF AASHTO T-180; ALL OTHER COMPACTION SHALL BE 95%, EXCEPT AS OTHERWISE REQUIRED BY PERMITTING AUTHORITY.
4. INSTALL CONTINUOUS 14 GAUGE INSULATED COPPER WIRE FOR ALL PIPE, EXCEPT GRAVITY SEWERS. TERMINATE THESE LOCATOR WIRES AT TOP OF EACH VALVE PAD WITH 12" OF EXTRA WIRE. CONNECT SPLICED WIRES WITH WIRE NUTS AND SEAL IN WATER-TIGHT SILICONE FILLED JACKET.
5. PLACE APPROVED METALLIC PRINTED WARNING TAPE 12"-18" ABOVE PIPE.
6. SIDE SLOPE AND BENCH PER OSHA REQUIREMENTS.
7. PLACE SEWER LOCATOR BALLS PER TWA-05. DO DOT EXCEED 4' OF DEPTH.

TYPICAL PIPE TRENCH SECTION

TWA-14
2017



TYPICAL SECTION

NOTES:

1. SURFACE AND BASE CUTS SHALL BE SAW-CUT.
2. LONGITUDINAL OR DIAGONAL CUTS REQUIRE OVERLAY/RESURFACING COMPLETE WIDTH OF ROAD.
3. CUTS AT INTERSECTIONS REQUIRE COMPLETE OVERLAY/RESURFACING TO END OF ALL RETURN TURNOUTS AND/OR 10FT. BEYOND CUT, WHICHEVER IS GREATER.
4. CUTS THROUGH TURNOUTS AND CUL-DE-SACS REQUIRE OVERLAY/RESURFACING.
5. COMPACTION OF BACKFILL SHALL BE 98% OF AASHTO T-180.
6. INSTALL CONTINUOUS 14 GA. INSULATED COPPER WIRE FOR OF ALL PIPE, EXCEPT GRAVITY SEWERS. TERMINATE THESE LOCATOR WIRES AT TOP OF EACH VALVE PAD w/12" OF EXTRA WIRE. CONNECT SPLICED WIRES WITH WIRE NUTS AND SEAL IN WATER-TIGHT SILICONE FILLED JACKET.
7. PLACE APPROVED METALLIC PRINTED WARNING TAPE 12"-18" ABOVE PIPE.
8. SIDE SLOPE AND BENCH PER OSHA REQUIREMENTS.
9. PUBLIC ROADS SHALL MEET THE REQUIREMENTS OF THE MUNICIPAL OWNER.

OPEN CUT DETAIL (PRIVATE ROADS)

TWA-15
2017

G S & P

Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS
Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838
FIRM'S FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT
US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

UTILITY DETAILS

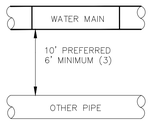
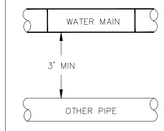
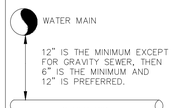
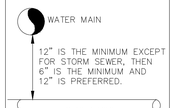
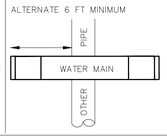
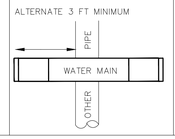
C703

PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:40:22 PM \\vhbdepfs\Tampa\LD\Business Development\Projects\Heart of Florida\acad\pl\Planset\C7 2 - UTILITIES DETAILS.dwg

Drawn By:
Checked By:
Approved By:

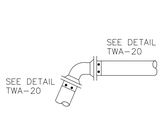
HORIZONTAL & VERTICAL SEPARATION FROM OTHER UTILITIES

OTHER PIPE	(a) GRAVITY OR PRESSURE SANITARY SEWER (b) SANITARY SEWER FORCE MAIN (c) RECLAIMED WATER (4)	(a) STORM SEWER, (b) STORMWATER FORCE MAIN, (c) RECLAIMED WATER (2)	ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM
HORIZONTAL SEPARATION			10' MIN.
CROSSINGS (1)			—
JOINT SPACING AT CROSSINGS (FULL JOINT CENTERED)			—

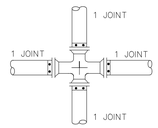
(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
(2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
(3) 3 FT FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
(4) RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

PIPING CLEARANCES

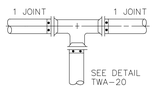
TWA-16
2017



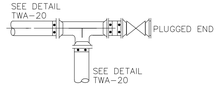
BENDS



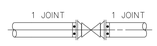
CROSS



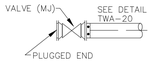
TEE



TEE AND VALVE



IN-LINE VALVE



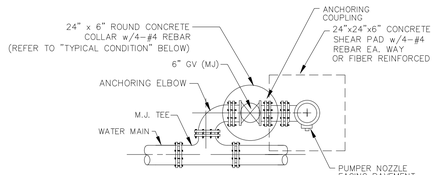
DEAD END
WITH OR WITHOUT BLOW-OFF

NOTES:

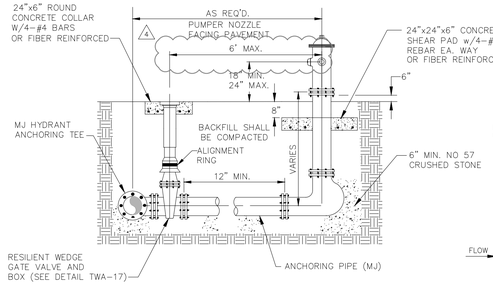
1. MECHANICAL PIPE RESTRAINING SYSTEMS SHALL BE PROVIDED AS STANDARD. THRUST BLOCKING IS NOT SUITABLE EXCEPT AS SPECIFICALLY ALLOWED. WHERE PVCP IS USED PROVIDE PVC/MJ RESTRAINER UNIFLANGE SERIES 1300; EBAA IRON OR EQUAL.
2. ALL MECHANICAL JOINTS AT FITTINGS AND VALVES SHALL BE RESTRAINED.
3. RESTRAIN THROUGH VALVES.

THRUST RESTRAINT DETAILS

TWA-19
2017



LIMITED RIGHT-OF-WAY CONDITION



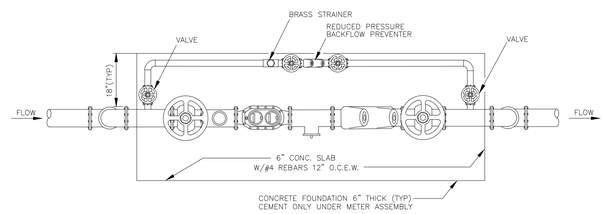
TYPICAL CONDITION

NOTES:

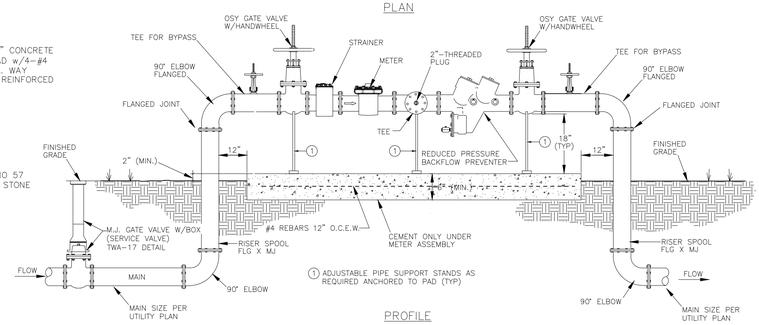
1. FIRE HYDRANT SHALL BE SUPPLIED WITHOUT A WEEP HOLE OR WITH A PERMANENTLY PLUGGED WEEP HOLE.
2. CLEARANCE BETWEEN BOTTOM OF BOLTS AND FINISH GRADE SHALL BE 6" MINIMUM.
3. VALVE SHALL BE INSTALLED PER THE VALVE AND BOX DETAIL (TWA-17).
4. PLANTING CLEAR AREA PER APPLICABLE FIRE CODE.
5. IF HYDRANT IS PLACED MORE THAN 20' FROM THE MAIN, AN ADDITIONAL VALVE SHALL BE REQUIRED IMMEDIATELY UPSTREAM OF THE HYDRANT ASSEMBLY.

FIRE HYDRANT DETAILS

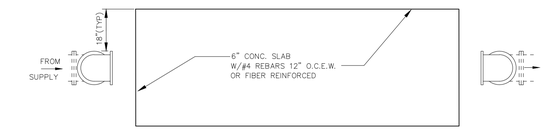
TWA-26
2017



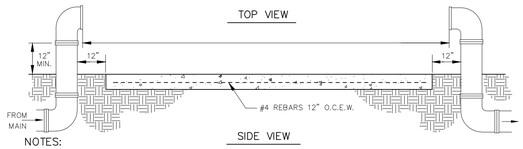
PLAN



PROFILE



TOP VIEW



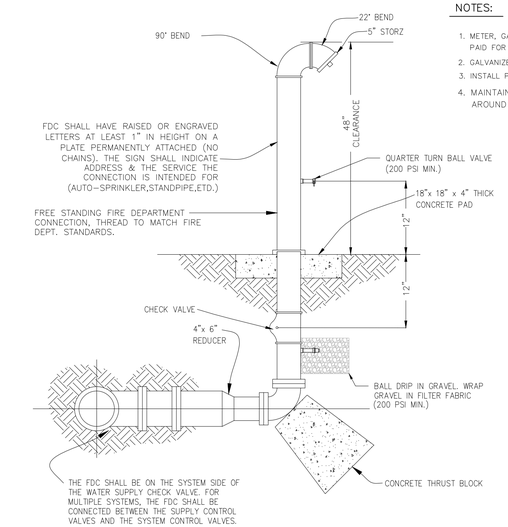
SIDE VIEW

NOTES:

1. METER, GATE VALVES, WYE STRAINER, BACKFLOW ASSEMBLY AND PIPE SUPPORTS WILL BE PAID FOR BY DEVELOPER AND INSTALLED BY CONTRACTOR.
2. GALVANIZED PIPE IS NOT ALLOWED
3. INSTALL PROTECTIVE BOLLARD(S) AS REQUIRD BY TOHO WATER AUTHORITY (SEE DETAIL TWA-28).
4. MAINTAIN A MINIMUM OF 3' CLEARANCE FREE OF ALL PLANTINGS & STRUCTURES AROUND METER/BACKFLOW ASSEMBLY.

TYPICAL WATER SERVICE METER/BACKFLOW ASSEMBLY (3" AND LARGER)

TWA-23
2017

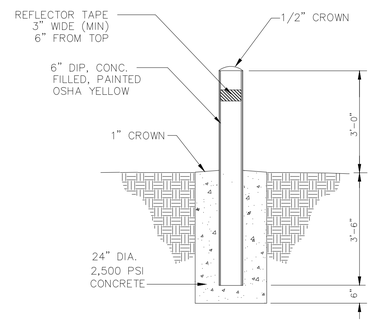


STORZ SPECIFICATION:

STRAIGHT PATTERN STORZ ADAPTER. 4" NPT X 5" STORZ WITH 5" CAP. HARD COATED ALUMINUM CONSTRUCTION AND GALVANIZED STEEL ELBOW.

DRAWING FOR ILLUSTRATION ONLY. MODIFICATION SUBJECT TO THE AUTHORITY HAVING JOURISDICTION APPROVAL

Fire Department Connnection with 5" Storz Connection
NTS



BOLLARD DETAIL

TWA-28
2017

RESTRAINED JOINT TABLE

TWA-20
2017

USE THIS THRUST RESTRAINT TABLE FOR THESE TRENCH CONDITIONS:
-- MIN. 50% SOIL RETAINED ON No. 200 SIEVE.
-- MIN. 95% COMPACTION, AASHTO T-180.
-- MIN. 3' OF COVER.

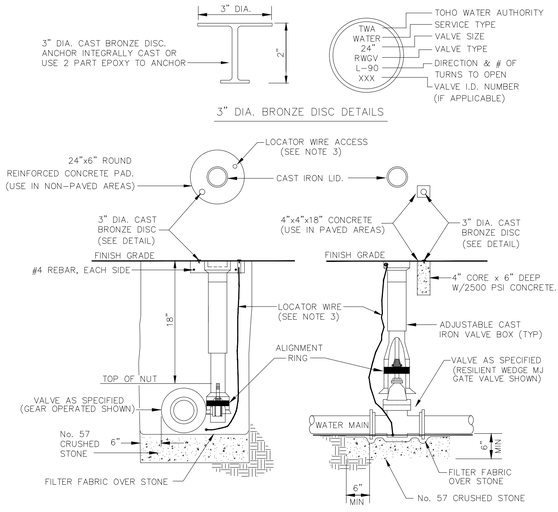
NUMBER OF FULL LENGTH RESTRAINED PIPE SECTIONS REQUIRED AT ALL FITTINGS AND VALVE JOINTS

SIZE	BENDS								VERTICAL BENDS		DEAD END		CROSS OR VALVE		TEE			
	90°		45°		22-1/2°		11-1/4°								RUN		BRANCH	
IN.	100 psi	150 psi	100 psi	150 psi	100 psi	150 psi	100 psi	150 psi	100 psi	150 psi	100 psi	150 psi	100 psi	150 psi	100 psi	150 psi	100 psi	150 psi
4	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	2
6	1	2	1	1	1	1	1	1	1	2	2	3	1	1	1	1	2	2
8	1	2	1	1	1	1	1	1	2	2	2	4	1	1	1	1	2	2
10	2	2	1	1	1	1	1	1	2	2	3	4	1	1	1	1	2	2
12	2	2	1	1	1	1	1	1	2	3	3	5	1	1	1	1	2	2
14	2	3	1	1	1	1	1	1	2	3	4	6	1	1	1	1	2	2
16	2	3	1	1	1	1	1	1	2	3	4	6	1	1	1	2	2	3
18	2	3	1	2	1	1	1	1	3	4	5	7	1	1	1	2	2	3
20	2	3	1	2	1	1	1	1	3	4	5	8	1	1	1	2	2	4
24	3	4	1	2	1	1	1	1	3	4	6	9	1	1	1	3	2	5
30	3	4	2	2	1	1	1	1	4	5	7	10	1	1	2	4	3	7

WHERE CONDITIONS VARY FROM THOSE STATED ABOVE, HAVE A FLORIDA REGISTERED PROFESSIONAL ENGINEER DETERMINE THE REQUIRED RESTRAINED LENGTH OF PIPING.

1. WATER MAIN AND REUSE MAIN TEST PRESSURE 150 psi MINIMUM
2. SANITARY FORCE MAIN PRESSURE PIPE 100 psi MINIMUM.
3. RESTRAIN THROUGH VALVING.
4. ALL FITTINGS AND VALVES SHALL BE RESTRAINED AT LEAST ONE (1) FULL LENGTH OF PIPE IN ALL DIRECTIONS.
5. PRESSURE CONNECTIONS SHALL BE TREATED AS A TEE.

NOTE: THIS TABLE INCLUDES A 1.5 SAFETY FACTOR ABOVE THE LISTED TEST PRESSURES.



3" DIA. BRONZE DISC DETAILS

VALVE BOX IN UNPAVED AREA

VALVE BOX IN PAVED AREA

NOTES:

1. CRUSHED STONE BEDDING 6" MINIMUM BELOW VALVE TO BE COVERED WITH FILTER FABRIC.
2. LOCATOR WIRE ACCESS - IN UNPAVED AREA USE 2" SCH80 PVC, FEMALE ADAPTOR COUPLING AND 2" BRASS PLUG w/RECESSED NUT. TERMINATE INSULATED, SOLID 14 GA. COPPER WIRES AT TOP w/12" OF EXTRA WIRE.
   IN PAVED AREA, TERMINATE SOLID 14 GA. COPPER WIRES INSIDE OF TOP PORTION OF VALVE BOX w/12" OF EXTRA WIRE.
3. MAINTAIN A MINIMUM OF 3' CLEARANCE FREE OF ALL PLANTINGS & STRUCTURES AROUND VALVE BOX.
4. PRIVATELY MAINTAINED WATER SYSTEMS SHALL HAVE "PRIVATE" STAMPED ON BRONZE ID DISC.
5. FIRE LINE VALVES SHALL HAVE "FIRE LINE VALVE" STAMPED ON BRONZE DISC AND VALVE BOX COVER SHALL BE PAINTED RED.
6. OPERATING NUT TO BE BOLTED. SHEER PINS NOT ALLOWED.
7. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION. .
8. SCREW TYPE ADJUSTABLE VALVE BOX ONLY.

VALVE AND BOX DETAILS

TWA-17
2017

G S & P
Design Services For The Built Environment
Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL
GRESHAM SMITH AND PARTNERS
Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838
FIRMS FLORIDA CERT. NO.
AAF000034/CA3806
IB26000797/LC26000381
vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

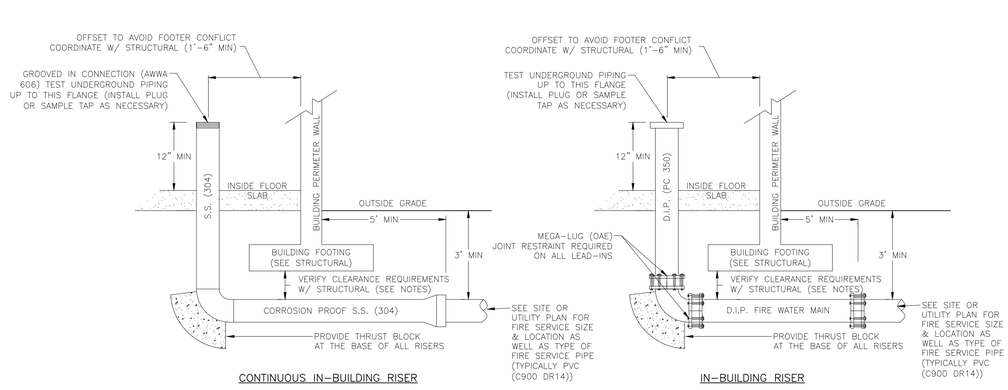
UTILITY DETAILS

C704

PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:40:23 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\cad\dgn\Plansets\C72 - UTILITIES DETAILS.dwg

Drawn By:
Checked By:
Approved By:

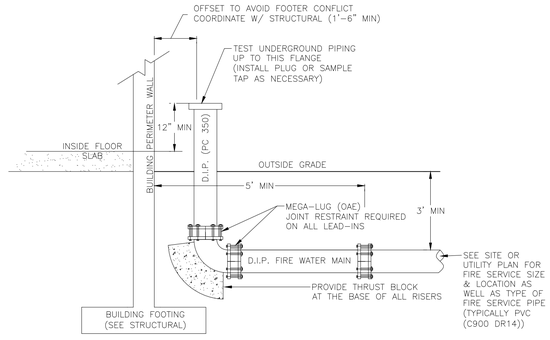


NOTES:

1. CONTRACTOR(S) SHALL ALWAYS ASSURE THAT ALL CONSTRUCTION SHOWN HEREON MEETS THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ), AS MANY FIRE REVIEWERS, INSPECTORS, MARSHALS, ETC. HAVE VARYING REQUIREMENTS, AS ALLOWED IN THE NATIONAL FIRE PROTECTION CODE (NFPA).
2. RESTRAIN ALL JOINTS ON ENTIRE ASSEMBLY SHOWN.
3. RISER SERVICE ASSEMBLY TO MEET F.S. 633.539.
4. ENTIRE ASSEMBLY TO INSTALLED, TESTED, AND FLUSHED AS ONE LINE BY THE SITE CONTRACTOR TO THE FLANGE AS SHOWN.
5. ASSURE NO PIPE JOINTS ARE UNDERNEATH BUILDING FOOTER, PER NFPA 13, 10.6.5.
6. SERVICE MAINS MUST NOT RUN UNDER BUILDING(S) UNLESS SPECIAL PRECAUTIONS ARE TAKEN (I.E., ARCHED FOUNDATION WALLS, COVERED TRENCHING, AND ISOLATION VALVES), PER NFPA 24 10.6 AND NFPA 13 10.6.2. WHERE THE UNDERGROUND PIPING MUST PASS THROUGH THE FOUNDATION TO ATTACH TO THE RISER, PROVIDE CLEARANCE TO PREVENT BREAKAGE OF THE PIPING DUE TO BUILDING SETTLEMENT, PER NFPA 13 9.3.4. ASSURE PIPE OPENINGS ARE THROUGH PIPE SLEEVES FOUR INCHES LARGER THAN THE NOMINAL PIPE DIAMETER AND FILLED WITH ASPHALT MASTIC OR SIMILAR FLEXIBLE WATERPROOFING MATERIAL. CONTRACTOR TO COORDINATE WITH STRUCTURAL ENGINEER AND FIRE PROTECTION ENGINEER AS NECESSARY.

ABBREVIATIONS:

D.I.P. = DUCTILE IRON PIPE, S.S. = STAINLESS STEEL, P.V.C. = POLYVINYL CHLORIDE, P.C. = PRESSURE CLASS



TYPICAL FIRE RISER STUB-UP DETAILS
NTS

G S & P

Design Services For The Built Environment

Atlanta GA Knoxville TN
Birmingham AL Louisville KY
Cincinnati OH Memphis TN
Columbus OH Nashville TN
Dallas TX Richmond VA
Ft Lauderdale FL Tallahassee FL
Jackson MS Tampa FL
Jacksonville FL

GRESHAM SMITH AND PARTNERS

Two Harbour Place
302 Knights Run Avenue
Tampa, FL 33602
Suite 900
813-251-6838

FIRMS FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

vhb.com
vhb
501 E Kennedy Blvd
Suite 1010
Tampa, FL 33602
813.327.5450
Certificate of Authorization
Number FL #3932

CONSTRUCTION DOCUMENTS

CHS HEART OF FLORIDA HOSPITAL

FREE STANDING EMERGENCY DEPARTMENT

US HWY 192
WINTER GARDEN, FL

CONSTRUCTION PLANS

JOHN AUGUST EVELAND
LICENSE
No. 56841
6/25/2018
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Revision		
No.	Date	Description

UTILITY DETAILS

C705

PROJECT: 40214.02
DATE: 05/17/2017

6/25/2018 1:40:28 PM \\vhbdepts\Tampa\LD\Business Development\Projects\Heart of Florida\cad\wf\Planset\C7.2 - UTILITIES DETAILS.dwg

STAFF REPORT DISTRIBUTION LIST

HEART OF FLORIDA HOSPITAL F S E D

Application No: 180625-11

Permit No: 48-01782-P

INTERNAL DISTRIBUTION

X David Melton
X Ratna S. Lee
X Marc S. Ady
X Mark S. Daron, P.E.
X A. Waterhouse, P.E.

EXTERNAL DISTRIBUTION

X Permittee - Haines City H M A L L C
X Engr Consultant - V H B

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 3 - Chelsey Sprouse, FDEP
X Orange County Engineer Public Works Division Dvlpmnt Engineering Dept.
X US Army Corp of Engineers Cocoa Regulatory Field Office

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
STANDARD PERMIT NO. 48-01974-P
DATE ISSUED:November 6, 2012

Form #0941
08/95

PERMITTEE: ORANGE LAKE COUNTRY CLUB INCORPORATED
DEWITT ENTERPRISES INCORPORATED
B L R - 545 L L C
DONALD R AND PATRICIA A ALLEN
THOMAS J AND TAMI G KARR JR
WITHERS INTERESTS NUMBER 1 L L C
WITHERS INTERESTS NUMBER 2 L L C
WITHERS INTERESTS NUMBER 3 L L C
WITHERS INTERESTS NUMBER 4 L L C

(See attached for Permittee addresses)

PROJECT DESCRIPTION: Modification of an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve a 30.39 acre roadway project known as Hartzog Road.

PROJECT LOCATION: ORANGE COUNTY, SEC 28-30 TWP 24S RGE 27E

PERMIT DURATION: See Special Condition No:1. Pursuant to Rule 40E-4.321, Florida Administrative Code.

This is to notify you of the District's agency action concerning Notice of Intent for Permit Application No. 120105-11, dated January 5, 2012. This action is taken pursuant to Rule 40E-1.603 and Chapter 40E-40 , Florida Administrative Code (F.A.C.).

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 19 General Conditions (See Pages : 2 - 4 of 6),
3. the attached 16 Special Conditions (See Pages : 5 - 6 of 6) and
4. the attached 2 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on this 6th day of November, 2012, in accordance with Section 120.60(3), Florida Statutes.

BY:_____
Charles Walter, P.G.
Regulatory Administrator
Orlando Service Center

PERMITTEE ADDRESSES :

Orange Lake Country Club Incorporated
C / O Doreen Varricchio
8505 W Irlo Bronson Memorial Hwy
Kissimmee FL 34747-8201

Dewitt Enterprises Incorporated
14463 W Colonial Dr
Winter Garden FL 34787

B L R - 545 L L C
390 North Orange Ave
Suite 1400
Orlando FL 32801

Donald R And Patricia A Allen
P O Box 135
Windermere FL 34786

Thomas J And Tami G Karr Jr
P O Box 135
Windermere FL 34786

Withers Interests Number 1 L L C
C / O Katherine V Dalton
1066 Lakewood Drive
Lexington KY 40502

Withers Interests Number 2 L L C
C / O Katherine V Dalton
1066 Lakewood Drive
Lexington KY 40502

Withers Interests Number 3 L L C
C / O Katherine V Dalton
1066 Lakewood Drive
Lexington KY 40502

Withers Interests Number 4 L L C
C / O Katherine V Dalton
1066 Lakewood Drive
Lexington KY 40502

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373. F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to

GENERAL CONDITIONS

be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities

GENERAL CONDITIONS

which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on November 6, 2017.

2. Operation of the surface water management system shall be the responsibility of the permittees.

3. Discharge Facilities:

   1-5' W X .5' H RECTANGULAR weir with crest at elev. 114.5' NAVD 88.

   Receiving body : Adjacent Wetlands
   Control elev : 110 feet NAVD 88.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

8. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

9. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

10. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

11. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.

12. The permittee acknowledges that, pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.

13. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, 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

SPECIAL CONDITIONS

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.

14. Minimum road crown elevation: Basin: Basin 1 - 112.20 feet NAVD 88.

15. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 48-01974-P unless otherwise specified herein.

16. Prior to construction of future phases, a permit modification will be required. Plans and calculations shall be submitted to demonstrate compliance with the land use and site grading assumptions made in this application.

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office**. An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

Initiation of an Administrative Hearing

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

Last Date For Agency Action: November 23, 2012

STANDARD ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Hartzog Road

Permit No.: 48-01974-P

Application No.: 120105-11

Application Type: Environmental Resource (General Permit Modification)

Location: Orange County, S28-30/T24S/R27E

Permittee : Orange Lake Country Club Incorporated
Dewitt Enterprises Incorporated
B L R - 545 L L C
Donald R And Patricia A Allen
Thomas J And Tami G Karr Jr
Withers Interests Number 1 L L C
Withers Interests Number 2 L L C
Withers Interests Number 3 L L C
Withers Interests Number 4 L L C

Operating Entity : Permittees

Project Area: 30.39 acres

Project Land Use: Roadway

Drainage Basin: REEDY CREEK

Receiving Body: Adjacent Wetlands **Class:** CLASS III

Special Drainage District: NA

Conservation Easement To District : No
Sovereign Submerged Lands: No

PROJECT PURPOSE:

Modification of an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve a 30.39 acre roadway project known as Hartzog Road.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located north of US192, east of Avalon Road (CR545), and west of SR429 in southwest Orange County.

There are previously permitted surface water management facilities within the project area that will be modified under this application.

There are no wetlands or other surface waters located within or affected by the proposed project.

PROPOSED PROJECT:

Proposed construction consists of modifying the previoiusly permitted suface water management system. Previously permitted Ponds 1 and 2 will be eliminated, and water quality treatment and attenuation that was proposed in these ponds for Basins 1 and 2 will be provided in one wet retention pond (Pond 1, See Exhibit 2, page 6). The wet retention pond is an existing borrow pit. An outfall structure will be added to this borrow pit. Basins 3 and 4 will remain as previously permitted. There are no impacts to the 100-year floodplain proposed with this application.

Water quality treatment for 1 inch over the basin area, with a 50 percent credit for retention, plus 50 percent additional water quality treatment and as a best management practice, will be provided for Basin 1 in Pond 1. The applicant has also provided an analysis showing that the post-develpment phosphorus load will be less than the pre-development phosphorus load.

The operation and maintenance of the surface water management system shall be the responsibility of the owners in accordance with the "Hartzog Road Right of Way Agreement" as previously permitted and included in the permit file. It is the intent of the owners to convey ownership, operation, and mainteance of the road and surface water management system to Orange County in the future.

LAND USE:

Construction

Basin : Basin 1

	This Phase	
Impervious	8.24	acres
Pervious	7.70	acres
Water Mgnt Acreage	14.45	acres
Total:	**30.39**	

WATER QUANTITY :

Discharge Rate :

Pond 1 will not discharge during the design storm.

Discharge Storm Frequency : 25 YEAR-1 DAY Design Rainfall : 8.6 inches

Basin	Allow Disch (cfs)	Method Of Determination	Peak Disch (cfs)	Peak Stage (ft, NAVD 88)
Basin 1	0	On-Site Retention	0	112.6

Road Design :

As shown in the following table and the attached exhibits, minimum road center lines have been set at or above the calculated design storm flood elevation.

Road Storm Frequency : 10 YEAR-1 DAY Design Rainfall: 7.5 inches

Basin	Peak Stage (ft, NAVD 88)	Proposed Min. Road Crown (ft, NAVD 88)
Basin 1	112.2	112.2

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NAVD 88)	WSWT Ctrl Elev (ft, NAVD 88)	Method Of Determination
Basin 1	30.39	110	110.00	Wet Season Soil Borings

Receiving Body :

Basin	Str.#	Receiving Body
Basin 1	Pond 1 Weir	Adjacent Wetlands

Discharge Structures: Note: The units for all the elevation values of structures are (ft, NAVD 88)

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
Basin 1	Pond 1 Weir	1	Rectangular	5'	.5'			114.5 (crest)

WATER QUALITY :

Water quality treatment for 1 inch over the basin area, with a 50 percent credit for retention, plus 50 percent additional water quality treatment and as a best management practice, will be provided for Basin 1 in Pond 1. The applicant has also provided an analysis showing that the post-develpment phosphorus load will be less than the pre-development phosphorus load.

The water quality treatment provided shown is 2.5 inches times the entire basin area, with 50 percent additional water quality treatment. No adverse water quality impacts are anticipated as a result of the proposed project.

Basin	Treatment Method		Vol Req.d (ac-ft)	Vol Prov'd
Basin 1	Treatment	Wet Retention	14.45 acres 1.9	9.5

WETLANDS:

There are no wetlands or other surface waters located within or affected by the proposed project.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that dewatering is not required for construction of this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

N/A

Waste Water System/Supplier:

N/A

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources in the project area or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

DEO/CZM Consistency Review:

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

DIVISION APPROVAL:

NATURAL RESOURCE MANAGEMENT:

DATE: 11/1/12

Marc S. Ady

SURFACE WATER MANAGEMENT:

DATE: 10/31/12

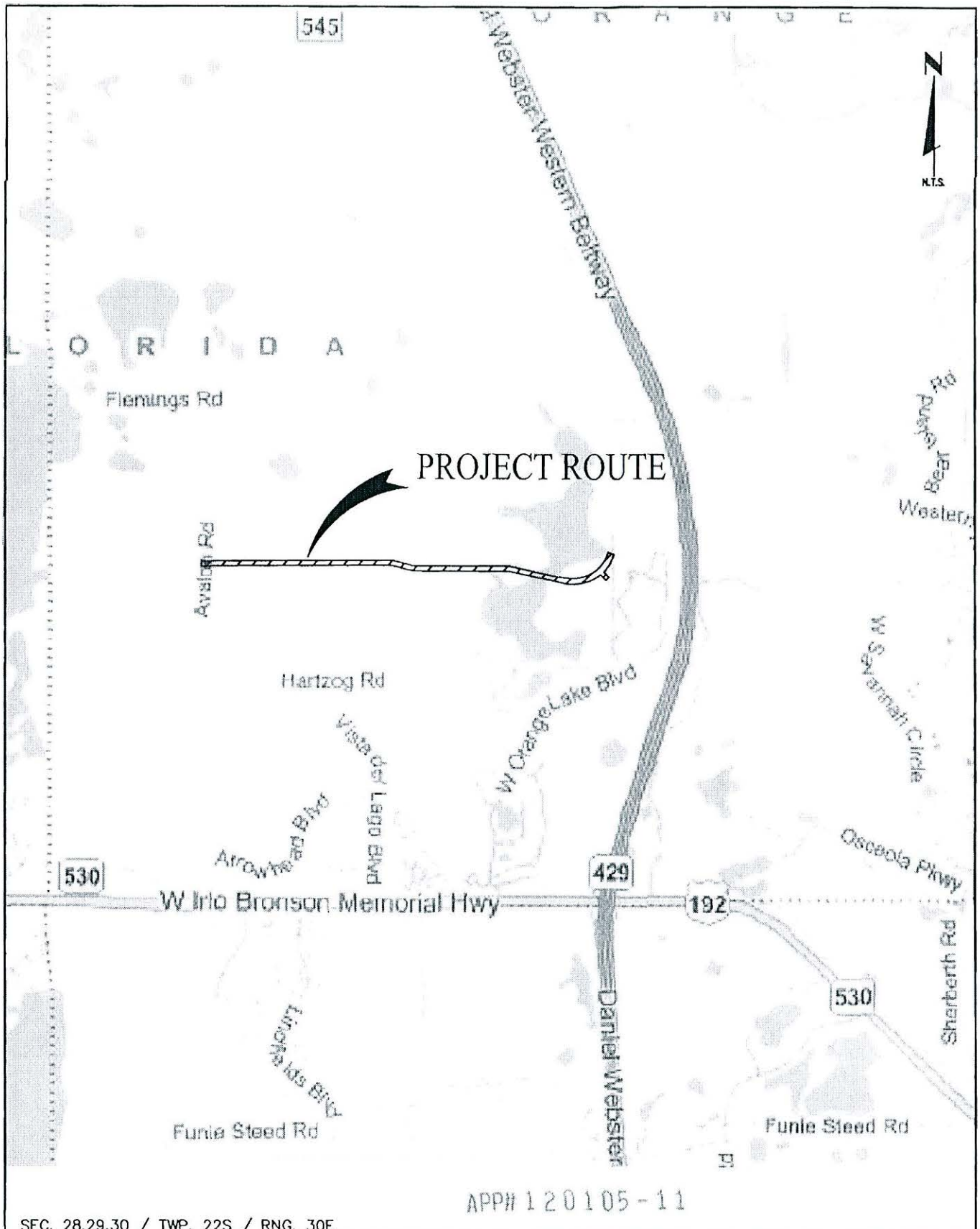
Mark S. Daron, P.E.

Standard Table of Contents for Exhibits

1.0 Location Map

2.0 Construction Plans

APP# 120105-11



APP# 120105-11

SEC. 28,29,30 / TWP. 22S / RNG. 30E

B&S Engineering Consultants LLC 1812 Arbor Park Drive Winter Park Fl. 32789 Tel (866) 959-1333	HARTZOG ROAD ORL-001	LOCATION MAP EXHIBIT #1

ORIGINAL SUBMITTAL
JAN 05 2012
ORLANDO SERVICE CENTER

App. no. : 120105-11

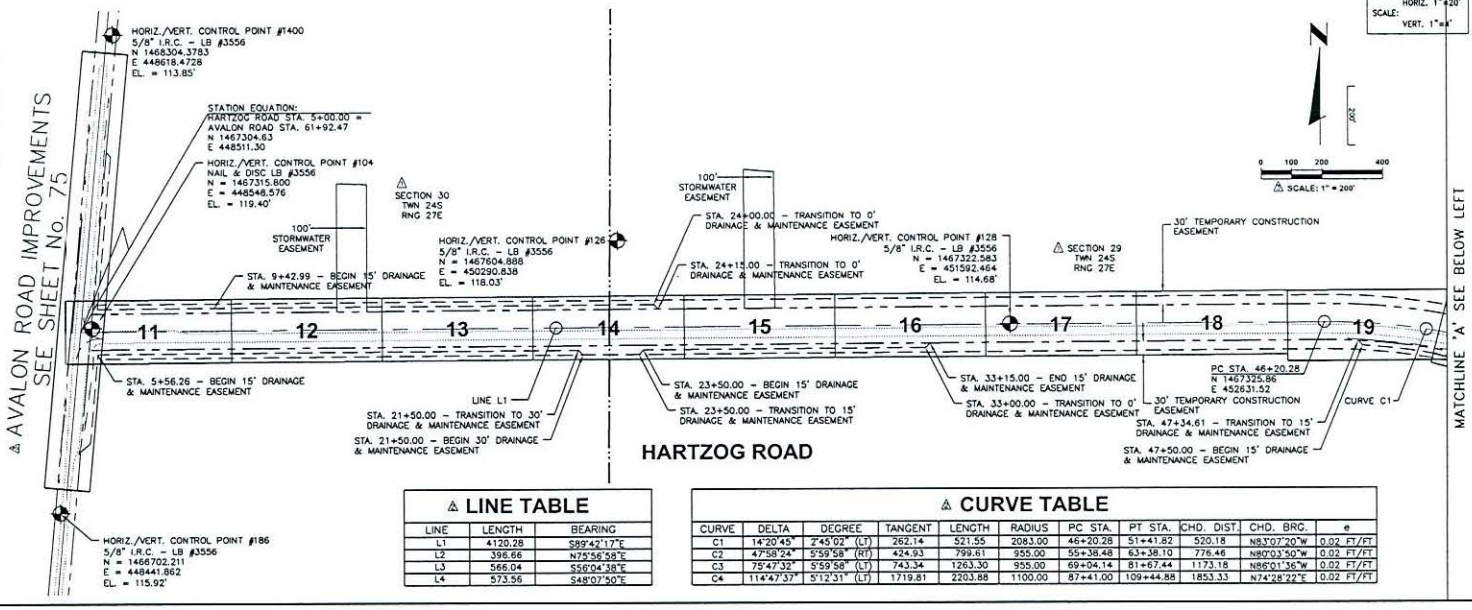
Page 1 of 6

Exhibit 2

DATUM INFORMATION

VERTICAL DATUM: NAVD 88
HORIZONTAL DATUM: NAD 83 FLORIDA EAST

ALL COORDINATES PROVIDED ARE REFERENCED TO STATE PLANE NAD 83 FLORIDA EAST HORIZONTAL DATUM AND THE NAVD 88 VERTICAL DATUM.

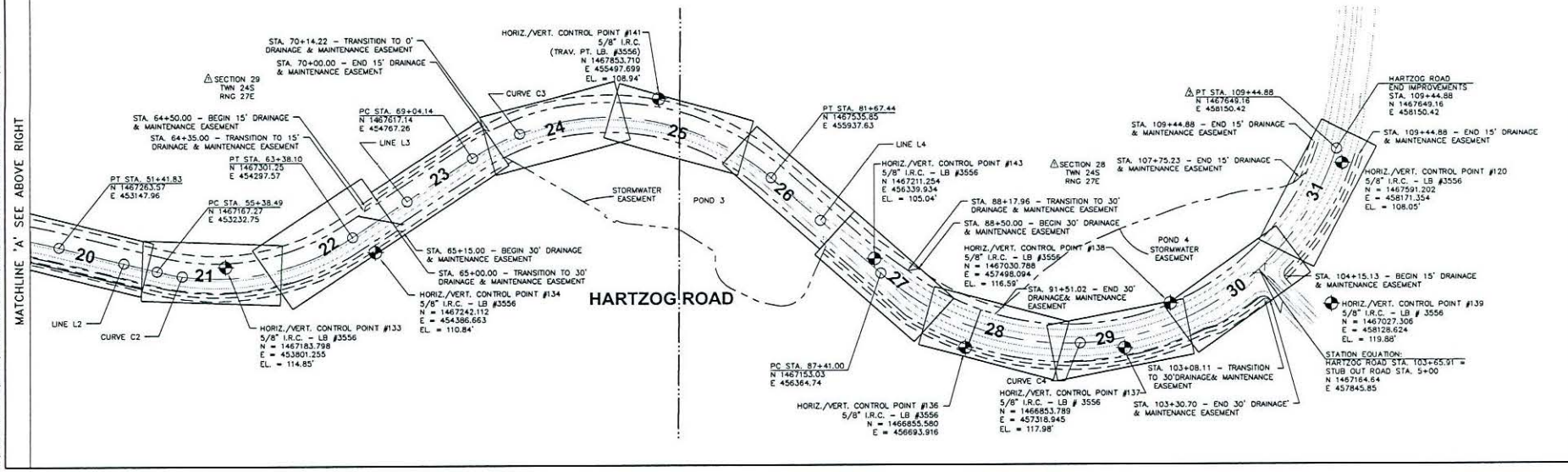


LINE TABLE

LINE	LENGTH	BEARING
L1	4120.28	S89°42'17"E
L2	396.66	N75°56'38"E
L3	566.04	S56°04'38"E
L4	573.56	S48°07'50"E

CURVE TABLE

CURVE	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	PC STA.	PT STA.	CHD. DIST.	CHD. BRG.	e
C1	14°20'45"	2°45'02" (LT)	262.14	521.55	2083.00	46+20.28	51+41.82	520.18	N83°07'20"W	0.02 FT/FT
C2	47°58'24"	5°59'58" (RT)	424.93	799.61	955.00	55+38.48	63+38.10	776.46	N80°03'50"W	0.02 FT/FT
C3	75°47'32"	5°59'58" (LT)	743.34	1263.30	955.00	69+04.14	81+67.44	1173.18	N86°01'36"W	0.02 FT/FT
C4	114°47'37"	5°12'31" (LT)	1719.81	2203.88	1100.00	87+41.00	109+44.88	1853.33	N74°28'22"E	0.02 FT/FT



REV.	DATE	DESCRIPTION	APP'D BY
1	10/24/08	REV. PER O. C. RAI COMMENTS (10/23/08)	D.C.B.
2	10/24/08	REV. PER O. C. RAI COMMENTS (10/22/08)	D.C.B.
4	2/19/09	REV. PER O. C. RAI COMMENTS (2/18/09)	D.C.B.

HARTZOG ROAD

ALIGNMENT DEFINITION AND PLAN & PROFILE KEY MAP

B&S ENGINEERING CONSULTANTS, LLC
1812 Arbor Park Drive
Winter Park, FL 32789
(407) 960-5868
bs-eng.com
State of Professional Engineers Certificate No 28973

JOB No.:	ORL-01
DESIGNED BY:	p.l.b.
DRAWN BY:	ACAO
APPROVED BY:	DCB
DATE:	12/02/11
SHEET:	3

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

DONALD C. INGER, P.E.
REGISTRATION No. 60807

DATE:

P:\PROJECT DRAWINGS\ORL-01\Revised Construction Plans\Hartzog Road -KEY.dwg PLOTTED: 5/17/2012 9:55 AM BY: pat bishop

P:_PROJECT DRAWINGS\OLR-01\Revised Construction Plans\HARTZOG DRAINAGE MAP 1.dwg PLOTTED: 6/19/2012 9:56 AM BY: phil bishop

1	2/19/09	REV. PER D. C. RAI COMMENTS (2/18/09)	D.C.B.
4	3/9/11	REV. PROFILE GRADE PER OWNER	D.C.B.
REV.	DATE	DESCRIPTION	APP'D. BY

HARTZOG ROAD

HARTZOG DRAINAGE MAP (SHEET 1 OF 4)

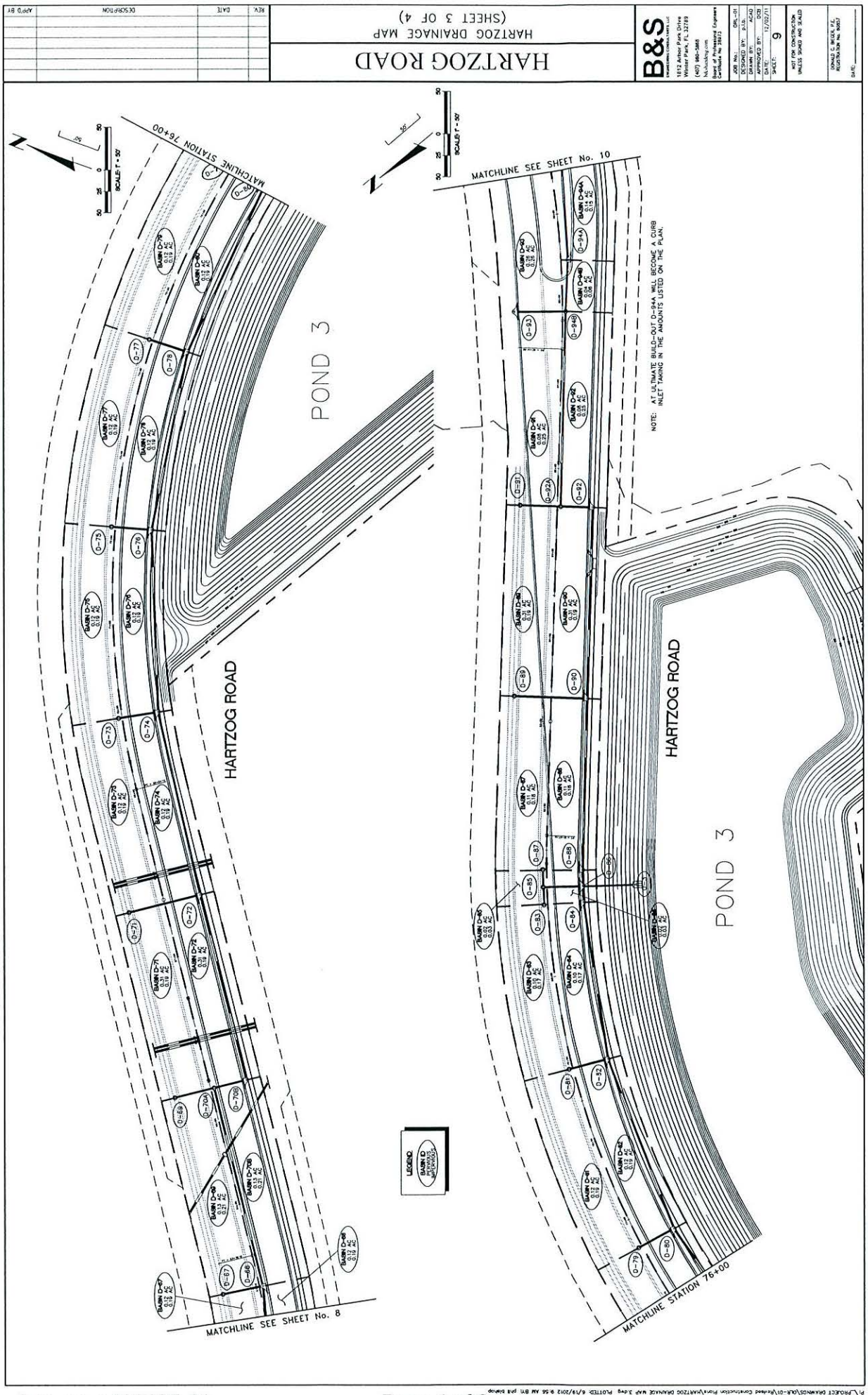
B&S — Boyle & Stanley, Inc.
Board of Professional Engineers Certificate No. 30972
1912 Aloma Park Drive, Winter Park, FL 32789
(407) 960-5864
hdrainsburg.com

JOB No.: ORL-01
DESIGNED BY: B.J.B.
DRAWN BY: ACAD
APPROVED BY: D.C.B.
DATE: 12/2011
SHEET: 7

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

DONALD C. RICCI, P.E.
REGISTRATION No. 36857
DATE:

HARTZOG ROAD
(SHEET 2 OF 4)
HARTZOG DRAINAGE MAP
B&S
1812 Arbor Park Drive
Winter Park, FL 32789
(407) 960-5868
JOB No.: 091-01
DESIGNED BY: p.b.
DRAWN BY: A.Lee
APPROVED BY: DCB
DATE: 12/02/11
SHEET: 8
NOT FOR CONSTRUCTION
UNLESS SIGNED AND SEALED
DONALD C. BICEK, P.E.
REGISTRATION No. 46460
DATE:
REV. DATE DESCRIPTION APP'D BY
4 3/9/11 REV. PROFILE GRADE PER OWNER DCB
SCALE 1" = 50'
MATCHLINE STATION 47+50
MATCHLINE SEE SHEET No. 7
MATCHLINE SEE SHEET No. 9
MATCHLINE STATION 47+50
HARTZOG ROAD
LEGEND
BASIN ID
PROPOSED
WATERSHED


HARTZOG ROAD
HARTZOG DRAINAGE MAP
(SHEET 3 OF 4)
B&S
JOB No: CHL-01
DESIGNED BY: P.I.B.
DRAWN BY: ACAD
CHECKED BY: D.G.B.
DATE: 12/02/11
SHEET: 9
NOT FOR CONSTRUCTION
UNLESS SIGNED AND SEALED
DONALD C. BIGER, P.E.
REGISTRATION No. 36037
DATE:
MATCHLINE STATION 76+00
MATCHLINE SEE SHEET No. 10
MATCHLINE SEE SHEET No. 8
POND 3
POND 3
HARTZOG ROAD
NOTE: AT ULTIMATE BUILD-OUT D-94A WILL BECOME A CURB INLET TAKING IN THE AMOUNTS LISTED ON THE PLAN.
LEGEND
BASIN ID
PROPOSED
DRAINAGE
SCALE 1" = 50'
SCALE 1" = 50'

REV.	DATE	DESCRIPTION	APP'D. BY

HARTZOG ROAD

HARTZOG DRAINAGE MAP
(SHEET 4 OF 4)

B&S
1812 Arbor Park Drive
Winter Park, FL 32789
(407) 960-3866
Board of Professional Engineers Cert. No. 26870

JOB No.: 091-01
DESIGNED BY: J.D.
DRAWN BY: JDM
CHECKED BY: DCB
APPROVED BY:
DATE: 12/02/11
SHEET: 10

RELEASED FOR CONSTRUCTION
PAGES 26AM & 26AM

DONALD S. MILLER, P.E.
REGISTERED No. 56863
DATE:

N

SCALE: 1" = 50'

MATCHLINE STATION 101+50

POND 4

HARTZOG ROAD

PT STA 109+44.88 ~ D/O CONSTRUCTION SEE PB58/J PLANS FOR CONTINUATION

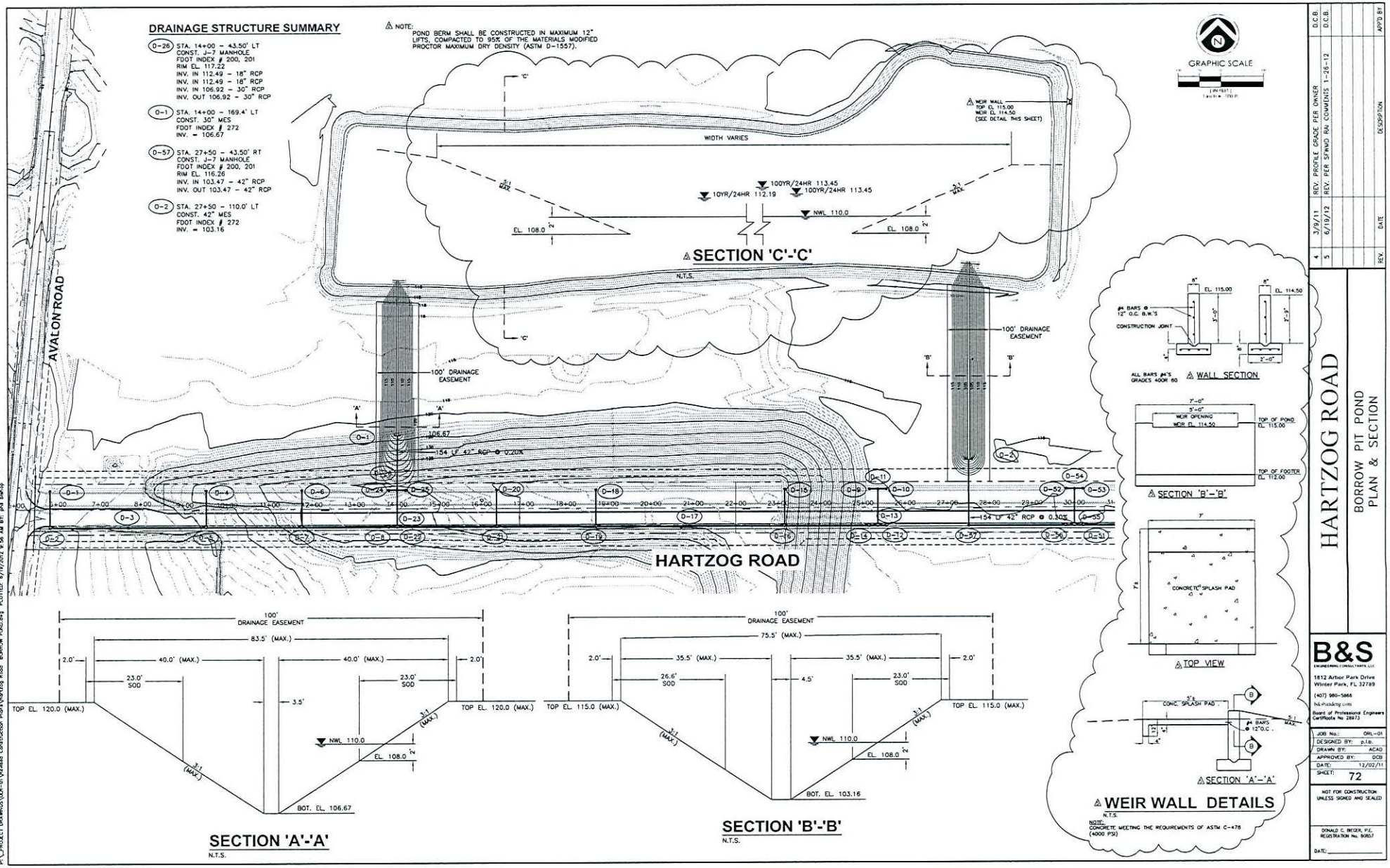
MATCHLINE SEE SHEET NO. 9

LEGEND
BASIN ID
BASIN AC
IMPERVIOUS AC

App. no. : 120105-11

Page 6 of 6

Exhibit 2



STAFF REPORT DISTRIBUTION LIST

HARTZOG ROAD

Application No: 120105-11

Permit No: 48-01974-P

INTERNAL DISTRIBUTION

X Jennifer Thomson
X Jose A. Gomez, P.E.
X Marc S. Ady
X Mark S. Daron, P.E.
X A. Lee
X ERC Engineering
X ERC Environmental

EXTERNAL DISTRIBUTION

X Permittee - Orange Lake Country Club Incorporated
X Permittee - Dewitt Enterprises Incorporated
X Permittee - B L R - 545 L L C
X Permittee - Donald R And Patricia A Allen
X Permittee - Thomas J And Tami G Karr Jr
X Permittee - Withers Interests Number 1 L L C
X Permittee - Withers Interests Number 2 L L C
X Permittee - Withers Interests Number 3 L L C
X Permittee - Withers Interests Number 4 L L C
X Engr Consultant - B And S Engineering Consultants L L C

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 6 - FDEP
X Orange County Engineer Public Works Division Dvlpmnt Engineering Dept.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
STANDARD PERMIT NO. 48-02169-P
DATE ISSUED:June 15, 2012

Form #0941
08/95

PERMITTEE: WAWA INC
2631 QUARRY STONE CT
OVIEDO, FL 32765

PROJECT DESCRIPTION: This application is a request for an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve 10.16 acres of a commercial development known as Wawa Avalon Road Convenience Store.

PROJECT LOCATION: ORANGE COUNTY, SEC 31 TWP 24S RGE 27E

PERMIT DURATION: See Special Condition No:1. Pursuant to Rule 40E-4.321, Florida Administrative Code.

This is to notify you of the District's agency action concerning Notice of Intent for Permit Application No. 111026-9, dated October 26, 2011. This action is taken pursuant to Rule 40E-1.603 and Chapter 40E-40 , Florida Administrative Code (F.A.C.).

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 19 General Conditions (See Pages : 2 - 4 of 6),
3. the attached 18 Special Conditions (See Pages : 5 - 6 of 6) and
4. the attached 3 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on this 15th day of June, 2012, in accordance with Section 120.60(3), Florida Statutes.

BY: _____
Anita R. Bain
Bureau Chief - Environmental Resource Permitting
Regulation Division

40E-4.321 Duration of Permits

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C. is as follows:

(a) For a conceptual approval, two years from the date of issuance or the date specified as a condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project. If an application for an environmental resource permit is filed, then the conceptual approval remains valid until final action is taken on the environmental resource permit application. If the application is granted, then the conceptual approval is valid for an additional two years from the date of issuance of the permit. Conceptual approvals which have no individual or standard general environmental resource permit applications filed for a period of two years shall expire automatically at the end of the two year period.

(b) For a conceptual approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive plan amendment, the duration of the conceptual approval shall be two years from whichever one of the following occurs at the latest date:

1. the effective date of the local government's comprehensive plan amendment.
2. the effective date of the local government development order.
3. the date on which the District issues the conceptual approval, or
4. the latest date of the resolution of any Chapter 120.57, F.A.C., administrative proceeding or other legal appeals.

(c) For an individual or standard general environmental resource permit, five years from the date of issuance or such amount of time as made a condition of the permit.

(d) For a noticed general permit issued pursuant to chapter 40-E-400, F.A.C., five years from the date the notice of intent to use the permit is provided to the District.

(2)(a) Unless prescribed by special permit condition, permits expire automatically according to the timeframes indicated in this rule. If application for extension is made in writing pursuant to subsection (3), the permit shall remain in full force and effect until:

1. the Governing Board takes action on an application for extension of an individual permit, or
2. staff takes action on an application for extension of a standard general permit.

(b) Installation of the project outfall structure shall not constitute a vesting of the permit.

(3) The permit extension shall be issued provided that a permittee files a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environmental impacts which require a detailed review.

(5) Substantial modifications to individual or standard general environmental resource permits issued pursuant to a permit application extend the duration of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit modifications do not extend the duration of a conceptual approval.

(6) Permit modifications issued pursuant to subsection 40E-4.331(2)(b), F.A.C. (letter modifications) do not extend the duration of a permit.

(7) Failure to complete construction or alteration of the surface water management system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted.

Specific authority 373.044, 373.113 F.S. Law Implemented 373.413, 373.416, 373.419, 373.426 F.S. History—New 9-3-81, Amended 1-31-82, 12-1-82, Formerly 16K-4.07(4), Amended 7-1-86, 4/20/94, Amended 7-1-86, 4/20/94, 10-3-95

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373. F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to

GENERAL CONDITIONS

be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities

GENERAL CONDITIONS

which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on June 15, 2017.

2. Operation of the surface water management system shall be the responsibility of WAWA INC.

3. Discharge Facilities:

Structure: OS-1
1-17" W X 11.5" H SHARP CRESTED weir with crest at elev. 113.86' NAVD 88.
24 LF of 18" dia. REINFORCED CONCRETE PIPE culvert.
1-24" W X 37" L drop inlet with crest at elev. 114.82' NAVD 88.
Receiving body : Compensating Storage Area
Control elev : 109.5 feet NAVD 88.

Structure: OS-2
1-23" W X 15.5" H SHARP CRESTED weir with crest at elev. 113.53' NAVD 88.
29 LF of 18" dia. REINFORCED CONCRETE PIPE culvert.
1-24" W X 37" L drop inlet with crest at elev. 114.82' NAVD 88.
Receiving body : Pond 2
Control elev : 109.5 feet NAVD 88.

Structure: OS-3
1-13" W X 11.5" H SHARP CRESTED weir with crest at elev. 113.86' NAVD 88.
28 LF of 18" dia. REINFORCED CONCRETE PIPE culvert.
1-24" W X 37" L drop inlet with crest at elev. 114.82' NAVD 88.
Receiving body : Lake Chapin
Control elev : 109.5 feet NAVD 88.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

8. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

9. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

10. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the

SPECIAL CONDITIONS

cause of the adverse impacts.

11. The permittee acknowledges that, pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.

12. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, 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.

13. Minimum building floor elevation: BASIN: Site - 115.02 feet NAVD 88.

14. Minimum parking lot elevation: Basin: Site - 114.38 feet NAVD 88.

15. Commercial or industrial zoned projects shall provide at least one half inch of dry detention or retention pretreatment as part of the required retention/detention, unless reasonable assurances are provided that hazardous materials will not enter the project's surface water management system. Such assurances may include deed restrictions on property planned for resale, type of occupancy, recorded lease agreements, local government restrictive codes, ordinances, licenses, and engineered containment systems designed in accordance with the District's Basis of Review Section 5.2.2(a). Pre-treatment requirements shall be determined on a case by case basis for the commercial areas at the time of application for construction authorization based on their proposed uses.

16. Prior to commencement of construction and in accordance with the work schedule in Exhibit No. 3 the permittee shall submit documentation that 0.11freshwater forested credits have been deducted from the ledger for Reedy Creek Mitigation Bank..

17. A maintenance program shall be implemented on a regular basis to ensure the integrity and viability of those areas as permitted. Maintenance shall be conducted in perpetuity to ensure that the conservation areas are maintained free from Category 1 exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the time of permit issuance) immediately following a maintenance activity. Maintenance in perpetuity shall also insure that conservation areas, including buffers, maintain the species and coverage of native, desirable vegetation specified in the permit. Coverage of exotic and nuisance plant species shall not exceed 5% of total cover between maintenance activities. In addition, the permittee shall manage the conservation areas such that exotic/nuisance plant species do not dominate any one section of those areas.

18. A monitoring program shall be implemented in accordance with Exhibit No. 3. The monitoring program shall extend for a period of 3 years with annual reports submitted to District staff. The monitoring shall demonstrate that no adverse impacts to the wetlands have occurred as the result of the proposed construction. See the work schedule attached.

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

Initiation of an Administrative Hearing

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

Last Date For Agency Action: July 1, 2012

STANDARD ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Wawa Avalon Road Convenience Store

Permit No.: 48-02169-P

Application No.: 111026-9

Application Type: Environmental Resource (New General Permit)

Location: Orange County, S31/T24S/R27E

Permittee : Wawa Inc

Operating Entity : Wawa Inc

Project Area: 10.16 acres

Project Land Use: Commercial

Drainage Basin: REEDY CREEK

Receiving Body: Lake Chapin **Class:** CLASS III

Special Drainage District: NA

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve 10.16 acres of a commercial development known as Wawa Avalon Road Convenience Store.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located on the northeast corner of U.S. 192 and Avalon Road in Orange County.

There are no permitted surface water management facilities within the project area. The site contains wooded areas, wetland areas and a portion of Lake Chapin itself.

The project site is composed of oak hammock and 0.58 acres of floodplain forested wetlands dominated by bays. A 0.16 acre impact is proposed to the wetland in order to access the uplands on the site from US Hwy 192. Mitigation is proposed to be the acquisition of 0.11 mitigation freshwater forested mitigation bank credits from the Reedy Creek Mitigation Bank (see letter of reservation attached. The remaining wetlands onsite will be platted for conservation with a perpetual maintenance plan.

PROPOSED PROJECT:

The proposed improvements will consist of the construction of the surface water management system serving a new convenience store with gas pump stations. Runoff from the site will be directed into three dry retention ponds for the required water quality treatment and attenuation prior to discharge into the onsite Lake Chapin. The project limits lie within the Reedy Creek Drainage Basin.

Water quality criteria consists of 2.5 inches of runoff times the percent impervious coverage with a 50 percent credit for dry retention as well as an additional 50 percent water quality treatment as a best management practice to address impaired waters and is provided in excess in the design of the proposed surface water management system. In addition, the applicant submitted a phosphorus analysis to show that the post-development phosphorus loading is less than that of the pre-development condition.

LAND USE:

Construction Project:

	This Phase	Total Project	
Building Coverage	.13	.13	acres
Dry Retention Areas	.54	.54	acres
Lake	5.68	5.68	acres
Other	.42	.42	acres
Pavement	1.44	1.44	acres
Pervious	1.16	1.16	acres
Wetland	.79	.79	acres
Total:	**10.16**	**10.16**	

WATER QUANTITY :

Discharge Rate :

As shown in the table below, the proposed project discharge is within the allowable limit for the area. The discharge shown below corresponds to a contributing drainage basin area of 2.43 acres. The receiving body, onsite Lake Chapin, will provide further attenuation prior to discharge from the site.

Discharge Storm Frequency : 25 YEAR-1 DAY Design Rainfall : 8.6 inches

Basin	Allow Disch (cfs)	Method Of Determination	Peak Disch (cfs)	Peak Stage (ft, NAVD 88)
Site	2.01	Pre Vs Post	2.01	114.38

Finished Floors :

As shown in the following table and the attached exhibits, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Building Storm Frequency : 100 YEAR-3 DAY Design Rainfall : 13.75 inches

Basin	Peak Stage (ft, NAVD 88)	Proposed Min. Finished Floors (ft, NAVD 88)	FEMA Elevation (ft, NAVD 88)
Site	115.02	115.02	111.24

Parking Lot Design :

As shown in the following table and the attached exhibits, minimum parking lot elevations have been set at or above the calculated design storm flood elevation.

Parking Lot Storm Frequency : 25 YEAR-1 DAY Design Rainfall :8.6 inches

Basin	Peak Stage (ft, NAVD 88)	Proposed Min.Parking Elev. (ft, NAVD 88)
Site	114.38	114.38

Flood Plain/Compensating Storage:

Floodplain compensating storage is provided entirely in the 0.42-acre floodplain compensating storage area as shown on the plans.

Displaced Volume	Compensating Volume	100-Year Stage Elevation
.8 ac-ft	.81 ac-ft	111.24 ft-NAVD 88

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NAVD 88)	WSWT Ctrl Elev (ft, NAVD 88)	Method Of Determination
Site	10.16	109.5	109.50	Wet Season Soil Borings

Receiving Body :

Basin	Str.#	Receiving Body
Site	OS-1	Compensating Storage Area
Site	OS-2	Pond 2
Site	OS-3	Lake Chapin

Discharge Structures: Note: The units for all the elevation values of structures are (ft, NAVD 88)

Culverts:

Basin	Str#	Count	Type	Width	Length	Dia.
Site	OS-1	1	Reinforced Concrete Pipe		24'	18"

Discharge Structures:

Culverts:

Site	OS-2	1	Reinforced Concrete Pipe	29'	18"
Site	OS-3	1	Reinforced Concrete Pipe	28'	18"

Inlets:

Basin	Str#	Count	Type	Width	Length	Dia.	Crest Elev.
Site	OS-1	1	Fdot Mod C Drop Inlet	24"	37"		114.82
Site	OS-2	1	Fdot Mod C Drop Inlet	24"	37"		114.82
Site	OS-3	1	Fdot Mod C Drop Inlet	24"	37"		114.82

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
Site	OS-2	1	Sharp Crested	23"	15.5"			113.53 (crest)

Water Quality Structures:

Note: The units for all the elevation values of structures are (ft, NAVD 88)

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
Site	OS-1	1	Sharp Crested	17"	11.5"			113.86 (crest)
Site	OS-3	1	Sharp Crested	13"	11.5"			113.86 (crest)

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project. Water quality criteria consists of 2.5 inches of runoff times the percent impervious coverage with a 50 percent credit for dry retention as well as an additional 50 percent water quality treatment as a best management practice to address impaired waters and is provided in excess in the design of the proposed surface water management system.

Basin	Treatment Method			Vol Req.d (ac-ft)	Vol Prov'd
Site	Treatment	Dry Retention	.54 acres	.24	.51

WETLANDS:

The project site is composed of oak hammock and 0.58 acres of floodplain forested wetlands dominated by bays. A 0.16 acre impact is proposed to the wetland in order to access the uplands on the site from US Hwy 192. Mitigation is proposed to be the acquisition of 0.11 mitigation freshwater forested mitigation bank credits from the Reedy Creek Mitigation Bank (see letter of reservation attached). The remaining wetlands onsite will be platted for conservation with a 3 year qualitative monitoring and maintenance plan and a perpetual maintenance plan. Minimal impacts are occurring to the wetland in order to provide the access necessary to the site off of US Hwy 192. The mitigation and impacts are both occurring within the Reedy Creek Cumulative Impact Basin. As a result, no unacceptable cumulative impacts will occur as the result of the proposed activities.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida

Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that the Tohopekaliga Water Authority will be used as a source for reclaim irrigation water for the project.

The applicant has indicated that dewatering is required for construction of this project. Prior to any construction activities, the contractor will submit a dewatering application to the District for approval of dewatering activities.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

Tohopekaliga Water Authority

Waste Water System/Supplier:

Tohopekaliga Water Authority

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources in the project area or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

DEO/CZM Consistency Review:

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

DIVISION APPROVAL:

NATURAL RESOURCE MANAGEMENT:

Marc S. Ady

DATE: 6/11/12

SURFACE WATER MANAGEMENT:

Mark S. Daron, P.E.

DATE: 6/14/12

Standard Table of Contents for Exhibits

1.0 Location Map

2.0 Construction Plans

3.0 Wetlands & Other Surface Waters documents

Section:	31
Township:	24
Range:	27

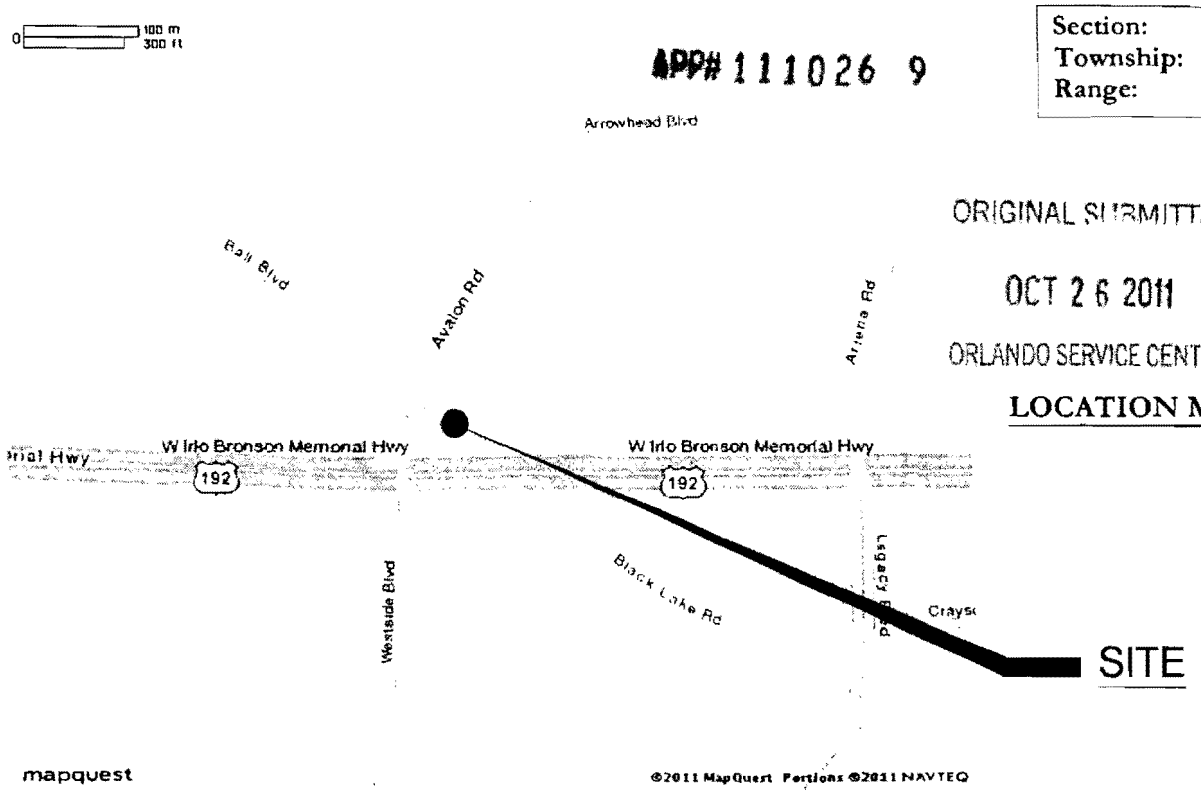
APP# 111026 9

ORIGINAL SUBMITTAL

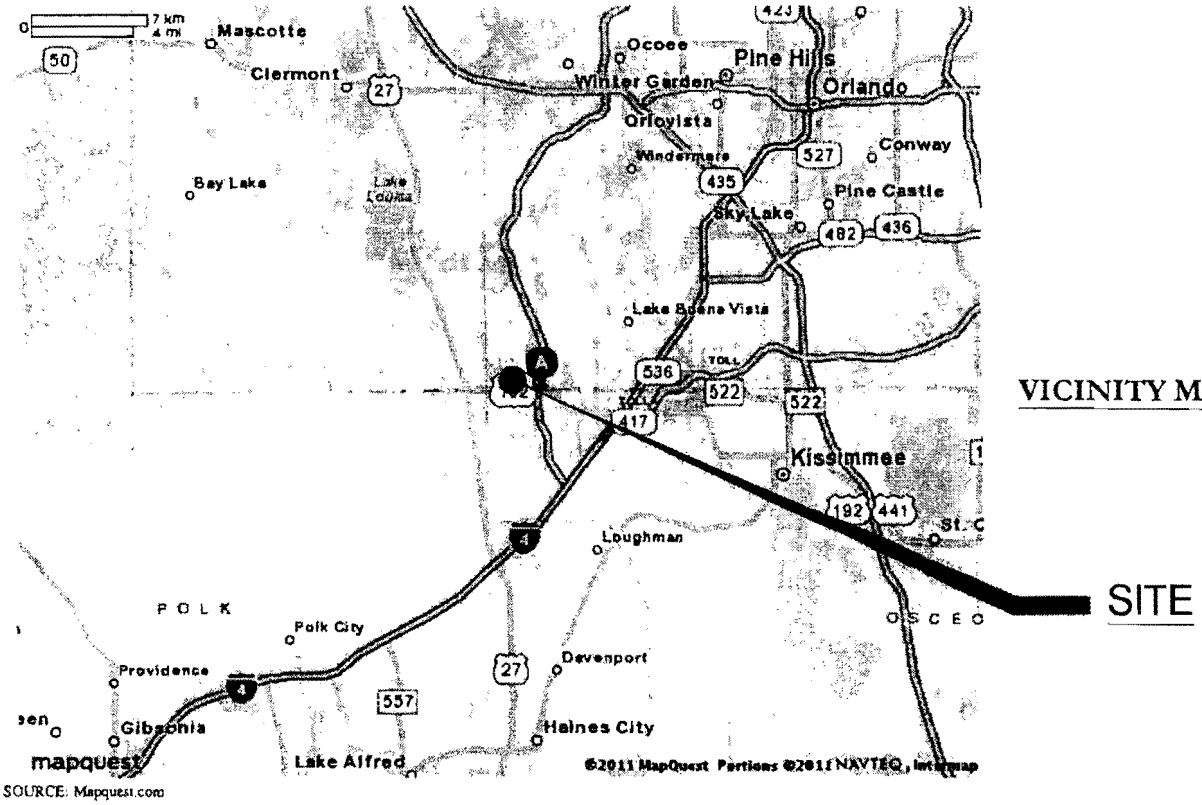
OCT 26 2011

ORLANDO SERVICE CENTER

LOCATION MAP



VICINITY MAP



SOURCE: Mapquest.com

DRAWN:	SML
APPROVED:	FAB
DATE:	03/02/11
SCALE:	N.T.S.

Location and Vicinity Maps
WAWA

US-192 & Avalon Road
Winter Garden, Orange County, FL
Stillwater Project #464-001B

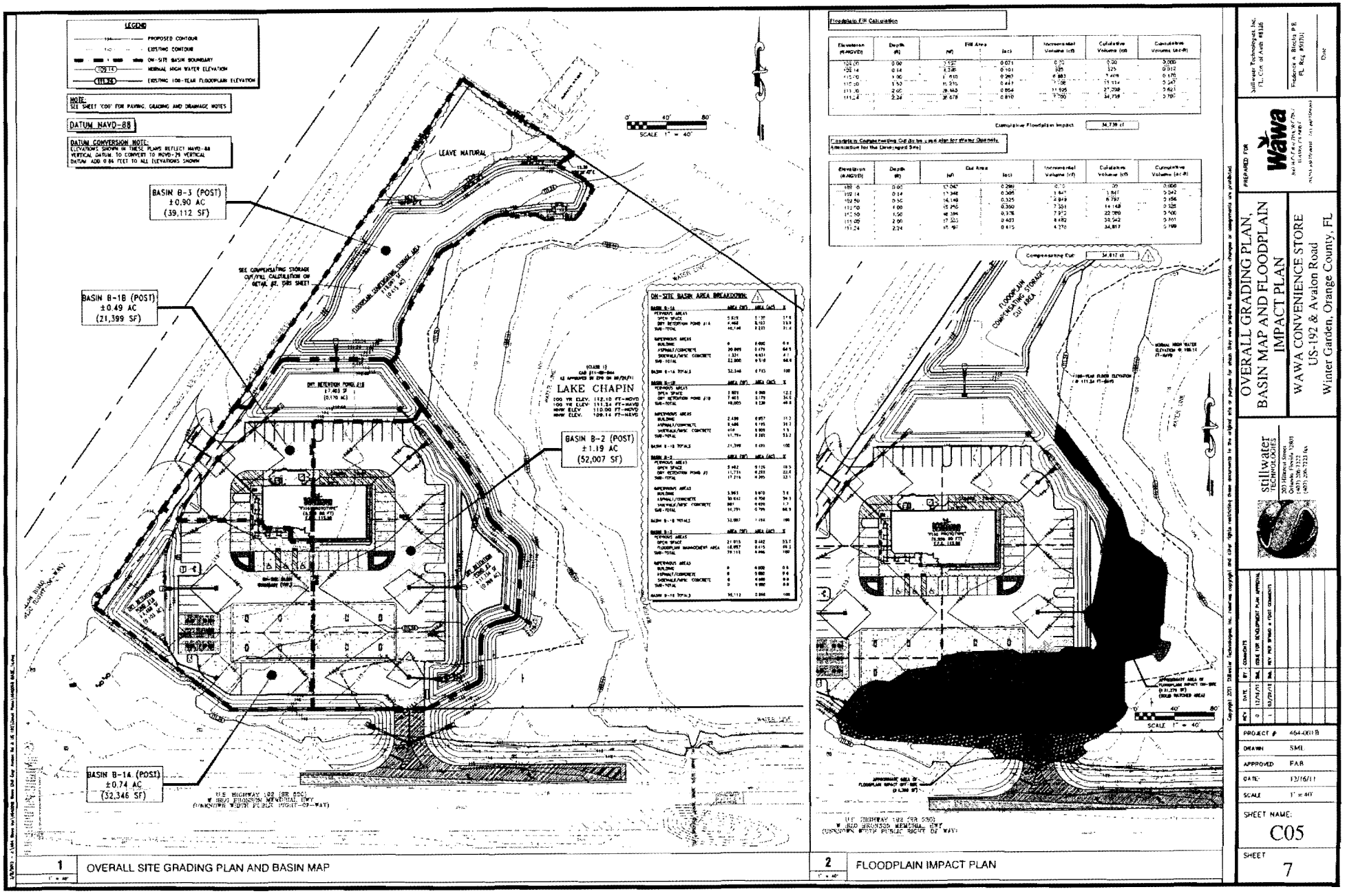


stillwater TECHNOLOGIES
203 Hillcrest Street
Orlando, Florida 32801
(407) 206-7222
(407) 206-7223 fax

FIGURE
1

SITE DRAINAGE PLAN
WAWA CONVENIENCE STORE
US-192 & Avalon Road
Winter Garden, Orange County, FL
Stillwater Technologies
Wawa
LAKE CHAPIN
SCALE: 1" = 30'
LEGEND
DATUM: NAVD-88
NOTES:
U.S. HIGHWAY 192 (SR 530)
W. GEO. BRONSON MEMORIAL HWY.
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)
AVALON ROAD
(100' PUBLIC RIGHT-OF-WAY)

SITE GRADING PLAN
WAWA CONVENIENCE STORE
US-192 & Avalon Road
Winter Garden, Orange County, FL
stillwater TECHNOLOGIES
SHEET ADDED (REVISION #1)
LAKE CHAPIN
SHEET NAME
C06A
SHEET
8A



Stillwater Technologies, Inc.
FL. Cert. of Auth. #8368

Frederick A. Brisch, P.E.
FL. Reg. #43701

Date

PREPARED FOR
Wawa

OVERALL GRADING PLAN, BASIN MAP AND FLOODPLAIN IMPACT PLAN

WAWA CONVENIENCE STORE
US-192 & Avalon Road
Winter Garden, Orange County, FL

Stillwater TECHNOLOGIES
301 Fillmore Street
Orlando, Florida 32801
(407) 206-7223
(407) 206-7224 fax

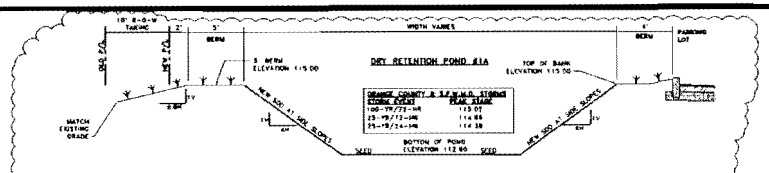
NO.	DATE	BY	COMMENTS
0	12/14/11	SML	ISSUE FOR DEVELOPMENT PLAN APPROVAL
1	03/29/12	SML	REV. PER SFWMD #1 RAI COMMENTS

PROJECT # 464-0011B
DRAWN SML
APPROVED FAB
DATE 12/16/11
SCALE 1" = 40'

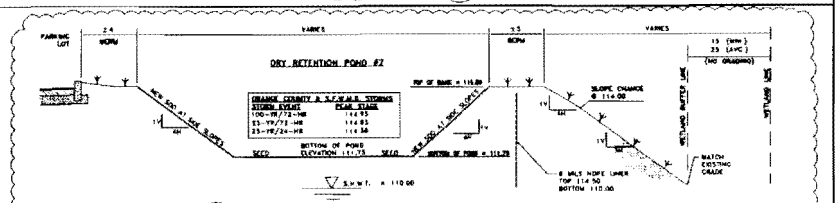
SHEET NAME:
C05

SHEET
7

Copyright 2011 Stillwater Technologies, Inc. Unauthorized copyright and other rights restricting these documents to the original site or purpose for which they were prepared. Reproductions, changes or assignments are prohibited.

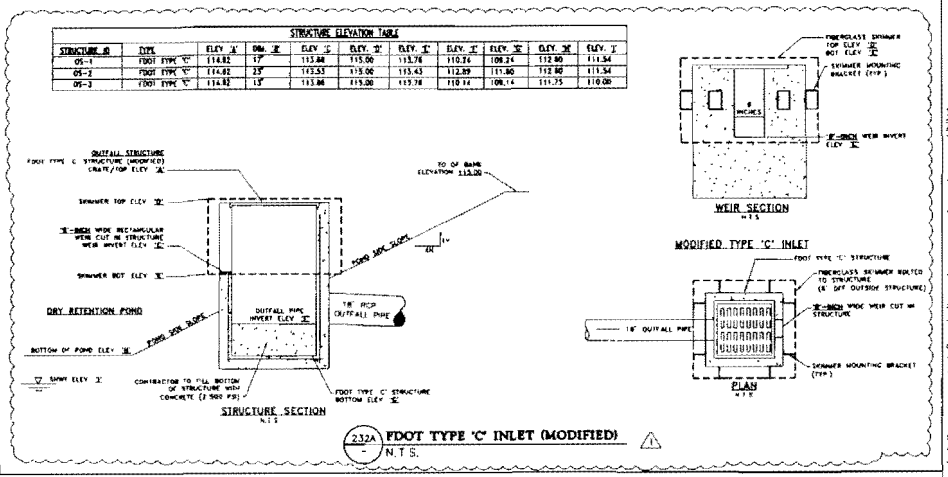


243A / C06 **DRY RETENTION POND #1A SECTION** N.T.S. ⚠

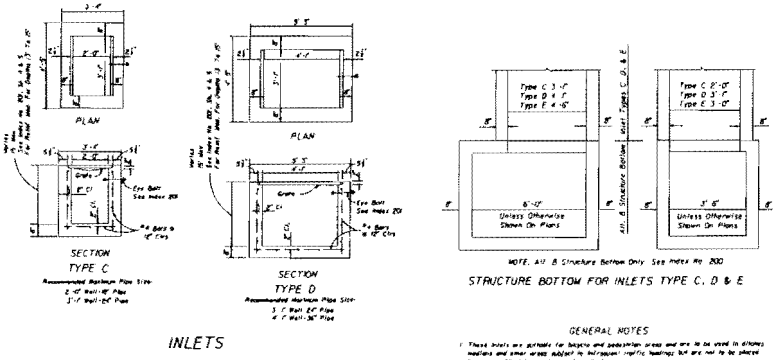


243B / C06 **DRY RETENTION POND #2 SECTION** N.T.S ⚠

STRUCTURE ELEVATION TABLE										
STRUCTURE #	TYPE	ELEV 'A'	DIA 'B'	ELEV 'C'	ELEV 'D'	ELEV 'E'	ELEV 'F'	ELEV 'G'	ELEV 'H'	ELEV 'I'
DS-1	FDOT TYPE 'C'	114.82	12"	113.88	115.00	113.76	110.76	108.26	112.80	111.54
DS-2	FDOT TYPE 'C'	114.82	12"	113.53	115.00	113.43	112.89	111.80	112.80	111.54
DS-3	FDOT TYPE 'C'	114.82	18"	113.88	115.00	113.78	110.14	108.14	111.75	110.00



232A / - **FDOT TYPE 'C' INLET (MODIFIED)** N.T.S. ⚠

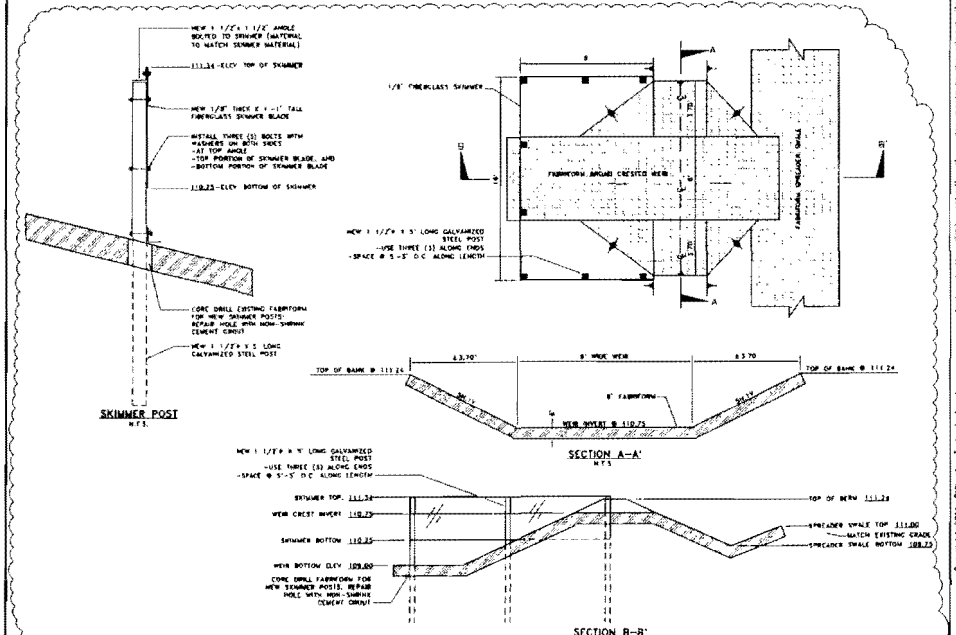


GENERAL NOTES

1. These inlets are portable for bicycle and pedestrian areas and are to be used in medians and other areas subject to infrequent traffic loadings but are not to be placed in areas subject to any heavy wheel loads.
2. Inlets subject to vehicular traffic should be constructed without slots. Where debris is a problem inlets should be manufactured with slots. Shallow inlets located within roadway clear zones and in areas accessible to pedestrians shall have transverse slots. The transverse slot roof/portion 11 not attachable, a) Inlet Type 'H' Slots may be constructed on either or both sides as shown on plans.
3. Steel grates are to be used on all inlets where bicycle traffic is anticipated. Steel grates are to be used on all inlets with transverse slots. Either cast iron or steel grates may be used on inlets without slots where bicycle traffic is not anticipated. Either cast iron or steel grates may be used on all inlets with non transverse slots. Subject to the selection described above, when Alternate C grate is specified in the plans either the steel grate but dipped galvanized after fabrication or the cast iron grate may be used unless the plans stipulate the particular type.
4. Recommended maximum pipe sizes shown are for concrete pipe. Plan sizes larger than those recommended must be checked for fit.
5. All exposed corners and edges of concrete are to be chamfered 1".
6. Pavement to be used on inlets without slots and inlets with non transverse slots only when called for in the plans, but required on all transverse slot inlets. Cost to be included in allowance unit price for inlets. Quantities shown are for information only.
7. Transverse slots constructed in existing inlets shall be paid for as inlets partial and shall include the cost for slot openings, paving and any required replacement grates.
8. Sodding to be used on all inlets not located in paved areas and paid for under contract unit price for Sodding SY.
9. For supplementary details see Index No. 201

NOTES:
1) REFER TO F.D.O.T. INDEX #232 FOR ADDITIONAL DETAILS

232 / - **FDOT TYPE 'C', 'D' & 'H' INLETS** N.T.S.



264 / - **BROAD CRESTED WEIR** N.T.S ⚠

Stillwater Technologies, Inc.
FL. Cert. of Auth. #8326
Frederick A. Blicha, P.E.
FL. Reg. #56701
Date

PREPARED FOR: Wawa

PAVING, GRADING AND DRAINAGE DETAILS

WAWA CONVENIENCE STORE
US-192 & Avalon Road
Winter Garden, Orange County, FL

Stillwater TECHNOLOGIES
300 Hallenbeck Street
Orlando, Florida 32803
(407) 896-7272
(407) 896-7251 fax

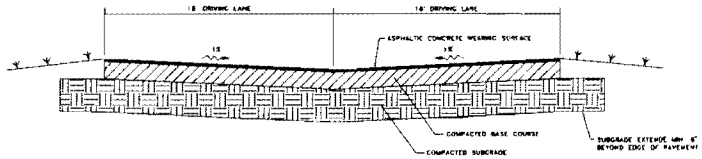
NO.	DATE	BY	COMMENTS
0	10/7/11	SML	ISSUE FOR PLAT & SITE PLAN REVIEW
1	12/28/11	SML	REV PER SFWMD & POST COMMENTS

Copyright 2011 Stillwater Technologies, Inc. reserves copyright and other rights restricting these documents to the original site or purpose for which they were prepared. Reproductions, changes or assignments are prohibited.

PROJECT #	464-001B
DRAWN	SML
APPROVED	FAB
DATE	10/14/11
SCALE	AS NOTED

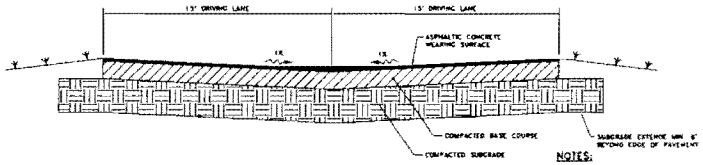
SHEET NAME: C12

SHEET: 14



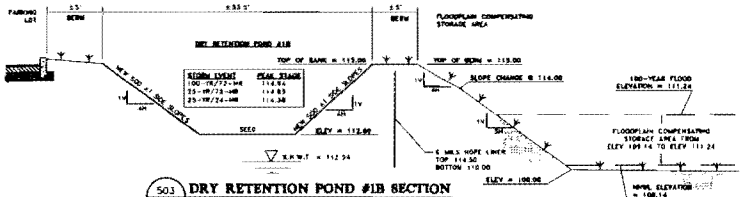
500 / C06 **36' DRIVEWAY SECTION** N.T.S.

NOTE:
SEE DETAIL #1 ON SHEET C13A FOR ON-SITE ASPHALT DETAILS

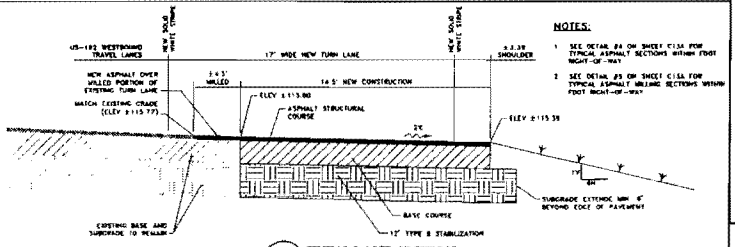


501 / C06 **30' DRIVEWAY SECTION** N.T.S.

NOTES:
1. SEE DETAIL #1 ON SHEET C13A FOR ON-SITE ASPHALT DETAILS
2. SEE DETAIL #4 ON SHEET C13A FOR TYPICAL ASPHALT SECTIONS WITHIN FDOT RIGHT-OF-WAY

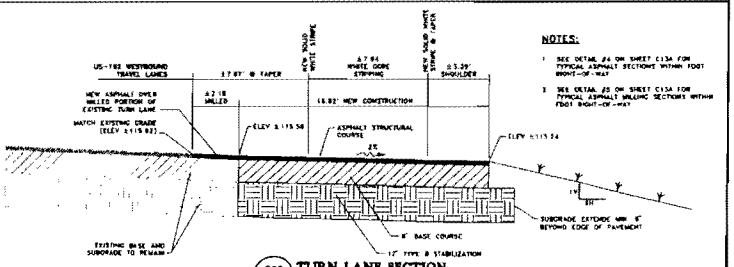


503 / C08 **DRY RETENTION POND #1B SECTION** N.T.S.



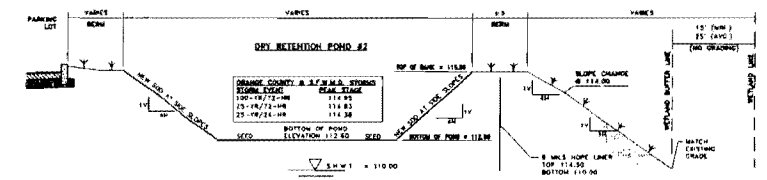
NOTES:
1. SEE DETAIL #4 ON SHEET C13A FOR TYPICAL ASPHALT SECTIONS WITHIN FDOT RIGHT-OF-WAY
2. SEE DETAIL #5 ON SHEET C13A FOR TYPICAL ASPHALT MILLING SECTIONS WITHIN FDOT RIGHT-OF-WAY

502 / C06 **TURN LANE SECTION** N.T.S.

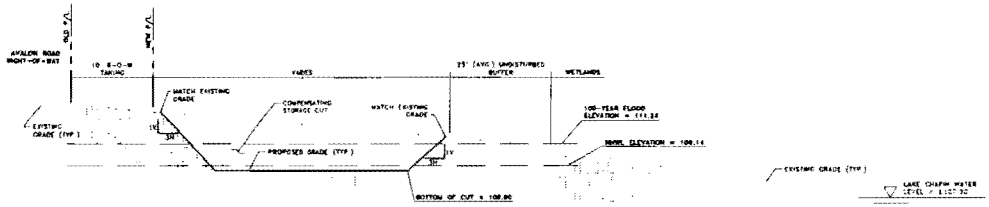


NOTES:
1. SEE DETAIL #4 ON SHEET C13A FOR TYPICAL ASPHALT SECTIONS WITHIN FDOT RIGHT-OF-WAY
2. SEE DETAIL #5 ON SHEET C13A FOR TYPICAL ASPHALT MILLING SECTIONS WITHIN FDOT RIGHT-OF-WAY

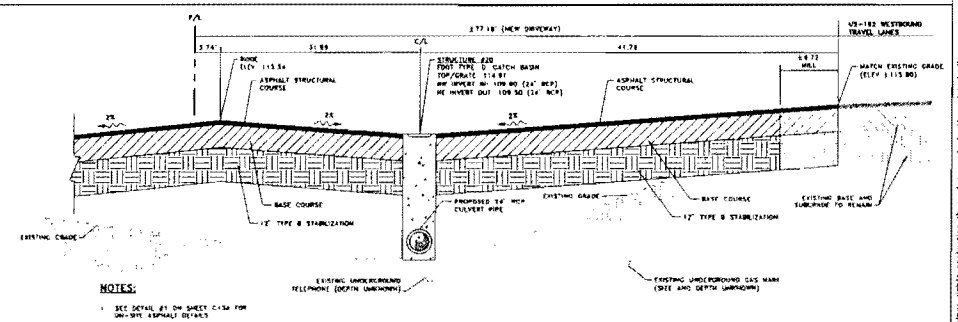
509 / C06 **TURN LANE SECTION** N.T.S.



504 / C06 **DRY RETENTION POND #2 SECTION** N.T.S.

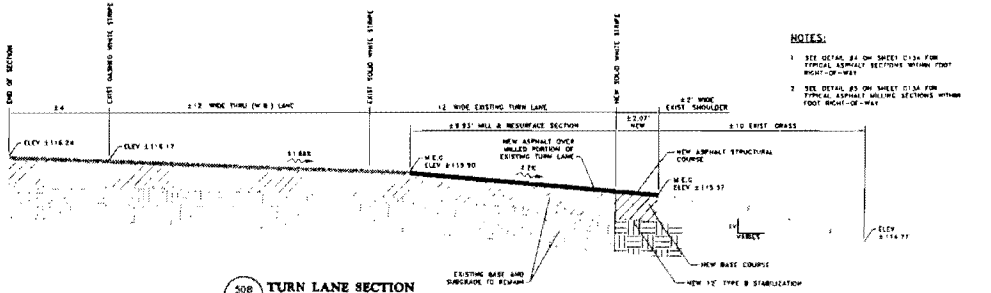


505 / C06 **SECTION THROUGH COMPENSATING STORAGE** N.T.S.



NOTES:
1. SEE DETAIL #1 ON SHEET C13A FOR ON-SITE ASPHALT DETAILS
2. SEE DETAIL #4 ON SHEET C13A FOR TYPICAL ASPHALT SECTIONS WITHIN FDOT RIGHT-OF-WAY

507 / C06 **DRIVEWAY SECTION** N.T.S.



NOTES:
1. SEE DETAIL #4 ON SHEET C13A FOR TYPICAL ASPHALT SECTIONS WITHIN FDOT RIGHT-OF-WAY
2. SEE DETAIL #5 ON SHEET C13A FOR TYPICAL ASPHALT MILLING SECTIONS WITHIN FDOT RIGHT-OF-WAY

508 / C06 **TURN LANE SECTION** N.T.S.

Copyright 2011 Stillwater Technologies, Inc. reserves copyright and other rights restricting these documents to the original site or purpose for which they were prepared. Reproductions, changes or assignments are prohibited.

Stillwater Technologies, Inc.
FL. Cert of Auth #8126

Frederick A. Blecha, P.E.
FL Reg. #56701

Date

PREPARED FOR
Wawa
WAWA, INC.
260 W. EXCHANGE PLACE
SUITE 324
LINCOLN, RI 02865

SITE CROSS SECTIONS

WAWA CONVENIENCE STORE
US-192 & Avalon Road
Winter Garden, Orange County, FL

Stillwater
TECHNOLOGIES
203 Hankins Street
Ortando, Florida 32801
(407) 206-7222
(407) 206-7231 fax

REV	DATE	BY	COMMENTS
0	10/14/11	SML	ISSUE FOR PERMIT & REVISED REVIEW
1	10/28/11	SML	REV PER SFWMD & FDOT COMMENTS

PROJECT #	464-001B
DRAWN	SML
APPROVED	FAB
DATE	10/14/11
SCALE	AS NOTED

SHEET NAME
C13

SHEET
15

Consultants

Qualitative Monitoring and Maintenance Plan

Maintenance Plan

A Maintenance program shall be implemented for the preserved wetland and buffer areas on a regular basis to ensure the integrity and viability of the conservation areas as permitted. Maintenance shall be conducted for three years to ensure that the conservation areas are free from invasive exotic vegetation (as defined by the Florida exotic pest plant council at the date of permit issuance) immediately following a maintenance activity and shall constitute no more than 5% of vegetative cover between maintenance activities. Nuisance plant species shall constitute no more than 10% of total cover.

Qualitative Monitoring

A baseline survey will be conducted including site photographs; subsequent monitoring reports will be submitted annually for three years.

Table 1. Schedule

Task	Date
Construction Commencement	Fall 2013
First Annual Monitoring	Spring 2013
First Annual Monitoring Report	Spring 2013
Second Annual Monitoring	Spring 2014
Second Annual Monitoring Report	Spring 2014
Third Annual Monitoring	Spring 2015
Third Annual Monitoring Report	Spring 2015

Mitigation Marketing

March 13, 2012

Mr. Scott Kearney
WaWa, Inc.
2631 Quarry Stone Ct.
Oviedo, Florida 32765

Subject: Reservation of Credits for WaWa Avalon Road
SFWMD Application Number: 111026-9

Dear Mr. Kearney,

I am writing in reference to Wawa, Inc. need for 0.11 UMAM mitigation credits from Reedy Creek Mitigation Bank. This letter confirms that Reedy Creek Mitigation Bank; SFWMD permit number 53-0002-M has 0.11 UMAM freshwater forested wetland credits reserved for the above referenced project.

It is agreed that the credits will be reserved until the final permits are received. At that time the credits will be transferred.

If you should have questions or require additional information, please do not hesitate to contact me.

Sincerely,

Victoria K. Colangelo
Mitigation Marketing, LLC
Phone: 407-481-0677 Fax: 407-648-3866
Victoria@mitigationmarketing.com
Providing Mitigation Solutions Throughout Florida

Cc: Rick Belcha, Stillwater Technologies, Inc.
Lauren Wyckoff, 3E Consultants, Inc.

PO Box 540285
Orlando, Florida 32854
Telephone 407 481 0677
Facsimile 407 648 3866

MitigationMarketing.com

South Florida Water Management District

Work Schedule Requirements

Application No : 111026-9

Mitigation Plan ID: WAWA AVALAON RD &192

Activity	Due Date
SUBMIT MITIGATION BANK DOCUMENTATION	25-JUL-12

Mitigation Plan ID: WAWA AVALON RD &192

Activity	Due Date
SUBMIT BASELINE MONITORING REPORT	01-SEP-12
SUBMIT FIRST MONITORING REPORT	01-MAY-13
SUBMIT SECOND MONITORING REPORT	01-MAY-14
SUBMIT THIRD MONITORING REPORT	01-MAY-15

STAFF REPORT DISTRIBUTION LIST

WAWA AVALON ROAD CONVENIENCE STORE

Application No: 111026-9

Permit No: 48-02169-P

INTERNAL DISTRIBUTION

X Annette V. Burkett
X Susan C. Elfers
X Marc S. Ady
X Mark S. Daron, P.E.
X A. Lee
X ERC Engineering
X ERC Environmental

EXTERNAL DISTRIBUTION

X Permittee - Wawa Inc
X Engr Consultant - Stillwater Technologies Inc
X Owner - Oscar And Karlene Duke Paul Bloom

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 6 - FDEP
X Orange County Engineer Public Works Division Dvlpmnt Engineering Dept.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
WATER USE INDIVIDUAL PERMIT

APPLICATION NO: 201204-5 **PERMIT NUMBER:** 48-02757-W

DATE ISSUED: March 4, 2021 **EXPIRATION DATE:** March 4, 2023

PERMITTEE: ALLIANCE RESIDENTIAL COMPANY
222 WEST COMSTOCK AVENUE SUITE 115
WINTER PARK, FL 32789

PROJECT NAME: AVALON POINTE

PROJECT LOCATION: Orange County, S31,32/T24S/R27E

PROJECT DESCRIPTION/AUTHORIZING:

Dewatering of the water table aquifer for installation of proposed stormwater management system for the project known as Avalon Pointe.

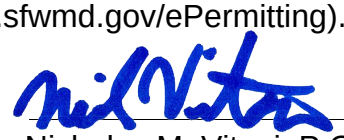
This is to notify you of South Florida Water Management District's (District) agency action concerning Permit Application Number 201204-5, received December 4, 2020. This action is taken pursuant to Chapter 373, Part II, Florida Statutes (F.S.), Rule 40E-1.603 and Chapter 40E-2, Florida Administrative Code (F.A.C.). Based on the information provided, District rules have been adhered to and a Water Use Individual Permit is in effect for this project subject to:

1. Not receiving a filed request for an administrative hearing pursuant to Section 120.57, F.S. and Section 120.569, F.S., or a request for a judicial review pursuant to Section 120.68, F.S.
2. The attached 35 permit conditions.
3. The attached 7 exhibits.

By acceptance and utilization of the water authorized under this permit, the Permittee agrees to hold and save the District and its successors harmless from any and all damages, claims or liabilities that may arise by reason of the construction, maintenance or use of activities authorized by this permit. Should you object to the permit, please refer to the attached "Notice of Rights" that addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Should you wish to object to the proposed agency action or file a petition or request, please provide written objections, petitions, requests and/or waivers to: Office of the District Clerk, South Florida Water Management District, 3301 Gun Club Road, West Palm Beach, FL 33406, or by email to clerk@sfwmd.gov.

CERTIFICATION OF SERVICE

I HEREBY CERTIFY THAT this written notice has been mailed or electronically transmitted to the Permittee (and the persons listed in the attached distribution list) this 4th day of March, 2021, in accordance with Section 120.60(3), F.S. Notice was also electronically posted on this date through a link on the home page of the District's website (my.sfwmd.gov/ePermitting).

BY: 

Nicholas M. Vitani, P.G.
Section Leader
Water Use Bureau

SPECIAL PERMIT CONDITIONS

1. This permit is issued to:
   Alliance Residential Company
   222 W. Comstock Ave., Ste. 115
   Winter Park, FL 32789

2. This permit shall expire on March 4, 2023.

3. Use classification is:

   Dewatering

4. Dewatering is authorized by this permit for a duration of one year from the date provided to the District by the Permittee in accordance with the notification requirements as stated in the Special Permit Conditions of this permit.

5. Source classification is:

   Surface Water from:
   Water Table aquifer

6. Pursuant to Subsection 2.3.2.B.2 of the Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District, neither maximum monthly nor annual allocation volumes are specified.

7. Withdrawal facilities:

   Surface Water - Proposed:

   2 - 6" x 25 HP X 1500 GPM Rotary Pumps

8. The Permittee shall submit all data as required by the implementation schedule for each of the permit conditions to: SFWMD at www.sfwmd.gov/ePermitting, or Regulatory Support, 3301 Gun Club Road, West Palm Beach, FL 33406.

9. The Permittee must submit the appropriate application form incorporated by reference in Rule 40E-2.101, F.A.C., to the District prior to the permit expiration date in order to continue the use of water.

10. The excavation shall be constructed using sound engineering practices. If the excavation or dewatering activities endanger the properties of adjacent owners (through erosion, side wall collapse, flooding, etc.), the Permittee shall cease operations until a method to prevent such occurrences is found and instituted. The Permittee shall be responsible for finding and instituting

methods to stop such occurrences.

11. The Permittee shall immediately cease dewatering when continued dewatering would create a condition hazardous to the health, safety, and general welfare of the people of the District.

12. The Permittee shall be responsible for clearing shoaling, if the Permittee's dewatering operation creates shoaling in adjacent water bodies.

13. The Permittee shall conduct dewatering activities in adherence to the following operating plan:

    The dewatering activities shall be conducted in accordance with the plans in Exhibit 5 of Application 201204-5. Dewatering effluent shall be routed to a temporary storage basin then to recharge trenches.

14. The Permittee shall construct the proposed recharge trenches prior to dewatering and maintain water levels during active dewatering operations within one foot below land surface. Obstructions and sediments within the recharge trenches shall be removed to maintain the effectiveness of the recharge trenches.

15. All dewatering water shall be retained on the Permittee's land. Off-site discharge of the dewatering effluent is not authorized.

16. A copy of the permit, its conditions, and dewatering plan is required to be kept on site at all times during dewatering operations by the lead contractor or site manager.

17. This permit is issued concurrently with the required construction permit for an environmental resource system (ERP). No use of water shall commence until final action has been taken on the concurrent ERP application. Should the ERP for this project not be obtained, or obtained and subsequently revoked or otherwise modified, this permit shall be subject to review and modification, enforcement action, or revocation pursuant to Chapter 373, F.S., in accordance with Standard Permit Condition 8.

18. Turbidity measurements of the dewatering water shall be made daily at the point of discharge and a background location (upstream) in the receiving water body. If turbidity levels in the dewatering water exceed 29 NTU above background conditions in the receiving water body, or 0 NTU above background for discharge to Outstanding Florida Waters, the Permittee is required to correct the situation and cease dewatering operations until monitoring demonstrates turbidity standards are met. All turbidity data shall be retained on-site for inspection by District Staff.

19. At least 72 hours prior to initial dewatering, the Permittee shall contact the District to allow for a site visit to verify:

a. The location and design of the recharge trenches and on-site retention areas where dewatering water will be retained;

b. The location of monitoring facilities; and,

c. Other site-specific issues related to the protection of the resource or other existing legal users.

Failure of the Permittee, or the Permittee's representative, to notify the District before dewatering commences will result in enforcement action. If necessary, the District shall conduct a site visit.

Notification of commencement of dewatering can be made by contacting: wucompliance@sfwmd.gov

20. The Permittee shall submit to the District an updated "Summary of Groundwater (Well) or Surface Water (Pump or Culvert) Facilities" table ("Section IV - Sources of Water", Water Use Permit Application Form 1379) at least 30 days prior to a change in any facility status (e.g. installation, relocation, abandonment) to include all specifications of the well, pump or culvert (e.g. actual total and cased depths, pump manufacturer and model numbers, pump types, intake depths and type of meters, culvert type, length, cross-section, diameter, height, width, invert elevation, control device, and water use accounting method).

21. The Permittee shall not lower the water table below the following depths:

    86 feet NAVD (approximately 34 feet below average land surface).

22. Within 30 days of completion of the dewatering operation, all dewatering facilities (such as impoundments, conveyances, and recharge trenches) shall be filled and regraded to ground elevation or to otherwise comply with the Environmental Resource Permit.

23. This project is located in the Central Florida Water Initiative (CFWI) area, an area with on-going impacts to water resources which are being addressed by the CFWI. If the District determines that adverse impacts to water resources or existing legal users are occurring or are projected to occur because of the Permittee's authorized withdrawals over the permit duration, the District, upon reasonable notice to the permittee and including a statement of facts upon which the District based its determination, may modify quantities permitted or other conditions of the permit, as appropriate, to address the impact, but only after an opportunity for the permittee to resolve or mitigate the impact or to request a hearing. Such modification, if any, will consider such factors as the permittee's relative contribution to the water resource impact being addressed due to groundwater withdrawals, the timing of this permit issuance compared to presently existing legal use of water, and other considerations identified by the CFWI Solutions Planning and Regulatory Teams. Modifications may include mitigation of impacts and / or reconsideration of allocations or requirements to timely implement required actions that are consistent with the long-term, regional water supply solutions as implemented by rules. Such actions may include the development of alternative water supplies, the implementation of water resource and / or water supply

development projects, the application of impact offsets or substitution credits, operating plans, heightened water conservation or other appropriate actions. Nothing in this condition is intended to abrogate the rights of the Governing Board or of any other person under Section 373.233, F.S.

24. The Central Florida Water Initiative documented existing water resource environmental impacts within its boundaries. This Initiative remains underway and is, in part, crafting long-term water supply solutions for the region. As a component of immediate, interim measures the permittee is encouraged to participate in the District's on-going, heightened water conservation public education program. Given the permittee's use class, opportunities may include such activities as participation in water conservation public service announcements, demonstrations of irrigation efficiency at community gardens, posting water conservation information or links on the permittee's website. Please contact Robert Wanvestraut at rowanves@sfwmd.gov to discuss opportunities for participation in this important District effort.

STANDARD PERMIT CONDITIONS

1. All water uses authorized by this permit shall be implemented as conditioned by this permit, including any documents incorporated by reference in a permit condition. The District may revoke this permit, in whole or in part, or take enforcement action, pursuant to Section 373.136 or 373.243, F.S., unless a permit modification has been obtained to address the noncompliance.

   The Permittee shall immediately notify the District in writing of any previously submitted material information that is later discovered to be inaccurate.

2. The Permittee is advised that this permit does not relieve any person from the requirement to obtain all necessary federal, state, local and special district authorizations.

3. The Permittee shall notify the District in writing within 30 days of any sale, transfer, or conveyance of ownership or any other loss of permitted legal control of the Project and/or related facilities from which the permitted consumptive use is made. Where Permittee's control of the land subject to the permit was demonstrated through a lease, the Permittee must either submit a new or modified lease showing that it continues to have legal control or documentation showing a transfer in control of the permitted system/project to the new landowner or new lessee. All transfers of ownership are subject to the requirements of Rule 40E-1.6107, F.A.C. Alternatively, the Permittee may surrender the consumptive use permit to the District, thereby relinquishing the right to conduct any activities under the permit.

4. Nothing in this permit should be construed to limit the authority of the District to declare a water shortage and issue orders pursuant to Chapter 373, F.S. In the event of a declared water shortage, the Permittee must adhere to the water shortage restrictions, as specified by the District. The Permittee is advised that during a water shortage, reports shall be submitted as required by District rule or order. The Permittee is advised that during a water shortage, pumpage, water levels, and water quality data shall be collected and submitted as required by District orders issued pursuant to Chapter 40E-21, F.A.C.

5. This permit does not convey to the Permittee any property rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.

6. With advance notice to the Permittee, District staff with proper identification shall have permission to enter, inspect, observe, collect samples, and take measurements of permitted facilities to determine compliance with the permit conditions and permitted plans and specifications. The Permittee shall either accompany District staff onto the property or make provision for access onto the property.

7. A. The Permittee may seek modification of any term of an unexpired permit. The Permittee is advised that Section 373.239, F.S., and Rule 40E-2.331, F.A.C., are applicable to permit modifications.

   B. The Permittee shall notify the District in writing 30 days prior to any changes to the project that

could potentially alter the reasonable demand reflected in the permitted allocation. Such changes include, but are not limited to, change in irrigated acreage, crop type, irrigation system, large users agreements, or water treatment method. Permittee will be required to apply for a modification of the permit for any changes in permitted allocation.

8. If any condition of the permit is violated, the permit shall be subject to review and modification, enforcement action, or revocation pursuant to Chapter 373, F.S.

9. The Permittee shall mitigate interference with existing legal uses that was caused in whole or in part by the Permittee's withdrawals, consistent with the approved mitigation plan. As necessary to offset the interference, mitigation will include pumpage reduction, replacement of the impacted individual's equipment, relocation of wells, change in withdrawal source, or other means.

   Interference to an existing legal use is defined as an impact that occurs under hydrologic conditions equal to or less severe than a 1-in-10 year drought event that results in the:

   A. Inability to withdraw water consistent with provisions of the permit, such as when remedial structural or operational actions not materially authorized by existing permits must be taken to address the interference; or

   B. Change in the quality of water pursuant to primary State Drinking Water Standards to the extent that the water can no longer be used for its authorized purpose, or such change is imminent.

10. The Permittee shall mitigate harm to the natural resources caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm, as determined through reference to the conditions for permit issuance includes:

    A. Reduction in ground or surface water levels that results in harmful lateral movement of the fresh water/salt water interface,

    B. Reduction in water levels that harm the hydroperiod of wetlands,

    C. Significant reduction in water levels or hydroperiod in a naturally occurring water body such as a lake or pond,

    D. Harmful movement of contaminants in violation of state water quality standards, or

    E. Harm to the natural system including damage to habitat for rare or endangered species.

11. The Permittee shall mitigate harm to existing off-site land uses caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm as determined through reference to the conditions for permit issuance, includes:

A. Significant reduction in water levels on the property to the extent that the designed function of the water body and related surface water management improvements are damaged, not including aesthetic values. The designed function of a water body is identified in the original permit or other governmental authorization issued for the construction of the water body. In cases where a permit was not required, the designed function shall be determined based on the purpose for the original construction of the water body (e.g. fill for construction, mining, drainage canal, etc.)

B. Damage to agriculture, including damage resulting from reduction in soil moisture resulting from consumptive use; or,

C. Land collapse or subsidence caused by reduction in water levels associated with consumptive use.

NOTICE OF RIGHTS

As required by Chapter 120, Florida Statutes, the following provides notice of the opportunities which may be available for administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes, or judicial review pursuant to Section 120.68, Florida Statutes, when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Some of the legal proceedings detailed below may not be applicable or appropriate for your situation. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Florida Statutes. Persons seeking a hearing on a District decision which affects or may affect their substantial interests shall file a petition for hearing in accordance with the filing instructions set forth herein within 21 days of receipt of written notice of the decision unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Florida Statutes; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Florida Statutes. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, posting, or publication that the District has taken or intends to take final agency action. Any person who receives written notice of a District decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action that materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional point of entry pursuant to Rule 28-106.111, Florida Administrative Code.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Florida Statutes, shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The District may grant the request for good cause. Requests for extension of time must be filed with the District prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and whether the District and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at the District's headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.

- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the District's security desk does not constitute filing. It will be necessary to request that the District's security officer contact the Office of the District Clerk. An employee of the District's Clerk's office will receive and process the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document.

INITIATION OF AN ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Rules 28-106.201 and 28-106.301, Florida Administrative Code, initiation of an administrative hearing shall be made by written petition to the District in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other District identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner, petitioner's attorney or qualified representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the District's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the District's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the District's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the District to take with respect to the District's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401–.405, Florida Administrative Code. The District is not proposing mediation for this agency action under Section 120.573, Florida Statutes, at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Florida Statutes, and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final District action may seek judicial review of the District's final decision by filing a notice of appeal with the Office of the District Clerk in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the appropriate district court of appeals via the Florida Courts E-Filing Portal.

WATER USE STAFF REPORT

Application Number: 201204-5

Permit Number: 48-02757-W

Project Name: AVALON POINTE

Water Use Permit Status: PROPOSED

Location: ORANGE COUNTY, S31,32/T24S/R27E

Applicant's Name and Address: ALLIANCE RESIDENTIAL COMPANY
222 WEST COMSTOCK AVENUE SUITE 115
WINTER PARK, FL 32789

Water Use Classification: Dewatering

Sources:

Surface Water from: Water Table aquifer

Proposed Withdrawal Facilities - Surface Water

Source: Water Table aquifer
2 - 6" X 25 HP X 1500 GPM Rotary Pumps

Rated Capacity Source	Status Code	GPM	MGM	MGY
Water Table aquifer	P	3,000	131.3	1,577
Totals:		**3,000**	**131.3**	**1,577**

PURPOSE

The purpose of this application is to obtain a Water Use Permit for dewatering to install a stormwater management system. Withdrawals are from the water table aquifer (WTA).

PROJECT DESCRIPTION

Avalon Pointe (Project) is a proposed housing development located southwest of the intersection of Avalon Rd. and Hartzog Rd. in southwest Orange County as shown on Exhibits 1 through 3. The Project withdrawals are from the water table aquifer via two vacuum pumps. Pump specifications are provided in Exhibit 4. Dewatering plans, details, methods, and calculations are provided in Exhibit 5. Actual dewatering activities are expected to require a maximum of 30 working days. The maximum daily pumpage is expected to be approximately 3.68 million gallons, and the total Project pumpage is not expected to exceed 55.2 million gallons. The maximum extent of dewatering will be a groundwater elevation of 86 feet North American Vertical Datum (NAVD) or

PROJECT DESCRIPTION (CONTINUED)

approximately 34 feet below land surface. Dewatering effluent shall be routed to a temporary storage basin then to recharge trenches. Turbidity monitoring will be conducted daily to ensure turbidity levels are less than 29 nephelometric turbidity units (NTUs) above background levels. If monitoring indicates that state water quality standards are not being maintained, the dewatering operation shall cease until monitoring demonstrates that water quality standards are met. Turbidity records will be maintained on-site for District staff review.

If exceptional storm conditions occur that exceed the capacity of the dewatering effluent disposal systems, the Permittee is required to cease dewatering operations until adequate storage is available to contain all dewatering discharge.

Due to the minimal drawdown associated with short term dewatering projects, the potential for harm to the resource, existing legal users, wetlands, saline water, or movement of contamination is considered minimal as a result of the Project's proposed dewatering activities. The maximum radius of influence for the dewatering operations was calculated at 997 feet from the deepest dewatering activities.

At least 72 hours prior to initial dewatering, the Permittee shall notify the District via email at wucompliance@sfwmd.gov that dewatering is about to commence. A copy of the permit, its limiting conditions, and dewatering plan is required to be kept on-site at all times during dewatering operations by the lead contractor or site manager. Pursuant to Special Permit Condition 4, dewatering is authorized by this permit for a duration of one year from the start date provided to the District by the Permittee.

The proposed water use is located within the area of the Central Florida Water Initiative (CFWI). The CFWI is a collaborative regional water supply endeavor to protect, conserve, and restore water resources in the area by working to accomplish the goals presented in the CFWI Guidance Document. These goals include crafting long-term water supply solutions for the Central Florida region. The CFWI effort may also result in specific regulatory requirements. While the scope and content of these regulatory requirements are unknown at this time, it is possible they may include requirements that are related to the permittee's relative contribution to the water resource impact being addressed, the timing of permit issuance compared to other existing legal users, and/or include other considerations identified by the CFWI Solutions Planning and Regulatory Teams. Therefore, this permit includes Special Permit Condition 23 that provides specific notification that the permit may be modified during the term of the permit to address unanticipated harm or impacts to existing legal users that is occurring or is projected to occur from the permittee's authorized withdrawal over the permit duration.

Since this application is located within the CFWI area, it is necessary for the applicant to consider implementing the heightened water conservation requirements defined in Special Permit Condition 24. The applicant is advised to carefully consider its infrastructure in light of the ongoing CFWI.

WATER RESOURCE IMPACT EVALUATION

Wetland Environments

Water Table aquifer

The project area includes one wetland and a surface water that fall within the radius of influence of the proposed pond. The approximate location of the wetland and surface water are depicted on Exhibit 5. The wetland can be generally described as a freshwater marsh. The existing hydrologic conditions of the freshwater marsh are seasonally inundated and exhibit standing water throughout most of the year and were therefore evaluated as Category 2 wetlands. The existing hydrologic conditions of the small lake are permanently flooded throughout the year and were therefore evaluated as a Category 1 surface water.

Recharge trenches will be utilized within the radius of influence of drawdown to eliminate potential negative drawdown effects to the wetland and surface water. Double silt-fences and other appropriate best management practices for sediment control (BMPs) will be used to provide assurances that the wetlands will be protected.

Therefore, based upon application of the narrative standard that the hydrologic alteration of the water use shall not adversely impact the values of wetland functions so as to cause harm to the abundance, diversity and habitat of fish, wildlife and listed species, the potential for harm to occur to wetlands as a result of the authorized dewatering is considered minimal.

ADDITIONAL INFORMATION

ENVIRONMENTAL RESOURCE PERMIT STATUS:

PERMITTED (No. 48-103624-P)

RIGHT OF WAY PERMIT STATUS:

Not Applicable

RECOMMENDATIONS

Project Name: AVALON POINTE

Application Number: 201204-5

Permit Number: 48-02757-W

RECOMMENDATION

Dewatering of the water table aquifer for installation of proposed stormwater management system for the project known as Avalon Pointe.

STAFF EVALUATION

REVIEWER:

for Olivia Karbiener, NRM

Brian C Collins

Brian Collins, WU

SUPERVISOR:

for Marc S. Ady, NRM

Nicholas M. Vitani, P.G., WU

SPECIAL PERMIT CONDITIONS

1. This permit is issued to:
   Alliance Residential Company
   222 W. Comstock Ave., Ste. 115
   Winter Park, FL 32789

2. This permit shall expire on March 4, 2023.

3. Use classification is:

   Dewatering

4. Dewatering is authorized by this permit for a duration of one year from the date provided to the District by the Permittee in accordance with the notification requirements as stated in the Special Permit Conditions of this permit.

5. Source classification is:

   Surface Water from:
   Water Table aquifer

6. Pursuant to Subsection 2.3.2.B.2 of the Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District, neither maximum monthly nor annual allocation volumes are specified.

7. Withdrawal facilities:

   Surface Water - Proposed:

   2 - 6" x 25 HP X 1500 GPM Rotary Pumps

8. The Permittee shall submit all data as required by the implementation schedule for each of the permit conditions to: SFWMD at www.sfwmd.gov/ePermitting, or Regulatory Support, 3301 Gun Club Road, West Palm Beach, FL 33406.

9. The Permittee must submit the appropriate application form incorporated by reference in Rule 40E-2.101, F.A.C., to the District prior to the permit expiration date in order to continue the use of water.

10. The excavation shall be constructed using sound engineering practices. If the excavation or dewatering activities endanger the properties of adjacent owners (through erosion, side wall collapse, flooding, etc.), the Permittee shall cease

operations until a method to prevent such occurrences is found and instituted. The Permittee shall be responsible for finding and instituting methods to stop such occurrences.

11. The Permittee shall immediately cease dewatering when continued dewatering would create a condition hazardous to the health, safety, and general welfare of the people of the District.

12. The Permittee shall be responsible for clearing shoaling, if the Permittee's dewatering operation creates shoaling in adjacent water bodies.

13. The Permittee shall conduct dewatering activities in adherence to the following operating plan:

    The dewatering activities shall be conducted in accordance with the plans in Exhibit 5 of Application 201204-5. Dewatering effluent shall be routed to a temporary storage basin then to recharge trenches.

14. The Permittee shall construct the proposed recharge trenches prior to dewatering and maintain water levels during active dewatering operations within one foot below land surface. Obstructions and sediments within the recharge trenches shall be removed to maintain the effectiveness of the recharge trenches.

15. All dewatering water shall be retained on the Permittee's land. Off-site discharge of the dewatering effluent is not authorized.

16. A copy of the permit, its conditions, and dewatering plan is required to be kept on site at all times during dewatering operations by the lead contractor or site manager.

17. This permit is issued concurrently with the required construction permit for an environmental resource system (ERP). No use of water shall commence until final action has been taken on the concurrent ERP application. Should the ERP for this project not be obtained, or obtained and subsequently revoked or otherwise modified, this permit shall be subject to review and modification, enforcement action, or revocation pursuant to Chapter 373, F.S., in accordance with Standard Permit Condition 8.

18. Turbidity measurements of the dewatering water shall be made daily at the point of discharge and a background location (upstream) in the receiving water body. If turbidity levels in the dewatering water exceed 29 NTU above background conditions in the receiving water body, or 0 NTU above background for discharge to Outstanding Florida Waters, the Permittee is required to correct the situation and cease dewatering

operations until monitoring demonstrates turbidity standards are met. All turbidity data shall be retained on-site for inspection by District Staff.

19. At least 72 hours prior to initial dewatering, the Permittee shall contact the District to allow for a site visit to verify:

    a. The location and design of the recharge trenches and on-site retention areas where dewatering water will be retained;

    b. The location of monitoring facilities; and,

    c. Other site-specific issues related to the protection of the resource or other existing legal users.

    Failure of the Permittee, or the Permittee's representative, to notify the District before dewatering commences will result in enforcement action. If necessary, the District shall conduct a site visit.

    Notification of commencement of dewatering can be made by contacting: wucompliance@sfwmd.gov

20. The Permittee shall submit to the District an updated "Summary of Groundwater (Well) or Surface Water (Pump or Culvert) Facilities" table ("Section IV - Sources of Water", Water Use Permit Application Form 1379) at least 30 days prior to a change in any facility status (e.g. installation, relocation, abandonment) to include all specifications of the well, pump or culvert (e.g. actual total and cased depths, pump manufacturer and model numbers, pump types, intake depths and type of meters, culvert type, length, cross-section, diameter, height, width, invert elevation, control device, and water use accounting method).

21. The Permittee shall not lower the water table below the following depths:

    86 feet NAVD (approximately 34 feet below average land surface).

22. Within 30 days of completion of the dewatering operation, all dewatering facilities (such as impoundments, conveyances, and recharge trenches) shall be filled and regraded to ground elevation or to otherwise comply with the Environmental Resource Permit.

23. This project is located in the Central Florida Water Initiative (CFWI) area, an area with on-going impacts to water resources which are being addressed by the CFWI. If the District determines that adverse impacts to water resources or existing legal users are occurring or are projected to occur because of the Permittee's authorized withdrawals over the permit duration, the District, upon reasonable notice to the permittee and

including a statement of facts upon which the District based its determination, may modify quantities permitted or other conditions of the permit, as appropriate, to address the impact, but only after an opportunity for the permittee to resolve or mitigate the impact or to request a hearing. Such modification, if any, will consider such factors as the permittee's relative contribution to the water resource impact being addressed due to groundwater withdrawals, the timing of this permit issuance compared to presently existing legal use of water, and other considerations identified by the CFWI Solutions Planning and Regulatory Teams. Modifications may include mitigation of impacts and / or reconsideration of allocations or requirements to timely implement required actions that are consistent with the long-term, regional water supply solutions as implemented by rules. Such actions may include the development of alternative water supplies, the implementation of water resource and / or water supply development projects, the application of impact offsets or substitution credits, operating plans, heightened water conservation or other appropriate actions. Nothing in this condition is intended to abrogate the rights of the Governing Board or of any other person under Section 373.233, F.S.

24. The Central Florida Water Initiative documented existing water resource environmental impacts within its boundaries. This Initiative remains underway and is, in part, crafting long-term water supply solutions for the region. As a component of immediate, interim measures the permittee is encouraged to participate in the District's on-going, heightened water conservation public education program. Given the permittee's use class, opportunities may include such activities as participation in water conservation public service announcements, demonstrations of irrigation efficiency at community gardens, posting water conservation information or links on the permittee's website. Please contact Robert Wanvestraut at rowanves@sfwmd.gov to discuss opportunities for participation in this important District effort.

STANDARD PERMIT CONDITIONS

1. All water uses authorized by this permit shall be implemented as conditioned by this permit, including any documents incorporated by reference in a permit condition. The District may revoke this permit, in whole or in part, or take enforcement action, pursuant to Section 373.136 or 373.243, F.S., unless a permit modification has been obtained to address the noncompliance.

   The Permittee shall immediately notify the District in writing of any previously submitted material information that is later discovered to be inaccurate.

2. The Permittee is advised that this permit does not relieve any person from the requirement to obtain all necessary federal, state, local and special district authorizations.

3. The Permittee shall notify the District in writing within 30 days of any sale, transfer, or conveyance of ownership or any other loss of permitted legal control of the Project and/or related facilities from which the permitted consumptive use is made. Where Permittee's control of the land subject to the permit was demonstrated through a lease, the Permittee must either submit a new or modified lease showing that it continues to have legal control or documentation showing a transfer in control of the permitted system/project to the new landowner or new lessee. All transfers of ownership are subject to the requirements of Rule 40E-1.6107, F.A.C. Alternatively, the Permittee may surrender the consumptive use permit to the District, thereby relinquishing the right to conduct any activities under the permit.

4. Nothing in this permit should be construed to limit the authority of the District to declare a water shortage and issue orders pursuant to Chapter 373, F.S. In the event of a declared water shortage, the Permittee must adhere to the water shortage restrictions, as specified by the District. The Permittee is advised that during a water shortage, reports shall be submitted as required by District rule or order. The Permittee is advised that during a water shortage, pumpage, water levels, and water quality data shall be collected and submitted as required by District orders issued pursuant to Chapter 40E-21, F.A.C.

5. This permit does not convey to the Permittee any property rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.

6. With advance notice to the Permittee, District staff with proper identification shall have permission to enter, inspect, observe, collect samples, and take measurements of permitted facilities to determine compliance with the permit conditions and permitted plans and specifications. The Permittee shall either accompany District staff onto the property or make provision for access onto the property.

7. A. The Permittee may seek modification of any term of an unexpired permit. The Permittee is advised that Section 373.239, F.S., and Rule 40E-2.331, F.A.C., are applicable to permit modifications.

   B. The Permittee shall notify the District in writing 30 days prior to any changes to the project that could potentially alter the reasonable demand reflected in the permitted allocation. Such changes include, but are not limited to, change in irrigated acreage, crop type, irrigation system, large users agreements, or water treatment method. Permittee will be required to apply for a modification of the permit for any changes in permitted allocation.

8. If any condition of the permit is violated, the permit shall be subject to review and modification, enforcement action, or revocation pursuant to Chapter 373, F.S.

9. The Permittee shall mitigate interference with existing legal uses that was caused in whole or in part by the Permittee's withdrawals, consistent with the approved mitigation plan. As necessary to offset the interference, mitigation will include pumpage reduction, replacement of the impacted individual's equipment, relocation of wells, change in withdrawal source, or other means.

   Interference to an existing legal use is defined as an impact that occurs under hydrologic conditions equal to or less severe than a 1-in-10 year drought event that results in the:

   A. Inability to withdraw water consistent with provisions of the permit, such as when remedial structural or operational actions not materially authorized by existing permits must be taken to address the interference; or

   B. Change in the quality of water pursuant to primary State Drinking Water Standards to the extent that the water can no longer be used for its authorized purpose, or such change is imminent.

10. The Permittee shall mitigate harm to the natural resources caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm, as determined through reference to the conditions for permit issuance includes:

    A. Reduction in ground or surface water levels that results in harmful lateral movement of the fresh water/salt water interface,

    B. Reduction in water levels that harm the hydroperiod of wetlands,

    C. Significant reduction in water levels or hydroperiod in a naturally occurring water body such as a lake or pond,

D. Harmful movement of contaminants in violation of state water quality standards, or

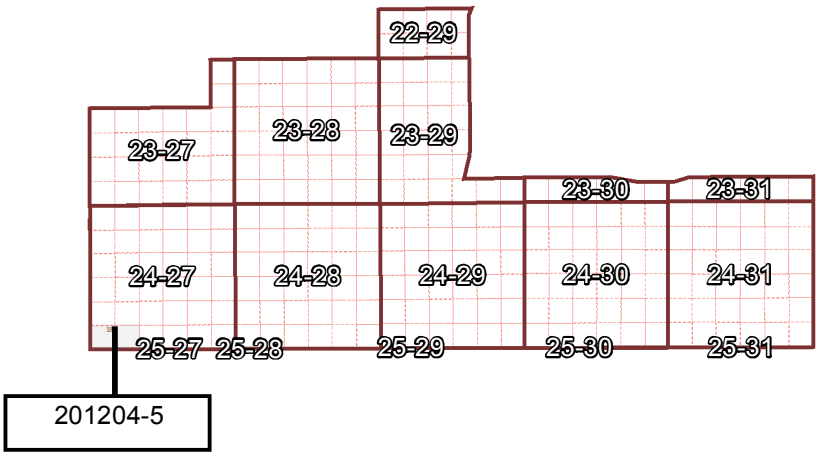
E. Harm to the natural system including damage to habitat for rare or endangered species.

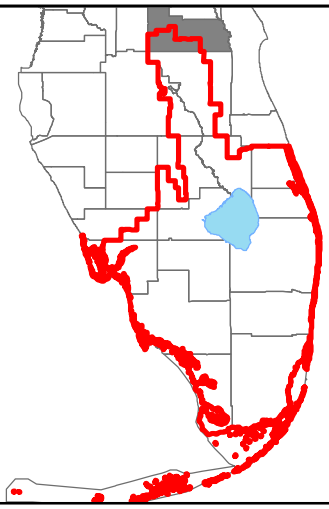
11. The Permittee shall mitigate harm to existing off-site land uses caused by the Permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the Permittee to modify withdrawal rates or mitigate the harm. Harm as determined through reference to the conditions for permit issuance, includes:

    A. Significant reduction in water levels on the property to the extent that the designed function of the water body and related surface water management improvements are damaged, not including aesthetic values. The designed function of a water body is identified in the original permit or other governmental authorization issued for the construction of the water body. In cases where a permit was not required, the designed function shall be determined based on the purpose for the original construction of the water body (e.g. fill for construction, mining, drainage canal, etc.)

    B. Damage to agriculture, including damage resulting from reduction in soil moisture resulting from consumptive use; or,

    C. Land collapse or subsidence caused by reduction in water levels associated with consumptive use.





ORANGE COUNTY, FLORIDA

N

Map Date: 2021-03-01

Application No: 201204-5

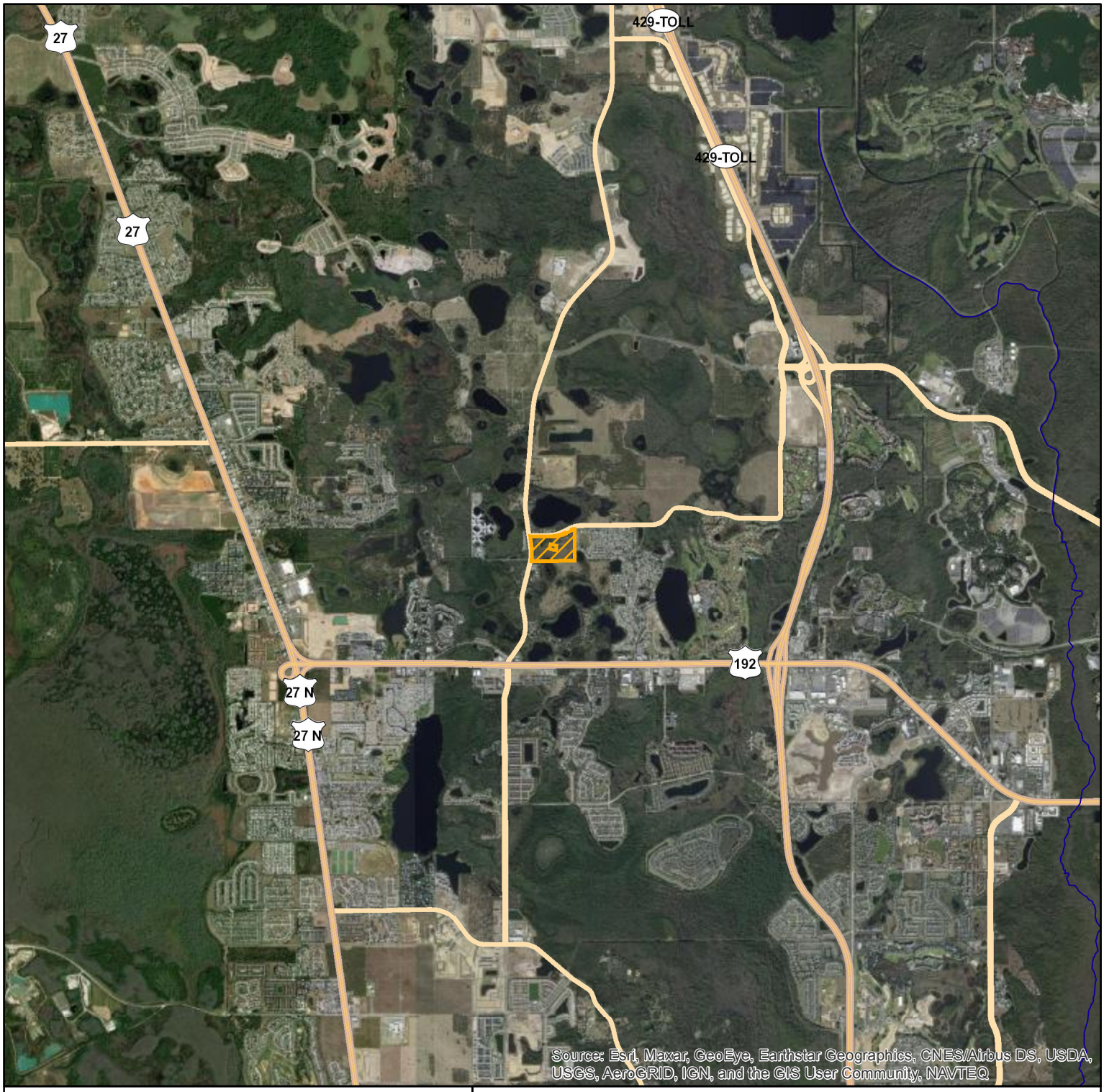
Permit No: 48-02757-W

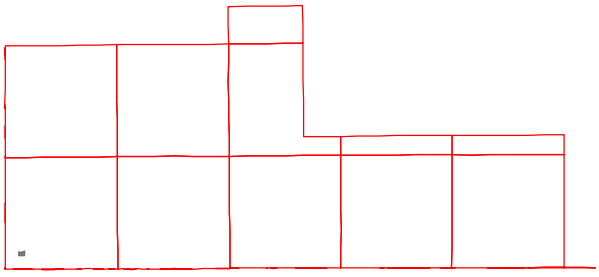
Sec 31,32 / Twp 24 / Rge 27

Project Name: AVALON POINTE

0 10 20 Miles

Exhibit No: 1





Application

ORANGE COUNTY, FLORIDA

N

Map Date: 2021-03-01

Application No: 201204-5

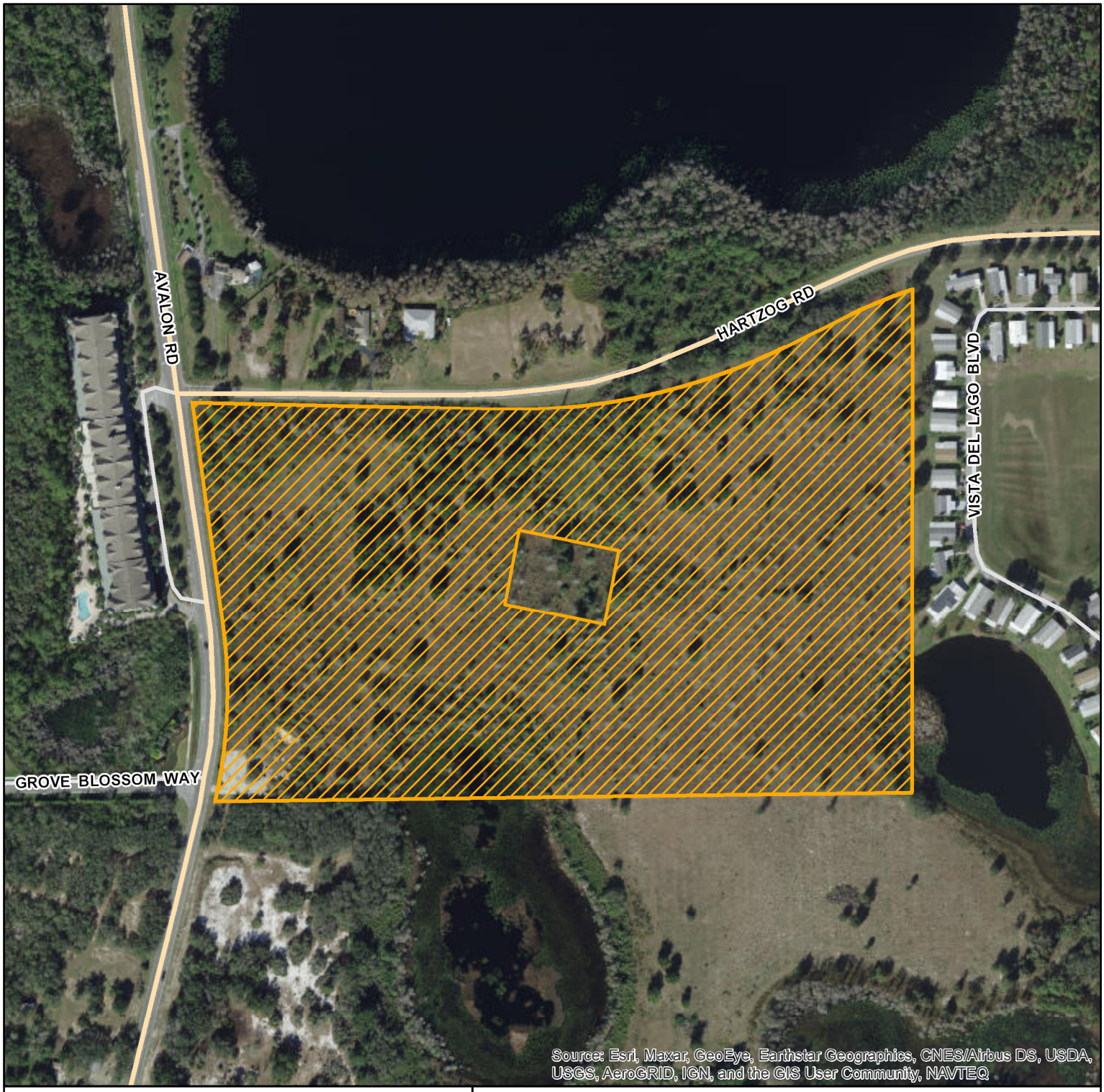
Permit No: 48-02757-W

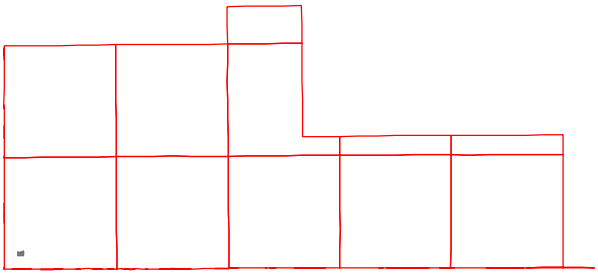
Sec 31,32 / Twp 24 / Rge 27

Project Name: AVALON POINTE

0 1.25 2.5 Miles

Exhibit No: 2





Application

ORANGE COUNTY, FLORIDA

N

Map Date: 2021-03-01

Application No: 201204-5

Permit No: 48-02757-W

Sec 31,32 / Twp 24 / Rge 27

Project Name: AVALON POINTE

0 0.075 0.15 Miles

Exhibit No: 3

TABLE - B

Description Of Surface Water Pumps

Application Number: **201204-5**

Pump ID	286312	286313
Name	Pump 1	Pump 2
Map Designator	Pump 1	Pump 2
Facility Group		
Existing/Proposed	P	P
Pump Type	Rotary	Rotary
Diameter(Inches)	6	6
Pump Capacity(GPM)	1,500	1,500
Pump Horse Power	25	25
Two Way Pump ?	Y	Y
Elevation (ft. NGVD)	0	0
Planar Location		
Source		
Feet East		
Feet North		
Accounting Method	Flow Meter	Flow Meter
Use Status	Primary	Primary
Water Use Type	Mining / Dewatering	Mining / Dewatering
Surface Water Body	Water Table aquifer	Water Table aquifer

SECTION B:
PROJECT DESCRIPTION

The development is proposed to include the construction of one (1) proposed wet stormwater pond as part of the proposed residential development of the property. The construction dewatering operations for the proposed pond will proceed by an interconnected network of dewatering sock drains, sump, and pump operations. The pond will be excavated and discharge routed to a proposed temporary storage basin (TSB-1) and recharge trenches as detailed on sheet DWP-1. Excavation procedures are detailed on sheet DWP-1 of the dewatering operations plan and will include monitoring discharge for comparison to background samples to ensure turbidity remains below 29 NTU's. Double silt fence will be utilized along the perimeter of dewatering operations.

- The total project acreage is on the order of 18± acres.
- The estimated total pond area for dewatering is on the order of 2.6± acres.
- The groundwater table at the dewatering ditches will be lowered to a maximum elevation of approximately EL. 85.5 feet NAVD (2 feet below proposed pond bottoms) for construction of the ponds.
- The maximum estimated depth of excavation is on the order of approximately 32.5 feet below existing ground surface.
- Estimated Operation Schedule: 24 hrs/day 7 days/week 52 weeks/year
- Based on the results of engineering evaluation presented in the Proposed Dewatering Operations Plan report, we anticipate the following water volumes and pumping rates.
    - Maximum Requested Allocation = 55.2 million gallons
    - Maximum theoretical daily pumpage = 3.68 million gallons per day
    - Average estimated daily pumpage (Anticipated Maximum Average) = 1.84 million gallons per day

- Total estimated duration of water use = 30 days (approx)
- A summary of calculations utilizing Sichardt's Equation are provided on Sheet DWP-2

The dewatering operations and excavations for the proposed stormwater management areas will be achieved by means of sump and sock drains within the ponds as shown in the Dewatering Operations Plan. The locations and capacity of these pumps vary as per the excavation requirements, and tentatively indicated on the operations plan. We anticipate one will be required per pond excavation. Pumps rated at a capacity of approximately 1500 gpm are likely to be used to pump out the surface water collected on site, discharging to turbidity basins for discharge to the adjacent wetland. A summary of a description of the surface water pumps used in the dewatering operations is in the following Table B.

TABLE B: DESCRIPTION OF SURFACE WATER PUMPS

Pump Number or Designation	P-1 Stormwater Pond	P-2 Stormwater Pond
Pump Capacity (GPM)	1500	1500
Purpose	Dewatering	Dewatering
Existing / Proposed	Proposed	Proposed
Pump Type	Rotary / Diesel	Rotary / Diesel
Pump Horsepower	25	25
Elevation of intake EL. (ft)	85.5	85.5
Discharge Location	TSB-1 / Recharge Trench	TSB-1 / Recharge Trench
Is pump two way?	Yes	Yes

*contractor responsible for final selection and specification of pumps

Radius of Influence (Sichardt's Equation) & Dewatering Volumes	
Project Name:	**Avalon Pointe Apartments**
Location :	**Pond 1**

Variable	Value	US Units	Value	Metric Units
Hydraulic Conductivity (k)	20	ft/day	0.000071	m/sec
Aquifer Thickness (H)	200	ft	60.96	m
Depth to Groundwater	0	ft	0.00	m
Excavation Depth	32.5	ft	9.91	m
Pond Length (a)	500	ft	152.40	m
Pond Width (b)	200	ft	60.96	m
Number of Extraction Points (n)	1		1	
Pumping Time per day	1440	min	1440	min

Calculation of Radius of Influence (Ro) for and open hole

$$R_0 = 3000 \times (H - h) \times \sqrt{K}$$

h = H-(Excavation Depth - Depth to Water) =	51.05	m
H - h =	9.91	m
Radius of Influence (Ro) =	249.62	m

Calculation of Effective Radius (Re) for rectangular excavation areas

$$r_e = \sqrt{(a \times b)/\pi}$$

re =	54.38010306	m

Calculation of Max Total Influence (Ro + re) =	304.00	m
	997	ft

Dewatering Pump Rate (q) per Extraction Point (n)

$$H^2 - h^2 = ({}^{n \times q}/_{\pi \times K})(LnR_o - Ln\, r_e)$$

$H^2 - h^2 =$	1109.61	m^2
$\pi \times K =$	0.000221657	m/s
$lnR_o - lnr_e$	1.52	
$(H^2 - h^2) / (lnR_o - lnr_e)$	728.11	
$q = ((H^2 - h^2)*\pi K)/((lnR_o - lnr_e)*n)$	0.1614	m^3/s
$q = ((H^2 - h^2)*\pi K)/((lnR_o - lnr_e)*n)$	2558.10	GPM
Maximum Daily Pumpage (q x pumping time)	3683666	GPD
	3.68	MGD

Average Daily Pumpage	1841833	GPD
	1.84	MGD



FLUCFCS LEGEND

1900 - OPEN LAND
3200 - UPLAND SHRUB & BRUSHLAND
5200 - WATER
6410 - WETLANDS

0 400
SCALE (FT.)

N

THIS DRAWING CREATED USING PLAN PROVIDED BY CLIENT.

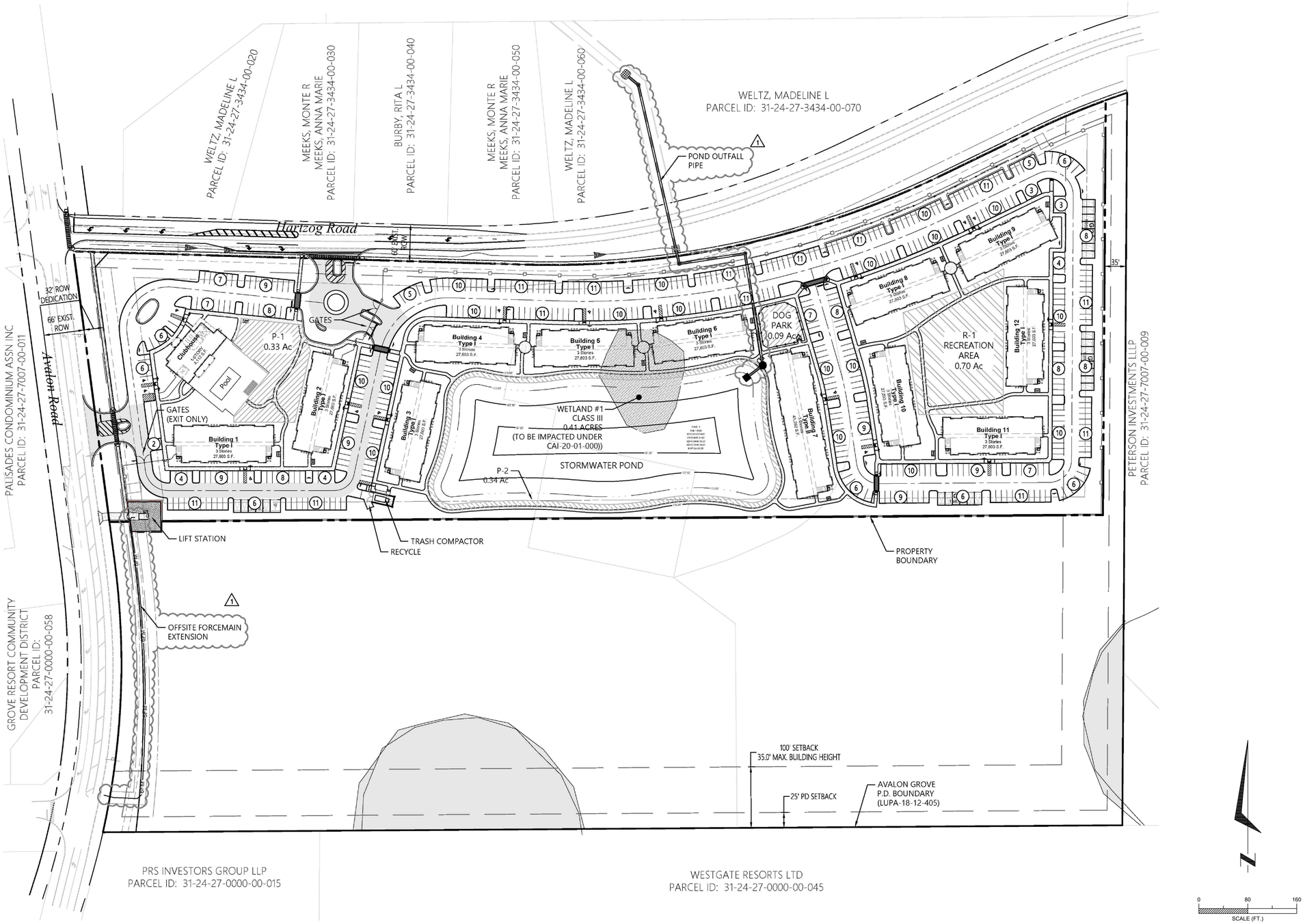
UNIVERSAL
ENGINEERING SCIENCES

DEWATERING OPERATIONS
AVALON POINTE APARTMENTS
ORANGE COUNTY, FLORIDA

AERIAL PHOTO SHOWING PROPOSED POND LOCATIONS

DRAWN BY: N.F.	DATE: 11 - 20 - 2020	CHECKED BY: T.T.	DATE:
SCALE: AS SHOWN	PROJECT NO: 0130.2000508.0000	REPORT NO:	PAGE NO: A-2

20-0763-01



THIS DRAWING CREATED USING PLAN PROVIDED BY CLIENT.

DATE:

ENGINEER'S SEAL

NO.	DATE	REVISION	BY	DATE

FOR: XXXXX

DEWATERING OPERATIONS
AVALON POINTE APARTMENTS
ORANGE COUNTY, FLORIDA

MASTER SITE PLAN

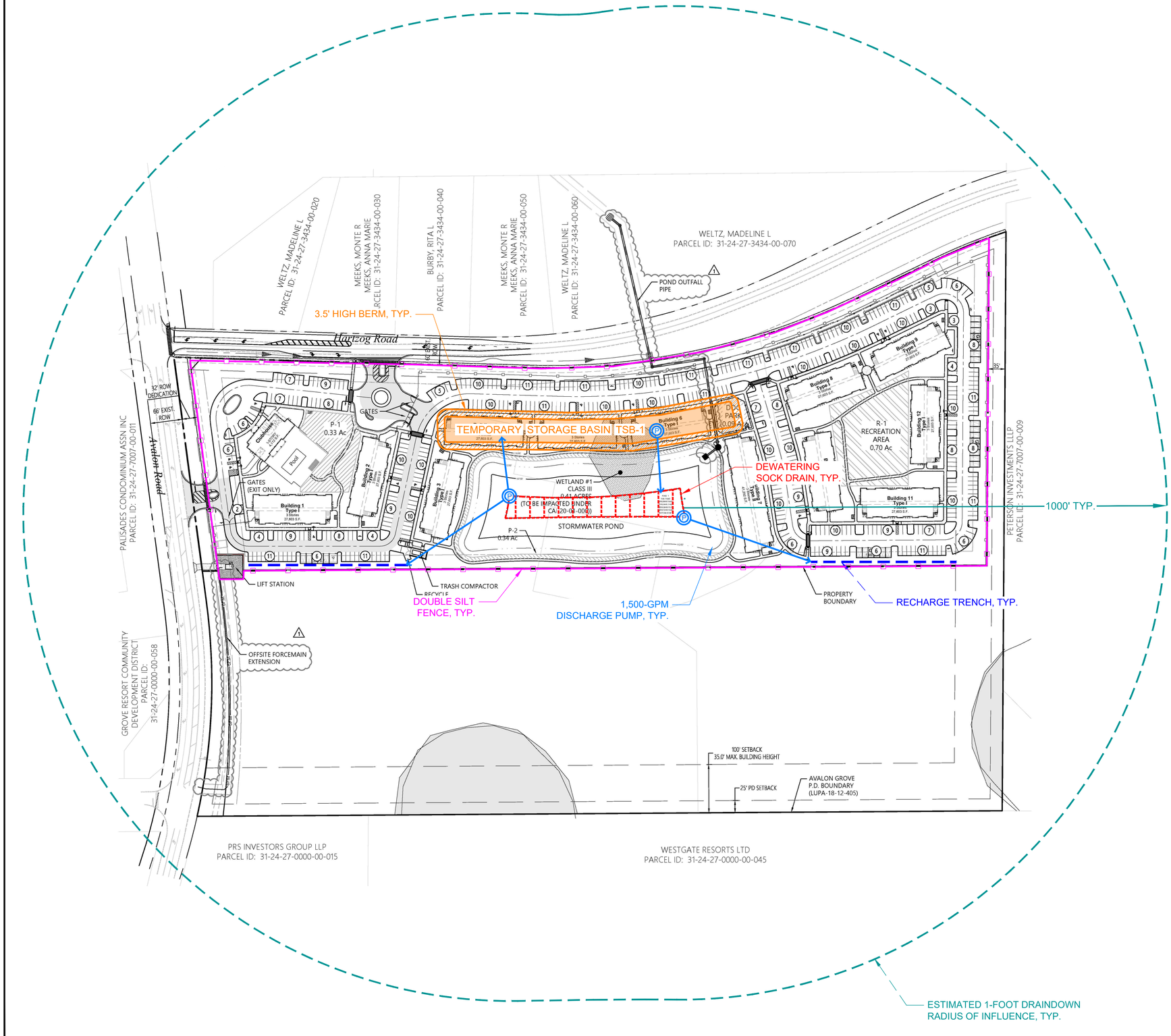
DRAWN BY:	N.F.
DATE:	11 - 20 - 2020
CHECKED BY:	T.T.
DATE:	
PROJ. MGR:	
SCALE:	AS SHOWN
PROJ. NO:	0130.2000508.0000
REPORT NO:	

UNIVERSAL
ENGINEERING SCIENCES

INSERT NO:

MSP-1

20-0763-01



THIS DRAWING CREATED USING PLAN PROVIDED BY CLIENT.

20-0763-01

DATE:

ENGINEER'S SEAL

NO.	DATE	REVISION	BY	DATE

FOR:

DEWATERING OPERATIONS
AVALON POINTE APARTMENTS
ORANGE COUNTY, FLORIDA

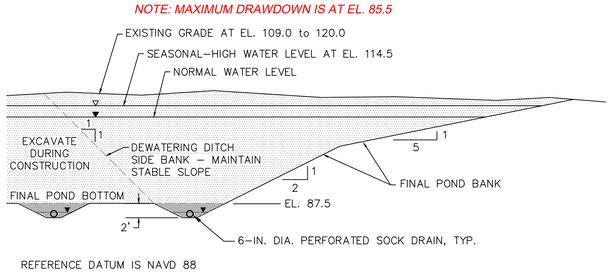
DEWATERING OPERATIONS PLAN

DRAWN BY:	N.F.
DATE:	11 - 20 - 2020
CHECKED BY:	T.T.
DATE:	
PROJ. MGR:	
SCALE:	AS SHOWN
PROJ. NO:	0130.2000508.0000
REPORT NO:	

UNIVERSAL
ENGINEERING SCIENCES

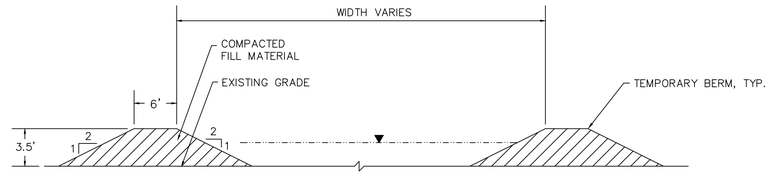
INSERT NO:

DWP-1



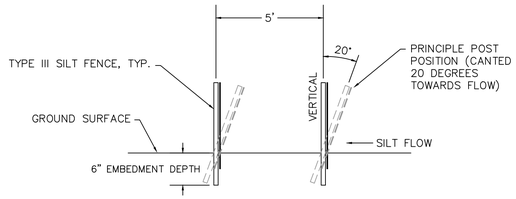
TYPICAL POND SECTION WITH DEWATERING SOCK DRAINS

NOT TO SCALE



TEMPORARY STORAGE BASIN DETAIL

NOT TO SCALE



DOUBLE SILT FENCE CROSS-SECTION

NOT TO SCALE

Ext. Duration = 9 Days
Pump Rate = 1500 GPM

POND	AREA (ac.)	Approx. Max Excavation Depth (ft.)	Ave. Dewatering Depth (ft.)	Est. Dewatering Duration (Days)	Ave. Volume Per Day (MGD)[1]	Cumulative Volume (MG)	Max Theoretical Volume (MGD)[1]	Discharge
POND 1	2.6	32.5	32.5	30	1.84	55.20	3.68	TEMPORARY STORAGE BASIN TSB-1

[1]Based on results calculated from Sichard's Equation.

GENERAL NOTES

1. This dewatering plan approved by SFWMD with associated limiting conditions discussed in the water use permit must be implemented in letter and spirit by the earthwork/excavation contractor. Any violation of dewatering permit issued will result in serious penalties imposed upon the contractor.

2. Prior to the excavation operations, both SFWMD and Universal Engineering Sciences must be informed of the proposed date of commencement, earthwork schedule and the contractors proposed means and method. Any significant changes proposed in the dewatering operations may require a permit modification and must be undertaken only after approval by the SFWMD

3. All erosion Control measures outlined in the construction drawings and the attached dewatering plan in accordance with SFWMD and Orange County's requirements, must be implemented in place prior to the dewatering/earthwork operations.

4. Contractor must adopt best management practices, take all necessary precautions and measures listed in the dewatering plan including placement of impoundment berm around open excavations, as necessary to prevent overflow of surface run-off into adjacent unmitigated wetlands, water bodies of the state or off-site.

5. Any potential conflicts arising in the implementation of the Dewatering must be resolved after consultations with the engineers involved and SFWMD.

6. Provide double silt fences both embedded at least 6-inches into the native subgrade and separated by at least 5 feet along the length of all wetland areas not directly impacted by the development.

7. Provide a 25 foot minimum upland buffer as required between the silt fences and the wetland limits. All excavation activities must be outside the minimum 25-foot upland buffers from the wetlands.

8. Prior to initiating the dewatering operations at the retention ponds, the surface water collected on the site may be discharged to the upland portion of the development as long as adequate measures are taken to ensure that water does not over-flow into wetlands and the turbidity of the surface water discharged does not exceed 29 NTU's above background levels.

9. Once the erosion plan is adequately implemented, the dewatering for the retention pond may proceed with digging rim ditches conforming the final pond side slopes and must extend at least 2 to 4 feet below the pond bottom.

10. Alternatively, the water withdrawn from dewatering rim ditch may be contained within the site by storing into either a temporary storage areas, previously excavated ponds, or isolated existing pond/ditches on site, without any wetland discharge . Provide adequate erosion control measurements consistent with the SFWMD requirements at all inflow points.

11. Provide recharge trench between the stormwater ponds and the adjacent wetlands to minimize impacts of dewatering operations to the wetlands. The recharge trench must be at least 3 feet deep, about 2 feet wide at the bottom and 2H:1V side slopes. A silt fence must be provided between the recharge trench and the wetlands (see detail).

12. The recharge trench must be kept full of low turbidity water (less than 29 NTU above background) with the water level in the recharge trenches maintained within 1-foot below surrounding grade. The water discharged into the recharge trench must not overflow the top of the banks into the adjacent wetlands.

13. Monitor the water level in the recharge trench with a calibrated staff gauge at least once each day during the entire duration of the dewatering operations.

14. All above ground berms for the termporary settling basins, recharge trench or impoundment berms must not exceed 3.5 feet in height and no steeper than 2:1 (H:V) side slopes.

15. The excavated material must be stockpiled no more than 20 feet in height, with a stable side slope (2:1, H:V or flatter), at least 100 feet away from the edge of excavations, wetland areas or water bodies of the state. Silt fences must be provided around the perimeter of the stockpile, and all run-off will be redirected away from wetlands, water bodies, or off-site areas.

16. The side banks for all the dewatering ditches, recharge trenches and excavations should have a minimum slope of 2:1 (H:V) and maintained stable during the entire dewatering/excavation operations, and must follow OSHA guidelines.

17. If deemed necessary by SFWMD, contractor will be responsible for implementing any corrective measures required by SFWMD as the dewatering operations proceed.

TURBIDITY MONITORING PROGRAM

1. A turbidity monitoring program must be implemented if surplus water from the temporary holding ponds or newly constructed ponds is discharged into a recharge trench adjacent to wetlands, or water bodies of the state.

2. Minimize turbidity at the source by using sock drains to capture and convey water, and filter fabric and rock/gravel at the sumps in the dewatering rim ditches.

3. Adequate turbidity and erosion control measures such as floating turbidity barriers and, if necessary, Alum or polyacrimalides (PAM) may be used to lower the turbidity levels of the water being discharged into the wetlands.

4. Turbidity monitoring will begin on the first day of construction for all activities related to the dewatering operations and may be discontinued upon permanent stabilization of all disturbed soils. All turbidity levels must be expressed in Nephelometric Turbidity Units (NTU).

5. Background turbidity samples must be collected prior to the commencement of dewatering operations.

6. The turbidity monitoring data shall include the time of sampling, depth of sampling, depth of water body, antecedant weather conditions, wind direction and velocity, and sample location designation and map.

7. The turbidity of the water at the temporary holding ponds, should be measured twice daily and separated by no less than 4 hours during the discharge operations.

8. The turbidity monitoring data must demonstrate that turbidity at the compliance site is less than or equal to 29 NTU's above natural background levels for seven consecutive days after the completion of construction.

9. If at any time the turbidity levels exceed background by more than 29 NTU's, all construction activities must be stopped and the District's Compliance Department must be informed.

10. Remedial measures must be taken immediately to correct any problems caused by dewatering operations. Construction activities must resume only after that the situation has been remedied upon confirmation from the District staff.

11. All monitoring data shall be read and recorded daily and submitted to the owners authorized representative by 5:00 PM each Friday. A copy of the report must be kept on site for review by the Post-permit Compliance Inspector from SFWMD.

DATE:

ENGINEER'S SEAL

NO.	DATE	BY	REVISION

FOR:

DEWATERING OPERATIONS
AVALON POINTE APARTMENTS
ORANGE COUNTY, FLORIDA

DEWATERING DETAILS & NOTES - PROPOSED UTILITY INSTALLATION

DRAWN BY:	N.F.
DATE:	11 - 20 - 2020
CHECKED BY:	T.T.
DATE:	
PROJ. MGR:	
SCALE:	AS SHOWN
PROJ. NO:	0130.2000508.0000
REPORT NO:	

UNIVERSAL
ENGINEERING SCIENCES

INSERT NO:

DWP-2

20-0763-01

Requirement by Permit Condition Report

App No: 201204-5
Permit No: 48-02757-W
Project Name: AVALON POINTE

Permit Condition No: 18 **Permit Condition Code:** WUDWT002-4

Facility Name	Requirement Name	Col Freq	Sub Freq	Due Date
PERMIT	Turbidity level at discharge point PERMIT	Daily	Data Held On Site	01-JUN-2021
PERMIT	Background turbidity level for PERMIT	Data Held On Site	Data Held On Site	01-JUN-2021

Permit Condition No: 19 **Permit Condition Code:** WUDWT014-1

Facility Name	Requirement Name	Col Freq	Sub Freq	Due Date
PERMIT	Dewatering Commencement Notification for PERMIT	One time Only	One time Only	01-JUN-2021

Exhibit No: 6

STAFF REPORT DISTRIBUTION LIST

AVALON POINTE

Application No: 201204-5

Permit No: 48-02757-W

INTERNAL DISTRIBUTION

X Brian Collins

EXTERNAL DISTRIBUTION

X Permittee - Alliance Residential Company
X Agent - Universal Engineering Sciences
X Other Interested Party - Hartzog Road Property, LLC

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 3 - Chelsey Sprouse, FDEP
X Engineer, City of Winter Garden

Exhibit No: 7

South Florida Water Management District
Individual Environmental Resource Permit No. 48-102896-P
Date Issued: February 14, 2020
Modified On: April 18, 2022

Permittee: M/I Homes Of Orlando LLC
Encore at Ovation Community Association, Inc.

Project: Horizon West Village I-Jaffers PS-Phase 3 Parcel W-17

Application No. 220401-33796

Location: Orange County, See Exhibit 1

Your application for an Individual Environmental Resource Permit is approved. This action is taken based on Chapter 373, Part IV, of Florida Statutes (F.S.) and the rules in Chapter 62-330, Florida Administrative Code (F.A.C.). Unless otherwise stated, this permit constitutes certification of compliance with state water quality standards under section 401 of the Clean Water Act, 33 U.S.C. 1341, and a finding of consistency with the Florida Coastal Management Program. Please read this entire agency action thoroughly and understand its contents.

This permit is subject to:

- Not receiving a filed request for a Chapter 120, F.S., administrative hearing.
- The attached General Conditions for Environmental Resource Permits.
- The attached Special Conditions.
- All referenced Exhibits.

All documents are available online through the District's ePermitting site at www.sfwmd.gov/ePermitting.

If you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights", we will assume that you concur with the District's action.

The District does not publish notices of action. If you wish to limit the time within which a person may request an administrative hearing regarding this action, you are encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Legal requirements and instructions for publishing a notice of agency action, as well as a noticing format that can be used, are available upon request. If you publish a notice of agency action, please send a copy of the affidavit of publication provided by the newspaper to the District's West Palm Beach office for retention in this file.

If you have any questions regarding your permit or need any other information, please call us at 1-800-432-2045 or email epermits@sfwmd.gov.

Elizabeth Veguilla

Elizabeth Veguilla
Regulatory Specialist Supervisor

Permittees:

M/I Homes Of Orlando LLC
400 International Parkway Ste 470
Lake Mary, FL 32746

Encore at Ovation Community Association, Inc.
8529 Southpark Circle Suite 330
Orlando, FL 32819

Date Issued: February 14, 2020 **Expiration Date:** February 14, 2025

Modified On: April 18, 2022

Project Name: Horizon West Village I-Jaffers PS-Phase 3
Parcel W-17

Permittees: M/I Homes Of Orlando LLC
400 International Parkway Ste 470
Lake Mary, FL 32746

Encore at Ovation Community Association, Inc.
8529 Southpark Circle Suite 330
Orlando, FL 32819

Operating Entity: Orange County Board of County Commissioners
4200 S John Young Parkway
Orlando, FL 32839

Encore at Ovation Community Association, Inc.
8529 Southpark Circle Suite 330
Orlando, FL 32819

Location: Orange County

Permit Acres: 36.29 acres

Project Land Use: Residential

Special Drainage District: N/A

Water Body Classification: CLASS III

FDEP Water Body ID: 3170F5

Wetland and Surface Water Impacts: 0.53 acres

Conservation Easement to District: No

Sovereign Submerged Lands: No

Project Summary

This Environmental Resource Permit authorizes Construction and Operation of a stormwater management (SWM) system serving 36.29 acres of residential development known as Horizon West Village I- Jaffers PS-Phase 3 Parcel W-17.

The proposed project consists of development of additional single-family residential lots with supporting infrastructure, including a SWM system that consists of wet detention ponds no. 4 and no. 5. Runoff is directed to the wet detention ponds for water quality treatment and attenuation. Pond 4 discharges to Lake Mac and pond 5 to Hancock Lake.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C.

Site Description
The project is located south of Fleming Road, east of Lake Hancock, and west of Avalon Road in West Orange County. The site is vacant land.

There are no permitted water management facilities within the project area.

For information on wetland and surface water impacts, please see the Wetlands and Other Surface Water section of this permit.

Current Authorization (Application No. 220401-33796)
A permit transfer to the operating entity, the Encore at Ovation Community Association, Inc., is issued as requested. As a condition of transfer, the operating entity has agreed to be perpetually bound by all terms and conditions of the permit, including all compliance requirements. Authorization for future works related to the permitted SWM system must be applied for and obtained prior to conducting such activities.

The applicant indicated its intent for Orange County to operate and maintain portions of the SWM system in perpetuity. At this time Orange County has not yet accepted this responsibility; consequently, M/I Homes of Orlando, LLC will remain as a permittee with Encore at Ovation Community Association, Inc. until such time that Orange County accepts this responsibility and transfer is submitted.

Permit Modification History
Application No. 191104-2206 authorized construction and operation of a SWM system serving 36.29 acres of residential development known as Horizon West Village I- Jaffers PS-Phase 3 Parcel W-17.

Ownership, Operation and Maintenance
Perpetual operation and maintenance of the SWM system is the responsibility of the Encore at Ovation Community Association, Inc. and Orange County MSBU as indicated in the recorded governing documents (Refer to Exhibit 4.0 & 4.1). A request for transfer to the operating entity, the Encore at Ovation Community Association, Inc., and recorded copies of its governing documents have been submitted in accordance with General Condition No. 7.

Engineering Evaluation:

Land Use
See Exhibit 2.1 for the Land Use Table.

Water Quality
Water quality treatment is provided in 6.54 acres of wet detention ponds. The project provides 4.54 acre-feet of required water quality treatment volume based on one inch over the controlled basin area. See Exhibit 2.2 for the Water Quality Table.

Pursuant to Appendix E of Environmental Resource Permit Applicant's Handbook Volume II, the provided water quality treatment includes an additional 50% treatment volume above the requirements in Section 4.2 of Volume II as reasonable assurance that the project will not have an adverse impact on the downstream waterbody.

In addition to the required water quality treatment volume, the applicant provided site specific pollutant loading calculations demonstrating that the SWM system reduces the post development loading of pollutants (specifically phosphorus) to levels less than the loadings generated under the

pre-development condition. The pollutant loading calculations are based upon the removal characteristics associated with the system.

The project includes implementation of a Turbidity and Erosion Control Plan (Exhibit 2.0) as additional reasonable assurance of compliance with water quality criteria during construction and operation.

Water Quantity
See Exhibit 2.3 for the Water Quantity Table.

Discharge
As found in Exhibit 2.3, the project discharge is within the allowable limit for the area.

Parking Lot Design
As found in Exhibit 2.3, minimum parking lot elevations have been set at or above the calculated design storm flood elevation.

Road Design
As found in Exhibit 2.3, minimum road center line elevations have been set at or above the calculated design storm flood elevation.

Finished Floors
As found in Exhibit 2.3, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Flood Plain/Compensating Storage
As shown in Exhibit 2.4, the permittee submitted calculations demonstrating that the project meets the compensating storage requirements.

Adequate floodplain compensating storage mitigates for any floodplain impacts resulting from the proposed works.

Certification, Operation, and Maintenance
Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

Environmental Evaluation:

Wetlands and Other Surface Waters

The project site contains 1 wetland and 4 other surface waters totaling 0.53 acres. Please see Exhibit 2 for the wetland and other surface water locations. The wetland can generally be described as a mixed forested system. Additional wetland descriptions are available in the ePermitting file.

The project will result in 0.53 acres of wetland and other surface water impacts as described in the table below. Exhibit 2 identifies the locations of the wetland and other surface waters being impacted. The applicant has demonstrated the appropriate elimination and reduction of wetland and other surface water impacts. The proposed wetland and other surface water impacts will be to low functioning, isolated areas, of little ecological value meeting the criteria set forth in Section 10.2.2.3 of the Applicants Handbook Volume I.

The wetland impact is less than 0.50 acres and all of the other surface water impacts are less than one acre. See Exhibit 2. Accordingly, no mitigation is required for the wetland and other surface water impacts (Sections 10.2.2.1 and 10.2.2.2 AH Vol I). .

No secondary impacts are anticipated as the applicant has provided the 15' minimum 25' average upland buffer.

Environmental Evaluation Tables:
Summary

Wetlands and Other Surface Waters:	0.53	acres
Direct Impacts:	0.53	acres
Secondary impacts:	0	acres
Net UMAM Functional Loss/ Gain:	0	units
Total Onsite Mitigation Area:	0	acres
Total Offsite Mitigation Area:	0	acres
Mitigation Provided in Permit No.:		

Group 1

Activities in Wetlands or Other Surface Waters, Not Including Mitigation at a Bank

ID	Acres	Action	Community Description	Current Score	With Project Score	UMAM Loss
W-5	0.01	Direct Impact	Wetland Forested Mixed			0.000
SW-1	0.03	Direct Impact	Ditches and Canals			0.000
SW-2	0.01	Direct Impact	Ditches and Canals			0.000
SW-3	0.24	Direct Impact	Ditches and Canals			0.000
SW-4	0.24	Direct Impact	Ditches and Canals			0.000
Total:	**0.53**					**0.000**

Related Concerns:

Water Use Permit Status
The applicant has indicated that Orange County Utilities will be used as a source for irrigation water for the project.

The applicant has demonstrated that proposed dewatering qualifies for the permit by rule under Rule 40E-2.061, F.A.C.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

Water and Wastewater Service
Orange County Utilities

Historical/ Archeological Resources
No information has been received that indicates the presence of archaeological or historical resources on the project site or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places. This permit does not release the permittee from complying with any other agencies requirements in the event that historical and/or archaeological resources are found on the site.

General Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, Florida Administrative Code (F.A.C.). Any deviations that are not so authorized shall subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the "State of Florida Erosion and Sediment Control Designer and Reviewer Manual" (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the "Florida Stormwater Erosion and Sedimentation Control Inspector's Manual" (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice" indicating the expected start and completion dates. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex- "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit"[Form 62-330.310(3)]; or
   b. For all other activities- "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
   c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Applicant's Handbook Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
   b. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form

62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
   a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
   b. Convey to the permittee or create in the permittee any interest in real property;
   c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
   d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
    a. Immediately if any previously submitted information is discovered to be inaccurate; and
    b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, 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, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule

62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with subsection 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

Special Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. The construction authorization for this permit shall expire on the date shown on page 2.

2. Operation and maintenance of the stormwater management system shall be the responsibility of the Encore at Ovation Community Association, Inc. and Orange County. Upon completion of construction and in conjunction with submittal of the as-built certification, a request for transfer to the operating entity with supporting documentation must be submitted in accordance with General Condition No. 7.

3. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth.

4. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

5. Prior to any future construction, the permittee shall apply for and receive an Individual ERP. As part of the permit application, the applicant for that phase shall provide documentation verifying that the proposed construction is consistent with the design of the master stormwater management system, including the land use and site grading assumptions.

6. Prior to initiating construction activities associated with this Environmental Resource Permit (ERP), the permittee is required to hold a pre-construction meeting with field representatives, consultants, contractors, District Environmental Resource Bureau (ERB) staff, and any other local government entities as necessary.

   The purpose of the pre-construction meeting is to discuss construction methods, sequencing, best management practices, identify work areas, staking and roping of preserves where applicable, and to facilitate coordination and assistance amongst relevant parties.

   To schedule a pre-construction meeting, please contact ERB staff from the Orlando Service Center at (407) 858-6100 or via e-mail at: pre-con@sfwmd.gov. When sending a request for a pre-construction meeting, please include the application number, permit number, and contact name and phone number.

7. This permit does not authorize the permittee to cause any adverse impact to or “take” of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of “take” and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a “take” permit cannot be issued. Requests for further information or review can be sent to: FWCConservationPlanningServices@MyFWC.com.

8. Silt screens, hay bales, turbidity screens/barriers or other such sediment control measures shall be utilized during construction. The selected sediment control measure shall be installed

landward of the upland buffer zones around all protected wetlands and shall be properly "trenched" etc., in accordance with Exhibit No.2. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands and upland buffer zones.

9. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

Project Work Schedule for Permit No. 48-102896-P

The following activities are requirements of this Permit and shall be completed in accordance with the Project Work Schedule below. Please refer to General Conditions, Special Conditions and/or Specific Conditions for more information. Any deviation from these time frames will require prior approval from the District's Environmental Resources Bureau and may require a minor modification to this permit. Such requests must be made in writing and shall include: (1) reason for the change, (2) proposed start/finish and/or completion dates, and (3) progress report on the status of the project.

Condition No.	Date Added	Description (Application Number)	Due Date	Date Satisfied
GC 2	02/14/2020	Submit Certification (191104-2206)	04/06/2022	03/25/2022
GC 4	04/18/2022	Construction Commencement Notice	48 Hours Prior to Construction	02/15/2021
GC 7	04/18/2022	Submit Operation Transfer Request	04/24/2022	

GC = General Condition

SC = Special Condition

Distribution List

Lisa Fountain, Poulos and Bennett, LLC

Cathy Evangelo, Orange County Board of County Commissioners

Orange County MSBU

Div of Recreation and Park - District 3

Orange County Engineer

Exhibits

The following exhibits to this permit are incorporated by reference. The exhibits can be viewed by clicking on the links below or by visiting the District's ePermitting website at http://my.sfwmd.gov/ePermitting and searching under this application number 220401-33796 .

Exhibit No. 1.0 Location Map

Exhibit No. 2.0 SWM Plans

Exhibit No. 2.1 Land Use

Exhibit No. 2.1 Water Quality

Exhibit No. 2.2 Water Quantity

Exhibit No. 2.4 Floodplain

Exhibit No. 4.0 O&M Documents- Community Association

Exhibit No. 4.1 O&M Documents - Orange County MSBU

NOTICE OF RIGHTS

As required by Chapter 120, Florida Statutes, the following provides notice of the opportunities which may be available for administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes, or judicial review pursuant to Section 120.68, Florida Statutes, when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Some of the legal proceedings detailed below may not be applicable or appropriate for your situation. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Florida Statutes. Persons seeking a hearing on a District decision which affects or may affect their substantial interests shall file a petition for hearing in accordance with the filing instructions set forth herein within 21 days of receipt of written notice of the decision unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Florida Statutes; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Florida Statutes. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, posting, or publication that the District has taken or intends to take final agency action. Any person who receives written notice of a District decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action that materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional point of entry pursuant to Rule 28-106.111, Florida Administrative Code.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Florida Statutes, shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The District may grant the request for good cause. Requests for extension of time must be filed with the District prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and whether the District and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at the District's headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day.

Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the District's security desk does not constitute filing. It will be necessary to request that the District's security officer contact the Office of the District Clerk. An employee of the District's Clerk's office will receive and process the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document.

INITIATION OF ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Rules 28-106.201 and 28-106.301, Florida Administrative Code, initiation of an administrative hearing shall be made by written petition to the District in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other District identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner, petitioner's attorney or qualified representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the District's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the District's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the District's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the District to take with respect to the District's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401–.405, Florida Administrative Code. The District is not proposing mediation for this agency action under Section 120.573, Florida Statutes, at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Florida Statutes, and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final District action may seek judicial review of the District's final decision by filing a notice of appeal with the Office of the District Clerk in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the appropriate district court of appeals via the Florida Courts E-Filing Portal.

South Florida Water Management District
Individual Environmental Resource Permit No. 48-103624-P
Date Issued: February 26, 2021
Modified On: December 20, 2021

Permittee:	Prose Avalon Pointe Venture, LP 222 W Comstock Ave Suite 115 Winter Park, FL 32789
Project:	Avalon Pointe Apartments
Application No.	211115-32170
Location:	Orange County, See Exhibit 1

Your application for an Individual Environmental Resource Permit is approved. This action is taken based on Chapter 373, Part IV, of Florida Statutes (F.S.) and the rules in Chapter 62-330, Florida Administrative Code (F.A.C.). Unless otherwise stated, this permit constitutes certification of compliance with state water quality standards under section 401 of the Clean Water Act, 33 U.S.C. 1341, and a finding of consistency with the Florida Coastal Management Program. Please read this entire agency action thoroughly and understand its contents.

This permit is subject to:

- Not receiving a filed request for a Chapter 120, F.S., administrative hearing.
- The attached General Conditions for Environmental Resource Permits.
- The attached Special Conditions.
- All referenced Exhibits.

All documents are available online through the District's ePermitting site at www.sfwmd.gov/ePermitting.

If you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights", we will assume that you concur with the District's action.

The District does not publish notices of action. If you wish to limit the time within which a person may request an administrative hearing regarding this action, you are encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Legal requirements and instructions for publishing a notice of agency action, as well as a noticing format that can be used, are available upon request. If you publish a notice of agency action, please send a copy of the affidavit of publication provided by the newspaper to the District's West Palm Beach office for retention in this file.

If you have any questions regarding your permit or need any other information, please call us at 1-800-432-2045 or email epermits@sfwmd.gov.

Elizabeth Veguilla
Regulatory Specialist Supervisor

South Florida Water Management District
Individual Environmental Resource Permit No. 48-103624-P

Date Issued: February 26, 2021	**Expiration Date:** February 26, 2026
Modified On: December 20, 2021	
Project Name:	Avalon Pointe Apartments
Permittee:	Prose Avalon Pointe Venture, LP 222 W Comstock Ave Suite 115 Winter Park, FL 32789
Operating Entity:	Prose Avalon Pointe Venture, LP 222 W Comstock Ave Suite 115 Winter Park, FL 32789
Location:	Orange County
Permit Acres:	18.02 acres
Project Land Use:	Residential-Rentals
Special Drainage District:	N/A
Water Body Classification:	CLASS III
FDEP Water Body ID:	3170F5
Wetland and Surface Water Impacts:	0.41 acres
Conservation Easement to District:	No
Sovereign Submerged Lands:	No

Project Summary

This Environmental Resource Permit authorized Construction and Operation of a stormwater management (SWM) system serving 18.02 acres of residential rental development known as Avalon Pointe Apartments.

This project is to construct 8.79 acres of impervious area for a mixed family residential development with concomitant infrastructure. Stormwater from the development is directed by a series of inlets and pipes to a new wet detention pond designed to provide water quality treatment volume and attenuation in accordance with District criteria. Discharge from the SWM system is piped across Hartzog Road to a spreader swale before flowing to Lake Gifford.

Off-site runoff from 3.5 acres was accounted for in the design of the SWM system. See Exhibit No. 2.2 for land use and hydrologic characteristics of these areas.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C..

Site Description
The site is southeast of Hartzog Road and Avalon Road (County Road 545). See Exhibit No. 1.0 for a location map.

The site is currently vacant land with individual stands of trees. An isolated wetland receives the majority of runoff from the site and ultimately discharges to Lake Gifford to the north after overtopping Hartzog Road.

For information on wetland and surface water impacts, please see the Wetlands and Other Surface Water section of this permit.

Current Authorization (Application No. 211115-32170)
A permit transfer is issued to Prose Avalon Pointe Venture, LP as requested under Application 211115-32170. The only modification authorized by this action is a change in permittee. The permit remains subject to the Expiration Date, General Conditions, and Special Conditions as previously issued.

The previous permittee was a contract purchaser, and was required to submit ownership documentation prior to commencement of construction. This permit transfer satisfies Condition No. SC3.

Permit Modification History
Application 200605-3629- This Environmental Resource Permit authorized Construction and Operation of a SWM system serving 18.02 acres of residential rental development known as Avalon Pointe Apartments.

Ownership, Operation and Maintenance
Perpetual operation and maintenance of the SWM system will be the responsibility of Prose Avalon Pointe Venture, LP. Upon conveyance or division of ownership or control of the property or the system, the permittee must notify the Agency in writing within 30 days, and the new owner must request transfer of the permit.

Engineering Evaluation:

Land Use
Refer to the Land Use Table

Water Quality
The project is located within a watershed identified by the Florida Department of Environmental Protection as impaired for nutrients; therefore, the design includes a site-specific pollutant loading analysis and an additional 50% water quality treatment volume above the amounts required pursuant to Section 4.2.1, Volume II, as reasonable assurances that the projects discharge will not cause or contribute to violations of State water quality standards. The project provides 2.79 ac-ft of water quality treatment.

The project includes implementation of a Turbidity and Erosion Control Plan, (Exhibit No. 2.0), as additional reasonable assurance of compliance with water quality criteria during construction and operation.

Water Quantity

Discharge
As found in Water Quantity Data Table, the project discharge is within the allowable limit for the area.

Parking Lot Design
As found in Water Quantity Data Table, minimum parking lot elevations have been set at or above the calculated design storm flood elevation.

Road Design
As found in Water Quantity Data Table, minimum road center line elevations have been set at or above the calculated design storm flood elevation.

Finished Floors
As found in Water Quantity Data Table, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Flood Plain/Compensating Storage
As shown in Exhibit No. 2.1, the permittee submitted calculations demonstrating that the project will meet the compensating storage requirements. Adequate floodplain compensating storage mitigates for any floodplain impacts resulting from the proposed works.

Certification, Operation, and Maintenance
Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

Engineering Evaluation Tables:

Land Use

Basin	Land Type	Area (ac)	% of Total Basin
Basin B-1	Building Coverage	2.89	16.04
	Pavement	5.90	32.74
	Pervious	7.19	39.90
	Wet Detention	2.04	11.32
	Total Project Area:	18.02	100%

Water Quality

Basin	Treatment Type	Treatment System	Volume Required (ac-ft)	Volume Provided (ac-ft)	Area (ac)	Overflow Elevation (ft NAVD88)
Basin B-1	Treatment	WET DETENTION	2.69	2.79	2.04	113.80

Water Quantity

Basin	Elevation Type	Storm Event (Yr/Day)	Precipitation Depth (in)	Peak Stage (ft NAVD88)	Min. EL (ft NAVD88)	Peak Discharge Rate (cfs)	Allowable Discharge Rate (cfs)
Basin B-1	Finished Floor	100Y3D	14.40	116.42	116.50	N/A	N/A
	Discharge	25YR1D	8.60	114.80	114.00	10.08	15.80
	Road Crown	10YR1D	7.00	114.43	114.80	N/A	N/A
	Parking Lot	10YR1D	7.00	114.43	114.43	N/A	N/A

Bleeder

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Dia.(in)	Invert EL (ft NAVD88)	Receiving Body
Basin B-1	112.50	CS-1	Water Quality	1	Circular Orifice	3.90	112.50	Wetlands

Inlets

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Length (in)	Width (in)	Crest EL (ft NAVD88)	Receiving Body
Basin B-1	112.50	CS-1	Discharge	1	FDOT Type H Inlet	36.0	79.0	115.30	Wetland

Weir

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Length (in)	Height (in)	Crest EL (ft NAVD88)	Receiving Body
Basin B-1	112.50	CS-1	Discharge	1	Rectangular	36.00	18.00	113.80	Wetland

Culvert

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Dia.(in)	Length (ft)	Invert EL (ft NAVD88)	Material	Receiving Body
Basin B-1	112.50	CS-1	Discharge	1	30.00	625.0	106.24	Reinforced Concrete Pipe	Wetland

Environmental Evaluation:

Wetlands and Other Surface Waters
The project site contains one small wetland totaling 0.41 acre. Please see Exhibit 2.0 for the wetland location. The wetland can generally be described as a willow and elderberry wetland. Additional wetland descriptions are available in the ePermitting file.

The project will result in impacts to the entire wetland as described in the table below. The wetland meets the criteria in section 10.2.2.1 of Vol. 1 A.H., therefore no mitigation is required.

Fish, Wildlife, and Listed Species
The project site does not contain significant habitat for wetland-dependent endangered or threatened wildlife species, or species of special concern. No wetland-dependent endangered or threatened species or species of special concern were observed onsite. Submitted information indicates that potential use of the site by such species is minimal.

This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered or threatened species or species of special concern are discovered on the site.

Environmental Evaluation Tables:
Summary

Wetlands and Other Surface Waters:	0.41	acres
Direct Impacts:	0.41	acres
Secondary impacts:	0	acres
Net UMAM Functional Loss/ Gain:	0	units
Total Onsite Mitigation Area:	0	acres
Total Offsite Mitigation Area:	0	acres
Mitigation Provided in Permit No.:		

Avalon Pointe Apartments

Activities in Wetlands or Other Surface Waters, Not Including Mitigation at a Bank

ID	Acres	Action	Community Description	Current Score	With Project Score	UMAM Loss
W-1	0.41	Direct Impact	Vegetated Non-Forested Wetlands	0	0	0.000
Total:	**0.41**					**0.000**

Related Concerns:

Water Use Permit Status
The applicant has indicated that public water supply will be used as a source for irrigation water for the project.

The applicant has indicated that dewatering is required for construction of this project. Water Use Permit No. 48-02757-W/Application No. 201204-S is being reviewed concurrently for this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

Water and Wastewater Service
Toho Water Authority

Historical/ Archeological Resources
No information has been received that indicates the presence of archaeological or historical resources on the project site or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

This permit does not release the permittee from complying with any other agencies requirements in the event that historical and/or archaeological resources are found on the site.

General Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation, June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," (October 1, 2013), (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.

5. Unless the permit is transferred under rule 62-330.340, F.A.C., or transferred to an operating entity under rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms, and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex- "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit"[Form 62-330.310(3)]; or
   b. For all other activities- "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
   c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as

applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations, and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
b. Within 30 days of submittal of the as-built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
   a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
   b. Convey to the permittee or create in the permittee any interest in real property;
   c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
   d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
    a. Immediately if any previously submitted information is discovered to be inaccurate; and
    b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850)245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from

the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, F.S. For project activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

Special Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. The construction authorization for this permit shall expire on the date shown on page 2.

2. Operation and maintenance of the SWM system shall be the responsibility of Prose Avalon Pointe Venture, LP. The permittee shall notify the Agency in writing within 30 days of any conveyance or division of ownership or control of the property of the system, and the new owner must request transfer of the permit in accordance with Rule 62-330.340, F.A.C.

3. Prior to the commencement of construction and pursuant to Section 4.2.3(d)(3) of Applicant's Handbook Volume I, the permittee shall demonstrate ownership of the project area to the District's Environmental Resource Compliance staff.

4. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth.

5. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

6. Prior to any future construction, the permittee shall apply for and receive an Individual ERP. As part of the permit application, the applicant for that phase shall provide documentation verifying that the proposed construction is consistent with the design of the master stormwater management system, including the land use and site grading assumptions.

7. Prior to initiating construction activities associated with this Environmental Resource Permit (ERP), the permittee is required to hold a pre-construction meeting with field representatives, consultants, contractors, District Environmental Resource Bureau (ERB) staff, and any other local government entities as necessary. The purpose of the pre-construction meeting is to discuss construction methods, sequencing, best management practices, identify work areas, staking and roping of preserves where applicable, and to facilitate coordination and assistance amongst relevant parties. To schedule a pre-construction meeting, please contact ERB staff from the Orlando Service Center at (407) 858-6100 or via e-mail at: pre-con@sfwmd.gov. When sending a request for a pre-construction meeting, please include the application number, permit number, and contact name and phone number.

8. This permit does not authorize the permittee to cause any adverse impact to or “take” of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of “take” and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a “take” permit cannot be issued. Requests for further information or review can be sent to: FWCConservationPlanningServices@MyFWC.com.

Project Work Schedule for Permit No. 48-103624-P

The following activities are requirements of this Permit and shall be completed in accordance with the Project Work Schedule below. Please refer to General Conditions, Special Conditions and/or Specific Conditions for more information. Any deviation from these time frames will require prior approval from the District's Environmental Resources Bureau and may require a minor modification to this permit. Such requests must be made in writing and shall include: (1) reason for the change, (2) proposed start/finish and/or completion dates, and (3) progress report on the status of the project.

Condition No.	Date Added	Description (Application Number)	Due Date	Date Satisfied
SC 9	12/20/2021	Submit Proof of Ownership	11/15/2021	11/15/2021
GC 6	12/20/2021	Submit Certification	30 Days After Construction Completion	
GC 4	12/20/2021	Construction Commencement Notice	48 hours prior to Construction	08/03/2021
SC 7	12/20/2021	Pre-Construction Meeting	Prior to Construction	08/13/2021

GC = General Condition

SC = Special Condition

Distribution List

Alfonso Obando, Alliance Residential

Bobby Anderson, Alliance Realty Partners, LLC

Div of Recreation and Park - District 3

Orange County Engineer

Exhibits

The following exhibits to this permit are incorporated by reference. The exhibits can be viewed by clicking on the links below or by visiting the District's ePermitting website at http://my.sfwmd.gov/ePermitting and searching under this application number 211115-32170 .

Exhibit No. 1.0 Location Map

Exhibit No. 2.0 SWM Plans

Exhibit No. 2.1 Floodplain Compensation Calculations

Exhibit No. 2.2 Off-Site Drainage Characteristics

NOTICE OF RIGHTS

As required by Chapter 120, Florida Statutes, the following provides notice of the opportunities which may be available for administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes, or judicial review pursuant to Section 120.68, Florida Statutes, when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Some of the legal proceedings detailed below may not be applicable or appropriate for your situation. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Florida Statutes. Persons seeking a hearing on a District decision which affects or may affect their substantial interests shall file a petition for hearing in accordance with the filing instructions set forth herein within 21 days of receipt of written notice of the decision unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Florida Statutes; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Florida Statutes. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, posting, or publication that the District has taken or intends to take final agency action. Any person who receives written notice of a District decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action that materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional point of entry pursuant to Rule 28-106.111, Florida Administrative Code.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Florida Statutes, shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The District may grant the request for good cause. Requests for extension of time must be filed with the District prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and whether the District and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at the District's headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day.

Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the District's security desk does not constitute filing. It will be necessary to request that the District's security officer contact the Office of the District Clerk. An employee of the District's Clerk's office will receive and process the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document.

INITIATION OF ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Rules 28-106.201 and 28-106.301, Florida Administrative Code, initiation of an administrative hearing shall be made by written petition to the District in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other District identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner, petitioner's attorney or qualified representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the District's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the District's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the District's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the District to take with respect to the District's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401–.405, Florida Administrative Code. The District is not proposing mediation for this agency action under Section 120.573, Florida Statutes, at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Florida Statutes, and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final District action may seek judicial review of the District's final decision by filing a notice of appeal with the Office of the District Clerk in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the appropriate district court of appeals via the Florida Courts E-Filing Portal.

South Florida Water Management District
Individual Environmental Resource Permit No. 48-104373-P
Date Issued: November 21, 2022

Permittee: DRP FL 5, LLC
590 Madison Ave 13th Fl
New York, FL 10022

Project: Horizon West Villa I Withers South Ph 2, 3 & 4

Application No. 220718-35208

Location: Orange County, See Exhibit 1

Your application for an Individual Environmental Resource Permit is approved. This action is taken based on Chapter 373, Part IV, of Florida Statutes (F.S.) and the rules in Chapter 62-330, Florida Administrative Code (F.A.C.). Unless otherwise stated, this permit constitutes certification of compliance with state water quality standards under section 401 of the Clean Water Act, 33 U.S.C. 1341, and a finding of consistency with the Florida Coastal Management Program. Please read this entire agency action thoroughly and understand its contents.

This permit is subject to:

- Not receiving a filed request for a Chapter 120, F.S., administrative hearing.
- The attached General Conditions for Environmental Resource Permits.
- The attached Special Conditions.
- All referenced Exhibits.

All documents are available online through the District's ePermitting site at www.sfwmd.gov/ePermitting.

If you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights", we will assume that you concur with the District's action.

The District does not publish notices of action. If you wish to limit the time within which a person may request an administrative hearing regarding this action, you are encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Legal requirements and instructions for publishing a notice of agency action, as well as a noticing format that can be used, are available upon request. If you publish a notice of agency action, please send a copy of the affidavit of publication provided by the newspaper to the District's West Palm Beach office for retention in this file.

If you have any questions regarding your permit or need any other information, please call us at 1-800-432-2045 or email epermits@sfwmd.gov.

Lisa Prather

Lisa Prather, PWS
Section Administrator

South Florida Water Management District
Individual Environmental Resource Permit No. 48-104373-P

Date Issued: November 21, 2022	**Expiration Date:** November 21, 2027
Project Name:	Horizon West Villa I Withers South Ph 2, 3 & 4
Permittee:	DRP FL 5, LLC 590 Madison Ave 13th Fl New York, FL 10022
Operating Entity:	Orange County Board of County Commissioners 4200 South John Young Parkway Orlando, FL 32839-9205
Location:	Orange County
Permit Acres:	79.12 acres
Project Land Use:	Residential
Special Drainage District:	N/A
Water Body Classification:	CLASS III CLASS III CLASS III
FDEP Water Body ID:	3170F5 3170F4 3170FB
Wetland and Surface Water Impacts:	1.16 acres
Conservation Easement to District:	No
Sovereign Submerged Lands:	No

Project Summary
This Environmental Resource Permit authorizes Construction and Operation of a stormwater management (SWM) system serving 79.12 acres of residential development known as Withers PD Phase 1.

This application proposes construction of 368 single-family and townhome units, roadway network, park area and corresponding SWM system consisting of four wet detention ponds and one dry retention pond for the required water quality treatment and attenuation prior to discharge from the site.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C.

Site Description
The site is located east of Avalon Road, north of Old Hartzog Road and south of New Hartzog Road. The site contains pasture and planted pine. Please see Exhibit 1.0 location map.

For information on wetland and surface water impacts, please see the Wetlands and Other Surface

Water section of this permit.

Current Authorization (Application No. 220718-35208)
This modification is to construct the remaining phases of the Withers PD; Phases 2, 3 and 4. The stormwater infrastructure serving these phases was previously authorized and constructed under Withers PD, Phase 1 (Application No. 200605-3622). The Engineering Evaluation has been updated to reflect this new construction.

Permit Modification History
On December 11, 2020, this Environmental Resource Permit authorized Construction and Operation of a stormwater management (SWM) system serving 79.12 acres of residential development known as Withers PD Phase 1. [Application No. 200605-3622]

On April 12, 2021 a permit transfer was issued to DRP FL 5, LLC. The only modification authorized by this action was a change in permittee. The permit remained subject to the Expiration Date, General Conditions, and Special Conditions as previously issued. [Application No. 210317-5629]

Ownership, Operation and Maintenance
Perpetual operation and maintenance of the stormwater management system will be the responsibility of an Orange County Board of County Commissioners (MSTU) as indicated by submitted correspondence from the County. Refer to Exhibit No. 4.0. Upon completion of construction and in conjunction with submittal of the construction completion certification, a request for transfer to the operating entity and finalized and approved/executed copies of the MSBU's governing documents must be submitted as required by General Condition No. 7.

Engineering Evaluation:

Land Use
Please refer to the Land Use Data Table.

Water Quality
The project is located within a watershed identified by the Florida Department of Environmental Protection as impaired for nutrients; therefore, the design includes a site-specific pollutant loading analysis and an additional 50% water quality treatment volume above the amounts required pursuant to Section 4.2.1, Volume II, as reasonable assurances that the projects discharge will not cause or contribute to violations of State water quality standards. The project provides 9.28 ac-ft of water quality treatment.

The project includes implementation of a Turbidity and Erosion Control Plan, (Exhibit No. 2.0), as additional reasonable assurance of compliance with water quality criteria during construction and operation.

Water Quantity
Discharge
As found in the Water Quantity Data Table, the project discharge is within the allowable limit for the area. The discharge identified in Basins 6,7,8 corresponds to the total contributing drainage basin area of 77.97 acres resulting in a post-development discharge rate of 0.45 cfs per acre for the project as a whole.

Parking Lot Design
As found in the Water Quantity Data Table, minimum parking lot elevations have been set at or above the calculated design storm flood elevation.

Road Design
As found in the Water Quantity Data Table, minimum road center line elevations have been set at or above the calculated design storm flood elevation.

Finished Floors
As found in the Water Quantity Data Table, minimum finished floor elevations have been set at or

above the calculated design storm flood elevation.

Flood Plain/Compensating Storage
As shown in Exhibit No. 2.3, the project will result in 8.46 acre-feet of floodplain impacts which will be mitigated in the floodplain compensating storage areas (Ponds 4, 6, 7 and 8) that provide 9.50 acre-feet of total floodplain compensating storage corresponding to a 100-year flood elevation of 113.1 feet NAVD.

Certification, Operation, and Maintenance
Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

Engineering Evaluation Tables:

Land Use

Basin	Land Type	Area (ac)	% of Total Basin
4	Building Cover New	9.55	31.19
	Impervious	7.49	24.46
	Pervious	10.61	34.65
	Wet Detention	2.97	9.70
	Total:	30.62	100%
5	Building Cover New	7.36	26.56
	Impervious	5.85	21.11
	Pervious	12.77	46.08
	Dry Retention Areas	1.73	6.24
	Total:	27.71	100%
6, 7, 8	Building Cover New	3.72	18.94
	Impervious	3.06	15.58
	Wet Detention	2.58	13.14
	Pervious	10.28	52.34
	Total:	19.64	100%

Water Quality

Basin	Treatment Type	Treatment System	Volume Required (ac-ft)	Volume Provided (ac-ft)	Area (ac)	Overflow Elevation (ft NAVD88)
4	Treatment	WET DETENTION	3.83	4.35	2.97	112.90
5	Treatment	DRY RETENTION	1.76	1.89	1.73	115.30
6, 7, 8	Treatment	WET DETENTION	2.82	3.04	2.58	112.60

Water Quantity

Basin	Elevation Type	Storm Event (Yr/Day)	Precipitation Depth (in)	Peak Stage (ft NAVD88)	Min. EL (ft NAVD88)	Peak Discharge Rate (cfs)	Allowable Discharge Rate (cfs)
4	Finished Floor	100Y3D	14.40	117.64	117.64	N/A	N/A
	Discharge	25YR1D	8.60	115.91	N/A	N/A	N/A
	Road Crown	10YR1D	7.50	115.22	115.22	N/A	N/A
	Parking Lot	10YR1D	7.50	115.22	115.22	N/A	N/A
5	Finished Floor	100Y3D	14.40	119.70	119.70	N/A	N/A
	Discharge	25YR1D	8.60	115.98	N/A	N/A	N/A
	Road Crown	10YR1D	7.50	115.85	115.85	N/A	N/A
	Parking Lot	10YR1D	7.50	115.85	115.85	N/A	N/A
6, 7, 8	Finished Floor	100Y3D	14.40	115.20	115.20	N/A	N/A
	Discharge	25YR1D	8.60	113.70	N/A	35.04	35.04
	Road Crown	10YR1D	7.50	113.41	113.41	N/A	N/A
	Parking Lot	10YR1D	7.50	113.41	113.41	N/A	N/A

Bleeder

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Dia.(in)	Invert EL (ft NAVD88)	Receiving Body
4	111.50	CS-4	Discharge	1	Circular Orifice	4.00	111.50	Lake Gifford

6,7,8	111.50	CS-6	Discharge	1	Circular Orifice	3.00	111.50	Lake Gifford
		CS-8	Discharge	1	Circular Orifice	3.00	111.50	Pond 6

Inlets

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Length (in)	Width (in)	Crest EL (ft NAVD88)	Receiving Body
4	111.50	CS-4	Discharge	1	H	105.0	36.0	115.90	Lake Gifford
5	110.50	CS-5	Discharge	1	H	79.0	36.0	116.10	Pond 4
6,7, 8	111.50	CS-8	Discharge	1	C	37.0	24.0	114.10	Pond 6
6,7,8	111.50	CS-6	Discharge	1	C	37.0	24.0	114.20	Lake Gifford

Weir

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Width (in)	Height (in)	Crest EL (ft NAVD88)	Receiving Body
4	111.50	CS-4	Water Quality	1	Sharp Crested	36.00	8.00	112.90	Lake Gifford
5	110.50	CS-5	Water Quality	1	Sharp Crested	230.00	9.60	115.30	Pond 4
6, 7, 8	111.50	CS-8	Water Quality	1	Sharp Crested	12.00	18.00	112.60	Pond 6
			Water		Sharp				

		CS-6	Quality	1	Crested	6.00	3.00	112.60	Lake Gifford

Culvert

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Dia.(in)	Length (ft)	Material	Receiving Body
4	111.50	CS-4	Discharge	1	42.00	70.0	Reinforced Concrete Pipe	Lake Gifford
5	110.50	CS-5	Discharge	1	48.00	920.0	Reinforced Concrete Pipe	Pond 4
6,7,8	111.50	CS-8	Discharge	1	24.00	110.0	Reinforced Concrete Pipe	Pond 6
		CS-6	Discharge	1	24.00	82.0	Reinforced Concrete Pipe	Lake Gifford

Environmental Evaluation:

Wetlands and Other Surface Waters
The project site contains wetlands and other surface waters totaling 1.31 acres. Please see Exhibit 3.0 for wetland locations. The wetlands can generally be described as freshwater marsh. Additional wetland descriptions are available in the ePermitting file.

The project will result in 1.31 acres of direct wetland impacts and 0.15 acres of secondary impacts as described in the table below. Exhibit 3.0 identifies the locations of the wetlands and other surface waters being impacted. The applicant has shown they meet the reduction and elimination requirements set forth in section 10.2.1 of Applicant's Handbook Volume I.

To mitigate for the wetland and other surface water impacts, the applicant will purchase 0.62 herbaceous mitigation credits from Twin Oaks Mitigation Bank, as depicted in Exhibit 3.0. The amount of required mitigation was determined using the Uniform Mitigation Assessment Method in Chapter 62-345, F.A.C. The final scores can be found in the ePermitting file.

The mitigation is not located within the same basin as the wetland impacts. A cumulative impact analysis has been completed and be found in Exhibit 3.0.

Cumulative Impact Analysis
Since the mitigation is not located within the same basin as the wetland impacts, a cumulative impact analysis was conducted for the wetlands within the Reedy Creek Basin (Basin) pursuant to Rule 10.2.8 of Volume I. This analysis can be found in the ePermitting file.

The analysis identified forested and non-forested wetlands in the Basin that were not protected by land use restrictions or dedicated as public preserve land, as "at risk". Wetlands preserved/ protected accounted for 48% of all wetlands in the Basin. Based on the applicant's analysis, if all ""at risk"" wetlands within the Basin were impacted and all mitigation was conducted outside the Basin, a loss of 42% of wetland acreage in the Basin would occur. The applicant has shown that the 1.16 acres of direct impact in the proposed project will account for 0.016% of the remaining 'at risk' herbaceous wetlands within the Reedy Creek Basin. In total, the proposed project will result in 0.003% of the total remaining 'at risk' wetlands to be impacted in the future.

Based on the analysis provided and available information, the District has determined that the project will not result in unacceptable cumulative impacts to the Reedy Creek Basin. This conclusion is project specific and does not apply to any other application.

Environmental Evaluation Tables:

Summary

Wetlands and Other Surface Waters:	1.31	acres
Direct Impacts:	1.16	acres
Secondary impacts:	0.15	acres
Net UMAM Functional Loss/ Gain:	0	units
Total Onsite Mitigation Area:	0	acres
Total Offsite Mitigation Area:	0	acres
Mitigation Provided in Permit No.:		

Total Mitigation Bank Credits Provided

Mitigation Bank	Type	Total Credits
Twin Oaks	F	0.5
Twin Oaks	FH	0.08
Twin Oaks	O	0.02
Total:		0.6

Group 1

Activities in Wetlands or Other Surface Waters, With Mitigation at a Bank

ID	Acres	Community Description	Bank Name	Method	Current Score	With Score	Ratio or Add'l factor	Minimum Credits Needed
W-4	0.99	Melaleuca - Brazilian Pepper - Exotics	Twin Oaks	UMAM	0.5	0	1	0.5
W-6	0.12	Freshwater Marshes	Twin Oaks	UMAM	0.6	0	1	0.07
W-6s	0.1	Freshwater Marshes	Twin Oaks	UMAM	0.6	0.533	1	0.01
SW-2	0.05	Streams And Waterways	Twin Oaks	UMAM	0.433	0	1	0.02
SW-2s	0.05	Streams And Waterways	Twin Oaks	UMAM	0.433	0.366	1	0
Total:	**1.31**							

Related Concerns:

Water Use Permit Status
The applicant has indicated that Orange County Utilities will be used as a source for reclaim irrigation water for the project.

The applicant has indicated that dewatering is required for construction of this project. Water Use Permit No. 48-02754-W expires December 30, 2022.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

Water and Wastewater Service
Orange County Utilities

Historical/ Archeological Resources
No information has been received that indicates the presence of archaeological or historical resources on the project site or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

This permit does not release the permittee from complying with any other agencies requirements in the event that historical and/or archaeological resources are found on the site.

General Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation, June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," (October 1, 2013), (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.

5. Unless the permit is transferred under rule 62-330.340, F.A.C., or transferred to an operating entity under rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms, and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex- "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit"[Form 62-330.310(3)]; or
   b. For all other activities- "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
   c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations, and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
   b. Within 30 days of submittal of the as-built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity"

[Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
   a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
   b. Convey to the permittee or create in the permittee any interest in real property;
   c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
   d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
    a. Immediately if any previously submitted information is discovered to be inaccurate; and
    b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850)245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, F.S. For project activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

Special Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. The construction authorization for this permit shall expire on the date shown on page 2.

2. Operation and maintenance of the SWM system shall be the responsibility of Orange County Board of County Commissioners (MSTU). Upon completion of construction and in conjunction with submittal of the as-built certification, a request for transfer to the operating entity with supporting documentation must be submitted in accordance with General Condition No. 7.

3. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth.

4. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

5. Prior to any future construction, the permittee shall apply for and receive an Individual ERP. As part of the permit application, the applicant for that phase shall provide documentation verifying that the proposed construction is consistent with the design of the master stormwater management system, including the land use and site grading assumptions.

6. Prior to initiating construction activities associated with this Environmental Resource Permit (ERP), the permittee is required to hold a pre-construction meeting with field representatives, consultants, contractors, District Environmental Resource Bureau (ERB) staff, and any other local government entities as necessary.

   The purpose of the pre-construction meeting is to discuss construction methods, sequencing, best management practices, identify work areas, staking and roping of preserves where applicable, and to facilitate coordination and assistance amongst relevant parties.

   To schedule a pre-construction meeting, please contact ERB staff from the Orlando Service Center at (407) 858-6100 or via e-mail at: pre-con@sfwmd.gov. When sending a request for a pre-construction meeting, please include the application number, permit number, and contact name and phone number.

7. Prior to commencement of construction, and in accordance with the work schedule herein, the permittee shall submit documentation from Twin Oaks Mitigation Bank 0.62 herbaceous credits for this project have been paid for in full and deducted from the Twin Oaks Mitigation Bank 's ledger.

8. This permit does not authorize the permittee to cause any adverse impact to or “take” of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of “take” and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a “take” permit cannot be issued. Requests for further information or review can be sent to: FWCConservationPlanningServices@MyFWC.com.

Project Work Schedule for Permit No. 48-104373-P

The following activities are requirements of this Permit and shall be completed in accordance with the Project Work Schedule below. Please refer to General Conditions, Special Conditions and/or Specific Conditions for more information. Any deviation from these time frames will require prior approval from the District's Environmental Resources Bureau and may require a minor modification to this permit. Such requests must be made in writing and shall include: (1) reason for the change, (2) proposed start/finish and/or completion dates, and (3) progress report on the status of the project.

Condition No.	Date Added	Description (Application Number)	Due Date	Date Satisfied
GC 4	11/22/2022	Construction Commencement Notice	Prior to Construction	02/15/2021
GC 6	11/22/2022	Submit Certification	30 Days After Construction Completion	
GC 7	11/22/2022	Submit Operation Transfer Request	Within 30 days of Certification	
SC 7	11/22/2022	Submit Mitigation Bank Ledger Documentation -2	03/06/2021	02/02/2021

GC = General Condition

SC = Special Condition

Distribution List

Eric Warren, Poulos & Bennett, LLC

Toll Bros, Inc.

Div of Recreation and Park - District 3

Orange County Engineer

Exhibits

The following exhibits to this permit are incorporated by reference. The exhibits can be viewed by clicking on the links below or by visiting the District's ePermitting website at http://my.sfwmd.gov/ePermitting and searching under this application number 220718-35208 .

Exhibit No. 1.0 Location Map

Exhibit No.2.0 Construction Plans, Phase 1

Exhibit No. 2.0.1A Construction Plans, Phase 2

Exhibit No. 2.0.1B Construction Plans, Phase 3

Exhibit No. 2.0.1C Construction Plans, Phase 4

Exhibit No. 2.1 Post-Development Basin Map

Exhibit No. 2.2 Summary Tables

Exhibit No. 2.3 Floodplain Calculations

Exhibit No. 3.0

Exhibit No. 4.0 O&M Acceptance Letter

NOTICE OF RIGHTS

As required by Chapter 120, Florida Statutes, the following provides notice of the opportunities which may be available for administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes, or judicial review pursuant to Section 120.68, Florida Statutes, when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Some of the legal proceedings detailed below may not be applicable or appropriate for your situation. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Florida Statutes. Persons seeking a hearing on a District decision which affects or may affect their substantial interests shall file a petition for hearing in accordance with the filing instructions set forth herein within 21 days of receipt of written notice of the decision unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Florida Statutes; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119 (1), Florida Statutes. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, posting, or publication that the District has taken or intends to take final agency action. Any person who receives written notice of a District decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action that materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional point of entry pursuant to Rule 28-106.111, Florida Administrative Code.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Florida Statutes, shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The District may grant the request for good cause. Requests for extension of time must be filed with the District prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and whether the District and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at the District's headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day.

Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the District's security desk does not constitute filing. It will be necessary to request

District's Clerk's office will receive and process the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document.

INITIATION OF ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Rules 28-106.201 and 28-106.301, Florida Administrative Code, initiation of an administrative hearing shall be made by written petition to the District in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other District identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner, petitioner's attorney or qualified representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the District's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the District's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the District's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the District to take with respect to the District's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401–.405, Florida Administrative Code. The District is not proposing mediation for this agency action under Section 120.573, Florida Statutes, at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Florida Statutes, and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final District action may seek judicial review of the District's final decision by filing a notice of appeal with the Office of the District Clerk in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the appropriate district court of appeals via the Florida Courts E-Filing Portal.

South Florida Water Management District
Individual Environmental Resource Permit No. 48-105378-P
Date Issued: August 13, 2021

Permittee:	SP Commercial Investors, LLC 527 Main Street Windermere, FL 34786
Project:	Karr Sp Mass Grading
Application No.	210617-6542
Location:	Orange County, See Exhibit 1

Your application for an Individual Environmental Resource Permit is approved. This action is taken based on Chapter 373, Part IV, of Florida Statutes (F.S.) and the rules in Chapter 62-330, Florida Administrative Code (F.A.C.). Unless otherwise stated, this permit constitutes certification of compliance with state water quality standards under section 401 of the Clean Water Act, 33 U.S.C. 1341, and a finding of consistency with the Florida Coastal Management Program. Please read this entire agency action thoroughly and understand its contents.

This permit is subject to:

- Not receiving a filed request for a Chapter 120, F.S., administrative hearing.
- The attached General Conditions for Environmental Resource Permits.
- The attached Special Conditions.
- All referenced Exhibits.

All documents are available online through the District's ePermitting site at www.sfwmd.gov/ePermitting.

If you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights", we will assume that you concur with the District's action.

The District does not publish notices of action. If you wish to limit the time within which a person may request an administrative hearing regarding this action, you are encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Legal requirements and instructions for publishing a notice of agency action, as well as a noticing format that can be used, are available upon request. If you publish a notice of agency action, please send a copy of the affidavit of publication provided by the newspaper to the District's West Palm Beach office for retention in this file.

If you have any questions regarding your permit or need any other information, please call us at 1-800-432-2045 or email epermits@sfwmd.gov.

Melissa M. Roberts, P.E.
Administrator, Environmental Resource Bureau

South Florida Water Management District
Individual Environmental Resource Permit No. 48-105378-P

Date Issued: August 13, 2021	**Expiration Date:** August 13, 2026
Project Name:	Karr Sp Mass Grading
Permittee:	SP Commercial Investors, LLC 527 Main Street Windermere, FL 34786
Operating Entity:	SP Commercial Investors, LLC 527 Main Street Windermere, FL 34786
Location:	Orange County
Permit Acres:	54.01 acres
Project Land Use:	Natural/Undeveloped
Special Drainage District:	N/A
Water Body Classification:	CLASS III
FDEP Water Body ID:	3170F5
Conservation Easement to District:	No
Sovereign Submerged Lands:	No

Project Summary
This Environmental Resource Permit authorizes Construction and Operation of a stormwater management (SWM) system serving 36.41 acres of Mass Grading known as Karr SP Property.

Construction includes the mass grading of the site. The SWM system is a large dry retention pond that is designed to treat and attenuate runoff of the 25-year, 24-hour storm event in accordance with District criteria. Discharge is to Gifford Lake via a 1500' earthen weir.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C..

Site Description
The site is located north of Hartzog Road and south of Western Way on the east side of Avalon Road in Orange County. See Exhibit No. 1.0 for a location map.

The site is vacant land with isolated stands of trees.

For information on wetland and surface water impacts, please see the Wetlands and Other Surface Water section of this permit.

Ownership, Operation and Maintenance
Perpetual operation and maintenance of the SWM system will be the responsibility of SP Commercial Investors, LLC. Upon conveyance or division of ownership or control of the property or the system, the permittee must notify the Agency in writing within 30 days, and the new owner

must request transfer of the permit.

The project area is currently under the sole ownership of the permittee, who has indicated that the perpetual operating entity for this project will be the owner. If the subject property is subdivided in the future, a permit modification will be required to address the need for an appropriate operating entity, such as a property owners association, in accordance with Section 12.3, Vol I.

Engineering Evaluation:

Land Use
See Land Use Table.

Water Quality
The project is located within a watershed identified by the Florida Department of Environmental Protection as impaired for nutrients; therefore, the design includes a site-specific pollutant loading analysis and an additional 50% water quality treatment volume above the amounts required pursuant to Section 4.2.1, Volume II, as reasonable assurances that the projects discharge will not cause or contribute to violations of State water quality standards. The project provides16.93 ac-ft of water quality treatment.

The project includes implementation of a Turbidity and Erosion Control Plan (Exhibit No. 2.0), as additional reasonable assurance of compliance with water quality criteria during construction and operation.

Water Quantity
Discharge
As shown in the Water Quantity Table, the peak discharge rate is less than the allowable discharge rate.

Certification, Operation, and Maintenance
Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

Engineering Evaluation Tables:

Land Use

Basin	Land Type	Area (ac)	% of Total Basin
DB-1	Pervious	36.41	100.00
	Total:	36.41	100%

Water Quality

Basin	Treatment Type	Treatment System	Volume Required (ac-ft)	Volume Provided (ac-ft)	Overflow Elevation (ft NAVD88)
DB-1	Treatment	DRY RETENTION	2.28	16.93	122.00

Water Quantity

Basin	Elevation Type	Storm Event (Yr/Day)	Precipitation Depth (in)	Peak Stage (ft NAVD88)	Peak Discharge Rate (cfs)	Allowable Discharge Rate (cfs)
DB-1	Discharge	25YR1D	8.60	120.13	3.25	15.25

Environmental Evaluation:

Wetlands and Other Surface Waters

A buffer of greater than 25 feet is provided between the proposed activities and the on-site wetland. Therefore, there are no wetlands or other surface waters affected by this project.

Related Concerns:

Water Use Permit Status
The applicant has indicated that dewatering is not required for construction of this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

Historical/ Archeological Resources
No information has been received that indicates the presence of archaeological or historical resources on the project site or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places. This permit does not release the permittee from complying with any other agencies requirements in the event that historical and/or archaeological resources are found on the site.

General Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation, June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," (October 1, 2013), (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.

5. Unless the permit is transferred under rule 62-330.340, F.A.C., or transferred to an operating entity under rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms, and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex- "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit"[Form 62-330.310(3)]; or
   b. For all other activities- "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
   c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as

applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations, and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
b. Within 30 days of submittal of the as-built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
   a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
   b. Convey to the permittee or create in the permittee any interest in real property;
   c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
   d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
    a. Immediately if any previously submitted information is discovered to be inaccurate; and
    b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850)245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from

the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, F.S. For project activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

Special Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. The construction authorization for this permit shall expire on the date shown on page 2.

2. Operation and maintenance of the SWM system shall be the responsibility of SP Commercial Investors, LLC. The permittee shall notify the Agency in writing within 30 days of any conveyance or division of ownership or control of the property of the system, and the new owner must request transfer of the permit in accordance with Rule 62-330.340, F.A.C.

3. Lake side slopes shall be no steeper than 4:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth.

4. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

5. Prior to any future construction, the permittee shall apply for and receive an Individual ERP. As part of the permit application, the applicant for that phase shall provide documentation verifying that the proposed construction is consistent with the design of the master stormwater management system, including the land use and site grading assumptions.

6. Prior to initiating construction activities associated with this Environmental Resource Permit (ERP), the permittee is required to hold a pre-construction meeting with field representatives, consultants, contractors, District Environmental Resource Bureau (ERB) staff, and any other local government entities as necessary. The purpose of the pre-construction meeting is to discuss construction methods, sequencing, best management practices, identify work areas, staking and roping of preserves where applicable, and to facilitate coordination and assistance amongst relevant parties. To schedule a pre-construction meeting, please contact ERB staff from the Orlando Service Center at (407) 858-6100 or via e-mail at: pre-con@sfwmd.gov. When sending a request for a pre-construction meeting, please include the application number, permit number, and contact name and phone number.

7. This permit does not authorize the permittee to cause any adverse impact to or “take” of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of “take” and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a “take” permit cannot be issued. Requests for further information or review can be sent to: FWCConservationPlanningServices@MyFWC.com.

8. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

Project Work Schedule for Permit No. 48-105378-P

The following activities are requirements of this Permit and shall be completed in accordance with the Project Work Schedule below. Please refer to General Conditions, Special Conditions and/or Specific Conditions for more information. Any deviation from these time frames will require prior approval from the District's Environmental Resources Bureau and may require a minor modification to this permit. Such requests must be made in writing and shall include: (1) reason for the change, (2) proposed start/finish and/or completion dates, and (3) progress report on the status of the project.

Condition No.	Date Added	Description (Application Number)	Due Date	Date Satisfied
GC 4	08/13/2021	Construction Commencement Notice	Prior to Construction	
GC 6	08/13/2021	Submit Certification	30 Days After Construction Completion	
GC 7	08/13/2021	Submit Operation Transfer Request	Within 30 days of Certification	
SC 6	08/13/2021	Pre-Construction Meeting	Prior to Construction	

GC = General Condition

SC = Special Condition

Distribution List

Eric Warren, Poulos & Bennett, LLC

Div of Recreation and Park - District 3

Orange County Engineer

Exhibits

The following exhibits to this permit are incorporated by reference. The exhibits can be viewed by clicking on the links below or by visiting the District's ePermitting website at http://my.sfwmd.gov/ePermitting and searching under this application number 210617-6542 .

Exhibit No. 1.0 Location Map

Exhibit No. 2.0 SWM Plans

Exhibit No. 2.1 Calculations

NOTICE OF RIGHTS

As required by Chapter 120, Florida Statutes, the following provides notice of the opportunities which may be available for administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes, or judicial review pursuant to Section 120.68, Florida Statutes, when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Some of the legal proceedings detailed below may not be applicable or appropriate for your situation. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Florida Statutes. Persons seeking a hearing on a District decision which affects or may affect their substantial interests shall file a petition for hearing in accordance with the filing instructions set forth herein within 21 days of receipt of written notice of the decision unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Florida Statutes; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Florida Statutes. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, posting, or publication that the District has taken or intends to take final agency action. Any person who receives written notice of a District decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action that materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional point of entry pursuant to Rule 28-106.111, Florida Administrative Code.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Florida Statutes, shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The District may grant the request for good cause. Requests for extension of time must be filed with the District prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and whether the District and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at the District's headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day.

Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the District's security desk does not constitute filing. It will be necessary to request that the District's security officer contact the Office of the District Clerk. An employee of the District's Clerk's office will receive and process the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document.

INITIATION OF ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Rules 28-106.201 and 28-106.301, Florida Administrative Code, initiation of an administrative hearing shall be made by written petition to the District in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other District identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner, petitioner's attorney or qualified representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the District's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the District's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the District's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the District to take with respect to the District's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401–.405, Florida Administrative Code. The District is not proposing mediation for this agency action under Section 120.573, Florida Statutes, at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Florida Statutes, and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final District action may seek judicial review of the District's final decision by filing a notice of appeal with the Office of the District Clerk in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the appropriate district court of appeals via the Florida Courts E-Filing Portal.

South Florida Water Management District
Individual Environmental Resource Permit No. 48-105977-P
Date Issued: June 9, 2022

Permittee:	Grass Lake FL LP 448 Viking Drive Suite 220 Virginia Beach, VA 23452
Project:	Registry at Grass Lake
Application No.	210929-7701
Location:	Orange County, See Exhibit 1

Your application for an Individual Environmental Resource Permit is approved. This action is taken based on Chapter 373, Part IV, of Florida Statutes (F.S.) and the rules in Chapter 62-330, Florida Administrative Code (F.A.C.). Unless otherwise stated, this permit constitutes certification of compliance with state water quality standards under section 401 of the Clean Water Act, 33 U.S.C. 1341, and a finding of consistency with the Florida Coastal Management Program. Please read this entire agency action thoroughly and understand its contents.

This permit is subject to:

- Not receiving a filed request for a Chapter 120, F.S., administrative hearing.
- The attached General Conditions for Environmental Resource Permits.
- The attached Special Conditions.
- All referenced Exhibits.

All documents are available online through the District's ePermitting site at www.sfwmd.gov/ePermitting.

If you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights", we will assume that you concur with the District's action.

The District does not publish notices of action. If you wish to limit the time within which a person may request an administrative hearing regarding this action, you are encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Legal requirements and instructions for publishing a notice of agency action, as well as a noticing format that can be used, are available upon request. If you publish a notice of agency action, please send a copy of the affidavit of publication provided by the newspaper to the District's West Palm Beach office for retention in this file.

If you have any questions regarding your permit or need any other information, please call us at 1-800-432-2045 or email epermits@sfwmd.gov.

Lisa Prather, PWS
Section Administrator

South Florida Water Management District
Individual Environmental Resource Permit No. 48-105977-P

Date Issued: June 9, 2022	**Expiration Date:** June 9, 2027
Project Name:	Registry at Grass Lake
Permittee:	Grass Lake FL LP 448 Viking Drive Suite 220 Virginia Beach, VA 23452
Operating Entity:	Grass Lake FL LP 448 Viking Drive Suite 220 Virginia Beach, VA 23452
Location:	Orange County
Permit Acres:	19.70 acres
Project Land Use:	Residential-Rentals
Special Drainage District:	N/A
Water Body Classification:	CLASS III
FDEP Water Body ID:	3170F5
Conservation Easement to District:	No
Sovereign Submerged Lands:	No

Project Summary
This Environmental Resource Permit authorizes Construction and Operation of a stormwater management (SWM) system serving 12.16 acres of multi-family residential development known as Registry at Grass Lake. The parcel comprises 19.70 acres. The remaining 7.54 acres are wetlands and wetland buffers that will remain undeveloped.

Construction will add 8.18 acres of impervious area within a multi-family residential development with associated parking area and infrastructure. Stormwater runoff is directed to a new wet detention pond designed to provide water quality treatment and attenuation in accordance with District criteria.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C..

Site Description
The site is located west of Avalon Road and south of Grove Blossom Way in Orange County. Refer to Exhibit No. 1.0 for a location map.

The site is vacant land with wooded uplands and wetlands adjacent to Grass Lake.

For information on wetland and surface water impacts, please see the Wetlands and Other Surface Water section of this permit.

Ownership, Operation and Maintenance
Perpetual operation and maintenance of the SWM system will be the responsibility of Grass Lake FL LP. Upon conveyance or division of ownership or control of the property or the system, the permittee must notify the Agency in writing within 30 days, and the new owner must request transfer of the permit.

Engineering Evaluation:

Land Use
Refer to the Land Use Table on page 5.

Water Quality
The project is located within a watershed identified by the Florida Department of Environmental Protection as impaired for nutrients; therefore, the design includes a site-specific pollutant loading analysis and an additional 50% water quality treatment volume above the amounts required pursuant to Section 4.2.1, Volume II, as reasonable assurances that the projects discharge will not cause or contribute to violations of State water quality standards. The project provides 6.41 ac-ft of water quality treatment.

The project includes implementation of a Turbidity and Erosion Control Plan, (Exhibit No. 2.0), as additional reasonable assurance of compliance with water quality criteria during construction and operation.

Water Quantity
Discharge
As found in Water Quantity Data Table on page 5, the project discharge is within the allowable limit for the area.

Parking Lot Design
As found in Water Quantity Data Table on page 5, minimum parking lot elevations have been set at or above the calculated design storm flood elevation.

Finished Floors
As found in Water Quantity Data Table on page 5, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Flood Plain/Compensating Storage
The permittee submitted calculations demonstrating that the project will result in 1.22 acre-feet of floodplain impacts and is designed to provide 1.22 acre-feet of floodplain compensating storage corresponding to a 100-year flood elevation of 113.20 feet NAVD within the compensating storage areas as depicted in Exhibit No. 2.0.

Certification, Operation, and Maintenance
Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

Engineering Evaluation Tables:

Land Use

Basin	Land Type	Area (ac)	% of Total Basin
Project Area	Building Coverage	2.95	24.26
	Impervious	5.23	43.01
	Wet Detention	1.36	11.18
	Pervious	2.62	21.55
	Total:	12.16	100%
wetlands	Wetland	7.54	100.00
	Total:	7.54	100%

Water Quality

Basin	Treatment Type	Treatment System	Volume Required (ac-ft)	Volume Provided (ac-ft)	Area (ac)	Overflow Elevation (ft NAVD88)
Project Area	Treatment	WET DETENTION	2.25	6.41	1.36	114.71

Water Quantity

Basin	Elevation Type	Storm Event (Yr/Day)	Precipitation Depth (in)	Peak Stage (ft NAVD88)	Min. EL (ft NAVD88)	Peak Discharge Rate (cfs)	Allowable Discharge Rate (cfs)
Project Area	Finished Floor	100Y3D	13.60	115.98	116.48	N/A	N/A
	Discharge	25YR1D	8.60	114.97	N/A	0.71	0.72
	Parking Lot	10YR1D	7.90	114.80	114.80	N/A	N/A

Bleeder

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Dia.(in)	Invert EL (ft NAVD88)	Receiving Body
Project Area	111.60	CS-A	Water Quality	1	Circular Orifice	3.00	111.60	wetland

Inlets

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Length (in)	Width (in)	Crest EL (ft NAVD88)	Receiving Body
Project Area	111.60	CS-A	Discharge	1	FDOT MOD C DROP INLET	24.0	37.0	115.75	wetland

Weir

Basin	Control EL (ft NAVD88)	Structure #	Structure Type	Count	Type	Dia (in)	Crest EL (ft NAVD88)	Receiving Body
Project Area	111.60	CS-A	Discharge	2	Circular Orifice	6.00	114.71	wetland

Environmental Evaluation:

Wetlands and Other Surface Waters

There are no wetlands or other surface waters located within the project area. A 25 ft upland buffer will be provided between the development and the on-site wetland, as shown in Exhibit 2.0.

Related Concerns:

Water Use Permit Status
The applicant has indicated that reclaimed water will be used as a source for irrigation water for the project.

The applicant has indicated that dewatering is required for construction of this project. The applicant has demonstrated that proposed dewatering qualifies for the permit by rule under Rule 40E-2.061, F.A.C.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

Potable Water, Reclaimed Water and Wastewater Service
Toho Water Authority

Historical/ Archeological Resources
No information has been received that indicates the presence of archaeological or historical resources on the project site or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

This permit does not release the permittee from complying with any other agencies requirements in the event that historical and/or archaeological resources are found on the site.

General Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation, June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," (October 1, 2013), (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.

5. Unless the permit is transferred under rule 62-330.340, F.A.C., or transferred to an operating entity under rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms, and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex- "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit"[Form 62-330.310(3)]; or
   b. For all other activities- "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
   c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as

applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations, and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
b. Within 30 days of submittal of the as-built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
   a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
   b. Convey to the permittee or create in the permittee any interest in real property;
   c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
   d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
    a. Immediately if any previously submitted information is discovered to be inaccurate; and
    b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850)245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from

the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, F.S. For project activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

Special Conditions for Individual Environmental Resource Permits, 62-330.350, F.A.C.

1. The construction authorization for this permit shall expire on the date shown on page 2.

2. Operation and maintenance of the stormwater management system shall be the responsibility of Grass Lake FL LP. The permittee shall notify the Agency in writing within 30 days of any conveyance or division of ownership or control of the property of the system, and the new owner must request transfer of the permit in accordance with Rule 62-330.340, F.A.C.

3. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth.

4. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

5. Prior to any future construction, the permittee shall apply for and receive an Individual ERP. As part of the permit application, the applicant for that phase shall provide documentation verifying that the proposed construction is consistent with the design of the master stormwater management system, including the land use and site grading assumptions.

6. Prior to initiating construction activities associated with this Environmental Resource Permit (ERP), the permittee is required to hold a pre-construction meeting with field representatives, consultants, contractors, District Environmental Resource Bureau (ERB) staff, and any other local government entities as necessary. The purpose of the pre-construction meeting is to discuss construction methods, sequencing, best management practices, identify work areas, staking and roping of preserves where applicable, and to facilitate coordination and assistance amongst relevant parties. To schedule a pre-construction meeting, please contact ERB staff from the Orlando Service Center at (407) 858-6100 or via e-mail at: precon@sfwmd.gov. When sending a request for a pre-construction meeting, please include the application number, permit number, and contact name and phone number.

7. This permit does not authorize the permittee to cause any adverse impact to or “take” of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of “take” and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a “take” permit cannot be issued. Requests for further information or review can be sent to: FWCConservationPlanningServices@MyFWC.com.

Project Work Schedule for Permit No. 48-105977-P

The following activities are requirements of this Permit and shall be completed in accordance with the Project Work Schedule below. Please refer to General Conditions, Special Conditions and/or Specific Conditions for more information. Any deviation from these time frames will require prior approval from the District's Environmental Resources Bureau and may require a minor modification to this permit. Such requests must be made in writing and shall include: (1) reason for the change, (2) proposed start/finish and/or completion dates, and (3) progress report on the status of the project.

Condition No.	Date Added	Description (Application Number)	Due Date	Date Satisfied
GC 4	06/09/2022	Construction Commencement Notice	Prior to Construction	
GC 6	06/09/2022	Submit Certification	30 Days After Construction Completion	
GC 7	06/09/2022	Submit Operation Transfer Request	Within 30 days of Certification	
SC 6	06/09/2022	Pre-Construction Meeting	Prior to Construction	

GC = General Condition

SC = Special Condition

Distribution List

Christopher Leppert, Kimley-Horn and Associates Inc.

Div of Recreation and Park - District 3

Orange County Engineer

Exhibits

The following exhibits to this permit are incorporated by reference. The exhibits can be viewed by clicking on the links below or by visiting the District's ePermitting website at http://my.sfwmd.gov/ePermitting and searching under this application number 210929-7701 .

Exhibit No. 1.0 Location Map

Exhibit No. 2.0 SWM Plans

NOTICE OF RIGHTS

As required by Chapter 120, Florida Statutes, the following provides notice of the opportunities which may be available for administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes, or judicial review pursuant to Section 120.68, Florida Statutes, when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Some of the legal proceedings detailed below may not be applicable or appropriate for your situation. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Florida Statutes. Persons seeking a hearing on a District decision which affects or may affect their substantial interests shall file a petition for hearing in accordance with the filing instructions set forth herein within 21 days of receipt of written notice of the decision unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Florida Statutes; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Florida Statutes. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, posting, or publication that the District has taken or intends to take final agency action. Any person who receives written notice of a District decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action that materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional point of entry pursuant to Rule 28-106.111, Florida Administrative Code.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Florida Statutes, shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The District may grant the request for good cause. Requests for extension of time must be filed with the District prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and whether the District and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

FILING INSTRUCTIONS

A petition for administrative hearing must be filed with the Office of the District Clerk. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at the District's headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day.

Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the District's security desk does not constitute filing. It will be necessary to request that the District's security officer contact the Office of the District Clerk. An employee of the District's Clerk's office will receive and process the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document.

INITIATION OF ADMINISTRATIVE HEARING

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Rules 28-106.201 and 28-106.301, Florida Administrative Code, initiation of an administrative hearing shall be made by written petition to the District in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other District identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner, petitioner's attorney or qualified representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the District's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the District's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the District's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the District to take with respect to the District's proposed action.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401–.405, Florida Administrative Code. The District is not proposing mediation for this agency action under Section 120.573, Florida Statutes, at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Section 120.68, Florida Statutes, and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final District action may seek judicial review of the District's final decision by filing a notice of appeal with the Office of the District Clerk in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the appropriate district court of appeals via the Florida Courts E-Filing Portal.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
STANDARD PERMIT NO. 49-00956-P
DATE ISSUED:September 19, 2012

Form #0941
08/95

PERMITTEE: FLORIDA DEPARTMENT OF TRANSPORTATION
719 S WOODLAND BLVD M S 2-553
DELAND, FL 32720

PROJECT DESCRIPTION: Modification of an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve 51.7 acres of a highway project known as State Road 530 (US 192) Widening from Lake County Line to Secret Lake Drive (Captain Kid Blvd).

PROJECT LOCATION: ORANGE COUNTY, SEC 31 TWP 23S RGE 27E

PERMIT DURATION: See Special Condition No:1. Pursuant to Rule 40E-4.321, Florida Administrative Code.

This is to notify you of the District's agency action concerning Notice of Intent for Permit Application No. 120221-27, dated February 21, 2012. This action is taken pursuant to Rule 40E-1.603 and Chapter 40E-40 , Florida Administrative Code (F.A.C.).

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 19 General Conditions (See Pages : 2 - 4 of 6),
3. the attached 18 Special Conditions (See Pages : 5 - 6 of 6) and
4. the attached 4 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on this 19th day of September, 2012, in accordance with Section 120.60(3), Florida Statutes.

BY: _____
Charles Walter, P.G.
Regulatory Administrator
Orlando Service Center

40E-4.321 Duration of Permits

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C. is as follows:

(a) For a conceptual approval, two years from the date of issuance or the date specified as a condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project. If an application for an environmental resource permit is filed, then the conceptual approval remains valid until final action is taken on the environmental resource permit application. If the application is granted, then the conceptual approval is valid for an additional two years from the date of issuance of the permit. Conceptual approvals which have no individual or standard general environmental resource permit applications filed for a period of two years shall expire automatically at the end of the two year period.

(b) For a conceptual approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive plan amendment, the duration of the conceptual approval shall be two years from whichever one of the following occurs at the latest date:

1. the effective date of the local government's comprehensive plan amendment.
2. the effective date of the local government development order.
3. the date on which the District issues the conceptual approval, or
4. the latest date of the resolution of any Chapter 120.57, F.A.C., administrative proceeding or other legal appeals.

(c) For an individual or standard general environmental resource permit, five years from the date of issuance or such amount of time as made a condition of the permit.

(d) For a noticed general permit issued pursuant to chapter 40-E-400, F.A.C., five years from the date the notice of intent to use the permit is provided to the District.

(2)(a) Unless prescribed by special permit condition, permits expire automatically according to the timeframes indicated in this rule. If application for extension is made in writing pursuant to subsection (3), the permit shall remain in full force and effect until:

1. the Governing Board takes action on an application for extension of an individual permit, or
2. staff takes action on an application for extension of a standard general permit.

(b) Installation of the project outfall structure shall not constitute a vesting of the permit.

(3) The permit extension shall be issued provided that a permittee files a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environmental impacts which require a detailed review.

(5) Substantial modifications to individual or standard general environmental resource permits issued pursuant to a permit application extend the duration of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit modifications do not extend the duration of a conceptual approval.

(6) Permit modifications issued pursuant to subsection 40E-4.331(2)(b), F.A.C. (letter modifications) do not extend the duration of a permit.

(7) Failure to complete construction or alteration of the surface water management system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted.

Specific authority 373.044, 373.113 F.S. Law Implemented 373.413, 373.416, 373.419, 373.426 F.S. History—New 9-3-81, Amended 1-31-82, 12-1-82, Formerly 16K-4.07(4), Amended 7-1-86, 4/20/94, Amended 7-1-86, 4/20/94, 10-3-95

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to

GENERAL CONDITIONS

be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities

GENERAL CONDITIONS

which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on September 19, 2022.

2. Operation of the surface water management system shall be the responsibility of FLORIDA DEPARTMENT OF TRANSPORTATION.

3. Discharge Facilities:

   Through facilities shown in Exhibit 4.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

8. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

9. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

10. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.

11. The permittee acknowledges that, pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.

12. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, 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.

13. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 49-00956-P unless otherwise

SPECIAL CONDITIONS

specified herein.

14. Prior to any future construction, the permittee shall apply for and receive a permit modification. As part of the permit application, the applicant for that phase shall provide documentation verifying that the proposed construction is consistent with the design of the master surface water management system, including the land use and site grading assumptions.

15. A mitigation program for application #120221-27 shall be implemented in accordance with Exhibit No. 3. The permittee shall update the Three Lakes Wildlife Management Area Mitigation Ledger to reflect the permitted update.

16. This permit supersedes District Permit Number 49-00956-P, Application No. 080409-17.

17. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

18. A monitoring program shall be implemented for the temporary wetland impact areas. The monitoring program shall document the condition of the tempory wetland impact areas once the fill material has been removed and the areas regraded. A letter report shall be submitted no less than 1 year after the area has been regraded. If the area has not re-established to pre-development conditions, additional mitigation shall be required.

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office**. An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

Initiation of an Administrative Hearing

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

Last Date For Agency Action: September 28, 2012

STANDARD ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: State Road 530 (U S 192) Widening From Lake County Line

Permit No.: 49-00956-P

Application No.: 120221-27

Application Type: Environmental Resource (General Permit Modification)

Location: Orange County, S31/T23S/R27E

Permittee : Florida Department Of Transportation

Operating Entity : Florida Department Of Transportation

Project Area: 51.70 acres

Project Land Use: Highway
Government

Drainage Basin: REEDY CREEK

Receiving Body: Reedy Creek via U.S. 192 Roadside ditches **Class:** CLASS III

Special Drainage District: NA

Total Acres Wetland Onsite: .40
Total Acres Impacted Onsite : .06

Conservation Easement To District : No
Sovereign Submerged Lands: No

PROJECT PURPOSE:

Modification of an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve 51.7 acres of a highway project known as State Road 530 (US 192) Widening from Lake County Line to Secret Lake Drive (Captain Kid Blvd).

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located northeast intersection of S.R. 530 (US 192) and Arrena Road in Orange County.

There are permitted surface water management facilities (Application No. 080409-17) serving the project area. The SR 530 (US 192) roadway right-of-way contains a 4-lane rural typical section roadway.

The project contains 3 wetlands areas located along the north side of the existing roadway which will be impacted as a result of the proposed project. The project will result in a total of 0.06 acres of direct wetland impacts and 0.96 acres of additional temporary impacts which will be mitigated using the Three Lakes Mitigation Off-site Mitigation Area.

PROPOSED PROJECT:

The applicant proposes to re-permit all activities proposed in Application No. 080409-17 with a 10-year duration due to funding uncertainties for construction. Also, the application proposes a 10-foot wide ditch from Pond 5 to Wetland A to accommodate the phased construction activities. The final roadway and surface water mangement system alignment and configuration will not be modified by this application and will remain as permitted in Application No. 080409-17 (please see Exhibit 4 for the design parameters). This application will supersede Application No. 080409-17.

New construction proposed for this application includes a 10-foot wide ditch from Pond 5 to Wetland A to accommodate the phased construction activities.

LAND USE:

The land use shown below corresponds to the new construction activities proposed in this application which consist of the ditch improvements only.

Construction Project:

	This Phase	
Pervious	1.80	acres
Total:	**1.80**	

WATER QUANTITY :

Discharge Rate :

The proposed project is consistent with the land use and site grading assumptions from the design of the surface water management system. Therefore, the surface water management system for this project has not been designed to limit discharge for the design event to a specified rate.

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project. No activities proposing impervious areas are proposed with this application.

WETLANDS:

The proposed project will result in a 0.06 acre direct impact due to the construction of a new outfall structure. In addition, 0.96 acres of temporary impacts will result from the maintenance of traffic (MOT) lanes that will be constructed along the north side of the existing roadway.

The proposed impacts will be offset through the use of previously permitted mitigation at the Three Lakes Wildlife Management Area. The ledger (Exhibit 3) has been updated to indicate the acreage deduction associated with this project.

Wetland Impacts:

The proposed 0.06 acre direct, permanent wetland impact will result from the installation of a control structure on Wetland A which is associated with Lake Apachee. The wetland is currently in fair condition, which resulted in the assessment of a 15:1 ratio for mitigation.

The proposed project will also result in several small temporary wetland impacts, totaling 0.96 acres, resulting from the Maintenance of Traffic (MOT) lanes required by FDOT. The MOT plan will include the construction of temporary pavement on the north side of SR 530 within the existing FDOT right-of-way that is located outside of the permitted SR 530 four lane roadway footprint. The temporary pavement will be removed during construction once the SR 530 widening is complete. The temporary activity will not have any permanent adverse effect to the function of these wetland systems, and the mitigation ratio assigned to offset the temporary impact is 5:1.

An evaluation of the baseline conditions of the proposed temporary wetland impact areas was conducted during the review of Application No. 080409-17 and a copy is included as an Exhibit to this staff report (Exhibit 4, pages 46-47 of 62) . Upon restoration of pre-disturbance conditions and in accordance with the work schedule (Exhibit 3, page 2 of 2), a UMAM evaluation shall be provided to demonstrate the area has been restored to baseline conditions. Mitigation shall be required for any loss of functional value.

Wetland Inventory :

CONSTRUCTION NEW -SR 530 Improvements

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluccs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluccs	Adj Delta	Functional Gain / Loss
WB	OFF	641	Secondary	.62							.000	.000
WAd	ON	641	Direct	06							.000	.000
WAs	ON	641	Secondary	.33							.000	.000
WC	ON	641	Secondary	.01							.000	.000
			Total:	1.02								.00

Fluccs Code	Description
641	Freshwater Marshes

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that irrigation water for the project will not be necessary.

The applicant has indicated that dewatering is not required for construction of this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

No service required for the proposed activities.

Waste Water System/Supplier:

No service required for the proposed activities.

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources in the project area or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

DEO/CZM Consistency Review:

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

DIVISION APPROVAL:

NATURAL RESOURCE MANAGEMENT:

Marc S. Ady

DATE: 9/14/12

SURFACE WATER MANAGEMENT:

Mark S. Daron, P.E.

DATE: 9/17/12

Standard Table of Contents for Exhibits

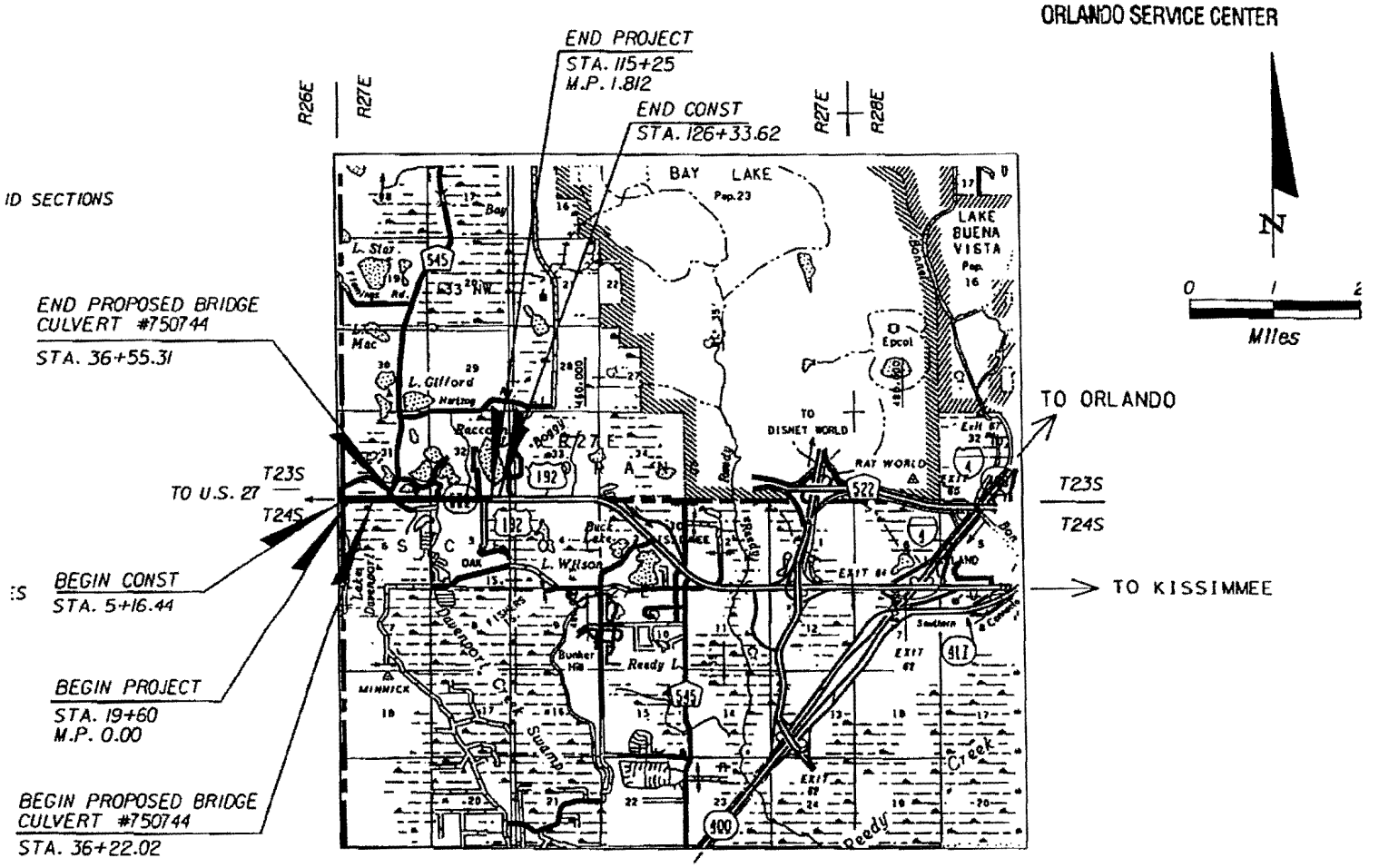
1.0 Location Map

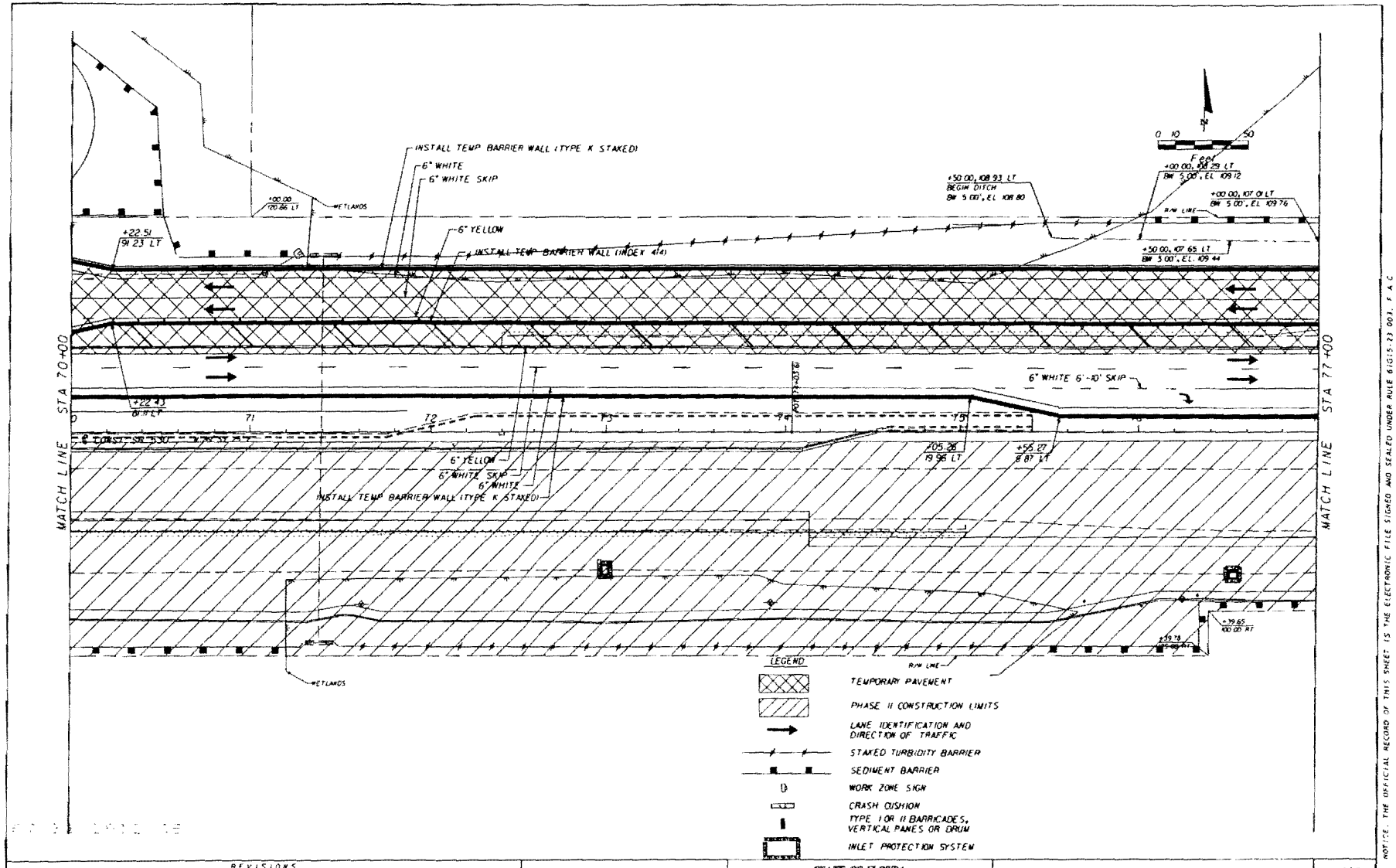
2.0 Construction Plans

3.0 Wetlands & Other Surface Waters documents

STATE ROAD NO. SR 530

ORLANDO SERVICE CENTER





REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DISTRICT FIVE - DESIGN

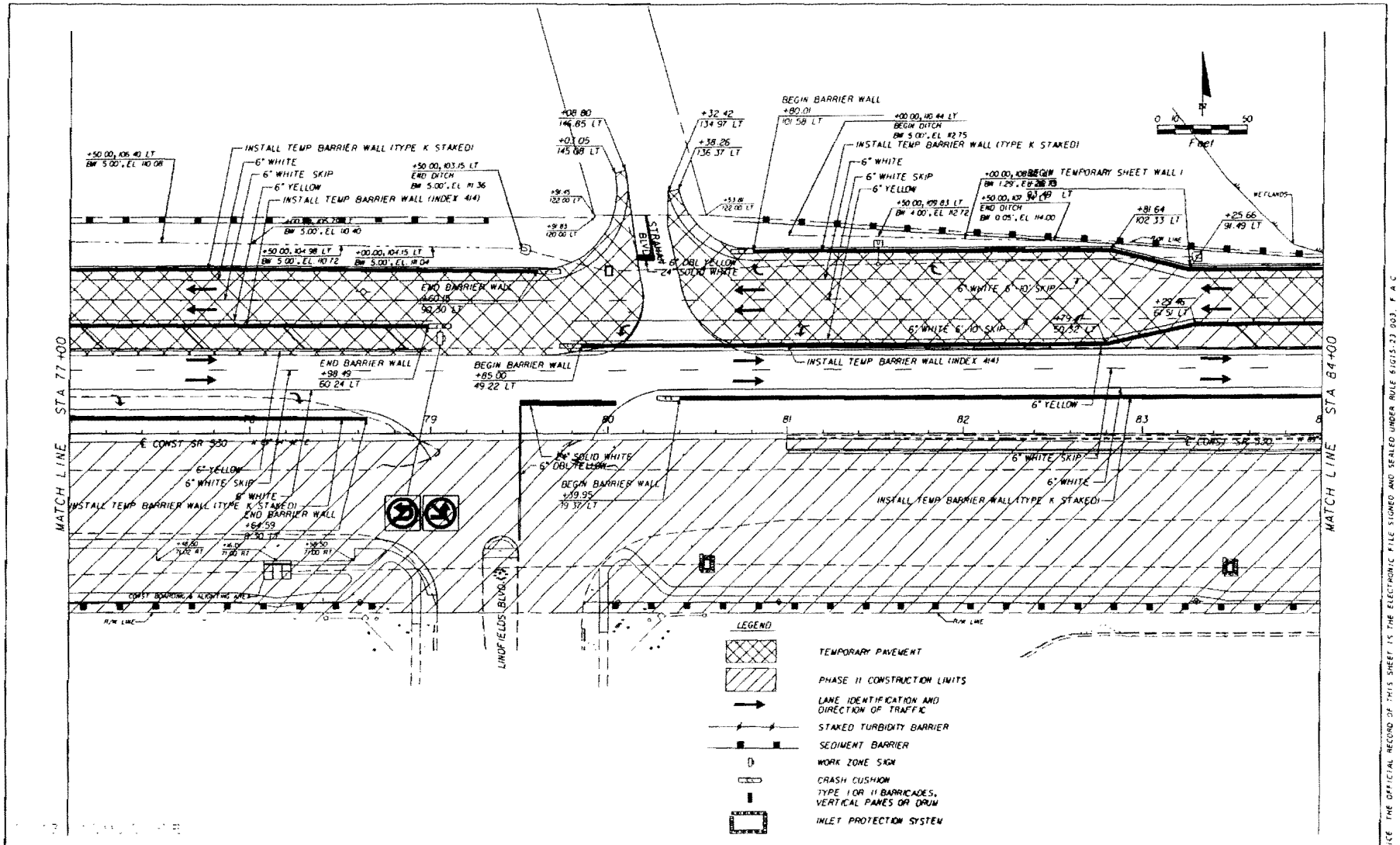
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
SR 530	ORANGE	239304-1-52-01

TEMP TRAFFIC CONTROL PHASE II

SHEET NO. 252

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.001, F.A.C.



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DISTRICT FIVE - DESIGN

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
SR 530	ORANGE	239304-1-52-01

TEMP TRAFFIC CONTROL PHASE II

SHEET NO. 253

NOTICE THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

Application No. 120221-27

Page 1 of 2

Exhibit 3

Three Lakes Wildlife Management Area Ledger
Florida Department of Transportation District Five

PROJECT	AC. IMPACTS	FORESTED/ HERBACEOUS	FUNCTIONAL QUALITY	RATIO	AC. MITIGATION USED	MITIGATION AC. BALANCE
Earthwork						334.9
SR600 Reedy Creek Bridge	3.78	FORESTED	GOOD/FAIR	20:1	75.6	239.2
APPLICATION #940614-9 & 960124-5 PERMIT #49-00025-D & #49-00765-S	2.01	FORESTED TEMP	GOOD/FAIR	10:1	20.1	
SR530 Lake C/L to Capt Kidd FM239304						205.2
APPLICATION #940927-1 PERMIT #48-00018-D	1.92	HERBACEOUS	GOOD	17:1	34.0	
2nd Report 3/96					(+100)	305.2
SR500 Taft Vineland to Sand Lake FM239185	2.69	FORESTED	FAIR/POOR	15:1		280.55
APPLICATION #950811-9 PERMIT #49-00863-P	0.72	HERBACEOUS	FAIR/POOR	15:1	24.65	
SR600 Poin. to SR535 FM239714	1.09	FORESTED	GOOD	17:1	18.53	262.02
APPLICATION #970108-14 PERMIT #49-00890-P						
4th Report					(+100)	362.02
SR530 Mich. to Aeronautical FM239708	1.98	DITCH	FAIR	15:1	29.7	329.17
APPLICATION #970918-10 # 49-00890-P	0.21	HERBACEOUS		15:1	3.15	
SR530 Bonnet Crk. to SR535 FM239670	2.79	FORESTED	FAIR	15:1	41.85	269.77
APPLICATION #971113-1 PERMIT # 49-00883-P	1.17	HERBACEOUS	FAIR	15:1	17.55	
SR530 Org C/L to Reedy Crk	1.04	FORESTED	FAIR/POOR	20:1	20.00	249.77
APPLICATION #980909-4 PERMIT # 49-00956-P		HERBACEOUS	FAIR/POOR	20:1		
SR530 SR535 to Hoagland FM239663	3.46	FORESTED	FAIR\POOR	15:1	27.25	222.52
APPLICATION #980515-2 PERMIT # 49-00947-P		HERBACEOUS	FAIR\POOR	10:1		
Mod to SR600 Poin to SR535 FM239714	2.37	FORESTED	FAIR	17:1	41.17	181.35
APPLICATION #981124-2 PERMIT # 49-00863-P	0.05	HERBACEOUS	FAIR	17:1		
Report done by Water & Air dated May 21, 2012 Compliance Evaluation of Lake Jackson Marsh Elevations with Three Lakes Bank		SPOILS REMOVAL			28.78	152.57
SR 530 Widening from Lake C/L to Secert Lake Drive	0.06	HERBACEOUS	FAIR	15:1	0.90	146.87
APPLICATION #120221-27 PERMIT #49-00596-P	0.96	HERBACEOUS TEMP	FAIR	5:1	4.80	

* Updated as of 8-7-12
* Updated as of 8-13-12

RECEIVED
AUG 15 2012
ORLANDO SERVICE CENTER

South Florida Water Management District

Work Schedule Requirements

Application No : 120221-27

Mitigation Plan ID: SR 530 TEMP WET IMPC

Activity	Due Date
SUBMIT POST-CONSTRUCTION MONITORING REPORT	24-OCT-13
SITE INSP OF TEMP WET IMPACT AREAS	24-NOV-13

Exhibit No :

FORM #0151
Rev. 08/95

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
PERMIT MODIFICATION NO. 49-00956-P
DATE ISSUED: DECEMBER 2, 2008

PERMITTEE: FLORIDA DEPARTMENT OF TRANSPORATION DISTRICT 5
(SR 530 (US 192) WIDENING FROM LAKE COUNTY LINE)
719 SOUTH WOODLAND BLVD,
DELAND , FL 32720

ORIGINAL PERMIT ISSUED: MARCH 11, 1999

ORIGINAL PROJECT DESCRIPTION: AUTHORIZATION FOR THE CONSTRUCTION AND OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM TO SERVE THE 101.68-ACRE US192 (SR530) ROADWAY WIDENING PROJECT, DISCHARGING TO WEST BOGGY CREEK, BLACK LAKE, AND REEDY CREEK.

APPROVED MODIFICATION : CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM TO SERVE 51.70 ACRES OF A HIGHWAY PROJECT KNOWN AS S.R. 530 (U.S. 192) WIDENING FROM LAKE COUNTY LINE TO SECRET LAKE DRIVE.

PROJECT LOCATION: ORANGE COUNTY , SECTION 31,32 TWP 24S RGE 27E
PROJECT LOCATION: OSCEOLA COUNTY , SECTION 5,6 TWP 25S RGE 27E

PERMIT DURATION: See Special Condition No.1. See attached Rule 40E-4.321, Florida Administrative Code.

This Permit Modification is approved pursuant to Application No. 080409-17, dated April 7, 2008. Permittee agrees to hold and save the South Florida Water Management District and its successors harmless from any and all damages, claims or liabilities which may arise by reason of the construction, operation, maintenance or use of any activities authorized by this Permit. This Permit is issued under the provisions of Chapter 373, Part IV Florida Statutes(F.S.), and the Operating Agreement Concerning Regulation Under Part IV, Chapter 373 F.S. between South Florida Water Management District and the Department of Environmental Protection. Issuance of this Permit constitutes certification of compliance with state water quality standards where necessary pursuant to Section 401, Public Law 92-500, 33 USC Section 1341, unless this Permit is issued pursuant to the net improvement provisions of Subsections 373.414(1)(b), F.S., or as otherwise stated herein.

This Permit Modification may be revoked, suspended, or modified at any time pursuant to the appropriate provisions of Chapter 373, F.S., and Sections 40E-4.351(1), (2), and (4), Florida Administrative Code (F.A.C.). This Permit Modification may be transferred pursuant to the appropriate provisions of Chapter 373, F.S., and Sections 40E-1.6107(1) and (2), and 40E-4.351(1), (2), and (4), F.A.C.

All specifications and special and limiting/general conditions attendant to the original Permit,unless specifically rescinded by this or previous modifications, remain in effect.

This Permit Modification shall be subject to the Environmental Resource Permit set forth in Rule 40E-4.381, F.A.C., unless waived or modified by the Governing Board. The Application, and Environmental Resource Permit Staff Review Summary of the Application, including all conditions, and all plans and specifications incorporated by reference, are a part of this Permit Modification. All activities authorized by this Permit Modification shall be implemented as set forth in the plans, specifications, and performance criteria as set forth and incorporated in the Environmental Resource Permit Staff Review Summary. Within 30 days after completion of construction of the permitting activity, the Permittee shall submit a written statement of completion and certification by a registered professional engineer or other appropriate individual, pursuant to the appropriate provisions of Chapter 373, F.S. and Sections 40E-4.361 and 40E-4.381, F.A.C.

In the event the property is sold or otherwise conveyed, the Permittee will remain liable for compliance with this Permit until transfer is approved by the District pursuant to Rule 40E-1.6107, F.A.C.

SPECIAL AND GENERAL CONDITIONS ARE AS FOLLOWS:

SEE PAGES 2 - 3 OF 6 (20 SPECIAL CONDITIONS).
SEE PAGES 4 - 6 OF 6 (19 GENERAL CONDITIONS).

PERMIT MODIFICATION APPROVED BY THE GOVERNING BOARD OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT

ON ORIGINAL SIGNED BY:
BY ELIZABETH VEGUILLA
DEPUTY CLERK

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on December 2, 2013.

2. Operation of the surface water management system shall be the responsibility of FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT 5.

3. Discharge Facilities:

   Basin: Basin 1, Pond 1, Structure: S-15
   1-10' WIDE BROAD CRESTED weir with crest at elev. 111.5' NGVD 29.
   1-3" dia. CIRCULAR ORIFICE with invert at elev. 110.9' NGVD 29.
   Receiving body : 50-foot Drainage Easement
   Control elev : 110.9 feet NGVD 29.

   Basin: Basin 3, Pond 5, Structure: S-16
   1-4' WIDE BROAD CRESTED weir with crest at elev. 111' NGVD 29.
   1-3" dia. CIRCULAR ORIFICE with invert at elev. 110.25' NGVD 29.
   Receiving body : Lake Apache
   Control elev : 110.25 feet NGVD 29.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

8. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

9. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

10. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

11. The permittee acknowledges, that pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.

12. An average 25' wide, minimum 15', buffer of undisturbed upland vegetation shall be maintained between the proposed development and existing wetlands. Buffers shall be staked and roped and District environmental staff notified for inspection prior to clearing..

13. Silt screens, hay bales, turbidity screens/barriers or other such sediment control measures shall be utilized during construction. The selected sediment control measure shall be installed landward of the upland buffer zones around all

protected wetlands and shall be properly "trenched" etc. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands and upland buffer zones.

14. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

15. Endangered species, threatened species and/or species of special concern have been observed onsite and/or the project contains suitable habitat for these species. It shall be the permittee's responsibility to coordinate with the Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service for appropriate guidance, recommendations and/or necessary permits to avoid impacts to listed species.

16. Silt fencing shall be installed at the limits of construction to protect all areas from silt and sediment deposition during the construction of the project. The sediment controls shall be installed prior to the commencement of any clearing or construction and shall remain in place and be maintained in good functional condition until all adjacent construction activities have been completed and all fill slopes have been stabilized.

17. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 48-00840-S unless otherwise specified herein.

18. The authorization for construction of the surface water management system is issued pursuant to the water quality net improvement provisions referenced in Rule Section 40E-4.303(1), Florida Administrative Code; therefore, the state water quality certification is waived.

19. Mitigation to offset the proposed 0.63 direct and 2.3 secondary acres of impact has been provided through provisions of Chapter 373.4137 F.S. The final order was issued by FDEP on March 11,1999, under WPI #5147268 and Mitigation ID #SF05. Mitigation to offset the impacts was originally approved to be through the aquisition of 45 forested bank credits from an appropriate mitigation bank. The 45 credits have been purchased from the Reedy Creek Mitigation Bank and are held by the District.

    Previous DOT projects have utilized portions of this credit purchase resulting in a current excess of 1.31 credits. The proposed project will use 0.54 of these excess credits to offset the 2.93 acres of impacts. The remainder of the originally approved forested credits (0.77 credits) will be held by the District for future use to offset appropriate DOT wetland impacts. (Exhibit 3 pages 12-13).

20. The following exhibits for the permit are incorporated by reference herein and are located in the permit file:

    Exhibit No. 3 (Pages 17 to 32 of 32) - UMAM Score Sheets

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373. F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee

shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

40E-4.321 Duration of Permits.

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C., is as follows:

(a) For a conceptual approval, two years from the date of issuance or the date specified as a condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project. If an application for an environmental resource permit is filed, then the conceptual approval remains valid until final action is taken on the environmental resource permit application. If the application is granted, then the conceptual approval is valid for an additional two years from the date of issuance of the permit. Conceptual approvals which have no individual or standard general environmental resource permit applications filed for a period of two years shall expire automatically at the end of the two year period.

(b) For a conceptual approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive plan amendment, the duration of the conceptual approval shall be two years from whichever one of the following occurs at the latest date:

1. The effective date of the local government's comprehensive plan amendment,

2. The effective date of the local government development order,

3. The date on which the District issues the conceptual approval, or 4. The date on which the District issues a final order pertaining to the resolution of any Section 120.57, F.S., administrative proceeding or other legal appeals.

(c) For an individual or standard general environmental resource permit, the construction phase authorizing construction, removal, alteration or abandonment of a sys-tem shall expire five years from the date of issuance or such amount of time as made a condition of the permit.

(d) For an individual or standard general environmental resource permit, the operational phase of the permit is perpetual for operation and maintenance.

(e) For a noticed general permit issued pursuant to Chapter 40E-400, F.A.C., five years from the date the notice of intent to use the permit is provided to the District.

(2)(a) Unless prescribed by special permit condition, permits expire automatically according to the timeframes indicated in this rule. If application for extension is made by electronic mail at the District's e-Permitting website or in writing pursuant to subsection (3), the permit shall remain in full force and effect until:

1. The Governing Board takes action on an application for extension of an individual permit, or

2. Staff takes action on an application for extension of a standard general permit.

(b) Installation of the project outfall structure shall not constitute a vesting of the permit.

(3) The permit extension shall be issued provided that a permittee files a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environ-mental impacts which require a detailed review.

(5) Substantial modifications to individual or standard general environmental resource permits issued pursuant to a permit application extend the duration of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit modifications do not extend the duration of a conceptual approval.

(6) Permit modifications issued pursuant to paragraph 40E-4.331(2)(b), F.A.C.(letter modifications) do not extend the duration of the permit.

(7) Failure to complete construction or alteration of the surface water management system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted.

Specific Authority 373.044, 373.113, 668.003, 668.004, 668.50 FS. Law Implemented373.413, 373.416, 373.419, 373.426, 668.003, 668.004, 668.50 FS. History-New 9-3-81,Amended 1-31-82, 12-1-82, Formerly 16K-4.07(4), Amended 7-1-86, 4-20-94, 10-3-95,5-28-00, 10-1-06.

Last Date For Agency Action: 02-DEC-2008

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Sr 530 (Us 192) Widening From Lake County Line

Permit No.: 49-00956-P

Application No.: 080409-17

Application Type: Environmental Resource (Construction/Operation Modification)

Location: Orange County, S31,32/T24S/R27E

Location: Osceola County, S5,6/T25S/R27E

Permittee : Florida Department Of Transporation District 5

Operating Entity : Florida Department Of Transportation District 5

Project Area: 51.7 acres

Project Land Use: Highway

Drainage Basin: REEDY CREEK

Receiving Body: Davenport Creek System

Class: CLASS III

FINAL APPROVED BY GB

DEC 0 2 2008

WPB

Special Drainage District: NA

Total Acres Wetland Onsite:	4.88	
Total Acres Wetland Preserved Onsite:	2.32	
Total Acres Impacted Onsite :	2.56	
Total Acres Presv/Mit Compensation Onsite:	2.32	
Offsite Mitigation Credits-Mit.Bank:	.54	Reedy Creek Mitigation Bank

Mitigation Previously Permitted: Yes

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

Modification of a Surface Water Management Permit to authorize construction and operation of a surface water management system to serve 51.70 acres of a highway project known as S.R. 530 (U.S. 192) Widening from Lake County Line to Secret Lake Drive. Staff recommends approval with conditions.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located within the S.R. 530 right-of-way from the Lake/Polk/Orange/Osceola County lines to slightly past Secret Lake Drive (aka Captain Kidd Drive) within both Orange and Osceola counties.

This project was previously permitted (with different basin delineations); however, the funding for construction was not finalized prior to the permit expiring (Application No. 940927-1, Permit No. 48-00840-S). Overlapping with this project's eastern limits is Application No. 980909-4, Permit No. 49-00956-P) in which the existing pond 7 was built; accordingly, this application will be a modification to this permit number. The site contains a 4-lane rural typical section roadway whose existing roadside swales serve as conveyance swales and provide no existing water quality treatment.

Seven wetlands and surface water areas lie along the roadway right-of-way. The previous expired permit provided mitigation for several of the right-of-way wetland impacts at Three Lakes Wildlife Management Area Mitigation Site (Permit 940614-10 and 940614-1D). The project, under the current application, proposes additional wetland impacts and provides for secondary impacts not addressed previously. Mitigation for wetland impacts under this application will be offset by credits from Reedy Creek Mitigation Bank.

PROPOSED PROJECT:

Construction proposed consists of the surface water management system serving the improvements to S.R. 530 (U.S. 192) Widening from Lake County Line to Secret Lake Drive.

The proposed improvements will consist of the widening of approximately 1.8 miles of the roadway from a 4-lane rural typical section to a 6-lane raised median rural typical section and the associated surface water management system.

The water management system will consist of inlets and the corresponding culverts to collect and convey new impervious area runoff to two existing, private wet detention ponds (joint-use ponds) and two new wet detention ponds for the required water quality treatment and attenuation prior to discharge into the Davenport Creek System at a different discharge point for each basin. The project lies within the Reedy Creek Drainage Basin.

Runoff from Basin 1 will discharge to the newly-proposed Pond 1 for water quality treatment and attenuation which will outfall to an existing 50-foot drainage easement which will convey runoff ultimately into the Davenport Creek System.

Runoff from Basin 2 will discharge into the existing Westside Pond 2, as previously permitted (Application No. 020822-8).

A portion of Basin 3's runoff will discharge into the newly-proposed Pond 5 with compensating water quality treatment being provided for runoff from the existing roadway in this pond for the newly-added portion of Basin 3 that cannot geographically be conveyed to Pond 5 for treatment. After the required water quality treatment and attenuation, Pond 5 outfalls into Lake Apache which in turn outfalls into the Davenport Creek System along with adjacent Lake Osage.

Basin 4 runoff will discharge into the existing Pond 7 as previously permitted by Application No. 980909-4.

Governing water quality criteria consists of 2.5 inches times the new impervious area (no existing water quality treatment) and is provided in excess in the design of the surface water management system for each basin in the new ponds (Basin 1, Pond 1 and Basin 3, Pond 5) as well as the existing ponds

previously permitted to accept runoff from the 6-laning of this roadway (Basin 2, Existing Pond 2 and Basin 4, Existing Pond 7). The authorization for construction of the surface water management system is issued pursuant to the water quality net improvement provisions referenced in Rule Section 40E-4.303(1), Florida Administrative Code; therefore, the state water quality certification is waived. Please see Special Condition No. 18. In addition, the applicant submitted phosphorus calculations to show that the design will result in a post-development phosphorus-loading reduction in each basin.

The applicant addressed existing flooding problems in the Lake Osage area stating that the cross drains were not properly maintained and were obstructed resulting in flooding in the area. In addition, they showed that the design provides attenuation that did not previously exist in this basin resulting in a decrease of the discharge being directed into the existing cross drain under S.R. 530 and outfalling to the south.

LAND USE:

Construction:
Project:

	This Phase	
Pavement	26.65	acres
Pervious	23.70	acres
Water Mgnt Acreage	1.35	acres
Total:	**51.70**	

Basin : Basin 1, Pond 1

	This Phase	
Pavement	4.36	acres
Pervious	4.75	acres
Water Mgnt Acreage	.69	acres
Total:	**9.80**	

Basin : Basin 2,Exist Pond 2

	This Phase	
Pavement	7.97	acres
Pervious	7.76	acres
Total:	**15.73**	

Basin : Basin 3, Pond 5

	This Phase	
Pavement	10.66	acres
Pervious	6.39	acres

Basin : Basin 3, Pond 5

	This Phase	
Water Mgnt Acreage	.66	acres
Total:	**17.71**	

Basin : Basin 4,Exist Pond 7

	This Phase	
Pavement	3.66	acres
Pervious	4.80	acres
Total:	**8.46**	

WATER QUANTITY :

Discharge Rate :

As shown in the table below, the proposed project discharge is within the allowable limit for the area.

Discharge Storm Frequency : 10 YEAR-3 DAY Design Rainfall : 10.19 inches

Basin	Allow Disch (cfs)	Method Of Determination	Peak Disch (cfs)	Peak Stage (ft, NGVD 29)
Basin 1, Pond 1	23	Pre Vs Post	23	112.22
Basin 3, Pond 5	28	Pre Vs Post	28	111.98

Road Design :

As shown in the following table and the attached exhibits, minimum road center lines have been set at or above the calculated design storm flood elevation.

Road Storm Frequency : 10 YEAR-1 DAY Design Rainfall: 8 inches

Basin	Peak Stage (ft, NGVD 29)	Proposed Min. Road Crown (ft, NGVD 29)
Basin 1, Pond 1	112.16	112.9
Basin 3, Pond 5	111.91	112.25

Flood Plain/Compensating Storage:

The floodplain compensating storage is provided in the newly-proposed Ponds 1 and 5 which ultimately are both connected to the Davenport Creek System.

Displaced Volume	Compensating Volume	100-Year Stage Elevation
1.97 ac-ft	2.5 ac-ft	112 ft-NGVD

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NGVD 29)	WSWT Ctrl Elev (ft, NGVD 29)	Method Of Determination
Basin 1, Pond 1	9.80	110.9	110.90	Wet Season Soil Borings
Basin 2,Exist Pond 2	15.73	109.4	109.40	Previously Permitted
Basin 3, Pond 5	17.71	110.25	110.25	Wet Season Soil Borings
Basin 4,Exist Pond 7	8.46	103	103.00	Previously Permitted

Receiving Body :

Basin	Str.#	Receiving Body
Basin 1, Pond 1	S-15	50-foot Drainage Easement
Basin 3, Pond 5	S-16	Lake Apache

Discharge Structures: Note: The units for all the elevation values of structures are (ft, NGVD 29)

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
Basin 1, Pond 1	S-15	1	Broad Crested	10'				111.5 (crest)
Basin 3, Pond 5	S-16	1	Broad Crested	4'				111 (crest)

Water Quality Structures: Note: The units for all the elevation values of structures are (ft, NGVD 29)

Bleeders:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Invert Angle	Invert Elev.
Basin 1, Pond 1	S-15	1	Circular Orifice				3"		110.9
Basin 3, Pond 5	S-16	1	Circular Orifice				3"		110.25

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project. Governing water quality criteria consists of 2.5 inches times the new impervious area (no existing water quality treatment) and is provided in excess in the design of the surface water management system for each basin in the new ponds (Basin 1, Pond 1 and Basin 3, Pond 5) as well as the existing ponds previously permitted to accept runoff from the 6-laning of this roadway (Basin 2, Existing Pond 2 and Basin 4, Existing Pond 7). The authorization for construction of the surface water management system is issued pursuant to the water quality net improvement provisions referenced in Rule Section 40E-4.303(1), Florida Administrative Code; therefore, the state water quality certification is waived. Please see Special Condition No. 18. In addition, the applicant submitted phosphorus calculations to show that the design will result in a post-development phosphorus-loading reduction in each basin.

Basin	Treatment Method			Vol Req.d (ac-ft)	Vol Prov'd
Basin 1, Pond 1	Treatment	Wet Detention	.69 acres	.39	.43
Basin 3, Pond 5	Treatment	Wet Detention	.66 acres	.51	.51

WETLANDS:

Seven wetland and surface water bodies lie along the roadway corridor. Wetlands D, B, A and C lie to the north side of SR 530, with wetlands E, F, G and H to the south. (See Exhibit 3 page 1-11 of 32). Direct impacts typically occur within maintained right-of-way areas with secondary impacts extending into the wetlands.
Wetlands A, B and C are the wetland edges of natural, named lakes. Impacts to these wetlands are mostly secondary impacts. Direct impacts to the wetland fringes impact herbaceous communities consisting of cattail, dog fennel, maidencane and broomsedge with some encroachment of primrose willow and wild taro.

Wetland D is a bay and titi swamp currently preserved under conservation easement (Permit 48-01782-P). The fringe of this wetland lying within the right-of-way consists of dahoon holly, cinnamon fern, wax myrtle, Carolina willow and cabbage palm.

The wetlands along the south side of the project corridor consist of two sections of a larger forested system (wetlands E and F) which extends to the south, eventually draining to Davenport Creek. The dominant species within wetlands E and F consist of bay with scattered holly and slash pine. Wetlands G and H are isolated wetlands with a dominant willow population. Both systems have dog fennel and primrose willow encroachment along the edges.

Wetland Impacts:

A portion of the proposed project impacts received mitigation from Three Lakes Wildlife Management Area Mitigation Site (TLWMA) (Permit 940614-10 and 940614-1D). This mitigation consisted of 34 acres of wetland restoration and enhancement and was approved under the previously expired permit 48-00018-D to compensate for 1.92 acres of unavoidable impacts due to the proposed widening of SR 530. (Exhibit 3 page 14 & 15 of 32) Mitigation activities have been successfully completed at TLWMA. The impacts authorized under the expired permit have not occurred. The 1.92 acres of impacts previously mitigated will occur under this permit.

An additional 0.63 acre of direct and 2.3 acres of secondary impacts will result from this project. Due to the linear nature of the project, placement of ponds and appropriate width for safe bike lanes and sidewalks, the footprint of the project must impact some wetlands and surface waters. The project was designed to minimize impacts to wetlands.

Mitigation Proposal:

A Uniform Mitigation Assessment Methodology (UMAM) assessment was performed to determine the functional value of the impacted wetlands. (Exhibit 3 pages 16 to 32 - incorporated by reference). As a result of the UMAM assessment, it was determined that the project would result in a functional loss of 0.54 UMAM credits.

The applicant has proposed the purchase of credits from Reedy Creek Mitigation Bank to offset the project's functional loss. The 0.5 UMAM credits of mitigation has been previously provided under the DOT Glitch Bill (SB 1986). Through several mitigation purchase projects, most notably mitigation ID# SF05) the purchase of 50 mitigation bank credits (5 herbaceous, 45 forested) was approved. The projects directly linked to the Senate Bill mitigation bank credit purchases did not utilize the entire allocation, resulting in an excess balance of 1.31 forested credits at Reedy Creek Mitigation Bank. (See Exhibit 3 pages 12 and 13). The applicant will use 0.54 of the excess credits for this project.

The forested mitigation bank credits have been purchased from the Reedy Creek Mitigation Bank. The bank occurs in the Reedy Creek Basin and has a service area within the same. Therefore, since mitigation will be accomplished within the same basin as the proposed impacts, no adverse cumulative

Wetland Inventory :

CONSTRUCTION NEW -SR 530

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluc cs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluccs	Adj Delta	Functional Gain / Loss
A	ON	641	Secondary	.05	.60	.57					-.030	-.002
B	ON	641	Direct	.01							.000	.000
B2	ON	641	Secondary	.23	60	.57					-.030	-.007
D	ON	641	Direct	.98							.000	.000
D2	ON	641	Secondary	.88	.60	.57					-.030	-.026
E	ON	611	Direct	.16							.000	.000
E2	ON	611	Secondary	.17	.57	.50					-.070	-.012
E3	ON	611	Direct	.63	.73	.00					-.730	-.460
E4	ON	611	Secondary	.38	.73	.67					-.060	-.023
F	ON	641	Direct	.14							.000	.000
F2	ON	641	Secondary	.22	.53	.50					-.030	-.007
G	ON	641	Direct	.23							.000	.000
G2	ON	641	Secondary	.16	.57	.57					.000	.000
H	ON	641	Direct	.41							.000	.000
H2	ON	641	Secondary	.23	.47	.47					.000	.000
			Total:	4.88								-.54

Fluccs Code	Description
611	Bay Swamps
641	Freshwater Marshes

MITBANK REEDY CREEK MITIGATION BANK

Type Of Credits	Number Of Credits
	Mitigation Bank Cr Used
Fresh Water Forested	.54
Total:	**.54**

Wildlife Issues:

The project site contains preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. Sandhill Crane nests were observed in off-site portions of wetlands within the project area, yet submitted information indicates that use of the site is minimal. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

Species	Potential Occurence	Use Types
Gopher Tortoises	Observed Active Burrows	Burrows Nesting
Sandhill Cranes	Nest Is Off-Site	

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that if dewatering is required for construction of this project, the contractor will apply for the required dewatering permit prior to any construction activities.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation, unless the work qualifies for a No-Notice Short-Term Dewatering permit pursuant to Chapter 40E-20.302(3) or is exempt pursuant to Section 40E-2.051, FAC.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources or that the proposed activities could cause adverse impacts to archaeological or historical resources.

DCA/CZM Consistency Review:

The District has not received a finding of inconsistency from the Florida Department of Environmental Protection or other commenting agencies regarding the provisions of the federal Coastal Zone Management Plan.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF RECOMMENDATION:

The Staff recommends that the following be issued :

Construction and operation of a surface water management system to serve 51.70 acres of a highway project known as S.R. 530 (U.S. 192) Widening from Lake County Line to Secret Lake Drive.

Based on the information provided, District rules have been adhered to.

Staff recommendation is for approval subject to the attached General and Special Conditions.

STAFF REVIEW:

NATURAL RESOURCE MANAGEMENT APPROVAL

ENVIRONMENTAL EVALUATION

Nicole Gough

SUPERVISOR

Marc S. Ady

SURFACE WATER MANAGEMENT APPROVAL

ENGINEERING EVALUATION

Annette V. Burkett

SUPERVISOR

Mark S. Daron, P.E.

ENVIRONMENTAL RESOURCE PERMITTING DIVISION DIRECTOR :

Anita R. Bain

DATE: 11/20/08

ENVIRONMENTAL RESOURCE REGULATION DEPUTY DEPARTMENT DIRECTOR :

Anthony M. Waterhouse, P.E.

DATE: 11/21/08

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity

GENERAL CONDITIONS

approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal,

abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on December 2, 2013.

2. Operation of the surface water management system shall be the responsibility of FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT 5.

3. Discharge Facilities:

   Basin: Basin 1, Pond 1, Structure: S-15
   1-10' WIDE BROAD CRESTED weir with crest at elev. 111.5' NGVD 29.
   1-3" dia. CIRCULAR ORIFICE with invert at elev. 110.9' NGVD 29.
   Receiving body : 50-foot Drainage Easement
   Control elev : 110.9 feet NGVD 29.

   Basin: Basin 3, Pond 5, Structure: S-16
   1-4' WIDE BROAD CRESTED weir with crest at elev. 111' NGVD 29.
   1-3" dia. CIRCULAR ORIFICE with invert at elev. 110.25' NGVD 29.
   Receiving body : Lake Apache
   Control elev : 110.25 feet NGVD 29.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Lake side slopes shall be no steeper than 5:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

8. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

9. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

10. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

11. The permittee acknowledges, that pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.

12. An average 25' wide, minimum 15', buffer of undisturbed upland vegetation shall be maintained between the proposed development and existing wetlands. Buffers shall be staked and roped and District environmental staff notified for inspection prior to clearing..

13. Silt screens, hay bales, turbidity screens/barriers or other such sediment control measures shall be utilized during construction. The selected sediment control measure shall be installed landward of the upland buffer zones around all protected wetlands and shall be properly "trenched" etc. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands and upland buffer zones.

SPECIAL CONDITIONS

14. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

15. Endangered species, threatened species and/or species of special concern have been observed onsite and/or the project contains suitable habitat for these species. It shall be the permittee's responsibility to coordinate with the Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service for appropriate guidance, recommendations and/or necessary permits to avoid impacts to listed species.

16. Silt fencing shall be installed at the limits of construction to protect all areas from silt and sediment deposition during the construction of the project. The sediment controls shall be installed prior to the commencement of any clearing or construction and shall remain in place and be maintained in good functional condition until all adjacent construction activities have been completed and all fill slopes have been stabilized.

17. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 48-00840-S unless otherwise specified herein.

18. The authorization for construction of the surface water management system is issued pursuant to the water quality net improvement provisions referenced in Rule Section 40E-4.303(1), Florida Administrative Code; therefore, the state water quality certification is waived.

19. Mitigation to offset the proposed 0.63 direct and 2.3 secondary acres of impact has been provided through provisions of Chapter 373.4137 F.S. The final order was issued by FDEP on March 11,1999, under WPI #5147268 and Mitigation ID #SF05. Mitigation to offset the impacts was originally approved to be through the aquisition of 45 forested bank credits from an appropriate mitigation bank. The 45 credits have been purchased from the Reedy Creek Mitigation Bank and are held by the District.

    Previous DOT projects have utilized portions of this credit purchase resulting in a current excess of 1.31 credits. The proposed project will use 0.54 of these excess credits to offset the 2.93 acres of impacts. The remainder of the originally approved forested credits (0.77 credits) will be held by the District for future use to offset appropriate DOT wetland impacts. (Exhibit 3 pages 12-13).

20. The following exhibits for the permit are incorporated by reference herein and are located in the permit file:

    Exhibit No. 3 (Pages 17 to 32 of 32) - UMAM Score Sheets

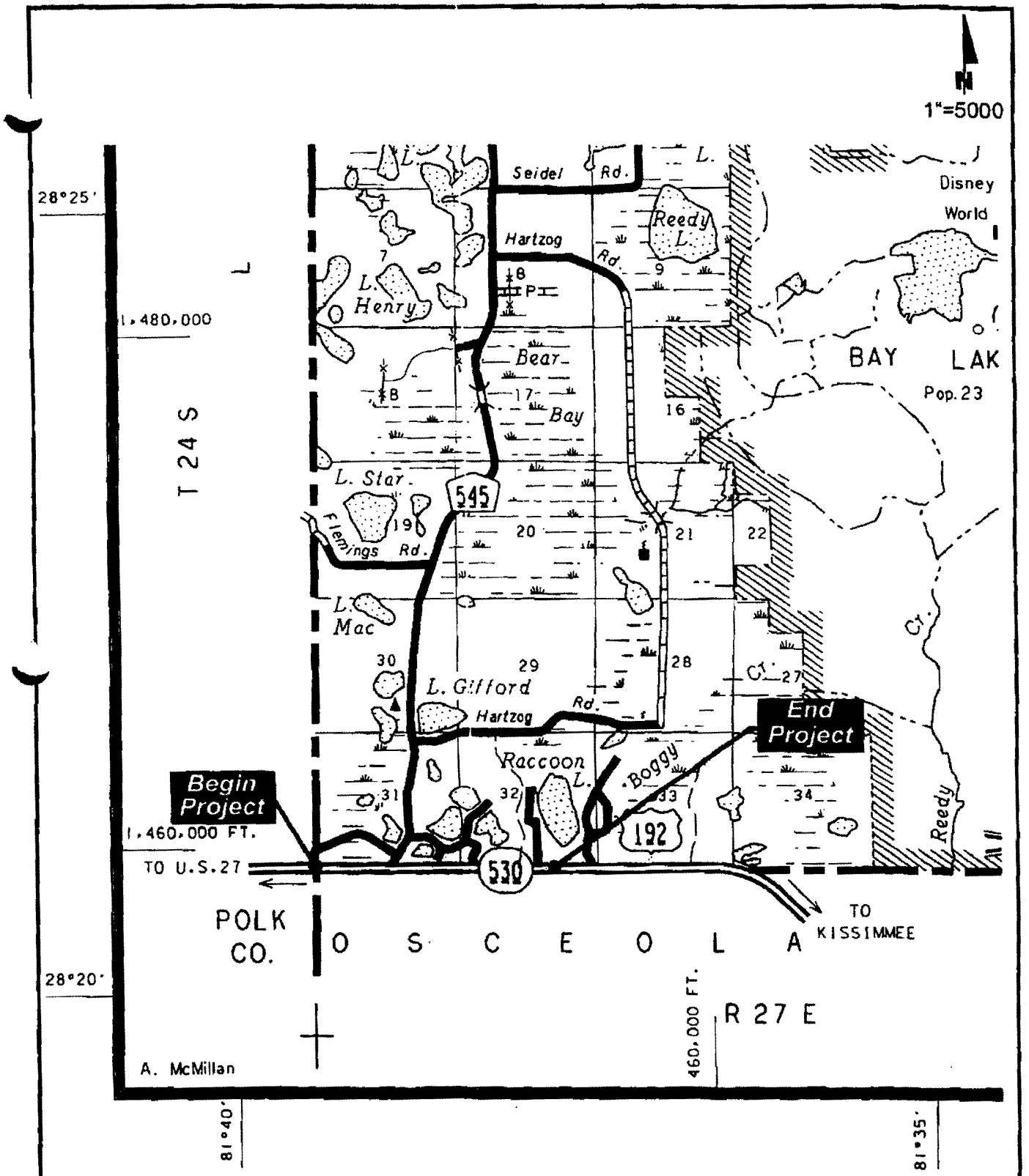
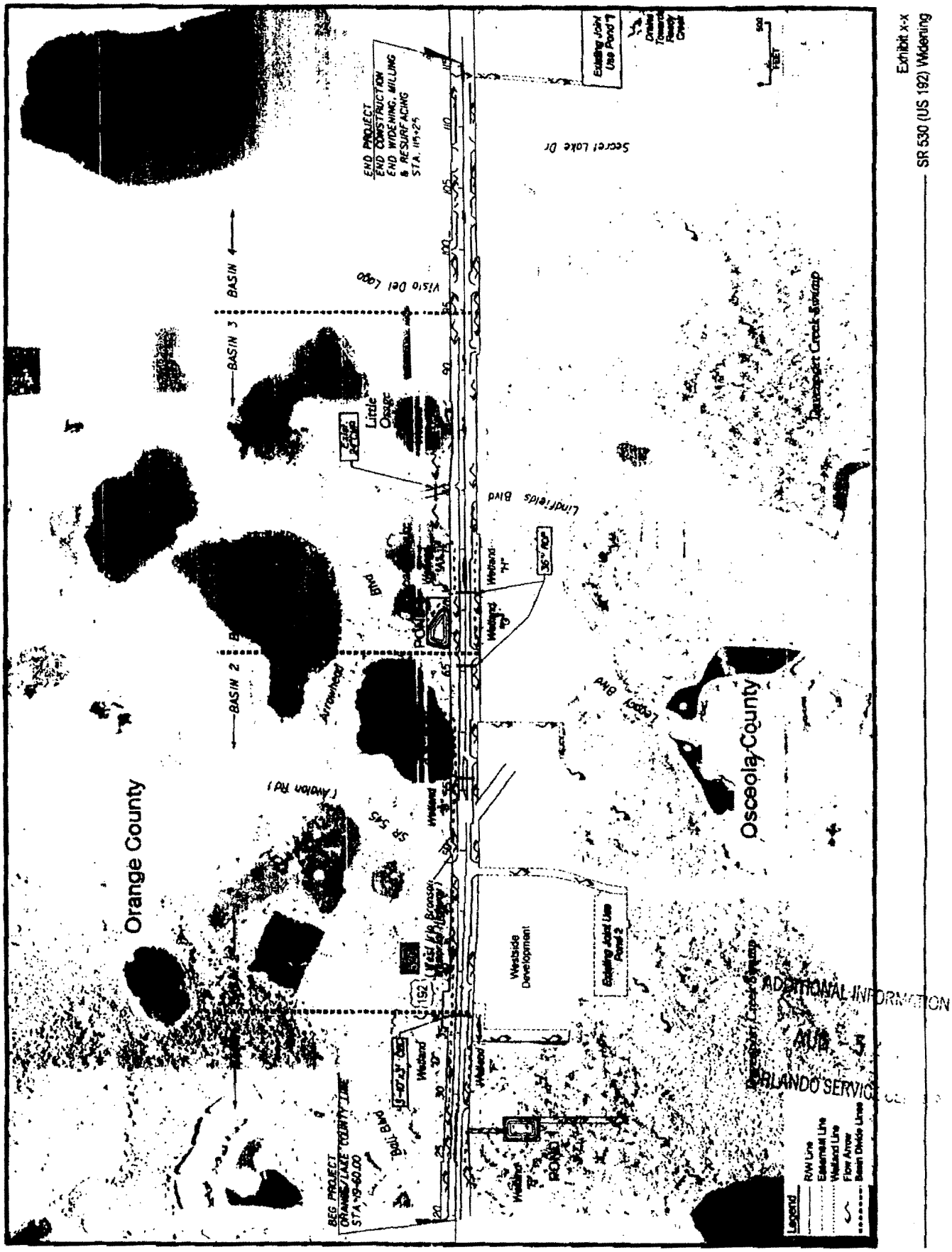
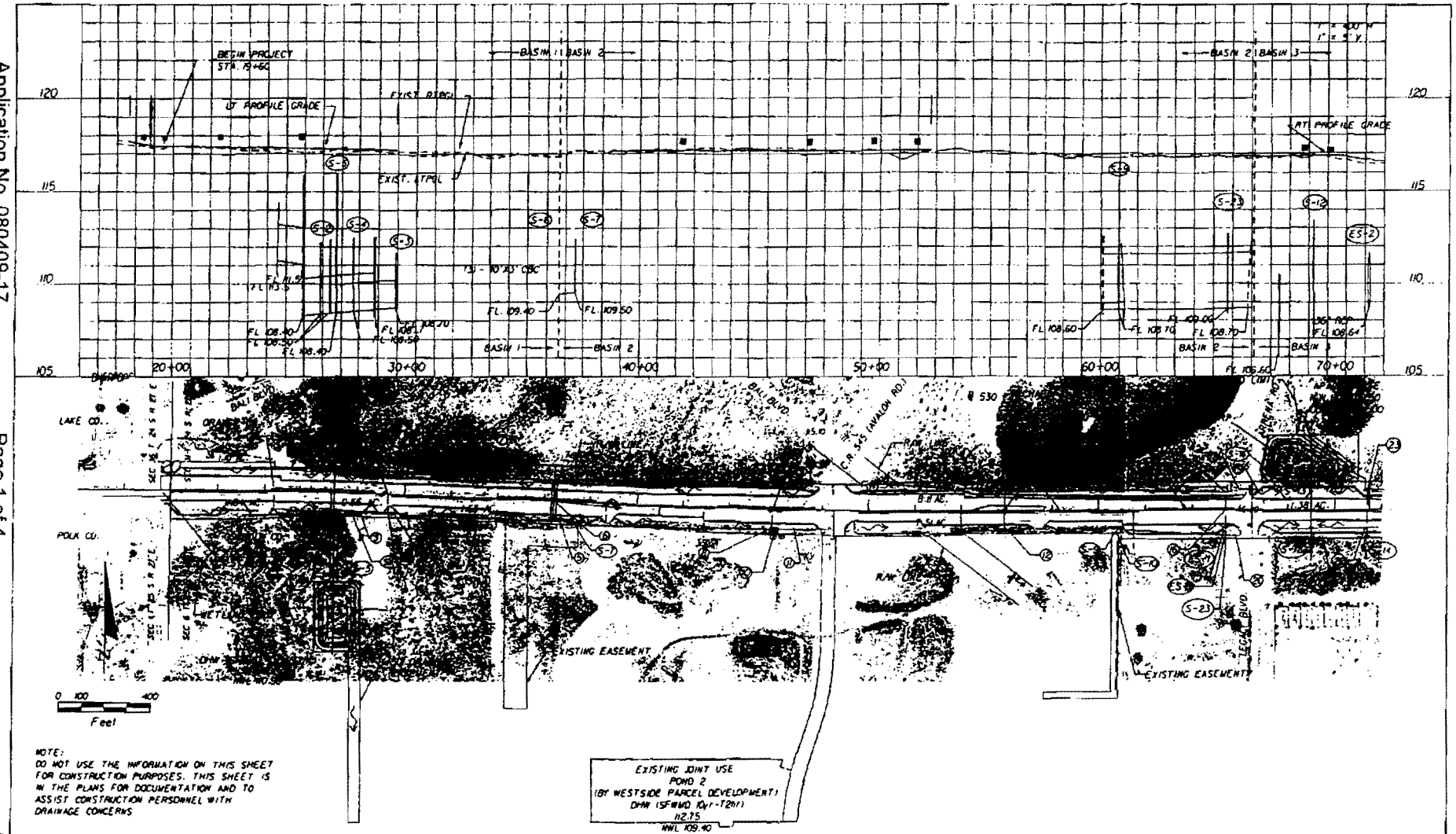


Figure 1
Project Location Map
SR 530 (US192) Lake Co. Line to Secret Lake Drive

URS


Exhibit x-x
SR 530 (US 192) Widening
Orange County
Osceola County
BASIN 2
BASIN 3
BASIN 4
Vista Del Lago
Secret Lake Dr
Lindfields Blvd
Arrowhead
Boggy Creek Airstrip
Little Osage
Wetland
Pond 1
Pond 2
Pond 3
Existing Joint Use Pond 1
Existing Joint Use Pond 2
Westside Development
END PROJECT
END CONSTRUCTION
END WIDENING, MILLING
& RESURFACING
STA. 115+25
BEG PROJECT
ORANGE/LAKE COUNTY LINE
STA. 79+60.00
Legend
R/W Line
Easement Line
Wetland Line
Flow Arrow
Basin Divide Line
ADDITIONAL INFORMATION
ORLANDO SERVICE



REVISIONS					
NO.	BY	DESCRIPTION	DATE	BY	DESCRIPTION
					PRELIMINARY

BRAHIM TOURE
P.E. LICENSE NO. 64634
URS CORPORATION
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1949
PH (407) 422-0353 FAX (407) 423-2695
CERTIFICATE OF AUTHORIZATION NO. 000002

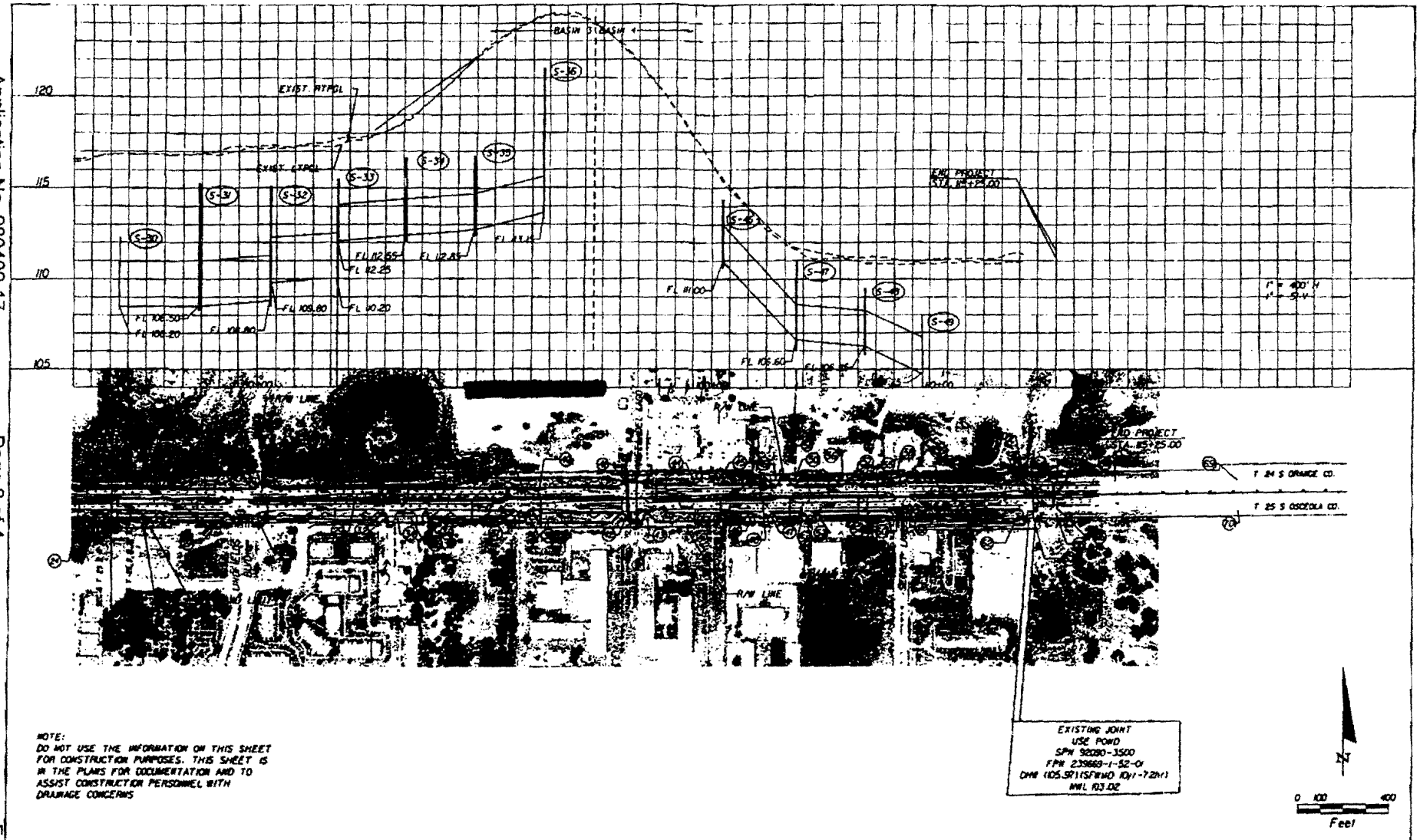
URS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID.
SR530	ORANGE	239304-1-52-01

DRAINAGE MAP

SHEET NO.



NOTE:
DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

IBRAHIM TOURE
P.E. LICENSE NO. 64634
URS
URS CORPORATION
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1949
PH (407) 422-0353 FAX (407) 423-2695
CERTIFICATE OF AUTHORIZATION NO. 000002

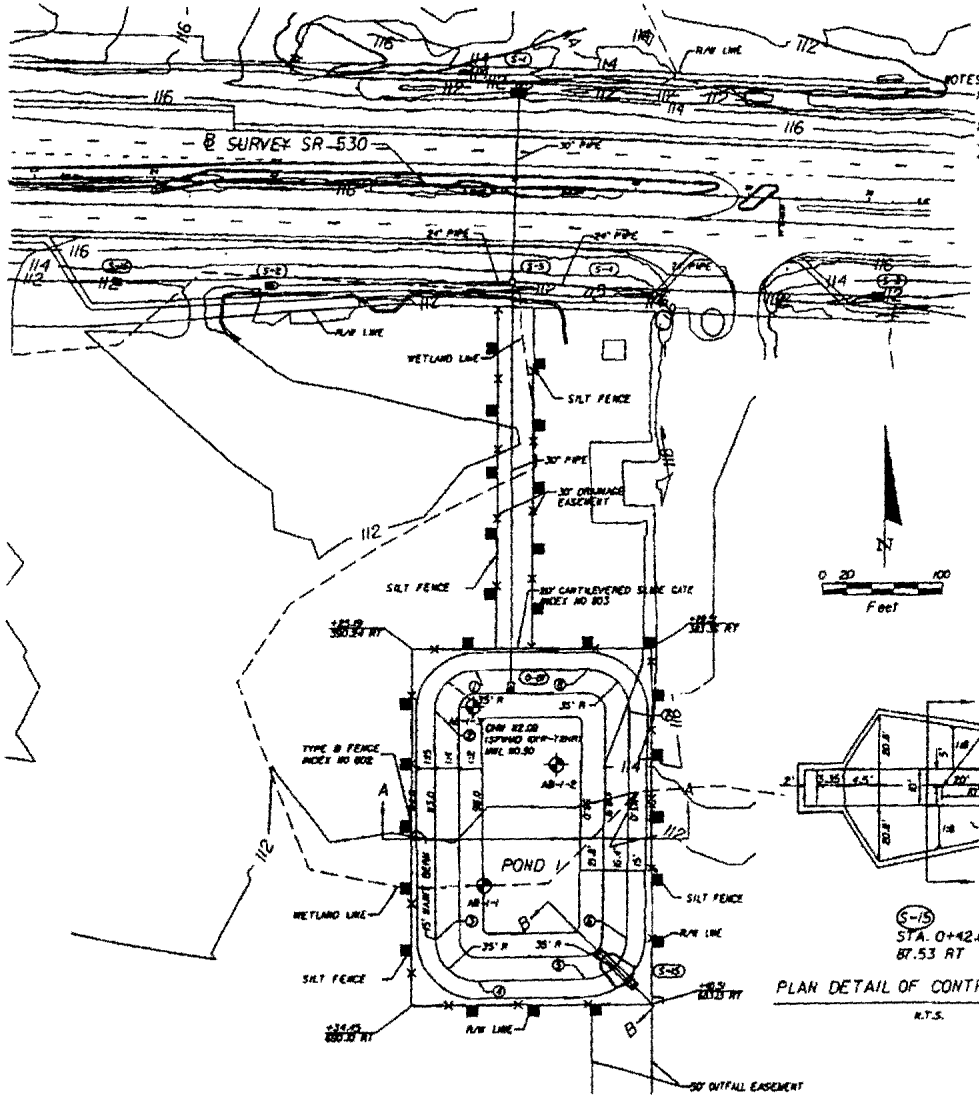
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR530	ORANGE	239304-1-52-01

DRAINAGE MAP

SHEET NO.

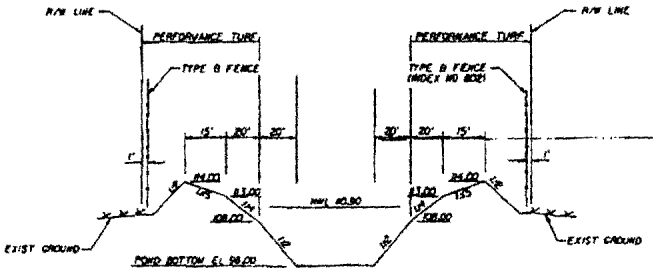
1/16/2008



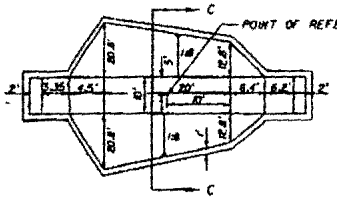
NOTES:
1. RADIUS AT INSIDE TOP OF BERM IS 35 FEET. CURVES ABOVE AND BELOW THE INSIDE TOP OF BERM ARE CONCENTRIC.
2. MINIMUM RADIUS FOR CURVES BELOW THE INSIDE TIP BERM IS 5 FEET.
3. MAINTENANCE ACCESS AND MAINTENANCE BERM SHALL BE SODDED.
4. SKIMMER BLADE AND SUPPORT BRACKETS SHALL BE FABRICATED FROM STRUCTURAL FIBERGLASS PLATE AND ANGLES. ALL JOINTS WILL BE BONDED AND RIVETED FOLLOWING ACCEPTABLE BONDING PROCEDURES AS SPECIFIED BY THE MANUFACTURER.

REF POINT	℄ POND 1	OFFSET	SIDE
1	2+94.08	31.31	LT
2	2+60.55	66.15	LT
3	0+67.32	63.74	LT
4	0+32.77	38.15	LT
5	0+31.48	61.24	RT
6	0+68.39	95.63	RT
7	2+58.16	97.12	RT
8	2+94.42	61.98	RT

SKIMMER DIMENSIONS		
LENGTH	WIDTH	HEIGHT
9.0'	23.0'	3.0'

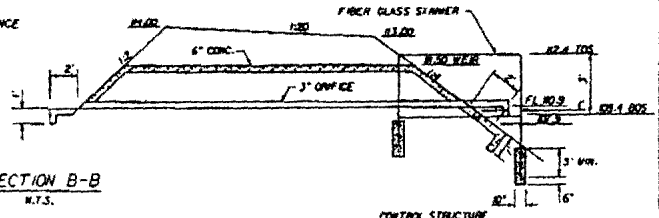


SECTION A-A
N.T.S.

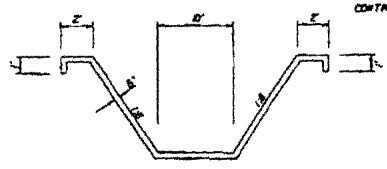


S-15
STA. 0+42.68, ℄ POND 1
87.53 RT

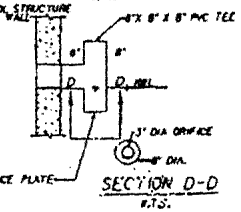
PLAN DETAIL OF CONTROL STRUCTURE
N.T.S.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.



SECTION D-D
N.T.S.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

IBRAHIM TOURE
P.E. LICENSE NO. 64834
URS CORPORATION
315 E. ROBINSON STREET, SUITE 945
ORLANDO, FL 32801-1949
PH (407) 422-0353 FAX (407) 423-2695
CERTIFICATE OF AUTHORIZATION NO. 000002

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR530	ORANGE	239304-1-52-01

POND 1 DETAIL SHEET

SHEET NO.

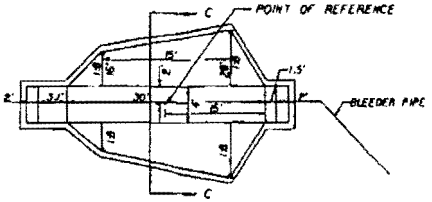
8/29/08

A-15

SKIMMER DIMENSIONS		
LENGTH	WIDTH	HEIGHT
13.0	22.0'	2.5'

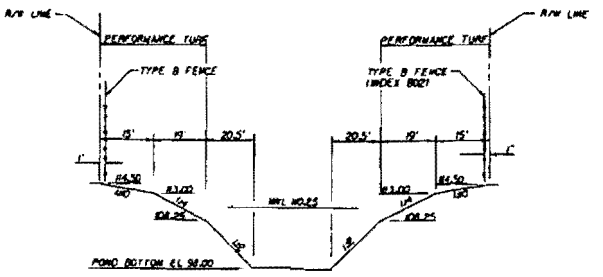
REF. POINT	@ SR 530	OFFSET	SIDE
1	67+62.64	259.19	LT
2	67+28.70	274.80	LT
3	67+06.52	278.51	LT
4	67+01.16	135.85	LT
5	68+63.33	138.73	LT
6	69+83.58	283.09	LT
7	68+58.54	282.71	LT
8	68+38.34	259.33	LT

NOTES:
1. RADIUS AT INSIDE TOP OF BERM IS 35 FEET. CURVES ABOVE AND BELOW THE INSIDE TOP OF BERM ARE CONCENTRIC.
2. MINIMUM RADIUS FOR CURVES BELOW THE INSIDE TIP BERM IS 5 FEET.
3. MAINTENANCE ACCESS AND MAINTENANCE BERM SHALL BE SODDED.
4. SKIMMER BLADE AND SUPPORT BRACKETS SHALL BE FABRICATED FROM STRUCTURAL FIBERGLASS PLATE AND ANGLES. ALL JOINTS WILL BE BONDED AND RIVETED FOLLOWING ACCEPTABLE BONDING PROCEDURES AS SPECIFIED BY THE MANUFACTURER.
5. REFER TO INDEX 240 FOR SKIMMER DETAIL. FOR POND 2 OUTFALL STRUCTURE, SKIMMER HEIGHT H=2.5'
6. BLEEDER PIPE TO BE EXTENDED, BY JACK & BORE, WITHIN RIGHT OF WAY TO EXISTING GROUND ELEVATION 110.0'

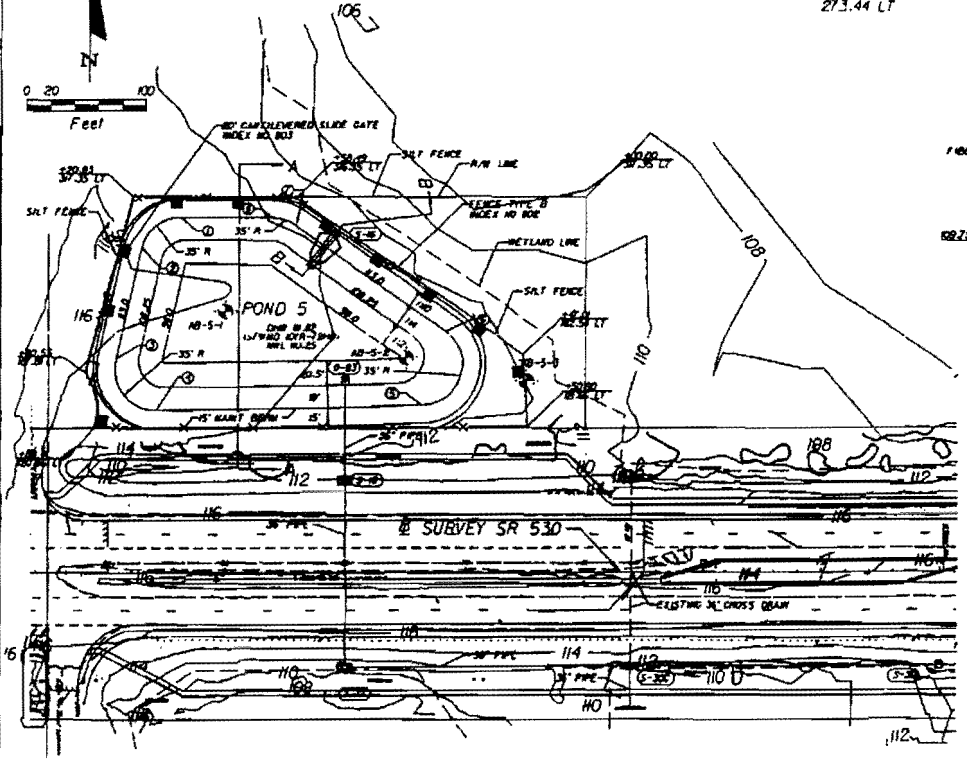


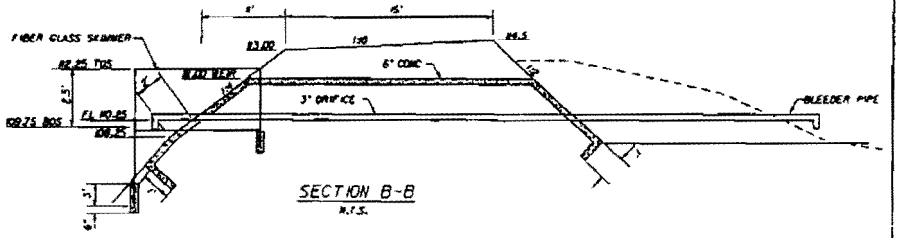
PLAN DETAIL OF CONTROL STRUCTURE
N.T.S.

(S-15)
STA. 68+81.68, @ SURVEY SR 530
273.44 LT

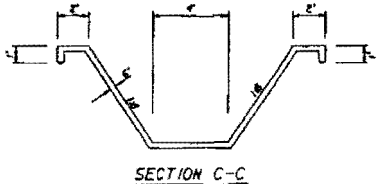


SECTION A-A
N.T.S.

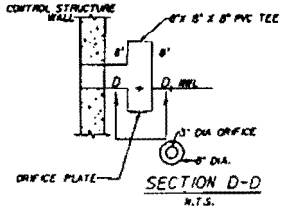




SECTION B-B
N.T.S.



SECTION C-C
N.T.S.



SECTION D-D
N.T.S.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BRAHIM TOURE
P.E. LICENSE NO. 64634
URS CORPORATION
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1949
PH (407) 422-0353 FAX (407) 423-8585
CERTIFICATE OF AUTHORIZATION NO. 000002

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR530	ORANGE	239304-1-52-01

POND 5
DETAIL SHEET

04-29-08

SHEET NO.

A-

EXAMINED BY LEGAL STAFF

N
350
0
350 Feet
Date of Aerial:
January 2006
Legacy Blvd.
SR 530
Wetland and Wildlife Evaluation Report
SR 530 (US 192) from Lake C/L to Captain Kid Blvd.
FIN: 239304-1-52-01
Exhibit 3
Wetlands Location Map
CH2MHILL

Application No. 120221-27 Page 30 of 62 Exhibit 4
Application # 080409-17 Exhibit 3 Page 2 of 32

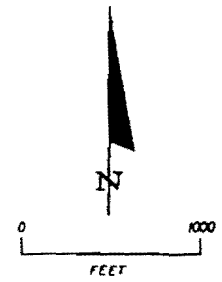
FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) CODES

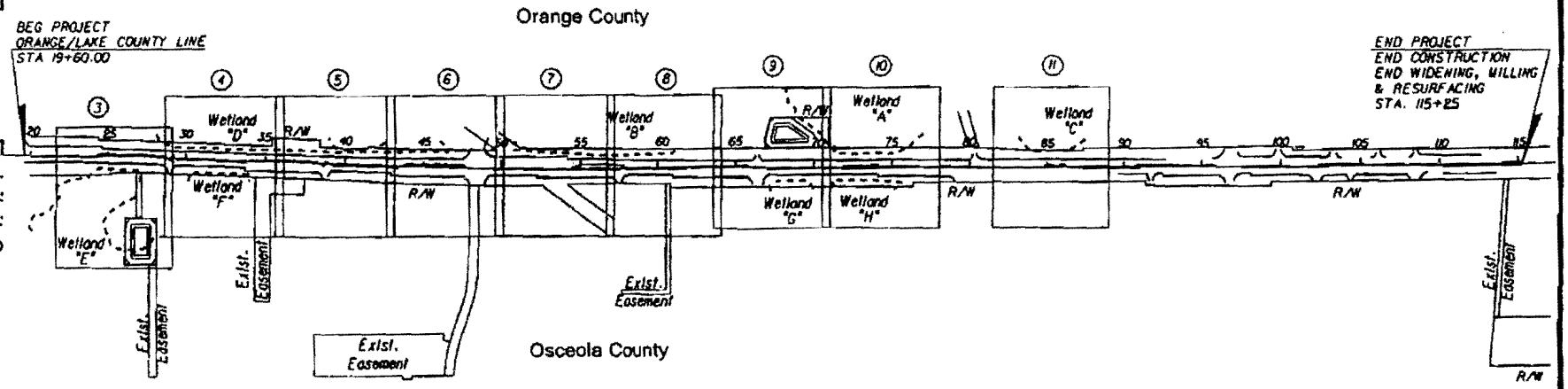
UPLANDS

109	Urban and Built-up, Under Construction
110	Residential (Low Density)
140	Commercial and Services
193	Urban Land in Transition without Positive Indication of Intended Activity
412	Longleaf Pine-Xeric Oak
414	Pine - Mesic Oak
421	Xeric Oak
434	Hardwood (Coniferous Mixed)

WETLANDS

511	Ditch
523	Lakes larger than 10 acres
524	Lakes less than 10 acres
534	Reservoirs less than 10 acres
611	Bay Swamps
618	Willow and Elderberry
641	Freshwater Marshes
814	Roads and Highways





PLAN SHEET LAYOUT

APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

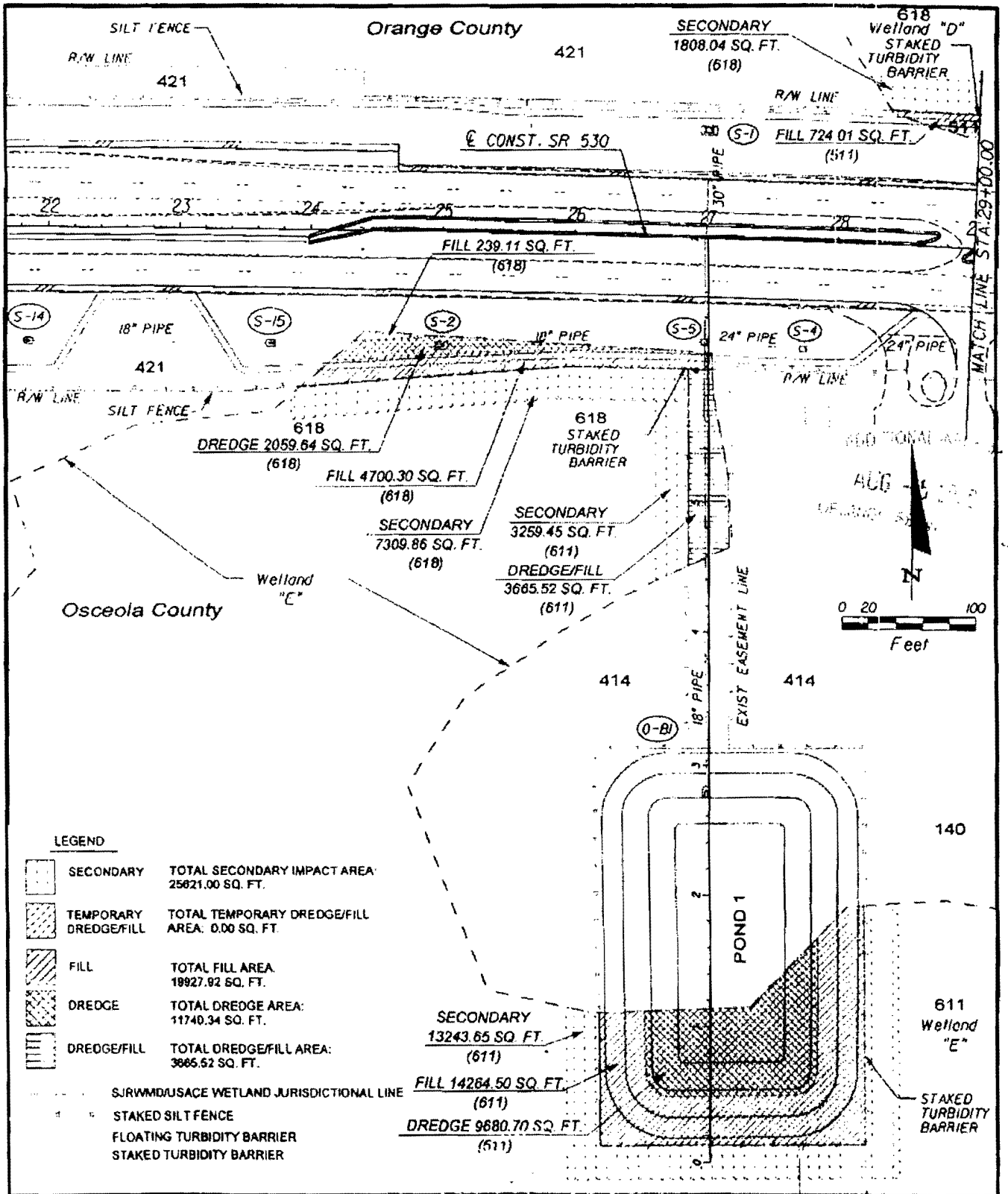
Signed: Karen Ann Snyder
P.E. NO. 47762

CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL. 32801
License No. 000072

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R27E
SECTIONS: 5, 6 T25S R27E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 2 OF 23

1/3/2008 3:42:08 PM p:\fdot\dedot\345361\dgn\ 8 - 2008 misc\sr 530 239304-1\permitting\roadway\orsheet02.dgn

April 8, 08



APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

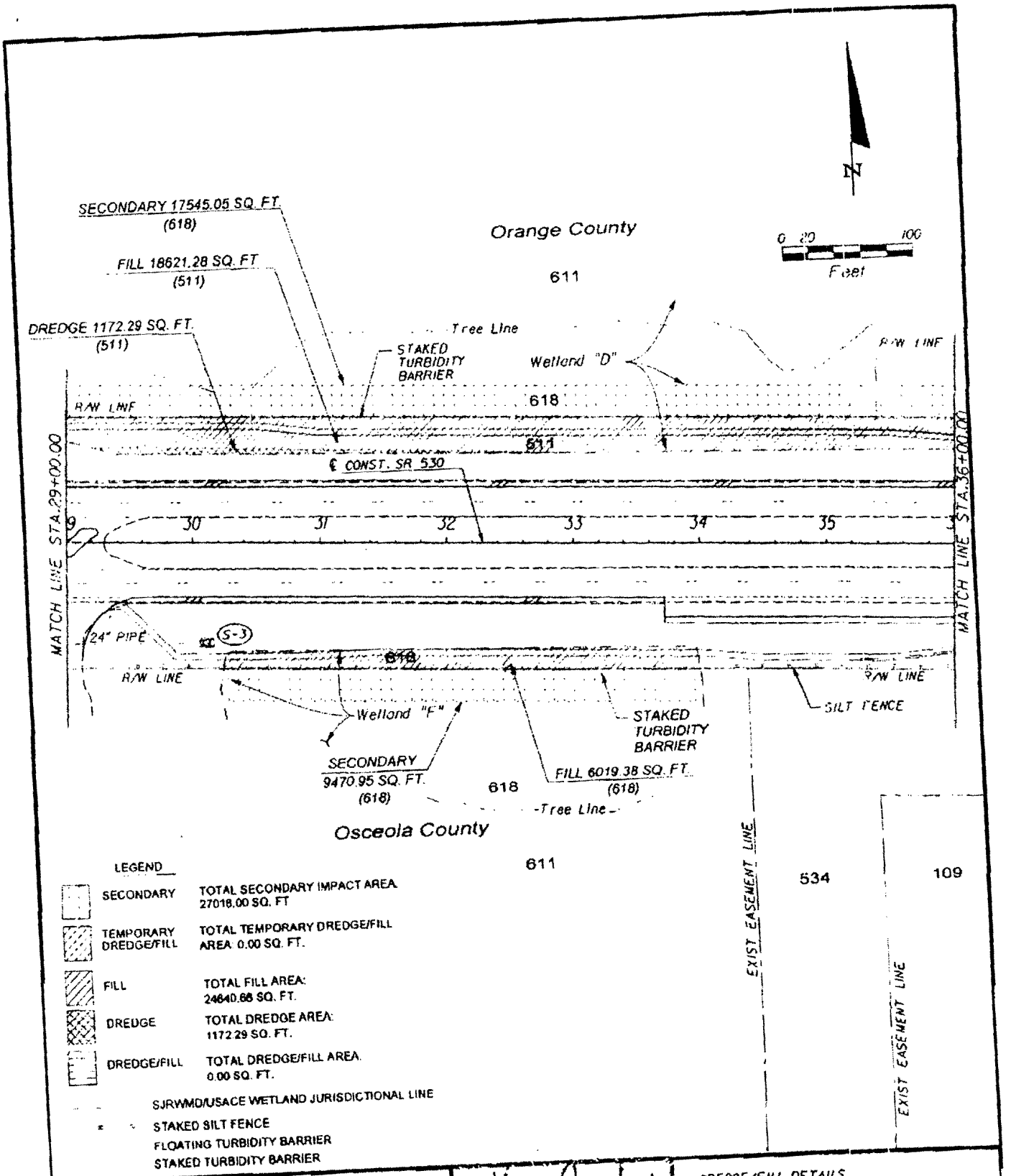
Signed: Karen Ann Snyder
P.E. NO. 47762

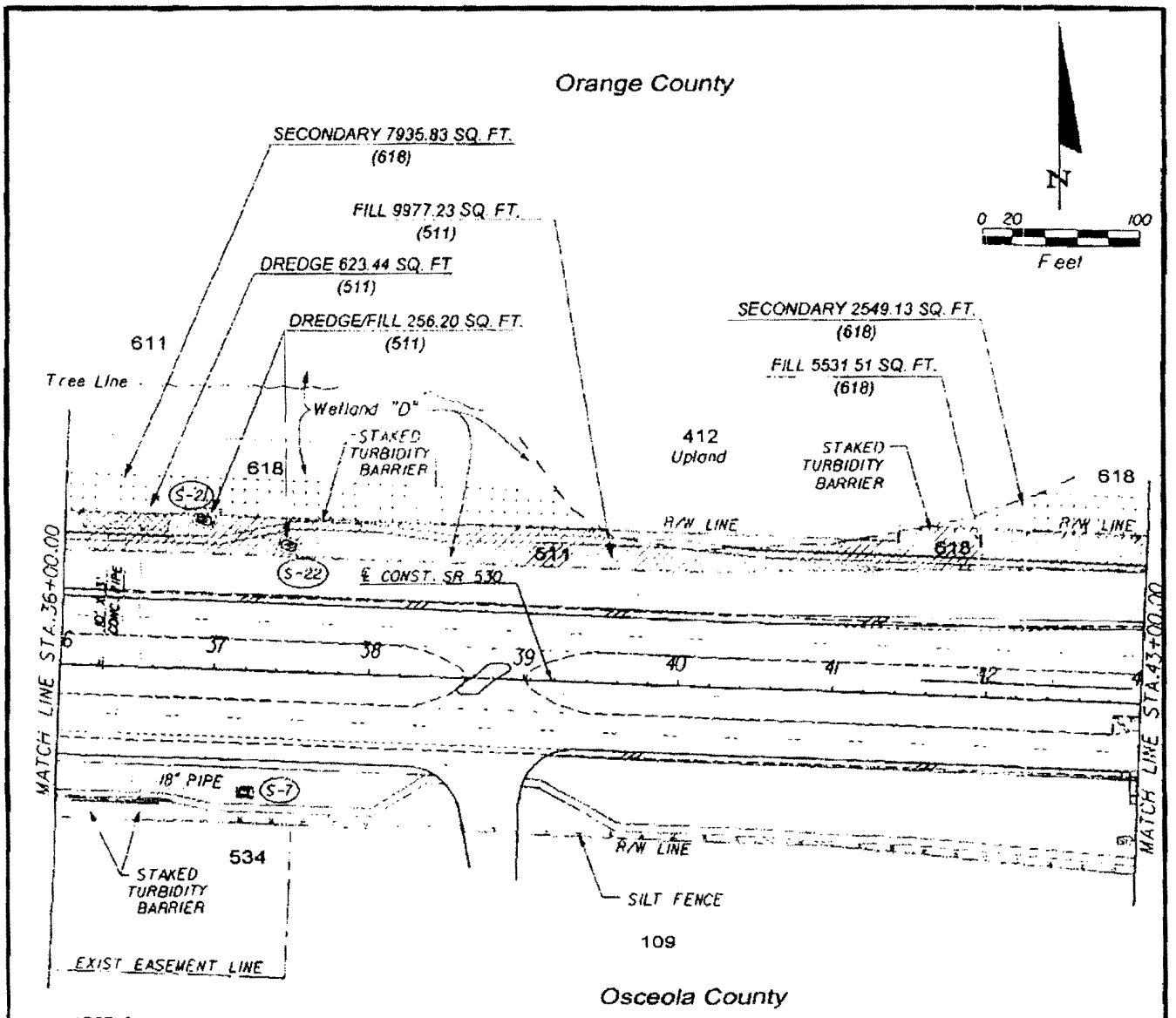
CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL 32801
License No. 000072

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R27E
SECTIONS: 5, 6 T25S R27E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 3 OF 23

Application # 080409-11 Exhibit 3 Page 3 of 62

July 25, 08


SECONDARY 17545.05 SQ. FT.
(618)
FILL 18621.28 SQ. FT.
(511)
DREDGE 1172.29 SQ. FT.
(511)
Orange County
611
0 20 100
Feet
N
Tree Line
STAKED TURBIDITY BARRIER
Wetland "D"
R/W LINE
618
611
℄ CONST. SR 530
29
30
31
32
33
34
35
MATCH LINE STA.29+00.00
MATCH LINE STA.36+00.00
24" PIPE
S-3
R/W LINE
Wetland "E"
SECONDARY 9470.95 SQ. FT. (618)
STAKED TURBIDITY BARRIER
FILL 6019.38 SQ. FT. (618)
SILT FENCE
618
Tree Line
Osceola County
611
534
109
EXIST EASEMENT LINE
EXIST EASEMENT LINE
LEGEND
SECONDARY
TOTAL SECONDARY IMPACT AREA: 27018.00 SQ. FT
TEMPORARY DREDGE/FILL
TOTAL TEMPORARY DREDGE/FILL AREA: 0.00 SQ. FT.
FILL
TOTAL FILL AREA: 24640.66 SQ. FT.
DREDGE
TOTAL DREDGE AREA: 1172.29 SQ. FT.
DREDGE/FILL
TOTAL DREDGE/FILL AREA: 0.00 SQ. FT.
SJRWMD/USACE WETLAND JURISDICTIONAL LINE
STAKED SILT FENCE
FLOATING TURBIDITY BARRIER
STAKED TURBIDITY BARRIER
APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)
PROJECT: STATE ROAD NO. 530 WIDENING
LOCATION: ORANGE COUNTY OF FLORIDA
DATUM: NGVD 1929
Signed: Karen Ann Smith
P.E. NO. 47762
CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL. 32801
License No. 000072
DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R27E
SECTIONS: 5, 6 T25S R27E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 4 OF 23



LEGEND

	SECONDARY	TOTAL SECONDARY IMPACT AREA 10484.98 SQ. FT.
	TEMPORARY DREDGE/FILL	TOTAL TEMPORARY DREDGE/FILL AREA: 0.00 SQ. FT.
	FILL	TOTAL FILL AREA: 15508.74 SQ. FT.
	DREDGE	TOTAL DREDGE AREA. 823.44 SQ. FT
	DREDGE/FILL	TOTAL DREDGE/FILL AREA. 256.20 SQ. FT.

SJRWMD/USACE WETLAND JURISDICTIONAL LINE

STAKED SILT FENCE

FLOATING TURBIDITY BARRIER

STAKED TURBIDITY BARRIER

APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

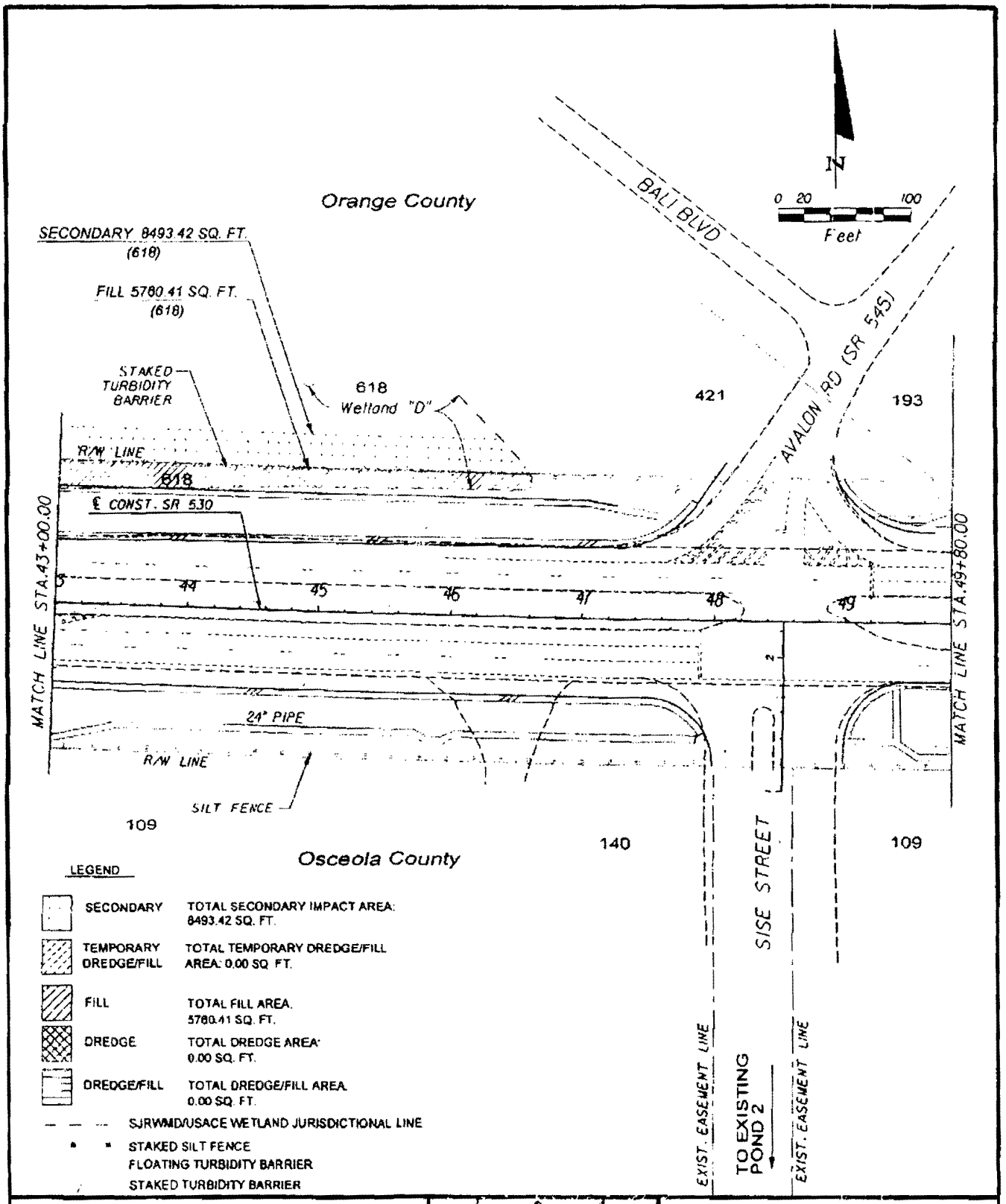
LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

Signed: Karen Aure Snyder
P.E. NO. 41762

CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL 32801
License No. 000072

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R27E
SECTIONS: 5, 6 T25S R27E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 5 OF 23



APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

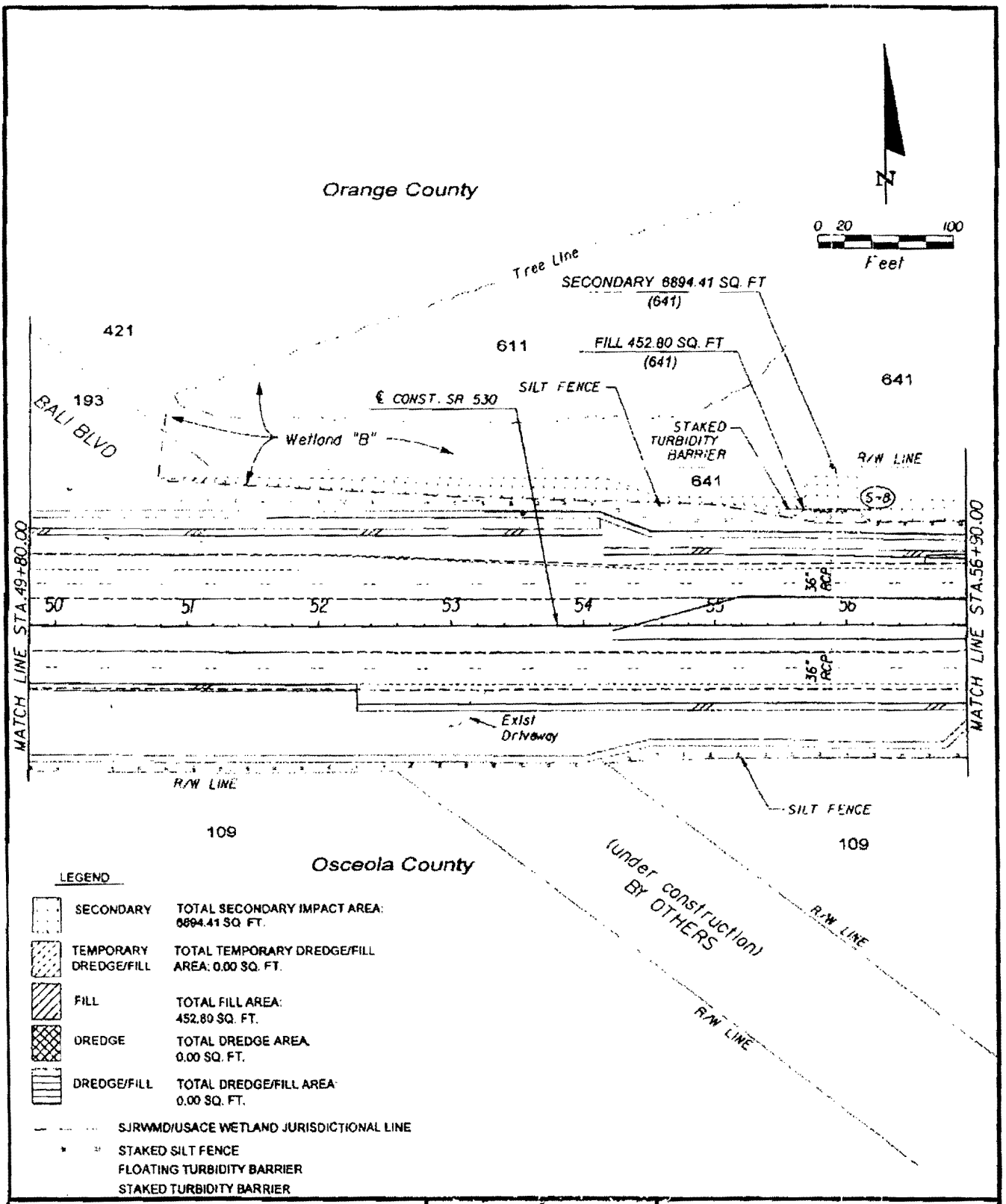
LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

Signed: Karen Acre Snyder
P.E. NO. 47762

CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL. 32801
License No. 000072

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T21S R27E
SECTIONS: 5, 6 T22S R27E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 6 OF 23



APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

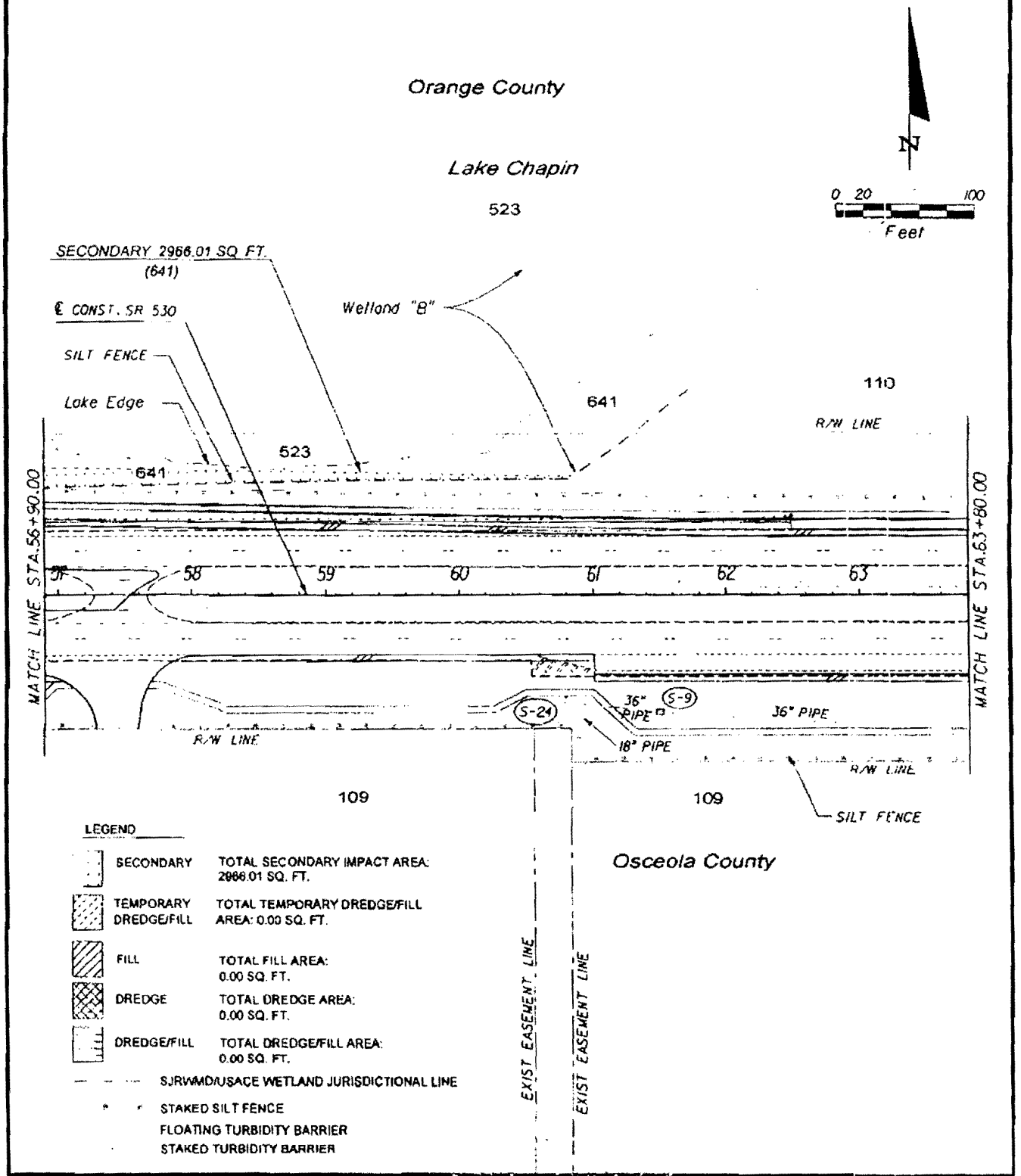
LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

Signed: Karen Acre Snyder
P.E. NO. 47752

CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL 32801
License No. 000672

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T21S R27E
SECTIONS: 5, 6 T25S R27E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 7 OF 23



APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

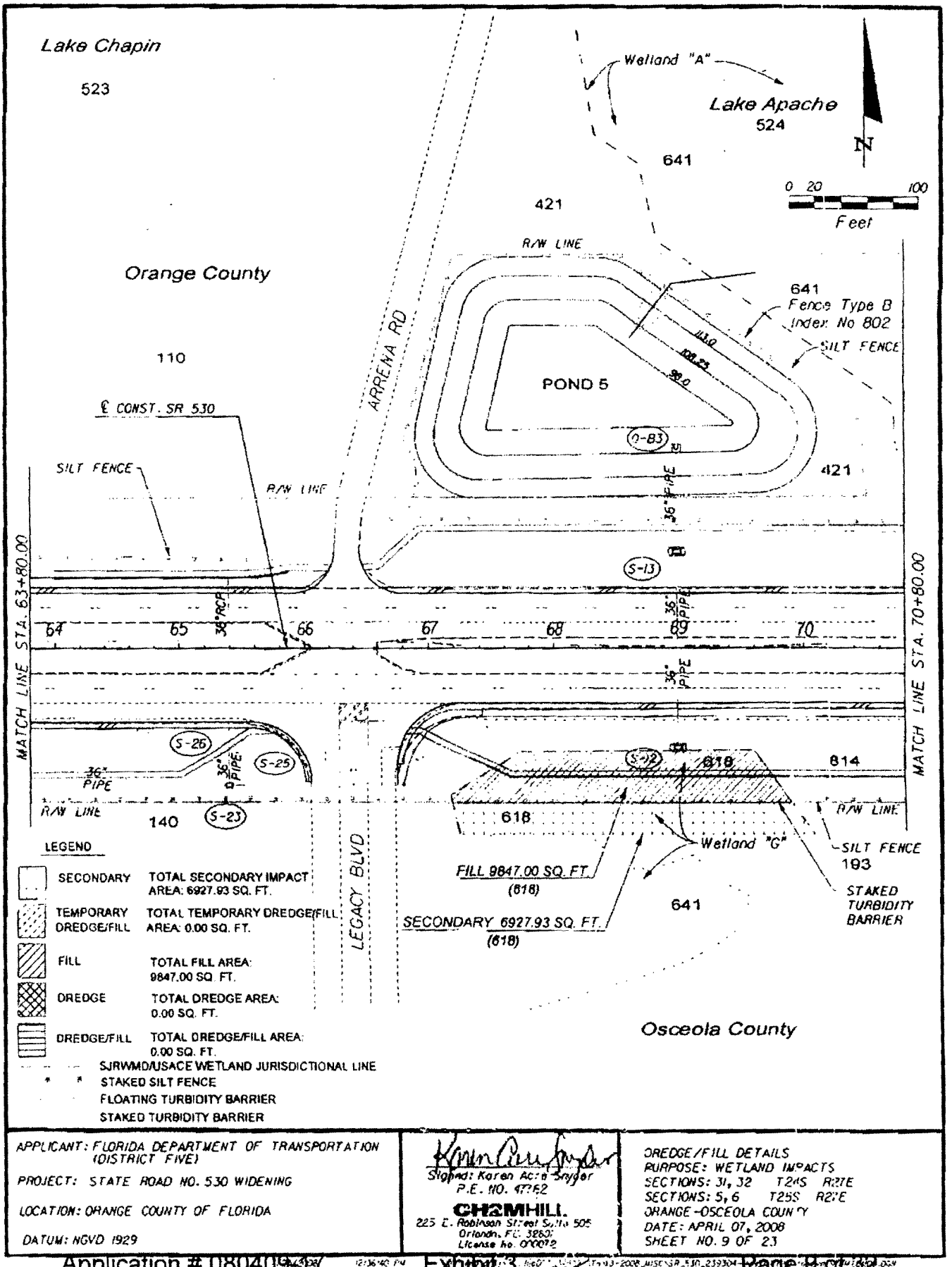
LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

Signed: Karen-Acre Snyder
P.E. NO. 47762

CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL 32801
License No. 000072

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R29E
SECTIONS: 5, 6 T25S R29E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 8 OF 23



APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

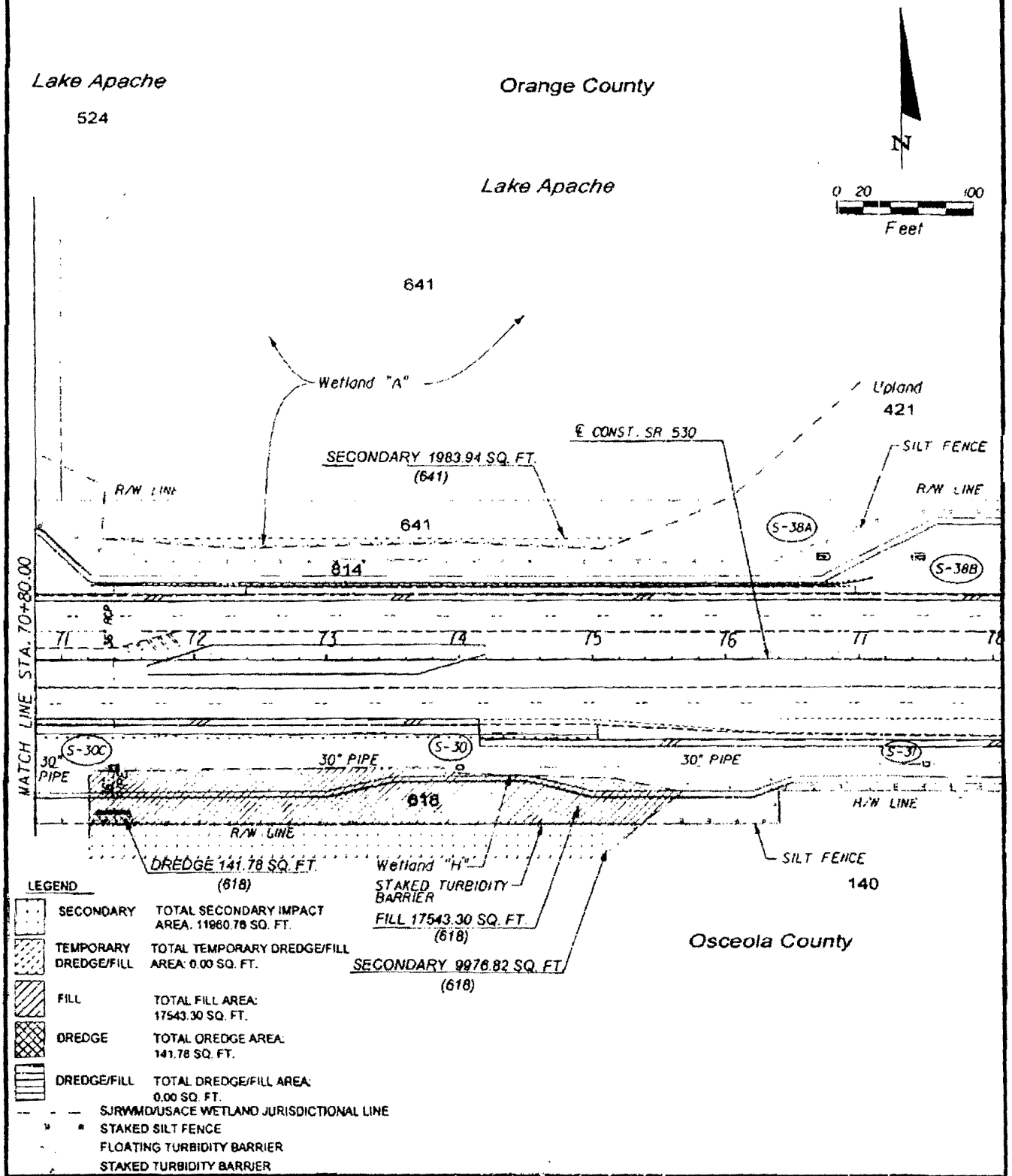
LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

Signed: Karen Anne Snyder
P.E. NO. 47762

CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL 32801
License No. 000072

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R32E
SECTIONS: 5, 6 T25S R32E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 9 OF 23



APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

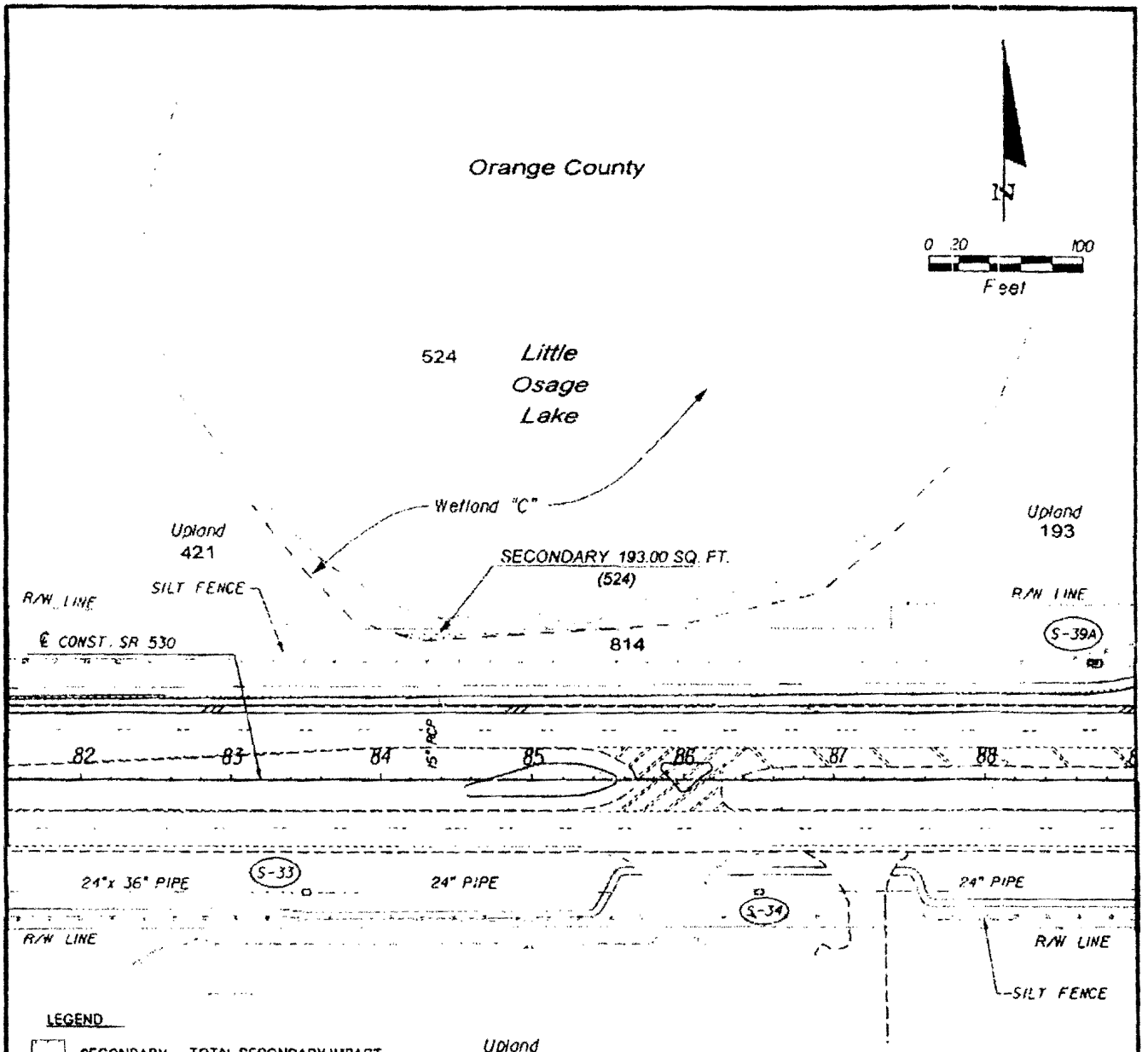
LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

Signed: Karen Acre Snyder
P.E. NO. 47762

CH2MHILL
225 E. Robinson Street, Suite 505
Orlando, FL. 32801
License No. 00007?

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R32E
SECTIONS: 5, 6 T25S R32E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 10 OF 23



LEGEND

	SECONDARY	TOTAL SECONDARY IMPACT AREA: 193.00 SQ. FT.
	TEMPORARY DREDGE/FILL	TOTAL TEMPORARY DREDGE/FILL AREA: 0.00 SQ. FT.
	FILL	TOTAL FILL AREA: 0.00 SQ. FT.
	DREDGE	TOTAL DREDGE AREA: 0.00 SQ. FT.
	DREDGE/FILL	TOTAL DREDGE/FILL AREA: 0.00 SQ. FT.

S.JRWMD/USACE WETLAND JURISDICTIONAL LINE

STAKED SILT FENCE

FLOATING TURBIDITY BARRIER

STAKED TURBIDITY BARRIER

APPLICANT: FLORIDA DEPARTMENT OF TRANSPORTATION (DISTRICT FIVE)

PROJECT: STATE ROAD NO. 530 WIDENING

LOCATION: ORANGE COUNTY OF FLORIDA

DATUM: NGVD 1929

Signed: Karen Acra, Engineer
P.E. NO. 47162

CH2MHILL
225 E. Robinson Street Suite 505
Orlando, FL. 32801
License No. 00000012

DREDGE/FILL DETAILS
PURPOSE: WETLAND IMPACTS
SECTIONS: 31, 32 T24S R27E
SECTIONS: 5, 6 T25S R27E
ORANGE-OSCEOLA COUNTY
DATE: APRIL 07, 2008
SHEET NO. 11 OF 23

SFWMD SENATE BILL
MITIGATION CREDITS

PROJECT	HERB CREDITS	FORESTED CREDITS
SF05	+2	
242496 #000705-7	-0.7	
SF05	+5	+45
242523 #020204-8		-10.76
SF08	+9	+6
239416 #011210-11	-9	-6
SF09		+15
242493 #020813-3		-3.84
SF10	+5	
SF12		+15
242531 #030115-14		-12.18
239673 #021126-10	-11.30	-44.52
239663 #021127-19		-2.39
BALANCE	**0.0**	**1.31**

6/2/2003; 11/1/2004; corrected/verified 9/17/08

District 5

SF 05 (I-4 Auxiliary Lanes – Kirkman/441) WPI# 5147268/ FM# 2424961
2 freshwater herbaceous (FH) credits purchased at FMB
0.7 (FH) credits used (Application # 000705-7/ Permit #48-01176-P)
1.3 (FH) credits available

SF 05 (I-4 Polk County Line to SR 530) WPI # 5147325/ FM# 2425231
5 freshwater herbaceous (FH) and 45 freshwater forested (FF) credits at RCMB & FMB
10.76 (FF) credits used (Application #020204-8/ Permit #49-00792-S)
5 (FH) and 34.24 (FF) available
5 (FH) and 17.80 (FF) credits will be used for SF 12 - US 192 (532 to 534)
7.5 (FF) credits from RCMB and 8.94 (FF) credits from FMB available

SF08 (SR 500 – Osceola County Line to Taft Vineland Road) WPI# 5114752/ FM# 2394161
9 freshwater herbaceous (FH) and 6 freshwater forested (FF) purchased at RCMB & FMB
15 credits used (Application # 011210-11/ Permit #48-01280-P)
No balance

SF09 (I-4 John Young Parkway) WPI#5147265 FM# 2424931
15 freshwater forested (FF) credits purchased from FMB
3.84 (FF) credits used (Application # 020813-3/ Permit #48-01320-P)
11.16 (FF) credits available

SF10 (I-4 & SR 530 Interchange) WPI# 51473351/ FM# 2425311
5 freshwater herbaceous (FH) credits purchased at FMB
No application has been submitted

SF12 (SR 500/532/534) WPI# 511730/ FM# 2396731
15 freshwater forested (FF) credits purchased from RCMB
No application has been submitted
All 15 (FF) credits to be used and Excess from SF 05 (5 FH & 17.80 FF)

SF 13 (SR 500/534/15) WPI# 5115731/ FM# 2396741
DELISTED

FMB – Florida Mitigation Bank

RCMB – Reedy Creek Mitigation Bank

THREE LAKES WILDLIFE MANAGEMENT AREA MITIGATION SITE
SFWMD PERMIT NO.s 49-007858-S & 49-00023-D
CREDIT LEDGER

PROJECT	WL IMPACTS	RATIO	DEBITS	CUMULATIVE DEBITS	BALANCE
Earthwork			(+334.9)		334.9
SR600 Reedy Creek Bridge #49-00025-D & 49-00765-S	3.78 forest 2.01for.temp	20:1 10:1	75.6 20.1	95.7	239.2
SR530 Lake C/L to Capt. Kidd 239304 #48-00018-D	1.92 herb.	17.8:1	34.0	129.7	205.2
2nd Report 3/96			(+100)		305.2
SR500 Taft Vineland to Sand Lake 239185 #49-00863-P	0.72 herb 2.69 forested		24.65	154.35	280.55
SR600 Poin. to SR535 239714 #49-00890-P	1.09 forested	17:1	18.53	172.88	262.02
4th Report			(+100)		362.02
SR530 Mich. to Aeronautical 239708 # 49-00890-P	0.87 herb 2.19 ditch	15:1 0	32.85	205.73	329.17
SR530 Bonnet Crk. to SR535 239670 # 49-00883-P	1.17 herb 2.79 for.	15:1	59.4	265.13	269.77
SR530 Org C/L to Reedy Crk. 239669 # 49-00956-P	0.87 forested 0.17 herb.	20:1	20	285.13	249.77

SR530 SR535 to Hoagland 239663 # 49-00947-P	0.83 forested 1.48 herb	15:1 10:1	12.45 14.8 27.25	312.38	222.52
Mod to SR600 Poin to SR535 239714 # 49-00863-P	2.37 forested 0.05 herb	17:1	41.17	353.55	181.35
Mod. SR530 SR535 to Hoagland 239663 #49-00947-P?	1.48 herb 2.07 forested	10:1 15:1	14.8 31.05 45.85	(+27.25) 372.15	(208.6) 162.75

1/7/2003C:\Documents and Settings\ksnyder\My Documents\Mail\OL Temp Attachments\3Lakes WMD LDGR.doc
10/23/03

Summary of Impact Acres and Functional Loss by Location

Wetland I.D.	"new" Direct Impact	Habitat Type	Functional Loss (UMAM)	Secondary Impacts	Habitat Type	Functional Loss (UMAM)	linked to UMAM sheets 'part 2' Secondary Impacts	Habitat Type	Functional Loss (UMAM)	Total Area in Impact Zone	Total Functional Loss
A	0			0.05	641	-0.00167				0.05	-0.0017
B	0			0.23	641	-0.00780				0.23	-0.0078
C	0			0.004	524	incl in 641				0.004	0.0000
D	0			0.87	618	-0.02900				0.87	-0.0290
E	0.63	611	-0.46200	0.17	618	-0.00567	0.370	611	-0.01233	1.17	-0.4800
F	0			0.22	618	-0.00733				0.22	-0.0073
G	0			0.16	618	-0.00533				0.16	-0.0053
H	0			0.23	618	-0.00767				0.23	-0.0077
TOTAL	0.63		-0.46200	1.934		-0.06447	0.370		-0.01233	2.934	-0.5388

mitigation credits needed from Reedy Creek Mit. Bank	0.539

.5365 Actual Fe

Summary of Impact Acres and Functional Loss by Habitat Type

Habitat Type	"new" Direct Impact	Secondary Impacts	Wetland I.D.	Total Area in Impact Zone	Total Functional Loss
524	0	0.004	C	0.004	incl in 641
611	0.63	0.370	E	1.000	-0.4743
618	0	1.650	D, E, F, G, H	1.650	-0.0550
641	0	0.280	A, B	0.280	-0.0095
TOTAL	0.63	2.304		2.934	-0.5388

APPLICATION #080409-17
PERMIT NO. 49-00956-P
SR 530 (US 192) Widening from Lake County Line

EXHIBIT NUMBER 3
Pages 17-32 of 32

UMAM Score Sheets

INCORPORATED BY REFERENCE

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetlands "A, B, C" along the north right-of-way.

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size (of secondary impact)
641 - Freshwater Marsh 524 - lake	All areas of secondary impact are within the mowed and maintained right-of-way	Secondary impact - Improved treatment of runoff; and potential trash from pedestrians on sidewalk	Total = 0.204 ac 0.004 ac (524) 0.20 ac (641)

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin-03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

All areas of secondary impacts are at the roadside edge of wetlands A, B, and C. These wetlands are along the west-bound right-of-way and are connected indirectly through roadside swales/ditches and culverts to wetlands along the south side of the road; and those wetlands drain to Davenport Creek Swamp then to Reedy Creek. Also see drainage report attached to ERP application.

Assessment area description

The AAs (areas of potential secondary impact) have been previously impacted by roadway maintenance (regular mowing). The wetlands within the assessment areas are along and partly within the SR 530 right-of-way. Specifically Wetlands A, B and C are adjacent to SR530 and to residential property that is developed amid xeric oak canopy. The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the narrow (~average 12 feet wide) strips of secondary impact area might be trapping of trash from road runoff. Limited wading bird foraging area.	No historical mitigation. Not a conservation area. All secondary impacts will be within FDOT right-of-way.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Snakes, wading birds, alligator, freshwater fishes, turtles.	No T&E uses expected within the right-of-way along the roadside.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

One sandhill crane (listed as state-only threatened) was observed in March 2008 in marsh of Lake Apache (Wetland A) approximately 600 feet north of the project limits. One active gopher tortoise burrow (listed as state-only threatened) was found in proposed pond site (upland), approximately 100 feet from wetland.

Additional relevant factors:

Existing condition - is for road run off to enter the wetlands and lakes along the right-of-way. Proposed condition will capture more of the runoff and route it to a treatment pond, thus improving the water quality of Wetlands A, B and C.

Assessment conducted by:	Assessment date(s):
CH2MHILL Biologists: Steve Eakin; Tony Davanzo, Rosanne Prager	August 2, 2005; and January 18, 2007; March 17, 2008, June 17, 2008

Form 62-345.900(1), F.A.C. [effective date]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetlands A, B, C
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.28 ac secondary impact zone (~12 feet wide on average) in 641 freshwater marsh of lake edge and 0.004 ac in 524 lake	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) **Location and Landscape Support**	w/o pres or current: 6	with: 5
Adjacent wildlife habitats outside of assessment area good quality to the north (lake and marsh habitats) and to the east and west (xeric oak uplands); but poor to the south (SR 530 roadway). Limited wildlife habitat requirements for some amphibian life cycles may be met with this adjacent upland. Other land uses in the area include high density residential, tourist services, commercial services (completed and under construction), and golf courses and single family residential parcels. Wildlife access between wetlands is fragmented by residential areas and roads. The expected use of the proposed adjacent sidewalk by pedestrians may bring more trash to the secondary impact zone.		
.500(6)(b) **Water Environment (n/a for uplands)**	w/o pres or current: 7	with: 7
Water environment is adequate in Wetlands A, B, C as evidenced by standing water and floating aquatic vegetation in March 2008. Road runoff currently reaches the wetlands through direct runoff, through roadside swales and through culverts. Water quality may improve in these roadside wetlands as the proposed project includes a roadside swale that will trap pollutants.		
.500(6)(c) **Community structure** **1. Vegetation and/or** **2. Benthic Community**	w/o pres or current: 5	with: 5
Vegetation community: The secondary impact zone is within the mowed and maintained right-of-way. Species include non-natives primrose willow (*Ludwigia peruviana*) wild taro (*Colocasia esculenta*). Also Carolina willow (*Salix caroliniana*), dog fennel (*Eupatorium capillifolium*), grape vine (*Vitis* sp.) and blackberry (*Rubus* sp.). Because the adjacent construction area (grassed uplands) has no canopy, no change in vegetation composition in the secondary zone is expected. Benthic Community: Unknown. Presumed to be present due to standing water evident in March 2008. Expected to consist of pollution-tolerant macro-invertebrate species. No change expected as water regime is not expected to change.		

Score = sum of above scores/30 (if uplands, divide by 20)		
current or w/o pres: ~~0.97~~ .6	with: 0.~~97~~ .5	

If preservation as mitigation,
Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

For impact assessment areas
Delta x Acres = Functional Loss
-0.03 x 0.28 ac = ~~-0.009 ac~~ -.0084

Delta = [with - current]
-0.03

If mitigation
Time lag (t-factor) = N/A
Risk factor = N/A

For mitigation assessment areas
RFG = delta/(t-factor x risk)

Form 62-345.900(2), F.A.C. [effective date]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland "D" along the north right-of-way.

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
618 - shrubby wetland	Portions of the secondary impact zone are within the previously cleared right-of-way; and portions are adjacent to the right-of-way.	Secondary impact - Improved treatment of runoff; and potential trash from pedestrians on sidewalk	(of secondary impact) Total = 0.88ac

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin 03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Secondary impacts would be at the roadside edge of wetland D. This wetland is along the west-bound right-of-way and is connected indirectly through roadside swales/ ditches and culverts to wetlands along the south side of the road; and those wetlands drain to Davenport Creek Swamp then to Reedy Creek. Also see drainage report attached to ERP application.

Assessment area description

The AA (area of potential secondary impact) is partly within the previously impacted right-of-way and partly adjacent to the maintained portion that is regularly mowed. Wetland "D" is along and partly within the SR 530 right-of-way, is adjacent to commercial, residential, and conservation property. The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the 25-foot wide zone of potential secondary impact might be the trapping of trash from road runoff. Dense shrubby vegetation provides some refuge for small animals and birds.	No historical mitigation.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Snakes, lizards, passerine birds, wading birds, rabbits, nine-banded armadillo, crow.	No T&E uses expected within the right-of-way along the roadside.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings,

None observed.

Additional relevant factors:

Existing condition - is for road run off to enter the wetland along the right-of-way. Proposed condition will capture more of the runoff and route it to a treatment pond, thus improving the water quality of Wetland D in general.

Assessment conducted by: CH2MHILL Biologists:	Assessment date(s): August 2, 2005; and
Steve Eakin; Tony Davanzo, Rosanne Prager	January 18, 2007; March 17, 2008, June 17, 2008

Form 62-345.900(1), F.A.C. [effective date]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland D (at ROW)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.87 ac secondary impact (25 feet wide) in 618 shrubby wetland	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 6	with: 5
		SR 530 borders the south edge of the Assessment Area (AA) (Wetland D). The AA is bordered on the north by bay swamp wetland, undeveloped pine uplands, and on the east by xeric oak. Adjacent wildlife habital, outside this assessment area, remain to the north as Wetland D. There is no direct connection for wildlife to the south of SR 530. The adjacent Wetland D is fragmented from other habitats by roads (Bali-Road and SR 530). Other land uses include high density tourist, commercial services, areas under construction, golf courses, and single family residential parcels. The expected use of the proposed adjacent sidewalk by pedestrians may bring more trash to the secondary impact zone. WLD is under CE.
.500(6)(b) Water Environment (n/a for uplands)	w/o pres or current: 6	with: 5
		Water environment is adequate in the AA, as evidenced by the lack of dense invasive species. Roadside swales carry runoff to the AA from the east and west. The AA appears to receive direct runoff from the SR 530. Water quality may improve in Wetland D, as the proposed project includes a roadside swale that will trap pollutants.
.500(6)(c) Community structure **1. Vegetation and/or** **2. Benthic Community**	w/o pres or current: 6	with: 6
		Vegetation community: The AA is vegetated with Carolina willow (*Salix caroliniana*), cabbage palm (*Sabal palmetto*), wax myrtle (*Myrica cerifera*), young dahoon holly (*Ilex cassine*), non-native primrose willow (*Ludwigia peruviana*), elderberry (*Sambucus canadensis*) and cinnamon fern (*Osmunda cinnamomea*). Because the adjacent direct-impact area presently has no canopy, no change in vegetation composition in the secondary zone is expected. edge effect from ROW maint. has allowed Lots of ulfex Benthic Community: Unknown. Presumed to be present after several consecutive years of normal rainfall. Expected to consist of pollution-tolerant macro-invertebrate species.

Score = sum of above scores/30 (if uplands, divide by 20)		If preservation as mitigation,	For Impact assessment areas
current or w/o pres	with	Preservation adjustment factor = N/A	Delta x Acres = Functional Loss
~~0.47~~ .53	~~0.43~~ .57	Adjusted mitigation delta = N/A	-0.03 x 0.87 ac = ~~-0.026 ac~~ -.026
.60			
Delta = [with - current]		**If mitigation**	**For mitigation assessment areas**
-0.03		Time lag (t-factor) = N/A	RFG = delta/(t-factor x risk)
		Risk factor = N/A	

Form 62-345.900(2), F.A.C. (effective date)

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		[redacted]

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
611 - bay swamp		Direct impact - change from bay swamp to open water treatment pond with berm.	(of direct impact) Total = 0.63 ac dredge 0.22 ac + fill 0.33 ac + dredge/fill 0.08

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin 03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Direct impact area is within Wetland E, which is directly connected to Davenport Creek Swamp then to Reedy Creek. Also see drainage report attached to ERP application.

Assessment area description

The AA (area of direct impact) will be for the construction of part of a bermed open water treatment pond (Pond 1). The impact is in bay swamp (Welland E), which is adjacent to fire-suppressed uplands and adjacent to commercial property. The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the bay swamp include habitat for local fauna, surface water storage. The pond will serve as additional refugia during dry periods at the swamp edge. And area of open water may provide additional habitat for frogs, fish, wading birds, and snakes.	No historical mitigation. Not a conservation area. All impacts will be in FDOT right-of-way

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Deer, snakes, lizards, passerine birds, wading birds, rabbits, nine-banded armadillo, (proposed condition also include frogs, turtles, mosquito fish).	No T&E uses expected based on available records and habitat.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings,

None observed.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
CH2MHILL Biologists: Steve Eakin, Tony Davanzo, Rosanne Prager	August 2, 2005 and January 18, 2007; March 17, 2008, June 17, 2008

Form 62-345.900(1), F.A.C. - [effective date]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Direct impacts to Wetland 1 (at pond1)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.63 ac direct impact at pond 1 location and access rd in 611 bay swamp	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 0
		Adjacent wildlife habitats outside of assessment area are good quality to south, east, and west (wetlands); and fair quality to the north (overgrown and fire-suppressed uplands). The AA is at the edge of a large forested wetland that is directly connected to the floodplain of Lake Davenport/Davenport Swamp. The general project area is developed with high density commercial & tourist services land uses. Under proposed conditions the construction of the treatment pond will remove this 0.55 acres from jurisdiction, therefore the functional loss is total, regardless that the pond will provide habitat.
.500(6)(b) Water Environment (n/a for uplands)	w/o pres or current: 7	with: 0
		Water environment is adequate in the AA; as evidenced by the buttressed trunks of sweet bay (*Magnolia virginiana*). Water quality is presumed to be adequate, although no standing water was present at the time of the site visits. The AA wetland is hydrologically connected to the wetland to the south, which is connected to Davenport Swamp.
.500(6)(c) Community structure **1. Vegetation and/or** **2. Benthic Community**	w/o pres or current: 8	with: 0
		Vegetation community: AA canopy constituents include sweet bay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), slash pine (*Pinus elliottii*), cabbage palm (*Sabal palmetto*), dahoon holly (*Ilex cassine*), saw palmetto (*Serenoa repens*); grape vine (*Vitis* sp.), primrose willow (*Ludwigia peruviana*), and dog fennel (*Eupatorium capillifolium*). Under proposed conditions the construction of the treatment pond will remove this 0.55 acres from jurisdiction, therefore the functional loss is total, regardless that the pond will provide habitat. Benthic Community: Unknown. Presumed to be present after several consecutive years of normal rainfall. Expected to consist of pollution-tolerant macro-invertebrate species.

Score = sum of above scores/30 (if uplands, divide by 20)		If preservation as mitigation,	For impact assessment areas
current or w/o pres: 0.73	with: 0.00	Preservation adjustment factor = N/A	Delta x Acres = Functional Loss
		Adjusted mitigation delta = N/A	-0.73 x 0.63 ac = ~~-0.462 ac~~ -.4599

Delta = [with - current]	If mitigation	For mitigation assessment areas
-0.73	Time lag (t-factor) = N/A	RFG = delta/(t-factor x risk)
	Risk factor = N/A	

Form 62-345.900(2), F.A.C. (effective date)

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland E (at pond 1)

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
611 - bay swamp	Secondary impact area will be adjacent to newly constructed pond no. 1 and along its access road.	Secondary impact - loss of adjacent canopy.	(of secondary impact) Total = 0.37 ac

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin 03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Secondary impact zone is within Wetland E, which is directly connected to Davenport Creek Swamp then to Reedy Creek. Also see drainage report attached to ERP application.

Assessment area description

The AA (area of potential secondary impact) will be adjacent to the berm and open water of treatment Pond 1, southern end. Part the secondary impact zone is in bay swamp, which is adjacent to fire-suppressed uplands and adjacent to commercial property. The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the 25-foot wide zone of potential secondary impact might be as an enhanced refuge for local fauna. Ecotones between differing habitat types (bay swamp and berm and pond) often serve as movement corridors for wildlife.	No historical mitigation. Not a conservation area. All secondary impacts will be adjacent to FDOT right-of-way

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Deer, snakes, lizards, passerine birds, wading birds, rabbits, nine-banded armadillo, crow.	No T&E uses expected.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings,

None observed.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
CH2MHILL Biologists: Steve Eakin, Tony Davanzo, Rosanne Prager	August 2, 2005 and January 18, 2007; March 17, 2008, June 17, 2008

Form 62-345.900(1), F.A.C. [effective date].

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland E (at pond 1)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.30 ac secondary impact at pond 1 location and 0.07 ac secondary impact along access road to pond 1 (25 feet wide) in 611 bay swamp	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 7 ~~10~~
.500(6)(b) Water Environment (n/a for uplands)	w/o pres or current: 7	with: 7
.500(6)(c) Community structure **1. Vegetation and/or** **2. Benthic Community**	w/o pres or current: 8	with: 6

Adjacent wildlife habitats outside of assessment area are good quality to south, east, and west (wetlands); and fair quality to the north (overgrown and fire-suppressed uplands). The AA is at the edge of a large forested wetland that is directly connected to the floodplain of Lake Davenport/Davenport Swamp. The general project area is developed with high density commercial & tourist services land uses. Under proposed conditions the presence of a deeper water refugia pond at the upland wetland interface will enhance wildlife habitat in the AA and the wetland. no expected development outside of pond.

Water environment is adequate in the AA (secondary impact zone), as evidenced by the buttressed trunks of sweet bay (*Magnolia virginiana*). Water quality of runoff reaching the secondary impact zone will not change, as pond 1 will provide treatment before discharging into the wetland. The AA wetland is hydrologically connected to the wetland to the south, which is connected to Davenport Swamp.

Vegetation community: AA canopy constituents include sweet bay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), slash pine (*Pinus elliottii*), cabbage palm (*Sabal palmetto*), dahoon holly (*Ilex cassine*), saw palmetto (*Serenoa repens*), grape vine (*Vitis* sp.), primrose willow (*Ludwigia peruviana*), and dog fennel (*Eupatorium capillifolium*). The adjacent canopy (similar in composition) will be removed to construct the pond. This change in adjacent canopy, will likely cause a change in vegetation composition in the secondary zone, perhaps with an increase in grape vine, primrose willow, and dog fennel.

Benthic Community: Unknown. Presumed to be present after several consecutive years of normal rainfall. Expected to consist of pollution-tolerant macro-invertebrate species.

Score = sum of above scores/30 (If uplands, divide by 20)		
current or w/o pres	with	
0.73	~~0.63~~ 0.67	

Delta = [with - current]
~~-0.03~~ -.063

If preservation as mitigation,
Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

If mitigation
Time lag (t-factor) = N/A
Risk factor = N/A

For impact assessment areas
Delta x Acres = Functional Loss
~~0.03~~ -.063 x 0.38 ac = ~~0.012 ac~~ .0239

For mitigation assessment areas
RFG = delta/(t-factor x risk)

Form 62-345.900(2), F.A.C. [effective date]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland E (at ROW)

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
618 - shrubby wetland	Secondary impact area is adjacent to previously cleared, mowed and maintained right-of-way.	Secondary impact - Improved treatment of runoff, and potential trash from pedestrians on sidewalk	(of secondary impact) Total = 0.17 ac 0.17 ac (618)

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin 03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Secondary impacts would be at the roadside edge (SR530) of wetland E. This wetland is along the east-bound right-of-way and is connected directly to Davenport Creek Swamp then to Reedy Creek. Also see drainage report attached to ERP application.

Assessment area description

The AA (area of potential secondary impact) along SR 530 is adjacent to the previously impacted right-of-way and to the maintained portion that is regularly mowed. Wetland "E" is along and partly within the SR 530 right-of-way; is adjacent to commercial and residential property. The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the 25-foot wide zone of potential secondary impact might be the trapping of trash from road runoff. Dense shrubby vegetation provides some refuge for small animals and birds.	No historical miligation. Not a conservation area. All secondary impacts will be adjacent to FDOT right-of-way

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Snakes, lizards, passerine birds, wading birds, rabbits, nine-banded armadillo, crow.	No T&E uses expected within the right-of-way along the roadside.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings,

None observed.

Additional relevant factors:

Existing condition - is for road run off to enter the wetland along the right-of-way. Proposed condition will capture more of the runoff and route it to a treatment pond, thus improving the water quality of Wetland E in general.

Assessment conducted by:	Assessment date(s):
CH2MHILL Biologists: Steve Eakin, Tony Davanzo, Rosanne Prager	August 2, 2005; and January 18, 2007; March 17, 2008, June 17, 2008

Form 62-345.900(1), F.A.C. [effective date]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland E (at ROW)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.17 ac impact (25 feet wide) in 618 shrubby wetlands	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 6 with: 5	Adjacent wildlife habitats outside of assessment area good quality to south (wetlands) and poor quality to the north (SR 530), the east (new development) and west (commercial & tourist services property). South of the AA is a large forested wetland that is directly connected to the floodplain of Lake Davenport/Davenport Swamp. This larger wetland has been previously impacted by ~1 acre of fill material placed in the wetland ~200 feet south of SR 530. Habitat is fragmented and overgrown, or removed, and access is limited (to the south only). Some areas of overgrown xeric oak areas remain in the general area. The expected use of the proposed adjacent sidewalk by pedestrians may bring more trash to the secondary impact zone. becomes an edge	WL to west
.500(6)(b) Water Environment (n/a for uplands) w/o pres or current: 6 with: 5	Water environment is marginally adequate in the AA, as evidenced by the dense cover of invasive vegetation. Water quality of runoff reaching Wetland E may improve over existing conditions because of the proposed roadside swale and treatment ponds of the project. Road runoff will enter the new treatment pond no. 1 before entering the wetland. The AA wetland is hydrologically connected to the wetland to the south, which is connected to Davenport Swamp. Fill material placed (by others illegally) in the remaining wetland, hydrologically fragments the AA from the rest of the wetland to the south. abuts conveyance to new pond.	
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 5 with: 5	Vegetation community: AA is covered in non-native primrose willow (*Ludwigia peruviana*), dog fennel (*Eupatorium capillifolium*), a few sweet bay (*Magnolia virginiana*), and sparse slash pine (*Pinus elliottii*). This AA is adjacent to the existing right-of-way, where previous impacts from clearing, mowing, and maintenance have occurred. Because the adjacent direct-impact area presently has no canopy, no change in vegetation composition in the secondary zone is expected. Benthic Community: Unknown. Presumed to be present after several consecutive years of normal rainfall. Expected to consist of pollution-tolerant macro-invertebrate species.	

Score = sum of above scores/30 (if uplands, divide by 20)	If preservation as mitigation,	For impact assessment areas
current or w/o pres: ~~0.57~~ with: 0.5	Preservation adjustment factor = N/A	Delta x Acres = Functional Loss
	Adjusted mitigation delta = N/A	-0.07 x 0.17 ac = ~~-0.006 ac~~ -.0119

Delta = [with - current]	If mitigation	For mitigation assessment areas
~~0.06~~ -.07	Time lag (t-factor) = N/A	RFG = delta/(t-factor x risk)
	Risk factor = N/A	

Form 62-345 900(2), F.A.C. [effective date]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland F

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
618 - shrubby wetland	Secondary impact zone is adjacent to previously cleared, mowed and maintained right-of-way.	Secondary impact - Improved treatment of runoff; and potential trash from pedestrians on sidewalk	(of secondary impact) Total = 0.22 ac (618)

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin 03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Secondary impacts would be at the roadside edge (SR530) of wetland F, and a commercial property. This wetland is along the east-bound right-of-way and is connected directly to Davenport Creek Swamp then to Reedy Creek. Also see drainage report attached to ERP application.

Assessment area description

The AA (area of potential secondary impact) along SR 530 is adjacent to the previously impacted right-of-way and to the maintained portion that is regularly mowed. Wetland "F" is along and partly within the SR 530 right-of-way; is adjacent to commercial and residential property under development. The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the 25-foot wide zone of potential secondary impact might be the trapping of trash from road runoff. Dense shrubby vegetation provides some refuge for small animals and birds.	No historical mitigation. Not a conservation area. All secondary impacts will be adjacent to FDOT right-of-way

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found.)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Snakes, lizards, passerine birds, wading birds, rabbits, nine-banded armadillo, crow.	No T&E uses expected within the right-of-way along the roadside.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings,

None observed.

Additional relevant factors:

Existing condition - is for road run off to enter the wetland along the right-of-way. Proposed condition will capture more of the runoff and route it to a treatment pond, thus improving the water quality of Wetland E in general.

Assessment conducted by:	Assessment date(s):
CH2MHILL Biologists: Steve Eakin; Tony Davanzo, Rosanne Prager	August 2, 2005; and January 18, 2007; March 17, 2008; June 17, 2008

Form 62-345.900(1), F.A.C. [effective date]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland F (at ROW)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.22 ac Impact (25 feet wide) in 618 shrubby wetlands	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 6	with: 5
Adjacent wildlife habitats outside of assessment area fair quality to south (wetlands) and poor quality to the north (SR 530), the east (new development) and west (commercial property). Southwest of the AA is a large forested wetland that is directly connected to the floodplain of Lake Davenport. Other land uses in the area include high density residential, tourist services, commercial services (completed and under construction), and golf courses and single family residential parcels. Wildlife access to remaining habitats is severely limited. The expected use of the proposed adjacent sidewalk by pedestrians may bring more trash to the secondary impact zone. Same WL as WL "E" to south		
.500(6)(b) Water Environment (n/a for uplands)	w/o pres or current: 4	with: 4
Water environment is marginally adequate in the AA; as evidenced by the dense cover of invasive vegetation. Water quality of runoff reaching Wetland F may improve over existing conditions because of the proposed roadside swale and treatment ponds of the project. Road runoff will enter the new treatment pond that was previously constructed to the east of Wetland F before entering the wetland. The AA wetland is hydrologically connected to the wetland to the south, which is connected to Davenport Swamp. strip fronting roadway appears to be drained		
.500(6)(c) Community structure **1. Vegetation and/or** **2. Benthic Community**	w/o pres or current: 4	with: 4
Vegetation community: AA is vegetated with non-native primrose willow (*Ludwigia peruviana*), and dog fennel (*Eupatorium capillifolium*) and a few sweet bay (*Magnolia virginiana*). This AA is adjacent to the maintained existing right-of-way, where previous impacts from clearing, mowing, and maintenance have occurred. Because the adjacent direct-impact area presently has no canopy, no change in vegetation composition in the secondary zone is expected. edge effect species - see above comment Benthic Community: Unknown. Presumed to be present after several consecutive years of normal rainfall. Expected to consist of pollution-tolerant macro-invertebrate species.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres: 0.53	with: 0.5

Delta = [with - current]
-0.03

If preservation as mitigation,
Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

If mitigation
Time lag (t-factor) = N/A
Risk factor = N/A

For impact assessment areas
Delta x Acres = Functional Loss
-0.03 x 0.22 ac = -0.007 ac

For mitigation assessment areas
RFG = delta/(t-factor x risk)

Form 62-345.900(2), F.A.C. (effective date)

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland G

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
618 - shrubby wetland	Secondary impact zone is adjacent to previously cleared, mowed and maintained right-of-way.	Secondary impact - Improved treatment of runoff, and potential trash from pedestrians on sidewalk	(of secondary impact) Total = 0.16 ac (618)

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin 03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Secondary impacts would be at the roadside edge (SR530) of wetland G, and commercial and residential property. This wetland is along the east-bound right-of-way and is connected indirectly to Davenport Creek Swamp then to Reedy Creek through roadside swales/ ditches and culverts to other wetlands along the south side of the road. Also see drainage report attached to ERP application.

Assessment area description

The AA (area of potential secondary impact) along SR 530 is adjacent to the previously impacted right-of-way and to the maintained portion that is regularly mowed. Wetland "G" is along the SR 530 right-of-way; and is adjacent to commercial and residential property (some currently under development). The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the 25-foot wide zone of potential secondary impact might be the trapping of trash from road runoff. Dense shrubby vegetation provides some refuge for small animals and birds.	No historical mitigation. Not a conservation area. All secondary impacts will be adjacent to FDOT right-of-way

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Snakes, lizards, passerine birds, wading birds, rabbits, nine-banded armadillo, crow.	No T&E uses expected within the right-of-way along the roadside.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings,

None observed.

Additional relevant factors:

Existing condition - is for road run off to enter the wetland along the right-of-way. Proposed condition will capture more of the runoff and route it to a treatment pond, thus improving the water quality of Wetland G in general.

Assessment conducted by: CH2MHILL Biologists:	Assessment date(s): August 2, 2005; and
Steve Eakin; Tony Davanzo, Rosanne Prager	January 18, 2007; March 17, 2008, June 17, 2008

Form 62-345.900(1), F.A.C. [effective date]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland G (at ROW.)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.16 ac Secondary impact (25 feet wide) in 618 shrubby wetlands	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 5	with: 5
Adjacent wildlife habitats outside of assessment area poor quality to the west (existing commercial) and north (roadway). To the south is a xeric oak remnant and high density residential. Limited wildlife habitat requirements for some amphibian life cycles may be met with this adjacent upland. To the east is another wetland (H). Other land uses in the area include high density residential, tourist services, commercial services (completed and under construction), and golf courses and single family residential parcels. Wildlife access to undeveloped habitats is severely limited. The expected use of the proposed adjacent sidewalk by pedestrians may bring more trash to the secondary impact zone.		
.500(6)(b) Water Environment (n/a for uplands)	w/o pres or current: 7	with: 7
Water environment is adequate in Welland G, as evidenced by standing water and floating aquatic vegetation in March 2008. Road runoff currently reaches the Welland G through direct runoff, through roadside swales, and through culverts under SR 530 from Wetland A. Water quality may improve in Wetland G, as the proposed project includes a roadside swale that will trap pollutants.		
.500(6)(c) Community structure **1. Vegetation and/or** **2. Benthic Community**	w/o pres or current: 5	with: 5
Vegetation community: The secondary impact zone is covered in non-native primrose willow (*Ludwigia peruviana*), Carolina willow (*Salix caroliniana*), dog fennel (*Eupatorium capillifolium*), grape vine (*Vitis* sp.) and blackberry (*Rubus* sp.). Wetland G is vegetated with primrose willow, spatterdock (*Nuphar luteum*) and Carolina willow. This secondary impact zone is adjacent to the existing right-of-way, where previous impacts from clearing, mowing, and maintenance have occurred. Because the adjacent direct-impact area presently has no canopy, no change in vegetation composition in the secondary zone is expected. 9/28 - rising hydrology has increased WL species present. Benthic Community: Unknown. Presumed to be present due to standing water evident in March 2008. Expected to consist of pollution-tolerant macro-invertebrate species. No change expected as water regime is not expected to change.		

Score = sum of above scores/30, (if uplands, divide by 20)		
current or w/o pres: 0.57	with: 0.57	

If preservation as mitigation,
Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

For impact assessment areas
Delta x Acres = Functional Loss
-0.06 x 0.16 ac = -0.009 ac

Delta = [with - current]
-0.0

If mitigation
Time lag (t-factor) = N/A
Risk factor = N/A

For mitigation assessment areas
RFG = delta/(t-factor x risk)

Form 62-345.900(2), F.A.C. [effective date]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland H

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
618 - shrubby wetland	Secondary impact zone is adjacent to previously cleared, mowed and maintained right-of-way.	Secondary impact - Improved treatment of runoff; and potential trash from pedestrians on sidewalk.	(of secondary impact) Total = 0.23 ac (618)

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
Davenport Creek Swamp basin 03090101/ Kissimmee River Watershed	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Secondary impacts would be at the roadside edge (SR530) of wetland H, and commercial and residential property. This wetland is along the east-bound right-of-way and is connected indirectly to Davenport Creek Swamp then to Reedy Creek through roadside swales/ ditches and culverts to other wetlands along the south side of the road. Also see drainage report attached to ERP application.

Assessment area description

The AA (area of potential secondary impact) along SR 530 is adjacent to the previously impacted right-of-way and to the maintained portion that is regularly mowed. Wetland "H" may also function as a treatment area for the adjacent commercial property. The general project area is developed with high density commercial & tourist services land uses.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
High density commercial & tourist services; and new construction in progress. Nearby golf courses and single family residential parcels.	Common.

Functions	Mitigation for previous permit/other historic use
Functions of the 25-foot wide zone of potential secondary impact might be the trapping of trash from road runoff. Dense shrubby vegetation provides some refuge for small animals and birds.	No historical miligation. Not a conservation area. All secondary impacts will be adjacent to FDOT right-of-way

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Snakes, lizards, passerine birds, wading birds, rabbits, nine-banded armadillo, crow.	No T&E uses expected within the right-of-way along the roadside.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings,

None observed.

Additional relevant factors:

Existing condition - is for road run off to enter the wetland along the right-of-way. Proposed condition will capture more of the runoff and route it to a treatment pond, thus improving the water quality of Wetland G in general.

Assessment conducted by:	Assessment date(s):
CH2MHILL Biologists: Steve Eakin; Tony Davanzo, Rosanne Prager	August 2, 2005; and January 18, 2007; March 17, 2008, June 17, 2008

Form 62-345.900(1), F.A.C. [effective date]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR 530 widening in Orange/Osceola Co.		Secondary impacts to Wetland H (at ROW)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
0.23 ac Secondary impact (25 feet wide) in 618 shrubby wetlands	a. Steve Eakin b. Steve Eakin, Tony Davanzo c. Rosanne Prager	a. August 2, 2005; b. January 18, 2007; c. March 17, 2008

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 4	with: 4
Adjacent wildlife habitats outside of assessment area poor quality to the east (existing commercial), north (roadway) and south (high density residential). To the west is another wetland (G) and a remnant xeric oak upland. Other land uses in the area include high density residential, tourist services, commercial services (completed and under construction), and golf courses and single family residential parcels. Wildlife access to undeveloped habitats is severely limited. The expected use of the proposed adjacent sidewalk by pedestrians may bring more trash to the secondary impact zone.		
.500(6)(b) Water Environment (n/a for uplands)	w/o pres or current: 6	with: 6
Water environment is adequate in Wetland H, as evidenced by standing water and dense stand of primrose willow in March 2008. The wetland may also be functioning as a treatment area for the adjacent commercial building and parking lot. Road runoff currently reaches the Wetland H through direct runoff and through roadside swales. Water quality may improve in Wetland H, as the proposed project includes a roadside swale that will trap pollutants. exotics; encroachments likely due to nutrients		
.500(6)(c) Community structure **1. Vegetation and/or** **2. Benthic Community**	w/o pres or current: 4	with: 4
Vegetation community: The secondary impact zone is covered in non-native primrose willow (*Ludwigia peruviana*), Carolina willow (*Salix caroliniana*), dog fennel (*Eupatorium capillifolium*), grape vine (*Vitis* sp.) and blackberry (*Rubus* sp.). Wetland H is vegetated with primrose willow, dog fennel and Carolina willow. This secondary impact zone is adjacent to the existing right-of-way, where previous impacts from clearing, mowing, and maintenance have occurred. Because the adjacent direct-impact area presently has no canopy, no change in vegetation composition in the secondary zone is expected. Shrubby WL species hanging on - encroaching exotics / upland species Benthic Community: Unknown. Presumed to be present due to standing water evident in March 2008. Expected to consist of pollution-tolerant macro-invertebrate species. No change expected as water regime is not expected to change.		

Score = sum of above scores/30 (If uplands, divide by 20)	current or w/o pres	with
	~~0.50~~ .047	.057 .47

Delta = [with - current]
-0.03

If preservation as mitigation,
Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

If mitigation
Time lag (t-factor) = N/A
Risk factor = N/A

For impact assessment areas
Delta x Acres = Functional Loss
-0.03 x 0.23 ac = -0.007 ac

For mitigation assessment areas
RFG = delta/(t-factor x risk)

STAFF REPORT DISTRIBUTION LIST

SR 530 (US 192) WIDENING FROM LAKE COUNTY LINE

Application No: 080409-17

Permit No: 49-00956-P

INTERNAL DISTRIBUTION

X Annette V. Burkett - 2250
X Nicole Gough - 2250
X Marc S. Ady - 2250
X Mark S. Daron, P.E. - 1640
X A. Bain - 4220
X A. Lee - 6850
X A. Waterhouse - 4220
X ERC Engineering - 6850
X ERC Environmental - 6850
X J. Golden - 4210
X Permit File

GOVERNING BOARD MEMBERS

- Mr. Charles J Dauray
- Mr. Eric Buermann
- Mr. Michael Collins
- Mr. Patrick Rooney, Jr.
- Mr. Paul C Huck, Jr.
- Mr. Robert Montgomery
- Ms. Melissa Meeker
- Ms. Shannon A. Estenoz

EXTERNAL DISTRIBUTION

X Permittee - Florida Department Of Transporation District 5
X Engr Consultant - Ch2m Hill

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 6 - FDEP
X Div of Recreation and Park - District 6 - FDEP
X Florida Department of Environmental Protection
X Orange County - Environmental Protection Division
X Orange County - Public Utilities Division
X Orange County Engineer Public Works Division Dvlpmnt Engineering Dept.
X Osceola County Engineer
X Toho Water Authority Brian Wheeler, P.E.

OTHER INTERESTED PARTIES

X Sierra Club - Central Florida Group P.O. Box 941692
X Sierra Club - Central Florida Group P.O. Box 941692

STAFF REPORT DISTRIBUTION LIST

STATE ROAD 530 (U S 192) WIDENING FROM LAKE COUNTY LINE

Application No: 120221-27

Permit No: 49-00956-P

INTERNAL DISTRIBUTION

X Annette V. Burkett
X Jennifer Thomson
X Marc S. Ady
X Mark S. Daron, P.E.
X A. Lee
X ERC Engineering
X ERC Environmental

EXTERNAL DISTRIBUTION

X Permittee - Florida Department Of Transportation
X Engr Consultant - U R S Corporation

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 6 - FDEP
X Orange County Engineer Public Works Division Dvlpmnt Engineering Dept.

Appendix H

- Pond SHGWT Summary Table
- Geotechnical Report (Excerpts)

Summary of Pond Seasonal High Groundwater Table Estimates

Per: Nadic Engineering Services, Inc. Geotechnical Roadway Soil Survey Report

Facility	Boring Name	Latitude	Longitude	Encountered Groundwater Elevation	Date Drilled	Estimated SHGWT Elevation (per NADIC Engineering Services, Inc.) (feet, NAVD 88)	Average SHGWT Elevation (feet, NAVD 88)
POND 2A (OC)	POC-1	28°21'1.63"N	81°38'44.42"W	107.9	05/07/25	109.3	**110.2**
	POC-2	28°21'1.44"N	81°38'42.68"W	107.9	05/07/25	109.3	
	POC-3	28°21'2.79"N	81°38'43.38"W	109.1	07/23/25	110.8	
	POC-4	28°21'2.27"N	81°38'41.00"W	108.0	05/07/25	109.5	
	POC-5	28°21'3.56"N	81°38'44.29"W	109.1	07/23/25	110.8	
	POC-6	28°21'3.37"N	81°38'42.34"W	109.0	07/23/25	110.5	
	POC-7	28°21'4.65"N	81°38'44.49"W	109.3	07/23/25	110.8	
	POC-8	28°21'4.80"N	81°38'43.06"W	109.3	07/23/25	110.8	
	POC-9	28°21'4.02"N	81°38'41.58"W	108.7	07/23/25	110.2	
POND 3B	P-3A	28°21'26.71"N	81°38'42.85"W	107.0	04/25/22	109.0	**111.1**
	P3B-1	28°21'26.70"N	81°38'41.79"W	110.0	05/07/25	111.8	
	P3B-2	28°21'26.75"N	81°38'40.65"W	109.9	05/07/25	111.5	
	P3B-3	28°21'50.30"N	81°38'39.80"W	109.4	05/07/25	111.0	
POND 3A	P3A-1	28°21'47.37"N	81°38'46.97"W	110.8	07/23/25	112.1	**111.6**
	P3A-2	28°21'48.24"N	81°38'47.96"W	110.4	07/23/25	112.0	
	P3A-3	28°21'49.38"N	81°38'47.41"W	110.0	07/23/25	111.5	
	P-4A	28°21'50.30"N	81°38'46.73"W	107.5	04/25/22	110.8	

Geotechnical Roadway Soil Survey Report
for
Avalon Road (C.R. 545) From U.S. 192 to Hartzog Road Improvements
Orange County, Florida
Orange County Project No.: Y24-808
NADIC Project No. PR.GEO-RD24032

Prepared for:

Pegasus Engineering, LLC
301 West State Road 434, Suite 309
Winter Springs, FL 32708

Prepared by:

Nadic Engineering Services, Inc.
601 N. Hart Blvd
Orlando, Florida 32818
407-521-4771

NADIC
ENGINEERING

August 26, 2025

Pegasus Engineering, LLC
301 West State Road 434, Suite 309
Winter Springs, FL 32708

Attention: Mr. Fursan Munjed, P.E.

Re: Geotechnical Roadway Soil Survey Report
Avalon Road (C.R. 545) From U.S. 192 to Hartzog Road Improvements
Orange County, Florida
Orange County Project No.: Y24-808
NADIC Project No.: PR.GEO-RD24032

Dear Mr. Munjed:

Nadic Engineering Services, Inc. (NADIC) is pleased to submit this Geotechnical Report for the Avalon Road Improvements project from U.S 192 to Hartzog Road in Orange County, Florida. The purpose of this exploration was to evaluate soil and groundwater conditions along the subject roadway alignment and associated stormwater pond sites, and to provide geotechnical recommendations to guide design and construction of the proposed roadway reconstruction. This evaluation was authorized through a subconsultant agreement between Pegasus and **NADIC** dated December 27, 2024.

This report describes our exploration procedures and laboratory testing methods, exhibits the data obtained and presents our conclusions and recommendations for the project.

NADIC appreciates the opportunity to work with you on this project and looks forward to a continued association. Please contact us if you have any questions, or if we may be of further assistance to you as this project proceeds.

Sincerely,

NADIC ENGINEERING SERVICES, INC.
Engineering Business No. 8214



Maria Bridges, M.S., E.I.
Staff Engineer



Godwin N. Nnadi, Ph.D., P.E.
Principal Engineer
FL Registration No. 50637

C:\...\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Report

Table of Contents

1.0 PROJECT LOCATION AND DESCRIPTION 1

2.0 PURPOSE AND SCOPE OF SERVICES 1

3.0 REVIEW OF AVAILABLE PUBLISHED DATA 2
3.1 General 2
3.2 USGS Topographic Map 2
3.3 USDA, NRCS Soil Survey 2
3.4 Area Geology 4

4.0 FIELD EXPLORATION PROGRAM AND METHODS 5
4.1 Field Exploration Program 5
4.2 Field Exploration Methods 5
4.2.1 Hand Auger Borings 5
4.2.2 Standard Penetration Test (SPT) Borings 6
4.2.3 Pavement Coring 6
4.2.4 Muck Probing 6

5.0 SUBSURFACE CONDITIONS 7
5.1 General 7
5.2 Roadway Boring Results 7
5.3 Stormwater Boring Results 8
5.4 Muck Probe Results 8
5.5 Groundwater 9

6.0 LABORATORY TESTING 9

7.0 EVALUATION AND RECOMMENDATIONS 11
7.1 General 11
7.2 Roadway Construction 11
7.3 Pavement Design Considerations 12
7.4 Pavement Condition Evaluation 12
7.5 Groundwater Control 13
7.6 Stormwater Management Area 13
7.7 Pond Borrow Suitability 14
7.7.1 Stratum 1 (A-3) 14
7.7.2 Stratum 2 (A-2-4) 14
7.7.3 Stratum 3 (A-8) 14
7.7.4 Stratum 4 (A-2-6) 14

Table of Contents Continued

8.0 CONSTRUCTION CONSIDERATIONS 15
8.1 Considerations 15
8.2 Excavation 15

9.0 REPORT LIMITATIONS 16

APPENDICES

APPENDIX A

Figure 1	Vicinity Map
Figure 2	USGS Topographic Map
Figure 3	USDA/NRCS Soils Map
Figures 4A through 4C	Boring Location Map

APPENDIX B

Sheet 1	Roadway Soil Survey
Sheets 2 through 5	Report of Roadway Borings
Sheets 6 through 10	Report of Pond Borings
Sheets 11 through 15	Report of Muck Probing

Not included in PSR Appendix H

APPENDIX C

Table 2	Summary of Laboratory Test Results
Table 3	Corrosion Series Test Results
Table 5	Pavement Evaluation and Condition Sheet
Table 6	FDOT Mean Method Design LBR Calculations
Table 7	FDOT 90 Percent Method Design LBR Calculations
Figure 5	FDOT 90 Percent Graph
Plates 1 through 8	LBR Calculations
Plates 9 through 12	Pavement Cores

Not included in PSR Appendix H

1.0 PROJECT LOCATION AND DESCRIPTION

The Orange County Public Works Department selected Pegasus Team to provide engineering design and construction plans preparation for the widening and reconstruction of Avalon Road (C.R. 545) from West Irlo Bronson Memorial Highway (U.S. 192) to Hartzog Road in Orange County, Florida. Avalon Road is planned to be widened to a 4-lane divided urban roadway. The project includes the following elements:

- Design of four (4) lanes to replace the existing two (2) lanes for Avalon Road from U.S. 192 to Hartzog Road
- About 600 linear feet of special treatment and/or additional lanes at each of the following Roads: U.S. 192, Bali Boulevard, Arrowhead Boulevard, Grove Blossom Way, Lake Gifford Way and Hartzog Road
- Construction of three (3) new stormwater ponds and one (1) floodplain compensation pond
- Total of four (4) pavement coring, one (1) at each of the following Roads: Bali Boulevard, Arrowhead Boulevard, Grove Blossom Way and Lake Gifford Way
- Optional Materials for pipes at 10 locations within project limits
- Total of 10 Traffic Mast Arms.

The project area is generally located within Sections 30 and 31, Township 24 South and Range 27 East in Lake Louisa SW, Florida. A vicinity map showing the proposed roadway improvements is presented on the attached **Figure 1** in **Appendix A**.

This report presents the findings of our subsurface exploration program, an evaluation of the encountered soil and groundwater conditions, and provides recommendations to guide design and construction of the proposed roadway improvements. This report does not include information on the proposed Traffic Mast Arm, as locations are not available at this time. Mast Arm Report will be provided on a separate cover at a later date.

2.0 PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to obtain information on the general subsurface conditions including soil and groundwater conditions along the roadway alignment to provide recommendations related to design and construction of the proposed roadway improvements. Our approach is in general accordance with the Florida Department of Transportation (FDOT), "Soils and Foundation Manual." The purposes were accomplished by:

1. Performed site reconnaissance, located and coordinated utility clearance and evaluated site for drill rig accessibility to boring locations

2. Performed a field exploration program consisting of 18 auger borings to a depth of 5 feet below existing grade and 26 Standard Penetration Test (SPT) borings to a depth of 20 feet below existing grade to supplement the borings completed for the Roadway Conceptual Analysis (RCA) study in 2022 by **NADIC**

3. Obtained eight (8) bulk samples for Limerock Bearing Ratio determinations

4. Measured encountered groundwater table in the borings

5. Completed a total of four (4) pavement cores, as requested by Pegasus, to determine existing pavement thickness

6. Performed muck probing within the project limits

7. Visually classified recovered soil samples in our laboratory. Performed laboratory testing on selected samples to aid in soil classification using the American Association of State Highway and Transportation Officials Unified Classification System (AASHTO)

8. Analyzed and interpreted field and laboratory test data and incorporated them into this report.

3.0 REVIEW OF AVAILABLE PUBLISHED DATA

3.1 General

To obtain general information on soil and groundwater conditions along the project alignment, **NADIC** reviewed data including aerial maps, United States Geological Survey (USGS), Quadrangle Topographic Maps, and the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey for Orange County and Osceola County. A summary of this information is presented below in the following report section. An aerial map of the site location is shown on **Figure 1** in **Appendix A**.

3.2 USGS Topographic Map

The "Lake Louisa SW, Florida" USGS Topographic Maps issued in 2024, along the project alignment were reviewed. Excerpts of the USGS Topographic Maps are presented on **Figure 2** in **Appendix A**. The map shows the ground surface elevation in the project vicinity to be approximately +115 feet North American Vertical Datum of 1988 (NAVD-88).

3.3 USDA, NRCS Soil Survey

The Orange County and Osceola County Soil Survey published by the United States Department of Agriculture (USDA), National Resources Conservation Service (NRCS) were reviewed. A reproduction of the NRCS map for the project area can be found in **Figure 3** in **Appendix A**. Soils found in the project vicinity are listed below on **Table 1**.

Information contained in the NRCS Soil Survey is very general and may be outdated due to recent development in the site vicinity. Therefore, it may not reflect the actual soil and groundwater

conditions, particularly where developments may have modified soil conditions or surface and near surface drainage.

Table 1A: USDA/NRCS Soil Survey Summary – Orange County

Soil Unit	Depth (in)	Soil Description	AASHTO*	USDA SHGWT** (ft)
Archbold (2)	0-80	Fine sand	A-3	3.5-6.0
Basinger (3)	0-7	Fine sand	A-3	0-1.0
	7-32	Sand, fine sand	A-3, A-2-4	
	32-47	Sand, fine sand	A-3, A-2-4	
	47-80	Sand, fine sand	A-3, A-2-4	
Immokalee (20)	0-5	Fine sand	A-3	0-1.0
	5-35	Fine sand, sand	A-3	
	35-67	Fine sand, sand	A-3, A-2-4	
	67-80	Fine sand, sand	A-3	
Samsula (40)	0-40	Muck	A-8	0-1.0
	40-80	Sand, fine sand, loamy sand	A-3, A-2-4	
Sanibel (42)	0-11	Muck	A-8	0-1.0
	11-15	Sand, fine sand, mucky fine sand	A-3	
	15-80	Sand, fine sand	A-3	
Tavares (46)	0-6	Fine sand	A-3	3.5-6.0
	6-80	Sand, fine sand	A-3	
Tavares	0-6	Fine sand	A-3	3.5-6.0
	6-80	Sand, fine sand	A-3	
Millhopper (47)	0-64	Fine sand	A-3, A-2-4	
	64-76	Loamy sand, loamy fine sand	A-2-4	
	76-80	Sandy loam, fine sandy loam, sandy clay loam	A-2-4, A-4	

*AASHTO: American Association of State Highway and Transportation Officials
**SHGWT: Seasonal High Groundwater Table

Table 1B: USDA/NRCS Soil Survey Summary – Osceola County

Soil Unit	Depth (in)	Soil Description	AASHTO*	USDA SHGWT** (ft)
Hontoon (15)	0-70	Muck	A-8	0-1.0
Immokalee (16)	0-7	Fine sand	A-3	0-1.0
	7-37	Fine sand, sand	A-3	
	37-47	Fine sand, sand	A-3, A-2-4	
	47-80	Fine sand, sand	A-3	
St. Lucie (43)	0-80	Fine sand	A-3	>6.0

*AASHTO: American Association of State Highway and Transportation Officials
**SHGWT: Seasonal High Groundwater Table

...A-3 and A-2-4 are appropriate for use as embankment fill... A-8 soils should be treated...

The soils classified as A-3 and A-2-4 are appropriate for use as embankment fill; however, if A-8 (muck) is encountered, it should be treated in accordance with FDOT Standard Specifications and Index Nos. 120-002 and 120-001. This soil is unsuitable for support of roadways and should be over-excavated and replaced with suitable granular materials, if encountered within the project limits.

Information contained in the NRCS Soil Survey is very general and may be outdated due to recent development in the site vicinity. Therefore, it may not reflect the actual soil and groundwater conditions, particularly where developments may have modified soil conditions or surface and near surface drainage.

3.4 Area Geology

The geology of Central Florida area is characterized by sedimentary strata formed during three distinct geologic periods. The surficial stratum is composed of undifferentiated Holocene/ Pleistocene/Pliocene age sands containing varying amounts of silt and clay, which extend typically to depths on the order of 40 to 60 feet below the ground surface. This upper, mostly sandy zone contains the surficial aquifer (water table). A Miocene age deposit, the Hawthorn Formation, frequently underlies the surficial sands and is typically composed of clay, clayey sands and sandy limestone sometimes containing appreciable amounts of phosphate. This stratum extends to, typically, a depth of 80 to 120 feet beneath the existing ground surface and serves as the confining layer for the underlying Floridian Aquifer.

The Eocene age Ocala and Avon Park limestone formations are contained in the Floridian Aquifer, which is one of the most productive aquifers in the world. The extremely high productivity of this aquifer is directly related to its numerous cavities and interconnected channels. The deepest formation of the Eocene age is the Avon Park limestone. The Avon Park limestone consists mostly of hard brown dolostone and tan, granular limestone. Above the Avon Park limestone is the Ocala limestone. The Ocala limestone is a loose to moderate well cemented mass of very small to large

microfossils with much less dolostone than the Avon Park limestone. Typically, the Ocala limestone contains almost pure limestone with no dolostone, although the lower few feet can be partly dolomitized in some areas.

4.0 FIELD EXPLORATION PROGRAM AND METHODS

4.1 Field Exploration Program

To evaluate the subsurface conditions along the proposed roadway improvements, Hand Auger borings and Standard Penetration Test (SPT) borings were performed. Several field visits were conducted to establish drilling equipment access, layout and stake boring locations, and coordinate underground utility locations and markings.

The subsurface conditions along the project roadway alignment were evaluated by performing a series of 5-foot-deep auger borings and 20-foot-deep SPT borings below existing grade. A total of 24 roadway borings were completed for the proposed roadway improvements including: 18 auger borings and six (6) SPT borings to depths of five (5) feet and 20 feet below existing grade, respectively.

In addition, 20 SPT borings were completed to a depth of 20 feet below grade each for the proposed stormwater ponds. The four (4) ponds are designated as Pond OC, Pond 3B, Pond 3A and Compensation Pond.

The location of the borings was determined by **NADIC** based on information provided by Pegasus. All borings were staked in the field by a representative of **NADIC** with the aid of Garmin GPSMAP64st Global Positioning System (GPS) device.

Boring profiles completed for Avalon Road RCA by **NADIC** in 2021 and 2022 were incorporated into this report in **Appendix B**.

Upon completion and after groundwater measurements, all borings were backfilled for safety. Boring approximate locations are shown on **Figures 4A** through **4C** in **Appendix A.** The Roadway Soil Survey is presented on **Sheet 1** in **Appendix B**. The results of the exploration program in the form of soil profiles are shown on **Sheets 2** through **10** in **Appendix B**.

4.2 Field Exploration Methods

4.2.1 Hand Auger Borings

Hand auger borings were performed to a general depth of five (5) feet below the existing grade by manually twisting and advancing a bucket auger into the ground in four (4) to six (6) inch increments. These borings were performed in general accordance with the American Society of Testing and Materials (ASTM) Test Designation D-1452. As each soil type was revealed, representative samples were placed in air-tight bags and returned to our laboratory for further

visual examination and classification by a geotechnical engineer. For safety, these boreholes were backfilled after groundwater level measurement.

4.2.2 Standard Penetration Test (SPT) Borings

The Standard Penetration Test (SPT) borings were performed at boring locations with depths equal to 20 feet. The borings were drilled in general accordance with ASTM test designation D-1586. Soil sampling using a $1^{3}/_{8}$-inch diameter (ID) split-barrel sampler was performed at closely spaced intervals from the ground surface to 20 feet below existing grade. After seating the sampler six inches, the number of successive blows required to drive the sampler 12 inches into the soil constitutes the test result commonly referred to as the "N" value. The "N" value has been empirically correlated with various soil properties and is considered indicative of the relative density of non-cohesive soils and the consistency of cohesive soils. The recovered split-barrel samples were described in the field with representative portions of the samples placed in airtight bags and transported to our office for visual classification and laboratory testing. Following completion and groundwater table measurement, the SPT borings were backfilled for safety.

4.2.3 Pavement Coring

Four (4) pavement cores were performed by **NADIC**: one (1) on Bali Boulevard, just northwest of Avalon Road, one (1) on Arrowhead Boulevard, just east of Avalon Road, one (1) on Grove Blossom Way, just west of Avalon Road, and one (1) on Lake Gifford Way, just east of Avalon Road. The pavement coring was performed by advancing a six-inch diameter core barrel. The cores were removed and measured for pavement and base thickness. Pavement conditions encountered were categorized according to the classification system outlined in the FDOT Flexible Pavement Condition Survey Handbook. After performing the pavement coring, the coring holes were backfilled using native materials and ready-mix asphalt compacted to the top.

4.2.4 Muck Probing

Muck probing was performed by **NADIC** personnel within the project limits. The approximate locations of the muck probes along Avalon Road from U.S. 192 to Hartzog Road are shown on **Sheets 11** through **15** in **Appendix B**.

Muck probing was performed by advancing a 0.5-inch diameter steel rod through the surficial soft sediments/organics until manual refusal is achieved. Generally, it can be pushed through soft organic and/or clayey soils, and terminate upon encountering sandy soils or relatively stiff clay. Muck probes; however, cannot detect peat or muck layers that are present beneath layers of sand or dense soils, which cannot be penetrated. Therefore, in muck probing, the soil type is referred solely by evaluating the relative resistance of the soil to penetration. These limitations can lead to misrepresentation of the extent and thickness of muck layer. It is not recommended that muck probe data be used for earthwork quantity estimates except on a very preliminary basis.

5.0 SUBSURFACE CONDITIONS

5.1 General

The soils encountered were classified using the AASHTO Soil Classification System (i.e. A-3, A-2-4, etc.). Soils were described using the ASTM soil descriptions such as sand with silt. Soil classification and stratification are based on visual examination of the recovered soil samples, laboratory testing of selected soil samples, and interpretation of the boring logs by a geotechnical engineer.

The stratification lines represent approximate boundaries between soil types of significantly different engineering properties; however, the actual transition between layers may be gradual. These stratification lines should be used with caution. Actual earthwork quantities measured during construction should be expected to vary from quantities established based on the information from this report. The soil profiles indicate subsurface conditions encountered only at the specific boring locations at the time of the field exploration. Moreover, conditions at the boring locations can change over time.

Based on the soil borings and laboratory test results, the soils encountered along the project alignment have been grouped into four (4) strata. Each stratum exhibits a range of engineering properties related to application for roadway construction as outlined by FDOT Standard Indices 120-002 and 120-001. The results of the borings are presented in the form of soil profiles on the attached **Sheets 2** through **10** in **Appendix B**. Included with the soil profiles are the groundwater levels measured at the time the borings were performed and the estimated seasonal high groundwater levels.

5.2 Roadway Boring Results

The majority of the borings encountered fine sand with varying amounts of silt (Strata 1 and 2). Organic sand to muck (Stratum 3) was encountered in Borings B-11, B-13 and B-17.

The soil strata encountered, soil descriptions, AASHTO classifications and FDOT 120-001 Embankment Soil Utilization designations are summarized below:

Stratum	Soil Description	AASHTO Soil Classification	FDOT Index 120-001 Classification
1	Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments	A-3	Select (S)
2	Brown to gray silty SAND, occasionally with organics	A-2-4	Select (S)
3	Dark brown to dark gray organic SAND to MUCK	A-8	Muck (M)

The above subsurface conditions are only general descriptions. For details refer to the boring profiles on **Sheets 2** through **5** in **Appendix B.**

5.3 Stormwater Boring Results

The majority of the borings encountered fine sand with varying amounts of silt (Strata 1 and 2). Boring POC-2 completed for Pond OC, Boring P3A-3 completed for Pond 3A, and Borings P-3 and P-4 completed for the Compensation Pond encountered organic sand to muck (Stratum 3). Clayey sand (Stratum 4) was encountered in Borings P3B-1 through P3B-3 completed for Pond 3B.

The soil strata encountered, soil descriptions, AASHTO classifications and FDOT 120-001 Embankment Soil Utilization designations are summarized below:

Stratum	Soil Description	AASHTO Soil Classification	FDOT Index 120-001 Classification
1	Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments	A-3	Select (S)
2	Brown to gray silty SAND, occasionally with organics	A-2-4	Select (S)
3	Dark brown to dark gray organic SAND to MUCK	A-8	Muck (M)
4	Light brown to gray clayey SAND	A-2-6	Plastic (P)

The above subsurface conditions are only general descriptions. For details refer to the boring profiles on **Sheets 6** through **10** in in **Appendix B.**

5.4 Muck Probe Results

The Muck probes performed along Avalon Road from U.S. 192 to Hartzog Road, and along Grove Blossom Way, just west of Avalon Road, indicate surficial soft/organic soil thickness from about 0.2 to 3.8 feet. Groundwater was not encountered at the majority of the muck probe locations up to the depth explored of 4.5 feet. At muck probe locations where groundwater was encountered, the water depth ranged from ground surface to 0.7 feet below existing grade at the time of our field exploration (August, 2025). Organic Content test results of selected muck samples show the organic content to range from 3 to 50 percent. The test results are summarized on **Table 2** in **Appendix C**. For details of muck probing locations, refer to **Sheets 11** through **15** in **Appendix B**.

In general, the shallow organic deposits observed lie within feasible range for demucking, should be replaced with competent fill materials, if necessary. Demucking should occur in accordance with FDOT Standard Index 120-002. Removal of shallow surficial organic soil deposit should be accomplished in accordance with FDOT Standard Specification for Road and Bridge Construction,

Section 110 and as outlined in the Soil Survey Summary table notes on **Sheet 1** in **Appendix B**. Organic soils are highly compressible and may cause excessive settlement if left in place. This material is also susceptible to significant secondary compression settlements.

5.5 Groundwater

Groundwater was encountered in most of the borings except in Borings B-1, B-2, AB-9L, B-14, AB-20R, AB-20L, AB-21R and B-22 through B-24. Groundwater was encountered at elevations ranging from +107 to +113 feet NAVD-88, at the time of our field investigation (November 2021, April 2022, May and July 2025). Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences, such as swales, drainage ponds, underdrains, and areas of covered soil (roadways, sidewalks, etc.).

For the purposes of this report, estimated seasonal high groundwater levels are defined as groundwater levels that are anticipated at the end of the wet season of a "normal rainfall year" under current site conditions. "Normal rainfall year" is defined as a year in which rainfall quantity and distribution were at or near historical rainfall averages. The estimated seasonal high groundwater levels presented next to the boring profiles (**Sheets 2** through **10** in **Appendix B**) are based on the soil stratigraphy, measured groundwater levels, USDA/NRCS information, review of roadway plans, and experience with similar soil conditions. In general, the estimated seasonal high groundwater level is not intended to define a limit or ensure future seasonal fluctuations in groundwater levels will not exceed the estimated levels. Post-development groundwater levels could exceed the seasonal high groundwater level estimates as a result of a series of rainfall events, changed conditions at the site which alter surface water drainage characteristics, or variations in the duration, intensity, or total volume of rainfall.

6.0 LABORATORY TESTING

Representative soil samples were retrieved from the borings and returned to **NADIC**'s laboratory for further visual classification, stratification and selective soil testing. Laboratory classification tests consisting of grain size analysis, moisture content, organic content and Atterberg limits were performed on selected soil samples. The results of all roadway laboratory tests are summarized on the Roadway Soil Survey Sheet (**Sheet 1** in **Appendix B**) and on the Summary of Laboratory Test Results (**Table 2** in **Appendix C**).

Additionally, environmental corrosion series tests were performed for optional pipe materials. The environmental classification for the substructures is presented in **Table 3** in **Appendix C** and should be classified as follows:

- Boring B-2: Moderately aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 8.3 and Resistivity = 10,300 ohm-cm)

- Boring B-3: Moderately aggressive for use of Steel and moderately aggressive for use of Concrete (pH = 6.9 and Resistivity = 19,310 ohm-cm)

- Boring B-6: Moderately aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 6.8 and Resistivity = 34,860 ohm-cm)

- Boring B-10: Moderately aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 7.6 and Resistivity = 3,980 ohm-cm)

- Boring B-12: Moderately aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 8.0 and Resistivity = 8,490 ohm-cm)

- Boring B-16: Moderately aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 7.5 and Resistivity = 11,130 ohm-cm)

- Boring B-19: Slightly aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 7.4 and Resistivity = 10,200 ohm-cm)

- Boring B-21: Moderately aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 6.8 and Resistivity = 56,500 ohm-cm)

- Boring B-24: Moderately aggressive for use of Steel and slightly aggressive for use of Concrete (pH = 6.5 and Resistivity = 41,400 ohm-cm)

In addition to the classification testing, Limerock Bearing Ratio (LBR) tests were performed on representative soil samples, and the results are presented in **Appendix C**. The types of tests performed with their associated test designations are presented on the following table:

Table 4 -Laboratory Testing Performed

Test Type	FDOT	ASTM
Grain Size Analysis	FM 1-T 088	D-422
Moisture Content	FM 1-T 265	D-2216
Organic Content	FM 1-T 267	D-2974
Atterberg Limits	FM 1-T 089 and FM 1-T 090	D-4318
Limerock Bearing Ratio	FM 5-515	-
Corrosion Series	FM5-550, FM 5-551, FM 5-552 and FM 5-553	G51, G57, D512, and D4130

7.0 EVALUATION AND RECOMMENDATIONS

7.1 General

The evaluation and recommendations contained in this report are based in part on the data obtained from our field exploration and experience with similar subsurface conditions and types. The exploration methods used indicate subsurface conditions at specific boring locations, only at the time they were performed and to the depths penetrated. Borings cannot be relied upon to accurately reflect the variations that usually exist between boring locations and these variations may not become evident until construction. If variations from the conditions described in this report become evident during the course of construction, or project characteristics described in this report change, **NADIC** should be retained to re-evaluate the conclusions and recommendations contained in this report considering such changes.

7.2 Roadway Construction

The results of our geotechnical exploration indicate that the subsurface soils encountered along the roadway alignment are generally suitable for support of the proposed roadway improvement after proper subgrade preparation. Non-select soils, muck, clays or debris, if encountered within the limits, should be removed and replaced with select soils in accordance with FDOT Index Nos. 120-002 and 120-001. Site preparation and roadway construction should be in accordance with the latest version of the FDOT Standard Specifications for Road and Bridge Construction and FDOT Standard Specification and Index Nos. 120-002 and 120-001.

Strata No.1 (A-3) and No.2 (A-2-4) should be treated as Select (S) materials in accordance with Index No.

The soils encountered in our borings classified as fine sand to fine sand with silt/clay (A-3) (Stratum 1) and silty fine sand (A-2-4) (Stratum 2) should be treated as Select (S) materials in accordance with Index No. 120-001. However, the A-2-4 may retain excess moisture and may be difficult to compact. Therefore, the contractor should be prepared to adjust moisture content of the unstable subgrade soils as necessary to achieve stability and compaction requirements.

The encountered organic fine sand to muck (A-8) (Stratum 3) should be classified as Muck (M) and is not acceptable for use as fill and should be removed in accordance with Index 120-002. Clayey sand (A-2-6) (Stratum 4) is classified as Plastic (P) and can only be used in embankment construction within the limitation as per index 120-001. If plastic and/or organic material is encountered along the project alignment during construction, at locations that were not indicated in this report or where soil borings were not performed, these materials should be removed in accordance with Index Nos. 120-002 and 120-001.

Roadway construction can proceed in accordance with the latest versions of the FDOT "Standard Specification for Road and Bridge Construction." All fill soils placed for the roadway construction should be selected in accordance with Index No. 120-001. In-place density tests should be performed on the fill soils to verify the specified degree of compaction. The minimum test

frequency should be in accordance with the FDOT Materials, Sampling, Testing, and Reporting Guide.

7.3 Pavement Design Considerations

A total of eight (8) LBR tests were performed on representative samples along the project alignment. Locations of the LBR samples can be found in **Figures 4A** through **4C** in **Appendix A**. Presented below is a table of LBR samples, locations, stratums, and LBR values.

Sample ID	Latitude	Longitude	Road	Depth (feet)	Stratum No.	Maximum LBR Value
LBR 1	28°20'48.70"N	81°38'57.43"W	U.S. 192	1	1	19
LBR 2	28°20'53.09"N	81°38'56.83"W	Bali Blvd	1	1	28
LBR 3	28°20'59.92"N	81°38'44.54"W	Arrowhead Blvd	1	1	16
LBR 4	28°21'15.33"N	81°38'47.74"W	Avalon Rd	1	1	20
LBR 5	28°21'28.58"N	81°38'48.58"W	Grove Blossom Wy	1	1	26
LBR 6	28°21'37.47"N	81°38'42.44"W	Lake Gifford Wy	1	1	63
LBR 7	28°21'52.33"N	81°38'45.71"W	Avalon Rd	1	1	30
LBR-8	28°22'7.54"N	81°38'45.02"W		1	1	24

The LBR test results were evaluated using the FDOT Mean Method and FDOT 90 Percent Method with the results of our analyses presented on **Tables 6 and 7** in **Appendix C**, respectively. The FDOT Mean Method yielded a design LBR value of 15 and the FDOT 90 Percent Method resulted in a design LBR value of 19.

However, we recommend an LBR of 40 for soils to be used in the top 12 inches of the subgrade specifications.

7.4 Pavement Condition Evaluation

A total of four (4) pavement cores were performed, one (1) at each of the following Roads: Bali Boulevard, Arrowhead Boulevard, Grove Blossom Way and Lake Gifford Way. The results of pavement coring are summarized below. The pavement condition was generally good to fair within the vicinity where the cores were taken.

Type of Material (By Layer)	Average Layer Thickness (in)	Layer Thickness Range (in)
Type S	2.8	1.0 – 3.8
Type I	2.0	2.0
ABC	2.5	2.5
Soil Cement Base	6.5	6.5
Bank-Run Shell Base	5.8	1.5 – 9.5
Average Pavement Thickness	4.0	3.0 – 5.8

The data information for the pavement core samples recorded in the field during coring are presented on the Pavement Evaluation and Condition Data Sheet on **Table 5** in **Appendix C**. Locations of the pavement cores can be found in **Figures 4A** and **4B** in **Appendix A**. The general conditions of the existing pavements are shown on **Plates 9** through **12** in **Appendix C**.

7.5 Groundwater Control

Groundwater table fluctuates seasonally depending upon intensity and duration of rainfall, presence and proximity of any artificial drainage facilities. Depending upon groundwater levels at the time of construction, some form of dewatering may be required at some locations to achieve the required compaction. Based on the encountered groundwater, the existing groundwater is controlled by a drainage system consisting of swales, cross drains and storm trenchline sewers.

One of the most critical influences on pavement performance in Central Florida is the relationship between pavement subgrade and the seasonal high groundwater level. Many roadways have been destroyed as a result of deterioration of the base and the base/surface course bond. It is our opinion that at least two (2) feet of clearance be provided between the bottom of the proposed pavement base course and the estimated seasonal high groundwater levels along the roadway alignment.

7.6 Stormwater Management Area

Four (4) new stormwater management ponds, Pond OC, Pond 3B, Pond 3A and Compensation Pond are proposed. The soil conditions encountered at the stormwater management ponds are represented by the boring profiles shown on **Sheets 6** through **10** in **Appendix B**. The majority of borings encountered fine sand to fine sand with varying silt content (Strata 1 and 2). Organic sand to Muck (Stratum 3) was encountered in Pond Borings POC-2, P3A-3, P-3 and P-4. Clayey sand (Stratum 4) was encountered in Pond Borings P3B-1 through P3B-3.

The groundwater table was encountered at elevations varying from about +107 to +111.5 feet NAVD-88, at the time of the field investigation (April 2022, May and July 2025). It should be noted that groundwater levels tend to fluctuate during periods of prolonged drought and extended rainfall, and may be affected by man-made influences.

7.7 Pond Borrow Suitability

We anticipate the contractor would attempt to reuse the soils excavated from the pond and roadway areas for the proposed realignment and modifying the pond. The suitability of the soil types encountered in the ponds is discussed below.

7.7.1 Stratum 1 (A-3)

Stratum 1 soils are classified as Select (S) soils. These soils generally have fine contents of less than 10 percent and are commonly referred to as "clean sands". These soils are highly desirable for use as fill because they drain freely. They may be used as embankment soil provided, they satisfy the graduation requirements indicated in the FDOT Standard Specifications for Road and Bridge Construction.

7.7.2 Stratum 2 (A-2-4)

Stratum 2 soils are classified as Select (S) soils. These soils consist of sands with varying fines contents with little or no plasticity. These soils may retain excess moisture and may be difficult to dry and compact. They require close attention to moisture content to use successfully as fill. Suitable compaction of these soils is generally achieved across a narrow range of moisture. They may be used as embankment soil provided, they satisfy the requirements indicated in the FDOT Standard Specifications for Road and Bridge Construction.

7.7.3 Stratum 3 (A-8)

Stratum 3 soils are classified as Organic Sand (Muck) (M) soils. These soils consist of sands with significant amount of decayed organics. Organic soils (M) excavated within the project limits should be removed and are not to be used for embankment construction when obtained from outside the project limits.

7.7.4 Stratum 4 (A-2-6)

Stratum 4 soils are classified as Plastic (P) soils. These soils consist of sands with significant amount of clay and exhibit slightly plastic to plastic texture. These soils do not drain as Select (S) soils. These soils may be used for embankment construction above the existing ground water level, as long as they are kept out of the subgrade portion of the roadbed. They require close attention to moisture content to use successfully as fill. Suitable compaction of these soils is generally achieved across a narrow range of moisture. Because of complications associated with reusing these soils, it is our recommendation that Stratum 3 should be utilized at least four (4) feet below the base course as per index 120-001 of the FDOT Design Standard; otherwise, they should be disposed and replaced with Select (S) soils.

8.0 CONSTRUCTION CONSIDERATIONS

8.1 Considerations

Roadway construction should be performed in accordance with the appropriate sections of the FDOT current edition of the Standard Specifications for Road and Bridge Construction. The proposed improvement should be cleared, and all debris completely removed, including vegetation and construction debris from the ground surface. Site preparation and roadway construction should be in accordance with Section 110 of the latest version of the FDOT Standard Specifications for Road and Bridge Construction and FDOT Standard Specifications and Index Nos. 120-002 and 120-001.

If needed, backfill should generally consist of select materials (A-3) and (A-2-4) compacted in accordance with the FDOT Standard Specification for Road and Bridge Construction. Removal of organic materials and plastic soils within the project limits should be accomplished in accordance with the FDOT Index 120-002 unless otherwise shown on the plans.

In-place density tests should be performed on the fill soils to verify the specified degree of compaction. The minimum test frequency should be in accordance with the FDOT Materials, Sampling, Testing, and Reporting Guide.

8.2 Excavation

Excavation should be performed in accordance with Section 120 and 125 of the current FDOT Standard Specifications for Road and Bridge Construction. All excavation and below grade construction activities should be in accordance with the Occupational Safety and Health Administration (OSHA). The side slopes of all excavation greater than four feet deep should be sloped at a maximum of 1.5 horizontal to 1 vertical (1.5H: 1V) as required by OSHA. Steeper slopes can be established by a "competent person" (as defined by OSHA) and supported with a system designed by a registered Professional Engineer.

For temporary excavation support system, we recommend the following:

Saturated unit weight	120 pcf
Angle of soil friction	30 degrees
Cohesion	0
Surcharge load	250 psf

9.0 REPORT LIMITATIONS

Our professional services have been performed; our findings and recommendations obtained and prepared in accordance with generally accepted geotechnical engineering principles and practices. **NADIC** is not responsible for the conclusions, opinions or recommendations made by others based on these data.

The scope of the investigation was intended to evaluate soil conditions within the influence of the proposed roadway improvements. The analyses and recommendations submitted in this report are based upon the anticipated location and type of construction and data obtained from the soil borings performed at the locations indicated and does not reflect any variations which may occur among these borings. If any variations become evident during construction, a re-evaluation of the recommendations contained in this report will be necessary after **NADIC** has had an opportunity to observe the characteristics of the conditions encountered.

The scope of services included herein, did not include any environmental assessment for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater, and air, on the site, below and around the site. Any statements in this report or on the boring logs regarding odors, colors, unusual or suspicious items and conditions are strictly for the information of the client.

APPENDIX A

Figure 1	**Vicinity Map**
Figure 2	**USGS Topographic Map**
Figure 3	**USDA/NRCS Soil Maps**
Figures 4A through 4C	**Boring Location Map**



NOT TO SCALE

— Approximate Project Limits — Approximate Pond Limits

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	08-18-2025
			CHECKED BY:	GNN	08-18-2025
			MODIFIED BY:	NA	NA
			CHECKED BY:	NA	NA
			APPROVED BY:	GNN	

NADIC ENGINEERING
GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

ORANGE COUNTY FLORIDA

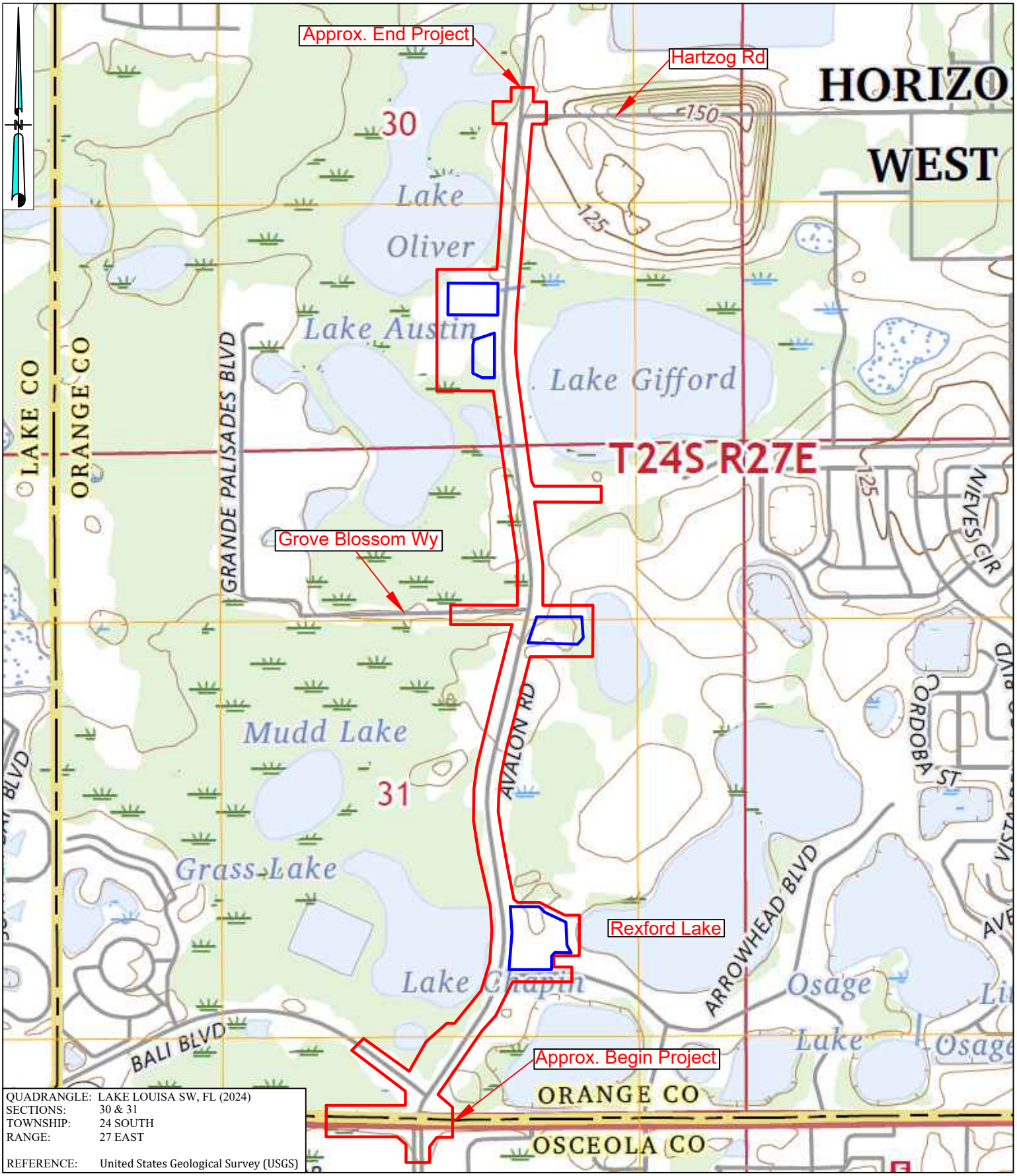
ORANGE COUNTY, FLORIDA

COUNTY	PROJECT No.
ORANGE	Y24-808

FIGURE 1
VICINITY MAP

PROJECT NAME:
AVALON RD (C.R. 545) IMPROVEMENTS (FROM U.S. 192 TO HARTZOG RD)

NADIC PROJECT NO.: PR.GEO-RD24032



QUADRANGLE: LAKE LOUISA SW, FL (2024)
SECTIONS: 30 & 31
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: United States Geological Survey (USGS)

NOT TO SCALE

— Approximate Project Limits — Approximate Pond Limits

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	08-18-2025
			CHECKED BY:	GNN	08-18-2025
			MODIFIED BY:	NA	NA
			CHECKED BY:	NA	NA
			APPROVED BY:	GNN	

NADIC ENGINEERING
GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

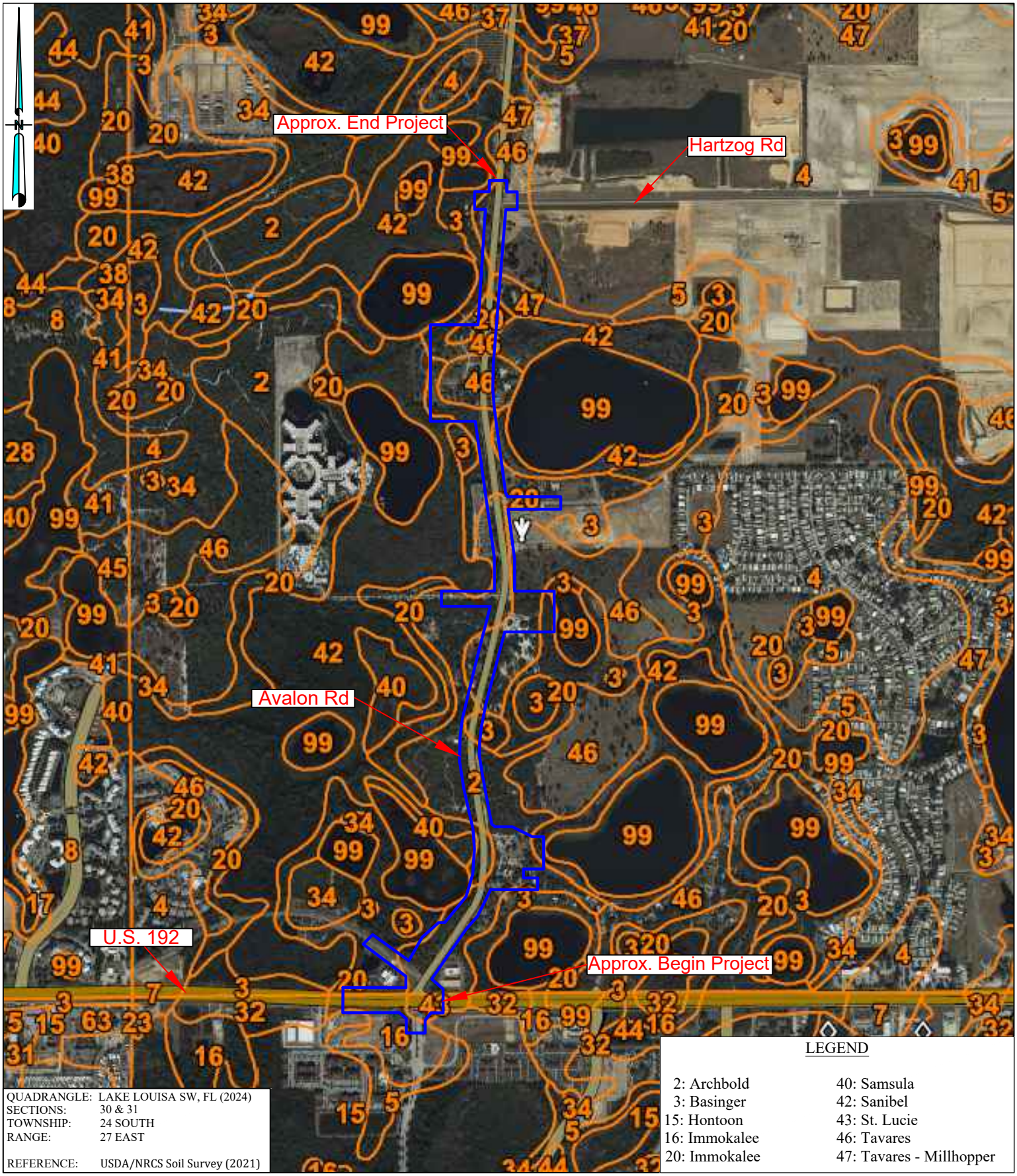
ORANGE COUNTY, FLORIDA

COUNTY	PROJECT No.
ORANGE	Y24-808

FIGURE 2
TOPOGRAPHIC MAP

PROJECT NAME:
AVALON RD (C.R. 545) IMPROVEMENTS (FROM U.S. 192 TO HARTZOG RD)

NADIC PROJECT NO.: PR.GEO-RD24032



QUADRANGLE: LAKE LOUISA SW, FL (2024)
SECTIONS: 30 & 31
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: USDA/NRCS Soil Survey (2021)

LEGEND

2: Archbold	40: Samsula
3: Basinger	42: Sanibel
15: Hontoon	43: St. Lucie
16: Immokalee	46: Tavares
20: Immokalee	47: Tavares - Millhopper

NOT TO SCALE

Approximate Project Limits

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	08-18-2025
			CHECKED BY:	GNN	08-18-2025
			MODIFIED BY:	NA	NA
			CHECKED BY:	NA	NA
			APPROVED BY:	GNN	

NADIC
GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

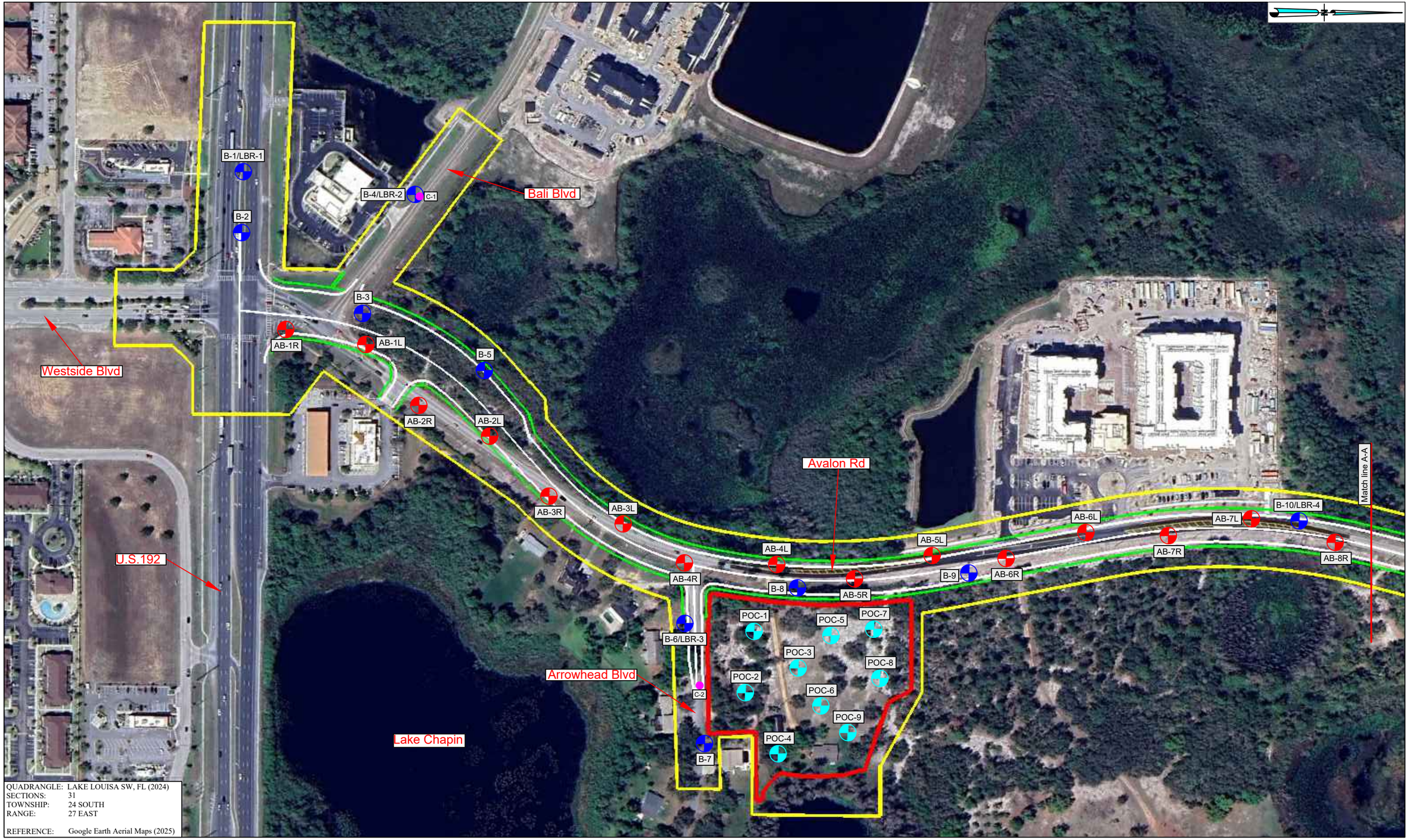
ORANGE COUNTY, FLORIDA

COUNTY	PROJECT No.
ORANGE	Y24-808

FIGURE 3
SOIL SURVEY MAP

PROJECT NAME:
AVALON RD (C.R. 545) IMPROVEMENTS (FROM U.S. 192 TO HARTZOG RD)

NADIC PROJECT NO.: PR.GEO-RD24032



QUADRANGLE: LAKE LOUISA SW, FL (2024)
SECTIONS: 31
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: Google Earth Aerial Maps (2025)

NOT TO SCALE

APPROXIMATE ROADWAY BORING LOCATION
APPROXIMATE RCA BORING LOCATION (2021)
APPROXIMATE POND BORING LOCATION
APPROXIMATE PAVEMENT CORING LOCATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-18-2025
Checked by:	GNN	08-18-2025
Modified by:	NA	NA
Checked by:	NA	NA
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

TITLE:
BORING LOCATION MAP

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

FIGURE NO.
4A

NADIC Project No.: PR.GEO-RD24032

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y'24-808\Project Working File\Autocad



QUADRANGLE: LAKE LOUISA SW, FL (2024)
SECTIONS: 30 & 31
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: Google Earth Aerial Maps (2025)

NOT TO SCALE

- APPROXIMATE ROADWAY BORING LOCATION
- APPROXIMATE RCA BORING LOCATION (2021)
- APPROXIMATE POND BORING LOCATION
- APPROXIMATE PAVEMENT CORING LOCATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-18-2025
Checked by:	GNN	08-18-2025
Modified by:	NA	NA
Checked by:	NA	NA
Approved by:	GNN	

NADIC ENGINEERING
ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY FLORIDA

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

TITLE:
BORING LOCATION MAP

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

FIGURE NO.
4B

NADIC Project No.: PR.GEO-RD24032

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad



QUADRANGLE: LAKE LOUISA SW, FL (2024)
SECTIONS: 30
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: Google Earth Aerial Maps (2025)

NOT TO SCALE

APPROXIMATE ROADWAY BORING LOCATION
APPROXIMATE RCA BORING LOCATION (2021)
APPROXIMATE POND BORING LOCATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-18-2025
Checked by:	GNN	08-18-2025
Modified by:	NA	NA
Checked by:	NA	NA
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

TITLE:
BORING LOCATION MAP

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

FIGURE NO.
4C

NADIC Project No.: PR.GEO-RD24032

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad

APPENDIX B

Sheet 1	**Roadway Soil Survey**
Sheets 2 through 5	**Report of Roadway Borings**
Sheets 6 through 10	**Report of Pond Borings**
Sheets 11 through 15	**Report of Muck Probing**

NADIC ENGINEERING SERVICES, INC

ROADWAY CROSS SECTION OF SOIL SURVEY

REPORT OF TESTS

PROJECT No.: PR.GEO-RD24032
PROJECT DESCRIPTION: AVALON ROAD (C.R. 545) IMPROVEMENTS (FROM U.S. 192 TO HARTZOG ROAD)
SUBMITTED BY: NADIC

QUADRANGLE: LAKE LOUISA SW, FLORIDA
SECTION: 30 & 31
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

DATE REPORTED: AUGUST, 2025

	ORGANIC CONTENT		MOISTURE CONTENT		SIEVE ANALYSIS RESULTS % PASSING						ATTERBERG LIMITS (%)					CORROSION TEST RESULTS					SUBSTRUCTURE ENVIRONMENTAL CLASSIFICATION	
STRATUM NO.	No. OF TESTS	% ORGANIC	No. OF TESTS	% MOISTURE CONTENT	No. OF TESTS	% PASSING 10 MESH	% PASSING 40 MESH	% PASSING 60 MESH	% PASSING 100 MESH	% PASSING 200 MESH	No. OF TESTS	LIQUID LIMIT	PLASTICITY INDEX	AASHTO GROUP	DESCRIPTION	No. OF TESTS	pH	RESISTIVITY OHM-CM	CHLORIDES PPM	SULFATE PPM	CONCRETE	STEEL
1	-	-	31	3-25	26 (FULL)	99-100	73-98	32-80	5-16	1-8	-	-	-	A-3	BROWN TO GRAY FINE SAND TO FINE SAND WITH SILT/CLAY, OCCASIONALLY WITH ROOTS, ORGANICS, LIMEROCK AND SHELL FRAGMENTS	9	6.5-8.3	3,980-56,500	0-30	0-33	S-M	S-M
2	-	-	5	17-44	5 (FULL)	99-100	72-99	27-79	13-31	12-17	-	-	-	A-2-4	BROWN TO GRAY SILTY SAND, OCCASIONALLY WITH ORGANICS	-	-	-	-	-	-	-
3	7	3-50	7	20-179	7 (FULL)	98-100	49-92	24-66	10-50	6-48	-	-	-	A-8	DARK BROWN TO DARK GRAY ORGANIC SAND TO MUCK	-	-	-	-	-	-	-
4	-	-	1	16	1 (FULL)	100	84	62	35	29	1	28	13	A-2-6	LIGHT BROWN TO GRAY CLAYEY SAND	-	-	-	-	-	-	-

NOTES:

(1) STRATA BOUNDARIES ARE APPROXIMATE AND REPRESENT SOIL STRATA AT EACH TEST HOLE LOCATION ONLY. ANY STRATUM CONNECTING LINES SHOWN ARE FOR ESTIMATING EARTHWORK ONLY AND DO NOT INDICATE ACTUAL STRATUM LIMITS. SUBSURFACE VARIATIONS BETWEEN BORINGS SHOULD BE ANTICIPATED AS INDICATED IN FDOT SECTION 2-4. FOR FURTHER DETAILS SEE FDOT STANDARD SPECIFICATIONS SECTION 120-3.

(2) SOIL PARAMETER NOT TESTED DENOTED AS "-" ABOVE.

(3) ▼ INDICATES WATER TABLE WHERE ENCOUNTERED AT THE TIME OF SURVEY.
GNE INDICATES GROUNDWATER LEVEL NOT ENCOUNTERED AT THE TIME OF SURVEY.
▽ INDICATES ESTIMATED SEASONAL HIGH WATER LEVEL.

(4) REMOVAL OF PLASTIC AND HIGH PLASTIC MATERIAL OCCURING WITHIN THE ROADWAY SHALL BE ACCOMPLISHED IN ACCORDANCE WITH FDOT STANDARD INDEX No. 120-002 UNLESS OTHERWISE STATED IN THE PLANS. THE MATERIAL UTILIZED IN EMBANKMENT CONSTRUCTION SHALL BE IN ACCORDANCE WITH FDOT STANDARD INDEX No. 120-001.

(5) STRATA 1 AND 2 SHALL BE TREATED AS SELECT (S) MATERIALS PER FDOT STANDARD INDEX No. 120-001.

(6) STRATUM 3 SHALL BE TREATED AS MUCK (M) MATERIAL PER FDOT INDEX No. 120-001.

(7) STRATUM 4 SHALL BE TREATED AS PLASTIC (P) MATERIAL PER FDOT STANDARD INDEX No. 120-001.

(8) ENVIRONMENTAL CLASSIFICATION:

M INDICATES MODERATELY AGGRESSIVE.
S INDICATES SLIGHTLY AGGRESSIVE.

REVISION		
DATE	BY	DESCRIPTION

NADIC ENGINEERING — Civil, Geotechnical, Environmental, Consulting Engineering

ENGINEER OF RECORD:
GODWIN N. NNADI, P.E. #50637
NADIC
601 N. Hart Boulevard
ORLANDO, FLORIDA 32818

SEAL:

ORANGE COUNTY FLORIDA

ORANGE COUNTY, FLORIDA

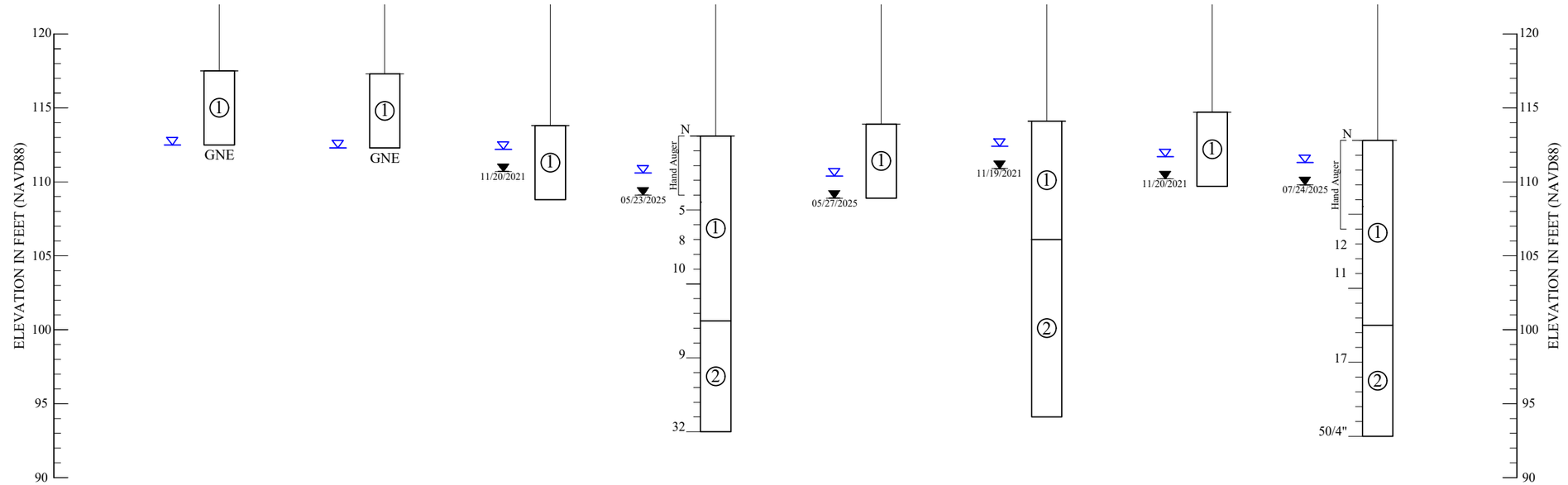
COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE: ROADWAY SOIL SURVEY
PROJECT NO.
PROJECT NAME: AVALON ROAD (C.R. 545) IMPROVEMENTS (FROM U.S. 192 TO HARTZOG ROAD)
SHEET NO.

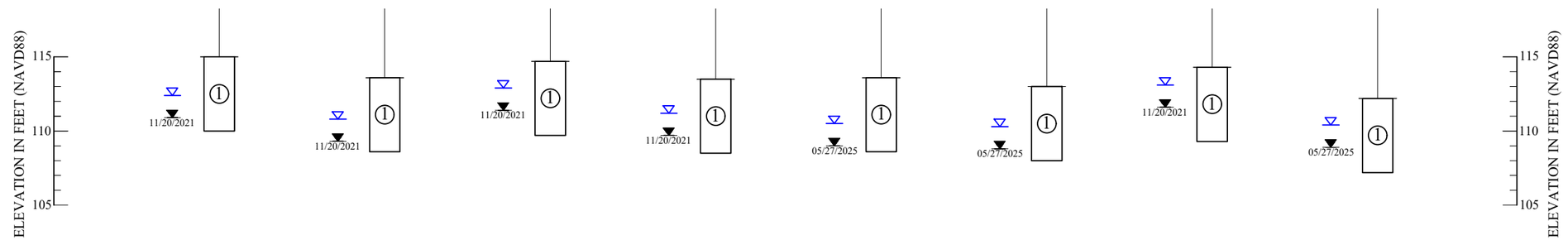
NADIC SHEET NO. 1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

Boring No.:	B-1	B-2	AB-1R*	B-3	B-4	AB-1L*	AB-2R*	B-5
Approx. Latitude:	28°20'48.68"N	28°20'48.65"N	28°20'49.79"N	28°20'51.75"N	28°20'53.07"N	28°20'51.76"N	28°20'53.14"N	28°20'54.81"N
Approx. Longitude:	81°38'57.37"W	81°38'55.65"W	81°38'52.93"W	81°38'53.36"W	81°38'56.80"W	81°38'52.53"W	81°38'50.79"W	81°38'51.76"W
Approx. Elevation:	117.5'	117.3'	113.8'	113.1'	113.9'	114.1'	114.7'	112.8'
Date Drilled:	05-27-2025	05-27-2025	11-20-2021	05-23-2025	05-27-2025	11-19-2021	11-20-2021	07/24/2025



Boring No.:	AB-2L*	AB-3R*	AB-3L*	AB-4R*	B-6	B-7	AB-4L*	B-8
Approx. Latitude:	28°20'54.98"N	28°20'56.43"N	28°20'58.34"N	28°20'59.87"N	28°20'59.87"N	28°21'0.39"N	28°21'2.26"N	28°21'2.70"N
Approx. Longitude:	81°38'49.87"W	81°38'48.27"W	81°38'47.47"W	81°38'46.39"W	81°38'44.57"W	81°38'41.21"W	81°38'46.34"W	81°38'45.65"W
Approx. Elevation:	115.0'	113.6'	114.7'	113.5'	113.6'	113.0'	114.3'	112.2'
Date Drilled:	11-20-2021	11-20-2021	11-20-2021	11-20-2021	05-27-2025	05-27-2025	11-20-2021	05-27-2025



LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

② Brown to gray silty SAND, occasionally with organics, (A-2-4)

05/23/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

GNE Groundwater not encountered within the top 10 feet during time of field exploration

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

(*) Roadway Conceptual Analysis (RCA) Borings

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)
Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

ENVIRONMENTAL CLASSIFICATION

B-2

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Slightly Aggressive

B-3

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Moderately Aggressive

B-6

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Slightly Aggressive

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

NADIC ENGINEERING
ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY FLORIDA

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF ROADWAY BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

SHEET NO.

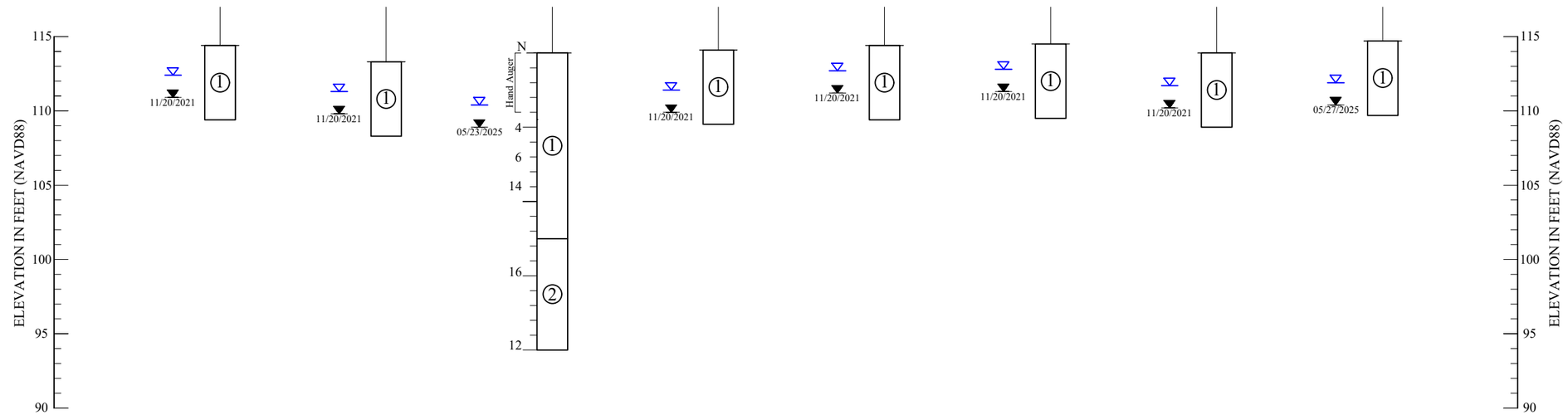
NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 2

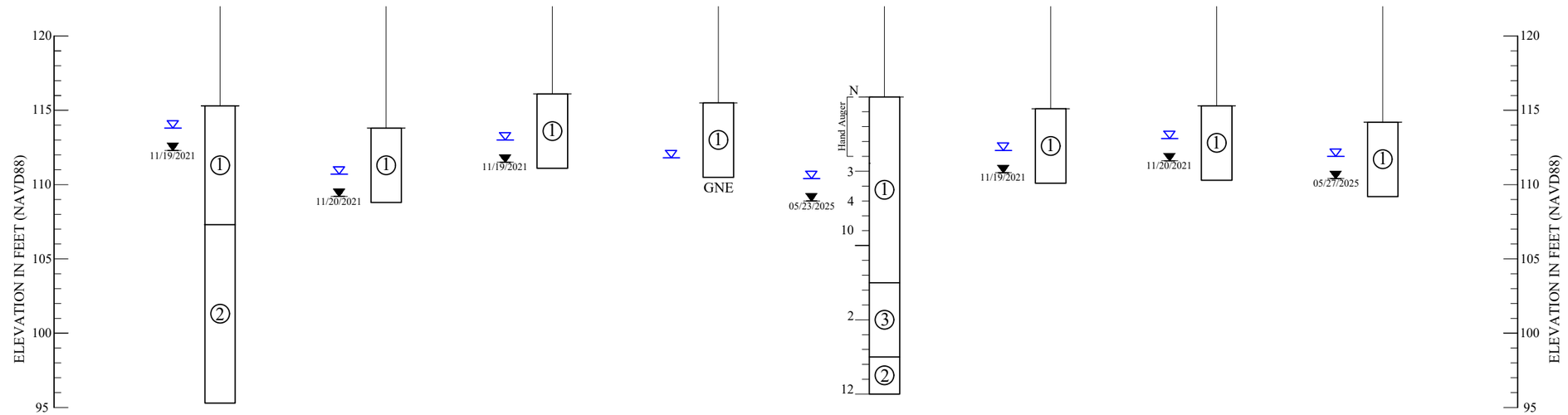
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad

Boring No.:	AB-5R*	AB-5L*	B-9	AB-6R*	AB-6L*	AB-7R*	AB-7L*	B-10
Approx. Latitude:	28°21'4.09"N	28°21'6.05"N	28°21'7.01"N	28°21'8.07"N	28°21'9.96"N	28°21'12.03"N	28°21'14.11"N	28°21'15.30"N
Approx. Longitude:	81°38'46.00"W	81°38'46.66"W	81°38'46.11"W	81°38'46.63"W	81°38'47.34"W	81°38'47.28"W	81°38'47.75"W	81°38'47.75"W
Approx. Elevation:	114.4'	113.3'	113.9'	114.1'	114.4'	114.5'	113.9'	114.7'
Date Drilled:	11-20-2021	11-20-2021	05-23-2025	11-20-2021	11-20-2021	11-20-2021	11-20-2021	05-27-2025



Boring No.:	AB-8R*	AB-8L*	AB-9R*	AB-9L*	B-11	AB-10R*	AB-10L*	B-12
Approx. Latitude:	28°21'16.17"N	28°21'18.12"N	28°21'19.99"N	28°21'21.95"N	28°21'22.99"N	28°21'23.78"N	28°21'25.84"N	28°21'26.73"N
Approx. Longitude:	81°38'47.14"W	81°38'46.98"W	81°38'46.06"W	81°38'45.99"W	81°38'45.83"W	81°38'44.97"W	81°38'44.91"W	81°38'43.99"W
Approx. Elevation:	115.3'	113.9'	116.1'	115.5'	115.9'	115.1'	115.3'	114.2'
Date Drilled:	11-19-2021	11-20-2021	11-19-2021	11-20-2021	05-23-2025	11-19-2021	11-20-2021	05-27-2025



LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

② Brown to gray silty SAND, occasionally with organics, (A-2-4)

③ Dark brown to dark gray organic SAND to MUCK, (A-8)

05/23/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

GNE Groundwater not encountered within the top 10 feet during time of field exploration

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

(*) Roadway Conceptual Analysis (RCA) Borings

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)

Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

ENVIRONMENTAL CLASSIFICATION

B-10

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Slightly Aggressive

B-12

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Slightly Aggressive

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF ROADWAY BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS (FROM U.S. 192 TO HARTZOG ROAD)

SHEET NO.

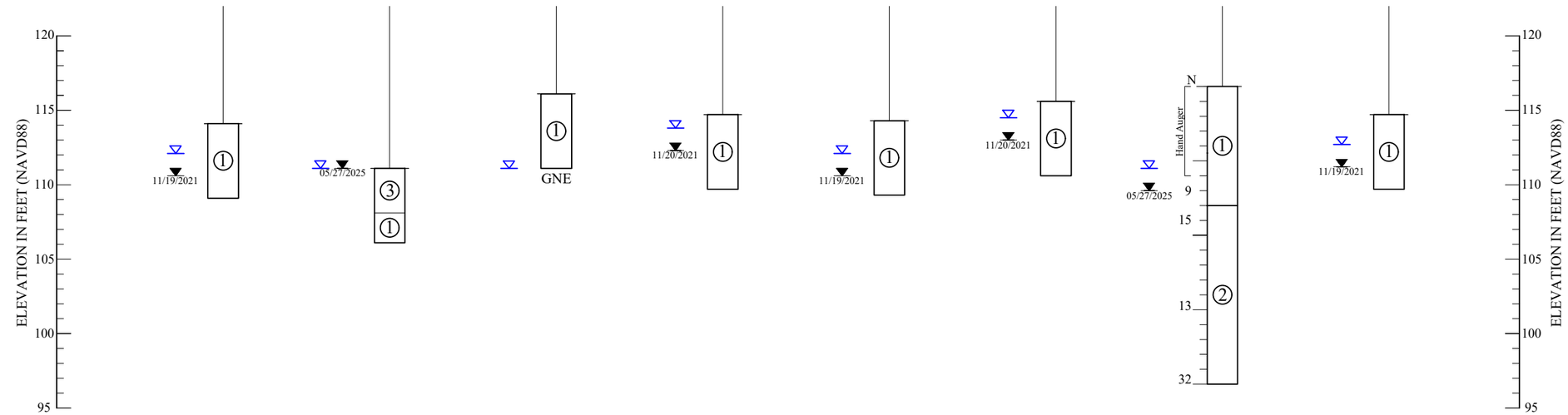
NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 3

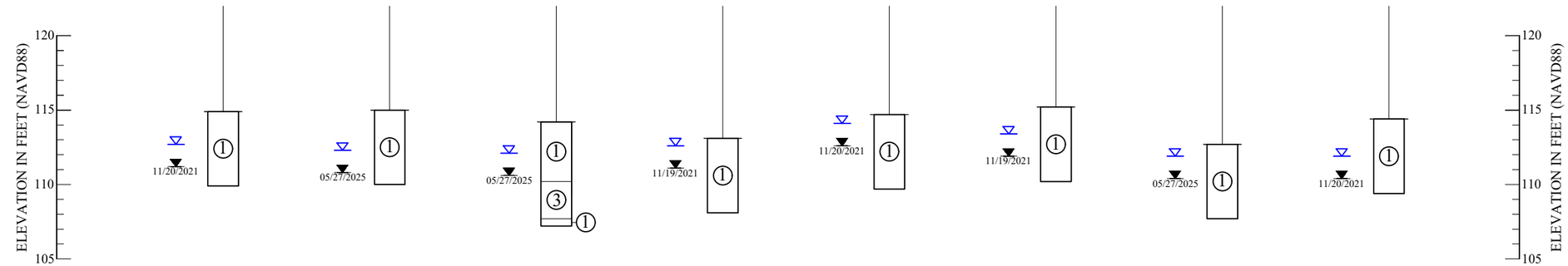
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad

Boring No.:	AB-11R*	B-13	B-14	AB-11L*	AB-12R*	AB-12L*	B-15	AB-13R*
Approx. Latitude:	28°21'27.69"N	28°21'27.89"N	28°21'28.49"N	28°21'29.64"N	28°21'31.70"N	28°21'33.53"N	28°21'33.80"N	28°21'35.58"N
Approx. Longitude:	81°38'43.92"W	81°38'46.25"W	81°38'48.57"W	81°38'44.14"W	81°38'43.53"W	81°38'44.42"W	81°38'43.61"W	81°38'44.16"W
Approx. Elevation:	114.1'	111.1'	116.1'	114.7'	114.3'	115.6'	116.6'	114.7'
Date Drilled:	11-19-2021	05-27-2025	05-27-2025	11-20-2021	11-19-2021	11-20-2021	05-27-2025	11-19-2021



Boring No.:	AB-13L*	B-16	B-17	AB-14R*	AB-14L*	AB-15R*	B-18	AB-15L*
Approx. Latitude:	28°21'37.19"N	28°21'37.30"N	28°21'37.91"N	28°21'39.17"N	28°21'41.09"N	28°21'43.16"N	28°21'44.98"N	28°21'45.03"N
Approx. Longitude:	81°38'44.98"W	81°38'42.42"W	81°38'39.14"W	81°38'44.72"W	81°38'45.67"W	81°38'45.38"W	81°38'45.50"W	81°38'46.10"W
Approx. Elevation:	114.9'	115.0'	114.2'	113.1'	114.7'	115.2'	112.7'	114.4'
Date Drilled:	11-20-2021	05-27-2025	05-27-2025	11-19-2021	11-20-2021	11-19-2021	05-27-2025	11-20-2021



LEGEND

- ① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)
- ② Brown to gray silty SAND, occasionally with organics, (A-2-4)
- ③ Dark brown to dark gray organic SAND to MUCK, (A-8)

05/23/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

GNE Groundwater not encountered within the top 10 feet during time of field exploration

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

(*) Roadway Conceptual Analysis (RCA) Borings

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)

Spoon Inside Diameter	1 3/8 in.
Spoon Outside Diameter	2 in.
ASTM Standard Automatic Hammer	
Hammer Weight	140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

ENVIRONMENTAL CLASSIFICATION

B-16

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Slightly Aggressive

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

NADIC ENGINEERING
ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY FLORIDA

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF ROADWAY BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

SHEET NO.

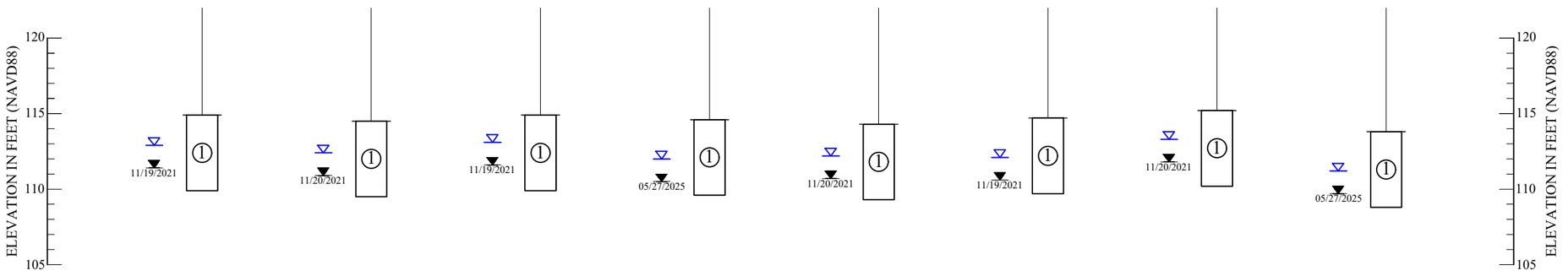
NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 4

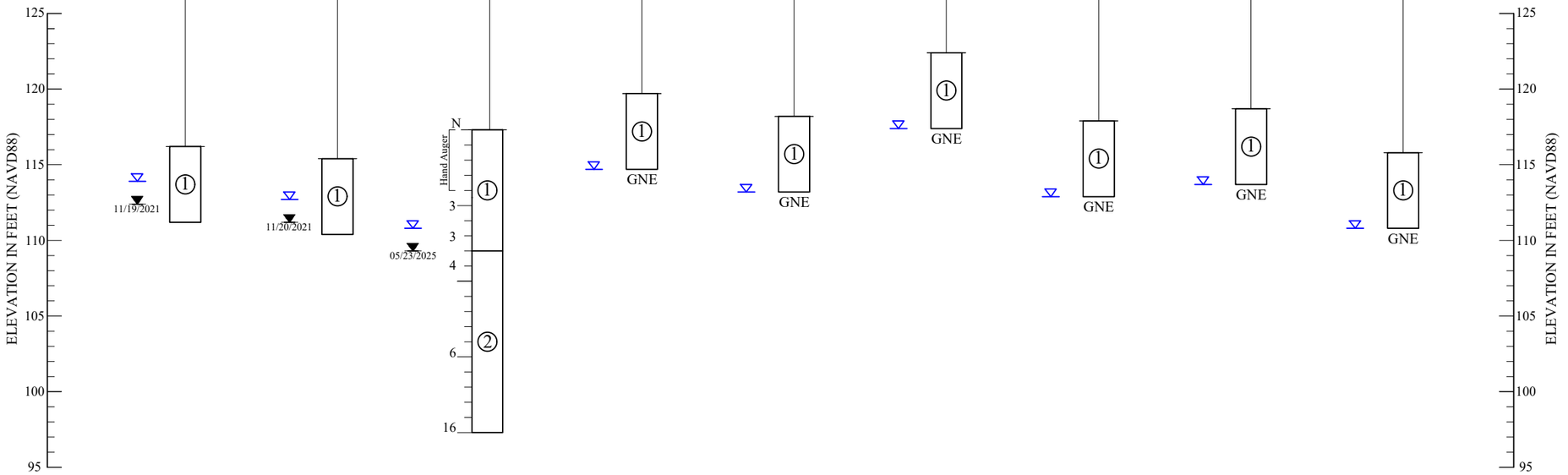
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad

Boring No.:	AB-16R*	AB-16L*	AB-17R*	B-19	AB-17L*	AB-18R*	AB-18L*	B-20
Approx. Latitude:	28°21'47.09"N	28°21'49.08"N	28°21'51.07"N	28°21'52.20"N	28°21'53.08"N	28°21'55.04"N	28°21'57.07"N	28°21'58.57"N
Approx. Longitude:	81°38'45.93"W	81°38'46.38"W	81°38'45.87"W	81°38'45.80"W	81°38'46.14"W	81°38'45.56"W	81°38'45.72"W	81°38'45.67"W
Approx. Elevation:	114.9'	114.5'	114.9'	114.6'	114.3'	114.7'	115.2'	113.8'
Date Drilled:	11-19-2021	11-20-2021	11-19-2021	05-27-2025	11-20-2021	11-19-2021	11-20-2021	05-27-2025



Boring No.:	AB-19R*	AB-19L*	B-21	AB-20R*	AB-20L*	AB-21R*	B-22	B-23	B-24
Approx. Latitude:	28°21'59.04"N	28°22'1.09"N	28°22'1.61"N	28°22'3.01"N	28°22'5.00"N	28°22'6.89"N	28°22'7.25"N	28°22'8.78"N	28°22'10.93"N
Approx. Longitude:	81°38'45.18"W	81°38'45.36"W	81°38'44.71"W	81°38'44.78"W	81°38'45.03"W	81°38'44.28"W	81°38'44.97"W	81°38'44.15"W	81°38'44.61"W
Approx. Elevation:	116.2'	115.4'	117.3'	119.7'	118.2'	122.4'	117.9'	118.7'	115.8'
Date Drilled:	11-19-2021	11-20-2021	05-23-2025	11-19-2021	11-19-2021	11-19-2021	05-27-2025	05-27-2025	05-27-2025



LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

② Brown to gray silty SAND, occasionally with organics, (A-2-4)

05/23/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

GNE Groundwater not encountered within the top 10 feet during time of field exploration

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

(*) Roadway Conceptual Analysis (RCA) Borings

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)

Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

ENVIRONMENTAL CLASSIFICATION

B-19

	SUBSTRUCTURE
STEEL:	Slightly Aggressive
CONCRETE:	Slightly Aggressive

B-21

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Slightly Aggressive

B-24

	SUBSTRUCTURE
STEEL:	Moderately Aggressive
CONCRETE:	Slightly Aggressive

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF ROADWAY BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

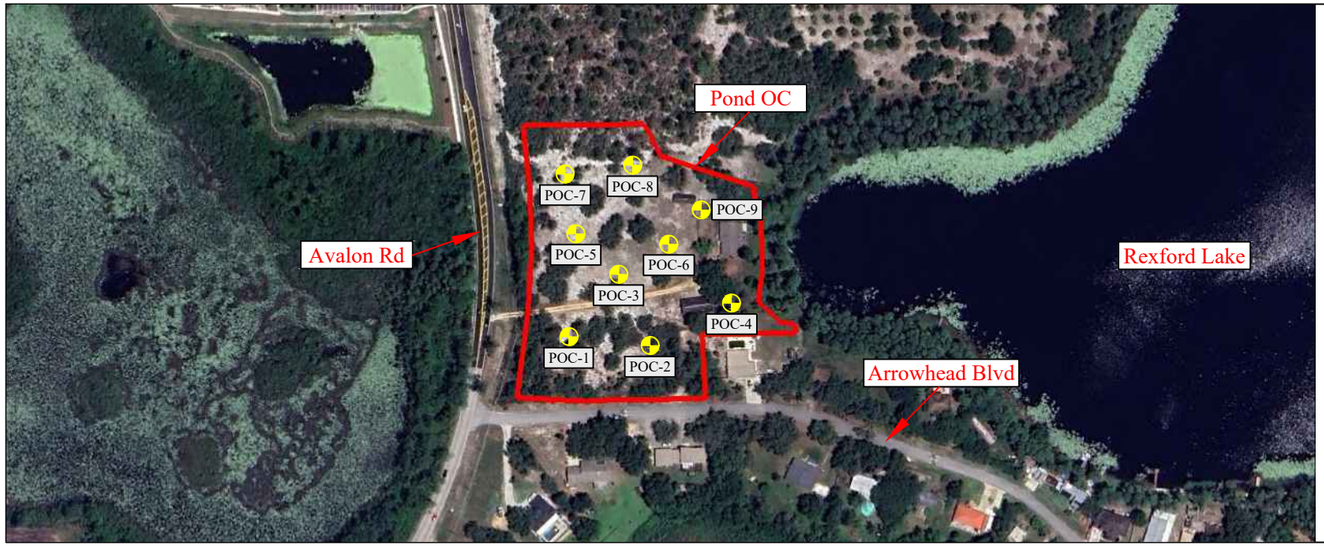
SHEET NO.

NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 5

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad



LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

③ Dark brown to dark gray organic SAND to MUCK, (A-8)

05/27/2025 ▼ Groundwater level encountered on date shown

▽ Estimated seasonal high groundwater level

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

W =	Natural moisture content (%) (FM 1-T265)
-200 =	Percent passing no. 200 U.S. standard sieve (FM 1-T088)
OC =	Organic Content (%) (FM1-T267)
LL =	Liquid limit (%) (FM1-T089)
PI =	Plasticity index (%) (FM1-T090)

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)

Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

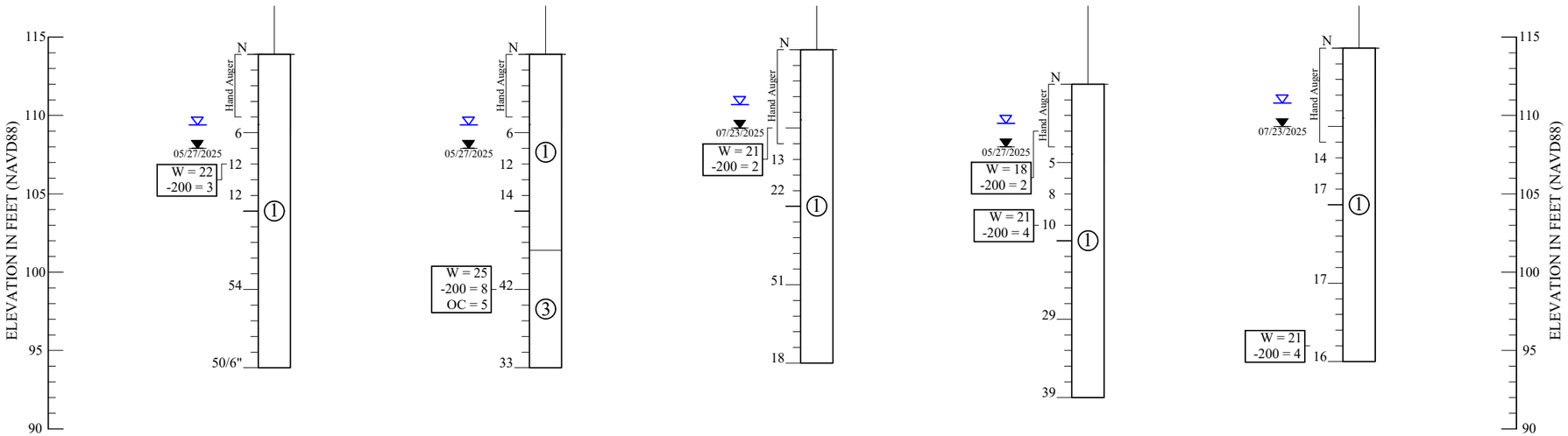
RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

POND OC

Boring No.:	POC-1	POC-2	POC-3	POC-4	POC-5
Approx. Latitude:	28°21'1.63"N	28°21'1.44"N	28°21'2.79"N	28°21'2.27"N	28°21'3.56"N
Approx. Longitude:	81°38'44.42"W	81°38'42.68"W	81°38'43.38"W	81°38'41.00"W	81°38'44.29"W
Approx. Elevation:	113.9'	113.9'	114.2'	112.0'	114.3'
Date Drilled:	05-27-2025	05-27-2025	07-23-2025	05-27-2025	07-23-2025



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

NADIC ENGINEERING
ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY FLORIDA

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF POND BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

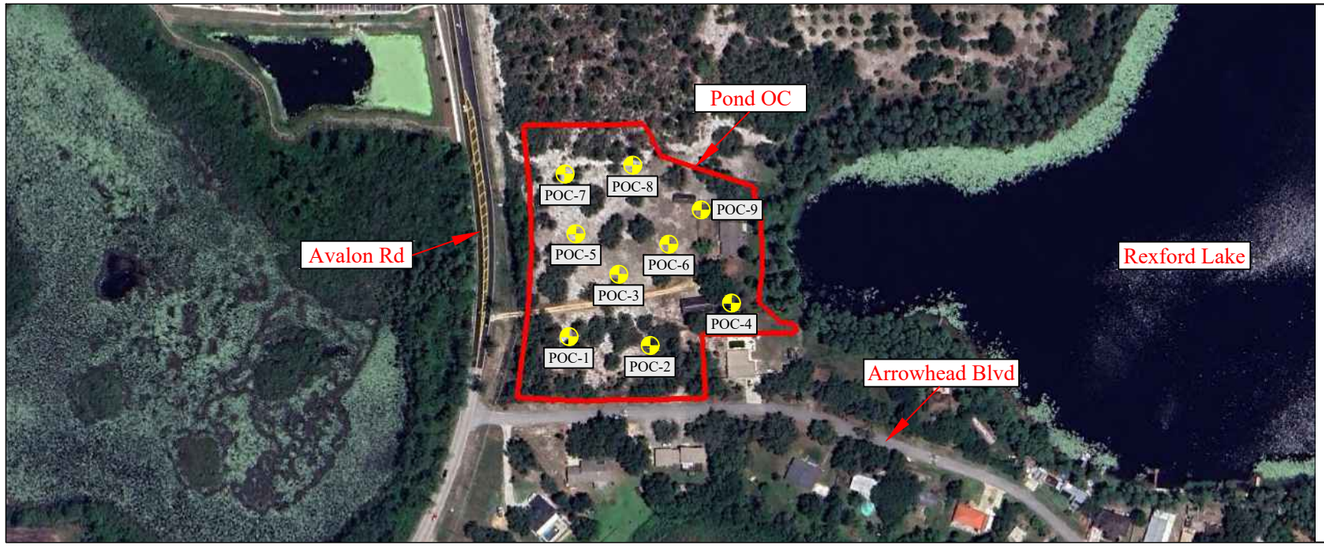
SHEET NO.

NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 6

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad



LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

② Brown to gray silty SAND, occasionally with organics, (A-2-4)

05/27/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

W =	Natural moisture content (%) (FM 1-T265)
-200 =	Percent passing no. 200 U.S. standard sieve (FM 1-T088)
OC =	Organic Content (%) (FM1-T267)
LL =	Liquid limit (%) (FM1-T089)
PI =	Plasticity index (%) (FM1-T090)

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)

Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

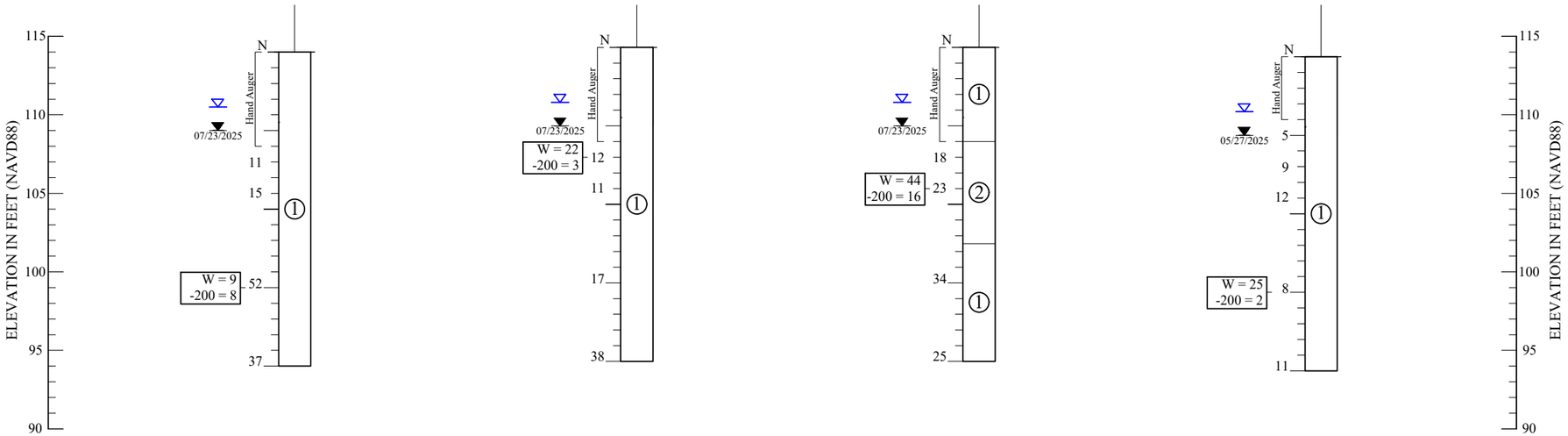
RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

POND OC

Boring No.:	POC-6	POC-7	POC-8	POC-9
Approx. Latitude:	28°21'3.37"N	28°21'4.65"N	28°21'4.80"N	28°21'4.02"N
Approx. Longitude:	81°38'42.34"W	81°38'44.49"W	81°38'43.06"W	81°38'41.58"W
Approx. Elevation:	114.0'	114.3'	114.3'	113.7'
Date Drilled:	07-23-2025	07-23-2025	07-23-2025	05-27-2025



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF POND BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

SHEET NO.

NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 7

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad





APPROXIMATE BORING LOCATION

QUADRANGLE: LAKE LOUISA SW, FL
SECTION: 31
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: Google Earth Aerial Maps (2025)

NOT TO SCALE

LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

② Brown to gray silty SAND, occasionally with organics, (A-2-4)

④ Light brown to gray clayey SAND, (A-2-6)

05/27/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

W =	Natural moisture content (%) (FM 1-T265)
-200 =	Percent passing no. 200 U.S. standard sieve (FM 1-T088)
LL =	Liquid limit (%) (FM1-T089)
PI =	Plasticity index (%) (FM1-T090)

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)

Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

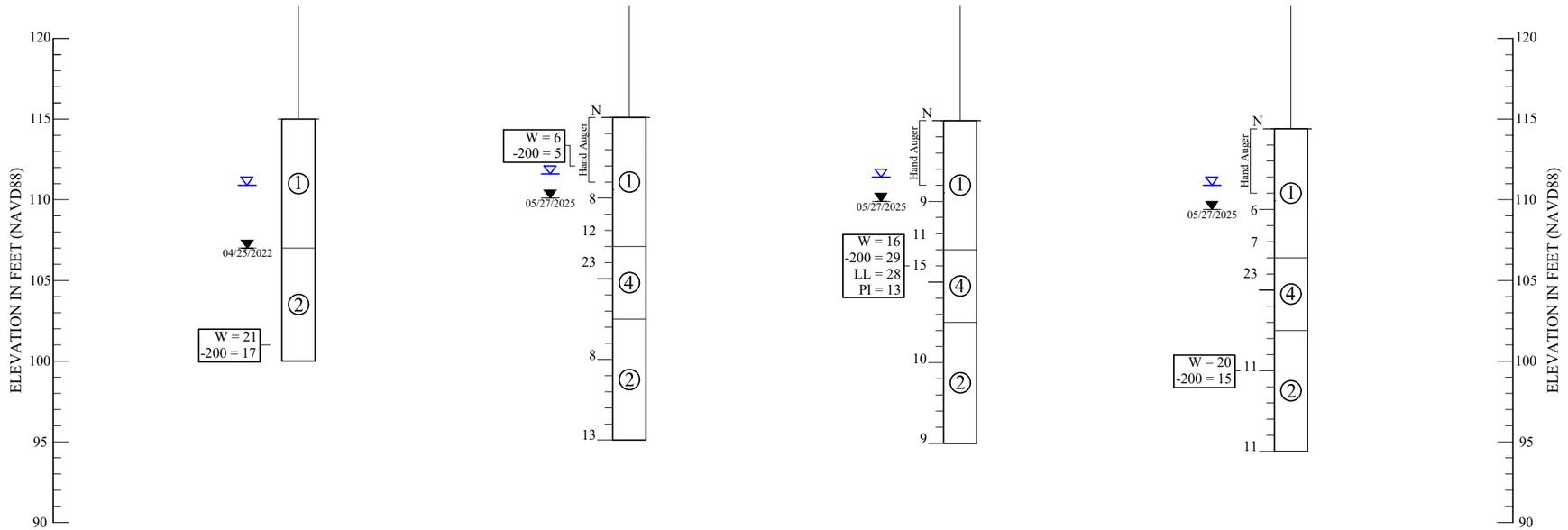
RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

POND 3B

Boring No.:	P-3A*	P3B-1	P3B-2	P3B-3
Approx. Latitude:	28°21'26.71"N	28°21'26.70"N	28°21'26.75"N	28°21'27.06"N
Approx. Longitude:	81°38'42.85"W	81°38'41.79"W	81°38'40.65"W	81°38'39.80"W
Approx. Elevation:	115.0'	115.1'	114.9'	114.4'
Date Drilled:	04-25-2022	05-27-2025	05-27-2025	05-27-2025



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF POND BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

SHEET NO.

NADIC Project No. PR.GEO-RD24032

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

NADIC SHEET NO. 8



APPROXIMATE BORING LOCATION

QUADRANGLE: LAKE LOUISA SW, FL
SECTION: 30
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: Google Earth Aerial Maps (2025)

NOT TO SCALE

LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

② Brown to gray silty SAND, occasionally with organics, (A-2-4)

③ Dark brown to dark gray organic SAND to MUCK, (A-8)

05/27/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

W =	Natural moisture content (%) (FM 1-T265)
-200 =	Percent passing no. 200 U.S. standard sieve (FM 1-T088)
OC =	Organic Content (%) (FM1-T267)
LL =	Liquid limit (%) (FM1-T089)
PI =	Plasticity index (%) (FM1-T090)

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)
Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

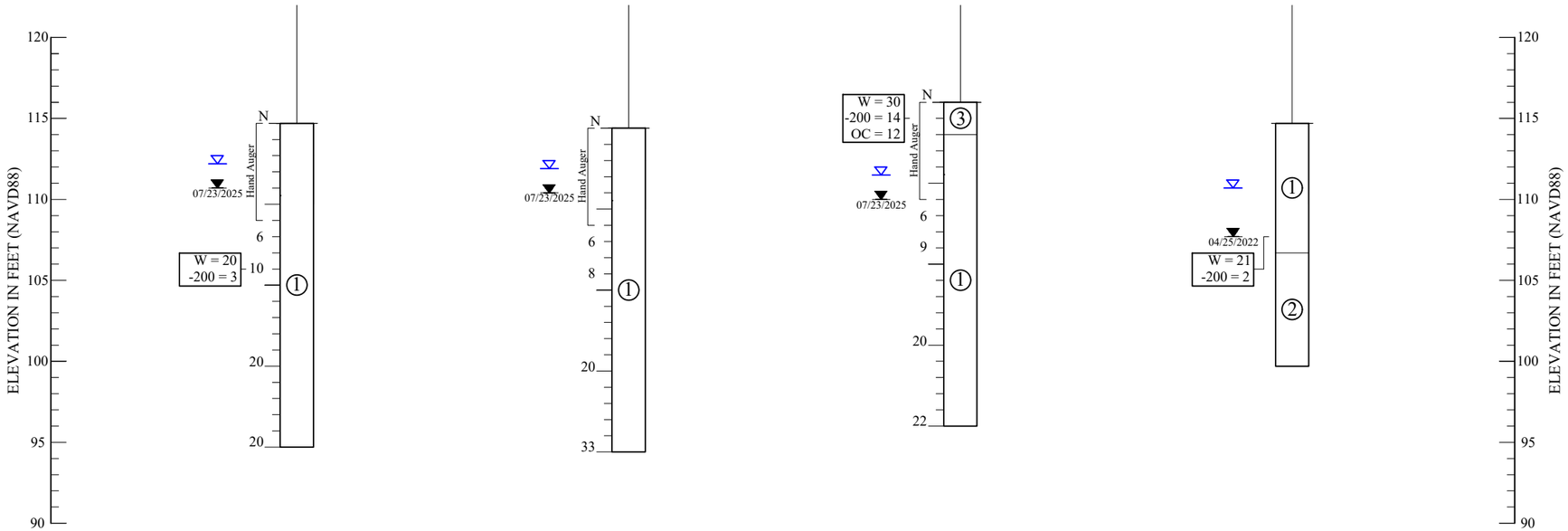
RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

POND 3A

Boring No.:	P3A-1	P3A-2	P3A-3	P-4A*
Approx. Latitude:	28°21'47.37"N	28°21'48.24"N	28°21'49.38"N	28°21'50.30"N
Approx. Longitude:	81°38'46.97"W	81°38'47.96"W	81°38'47.41"W	81°38'46.73"W
Approx. Elevation:	114.7'	114.4'	116.0'	114.7'
Date Drilled:	07-23-2025	07-23-2025	07-23-2025	04-25-2022



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF POND BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

SHEET NO.

NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 9

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad





APPROXIMATE BORING LOCATION

QUADRANGLE: LAKE LOUISA SW, FL
SECTION: 30
TOWNSHIP: 24 SOUTH
RANGE: 27 EAST

REFERENCE: Google Earth Aerial Maps (2025)

NOT TO SCALE

LEGEND

① Brown to gray fine SAND to fine SAND with silt/clay, occasionally with roots, organics, limerock and shell fragments, (A-3)

② Brown to gray silty SAND, occasionally with organics, (A-2-4)

③ Dark brown to dark gray organic SAND to MUCK, (A-8)

05/27/2025 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

(A-3) A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination

W =	Natural moisture content (%) (FM 1-T265)
-200 =	Percent passing no. 200 U.S. standard sieve (FM 1-T088)
OC =	Organic Content (%) (FM1-T267)
LL =	Liquid limit (%) (FM1-T089)
PI =	Plasticity index (%) (FM1-T090)

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)
Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Automatic Hammer
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

GRANULAR MATERIALS

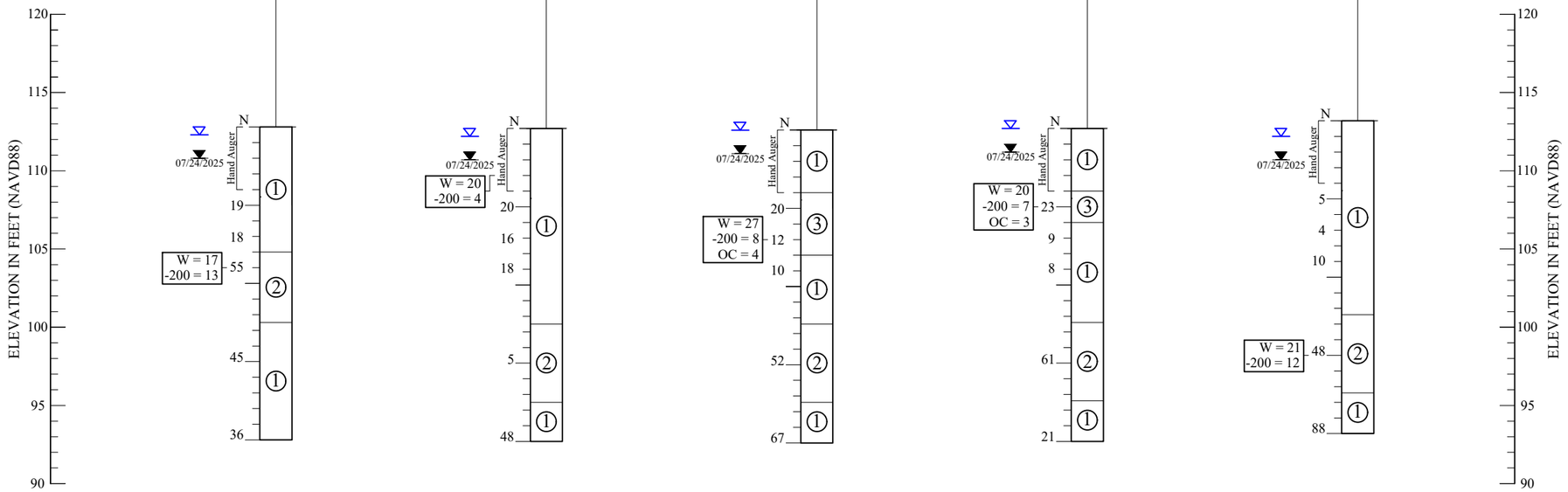
RELATIVE DENSITY	SPT (BLOWS/FT.)
Very loose	Less than 3
Loose	3-7
Medium Dense	7-21
Dense	21-35
Very Dense	Greater than 35

SILTS AND CLAYS

CONSISTENCY	SPT (BLOWS/FT.)
Very soft	Less than 1
Soft	1-3
Firm	3-6
Stiff	6-11
Very Stiff	11-21
Hard	Greater than 21

COMPENSATION POND

Boring No.:	P-1	P-2	P-3	P-4	P-5
Approx. Latitude:	28°21'51.83"N	28°21'52.95"N	28°21'52.85"N	28°21'52.19"N	28°21'53.42"N
Approx. Longitude:	81°38'47.72"W	81°38'47.49"W	81°38'48.87"W	81°38'50.22"W	81°38'50.23"W
Approx. Elevation:	112.8'	112.7'	112.6'	112.7'	113.2'
Date Drilled:	07-24-2025	07-24-2025	07-24-2025	07-24-2025	07-24-2025



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
Drawn by:	MB	08-19-2025
Checked by:	GNN	08-19-2025
Modified by:	N/A	N/A
Checked by:	N/A	N/A
Approved by:	GNN	

ENGINEER OF RECORD:
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
GODWIN N. NNADI, P.E. NO. 50637

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT NO.
ORANGE	Y24-808

SHEET TITLE:
REPORT OF POND BORINGS

PROJECT NAME:
AVALON ROAD (C.R. 545) IMPROVEMENTS
(FROM U.S. 192 TO HARTZOG ROAD)

SHEET NO.

NADIC Project No. PR.GEO-RD24032

NADIC SHEET NO. 10

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

C:\Users\mbridges\Nadic Engineering Services, Inc\Engineering - Geotechnical\Orlando\Roadway (RD)\2024\PR.GEO-RD24032 - Avalon Road Design Y24-808\Project Working File\Autocad

APPENDIX C

Table 2	**Summary of Laboratory Test Results**
Table 3	**Corrosion Series Test Results**
Table 5	**Pavement Evaluation and Condition Sheet**
Table 6	**FDOT Mean Method Design LBR Calculations**
Table 7	**FDOT 90 Percent Method Design LBR Calculations**
Figure 5	**FDOT 90 Percent Graph**
Plates 1 through 8	**LBR Calculations**
Plates 9 through 12	**Pavement Cores**

Not included in PSR Appendix H

TABLE 2
SUMMARY OF LABORATORY TEST RESULTS - ROADWAY

Boring No.	Approx. Latitude	Approx. Longitude	Sample Depth (ft)	Stratum No.	Moisture Content (%)	Organic Content (%)	Sieve Analysis (Cumulative Percent Passing)								Atterberg Limits (%)		AASHTO[1] Classification
							½"	#4	#10	#20	#40	#60	#100	#200	Liquid Limit	Plasticity Index	
B-1	28°20'48.68"N	81°38'57.37"W	3	1	5	-	100	100	99	98	85	40	14	8	-	-	A-3
AB-1L*	28°20'51.76"N	81°38'52.53"W	7	1	20	-	100	100	100	100	85	40	7	2	-	-	A-3
B-5	28°20'54.81"N	81°38'51.76"W	9	1	24	-	100	100	100	100	88	44	7	3	-	-	A-3
AB-3R*	28°20'56.43"N	81°38'48.27"W	4	1	10	-	100	100	100	100	86	38	8	2	-	-	A-3
B-6	28°20'59.87"N	81°38'44.57"W	1	1	5	-	100	100	100	100	85	32	5	2	-	-	A-3
B-9	28°21'7.01"N	81°38'46.11"W	3	1	4	-	100	100	100	99	84	34	6	3	-	-	A-3
AB-6R*	28°21'8.07"N	81°38'46.63"W	4	1	6	-	100	99	99	98	84	45	16	5	-	-	A-3
AB-8L*	28°21'18.12"N	81°38'46.98"W	3	1	7	-	100	100	100	100	86	34	5	1	-	-	A-3
AB-10R*	28°21'23.78"N	81°38'44.97"W	3	1	7	-	100	100	100	100	84	35	6	2	-	-	A-3
AB-13L*	28°21'37.19"N	81°38'44.98"W	3	1	12	-	100	100	100	97	82	45	13	6	-	-	A-3
B-19	28°21'52.20"N	81°38'45.80"W	3	1	9	-	100	100	100	100	87	37	6	3	-	-	A-3
AB-18R*	28°21'55.04"N	81°38'45.56"W	4	1	10	-	100	100	100	100	88	39	6	2	-	-	A-3
AB-20L*	28°22'5.00"N	81°38'45.03"W	4	1	4	-	100	100	100	100	84	33	6	2	-	-	A-3
B-22	28°22'7.25"N	81°38'44.97"W	5	1	3	-	100	100	100	99	84	34	6	2	-	-	A-3
B-11	28°21'22.99"N	81°38'45.83"W	15	3	30	5	100	100	100	99	92	66	25	20	-	-	A-8
B-13	28°21'27.89"N	81°38'46.25"W	1	3	179	50	100	100	100	97	86	62	50	48	-	-	A-8
B-17	28°21'37.91"N	81°38'39.14"W	5	3	28	4	100	100	100	98	84	42	11	6	-	-	A-8

[1]American Association of State Highway and Transportation Officials

*Roadway Conceptual Analysis (RCA) Borings

TABLE 2 Continued
SUMMARY OF LABORATORY TEST RESULTS - PONDS

Boring No.	Approx. Latitude	Approx. Longitude	Sample Depth (ft)	Stratum No.	Moisture Content (%)	Organic Content (%)	Sieve Analysis (Cumulative Percent Passing)							Atterberg Limits (%)		AASHTO[1] Classification
							#4	#10	#20	#40	#60	#100	#200	Liquid Limit	Plasticity Index	
POC-1	28°21'1.63"N	81°38'44.42"W	7	1	22	-	100	100	99	87	38	7	3	-	-	A-3
POC-3	28°21'2.79"N	81°38'43.38"W	5	1	21	-	100	100	100	85	34	5	2	-	-	A-3
POC-4	28°21'2.27"N	81°38'41.00"W	3	1	18	-	100	100	99	84	33	5	2	-	-	A-3
			9	1	21	-	100	100	98	85	49	10	4	-	-	A-3
POC-5	28°21'3.56"N	81°38'44.29"W	19	1	24	-	100	100	98	90	54	6	4	-	-	A-3
POC-6	28°21'3.37"N	81°38'42.34"W	15	1	9	-	100	100	92	73	53	12	8	-	-	A-3
POC-7	28°21'4.65"N	81°38'44.49"W	7	1	22	-	100	100	99	87	41	7	3	-	-	A-3
POC-9	28°21'4.02"N	81°38'41.58"W	15	1	25	-	100	100	100	98	80	12	2	-	-	A-3
P3B-1	28°21'26.70"N	81°38'41.79"W	3	1	6	-	100	100	100	87	39	8	5	-	-	A-3
P3A-1	28°21'47.37"N	81°38'46.97"W	9	1	20	-	100	100	98	86	44	6	3	-	-	A-3
P-4A*	28°21'50.30"N	81°38'46.73"W	7	1	21	-	100	100	99	89	48	7	2	-	-	A-3
P-2	28°21'52.95"N	81°38'47.49"W	3	1	20	-	100	100	99	86	41	8	4	-	-	A-3
POC-8	28°21'4.80"N	81°38'43.06"W	9	2	44	-	100	100	95	72	56	31	16	-	-	A-2-4
P-3A*	28°21'26.71"N	81°38'42.85"W	14	2	21	-	100	100	99	86	55	26	17	-	-	A-2-4
P3B-3	28°21'27.06"N	81°38'39.80"W	15	2	20	-	100	100	100	99	79	20	15	-	-	A-2-4
P-1	28°21'51.83"N	81°38'47.72"W	9	2	17	-	100	99	94	78	45	17	13	-	-	A-2-4
P-5	28°21'53.42"N	81°38'50.23"W	15	2	21	-	100	100	99	79	27	13	12	-	-	A-2-4
POC-2	28°21'1.44"N	81°38'42.68"W	15	3	25	5	100	100	88	49	24	10	8	-	-	A-8
P3A-3	28°21'49.38"N	81°38'47.41"W	1	3	30	12	100	98	96	82	45	19	14	-	-	A-8
P-3	28°21'52.85"N	81°38'48.87"W	7	3	27	4	100	100	98	86	46	11	8	-	-	A-8
P-4	28°21'52.19"N	81°38'50.22"W	5	3	20	3	100	100	99	88	47	12	7	-	-	A-8
P3B-2	28°21'26.75"N	81°38'40.65"W	9	4	16	-	100	100	95	84	62	35	29	28	13	A-2-6

[1]American Association of State Highway and Transportation Officials

*Roadway Conceptual Analysis (RCA) Borings

TABLE 3
SUMMARY OF CORROSION SERIES TEST RESULTS

Boring No.	Approximate Latitude & Longitude	Sample Depth (ft)	pH	Chlorides (ppm)	Sulfate (ppm)	Resistivity (ohm-cm)	Substructure Environmental Classification	
							Steel	Concrete
B-2	28°20'48.65"N, 81°38'55.65"W	5	8.3	15	33	10,300	Moderately Aggressive	Slightly Aggressive
B-3	28°20'51.75"N, 81°38'53.36"W	5	6.9	30	Below Detection	19,310	Moderately Aggressive	Moderately Aggressive
B-6	28°20'59.87"N, 81°38'44.57"W	5	6.8	30	3	34,860	Moderately Aggressive	Slightly Aggressive
B-10	28°21'15.30"N, 81°38'47.75"W	5	7.6	15	9	3,980	Moderately Aggressive	Slightly Aggressive
B-12	28°21'26.73"N, 81°38'43.99"W	5	8.0	15	9	8,490	Moderately Aggressive	Slightly Aggressive
B-16	28°21'37.30"N, 81°38'42.42"W	5	7.5	30	6	11,130	Moderately Aggressive	Slightly Aggressive
B-19	28°21'52.20"N, 81°38'45.80"W	5	7.4	Below Detection	Below Detection	10,200	Slightly Aggressive	Slightly Aggressive
B-21	28°22'1.61"N, 81°38'44.71"W	5	6.8	15	Below Detection	56,500	Moderately Aggressive	Slightly Aggressive
B-24	28°22'10.93"N, 81°38'44.61"W	5	6.5	Below Detection	3	41,400	Moderately Aggressive	Slightly Aggressive

Appendix I

- Natural Resources Report (Excerpts)

Table ES-1:
Approximate Wetland and Other Surface Water Impacts Associated with Avalon Road RCA

Wetland/Other Surface Water ID	FLUCFCS Code	Preferred Alignment Impact (ac)*	East Alignment Impact (ac)	West Alignment Impact (ac)	Proposed Pond ID	Proposed Pond Impact (ac)*
WL-3	6410	0.12	--	0.12		
WL-6	6210	0.56	--	0.56	FC2	0.36
WL-7A	6300	0.28	0.28	--		
WL-10	6410	0.42	0.42			
TOTAL		**1.38**	**0.70**	**0.68**		**0.36**

* Impact acreages are based on approximate limits through aerial interpretation and limited ground-truthing activities.

Table ES-2:
Summary of Federally and/or State-Protected Wildlife Species with Potential Involvement During Project Implementation

Scientific Name	Common Name	Protection Status	Findings
		Reptiles	
Plestiodon reynoldsi	Sand skink	FT	Suitable habitat (soils, elevation, location) is within the project corridor. A species-specific survey should be conducted based on the project's final design.
Drymarchon corais couperi	Eastern indigo snake	FT	The current layout results in a determination of "Not Likely to Adversely Affect" this species; however, additional surveys may be warranted based on final design.
Gopherus polyphemus	Gopher tortoise	ST/FC	Burrows were observed within suitable habitat associated with proposed pond locations. During final design, and prior to construction, a survey in accordance with FWC's survey protocol is recommended.
Polyborus plancus audubonii	Audubon's crested caracara	FT	No crested caracaras were observed during site review, and it is anticipated that the proposed roadway improvements will not adversely affect the crested caracara; however, proposed pond locations may require additional surveys based on final design.
Rostrhamus sociabilis	Snail kite	FE	Neither the snail kite nor apple snails were observed; however, if pond locations or alignments shift during final design, additional surveys are recommended.
Aphelocoma coeruluscens	Florida scrub-jay	FT	Although the species was not observed, a species-specific survey in accordance with FWC's protocol is recommended based on final design.
Antigone canadensis pratensis	Florida sandhill crane	ST	Suitable habitat is present for foraging and nesting within and adjacent to the study corridor. It is recommended that, following FWC's survey, a survey protocol be conducted between December and August for active nest sites. If no nest sites are detected, additional coordination with FWC is not required.
Athene cunicularia floridana	Florida burrowing owl	ST	Suitable habitat is present for foraging and burrowing within proposed pond locations. During final design, and prior to construction, a survey in accordance with FWC's survey protocol is recommended.

ROADWAY CONCEPTUAL ANALYSIS
ECOLOGICAL SUMMARY REPORT

Avalon Road
from US 192 to Hartzog Road
County Project Number: Y20-835-CH

Prepared For:
Orange County Public Works Department
4200 South John Young Parkway
Orlando, Florida

On behalf of:
Johnson, Mirmiran & Thompson
615 Crescent Executive Court, Suite 106
Lake Mary, Florida 32746

Prepared By:
MSE Group, LLC
5858 South Semoran Boulevard
Orlando, Florida 32822

June 2022

Table of Contents

Table of Contents ..... **i**

Executive Summary **ES-1**

Wetlands and Other Surface Waters ES-1

1.0 Introduction **1**

2.0 Methodology **1**

2.1 Wetlands and Other Surface Waters 1

2.2 Protected Wildlife Species and Their Habitat 2

3.0 General Site Conditions **2**

3.1 Soils 2

3.2 Land Use 3

3.2.1 Uplands – Developed 3

3.2.2 Uplands – Undeveloped 3

3.2.3 Wetlands and Other Surface Waters 3

4.0 Protected Flora **4**

5.0 Federally and State-Protected Wildlife Species **7**

5.1 Bald Eagle 9

5.2 Federally Protected Wildlife Species 9

5.2.1 Audubon's Crested Caracara 9

5.2.2 Snail Kite 10

5.2.3 Florida Scrub-Jay 10

5.2.4 Red-Cockaded Woodpecker 10

5.2.5 Wood Stork 10

5.2.6 Eastern Indigo Snake 11

5.2.7 Sand Skink 12

5.3 State-Protected Wildlife Species 13

5.3.1 Gopher Tortoise 13

5.3.2 Florida Pine Snake 13

5.3.3 Short-Tailed Snake 14

5.3.4 Florida Sandhill Crane 14

5.3.5 Florida Burrowing Owl 14

5.3.6 Wading Birds 15

5.4 Other Wildlife Species 15

6.0 Regulatory Requirements **15**

6.1 Federal Requirements 15
6.1.1 U.S. Army Corps of Engineers 15
6.1.2 Federal Delegation 17
6.1.3 U.S. Fish and Wildlife Service 18
6.2 State Requirements 18
6.2.1 South Florida Water Management District 18
6.2.2 Florida Fish and Wildlife Conservation Commission 20
6.3 Local Government 20
6.3.1 Orange County Environmental Protection Division 20
7.0 Potential Impacts to Wetlands, Surface Waters, Wildlife, and Their Habitat 21
7.1 Potential Wetland and Other Surface Water Impacts 21
7.1.1 Direct Impacts 21
7.1.2 Secondary Impacts 21
7.1.3 Cumulative Impacts 22
7.1.4 Avoidance and Minimization 22
7.1.5 Potential Impacts to Federally and/or State-Protected Wildlife Species 22
8.0 Mitigation Assessments 23
9.0 Wildlife Crossing 23
9.1 Evaluation Criteria 24
9.1.1 Conservation Lands 25
9.1.2 Current Corridor Condition 25
9.1.3 Future Corridor Condition 25
9.2 Selection of Potential Wildlife Crossing Locations 25
9.3 Application of Evaluation Criteria to Potential Wildlife Crossing Locations 26
9.4 Wildlife Crossing Summary 26
Bibliography BIB-1

List of Tables

Table ES-1: Approximate Wetland and Other Surface Water Impacts Associated with Avalon Road RCA.....ES-1

Table ES-2: Summary of Available Mitigation Credits within Reedy Creek Basin for Avalon Road RCA.....ES-1

Table ES-3: Summary of Federally and/or State-Protected Wildlife Species with Potential Involvement During Project Implementation ES-2

Table 1: NRCS Soil Data Identified within the Avalon Road RCA Study Corridor. 2

Table 2: Federally and State-Protected Flora Known to Occur within Orange County, Florida, and Potential for Occurrence within the Avalon Road RCA. 5

Table 3: Federally and State-Protected Wildlife Species Known to Occur in Orange County, Florida, and the Potential for Occurrence within the Avalon Road RCA. 8

Table 4: Approximate Wetland and Other Surface Water Impacts Associated with Avalon Road RCA 21

Table 5: Summary of Available Mitigation Credits from Mitigation Banks within Reedy Creek Drainage Basin for Avalon Road RCA. 23

List of Figures

Figure 1 – Location Map
Figure 2-1 to 2-2 – Aerial Map
Figure 3-1 to 3-2 – USGS Topographic Quadrangle Map
Figure 4-1 to 4-2 – Soils Survey Map
Figure 5-1 to 5-2 – Land Use Map
Figure 6-1 to 6-2 – Wetland and Other Surface Water Map
Figure 7 – Audubon's Crested Caracara Consultation Area Map
Figure 8 – Snail Kite Consultation Area Map
Figure 9 – Florida Scrub-Jay Consultation Area Map
Figure 10 – Red-Cockaded Woodpecker Consultation Area Map
Figure 11 – Wood Stork Colony Location Map
Figure 12 – Sand Skink Habitat Map
Figure 13 – Gopher Tortoise Burrow Locations Map
Figure 14-1 to 14-2 – Wetland Impacts Map
Figure 15 – Biodiversity Map
Figure 16-1 to 16-2 – Conservation Lands Map
Figure 17 – Florida Wildlife Corridor Map
Figure 18 – Future Land Use Map
Figure 19 – Wildlife Crossing Analysis Map

List of Attachments

Attachment A – Florida Scrub-Jay Survey Protocol
Attachment B – Wood Stork Determination Key
Attachment C – Eastern Indigo Snake Determination Key
Attachment D – Standard Protection Measures for the Eastern Indigo Snake

Attachment E – Sand Skink Survey Protocol
Attachment F – Gopher Tortoise Permitting Guidelines
Attachment G – Florida Sandhill Crane Guidelines
Attachment H – Burrowing Owl Guidelines

List of Acronyms and Abbreviations

AEW	Audubon Florida EagleWatch Public Nest App Database
AH	Applicant's Handbook
BA	Biological Assessment
BE	Biological Evaluation
BRP	Biodiversity Resource Priorities
CFA	Core Foraging Area
CLEAR	Conservation Lands, Easements, and Recreation
CLIP	Critical Lands and Waters Identification Project
CWA	Clean Water Act
E	Endangered
EPA	U.S. Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
ESR	Ecological Summary Report
FAC	Florida Administrative Code
FDA	Florida Department of Agriculture
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FL-SOLARIS	Florida State Owned Lands and Records Information System
FLUCFCS	Florida Land Use, Cover, and Forms Classification System
FNAI	Florida Natural Areas Inventory
FS	Florida Statute
FWC	Florida Fish and Wildlife Conservation Commission
FWS	U.S. Fish and Wildlife Service
GP	General Permit
IPaC	Information for Planning and Consultation
MSE	MSE Group, LLC
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
NWPR	Navigable Waters Protection Rule
OCEPD	Orange County Environmental Protection Division
RCA	Roadway Conceptual Analysis
RCW	Red-Cockaded Woodpecker
ROW	Right-of-Way
SFWMD	South Florida Water Management District
SP	Standard Permit
SSC	Species of Special Concern
T	Threatened
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

Executive Summary

An Ecological Summary Report (ESR) has been prepared as part of a Roadway Conceptual Analysis (RCA) study for Avalon Road from US 192 to Hartzog Road. This ESR documents ecological features located within the study corridor, such as wetland and/or other surface water communities and the occurrence or potential for occurrence of federally and/ or state-protected wildlife species and their habitat, and the likelihood of involvement of such features during project implementation.

Wetlands and Other Surface Waters

Current ecological conditions within the study corridor were evaluated to determine the potential for adverse wetland impacts, other surface water impacts to three alignment alternatives and 11 stormwater management pond locations. Wetlands and/or other surface waters were aerially interpreted and verified through ground-truthing activities; these features should be delineated during the final design and permitting phase.

A summary of impacts by type, roadway, and stormwater pond location is provided in **Table ES-1**.

Table ES-1: Approximate Wetland and Other Surface Water Impacts Associated with Avalon Road RCA

Wetland/Other Surface Water ID	FLUCFCS Code	Preferred Alignment Impact (ac)*	East Alignment Impact (ac)	West Alignment Impact (ac)	Proposed Pond ID	Proposed Pond Impact (ac)*
WL-3	6410	0.12	--	0.12		
WL-6	6210	0.56	--	0.56	FC3A	0.36
WL-7A	6300	0.28	0.28	--		
WL-10	6410	0.42	0.42			
TOTAL		1.38	0.70	0.68		0.36

* Impact acreages are based on approximate limits through aerial interpretation and limited ground-truthing activities.

Wetlands and other surface waters are regulated by federal, state, and local government policies. Impacts to jurisdictional wetlands and other surface waters will require coordination with regulatory agencies during the permitting of the proposed project and may require mitigation to offset unavoidable adverse impacts. Mitigation credits are available through several mitigation banks within the Reedy Creek drainage basin (summary of currently available mitigation is provided in **Table ES-2**).

Table ES-2: Summary of Available Mitigation Credits within Reedy Creek Basin for Avalon Road RCA

Mitigation Bank	Bank Service Area	*Credits Available
Southport Ranch	Reedy Creek, Shingle Creek, Part of Boggy Creek, Part of Lake Hart, Lake Tohopekaliga, Lake Gentry, Part of Lake Hatchineha, Part of Lake Kissimmee	State 156.25 (Forested) 0.94 (Herbaceous) Federal 15.78 (Forested) 7.0 (Herbaceous)
Reedy Creek	Reedy Creek, Shingle Creek, Boggy Creek, Lake Hart, E Lake Tohopekaliga, Lake Hatchineha, Lake Pierce, Lake Kissimmee, Lake Myrtle, Alligator Lake, Lake Gentry, S-63A, Canoe Creek, Lake Cypress, Horse Creek	State 33.72 (Forested) Federal 69.75 (Forested)
Florida (WRAP)	Shingle Creek, Lake Tohopekaliga, Reedy Creek	State 2.49 (Forested) Federal 222.39 (Forested) 107.75 (Herbaceous)
Bullfrog Bay	Reedy Creek, Lake Tohopekaliga, Lake Hart, Alligator Lake, Lage Gentry, Lake Cypress, Lake Kissimmee	State: 11.61 (Forested) 14.28 (Herbaceous)

*****Based on review of South Florida Water Management District (SFWMD) Credit Ledger and USACE RIBITS database on May 31, 2022.

Threatened and Endangered Species

A desktop review of readily available public databases was conducted to evaluate the occurrence or potential for occurrence of federally and/or state-protected wildlife species, followed by visual observations conducted via pedestrian transects throughout suitable habitat. Wildlife observations included direct (visual observation of species, scat, nests, etc.) and audible detection. A summary of protected wildlife species with potential for involvement is provided in **Table ES-3**.

Table ES-3: Summary of Federally and/or State-Protected Wildlife Species with Potential Involvement During Project Implementation

Scientific Name	Common Name	Protection Status	Findings
Reptiles			
Plestiodon reynoldsi	Sand skink	FT	Suitable habitat (soils, elevation, location) is within the project corridor. A species-specific survey should be conducted based on the project's final design.
Drymarchon corais couperi	Eastern indigo snake	FT	The current layout results in a determination of "Not Likely to Adversely Affect" this species; however, additional surveys may be warranted based on final design.
Gopherus polyphemus	Gopher tortoise	ST/FC	Burrows were observed within suitable habitat associated with proposed pond locations. During final design, and prior to construction, a survey in accordance with FWC's survey protocol is recommended.
Birds			
Polyborus plancus audubonii	Audubon's crested caracara	FT	No crested caracaras were observed during site review, and it is anticipated that the proposed roadway improvements will not adversely affect the crested caracara; however, proposed pond locations may require additional surveys based on final design.
Rostrhamus sociabilis	Snail kite	FE	Neither the snail kite nor apple snails were observed; however, if pond locations or alignments shift during final design, additional surveys are recommended.
Aphelocoma coeruluscens	Florida scrub-jay	FT	Although the species was not observed, a species-specific survey in accordance with FWC's protocol is recommended based on final design.
Antigone canadensis pratensis	Florida sandhill crane	ST	Suitable habitat is present for foraging and nesting within and adjacent to the study corridor. It is recommended that, following FWC's survey, a survey protocol be conducted between December and August for active nest sites. If no nest sites are detected, additional coordination with FWC is not required.
Athene cunicularia floridana	Florida burrowing owl	ST	Suitable habitat is present for foraging and burrowing within proposed pond locations. During final design, and prior to construction, a survey in accordance with FWC's survey protocol is recommended.

Protection Status Key: ST = State-Designated Threatened, FT = Federally Designated Threatened, FC = Federally Designated Under Consideration
Data Source: U.S. Fish and Wildlife Service (FWS) ECOS (FWS 2021a)
Florida's endangered species, and threatened species (FWC 2021)

The Florida Department of Agriculture and Consumer Services (FDACS) regulates the economic use of plant species identified as endangered, threatened, or commercially exploited. A desktop review of readily available public databases of known federally protected, state-protected, or commercially exploited flora was conducted for the study corridor, followed by ground-truthing. One commercially exploited plant was identified within the study corridor:

- Saw palmetto (*Serenoa repens*)

No federally and/or state-protected plant species were identified during ground-truth activities. FDACS does not regulate disturbance of plant species from construction activities; therefore, the presence of these plants within the study corridor will not require coordination with regulatory agencies.

Wildlife Crossings

The potential of implementing wildlife crossings within the Avalon Road study corridor was evaluated using several criteria, including current ecological conditions, proximity of existing conservation lands, biodiversity matrix, and proposed future development. The study corridor was evaluated at two locations for a potential wildlife crossing:

- **Wildlife Crossing Location 1** – This location is approximately 500 feet north of US 192. Based on the information and analysis presented above and the wildlife known to inhabit this area, a wildlife crossing is not justified due to the lack of sustainable natural communities and a continuous corridor for wildlife movement. A wildlife crossing in this location may be reconsidered in the future should plans to develop the area west of Avalon Road change.
- **Wildlife Crossing Location 2** – This location is approximately 1,200 feet south of Grove Blossom Way. Based on the information and analysis presented above and wildlife known to inhabit this area, a wildlife crossing for herptiles (amphibians, reptiles), and small mammals could be supported at this location. Configuration of the components of a wildlife crossing should be determined during final roadway design.

1.0 Introduction

Orange County is conducting a Roadway Conceptual Analysis (RCA) study on Avalon Road (study corridor) from US 192 to Hartzog Road, which is approximately 1.2 miles in length (**Figure 1** and **Figure 2-1** and **2-2**). This RCA has been initiated to assess existing roadway conditions and features and recommend roadway enhancements that will improve safety and traffic flow within the area. The study includes social and environmental impacts of adding travel lanes and improving other site features, including drainage conveyance and treatment, sidewalk, raised medians, lighting, landscaping, and intersections.

This Ecological Summary Report (ESR) documents ecological features within the study corridor, such as wetland and/or other surface water communities and the occurrence or potential for occurrence of federally and/or state-protected wildlife species and their habitat, and the likelihood of such features' involvement during project implementation.

2.0 Methodology

MSE biologists conducted a desktop review followed by ground-truthing activities along the study corridor. Our assessment identified and documented the presence of natural habitats, including jurisdictional wetlands and/or other surface waters; wildlife species categorized as endangered (E), threatened (T), or species of special concern (SSC) by state and federal regulations; and such species' preferred habitats. This assessment included review and analysis of the following:

- Public records, databases, handbooks, and manuals
  - Audubon Florida EagleWatch Public Nest App Database (AEW)
  - Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Databases
  - Florida Department of Environmental Protection (FDEP) Map Direct
  - FDEP Statewide Land Use Database
  - Florida Natural Areas Inventory (FNAI) Rare Species and Communities Database
  - FNAI Critical Lands and Waters Identification Project (CLIP)
  - U.S. Fish and Wildlife Service (FWS) Information for Planning and Consultation (IPaC)
  - South Florida Water Management District (SFWMD)
  - FWS National Wetland Inventory (NWI)
  - U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual
  - U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey
  - U.S. Geological Survey (USGS) Quadrangle Topographic Map (**Figures 3-1** and **3-2**).
  - Historical aerials
- Physical settings conditions (topography, soils) within the study corridor
- Vegetative communities, including wetlands and other surface waters, within the study corridor
- Evaluation of sustainable habitat for federally and/or state-protected flora and fauna
- Review of potential wildlife crossing locations
- Review of existing permits in the corridor, permitting needs of the project, and mitigation options

2.1 Wetlands and Other Surface Waters

The jurisdictional extent of wetlands and other surface water systems were identified in general accordance with USACE's 1987 *Corps of Engineers Wetlands Delineation Manual* (Technical Report Y-87-1) (USACE 1987) and November 2010 *Regional Supplement to the Corps of Engineers Wetlands*

Delineation Manual: Atlantic Gulf Coastal Plan Region (USACE 2010), and with the State of Florida's *Delineation of the Landward Extent of Wetlands and Surface Waters* (Chapter 62-340, Florida Administrative Code [FAC]) (State of Florida 1994). If wetland boundaries differed between the two methods, the more "wetland inclusive" extent was used to designate that wetland system's boundary. The landward extent of other surface water systems was recognized to be at the top-of-bank for ditches with side slopes of 1-foot vertical to 4-feet horizontal or steeper or using the seasonal high for swales with side slopes flatter than 1-foot vertical to 4-feet horizontal. Wetlands and other surface waters observed were classified using FDEP land use type data.

Wetland and/or other surface waters were aerially interpreted through available GIS databases (topographic quadrangle maps, land use data, NRCS soil survey data) and verified through ground-truthing activities. Ground-truthing activities were conducted along the study corridor in February 2022 and evaluated the following items:

- Onsite vegetative communities
- Jurisdictional wetlands and/or other surface waters

In the field, wetlands (WL) and other surface waters (SW) were generally identified from south to north along the north-bound travel lane and from north to south along the south-bound travel lane. The proposed location of the stormwater management systems was classified following the nomenclature associated with the Avalon Road RCA study, and each was evaluated for wetlands, other surface waters, and vegetative communities.

2.2 Protected Wildlife Species and Their Habitat

Database queries were conducted to evaluate the occurrence or potential for occurrence of wildlife species identified as T, E, or SSC by governing regulatory agencies, followed by ground-truth activities in February 2022. Pedestrian transects were conducted to locate the occurrence or potential for occurrence of federally and/or state-protected wildlife species within the study corridor. Wildlife observations included direct (visual observation of species, scat, nests, etc.) and audible detection.

3.0 General Site Conditions

3.1 Soils

The USDA NRCS Soil Survey is a comprehensive published source of information that supplies near-surface soil and depth-to-groundwater conditions. The NRCS Soil Survey of Orange County, Florida, was available and reviewed for data of near-surface soil conditions (i.e., soil unit types) within the study corridor (**Figures 4-1** and **4-2**). Soils identified within the study corridor are listed in **Table 1**.

Table 1: NRCS Soil Data Identified within the Avalon Road RCA Study Corridor.

Map Unit	Soil Name	Hydric Status	Depth to Water Table	Drainage
2	Archbold fine sand, 0 to 5% slopes	No	42 to 60 inches	Very poorly drained
3	Basinger fine sand, frequently ponded, 0 to 1% slopes	Yes	Surface (0 inches)	Poorly drained
20	Immokalee fine sand	No	6 to 12 inches	Poorly drained
40	Samsula Muck, frequently ponded, 0 to 2% slopes	Yes	Surface (0 inches)	Very poorly drained
42	Sanibel Muck	Yes	Surface (0 inches)	Very poorly drained

Map Unit	Soil Name	Hydric Status	Depth to Water Table	Drainage
46	Tavares fine sand, 0 to 5% slopes	No	42 to 60 inches	Moderately well drained
47	Tavares-Millhopper complex, 0 to 5% slopes	No	More than 80 inches	Moderately well drained

Source: NRCS Web Soil Survey (NRCS 2019)

3.2 Land Use

FDEP's statewide land use database (FDEP 2020a) was used to characterize land use types within the study corridor. During ground-truth activities, land use types were field verified and revised, if necessary, based on physical observations (**Figures 5-1** and **5-2**). The dominant land uses present within the project corridor are described below.

3.2.1 Uplands – Developed

FLUCFCS 1100, 1130, and 1180 – Low density residential – This land use best describes single-family residential areas within the study corridor.

FLUCFCS 1400 – Commercial and Services – This land use is located east and west of Avalon Road, north of US 192 and best describes commercial businesses.

FLUCFCS 133(9) – Multiple Dwelling Units, Under Construction – This land use is located east of Avalon Road, south of Lake Gifford Road, and is currently under construction.

FLUCFCS 1340 – High Density, Multiple Dwelling Units, High Rise – This land use best describes a condominium located west of the intersection of Lake Gifford Road and Avalon Road.

FLUCFCS 1454 – Campground (Inactive) – This land use type best identifies an inactive campground/outdoor area located west of Avalon Road.

FLUCFCS 8140 – Roads and Highways – This land use type consists of Avalon Road, US 192, Grove Blossom Way, Hartzog Road, and side roads located within the study corridor.

3.2.2 Uplands – Undeveloped

FLUCFCS 1900 – Open Land – This land use type best describes the unimproved pasture located east of Avalon Road at the north end of the study corridor.

FLUCFCS 3210 and **3300 –Palmetto Prairies and Mixed Rangeland –** This land use best describes identifies undeveloped, vegetated lands located east and west of Avalon Road.

FLUCFCS 4110 – Pine Flatwoods – This land use describes an undeveloped forested area located within the northwest quadrant of the Avalon Road/Bali Boulevard intersection.

3.2.3 Wetlands and Other Surface Waters

The NWI and FDEP's Statewide Land Use databases were reviewed for jurisdictional wetlands and/or other surface waters within the study corridor. Each wetland and/or other surface water was field verified, and their dominant vegetative species were recorded. Wetlands were then classified using Florida Land Use Cover and Forms Classification (FLUCFCS) codes to FLUCFCS Level III for specific identification of habitat based on dominant vegetation. Wetland systems and other surface waters were identified from south to north along the north-bound travel lane, and north to south along the south-bound travel lane (**Figures 6-1** and **6-2**). The wetland and surface water systems delineated are discussed below:

FLUCFCS 5200 – Lakes – This land use best describes SW-1 and SW-2, located east of Avalon Road and north of Lake Gifford Road and west of Avalon Road and north of Lake Gifford Road, respectively. These land uses are mostly open water systems.

FLUCFCS 6170 – Mixed Wetland Hardwoods – This land use best describes WL-8 located west of Avalon Road and northwest of Lake Gifford Road. This system is vegetatively comprised of cypress (*Taxodium* spp.), sweet bay (*Magnolia virginiana*) and Florida willow (*Salix floridana*).

FLUCFCS 6172 – Mixed Shrubs – This land use best characterizes WL-9 located north of Grove Blossom Way and west of Avalon Road. Vegetation present includes cypress, Florida willow, Carolina willow (*Salix caroliniana*), red maple, wax myrtle (*Myrica cerifera*) and sweet bay.

FLUCFCS 6210 – Cypress – This land use best describes WL-2, located east of Avalon Road, north of US 192 and WL-6 located east of Avalon Road, north of Lake Gifford Road. These systems consist of the forested fringe of open water systems and are vegetated with a canopy of cypress with an understory of scattered sweet bay, red bay (*Persea borbonia*), wax myrtle, Virginia chain fern (*Woodwardia virginica*), and Carolina willow.

FLUCFCS 6300 – Wetland Forested Mixed – This land use best describes WL-1 located north of US 192, east of Avalon Road. This system consists of the forested fringe of an open water system and is vegetatively comprised of slash pine (*Pinus elliotti*), sweet bay, red bay, Florida willow, oaks, wax myrtle, cogongrass (*Imperata cylindrica*) and saw palmetto.

FLUCFCS 6410 – Freshwater Marshes – This land use best characterizes WL-3, WL-4, WL-4A, WL-5, WL-7, WL-10, and WL-11, located east and west of Avalon Road. These systems are vegetatively comprised of cypress, dahoon holly sweet bay, bulrush (*Scirpus* spp.) and water lilies (*Nuphar* spp.).

4.0 Protected Flora

FNAI is a non-profit conservation organization that maintains a database of recorded occurrences of rare habitat types and imperiled plant and wildlife species. FNAI classifies imperiled species on a five-tiered rarity ranking system, both globally and state-wide, and includes federal and state protection statuses for such species. FNAI is not a regulatory or law enforcement agency; however, FNAI's database was consulted for this study due to their comprehensive records of species occurrence.

The Florida Department of Agriculture and Consumer Services (FDACS) lists and regulates the economic use of flora identified as E, T, or commercially exploited. Typical economic uses include gathering live wild plants for resale as ornaments or harvesting of plant material (e.g., saw palmetto berries) for resale. Incidental destruction of rare flora caused by land clearing associated with construction or agriculture is not regulated or prohibited by FDACS.

The FNAI and FDACS lists of protected and commercially exploited flora were reviewed for species known to occur within Orange County, Florida, and for the potential for such species to inhabit the study corridor. Protected flora species are those categorized by FWS and/or FWC as T, E, or exploited, thereby receiving a level of protection because of their status. The potential occurrence of protected flora species identified within the study corridor is based on the type of vegetative communities present. The probability of each species occurring within the study corridor is ranked using the following requirements:

1. **No** – indicates no suitable habitat is present. Suitable habitat is defined as intact natural land that is typically used by the species under consideration.

2. **Low** – indicates that marginally suitable habitat may exist within the study corridor, but the species was not observed during field observations. "Marginal" describes natural land that has been altered from its native state due to human activity, ecological succession, or conversion; however, the species under consideration could still inhabit the area.
3. **Moderate** – indicates that suitable habitat exists within the study corridor, but the species was not observed during field observations.
4. **High** – indicates that suitable habitat exists within the study corridor and the species of interest was observed during field observations.

Table 2 lists the federally and/or state-protected flora species known to occur in Orange County, Florida, and their potential for occurrence within the study corridor.

Table 2: Federally and State-Protected Flora Known to Occur within Orange County, Florida, and Potential for Occurrence within the Avalon Road RCA.

Scientific Name	Common Name	FWS Status	FWC Status	Occurrence Potential	Habitat
Bonamia grandiflora	Florida bonamia	T	E	Moderate	Openings or disturbed areas in white sand scrub on central Florida ridges, with scrub oaks, sand pine, and lichens
Calopogon multiflorus	Many-flowered grass-pink	--	T	Moderate	Dry to moist flatwoods with longleaf pine, wiregrass, and saw palmetto
Centrosema arenicola	Sand butterfly pea	--	E	Moderate	Sandhill, scrubby flatwoods, and dry upland woods
Clitoria fragrans	Scrub pigeonwing	T	E	Moderate	Turkey oak barrens with wire grass, bluejack, and turkey oak; scrub; and scrubby high pine
Coelorachis tuberculosa	Piedmont jointgrass	--	T	Low	Ephemeral ponds and margins of sandhill upland lakes or depression marshes with sandy peat or sandy muck-peat
Coleataenia abscissa	Cutthroatgrass	--	E	Moderate	Wet flatwoods, prairies, and seepage areas
Deeringothamnus pulchellus	Beautiful pawpaw	E	E	Low	Open slash or longleaf pine flatwoods with wiregrass and dwarf live oak understory
Eriogonum longifolium var. gnaphalifolium	Scrub buckwheat	T	E	Low	Sandhill, oak-hickory scrub on yellow sands, high pineland between scrub and sandhill, and turkey oak barrens
Illicium parviflorum	Star anise	--	E	Low	Banks of spring-run or seepage streams, bottomland forest, hydric hammock, and baygall dominated by red maple and sweet bay
Lechea cernua	Nodding pinweed	--	T	Moderate	Open, unshaded white sands of scrub and scrubby flatwoods; often associated with Florida rosemary (*Ceratiola ericoides*)
Lechea divaricata	Pine pinweed	--	E	Moderate	Scrub and scrubby flatwoods
Lupinus aridorum	Scrub lupine	E	E	Moderate	Openings in sand pine and rosemary scrub
Lythrum flagellare	Florida loosestrife	--	E	Low	Seasonally inundated areas, such as wet prairies, floodplain marshes, and roadside ditches, in mucky or peat muck soils
Matelea floridana	Florida spiny-pod	--	E	Moderate	Sandhill, upland pine, and dry hammock

Scientific Name	Common Name	FWS Status	FWC Status	Occurrence Potential	Habitat
Najas filifolia	Narrowleaf naiad	--	T	Low	Floating annual plant, prefers dark water less than 2 meters deep
Nemastylis floridana	Celestial lily	--	E	Moderate	Wet flatwoods (often in cabbage palm flatwoods variant), prairies, marshes, and cabbage palm hammock edges
Nolina atopocarpa	Florida beargrass	--	T	Low	In grassy areas of mesic and wet flatwoods
Nolina brittoniana	Britton's beargrass	E	E	Moderate	Scrub, sandhill, scrubby flatwoods, and xeric hammock
Ophioglossum palmatum	Hand fern	--	E	Low	Old leaf bases of cabbage palms in maritime hammocks and wet hammocks
Paronychia chartacea	Paper-like nailwort	T	E	Moderate	Sandy openings around sandhill upland lakes and karst ponds; Lake Wales Ridge scrub
Pecluma plumula	Plume polypody	--	E	Moderate	Wet hammocks and swamps; epiphytes on live oaks
Pecluma ptilota	Comp polypody	--	E	Low	Rockland hammocks, strand swamps, and wet woods at the base of trees and fallen logs
Platanthera integra	Yellow fringeless orchid	--	E	Moderate	Open wet prairies, wet flatwoods, bogs, and seepage slopes
Polygonum dentoceras	Small's jointweed	E	E	Moderate	Open, sandy areas within scrub, mostly white sand
Prunus geniculata	Scrub plum	E	E	Moderate	Sandhill and oak scrub
Orthochilus ecristatus	Giant orchid	--	T	Low	Sandhill, scrub, pine flatwoods, and pine rocklands
Salix floridana	Florida willow	--	E	Low	Wet, mucky soils in bottomland forests, floodplains, hydric hammocks, swamps, edges of spring-runs, and streams
Schizachyrium niveum	Pinescrub bluestem	--	E	Moderate	White sand patches in rosemary scrub, sand pine scrub, and oak scrub
Stylisma abdita	Scrub stylisma	--	E	Moderate	Dry sandy soils in scrub and sandhills
Warea amplexifolia	Clasping warea	E	E	Moderate	Limited to sunny openings with exposed sand in longleaf pine/turkey oak/wiregrass sandhills
Zephyranthes simpsonii	Redmargin zephyrlily	--	T	Moderate	Wet flatwoods and meadows, ditches, and wet pasturelands
Commercially Exploited					
Encyclia tampensis	Butterfly orchid	--	--	Moderate	Epiphytic perennial in mesic hammocks, hardwood swamps, and mangrove forests; found on old live oaks, bald cypress, mangroves, and pond apples
Epidendrum conopseum	Green-fly orchid	--	--	Moderate	On trees in moist hammocks, cypress, and hardwood swamps
Lycopodiella cernua	Staghorn clubmoss	--	--	Moderate	damp areas, on ground, in full sun to shade
Osmunda cinnamomea	Cinnamon fern	--	--	Moderate	Swamps and wetlands
Osmunda regalis	Royal fern	--	--	Moderate	Swamps and wetlands

Scientific Name	Common Name	FWS Status	FWC Status	Occurrence Potential	Habitat
Rhapidophyllum hystrix	Needle palm	--	--	No	Moist-wet sites, seepage slopes, regularly but shallowly inundated floodplains, seepage swamps (especially associated with springs), hydric seepage slopes, and at times, some of the adjacent non-hydric slope, hydric hammock, and moist upland bluffs adjacent to rivers
Serenoa repens	Saw palmetto	--	--	High	Wet to dry flatwoods and hammocks

E = Endangered, T = Threatened, SSC= Species of Special Concern, T S/A = Threatened Similar in Appearance
Data Source: FNAI Tracking List Orange County, Florida (FNAI 2022) Plants Institute for Systematic Botany (Wunderlin, Franck and Essig 2021); Florida Department of Agriculture (FDA) Endangered, Threatened, and Commercially Exploited Species (Florida Department of Agriculture and Consumer Services 2020-2021);

5.0 Federally and State-Protected Wildlife Species

Literature reviews and database queries were conducted to identify federally and/or state-protected wildlife species known to occur in Orange County, Florida, and the potential occurrence of such species to inhabit the study corridor. Federally and/or state-protected wildlife species are those categorized by FWS and/or FWC as T, E, or SSC, thereby receiving a level of protection due to their listed status. The potential occurrence of protected wildlife species within the study corridor is based on the and the type and quality of vegetative communities present. The probability of each wildlife species occurring within the study corridor is ranked using the following requirements:

1. **No** – Indicates no suitable habitat is present. Suitable habitat is defined as intact natural land that is typically used by a species under consideration.
2. **Low** – Indicates marginally suitable habitat may exist within the study corridor, but the species was not observed during field observations. “Marginal” describes natural land that a species under consideration could inhabit but that has been altered from its native state due to human activity, ecological succession, or conversion.
3. **Moderate** – Indicates suitable habitat exists within the study corridor, but the species was not observed during field observations.
4. **High** – Indicates suitable habitat exists within the study corridor, and the species of interest was observed during field observations.

Table 3 provides a summary of federally and/or state-protected species known to occur in Orange County, Florida, and their potential for occurrence within the study corridor. Protected wildlife species that have moderate or high potentials to occur within the study corridor are discussed in detail in the following paragraphs, as are species whose consultation areas fall within the study corridor.

Table 3: Federally and State-Protected Wildlife Species Known to Occur in Orange County, Florida, and the Potential for Occurrence within the Avalon Road RCA.

Scientific Name	Common Name	Protection Status	Occurrence Potential	Consultation Area	Habitat
Fish					
Pteronotropis welaka	Bluenose shiner	ST	No	--	Quiet backwaters, pools of blackwater streams, rivers, and spring runs; usually with thick vegetation nearby
Reptiles					
Alligator mississippiensis	American alligator	FT(S/A)	Low	--	Various aquatic habitats
Drymarchon corais couperi	Eastern indigo snake	FT	Moderate	--	Wide variety of habitats
Plestiodon reynoldsi	Sand Skink	FT	Moderate	Yes	Rosemary scrub, scrubby flatwoods, sand pine, oak scrub
Gopherus polyphemus	Gopher tortoise	ST/FC	High	--	Sandhills, scrub, hammocks, dry prairies, flatwoods, mixed forests
Pituophis melanoleucus mugitus	Florida pine snake	ST	Low	--	Sandhills, scrubby flatwoods, xeric hammocks, ruderal areas
Lampropeltis extenuate	Short-tailed snake	ST	Low	--	Longleaf pine and xeric oak sandhills
Birds					
Haliaeetus leucocephalus	*Bald eagle	--	Moderate	--	Forested areas adjacent to bodies of water
Polyborus plancus audubonii	Audubon's crested caracara	FT	Moderate	Yes	Open country, dry prairie, and ruderal areas
Laterallus jamaicensis	Eastern black rail	FT	Low	--	Salt and freshwater marshes
Rostrhamus sociabilis plumbeus	Snail kite	FE	Moderate	Yes	Freshwater marshes, vegetated fringes of shallow lakes, and ponds
Aphelocoma coeruluscens	Florida scrub-jay	FT	Moderate	Yes	Scrub, scrubby flatwoods
Picoides borealis	Red-cockaded woodpecker	FE	Low	Yes	Open, mature pine flatwoods
Mycteria americana	Wood stork	FT	Moderate	--	Fresh and brackish forested wetlands, swamps, ponds, and marshes
Antigone canadensis pratensis	Florida sandhill crane	ST	High	--	Shallow wetlands, freshwater marshes, wet prairies
Egretta caerulea	Little blue heron	ST	Moderate	--	Marshes, ponds, and rivers
Egretta tricolor	Tricolored heron	ST	Moderate	--	Marshes, ponds, and rivers

Scientific Name	Common Name	Protection Status	Occurrence Potential	Consultation Area	Habitat
Platalea ajaja	Roseate spoonbill	ST	Low	--	Coastal mangroves, Brazilian pepper on man-made dredge spoil islands, and willow heads of freshwater
Athene cunicularia floridana	Florida burrowing owl	ST	Moderate	--	Sparsely vegetated sandhills, dry prairies, and ruderal areas

Occurrence Potential = No, Low, Moderate, High
Consultation Area = Identified as depicted by FWS and/or FWC GIS Data
Code Key: FE = Federally Designated Endangered, ST = State-Designated Threatened, FT = Federally Designated Threatened, FT S/A = Federally Designated Threatened due to Similar in Appearance, FC = Federal Candidate
Data Source: FWS ECOS (FWS 2021a); FNAI (Woolfenden and Fitzpatrick 1996)
Florida's Endangered and Threatened Species (FWC Updated 2021)
*Protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

5.1 Bald Eagle

Although the bald eagle (*Haliaeetus leucocephalus*) is delisted, the species remains protected through the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Florida has one of the densest concentrations of nesting bald eagles in the lower 48 states, with several clustered around significant lake, river, and coastal systems throughout the state (FWC 1999–2021). Bald eagles typically nest and roost in forested habitats that consist of mature canopy trees along habitat edges, allowing an unobstructed view of surrounding areas. Daytime roosts are often found in the highest trees and adjacent to shorelines. High-quality foraging habitat for bald eagles has a diversity and abundance of prey, access to shallow water, and tall trees or structures (FWC 1999–2021).

The AEW Program monitors nest sites during nesting season. Data provided on the AEW website is updated through the 2020–2021 nesting season (Audubon Society 2021). MSE biologists queried the AEW database for known bald eagle nest sites within a 1-mile radius of the study corridor. No bald eagle nest sites are documented within a 1-mile radius of the study corridor. Additionally, no nest sites or bald eagles were observed during site reviews.

It is anticipated that the proposed project will not adversely impact the bald eagle or nesting trees. It is recommended that the database for documented bald eagle nest sites be queried and that a site review be conducted during the design and permitting phase of this project to verify nesting statuses at that time.

5.2 Federally Protected Wildlife Species

5.2.1 Audubon's Crested Caracara

FWS lists the crested caracara (*Polyborus plancus audubonii*) as threatened. This species is typically found in dry or wet prairies with scattered cabbage palms and improved/unimproved pasturelands (FWS 2019). Nest sites are typically found in the tallest cabbage palm in the area or other structures free of dense vegetation. Caracara birds are opportunistic feeders, with their diets consisting of insects, fish, snakes, turtles, birds, and mammals (rabbits, skunks, prairie dogs).

The study corridor lies within the consultation area of the crested caracara (**Figure 7**) and supports suitable habitat. Although suitable habitat consisting of improved pastures and scattered cabbage palms is present, this species was not observed during site reviews. If proposed impacts to cabbage palms are necessary during final design, FWS may request that a formal survey be conducted following FWC's "Recommended Management Practices and Survey Protocols for Audubon's Crested Caracaras (*Polyborus plancus audubonii*) in Florida" (FWC 2001). Surveys should be conducted between January

and March, when nesting is at its peak and adults are likely to be feeding nestlings, or between March and April, when chicks have fledged the nest and adults are active.

No crested caracaras were observed during site review, and it is anticipated that the proposed roadway improvements will not adversely affect the crested caracara; however, additional surveys may be necessary based on final design.

5.2.2 Snail Kite

FWS lists the snail kite (*Rostrhamus sociabilis plumbeus*) as endangered. The snail kite is found near extensive, open freshwater marshes and lakes with shallow water and a low density of emergent vegetation in natural and artificial systems (FWS 1986). The apple snail (*Pomacea paludosa*) is the snail kite's primary food source, making the snail kite's survival dependent on the hydrology and water quality of watersheds associated with the Everglades, Lake Okeechobee, Kissimmee Valley, and the upper St. Johns River (FWS 1986).

The study corridor lies within the FWS consultation area for this species; however, it is outside of FWS's designated "critical habitat" (**Figure 8**). Neither the snail kite nor apple snails were observed within the study corridor. It is anticipated that the proposed project will not adversely impact the snail kite or its habitat.

5.2.3 Florida Scrub-Jay

FWS lists the Florida scrub-jay (*Aphelocoma coerulescens*) as threatened. This species is typically found in sand pine, xeric oak scrub, and scrubby flatwoods with sandy soils and fire-dominated habitat types. The scrub-jay's diet consists mainly of acorns, arthropods, berries, seeds, and a wide variety of insects (Woolfenden and Fitzpatrick 1996).

The study corridor lies within the consultation area for the Florida scrub-jay, and suitable habitat may be present within the study corridor (**Figure 9**). Although the scrub-jay was not observed during ground-truthing activities, a species-specific survey using FWS South Florida Ecological Services Office's "Florida Scrub-Jay Survey Protocol" (FWS June 28, 2004) (**Attachment A**) may be necessary based on final project design.

5.2.4 Red-Cockaded Woodpecker

FWS lists the red-cockaded woodpecker (RCW) (*Picoides borealis*) as endangered. The RCW is known to inhabit mature pine forests to bore out cavities in living pines (FWS 2020a). Cavity trees can be in clusters of trees found on an average of 10 acres. The size of the RCW's territory is dependent upon habitat suitability. The RCW's diet consists primarily of insects (egg, larval, and adult stages) found on or in pine trees. Large, older pine trees are preferred, as the RCW's foraging method involves flaking away bark and to probe under it (FWS 2020a).

Although the study corridor lies within the RCW consultation area (**Figure 10**), no suitable habitat was identified during site reviews. It is anticipated that this species will not be adversely impacted, and formal surveys will likely not be needed.

5.2.5 Wood Stork

FWS lists the wood stork (*Mycteria americana*) as threatened. This species is typically found in freshwater marshes, swamps, lagoons, ponds, flooded fields, depressions in marshes, and brackish wetlands. The core foraging areas (CFA) for this species include areas of very shallow water, generally 6–10 inches in depth, where there is an abundance of small fishes and other aquatic life. These small fishes may include

mosquitofish, sailfin mollies, flagfish, and several species of sunfish. Wood storks may also prey on frogs, salamanders, snakes, crayfish, insects, and baby alligators (Scott 2004). Suitable foraging habitat is defined in the Effect Determination Key for the Wood Stork in Central and North Peninsular Florida" (USACE, FWS, FWC 2018a) as "any area containing patches of relatively open (25% aquatic vegetation), calm water, and having a permanent or seasonal water depth between 2 and 15 inches."

FWS has identified a 15-mile radius CFA around known wood stork colonies. This CFA is deemed essential for reproductive success. The study corridor is within the 15-mile CFA of one wood stork colony (**Figure 11**):

- **Gatorland** – Last active 2019 (FWS 2010-2019), located approximately 14.9 miles east.

Impacts to suitable foraging habitat are not anticipated to result from the proposed project. Using the "Effect Determination Key for the Wood Stork in Central and North Peninsular Florida" (USACE, FWS, FWC 2018b) to evaluate the project's effect on the wood stork, the following were concluded:

- The project corridor is more than 2,500 feet from a colony.
- The proposed work will not affect suitable foraging habitat.

Because of this, the proposed project received a determination of "no effect" (**Attachment B**).

5.2.6 Eastern Indigo Snake

FWS lists the eastern indigo snake (*Drymarchon corais couperi*) as threatened. This species occurs in a wide range of upland and lowland habitat, including mesic pine flatwoods, scrubby flatwoods, long leaf sandhills, oak and sand pine scrub, dry prairie, tropical hardwood hammocks, fresh and saltwater marshes and swamps, and some human-altered habitat (agriculture lands) (FWS, Southeast Region 2018). The indigo snake has a large home range, generally 53 to 392 acres in north-central Florida, and 117 to 341 acres in south-central Florida (UF IFAS Extension 2020). This species is known to use gopher tortoise (*Gopherus polyphemus*) burrows as refuge from elements (heat, fires, cold temperatures), as well as stumps, roots, and debris piles.

Using the "Eastern Indigo Snake Programmatic Effect Determination Key" (Key) (USACE, FWS 2013) (**Attachment C**) to evaluate the project's effect on the eastern indigo snake, the following were concluded:

- Project is not located in open water or salt marsh.
- The permit should be conditioned for use of the Standard Protection Measures for The Eastern Indigo Snake (**Attachment D**) during site preparation and project construction.
- There are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities.
- The project will impact less than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) that support less than 25 active and inactive gopher tortoise burrows.
- Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be excavated prior to site manipulation in the vicinity of a burrow. If an indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an indigo snake, no work will commence until the snake has vacated the vicinity of the work.

FWS provided the Key to reduce coordination efforts for determination responses. If use of the Key results in a determination of "no effect" or "Not Likely to Adversely Affect," then FWS will concur with the determination, and no additional correspondence is necessary.

Assessing the corridor using the Key, the project has received a determination of Not Likely to Adversely Affect; however, if stormwater ponds or alignment shifts during final design, reassessment and additional surveys may be warranted.

5.2.7 Sand Skink

FWS lists the sand skink (*Plestiodon* [*Neoseps*] *reynoldsi*) as threatened. It is endemic to the sandy ridges of central Florida, occurring in Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam counties. Principal populations occur on the Lake Wales and Winter Haven Ridges in Highlands, Lake, and Polk counties. The sand skink is a unique lizard adapted to an underground existence and most often occupies ecotonal areas between communities with abundant leaf litter and adjacent open sand (FWS 2021b). Seasonally, sand skinks are most active from mid-February through mid-May and again in late summer/early fall with activity patterns suggesting they are active during mornings and evenings (FWS 1987).

FWS's "Peninsular Florida Species Conservation and Consultation Guide: Sand Skink and Blue-tailed Mole Skink" (FWS 2020b) (**Attachment E**) is intended to assist projects in determining if or how a proposed action may affect the sand skink. To be considered potential habitat for the sand skink, a site needs to meet three criteria:

- The sit must be located within the delineated consultation area.
- The site must contain appropriate soil type(s).
- The site must have appropriate elevations (generally 82 feet above mean sea level and higher).

If a site meets these requirements, FWS generally assumes presence of the sand skink, and the potential effects to sand skinks should be considered. To determine occupancy, a sand skink survey is necessary following the FWS's Sand Skinks and Blue-tailed Mole Skinks Survey Protocol Peninsular Florida (FWS 2020c). Surveys can be conducted in a two-tier approach:

1. Conduct a visual pedestrian survey to detect sand skink sinusoidal "S" track. This survey can be conducted any time of year, but preferable timing is in the spring (March through May) and fall (October through November) when tracks are most detectable.
    a. If the pedestrian survey does not identify sand skink trails, then a coverboard survey is necessary.
2. If the visual pedestrian survey does not identify the presence of sand skinks, a coverboard survey is required. Coverboard surveys should be conducted March 1 through May 15, with April 17 as the last day to deploy coverboards. Results outside of this timeframe are not considered adequate to presume absence of the species.

If either survey identifies sand skink trail, an 80-foot radius of suitable habitat as occupied around a sand skink trail is considered occupied by FWS. If proposed projects cannot avoid a "take" of this species and its habitat, either compensation or mitigation is required to offset potential adverse impacts to this species and its habitat. If mitigation credits are available at an FWS-approved conservation bank whose service area covers the project, mitigation can be accomplished through the purchase of an approved number of credits from the bank.

A desktop review concluded the study corridor meets all three criteria (location, soils, and elevation) (**Figure 12-1** and **12-2**). Pedestrian surveys conducted during February 2022 identified suitable habitat within the study area; however, "S" tracks were not observed. Following the "Peninsular Florida Species Conservation and Consultation Guide: Sand Skink and Blue-tailed Mole Skink" (FWS 2020b) survey protocols, pedestrian and coverboard surveys should be conducted within areas identified for impacts to this species and its habitat.

5.3 State-Protected Wildlife Species

5.3.1 Gopher Tortoise

FWC lists the gopher tortoise (*Gopherus polyphemus*) as threatened. The gopher tortoise inhabits subterranean burrows in dry upland habitats, such as longleaf pine sandhills, xeric oak hammocks, scrub, pine flatwoods, dry prairies, and coastal dunes. Gopher tortoises can also be found in pastures, ruderal fields, and grassy roadsides. To be suitable for gopher tortoises, the habitat must have well-drained sandy soils for digging burrows, herbaceous plants, and open sunny areas for nesting and basking.

Periodic natural fires play an important role in maintaining tortoise habitat by opening the canopy and promoting growth of herbaceous plants used for forage. If natural fires are suppressed, the habitat becomes unsuitable for gopher tortoises (Cox, Inkley and Kautz December 1987). Gopher tortoise burrows are an important habitat to many native species. It is estimated that 39 invertebrates and 42 vertebrate species use gopher tortoise burrows to some degree (Cox, Inkley and Kautz December 1987). Of those species, protected species that frequently inhabit gopher tortoise burrows include the Florida pine snake, eastern indigo snake, and burrowing owl. This commensal relationship warranted field investigation for such species within the study corridor.

Potentially occupied burrows were observed within the study corridor (**Figure 13**). FWC provides four options for landowners to address the presence of gopher tortoises:

- Avoid development.
- Avoid gopher tortoise burrows by a minimum of 25 feet.
- Relocate gopher tortoises onsite (permit required).
- Relocate gopher tortoises offsite (permit required).

Based on final design, and prior to construction activities, it is recommended that a gopher tortoise survey be conducted in accordance with FWC's "Gopher Tortoise Permitting Guidelines" (FWC 2008/Revised Effective July 2020) (**Attachment F**). If gopher tortoise burrows are identified and cannot be avoided by a minimum of 25 feet, coordination with FWC will be required.

5.3.2 Florida Pine Snake

FWC lists the Florida pine snake (*Pituophis melanoleucus mugitus*) as threatened. This species is found in sandhills, including old fields and pastures, with a moderate to open canopy and dry sandy soils, in which it burrows. The pine snake is also found in sand pine scrub and scrubby flatwoods; it often coexists with pocket gophers and gopher tortoises (FNAI 2001). The diet of the Florida pine snake primarily consists of moles, rabbits, mice, rats, squirrels, lizards, and other snakes and their eggs (Ernst and Ernst 2003).

FWC considers surveys for pocket gopher mounds and gopher tortoise burrows as meeting guidelines for minimizing impacts to this species (FWC 2018). FWC maintains a Rare Snake Sightings database, updated through 2022 (FWC n.d.), which was reviewed for the study corridor. No Florida pine snakes

were identified within a 5-mile radius of the study corridor. Suitable habitat is located within the study corridor; however, conducting gopher tortoise surveys, and relocations, when necessary, within suitable habitat will ensure potential impacts to the species are minimized. Further coordination with regulatory agencies is not anticipated for the Florida pine snake.

5.3.3 Short-Tailed Snake

FWC lists the short-tailed snake (*Lampropeltis extenuate*) as threatened. This species is primarily fossorial, spending most of its time burrowed in well-drained sandy soils in longleaf pine and xeric oak sandhills, scrubs, and hammock habitats (FWC 2011). This species is considered a cryptic species, meaning it may be difficult to detect due to behavior, habitat, or physical features when using standardized survey techniques (FWC Effective December 2019). Due to low detectability, little is known about the distribution and life history of this species; however, it appears to be most active from March to April and October to November (FWC Effective December 2019). Habitat typically used by this species is found within the project corridor.

Surveys are not required for this species; however, should a short-tailed snake be observed during project implementation, then coordination with FWC is recommended.

5.3.4 Florida Sandhill Crane

FWC lists the Florida sandhill crane (*Antigone canadensis pratensis*) as threatened. The Florida sandhill crane is a non-migratory bird found in freshwater marshes, prairies, and pastures. Florida sandhill cranes tend to avoid areas with taller vegetation or dense forest canopies and prefer habitat with short vegetation (e.g., less than 20 inches high in uplands) (FWC 2019). The sandhill crane is often found foraging in a variety of open habitats, including roadsides. Their diet consists of berries, seeds, insects, mice, small birds, snakes, lizards, and frogs. Shallow freshwater marshes with an average water depth of 4–13 inches are critical for nesting and roosting (FWC 2019). Additionally, uplands adjacent to nesting marshes are important for young until they can fly (FWC 2019).

Suitable foraging and nesting habitat was found within the study corridor, and the species was observed foraging within uplands and wetlands (WL-1 and WL-3); however, no active nest sites were observed. FWC recommends conducting a survey following the Florida Sandhill Crane Survey Protocol (**Attachment G**) between December and August for active nest sites. If no active nests are detected, no additional coordination with FWC is required.

5.3.5 Florida Burrowing Owl

FWC lists the Florida burrowing owl (*Athene cunicularia floridana*) as threatened. This small, ground-dwelling owl prefers sandy, well-drained areas with low vegetation height and good visibility around the burrow, which is necessary for the essential behaviors of breeding, feeding, and sheltering (FWC 2018, updated April 2019). Burrowing owls can be found in dry prairies, mowed grass, vegetative berms, improved pastures, sod farms, and urban areas including yard, cemeteries, golf courses, and other open areas where vegetation is relatively short to provide sufficient foraging habitat. Their diet consists primarily of insects, but it can include snakes, frogs, small lizards, birds, and rodents (FWC 2018, updated April 2019).

This species typically has a breeding burrow plus one or more satellite burrows for breeding and sheltering. These burrows are used year-round, with roosting in winter and raising young during the breeding season from February to July. During breeding season, this species is typically active during the day rather than at night, but active at night during non-breeding season.

Suitable habitat is present within the study corridor; however, the species was not observed during ground-truth activities. FWC recommends conducting surveys in suitable habitat to determine if the species is present. When a survey is conducted in accordance with FWC's *Florida Burrowing Owl Species Conservation Measures and Permitting Guidelines* (FWC 2018, updated April 2019) (**Attachment H**) and the specie is not present within the project, no further coordination with FWC is required. If the burrowing owl is observed within the proposed project area, the project may avoid an incidental take and permit requirements by adhering to the following:

- Maintaining a minimum of a 10-foot buffer during non-breeding season (July 11–February 14).
- Maintaining a minimum of 33-foot buffer during breeding season (February 14–July 10).
- Avoid impacting greater than 50% of suitable habitat within the proposed project

Based on final design, and prior to construction activities, it is recommended that a survey be conducted for the burrowing owl in accordance with FWC's guidelines.

5.3.6 Wading Birds

FWC lists the little blue heron (*Egretta caerulea*) and tricolored heron (*Egretta tricolor*) as threatened. These species are typically found in marshes, ponds, lakes, meadows, mudflats, lagoons, streams, mangrove lagoons, and other bodies of shallow water. Their diet consists of various types of fish, amphibians, and invertebrates. Nesting generally occurs in both coastal and freshwater environments in swamps and mangrove forests. They share nesting sites with other wading birds to form rookery colonies (Rodgers, Jr., Kale, II and Smith 1996).

These species were not observed during ground-truth activities. Measures to mitigate impacts to wetlands can be designed to provide additional benefits to wetland-dependent species potentially impacted by this project.

5.4 Other Wildlife Species

In addition to federally and/or state-protected wildlife species, the study corridor supports other wildlife species. Wildlife species noted during ground-truth activities included: mockingbird (*Mimus polyglottos*), black vulture (*Coragyps atratus*), wild turkey (*Meleagris gallopavo*), and wild boar (*Sus scrofa*) (rooting). In general, the study corridor provides resting, nesting, and foraging opportunities for a variety of resident and migratory wetland dependent species.

6.0 Regulatory Requirements

Federal, state, and local government agencies are charged with protecting jurisdictional wetlands and surface waters, protected wildlife species, and such species' habitats. A discussion of each agency's general requirements in protecting such features is provided below.

6.1 Federal Requirements

6.1.1 U.S. Army Corps of Engineers

The Department of the Army, through its regulatory division, regulates the discharge of dredge or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA), and in navigable waters of the United States under Sections 9 and 10 of the Rivers and Harbors Act of 1899. The term "navigable waters of the United States" is defined to include all waters that are subject to the ebb and flow of the tide, and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 Code of Federal Regulations. Part 329. n.d.).

Since 1970, the USACE and U.S. Environmental Protection Agency (EPA) have defined wetlands under the CWA as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” and “wetlands [that] generally include swamps, marshes, bogs, and similar areas” (EPA n.d.).

On June 22, 2020, the Navigable Waters Protection Rule (NWPR) became affective codifying the definition of “water of the United States” under the CWA. The NWPR includes four categories of jurisdictional waters and provides specific exclusions for many water features that traditionally had been regulated (Federal Register Vol. 85, No 77. April 21, 2020). In this final rule, “waters of the United States” include the following:

1. Territorial seas and traditional navigable waters
2. Perennial and intermittent tributaries that contribute surface flow to such waters
3. Certain lakes, ponds, and impoundments of jurisdictional waters (dams)
4. Wetlands adjacent to other jurisdictional waters

On August 30, 2021, the U.S. District Court for the District of Arizona ordered the June 22, 2020, definition of waters of the United States vacated and remanded the NWPR. With this ruling in place, the EPA and USACE have halted the implementation of the NWPR and are interpreting waters of the United States consistent with the pre-2015 regulatory regime until further notice (EPA 2021a). The term “waters of the United States” pre-2015 meets the following criteria (EPA 2021b):

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
2. All interstate waters including interstate wetlands.
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate or foreign travelers for recreational or other purposes.
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
    c. Which are used or could be used for industrial purposes by industries in interstate commerce.
4. All impoundments of waters otherwise defined as waters of the United States under this definition.
5. Tributaries of waters identified in paragraphs (1) through (4).
6. The territorial sea.
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6).
8. Waters of the United States do not include:
    - Prior converted cropland.
    - Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition).

To determine if a wetland system meets jurisdiction under the USACE rules and regulations, an applicant may submit for an Approved Jurisdictional Determination. USACE will review wetland and/or other surface water systems within limits of a project and verify presence/absence of waters of the United States under the NWPR. If federal jurisdiction is determined, impacts to wetland systems would require coordination with USACE to obtain one of the following three types of permits (USACE Jacksonville n.d.):

- **Nationwide Permits (NWP)** – NWPs are used to allow filling of wetlands and other jurisdictional waterbodies in situations where impacts to systems will have minimal adverse environmental effect. NWPs allow certain categorical activities to take place so long as the activity does not exceed impact thresholds.
    - **NWP 14 – Linear Transportation Projects** – This permit is available for projects such as roadways, highways, railways, trails, airport runways, and taxiways. For issuance of an NWP-14, a project must have 0.5 acre or less of impacts to USACE-regulated waters, for non-tidal waters.
- **General Permits (GP)** – GPs are issued on a nationwide or regional basis for a category of activities that are substantially similar in nature and cause only minimal individual and cumulative impacts. GPs are reviewed every 5 years and have been developed to reduce the burden of the regulatory program on the public and ensure timely issuance of permits.
- **Standard Permits (SP)** – SPs are required when the proposed project does not meet the criteria of a GP or NWP. SPs require a 21-day comment period under public notice.

In addition to direct wetland impacts, USACE considers secondary impacts (lighting, noise, trash) that may result from the upland activity. During the design phase, wetlands and other surface water systems will need to be delineated in accordance with federal regulations to accurately determine impacts. Unavoidable direct and secondary impacts to “waters of the United States” may be offset through appropriate mitigation.

It will be necessary to review federal regulations during final design and permitting to determine the appropriate regulatory agency under which this project will be jurisdictional.

6.1.2 Federal Delegation

In December 2020, EPA approved FDEP’s application to adopt the federal 404 program, known as the “State 404 Program.” State assumption over the 404 program intends to streamline permitting procedures, in which both federal and state permits are required for impacts to jurisdictional wetland and surface waters.

FDEP, under Chapter 62-331, FAC assumed jurisdiction over dredging and filling in waters of the United States regulated by the State (Section 373.4145, FS) effective December 22, 2020. Section 404 of the CWA allows FDEP to issue authorization of activities within certain waters (state-assumed waters). State-assumed waters are all waters of the United States that are not retained by USACE. Retained Waters are “those waters which are presently used or are susceptible to use in their natural condition or by reasonable improvement to transport interstate or foreign commerce shoreward to their ordinary high-water mark, including all waters which are subject to the ebb and flow of the tide shoreward to their mean high-water mark, including wetlands adjacent thereto. USACE will retain responsibility for permitting for the discharge of dredged or fill material in those waters identified in the Retained Waters List, as well as all waters subject to the ebb and flow of the tide shoreward to their mean high-water mark that are not specifically listed in the Retained Waters List, including wetlands adjacent thereto landward to the administrative boundary. The administrative boundary demarcating the adjacent wetlands over which jurisdiction is retained by USACE is

a 300-foot guideline established from the ordinary high-water mark or mean high tide line of the retained water" (FDEP 2020b).

If impacts to state-assumed wetland systems are proposed, coordination with FDEP would be necessary to obtain the necessary permit; however, regulations should be reviewed during final design and permitting to determine which agency will review the project under federal regulations.

During the design phase, wetlands and other surface water systems will need to be delineated in accordance with federal regulations to accurately determine impacts. Unavoidable direct and secondary impacts to "waters of the United States" may be offset through appropriate mitigation.

6.1.3 U.S. Fish and Wildlife Service

FWS regulates protected wildlife species under the Endangered Species Act (ESA) of 1973. FWS typically becomes involved on projects during the wetland permitting process through a Section 7 Consultation with USACE. In accordance with the Fish and Wildlife Coordination Act (16 USC 661-666c), consultation with FWS and FWC is necessary when "waters of any stream or other body of water are proposed or authorized to be impounded, diverted…or otherwise controlled or modified" under a federal permit.

Section 10 of the ESA is designed to regulate a wide range of activities affecting endangered or threatened organisms and their habitats (protected resources). With some exceptions, the ESA prohibits activities affecting these protected species and their habitats unless authorized by a permit from FWS or the National Marine Fisheries Service. Permitted activities are designed to be consistent with the conservation of the species and this action is undertaken when USACE permitting is not required.

During the Section 7 or Section 10 consultation with FWS, the agency will evaluate the project and provide one of the following determinations for each species identified within the project area:

- **No effect** – USACE has determined that the project will not adversely impact the species and no further coordination with FWS is required.
- **May affect** – USACE has determined that the proposed project may impact a protected resource. USACE will consult with FWS to take either of the following actions:
    - Request concurrence with "may affect, but not likely to adversely affect."
    - Request initiation of formal consultation for determinations of "may affect, likely to adversely affect."
        - Both requests should include written analysis explaining the determination in the form of a Biological Assessment (BA) or a Biological Evaluation (BE) (FWS 2016).

Desktop analysis and site reviews did not identify critical foraging, resting, or nesting habitat within the study corridor for federally protected wildlife. If proposed pond locations or alignment shift during final design, additional site reviews and surveys may be warranted.

6.2 State Requirements

6.2.1 South Florida Water Management District

The state of Florida defines wetlands as "those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soils" (Chapter 62-340.200 FAC). South Florida Water Management District (SFWMD) regulates impacts to wetlands and/or other

surface waters, pursuant to Part IV Chapter 373 of the Florida Statute (FS), and in accordance with Chapter 62-330 FAC for area of the Avalon Road RCA. SFWMD requires an Environmental Resource Permit (ERP) that authorizes activities in a manner that prevents flooding, manages surface water, and protects water quality, wetlands, and other surface waters.

6.2.1.1 Direct Impacts, Elimination, and Reduction of Impacts

As part of the permit process, SFWMD rules and regulations require the applicant to evaluate the elimination or reduction of impacts to wetland and/or other surface water systems. When reviewing an application, SFWMD considers the following:

- The degree of impact to the wetland and other surface water functions caused by a proposed activity.
- Whether the impact to these functions can be mitigated.
- The practicability of design modification that could eliminate or reduce impacts to these functions, including alignment alternatives for a proposed linear system.

6.2.1.2 Secondary Impacts

Pursuant to Section 10.1.1(f) of the ERP Applicant's Handbook (AH) (General and Environmental) Volume 1 (December 22, 2022), an applicant must ensure that a regulated activity will not cause adverse secondary impacts to the water resources. Secondary impact criterion consists of the following four parts in which an applicant must provide reasonable assurance that secondary impacts from construction, alteration, and intended or reasonable expected uses of a proposed project (Section 10.2.7 AH V1):

- Will not cause violations of water quality standards or adverse impacts to the functions of wetlands or other surface waters.
- Will not adversely impact the ecological value of uplands to federally and/or state-protected aquatic and wetland dependent wildlife species for enabling existing nesting or denning by these species (excluding areas needed for foraging or wildlife corridors).
- Will not impact any significant historical or archeological resource.
- Will not cause adverse impacts in later phases that are very closely linked and casually related to the intended project.

6.2.1.3 Cumulative Impacts

Pursuant to Section 10.1.1(g) of SFWMD's ERP AH, an applicant must provide reasonable assurance that a regulated activity will not cause unacceptable cumulative impacts to wetlands and other surface waters within the same drainage basin. Cumulative impacts to water quality are evaluated by criterion set in Section 10.1.1(C), and by evaluating impacts to functions identified in Section 10.2.2 ERP AH. If an applicant proposes to mitigate impacts within the same drainage basin as the impacts, and if the mitigation fully offsets these impacts, then SFWMD will consider the regulated activity to have no unacceptable cumulative impacts on wetlands and other surface waters, and the condition for issuance in section 10.1.1(g) will be satisfied.

6.2.1.4 Mitigation

Adverse impacts remaining following design modifications to reduce and eliminate impacts may be offset through mitigation. Mitigation is not required for regulated activities in isolated wetlands, less than 0.5 acre in size, unless the system is used by protected wildlife species; located in an area of critical concern pursuant to Chapter 380, F.S.; or the wetland, or several isolated wetlands, are of more than minimal

value to fish and wildlife. Pursuant to 10.2.2.2, alterations to wholly owned ponds constructed entirely in uplands, that are less than 1 acre in size, and have drainage ditches constructed in uplands will not require mitigation unless these systems are found to provide significant habitat for protected wildlife species. Secondary impacts will not be considered adverse if an upland buffer, with a minimum of 15 feet and average of 25 feet, is provided around wetlands systems that will remain.

Direct and secondary wetland impacts may be offset through available mitigation options (preservation, creation, mitigation banking, etc.). During the final design and permitting of the proposed project, wetlands and other surface water limits should be delineated in accordance with current regulations to accurately identify impacts. Mitigation to offset adverse wetland and/or other surface water impacts after reasonable attempts to reduce and/or eliminate impacts can be achieved through the purchase of mitigation credits from an approved mitigation bank.

6.2.1.5 Conservation Easement

Conservation Easements are generally required when lands are used as mitigation to offset adverse impacts to wetlands and other surface waters (62-330.301(6)(c), FAC). Subsection 10.3.8(a) of the Applicant's Handbook "all conservation easements, deed restrictions, and restrictive covenants accepted for mitigation purposes shall be granted in perpetuity without encumbrances, unless such encumbrances do not adversely affect the ecological viability of the mitigation. All conservation easements shall be consistent with Section 704.06, F.S., and shall contain restrictions that ensure the ecological viability of the site."

6.2.2 Florida Fish and Wildlife Conservation Commission

Under Article IV Section 9 of the Florida Constitution, FWC has the authority to "exercise regulatory and executive powers of the state with respect to wildlife, animal life, and freshwater aquatic life" (FWC 2016, Amended 2018). State-protected wildlife species, prohibitions, and permits are identified in Chapter 68A-27 FAC. FWC maintains Florida's Imperiled Species Management Plan 2016-2026 (FWC 2016, Amended 2018), which is designed to conserve 57 fish and wildlife species over the next 10 years. FWC's Species Conservation Planning Section issue permits authorizing impacts to Florida's protected land-dwelling wildlife. Protected wildlife species are those identified as E, T, or SSC, as well as migratory birds and other species protected by state rules. Species Conservation Measures and Permitting Guidelines have been developed for 26 species to assist in determining permit needs and minimizing impacts to wildlife. The guidelines are intended to provide clear information on requirements established in the FAC related to intentional and incidental take permitting, and guidance on species range, survey methodology, and recommended practices (FWC 2016, Draft Guidelines for 2021).

Desktop analysis and site review of the study corridor did not identify critical foraging, resting, or nesting state protected wildlife species; however, during final design and permitting it is recommended that the project corridor be re-evaluated for protected wildlife species, such as the gopher tortoise, as it may move into the area; the burrowing owl; the Florida scrub-jay; and sandhill cranes. Coordination with regulatory agencies should be based on surveys conducted at that time.

6.3 Local Government

6.3.1 Orange County Environmental Protection Division

The Orange County Environmental Protection Division (OCEPD) is a local government agency that regulates wetlands pursuant to Article X – Wetland Conservations Areas Section 15 (Orange County Government 2019). This ordinance classifies wetland systems by size, hydrologic connection, and use

of the system by protected wildlife species. All wetland systems within unincorporated Orange County, Florida, are classified using the following criteria:

- Class I – System has a hydrologic connection to natural surface water bodies or a lake littoral zone, is 40 acres or larger in size, or provides critical habitat to federally and/or state-protected wildlife species.
- Class II – System consists of isolated wetlands or formerly isolated wetlands that have been altered to have a direct connection to other surface water drainage, and the system is greater than or equal to 5 acres or is not otherwise classified as a Class I wetland.
- Class III – System is isolated wetland less than 5 acres and does not qualify as a Class I or Class II system.

Class I wetland systems receive the greatest protection and may be impacted only when no alternative exists for the reasonable use of the land where there is an overriding public benefit. Class II wetland systems may be impacted except when contrary to public interest. Class III wetland systems may be impacted in every case.

OCEPD evaluates secondary impacts like that of SFWMD with a 15-foot minimum, 25-foot average width into a system. In addition, direct and secondary impacts may be offset through appropriate mitigation.

7.0 Potential Impacts to Wetlands, Surface Waters, Wildlife, and Their Habitat

7.1 Potential Wetland and Other Surface Water Impacts

Current ecological conditions within the study corridor were evaluated to determine the potential for adverse wetland and/or other surface water impacts associated with three alignments and 11 stormwater management pond locations. The potential for adverse impacts to wetlands, surface waters, flora, and fauna are described below.

7.1.1 Direct Impacts

This RCA corridor lies within the Reedy Creek Drainage Basin. Impacts to wetland systems associated with roadway alignment and stormwater pond locations are identified in **Table 4** and depicted in **Figure 14-1** and **Figure 14-2**.

Table 4: Approximate Wetland and Other Surface Water Impacts Associated with Avalon Road RCA

Wetland/Other Surface Water ID	FLUCFCS Code	Preferred Alignment Impact (ac)*	East Alignment Impact (ac)	West Alignment Impact (ac)	Proposed Pond ID	Proposed Pond Impact (ac)*
WL-3	6410	0.12	--	0.12		
WL-6	6210	0.56	--	0.56	FC3A	0.36
WL-7A	6300	0.28	0.28	--		
WL-10	6410	0.42	0.42			
TOTAL		1.38	0.70	0.68		0.36

* Impact acreages are based on approximate limits through aerial interpretation and limited ground-truthing activities.

7.1.2 Secondary Impacts

Federal, state, and local regulatory agencies with jurisdiction over the proposed wetland impacts evaluate potential secondary impacts to wetlands and wildlife during the permitting process. Secondary impacts from project implementation may include lighting, increase in collisions with wildlife from vehicles, and edge effect to remaining wetlands.

Generally, secondary impacts to the habitat function of wetlands will not be considered adverse if buffers, with a minimum width of 15 feet and an average width of 25 feet, are provided adjacent to the wetlands that will remain. Buffers must be maintained in their natural/undisturbed condition, provided the construction or use of these features does not adversely impact wetlands. Wetlands or other surface waters cannot be filled to create upland buffers.

Secondary impacts associated with stormwater pond locations and roadway alignment will need to be evaluated during the final design phase to ensure the proposed hydroperiod of the stormwater management system does not adversely affect the hydrology of an adjacent wetland system.

7.1.3 Cumulative Impacts

SFWMD requires an applicant to provide reasonable assurance that construction activities will not cause unacceptable cumulative impacts to wetlands and other surface waters in the same drainage basin as the proposed activities. During review, SFWMD takes into consideration any potential future projects that may have environmental impacts, which, without the current project, would not otherwise be constructed.

If an applicant proposes to mitigate adverse impacts within the same drainage basin as the impacts, and if mitigation fully offsets these impacts, then the proposed project will be considered to have no unacceptable cumulative impacts to wetlands and other surface waters. This section of Avalon Road lies within the Reedy Creek Drainage Basin.

7.1.4 Avoidance and Minimization

The proposed construction and widening of Avalon Road will improve the level of service and enhance safety for the public. Maintaining state and county roadway criteria, improvements to Avalon Road may provide little opportunity to avoid and/or minimize adverse wetland impacts within the existing right-of-way (ROW). When evaluating practicable design modification to reduce or eliminate wetland impacts, regulatory agencies may not require avoidance and minimization when the following events occur:

- The ecological value the functions provide is low, and the proposed mitigation will provide greater long-term ecological value.
- The proposed mitigation of all or part of a plan that provides regional ecological value and provides greater long-term ecological value than the area of wetland or other surface water proposed for impacts.

It is anticipated that jurisdictional wetland and/or other surface water systems within the Avalon Road RCA study corridor will be avoided and/or minimized to the greatest extent practical while maintaining safety and function. Further avoidance and minimization efforts of wetlands should be evaluated during the final design.

7.1.5 Potential Impacts to Federally and/or State-Protected Wildlife Species

The potential impact to federally and/or state-protected wildlife species will be evaluated based upon occurrence determinations for Orange County, Florida, as shown in **Table 3**, and site reviews. Review of current ecological conditions within the study corridor found suitable habitat for several species, including the Florida scrub-jay, gopher tortoise, burrowing owl, Florida sandhill crane, and other wetland dependent species, including wading birds; however, impacts to suitable habitat are not anticipated to adversely affect these species. Site reviews should be conducted during final design and permitting of this project to verify the presence or absence of federally and/or state protected wildlife species. If such species are observed within the corridor, coordination with FWS and/or FWC may be warranted.

8.0 Mitigation Assessments

Federal, state, and local government agencies with regulatory authority over wetlands and/or other surface waters generally require mitigation to offset unavoidable impacts as a condition of the permit. Mitigation requirements are based on a compilation of wetland parameters, including quality, type, function, and size. Impacts to wetlands and/or other surface waters will be avoided and minimized to the maximum extent possible while maintaining safe and sound engineering and construction practices. Primarily, avoidance and minimization efforts will be related to the proposed stormwater management pond locations.

A mitigation plan that adequately offsets adverse impacts should be developed and implemented during the permitting phase. Adverse wetland impacts that may result from the construction of this project will be mitigated, satisfying the requirements of Part IV, Chapter 373, FS, and 33 U.S. Code (USC) 1344. Compensatory mitigation for this project will be completed using mitigation banks and/or any other mitigation options that satisfy regulatory agency requirements.

Mitigation bank service areas and mitigation credit availability for Reedy Creek Drainage Basin include Hatchineha Ranch, Bullfrog Bay, Twin Oaks, Kissimmee Ridge, Colony, Southport Ranch, Split Oak Forest, Reedy Creek, Shingle Creek, and Florida Mitigation Bank.

Of these mitigation bank options, Reedy Creek, Southport Ranch, Florida, and Bullfrog Bay are located within the Reedy Creek Drainage Basin; therefore, purchase of mitigation credits from one of these banks would satisfy the cumulative impact criteria. A cumulative impact analysis may be required by the regulatory agency if mitigation is proposed outside of the Reedy Creek Drainage Basin.

Table 5 provides a summary of current credits available at mitigation banks located within the Reedy Creek Drainage Basin. Credit availability and pricing should be reviewed during the final design and permitting of the project to determine the best mitigation plan.

Table 5: Summary of Available Mitigation Credits from Mitigation Banks servicing the Reedy Creek Drainage Basin for Avalon Road RCA.

Mitigation Bank	Bank Service Area	*Credits Available
Southport Ranch	Reedy Creek, Shingle Creek, Part of Boggy Creek, Part of Lake Hart, Lake Tohopekaliga, Lake Gentry, Part of Lake Hatchineha, Part of Lake Kissimmee	State 156.25 (Forested) 0.94 (Herbaceous) Federal 15.78 (Forested) 7.0 (Herbaceous)
Reedy Creek	Reedy Creek, Shingle Creek, Boggy Creek, Lake Hart, E Lake Tohopekaliga, Lake Hatchineha, Lake Pierce, Lake Kissimmee, Lake Myrtle, Alligator Lake, Lake Gentry, S-63A, Canoe Creek, Lake Cypress, Horse Creek	State 33.72 (Forested) Federal 69.75 (Forested)
Florida (WRAP)	Shingle Creek, Lake Tohopekaliga, Reedy Creek	State 2.49 (Forested) Federal 222.39 (Forested) 107.75 (Herbaceous)
Bullfrog Bay	Reedy Creek, Lake Tohopekaliga, Lake Hart, Alligator Lake, Lage Gentry, Lake Cypress, Lake Kissimmee	State: 11.61 (Forested) 14.28 (Herbaceous)

*Based on SFWMD mitigation ledger as of May 31, 2022.
Credits reflect the current data and may differ from this report at the time of design and permitting. Available credits are for planning purposes only.

9.0 Wildlife Crossing

As part of the RCA ecological evaluation, the opportunity of implementing wildlife crossings within the study corridor was evaluated. Wildlife crossings are typically associated with linear projects when natural

habitat is located on both sides of a proposed crossing and that habitat is protected from site conversion by having a preservation or conservation status. These crossings allow for terrestrial wildlife to move uninterrupted and safely through a roadway corridor.

9.1 Evaluation Criteria

The study corridor was analyzed for opportunities of implementing wildlife crossings. The analysis included a review of the following:

- Biodiversity Resource Priorities (BRP)
- Identification and location of conservation lands and/or public lands
- Current and future development plans

CLIP was developed by FNAI, the University of Florida's GeoPlan Center and Center for Landscape Conservation Planning, and FWC. CLIP is a collection of spatial data that identifies statewide opportunities for protecting biodiversity, landscapes, and water resources in Florida. CLIP is available for use as a resource planning tool for state, regional, and local agencies in natural resource protection by providing a broad picture of natural resources to support conservation opportunities (NatureServe 2021). CLIP is organized into a set of core natural resource data layers that are combined into five resource categories, with the first three making up the Aggregated CLIP Model:

- Biodiversity
- Landscape
- Surface Water
- Groundwater
- Marine

The biodiversity matrix combines the following four core data included into the BRP layer (Oetting, Hoctor and Volk 2016) :

- **Strategic Habitat Conservation Areas** – This identifies suitable habitat for one or more rare or vulnerable vertebrate species. Those species likely require this area to maintain viable populations in Florida for the foreseeable future. Highest priorities indicate the rarest or most vulnerable species, but all priority levels have conservation value. Priority is ranked from 1 (highest) to 5 (lowest)
- **Potential Habitat Richness** – This identifies suitable habitat for one or more rare or vulnerable vertebrate species. "Richness" refers to the number of species overlapping at any location and ranges from 1 to 13. This data layer was created by FWC to identify additional habitat areas important for conservation beyond those areas identified in the Strategic Habitat Conservation Areas analysis
- **Rare Species Habitat Conservation Priorities** – This identifies suitable habitat for one or more rare or vulnerable species that are known to occur in the vicinity. Highest priorities could indicate a single species with very high conservation need, or multiple species with high conservation need. All priorities reflect rare species with conservation need. This layer includes occurrence-based habitat for 281 species with a high conservation need including plants, invertebrates, and vertebrates. This layer prioritizes places on the landscape that would protect both the greatest number of rare species and those species with the greatest conservation need. Priority is ranked from 1 (highest) to 6 (lowest)
- **Priority Natural Communities** – A given location features one of 14 priority natural community types: upland glades, pine rocklands, seepage slopes, scrub, sandhill, sandhill upland lakes,

rockland hammock, coastal uplands, imperiled coastal lakes, dry prairie, upland pine, pine flatwoods, upland hardwood forest, or coastal wetlands. These natural communities are prioritized by a combination of their global status rank and landscape. Priority is ranked from 1 (highest) to 4 (lowest)

The BRP layer is based upon a location meeting one of the four core data layers to meet that priority class criteria. If a location meets more criteria, then the priority is moved higher for that location.

Based on a desktop review of the BRP data (**Figure 15**), areas within this RCA received a ranking between 1 and 5. Natural areas throughout the study corridor have been bisected by land development (e.g., roads, residential areas, commercial) or proposed for future development, so a wildlife crossing location may not be viable.

9.1.1 Conservation Lands

FDEP maintains GIS data available to the public through FDEP Map Direct. The Florida State Owned Lands and Records Information System (FL-SOLARIS) was implemented to maintain a database of property "owned, leased, rented, or otherwise occupied" by any state government agency. In 2017, FL-SOLARIS provided Conservation Lands, Easements, and Recreation (CLEAR), which contains conservation easements for federal, municipal, county, and special districts, as well as other entities specified in 253.87, FS. This data is refreshed every 5 years (FDEP 2018).

Review of FDEP's Map Direct FL-SOLARIS CLEAR data identifies several conservation areas within the study corridor (**Figures 16-1** and **16-2**).

In July 2021, Senate Bill 976 was signed creating the Florida Wildlife Corridor Act, which directs FDEP to encourage and promote investment in areas that protect and enhance the wildlife corridor (**Figure 17**), "building a network of private and public lands to provide critical habitat to wildlife across the state" (State of Florida 2021).

9.1.2 Current Corridor Condition

Avalon Road is currently a two-lane road with maintained ROW. This corridor of Avalon Road includes residential and commercial development; improved pastures; stormwater management areas; areas of natural, undeveloped forested upland; and wetland land use types. Undeveloped lands are located east and west of Avalon Road but are bisected by current and future development and roadways. Continuous uninterrupted natural habitat is limited within the study corridor.

9.1.3 Future Corridor Condition

The Avalon Road study corridor is largely developed, with several undeveloped properties identified for future development (**Figure 18**). Permitting agencies should be consulted during the permitting of this project to evaluate properties not identified for development.

9.2 Selection of Potential Wildlife Crossing Locations

Two critical evaluation criteria are reviewed when determining the implementation and placement of wildlife crossings:

- The presence of natural habitat on both sides of the roadway that is protected from site alteration.
- The ability to construct a fence to guide wildlife to that crossing.

Therefore, if a potential wildlife crossing location currently has natural habitat on both sides of the roadway, is under private ownership, and the property owner prohibits the construction of a fence or reserves the right to move or remove the wildlife fence in the future, the long-term viability of the location is greatly diminished.

Applying the above criteria and reviewing biodiversity data for the study corridor, existing natural habitat, and site reviews, MSE evaluated two potential wildlife crossing locations, one north of Bali Boulevard and one north of Lake Gifford Road (**Figure 19**).

9.3 Application of Evaluation Criteria to Potential Wildlife Crossing Locations

Wildlife Crossing Location 1 – This location is approximately 500 feet north of US 192. Natural habitat is present consisting of uplands on the west and wetlands on the east of Avalon Road, with the east parcel under conservation. The property located west of Avalon Road is privately owned with the property adjacent has a valid permit for proposed development. Avalon Road is proposed to be widened in this area with the addition of stormwater management ponds located between the upland and the wetland east of Avalon Road. In addition, the following findings were noted at this location:

- **BRP** – This area is identified with a ranking of 2.
- **Conservation** – FL-SOLARIS CLEAR data indicates land under conservation easement is east of the study corridor, with the remainder of the location not under conservation.
- **Current and Future Land Use** – This location consists of undeveloped uplands and wetlands; however, the western boundary of uplands is permitted for development, and the conservation area is bordered by existing development to the south.

Wildlife Crossing Location 2 – This location is approximately 1,200 feet south of Grove Blossom Way. Natural habitat is present consisting of uplands and wetlands on the east and west of Avalon Road, with a culvert connection under Avalon Road. The properties are privately owned and not proposed for development at this time. Although the Florida Wildlife Corridor does not include the property located west of Avalon Road, it is within 1,000 feet and includes a portion of the wetland adjacent to the proposed crossing. In addition, the following items were noted at this location:

- **BRP** – This area is identified with rankings between 1 and 4.
- **Conservation** – FL-SOLARIS CLEAR data indicates this area is not under conservation.
- **Current and Future Land Use** – This location consists of undeveloped of uplands and wetlands with no currently proposed development.

9.4 Wildlife Crossing Summary

Wildlife Crossing Location 1 – Based on the information and analysis presented above, and the wildlife known to inhabit this area, a wildlife crossing is not justified due to the lack of sustainable natural communities and a continuous corridor for wildlife movement. A wildlife crossing in this location may be reconsidered in the future should plans to develop the area west of Avalon Road change.

Wildlife Crossing Location 2 – Based on the information and analysis presented above, and the wildlife known to inhabit this area, a wildlife crossing for herptiles (amphibians and reptiles), and small mammals could be supported at this location. Configuration of the components of a wildlife crossing should be determined during final roadway design.

Bibliography

33 Code of Federal Regulations. Part 329. n.d. "Definitions of Navigable Waters of the US."

Audubon Society. 2021. *Audubon Society EagleWatch Program.* https://cbop.audubon.org/conservation/about-eaglewatch-program.

Cowardin, Lewis, Virginia Carter, Francis Golet, and Edward LaRoe. December 1979. *Classification of Wetlands and Deepwater Habitats of the United States.*

Cox, James, Douglas Inkley, and Randy Kautz. December 1987. "Ecology and Habitat Protection Needs of the Gopher Tortoise (Gopherus polyphemus) Populations Found on Lands Slated for Large-Scale Development in Florida." *Nongame Wildlife Program Technical Report No. 4.*

EPA. 2021a. *Final Rule: Definition of "Waters of the United States" - Recodification of Pre-Existing Rules.* September. https://www.epa.gov/wotus/wotus-step-one-repeal.

—. 2021b. *Pre-2015 Regulatory Definition and Pactice.* August. https://www.epa.gov/wotus/current-implementation-waters-united-states#Pre-2015.

—. n.d. *Section 404 of the Clean Water Act.* https://www.epa.gov/cwa-404/how-wetlands-are-defined-and-identified-under-cwa-section-404#:~:text=%22Wetlands%20are%20areas%20that%20are,life%20in%20saturated%20soil%20conditions.

Ernst, C. H., and E. M. Ernst. 2003. *Snakes of the United States and Canada.* Washington D.C.: Smithsonian Books.

FDEP. 2020a. https://geodata.dep.state.fl.us/datasets/2f0e5f9a180a412fbd77dc5628f28de3_3?geometry=-104.551%2C24.335%2C-62.737%2C31.136.

—. 2018. *Florida State Owned Lands and Records Information System (FL-SOLARIS).* November. Accessed April 2022. https://floridadep.gov/lands/fl-solaris.

FDEP. 2020b. *State 404 Program Applicant's Handbook.* FDEP.

Florida Department of Agriculture and Consumer Services. 2020-2021. *Endangered, Threatened and Commercially Exploited Plants of Florida.* https://www.fdacs.gov/Consumer-Resources/Protect-Our-Environment/Botany/Florida-s-Endangered-Plants/Endangered-Threatened-and-Commercially-Exploited-Plants-of-Florida.

FNAI. 2001. "Field Guide to the Rare Animals of Florida." https://www.fnai.org/FieldGuide/pdf/Pituophis_melanoleucus_mugitus.pdf.

—. 2022. *Florida Natural Areas Inventory.* https://www.fnai.org/trackinglist.cfm.

FWC. 1999–2021. https://myfwc.com/wildlifehabitats/wildlife/bald-eagle/information/#:~:text=Florida%20has%20one%20of%20the,coastal%20systems%20throughout%20the%20state.

—. 2018, updated April 2019. *Florida Burrowing Owl Species Conservation Measures and Permitting Guidelines.* https://myfwc.com/media/2028/florida-burrowing-owl-guidelines.pdf.

FWC. 2019. "Florida Sandhill Crane. Species Conservation Measures and Permitting Guidelines."

FWC. Updated 2021. "Florida’s Endangered and Threatened Species."

FWC. 2021. "Florida's Endangered Species, Threatened Species and Species of Special Concern Official List."

FWC. 2016, Amended 2018. *Florida's Imperiled Species Management Plan.* FWC.

FWC. 2008/Revised Effective July 2020. "Gopher Tortoise Permitting Guidelines."

—. n.d. *Rare Snake Sightings.* Accessed February 16, 2022. https://app.myfwc.com/fwri/raresnakes/Locations.aspx.

FWC. 2001. "Recommended Management Practices and Survey Protocols for Audubon's Crested Caracaras (Caracara Cheriway audunonii) in Florida." Technical Report No. 18.

FWC. 2011. "Short-tailed Snake Biological Status Review." https://myfwc.com/wildlifehabitats/profiles/reptiles/snakes/short-tailed-snake/.

—. 2016, Draft Guidelines for 2021. *Species Conservation Measures and Permitting Guidelines.* https://myfwc.com/wildlifehabitats/wildlife/species-guidelines/.

FWC. 2018. "Species Conservation Measures and Permitting Guidelines Florida Pine Snake (Pituophis melanoleucus mugitus)."

FWC. Effective December 2019. "Species Conservation Measures and Permitting Guidelines Short-Tailed Snake (Lampropeltis extenuata)."

FWS. 2021b. "ECOS, Species Profile Sountheastern Sand Skink and Bluetail Skink." *FWS.* Accessed 2021. https://www.fws.gov/northflorida/Skink/skinks.htm.

—. 2021a. *Environmental Conservation Online System.* https://ecos.fws.gov/ipac/location/index.

—. 1986. *Everglade Snail Kite Multi-Species Recovery Plan for South Florida.* https://www.fws.gov/verobeach/MSRPPDFs/EvergladeSnailKite.pdf.

—. 2010-2019. *Florida Active Nesting Colonies and Core Foraging Areas.* Accessed March 2021. https://www.fws.gov/northflorida/WoodStorks/wood-storks.htm.

FWS. June 28, 2004. "Florida Scrub-jay Survey Protocol." https://efotg.sc.egov.usda.gov/references/public/FL/S_FL_scrub_jay_survey.pdf.

—. 2019. *FWS South Florida Multi-Recovery Species Plan.* https://www.fws.gov/verobeach/listedspeciesmsrp.html.

—. 2016. "Guidance for Submitting Endangered Species Act Consultation Requests to Florida Field Offices of the U.S. Fish and Wildlife Service (Version 2)." November. https://www.fws.gov/verobeach/ProgrammaticPDFs/20161100_USFWSFloridaChecklistGuidance.pdf.

FWS. 2020b. "Peninsular Florida Species Conservation and Consultation Guide Sand and Blue-tailed (Bluetail) Mole Skink."

—. 2020a. *Red-cockaded Woodpecker Recovery.* November 17. https://www.fws.gov/rcwrecovery/rcw.html.

FWS. 1987. "Sand Skink Multi-Species Recovery Plan for South Florida."

FWS. 2020c. "Sand Skinks and Blue-tailed Mole Skinks Survey Protocol Peninsular Florida."

FWS, Southeast Region. 2018. "Species Status Assessment (SSA) Report for the Eastern Indigo Snake (Drymarchon couperi)." Version 1.0, Atltanta.

NatureServe. 2021. *LandScope Florida Aggregated CLIP Priorities.* http://www.landscope.org/florida/priorities/data/aggregated_clip/.

NRCS. 2019. *NRCS.* August. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Oetting, Jon, Tom Hoctor, and Michael Volk. 2016. "CLIP: Critical Lands and Waters Identifiecation Project. Version 4.0 User Tutorial."

Orange County Government. 2019. "Chapter 15, Article X Wetland Conservation Ordinance Applicant's Handbook." September. https://www.orangecountyfl.net/Portals/0/resource%20library/permits%20-%20licenses/Chp%2015-X%20Wetland%20Permit-Hndbk-20190905_final_ADA-CERT.pdf.

Rodgers, Jr., James A., Herbert W. Kale, II, and Henery T. Smith. 1996. *Rare and Endangered Biota of Florida Volume V. Birds.* University Press of Florida.

Scott, Chris. 2004. *Endangered and Threatened Animals of Florida and Their Habitats.* Austin: University of Texas Press.

State of Florida. 1994. *Delineation of the Landward Extent of Wetlands and Surface Waters (Chapter 62-302, FAC).* Chapter 62-340, FAC.

—. 2021. *Senate Bill 976 Florida Wildlife Corridor Act.* July 19. https://www.flgov.com/2021/07/19/governor-ron-desantis-celebrates-the-signing-of-senate-bill-976-creating-the-florida-wildlife-corridor-act/.

UF IFAS Extension. 2020. *Wildlife of Florida Factsheet: Eastern Indigo Snake.* June. https://edis.ifas.ufl.edu/publication/UW475.

USACE. 1987. *Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1).* USACE.

USACE Jacksonville. n.d. *Source Book.* Accessed October 2021. https://www.saj.usace.army.mil/Missions/Regulatory/Source-Book/.

USACE. 2010. *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic Gulf Coast Plan Region.* USACE.

USACE, FWS. 2013. "Eastern Indigo Programmatic Effect Determination Key." Updated.

USACE, FWS, FWC. 2018a. "Determination Key for the Wood Stork in Central and North Peninsular Florida."

USACE, FWS, FWC. 2018b. "The Corps of Engineers, Jacksonville District, U.S. Fish and Wildlife Service, Jacksonville Ecological Services Field Office, and State of Florida Effect Determination Key for the Wood Stork in Central and North Peninsular Florida."

Woolfenden, G.E., and J.W. Fitzpatrick. 1996. "Florida Scrub-jay (Aphelocomo coerulrscens), Version 2.0." *In the Birds of North America.*

Wunderlin, R. P., B. F. Franck, and F. B. Essig. 2021. "Atlas of Florida Plants." Accessed October 2021. https://florida.plantatlas.usf.edu/.

Figures

Legend

- Avalon Road RCA Study Corridor
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

End Study Corridor

Begin Study Corridor

3A
3B
3C
1A
1B
1B
2A
2B
FC2
FC3
FC3A

Lake Star
Western Way
Flemings Rd
Hancock Lake
Lake Orange
Encore at Ovation Way
Lake Mac
Avalon Rd
Lake Luzom
Lake Oliver
Lake Austin
Lake Gifford
Hartzog Rd
Grove Resort Ave
Grove Blossom Way
Citrus Ridge
Mudd Lake
Cricket Lake
Tennis Court Loop
Summer Bay Blvd
Bali Blvd
530
Grass Lake
Rexford Lake
Osage Lake
Arrowhead Blvd
Lake Chapin
Arrowhead Lakes
Resort Way
192
W Irlo Bronson Memorial Hwy
Orange
Polk
Osceola
Outdoor Resorts
Old Lake Davenport
Shine Dr
Silver Pl
Zander Dr
Legacy Blvd
Styles Blvd
Britannia Blvd
Legacy Ct
Dunes Ct
Parliament Ct
Cuban Palm Rd
Beach Palm Ave
Palm Rd
Candy
Majesty Palm Rd
Sugar Palm Rd
Paolos Pl
Stromboli Ct
Vista del Lago
Vista del Lago Blvd
Cordoba St
Palencia St
Salamanca Dr
Menorca Dr
Canaveral Dr
Rialto Dr
Nieves Cir
De Luna St
Los Altos St
El Pico St
Daeza Dr
Vamora Dr
Avenida de Palma
Tavira Dr
Lighthouse Key Pkwy
Yellow Lantana Ln
Bay Lily Lo
Secret Lake Dr
Dickens Cir
Lindfields Blvd
Wellington Loop
Paddington Way
Pembridge St
Arrowhead Blvd
Strathan Blvd

Source: ESRI Street Map
Study Corridor/Pond Locations (JMT 2022)

0 0.125 0.25 Miles

DRN: KJT | APR: MLP
DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Location Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 1

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 1 - Avalon RCA Location Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

3A
3C
FC3A
Lake Gifford Road
Grove Blossom Way
3B
FC3
2B
FC2
2A
Avalon Road
1A
1B
1B
Bali Boulevard
US 192
Begin Study Corridor
West Side Boulevard
2
1

Source: ESRI Aerial (Oceola County 2020)
Study Corridor, Alignments and Ponds (JMT 2022)

0 250 500 Feet

DRN: KJT | APR: MLP
DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Aerial Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 2-1

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 2 - Avalon RCA Aerial Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

End Study Corridor

Hartzog Road

Avalon Road

3A

FC3A

3C

Lake Gifford Road

Grove Blossom Way

3B

FC3

2B

2

1

Source: ESRI Aerial (Oceola County 2020)
Study Corridor, Alignments and Ponds (JMT 2022)

0 250 500 Feet

DRN: KJT	APR: MLP
DATE: 5.25.2022	OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Aerial Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 2-2

MSE Group, LLC

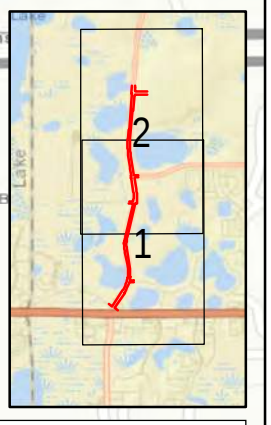
Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 2 - Avalon RCA Aerial Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

3A
3C
FC3A
3B
FC3
2B
FC2
2A
1A
1B
Begin Study Corridor

Lake Gifford
Hartzog Rd
Vista del Lago Blvd
De Luna St
Grove Blossom Way
120 ft
Citrus Ridge
Avalon Rd
545
Rexford Lake
Grass Lake
Arrowhead Blvd
Lake Chapin
Arrowhead Lakes
Arrena Rd
Strahan Blvd
10 ft
530
Ball Blvd
192
Wilfrid Bronson Memorial Hwy
Tiberian Dr
Douglas Grand Dr
Jakoby St
Meridius Pl
Westside Blvd
Wish Ave
Legacy Blvd
Crayson Ct
Sunrise Way
Zander Dr



Source: ESRI USGS Topographic Map
Study Corridor, Alignments and Ponds (JMT 2022)

0 250 500 Feet

DRN: KJT	APR: MLP
DATE: 5.25.2022	OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
USGS Topographic Quadrangle Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 3-1

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 3 - Avalon RCA USGS Topographic Quadrangle Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

End Study Corridor

545

Avalon Rd

Lake Luzom

136 ft

153 ft

Lake Oliver

118 ft

3A

Lake Gifford

Lake Austin

FC3A

3C

Hartzog Rd

De Luna St

Vista del Lago Blvd

120 ft

Grove Blossom Way

3B

FC3

2B

Citrus Ridge

2

1

Source: ESRI USGS Topographic Map
Study Corridor, Alignments and Ponds (JMT 2022)

0 250 500 Feet

DRN: KJT | APR: MLP

DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
USGS Topographic Quadrangle Map
Orange County, Florida

Figure No. 3-2

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 3 - Avalon RCA USGS Topographic Quadrangle Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

Soil Description

- 2:Archbold Fine Sand, 0 To 5% Slopes
- 3:Basinger Fine Sand, Frequently Ponded, 0 To 1% Slopes
- 4:Candler Fine Sand, 0 To 5% Slopes
- 5:Basinger Fine Sand, 0 To 2%Slopes
- 7:Candler Sand, 0 To 5% Slopes
- 8:Candler Sand, 5 To 12% Slopes
- 15:Hontoon Muck, Frequently Ponded, 0 To 1% Slopes
- 16:Immokalee Fine Sand, 0 To 2% Slopes
- 20:Immokalee Fine Sand
- 32:Placid Fine Sand, Frequently Ponded, 0 To 1% Slopes
- 34:Pomello Fine Sand, 0 To 5% Slopes
- 40:Samsula Muck, Frequently Ponded, 0 To 1% Slopes
- 42:Sanibel Muck
- 43:St. Lucie Fine Sand, 0 To 5% Slopes
- 44:Tavares Fine Sand, 0 To 5% Slopes
- 46:Tavares Fine Sand, 0 To 5% Slopes
- 47:Tavares-Millhopper Complex, 0 To 5% Slopes
- 99:Water

Lake Gifford Road
Grove Blossom Way
Avalon Road
Bali Boulevard
West Side Boulevard
US 192
Begin Study Corridor

Source: ESRI Aerial (Osceola County 2022)
NRCS Soil Survey Data (2018)
Study Corridor, Alignments and Ponds (JMT 2022)

0 250 500 Feet

DRN: KJT | APR: MLP
DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
NRCS Soil Survey Map
Orange County, Florida

Figure No. 4-1

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road\ RCA\MXD and Shapefiles\Figure 4 - Avalon RCA Soil Survey Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

Soil Description

- 2:Archbold Fine Sand, 0 To 5% Slopes
- 3:Basinger Fine Sand, Frequently Ponded, 0 To 1% Slopes
- 4:Candler Fine Sand, 0 To 5% Slopes
- 5:Candler Fine Sand, 5 To 12% Slopes
- 20:Immokalee Fine Sand
- 34:Pomello Fine Sand, 0 To 5% Slopes
- 37:St. Johns Fine Sand
- 40:Samsula Muck, Frequently Ponded, 0 To 1% Slopes
- 41:Samsula-Hontoon-Basinger Association, Depressional
- 42:Sanibel Muck
- 46:Tavares Fine Sand, 0 To 5% Slopes
- 47:Tavares-Millhopper Complex, 0 To 5% Slopes
- 99:Water

End Study Corridor
Hartzog Road
Avalon Road
Lake Gifford Road
Grove Blossom Way
3A
3B
3C
FC3
FC3A
2B

Source: ESRI Aerial (Osceola County 2022)
NRCS Soil Survey Data (2018)
Study Corridor, Alignments and Ponds (JMT 2022)

0 250 500 Feet

DRN: KJT | APR: MLP
DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
NRCS Soil Survey Map
Orange County, Florida

Figure No. 4-2

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 4 - Avalon RCA Soil Survey Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- East Alternate Alignment
- West Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

1110: Low Density, Fixed Single Family Units

1130: Low Density, Mixed Units (Fixed and Mobile Home Units)

1180: Residential, rural - one unit on 2 or more acres

1310: High Density, Fixed Single Family Units

1320: High Density, Mobile Home Units

1340: High Density, Multiple Dwelling Units, High Rise

1390: High Density Under Construction

1400: Commercial and Services

1490: Commercial and Services Under Construction

1900: Open Land (Urban)

1920: Inactive Land with Street Pattern

2210: Citrus Groves

3200: Shrub and Brushland

3210: Palmetto Prairies

3300: Mixed Upland Nonforested

4110: Pine Flatwoods

4200: Upland Hardwood Forests

4340: Upland Mixed - Coniferous / Hardwood

4420: Hardwood Plantations

5200: Lakes

5300: Reservoirs

6170: Mixed Wetland Hardwoods

6172: Mixed Shrubs

6210: Cypress

6250: Hydric Pine Flatwoods

6300: Wetland Forested Mixed

6410: Freshwater Marshes

6440: Emergent Aquatic Vegetation

8140: Roads and Highways

Lake Gifford Road

Grove Blossom Way

Avalon Road

Bali Boulevard

US 192

West Side Boulevard

Begin Study Corridor

Source: ESRI Aerial (Osceola County 2020)
Study Corridor, Alignments and Pond Sites (JMT 2022)
Land Use (FDEP Statewide Land Use 2019, Revised Per MSE Field Review 2022)

0 250 500 Feet

DRN: KJT | APR: MLP

DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Land Use Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 5-1

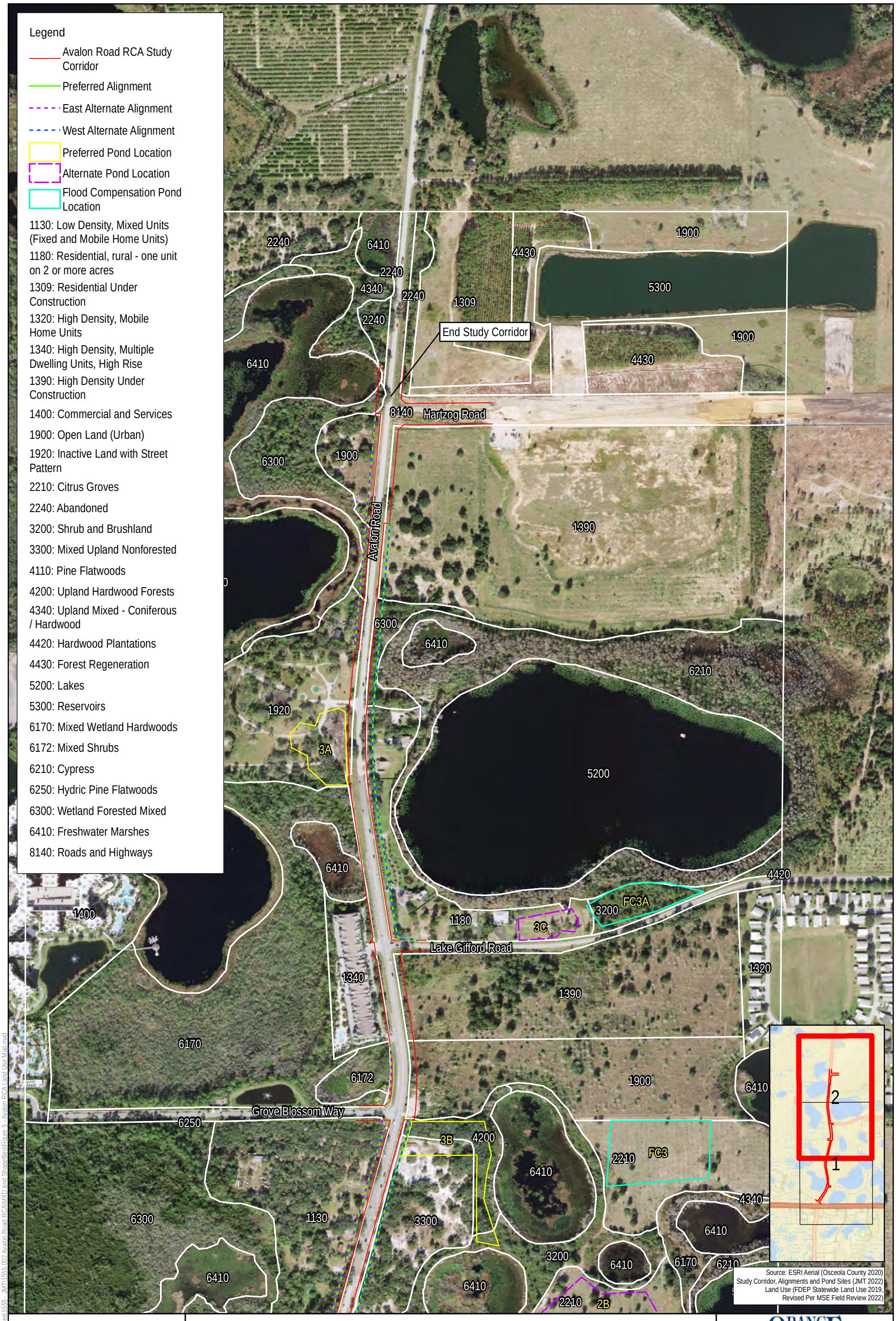
MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 5 - Avalon RCA Land Use Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- East Alternate Alignment
- West Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

1130: Low Density, Mixed Units (Fixed and Mobile Home Units)
1180: Residential, rural - one unit on 2 or more acres
1309: Residential Under Construction
1320: High Density, Mobile Home Units
1340: High Density, Multiple Dwelling Units, High Rise
1390: High Density Under Construction
1400: Commercial and Services
1900: Open Land (Urban)
1920: Inactive Land with Street Pattern
2210: Citrus Groves
2240: Abandoned
3200: Shrub and Brushland
3300: Mixed Upland Nonforested
4110: Pine Flatwoods
4200: Upland Hardwood Forests
4340: Upland Mixed - Coniferous / Hardwood
4420: Hardwood Plantations
4430: Forest Regeneration
5200: Lakes
5300: Reservoirs
6170: Mixed Wetland Hardwoods
6172: Mixed Shrubs
6210: Cypress
6250: Hydric Pine Flatwoods
6300: Wetland Forested Mixed
6410: Freshwater Marshes
8140: Roads and Highways



Source: ESRI Aerial (Osceola County 2020)
Study Corridor, Alignments and Pond Sites (JMT 2022)
Land Use (FDEP Statewide Land Use 2019, Revised Per MSE Field Review 2022)

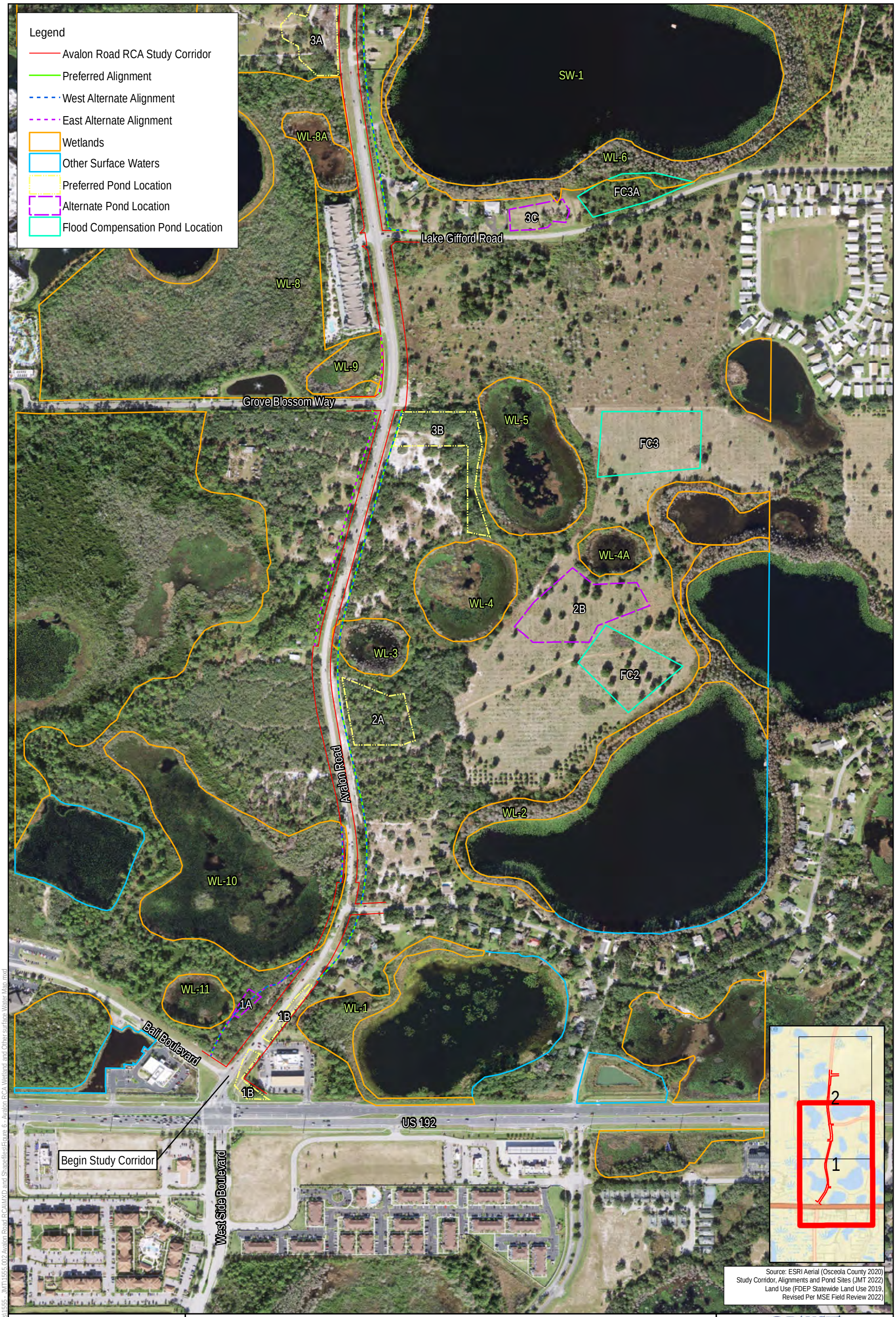
DRN: KJT	APR: MLP
DATE: 5.25.2022	OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Land Use Map
Orange County, Florida

Figure No. 5-2

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 5 - Avalon RCA Land Use Map.mxd



DRN: KJT | APR: MLP

DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Wetlands and Other Surface Waters Map
Orange County, Florida

Figure No. 6-1

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 6 - Avalon RCA Wetland and Other surface Water Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Wetlands
- Other Surface Waters
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

End Study Corridor

Hartzog Road

Avalon Road

Lake Gifford Road

Grove Blossom Way

WL-7

WL-7A

WL-8

WL-8A

WL-9

WL-6

WL-4

WL-4A

WL-5

SW-1

SW-2

3A

3B

3C

2B

FC3

FC3A

1

2

Source: ESRI Aerial (Osceola County 2020)
Study Corridor, Alignments and Pond Sites (JMT 2022)
Land Use (FDEP Statewide Land Use 2019, Revised Per MSE Field Review 2022)

0 250 500 Feet

DRN: KJT | APR: MLP

DATE: 5.25.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Wetlands and Other Surface Waters Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 6-2

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 6 - Avalon RCA Wetland and Other surface Water Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- Suitable Caracara Habitat

Hartzog Road

AVALON ROAD

Lake Gifford Road

Grove Blossom Way

US 192

3A

3C

FC3A

3B

FC3

2B

FC2

2A

1A

1B

1B

Orlando
Tampa
Lakeland
St Petersburg
Melbourne
Palm Bay
Port St Luci
West P
Beach
Cape Coral
Coral Springs
Boca R
Pompa
Miami

Service Layer Credits: ESRI Aerial (Osceola County 2020)
Study Corridor/Alignments/Pond Sites (JMT 2022)
Caracara Habitat (MSE Group 2022 Field Review)
Consultation Area (FWS)

0 300 600 Feet

DRN: LMO | APR: KJT
DATE: 2.17.2022 | OCPN: Y20-835

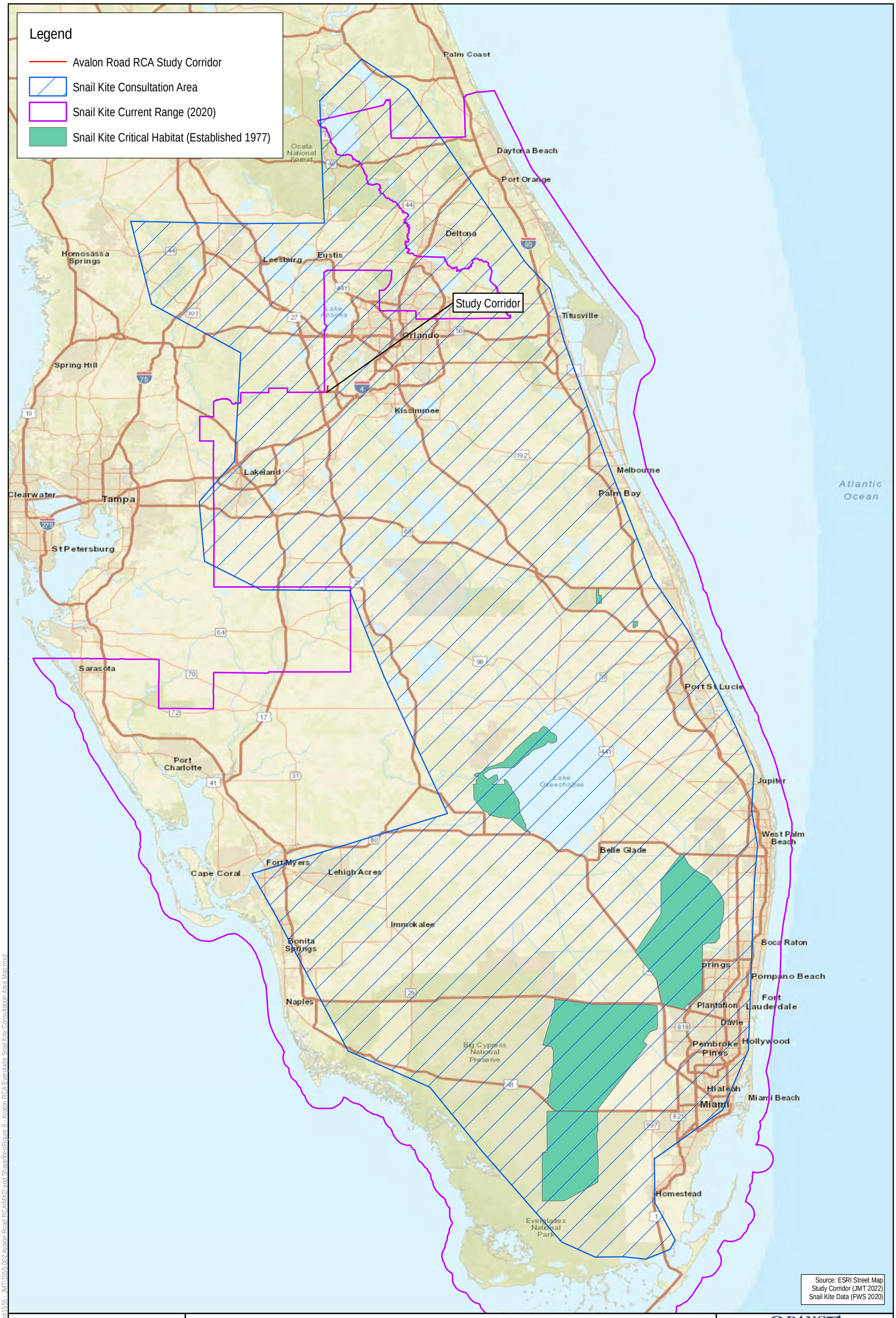
Avalon Road RCA
from US 192 to Hartzog Road
Audubon's Crested Caracara Habitat and Consultation Area Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 7

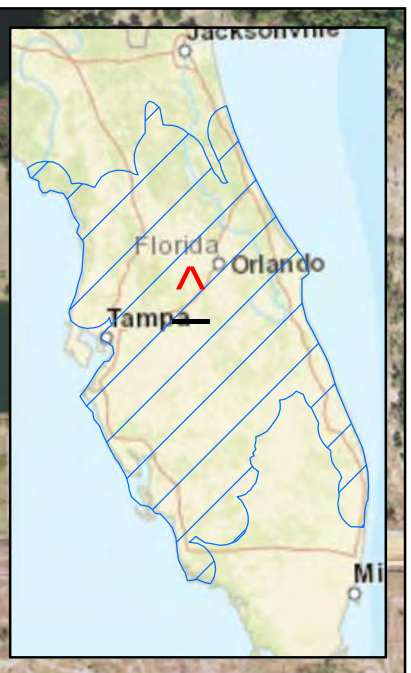
MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 7 - Avalon RCA Audubons Crested Caracara Consultation Area Map.mxd


Legend
Avalon Road RCA Study Corridor
Snail Kite Consultation Area
Snail Kite Current Range (2020)
Snail Kite Critical Habitat (Established 1977)
Study Corridor
Palm Coast
Daytona Beach
Port Orange
Deltona
Ocala National Forest
Homosassa Springs
Leesburg
Eustis
Titusville
Orlando
Spring Hill
Kissimmee
Lakeland
Clearwater
Tampa
St Petersburg
Melbourne
Palm Bay
Atlantic Ocean
Sarasota
Port St Lucie
Port Charlotte
Jupiter
West Palm Beach
Belle Glade
Fort Myers
Cape Coral
Lehigh Acres
Immokalee
Bonita Springs
Boca Raton
Pompano Beach
Naples
Plantation
Fort Lauderdale
Davie
Hollywood
Pembroke Pines
Hialeah
Miami
Miami Beach
Homestead
Big Cypress National Preserve
Everglades National Park
Lake Okeechobee
Source: ESRI Street Map
Study Corridor (JMT 2022)
Snail Kite Data (FWS 2020)
0
12.5
25
Miles
DRN: KJT
APR: MLP
DATE: 2.17.2022
OCPN: Y20-835
Avalon Road RCA
from US 192 to Hartzog Road
Snail Kite Consultation Area Map
Orange County, Florida
ORANGE COUNTY FLORIDA
Figure No. 8
MSE Group, LLC
Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 8 - Avalon RCA Everglade Snail Kite Consultation Area Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- Consultation
- Historic Scrub-Jay Habitat
- Potentially Suitable Habitat



End Study Corridor

Hartzog Road

Avalon Road

3A

FC3A

3C

Lake Gifford Road

Grove Blossom Way

3B

FC3

2B

FC2

2A

1A

1B

Bali Boulevard

1B

US 192

Begin Study Corridor

Source: ESRI Aerial (Oceola County 2020)
Study Corridor, Alignments and Ponds (JMT 2022)
Florida Scrub-Jay Data (FWC) and MSE Group 2022

0 400 800 Feet

DRN: KJT | APR: MLP

DATE: 5.26.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Florida Scrub-jay Habitat Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 9

MSE Group, LLC

Document Path: T:\GIS_Client Files\15555 - JMT\15555.002 Avalon Road RCA\MXD and Shapefiles\Figure 9 - Avalon RCA Florida Scrub-Jay Consultation Area Map.mxd

Legend

Avalon Road RCA Study Corridor

Red-Cockaded Woodpecker Consultation Area

Study Corridor

End

Begin

Source: ESRI Street Map
Study Corridor (JMT 2022)
RCW CA (FWS 2020)

0 27.5 55 Miles

DRN: LMO | APR: KJT

DATE: 3.7.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Red-Cockaded Woodpecker Consultation Area Map
Orange County, Florida

Figure No. 10

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 10 - Avalon RCA Red-Cockaded Woodpecker Consultation Area Map.mxd

Legend

Avalon Road RCA Study Corridor

Wood Stork Core Foraging Area (15-mile Buffer)

Wood Stork Colony

Study Corridor

Source: ESRI Street Map
Study Corridor (JMT 2022)
Wood Stork Colony Data (FWS 2020)

0 2.25 4.5 Miles

DRN: LMO | APR: KJT

DATE: 2.17.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Wood Stork Colony Location and Core Foraging Area Map
Orange County, Florida

Figure No. 11

MSE Group, LLC

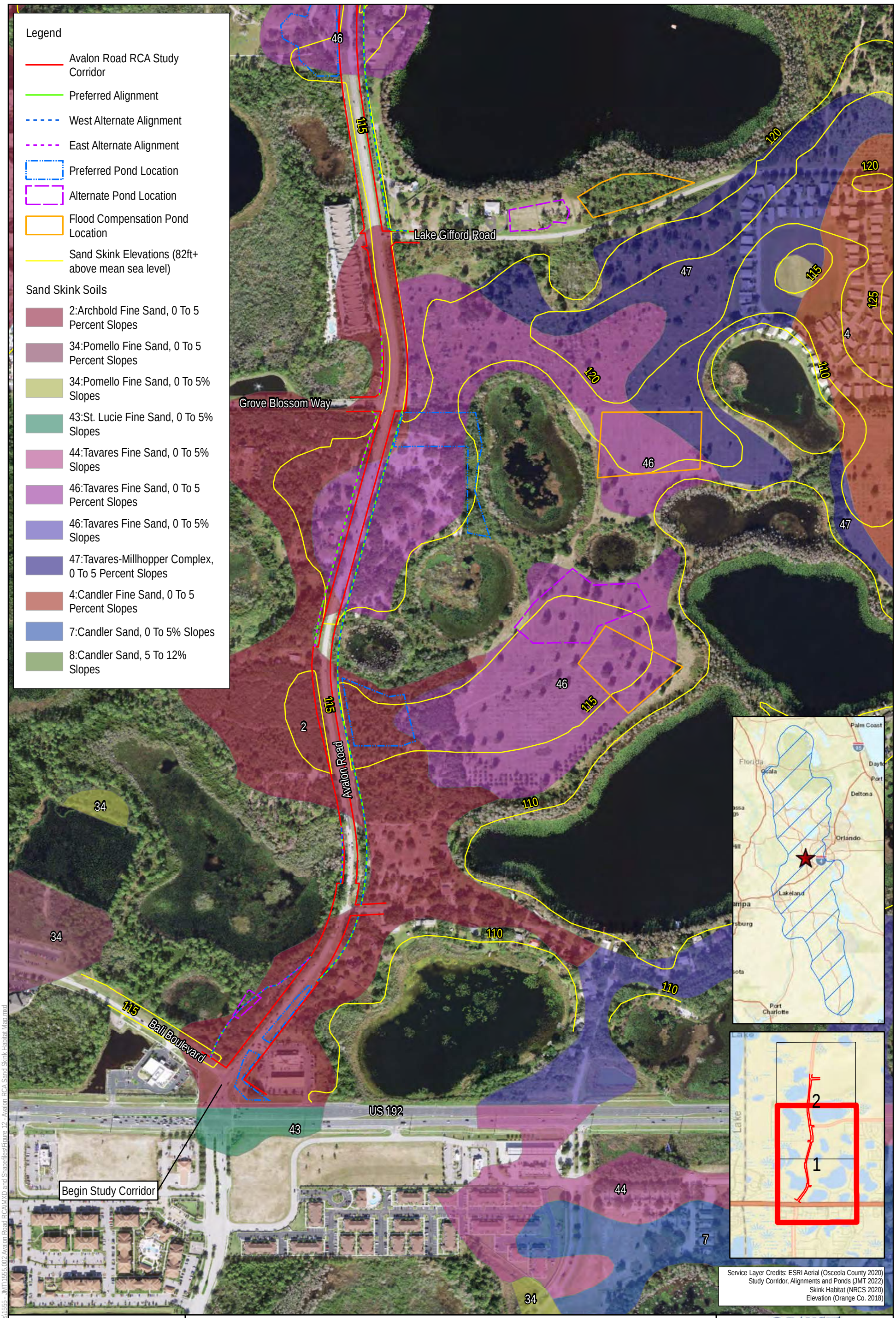
Document Path: T:\GIS_Client Files\1555_JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 11 - Avalon RCA Wood Stork Colonies Location Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- Sand Skink Elevations (82ft+ above mean sea level)

Sand Skink Soils

- 2:Archbold Fine Sand, 0 To 5 Percent Slopes
- 34:Pomello Fine Sand, 0 To 5 Percent Slopes
- 34:Pomello Fine Sand, 0 To 5% Slopes
- 43:St. Lucie Fine Sand, 0 To 5% Slopes
- 44:Tavares Fine Sand, 0 To 5% Slopes
- 46:Tavares Fine Sand, 0 To 5 Percent Slopes
- 46:Tavares Fine Sand, 0 To 5% Slopes
- 47:Tavares-Millhopper Complex, 0 To 5 Percent Slopes
- 4:Candler Fine Sand, 0 To 5 Percent Slopes
- 7:Candler Sand, 0 To 5% Slopes
- 8:Candler Sand, 5 To 12% Slopes



Service Layer Credits: ESRI Aerial (Osceola County 2020)
Study Corridor, Alignments and Ponds (JMT 2022)
Skink Habitat (NRCS 2020)
Elevation (Orange Co. 2018)

0 250 500 Feet

DRN: LMO	APR: KJT
DATE: 2.17.2022	OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Sand Skink Habitat Map
Orange County, Florida

Figure No. 12-1

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 12 - Avalon RCA Sand Skink Habitat Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- Sand Skink Elevations (82ft+ above mean sea level)

Sand Skink Soils

- 2:Archbold Fine Sand, 0 To 5 Percent Slopes
- 34:Pomello Fine Sand, 0 To 5 Percent Slopes
- 46:Tavares Fine Sand, 0 To 5 Percent Slopes
- 46:Tavares Fine Sand, 0 To 5% Slopes
- 47:Tavares-Millhopper Complex, 0 To 5 Percent Slopes
- 4:Candler Fine Sand, 0 To 5 Percent Slopes
- 5:Candler Fine Sand, 5 To 12 Percent Slopes

End Study Corridor

Hartzog Road

Avalon Road

Lake Gifford Road

Grove Blossom Way

Service Layer Credits: ESRI Aerial (Osceola County 2020)
Study Corridor, Alignments and Ponds (JMT 2022)
Skink Habitat (NRCS 2020)
Elevation (Orange Co. 2018)

0 250 500 Feet

DRN: LMO | APR: KJT
DATE: 2.17.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Sand Skink Habitat Map
Orange County, Florida

Figure No. 12-2

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 12 - Avalon RCA Sand Skink Habitat Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- ¶ Potentially Occupied Gopher Tortoise Burrow
- Suitable Gopher Tortoise Habitat

Hartzog Road
Avalon Road
3A
FC3A
3C
Lake Gifford Road
Grove Blossom Way
3B
FC3
2B
FC2
2A
¶
¶
¶
1A
1B
1B
US 192

Service Layer Credits: ESRI Aerial (Osceola County 2020)
Study Corridor, Alignments and Ponds (JMT 2022)
GT Burrows (MSE Group Field Review Feb 2022)

0 400 800 Feet

DRN: LMO | APR: KJT
DATE: 2.17.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Gopher Tortoise Habitat and Burrow Location Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 13

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 13 - Avalon RCA Gopher Tortoise Burrow Location Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- Wetland Impacts (1.38ac)
- Wetlands
- Other Surface Waters

3A
SW-1
WL-8A
WL-6
FC3A
3C
Lake Gifford Road
WL-8
WL-9
Grove Blossom Way
3B
WL-5
FC3
WL-4A
Avalon Road
WL-4
2B
WL-3
FC2
2A
WL-2
WL-10
WL-11
1A
1B
WL-1
Bali Boulevard
1B
US 192
Begin Study Corridor

Lake
2
1

Source: ESRI Aerial (Osceola County 2020); Aerial (Orange County 2022)
Study Corridor, Alignments and Pond Sites (JMT 2022)
Wetlands (FDEP Statewide Land Use 2019, Revised Per MSE Field Review 2022)

0 250 500 Feet

DRN: KJT | APR:MLP
DATE: 5.26.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Wetland and Other Surface Water Impacts Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 14-1

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 14 - Avalon RCA Wetland Impacts Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- Wetland Impacts (1.38ac)
- Wetlands
- Other Surface Waters

End Study Corridor

Hartzog Road

WL-7

WL-7A

SW-2

Avalon Road

WL-6

SW-1

3A

WL-8A

WL-6

FC3A

3C

Lake Gifford Road

WL-8

WL-9

Grove Blossom Way

3B

WL-5

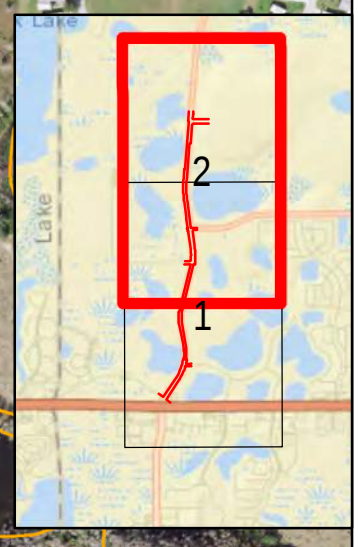
FC3

WL-4A

WL-4

2B

Avalon Road



Source: ESRI Aerial (Osceola County 2020);
Aerial (Orange County 2022)
Study Corridor, Alignments and Pond Sites (JMT 2022)
Wetlands (FDEP Statewide Land Use 2019,
Revised Per MSE Field Review 2022)

0 250 500 Feet

DRN: KJT	APR:MLP
DATE: 5.26.2022	OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Wetland and Other Surface Water Impacts Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 14-2

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 14 - Avalon RCA Wetland Impacts Map.mxd

Legend

Avalon Road RCA Study Corridor
Preferred Alignment
West Alternate Alignment
East Alternate Alignment
Preferred Pond Location
Alternate Pond Location
Flood Compensation Pond Location

Biodiversity

Priority 1 (highest)
Priority 2
Priority 3
Priority 4
Priority 5

End Study Corridor
Hartzog Road
3A
Lake Gifford Road
3C
FC3A
Grove Blossom Way
3B
FC3
Avalon Road
2B
FC2
2A
1A
1B
Bali Boulevard
1B
US 192
Begin Study Corridor

Source: ESRI Aerial (Osceola County 2022)
Study Corridor, Aligments and Pond Sites (JMT 2022)
Biodiverisy CLIP 4.02 (FNAI 2020)

0 400 800 Feet

DRN: KJT | APR: MLP
DATE: 5.24.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Biodiversity Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 15

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 15 - Avalon RCA Biodiversity Map.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location

Conservation Areas

- Grande Palisades Resort
- Liki Tiki Village 3 South
- Wawa Store At Avlon Rd

End Study Corridor

Hartzog Road

Avalon Road

3A

3C

FC3A

Lake Gifford Road

Grove Blossom Way

3B

FC3

2B

FC2

2A

Bali Boulevard

1A

1B

1B

US 192

Begin Study Corridor

Source: ESRI Aerial (Osceola County 2020)
Study Corridor. Alignments and Ponds (JMT 2022)
Conservation Area (FDEP Map Direct access on October 2021)

0 400 800 Feet

DRN: LMO	APR: KJT
DATE: 2.17.2022	OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Conservation Lands Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 16

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002\Avalon Road RCA\MXD and Shapefiles\Figure 16 - Avalon RCA Conservation Land Location Map.mxd

Legend

Avalon Road RCA Study Corridor

Florida Wildlife Corridor

Atlanta
Athens
Columbia
South Carolina
Augusta
Tuscaloosa
Georgia
Macon
Warner Robins
North Charleston
Charleston
Alabama
Montgomery
Columbus
Savannah
Albany
Dothan
Valdosta
Mobile
Pensacola
Tallahassee
Jacksonville
Gainesville
Palm Coast
Florida
Orlando
Melbourne
Tampa
Lakeland
Palm Bay
St Petersburg
Port St Lucie
West Palm Beach
Cape Coral
Boca Raton
Coral Springs
Pompano
Miami
Gulf of Mexico
Straits of Florida
Havana
Cienfuegos
Yucatan Channel



Source: ESRI Street Map
Study Corridor, Aligments and Pond Sites (JMT 2022)
Florida Wildlife Corridor (2021)

0 30 60 Miles

DRN: KJT | APR: MLP

DATE: 2.17.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Florida Wildlife Corridor Map
Orange County, Florida

Figure No. 17

MSE Group, LLC

Document Path: T:\GIS_Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 17 - Florida Wildlife Corridor.mxd

Legend

- Avalon Road RCA Study Corridor
- Preferred Alignment
- West Alternate Alignment
- East Alternate Alignment
- Preferred Pond Location
- Alternate Pond Location
- Flood Compensation Pond Location
- SFWMD Permit Issued
- SFWMD Application
- State 404 Application

48-103128-P
48-104850-P
48-102896-P
48-01974-P
48-103888-P
End Study Corridor
Hartzog Road
48-106025-P
48-105378-P
48-104373-P
48-105903-P
3A
48-105705-P
48-01437-P-02
FC3A
3C
Lake Gifford Road
48-103624-P
48-106251-P
Grove Blossom Way
3B
FC3
Avalon Road
2B
FC2
2A
48-102979-P
ST404_398220
48-105977-P
Bali Boulevard
1A
1B
48-01782-P
1B
US 192
Begin Study Corridor

Source: ESRI Aerial (Osceola County 2020)
Study Corridor, Alignments and Ponds (JMT 2022)
Florida's Water Permitting Portal/FDEP Map Direct (June 2022)

0 400 800 Feet

DRN: KJT | APR: MLP
DATE: 6.1.2022 | OCPN: Y20-835

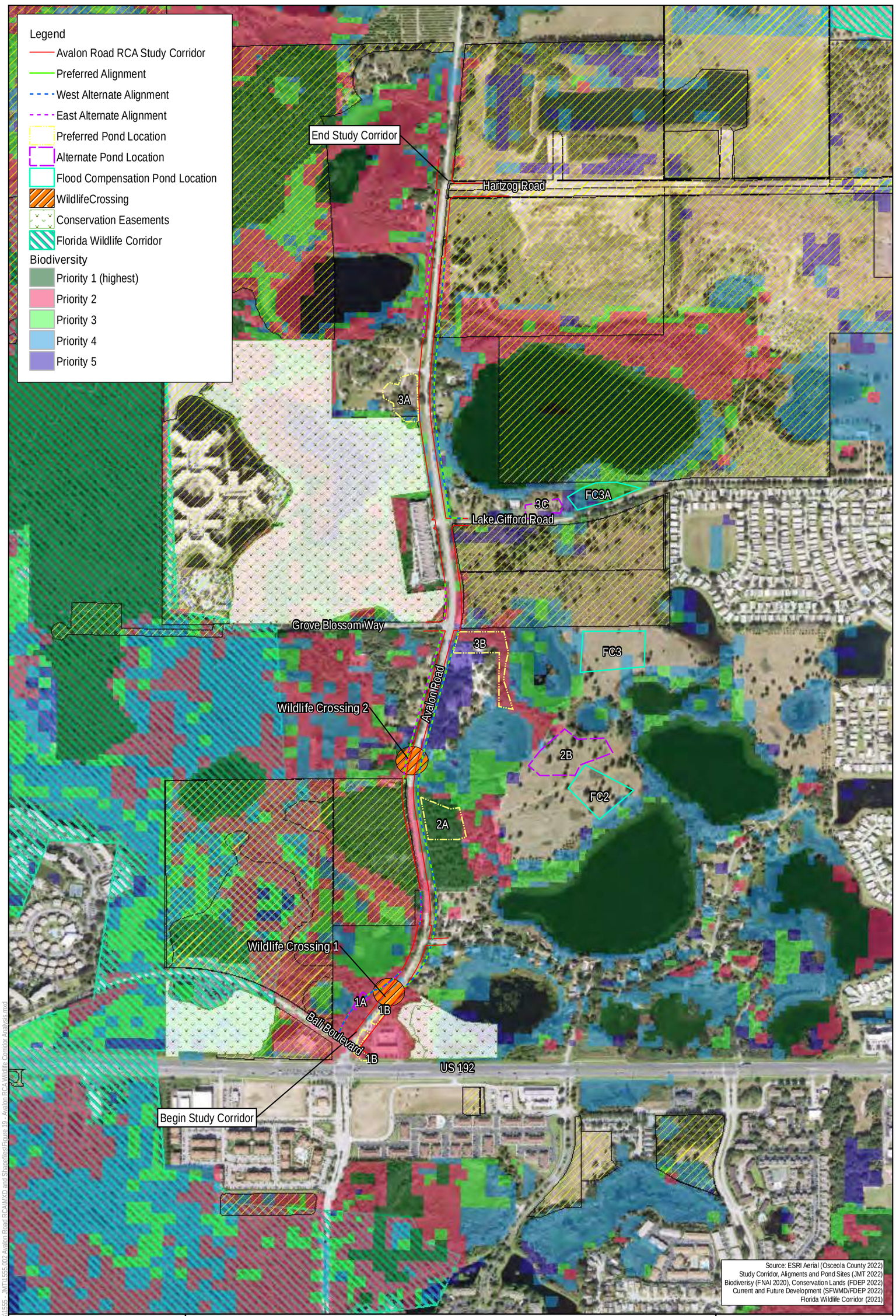
Avalon Road RCA
from US 192 to Hartzog Road
Future Development Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 18

MSE Group, LLC

Document Path: T:\GIS\ Client Files\1555 - JMT\1555.002 Avalon Road RCA\MXD and Shapefiles\Figure 18 - Avalon RCA Future Land Use Map.mxd



N

0 400 800 Feet

DRN: KJT | APR: MLP

DATE: 2.17.2022 | OCPN: Y20-835

Avalon Road RCA
from US 192 to Hartzog Road
Wildlife Crossing Analysis Map
Orange County, Florida

ORANGE COUNTY FLORIDA

Figure No. 19

MSE Group, LLC

Document Path: T:\GIS_Client Files\15555 - JMT\15555.002 Avalon Road RCA\MXD and Shapefiles\Figure 19 - Avalon RCA Wildlife Corridor Analysis.mxd

Appendix I

- Natural Resources Report (Excerpts)

CSER
Avalon Road Roadway Conceptual Analysis Study, from US 192 to Flamingo Crossings Blvd Orange County, Florida NADIC Project No.: PR.GEO-RD20027.1

Prepared for:

Johnson, Mirmiran & Thompson, Inc.
615 Crescent Executive Court. Suite 106
Lake Mary, Florida 328746

Prepared by:

Nadic Engineering Services, Inc.
601 N. Hart Blvd
Orlando, Florida 32818
407-521-4771

.

NADIC
ENGINEERING

January 26, 2022

Johnson, Mirmiran & Thompson, Inc.
615 Crescent Executive Court. Suite 106
Lake Mary, Florida 328746

Attention: **Greg T. Smith, P.E.**

Re: Contamination Screening Evaluation Report
Avalon Road Roadway Conceptual Analysis Study
From US 192 to Flamingo Crossings Boulevard (aka Hartzog Road Realignment)
Orange County Project No.: Y20-835
Orange County, Florida
Nadic Project No. PR.GEO.RD20041.1

Dear **Mr. Smith,**

NADIC Engineering Services, Inc. (NADIC) is pleased to provide this Contamination Screening Evaluation Report (CSER) of facilities near or within the above referenced project corridor. The purpose of this report is to identify the known and potentially known contaminated sites within the vicinity of the project corridor in Orange County, Florida.

NADIC appreciates the opportunity to work with you, **JMT** and the Orange County on this project, and looks forward to a continued association. Please contact us if you have any questions or concern about the report, or if we may be of further assistance.

Sincerely,

NADIC ENGINEERING SERVICES, INC.

Fidelia N. Nnadi, Ph.D., P.E., F. ASCE
President
FL Registration No: 52045

GODWIN N. NNADI LICENSE No 50637 STATE OF FLORIDA PROFESSIONAL ENGINEER

Godwin N. Nnadi, Ph.D., P.E.
Principal Engineer
FL Registration No: 50637

Orlando Office
601 N. Hart Boulevard
Orlando, Florida 32818
Phone: (407) 521-4771

NADIC
Email: nadic@nadicinc.com
Fax: (407) 521-4772

Miami Office
15291 NW 60th Avenue, Suite 106
Miami Lakes, Florida 33014
Phone: (305) 548-8451

Table of Contents

EXECUTIVE SUMMARY 1
1.0 INTRODUCTION 2
1.1 Project Description 2
1.2 Purpose of Contamination Screening Evaluation (CSE) 3
1.3 Scope of Services Summary 3
1.4 Significant Assumptions 4
1.5 Limitations and Exceptions 4
1.6 Special Terms and Conditions 5
1.7 User Reliance 5
2.0 CURRENT LAND USE 6
3.0 HYDROGEOLOGICAL FEATURES 6
3.1 Central Florida Hydrogeologic Features 6
3.2 USGS Quadrangle Map 7
3.3 USDA NRCS Orange County Soil Survey 7
4.0 METHODOLOGY 9
4.1 Historical Data Review 9
4.1.1 Historical Aerial Photograph Review 9
4.1.2 USGS Topographic Quadrangles 10
4.1.3 City Directories 10
4.1.4 Fire Insurance Maps 10
4.2 Corridor Reconnaissance and interviews 11
4.3 Standard Environmental Record Sources 12
4.3.1 Federal Database Sources 12
4.3.2 State Database Sources 13
4.3.3 Additional Data Sources 13
5.0 QUALITATIVE ANALYSIS 13

5.1 Contamination Risk Potential Rating 14
5.2 Potential Contamination Sites 15
5.3 Agricultural Land Uses 16
5.4 Well Sites 16
6.0 RECOMMENDATION 17
7.0 CLOSURE 17
8.0 REFERENCES 18

APPENDICES

APPENDIX A
Figure 1 Vicinity Map
Figure 2 Land Use Map
Figure 3 USGS Quadrangle Map
Figure 4 USDA/NRCS Soil Survey Map

APPENDIX B Historical Aerials
APPENDIX C ERIS Topographic Maps
APPENDIX D ERIS City Directory
APPENDIX E ERIS Fire Insurance Map
APPENDIX F Reconnaissance Photographs
APPENDIX G Sample Questionnaire Documents
APPENDIX H ERIS Database Report
APPENDIX I Regulatory Documents
APPENDIX J Physical Setting Report
APPENDIX K Netronline Environmental Report

LIST OF ABBREVIATIONS AND ACRONYMS

AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
CF-FL	State and Tribal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) maintained by the EPA.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System (maintained by EPA)
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CORRACTS	Identifies hazardous waste handlers with RCRA corrective action activity
CREC	Controlled Recognized Environmental Condition
CSE	Contamination Screening Evaluation
CSER	Contamination Screening Evaluation Report
DOH	Department of Health and Human Services
DRF	Discharge Reporting Form
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act (also known as SARA Title III)
ERNS	Emergency Response Notification System
ERS	Environmental Record Search
ESA	Environmental Site Assessment
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FIC/FEC	Federal Institution Controls/Federal Engineering Controls
FOIA	Freedom of Information Act
FR	Federal Register
HREC	Historic Recognized Environmental Condition
ICs	Institutional Controls
LQG	Large Quantity Generator
LLP	Landowner Liability Protections under the Brownfields Amendments
LSCTL	Leachability Soil Cleanup Target Level
LST	Leaking Storage Tanks
LUST	Leaking Underground Storage Tank
LUST-Open-FL	Leaking Underground Storage Tank (LUST) with an ongoing cleanup status.
MSDS	Material Safety Data Sheet
NCP	National Contingency Plan
NFA	No Further Action

LIST OF ABBREVIATIONS AND ACRONYMS CONTINUED

NFRAP	Former CERCLIS sites where no further remedial action is planned under CERCLA
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	National Resources Conservation Service
PCBs	Polychlorinated Biphenyls
PEC	Perchloroethylene
PRP	Potentially Responsible Party
PD&E	Project Development and Environment
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
SARA	Superfund Amendments and Reauthorization Act
SQG	Small Quantity Generator
SRCO	Site Rehabilitation Completion Order
SDWWTP	South District Water and Wastewater Treatment Plant
TP	Target Property
TCE	Trichloroethylene
TSDF	Hazardous Waste Treatment, Storage and Disposal facility
US	United States
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UST	Underground Storage Tank

EXECUTIVE SUMMARY

NADIC Engineering Services, Inc. (NADIC) has completed a Contamination Screening Evaluation (CSE) of facilities along Avalon Road from US 192 (W. Irlo Blossom Highway) to Flamingo Crossings Boulevard (aka Hartzog Road Realignment) in Orange County, Florida. This Contamination Screening Evaluation was conducted in accordance with the Florida Department of Transportation's (FDOT) Project Development and Environment (PD&E Manual, Part 2, Chapter 20, Contamination Impacts), dated July 1, 2020 and conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E1527-13 for Phase I ESAs. The purpose of the CSE is to identify potential presence/absence of Recognized Environmental Conditions (RECs) as part of the Avalon Road Roadway Conceptual Analysis (RCA) Study.

In accordance with the PD&E Manual, facilities that may have potential for contamination were identified within prescribed buffers for the project corridor. Each potential contamination site identified was assigned a Contamination Risk Potential Rating (CRPR) of **No, Low, Medium,** or **High**.

Upon completion of the CSE, six (6) potential contamination facilities were identified; four (4) facilities received a CRPR of **Low**.

Per Orange County's Scope of Services, and in accordance with the PD&E Manual, sites assigned a CRPR of **Low** represent likely no impacts to planned improvements such as right-of-way acquisition, utilities, roadway, bridge, and pond construction. However, in the time period between completion of the CSE and roadway construction, the circumstances can change substantially. A contamination incident may have occurred within that time period or the materials handled may have changed. **NADIC** recommends that this CSER be updated for the facilities identified as No or Low in this report prior to construction activities. In addition, updated should be made if ROW acquisition or construction will occur more than one (1) year from the date of this report.

The following report presents the methodology, qualitative analysis, and recommendations resulting from the Contamination Screening Evaluation for Avalon Road from US 192 (W. Irlo Blossom Highway) to Flamingo Crossings Boulevard (aka Hartzog Road Realignment).

1.0 INTRODUCTION

NADIC has conducted a Contamination Screening Evaluation (CSE) of facilities along Avalon Road Roadway from US 192 (W. Irlo Blossom Highway) to Flamingo Crossings Boulevard (aka Hartzog Road Realignment) and prepared a Contamination Screening Evaluation Report (CSER) for Orange County Public Works Department and Transportation Planning Division Roadway Conceptual Analysis (RCA). The CSE was conducted in conformance with methodology described in Part 2, Chapter 20 of Florida Department of Transportation's (FDOT) Project Development and Environment Study (PD&E) Manual, dated July 1, 2020, and in accordance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E1527-13 for Phase I ESAs.

The purpose of this CSE was to identify presence/absence of Recognized Environmental Conditions (RECs) within the project corridor along Avalon Road from US 192 to Flamingo Crossings Boulevard (aka Hartzog Road Realignment) in Orange County. The process of evaluating the project study area for REC's potential contamination is undertaken to avoid costly construction delays as a result of encountering unexpected soil or groundwater contamination. Identification of potential problem areas early in the project development process allows involved parties to make informed decisions regarding avoidance or management of impacts. This CSE consisted of a desktop review of current and historical public records and site reconnaissance. This CSER describes the investigation's methods and findings and provides contamination risk potential ratings (CRPR) for potentially contaminated facilities sites based the presence/absence of Recognized Environmental Conditions (RECs) located in proximity to the project corridor.

This report identifies and evaluates areas of known or potential contamination in the project study area. It includes descriptions of the area's hydrogeological features and land use, and sites with potential concern. Recommendations are made concerning these potentially contaminated sites, as they relate to the proposed project.

1.1 Project Description

The study corridor along Avalon Road begins at US 192 and proceeds north approximately 1.6 miles to Flamingo Crossings Boulevard (aka Hartzog Road Realignment). The vicinity map showing the approximate location of the proposed roadway improvements is shown on **Figure 1** in **Appendix A**. The site of the proposed improvements is generally located in Sections 30 and 31, Township 24 South, Range 27 East, in Lake Louisa SW, Florida.

The RCA has been initiated to study the widening of Avalon Road from the current two-lane roadway to a four-lane divided road. In addition, the RCA includes evaluation of pedestrian and bike facilities on both sides of the road.

1.2 Purpose of Contamination Screening Evaluation (CSE)

The objective of this Contamination Screening Evaluation Report (CSER) was to identify RECs in connection with the project corridor, to the extent feasible pursuant to the processes prescribed in the ASTM E-1527-13 guidelines and in accordance with Part 2, Chapter 20 of the FDOT PD&E Manual, dated July 1, 2020. The term "*REC*" as defined by ASTM is the presence or likely presence of any hazardous substances or petroleum products in, on or at the subject property:

- due to a *release* to the *environment;*
- due to a *release* or likely *release* to the environment;
- Under conditions that pose a material *threat of* a future *release* to the environment

The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A *de minimis condition* is not a *recognized environmental condition*.

This CSER includes information gathered from federal, state, and local agencies; personal interviews with people familiar with facilities along the project corridor; project site visits were conducted by **NADIC** on November 3, 9 and 17, 2021.

1.3 Scope of Services Summary

The CSE includes a search distance of 500 feet from the right-of-way (ROW) line for petroleum, drycleaners, and non-petroleum facilities; 1,000 feet from the ROW line for non-landfill solid waste sites; and 0.5 mile from the ROW line for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), NPLs, and landfill sites. This evaluation consisted of the following:

- Review of physical conditions such as topography and soils within the project corridor
- Review of land uses within the project corridor
- Review of public records databases maintained by the Florida Department of Environmental Protection (FDEP), EPA, and local agencies such as OCULUS, Nexus, Geospatial Open Data

- Review of a public records database search report prepared by Environmental Risk Information Services, Inc. (ERIS) and Netronline Environmental
- Review of historical aerial photographs dating to 1941
- Review of historical city directories listing businesses and residences within the project corridor
- Site reconnaissance to identify visual signs of environmental conditions on or adjoining to the study corridor and to verify the locations of potentially contaminated sites identified during desktop review
- Determination of a CRPR for each contamination site
- Preparation of a written report documenting our finds, opinions and conclusions.

1.4 Significant Assumptions

This report was prepared using information obtained from and/or provided by the following sources:

- Visual observation of the project corridor
- Available published information
- Third-party database searched, and
- Local/State government official and/or records

It is assumed that the information obtained through the above methods is valid and accurate as provided. The passage of time, manifestation of latent conditions and occurrence of future events or changes to existing codes/regulations may alter the conclusions and recommendations of this report.

1.5 Limitations and Exceptions

The opinions presented in this report are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by **NADIC**, **JMT**, and Orange County. This report is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the environmental consulting industry. No representation, warranty, or guarantee, expressed or implied, is intended or given. Because of the fact that **NADIC** relied upon information prepared by other parties not under contract to **NADIC**, we make no representation as to the accuracy or completeness of such information. This report is expressly for the sole and exclusive use of the party for whom this report was originally prepared, and for a particular purpose. Only the party for whom this report was originally prepared and/or other specifically named parties have the right to make use of and rely upon this report. Reuse of

this report or any portion thereof for other than its intended purpose, or if modified, or if used by third parties, shall be at the user's sole risk.

The findings presented in this report apply solely to the Site conditions existing at the time when **NADIC**'s assessment was performed. It must be recognized, however, that a CSE is intended for the purpose of determining the potential for contamination through limited research and investigative activities and in no way represents a conclusive or complete site characterization. Conditions in other parts of the roadway corridor may vary from those at the locations where data was collected. **NADIC**'s ability to interpret investigation results is related to the availability of the data and the extent of the investigation activities. **NADIC** does not provide any guarantees, certifications, or warranties that a property is free from environmental contamination. Furthermore, nothing contained in this document shall relieve any other party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

1.6 Special Terms and Conditions

The scope of work for this CSER did not include testing of electrical equipment for the potential presence of PCBs or the assessment of natural hazards such as naturally occurring asbestos or methane gas, assessment of the potential presence of radionuclides, or assessment of non-chemical hazards such as the potential for damage from earthquakes or floods. This report is a desktop review of existing and historical public records and site reconnaissance and did not include an extensive assessment of the environmental compliance status of the facilities or businesses operating along the project corridor, or a health-based risk assessment.

1.7 User Reliance

In preparing this CSER, **NADIC** and **JMT** relied, in whole or in part, on data and information provided by third parties, which information has not been independently verified by **NADIC** and **JMT** and which we have assumed to be accurate, complete, reliable, and current. Therefore, while **NADIC** has utilized the best efforts in preparing this report, we do not warrant or guarantee the conclusions set forth in this report which are dependent or based upon data, information or statements supplied by third parties.

This report is intended for Orange County's sole and exclusive use and is not for the benefit of any third party and may not be distributed to, disclosed in any form to, used by, or relied upon by, any third party without prior written consent of **NADIC** and **JMT** which consent may be withheld in its sole discretion.

Use of this report or any information contained herein, if by any party other than Orange County, shall be at the sole risk of such party and shall constitute a release and agreement by such party to

defend and indemnify **NADIC** and **JMT** and its affiliates, officers, employees and subcontractors from and against any liability for direct, indirect, incidental, consequential or special loss or damage or other liability of any nature arising from its use of the report or reliance upon any of its content. To the maximum extent permitted by law, such release from and indemnification against liability shall apply in contract, tort (including negligence), strict liability, or any other theory of liability.

2.0 CURRENT LAND USE

The current land uses within the project study area are shown on **Figure 2** in **Appendix A**. Land use information was obtained from Orange County. The project study area is mainly rural and low density residential with institutions and undeveloped/natural lands,

Some Commercial Activity Centers are located at the intersection of Avalon Road and US 192 (SR 50). Adjacent land uses having the potential for contamination typically include gas stations and emergency diesel generators.

3.0 HYDROGEOLOGICAL FEATURES

3.1 Central Florida Hydrogeologic Features

The geology of Central Florida area is characterized by sedimentary strata formed during three distinct geologic periods. The surficial stratum is composed of undifferentiated Holocene/ Pleistocene/Pliocene age sands containing varying amounts of silt and clay, which extend typically to depths on the order of 40 to 60 feet below the ground surface. This upper, mostly sandy zone contains the surficial aquifer (water table). A Miocene age deposit, the Hawthorn Formation, frequently underlies the surficial sands and is typically composed of clay, clayey sands and sandy limestone sometimes containing appreciable amounts of phosphate. This stratum extends to, typically, a depth of 80 to 120 feet beneath the existing ground surface and serves as the confining layer for the underlying Floridian Aquifer. The surficial aquifer (water table) is separated from the deeper Floridan aquifer by a semi-confining unit that is present throughout most of central Florida.

The Eocene age Ocala and Avon Park limestone formations are contained in the Floridian Aquifer, which is one of the most productive aquifers in the world. The extremely high productivity of this aquifer is directly related to its numerous cavities and interconnected channels. The deepest formation of the Eocene age is the Avon Park limestone. The Avon Park limestone consists mostly

of hard brown dolostone and tan, granular limestone. In Orange County, the Avon Park limestone formation is approximately 300 to 350 feet thick. Above the Avon Park limestone is the Ocala limestone. The Ocala limestone is a loose to moderately well cemented mass of very small to large microfossils with much less dolostone than the Avon Park limestone. Typically, the Ocala limestone contains almost pure limestone with no dolostone, although the lower few feet can be partly dolomitized in some areas.

Local rainfall, irrigation, lakes, ditches, and streams recharge water in the surficial aquifer; however, upward leakage can occur in areas where the potentiometric surface of the Upper Floridan Aquifer is above the water table. Impacts caused by surface releases of petroleum are typically limited to the upper surficial aquifer due to the low specific gravity of petroleum constituents; however, impacts from certain solvents or inorganic constituents can migrate deeper into the surficial aquifer and potentially affect the Floridan aquifer. Surface overflow generally drains rainfall across the project corridor. Surface topography, stormwater management features (ponds, swales), and local geological features (sinkholes) may influence local surficial groundwater flow directions.

3.2 USGS Quadrangle Map

The “Lake Louisa, SW, FL” USGS topographic map issued in 2021, in the vicinity of the Avalon Road was reviewed. The project corridor is shown on an excerpt of the USGS topographic map and presented on **Figure 3** in **Appendix A**. The map shows the ground surface elevation in the project vicinity to range from approximately +110 to +125 feet, North American Vertical Datum of 1988 (NAVD-88).

3.3 USDA NRCS Orange County Soil Survey

The Orange County Soil Survey published by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) is a comprehensive publishes source of information regarding near-surface soil and surficial groundwater depth. The NRCS Orange County Soil Survey was reviewed for information regarding near-surface soil conditions within the study corridor.

The Orange County soil survey identified the following seven (7) primary mapping soil units within the limits of the project corridor.

Table 1: USDA/NRCS Soil Survey Summary

Soil Unit	Depth (inches)	Soil Description	AASHTO*	Hydrologic Soil Group	USDA SHGWT (ft.) **
Archbold (2)	0 - 80	Fine sand	A-3	A	3.5 – 6.0
Basinger (3)	0 - 7	Fine sand	A-3	A/D	+2 – 1.0
	7 - 32	Sand, fine sand	A-3, A-2-4		
	32 - 47	Sand, fine sand	A-3, A-2-4		
	47 - 80	Sand, fine sand	A-3, A-2-4		
Immokalee (20)	0 – 5	Fine sand	A-3	A	0 – 1.0
	5 - 35	Fine sand, sand	A-3		
	35 - 67	Fine sand, sand	A-3, A-2-4		
	67 - 80	Fine sand, sand	A-3		
Sanibel (42)	0 – 11	Muck	A-8	A/D	+1 – 1.0
	11 – 15	Sand, fine sand, mucky fine sand	A-3		
	15 - 80	Sand, fine sand	A-3		
St. Lucie (43)	0 – 4	Fine sand	A-3, A-2-4	A	>6.0
	4 – 80	Fine sand	A-3, A-2-4		
Tavares (46)	0 – 6	Fine sand	A-3	A	3.5 – 6.0
	6 – 80	Sand, fine sand	A-3		
Tavares (47)	0-6	Fine sand	A-3	A	3.5-6.0
	6-80	Sand, fine sand	A-3		
Millhopper (47)	0-64	Fine sand	A-3, A-2-4		
	64-76	Loamy sand, loamy fine sand	A-2-4		
	76-80	Sandy loam, fine sandy loam, sandy clay loam	A-2-4, A-4		

*AASHTO: American Association of State Highway and Transportation Officials.
**SHGWT: Seasonal High Groundwater Table

Refer to **Figure 4** in **Appendix A** for a reproduction of the USDA NRCS Soil Survey map for the project area. The NCRS Soil Survey generally identifies these soil types with very poorly to excessively well drained soil, with permeability ranging from moderately high to very high. The NRCS Soil Survey predicts the groundwater levels for these soil types to range from the natural ground surface to 80 inches below the natural ground surface.

Information from the NCRS Soil Survey is very general and may be outdated due to recent developments in the project site vicinity. Therefore, it may not reflect the actual soil and groundwater conditions, particularly if development has modified the natural soil conditions or surface and near surface drainage.

4.0 METHODOLOGY

The methodology used to complete this CSER included obtaining pertinent environmental records from federal, state and local regulatory agencies, reviewing and evaluating a computerized environmental database, interviewing people knowledgeable of the project area, performing a visual reconnaissance of the project corridor and surrounding area, and evaluating potential environmental impacts along the project corridor. **NADIC** defined the corridor buffer zone to be approximately 1000 feet (0.19 miles) wide.

4.1 Historical Data Review

4.1.1 Historical Aerial Photograph Review

Historical aerial photographs of the project corridor were reviewed to evaluate past land uses and to identify features that could indicate recognized environmental concerns in connection with the project corridor. Historical aerial photographs were accessed through ERIS and Google Earth and were not available before 1947. Aerial photographs for the following years were reviewed: 1941, 1944 1952, 1958, 1969, 1974, 1984, 1995, 2006, 2010, 2013, 2015, 2017 and 2019. These aerial photographs are presented in **Appendix B**.

A summary of the historical aerial review is presented in **Table 2**, below**.**

Table 2:
Historical Aerial Photograph Review

Year	Database Source	Summary
1941	ASCS	An unimproved roadway is apparent along Avalon Road corridor which began south in Osceola County. Groove Blossom Way appears to be an unimproved roadway. The project corridor is predominately rural and undeveloped.
1944	ASCS	An unimproved roadway is apparent along Avalon Road corridor which began south in Osceola County. The project corridor is predominately rural and undeveloped.
1952	USGS	The existing Ball Road and Hartzog Road appear to have been constructed. Avalon Road still rural and undeveloped.
1958	USGS	The project corridor remains relatively unchanged
1969	ASCS	Project corridor remains unchanged. Unimproved road appears to be invisible at the existing Arrowhead Boulevard corridor. No development apparent on both sides of project corridor.
1974	USGS	Project corridor remains unchanged. West Irlo Bronson Memorial Highway (US 192) appears to have been constructed.

1984	USGS	Some developments are visible within the intersection of Bali Road and Avalon Road, intersection of Hartzog Road and Avalon Road, and immediately north west of the project corridor limit
1995	USGS	Project corridor remains unchanged.
2006	USDA	Developments are visible within the project corridor
2010	USDA	The Palisades Condominium is visible. Development northwest of the project limit is no longer visible
2013	USDA	Project Corridor remain unchanged
2015	USDA	Wawa Gas Station and clearing for AdventHealth Four Corners ER are visible
2017	USDA	Project Corridor remain unchanged
2019	USDA	Project Corridor remain unchanged. AdventHealth Four Corner ER is visible.

4.1.2 USGS Topographic Quadrangles

USGS topographic quadrangle maps were created to map the nation's landscape starting in 1879. Topographic maps show geographic features including railroads, rivers, streams, lakes, boundaries, landfills, structures, roadways, and several other features. For this type of study features such as railroads, landfills, depressions, and agriculture (especially row crops) provide indications of areas of potential for contaminants or buried debris.

NADIC reviews the following historical topographic quadrangle maps for the project provided by ERIS: 1959, 1970, 1980, 1985 and 2015. No indications of landfills, railroads, or other potential contamination were identified. The topographic maps are presented in **Appendix C.**

4.1.3 City Directories

City directories are listings of businesses and residences in an area, similar to a standard telephone book. Listings are organized by address, phone number, or name. For studies of this type, the listing by address for previous years is generally utilized to identify past land uses within the project corridor; however, city directories do not contain any information regarding tanks or hazardous materials. **NADIC** contracted ERIS to search city directories for the project corridor presented in **Appendix D**. City directories were available from 1961 through 2020 for the project corridor vicinity.

4.1.4 Fire Insurance Maps

Insurance companies prepared fire insurance maps, such as those created by the Sanborn Map Company, for use in assessing fire risk, particularly in historically urban areas. These maps contain details about building construction, business type, building contents, fuel storage tanks, and other

factors affecting fire risk. **NADIC** requested that ERIS perform a search of publicly available historical fire insurance maps for the site and its vicinity. According to ERIS, no maps were available for the project corridor, as presented in **Appendix E**.

4.2 Corridor Reconnaissance and interviews

NADIC performed site visits on November 3, 9 and 17, 2021. The purpose of the reconnaissance was to document existing conditions and evaluate whether current land uses could potentially result in hazardous materials or petroleum product contamination of environmental media. The properties within the project corridor were visually inspected for evidence of contamination such as stressed vegetation, accumulated areas of debris, evidence of buried materials, etc. Potential contamination sites were identified as well as specific details of observations made in the field.

Sites presenting a risk for contamination based on observations made during site reconnaissance are listed in the **Table** below shown as "Surveyed Facilities".

Table 3: Surveyed Facilities

Facility Name/ID.	Address	Facility Type	Survey Status
WAWA #5119 **DEP Facility 9814177**	8849 W IRIO BRONSON MEMORIAL HWY, WINTER GARDEN FL 34787	Open Gas Station	Interviewed Manager and emailed questionnaire. No response
AdventHealth FOUR Corners ER **DEP Facility 9816738**	17430 BALI BOULEVARD, WINTER GARDEN, FL. 34787	Open	No Interview

Photographs taken during site reconnaissance to document general site conditions and pertinent observations are provided in **Appendix F**.

NADIC representative also interviewed representative occupants of the related properties along the corridor. In addition, **NADIC** provided questionnaires to the facility representative to complete. Sample questionnaire document is provided in **Appendix G**.

None of the questionnaires were collected, though we followed up with emails**.** Attempts were made to interview regulatory agency personnel regarding potential contamination sources along the project corridor but were recommended to search the public databases such as those available through FDEP's MapDirect, Nexus, and OCULUS databases at the state level, and EPA's Superfund and Envirofacts databases at the federal level.

4.3 Standard Environmental Record Sources

A public records review was performed to identify documented contamination and potential contamination sources within the project corridor or within buffer distances prescribed in the PD&E Manual, dated July 1, 2020. A search of available environmental records was conducted by ERIS. The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquires (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527 -13) and FDOT PD&E Manual, Part 2, Chapter 20, Contamination Impacts), dated July 1, 2020. A copy of ERIS Database Report is provided as **Appendix H**.

More detailed information regarding the individual facilities searched along the corridor is included in the ERIS report in **Appendix H**. The ERIS Report also includes information regarding the status of the facility, distance from the project corridor, reports of discharge, and clean-up status. The ERIS Data Report also includes a description of the various information sources and database update information.

4.3.1 Federal Database Sources

The following federal databases were included in the ERIS database search for the project corridor and prescribed buffer zones:

- NPL "Superfund" Sites
- Proposed NPL Sites
- Superfund Enterprise Management System (SEMS)
- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) Sites
- CERCLIS Liens
- RCRA Corrective Action Sites (CORRACTS)
- RCRA Non-CORRACTS Treatment, Storage, and Disposal (TSD) Sites
- RCRA generator lists (conditionally exempt, small-quantity, and large-quantity generators)
- RCRA Inventory of Open Dumps
- Facility Index System (FINDS) Sites
- Toxic Release Inventory System (TRIS)
- Hazardous Materials Incident Response System (HMIRS) Sites
- Federal Institutional Controls/Engineering Controls Registry (Federal IC/EC)
- Emergency Response Notification System (ERNS) Sites

4.3.2 State Database Sources

The following state-level database sources, primarily maintained by FDEP, were included in the ERIS search for the project corridor and prescribed buffer zones:

- State and tribal NPL and CERCLIS equivalent sites
- State and tribal lists of hazardous waste sites identified for investigation or remediation – dry cleaning facilities
- State and tribal landfill and solid waste disposal sites
- State and tribal registered USTs and aboveground storage tanks (AST)
- State and tribal leaking storage tanks (LST)
- State and tribal IC/EC
- State and tribal voluntary cleanup sites
- State and tribal Brownfield sites

4.3.3 Additional Data Sources

The following additional sources were reviewed for supplemental information:

- FDEP online database, including OCULUS, Nexus, Geospatial Open Data and Florida Sites Summary List. Selected Regulatory documents are presented in **Appendix I.**
- Netronline Environmental Radius Report

5.0 QUALITATIVE ANALYSIS

The environmentally sensitive sites within the project corridor could impact the cost of construction of the proposed roadway improvements. **NADIC** defined the corridor buffer zone to be approximately 500 feet from the ROW line for petroleum, drycleaners and non-petroleum sites and 1,000 feet from ROW line for non-landfill solid waste such as recycling facilities, transfer stations and debris placement areas.

A determination of the risk of encountering contamination was made for all facilities after review of all available information. These determinations are based on the following: existence of contamination at the facility, direction of groundwater flows, clean-up efforts on the known contaminated sites, distance of the subject property to the proposed roadway improvements corridor, questionnaire results, where applicable, and on the degree of concern to the proposed project. The Contamination Risk Potential Rating (CRPR) identifies four degrees of risk for general reference purposes.

Based on our review of the FDEP database, FDEP Florida Site Summary lists and the **ERIS** Database report **NADIC** located environmental sensitive properties adjacent to the project corridor. Based on the review, no known contaminated facility is located within the proposed project improvements buffer

5.1 Contamination Risk Potential Rating

A CRPR was assigned to each potentially contaminated site in the project corridor, as determined by the public records review, historical aerial photograph review, site reconnaissance, and interviews. The CRPR system was developed by FDOT (Part 2, Chapter 20 PD&E, dated July 1, 2020) and is defined by four categories:

The risk ratings are defined as follows:

1. **No:** After review of all available information on the property, there is no indication contamination would be a problem at the facility. It is possible that contaminants could have been handled on the property; however, all available information (FDEP, monitoring wells, water and soil samples, etc.) indicate problems should not be expected.

2. **Low**: The former or current site operation has hazardous waste generator identification (ID) number, or deals with hazardous materials; however, based on all available information, including sampling and test results, there is no reason to believe there would be any involvement with contamination in relation to this project.

3. **Medium**: The subject property is located near or at the same location of as a known contaminated site, and there is a record shown that a cleanup effort has performed in the vicinity. If there is insufficient information (such as a lack of regulatory records or site historical documents) to make a determination as to the potential for contamination impact, and there is reasonable suspicion that contamination may exist, the property should be rated at least as a “Medium.” Properties used historically as gasoline stations that have not been evaluated or assessed by regulatory agencies and sites with abandoned-in-place underground petroleum storage tanks or currently operating gasoline stations should receive this rating. Included within this risk rating are sites which present a moderate degree of concern regarding contamination but do not have sufficient indications of contaminations to be included in high-risk category.

4. **High**: After a review of all available information, there is a definite potential for contamination problems. Further assessment will be required to determine the actual presence and/or levels of contamination and the need of remedial action. Included in this category is a facility located in the same location of known contaminated sites that has no record of a cleanup effort.

The CRPRs are based on current conditions and may not reflect conditions that may exist in the future. Based on the criteria established above, the facilities are grouped as follows:

5.2 Potential Contamination Sites

Six (6) potentially contaminated sites were identified within the study corridor and were assigned a **No** and **Low**. None of the sites identified was assigned a rating of **Medium** or **High**. **Table 4** lists the sites identified in the study corridor and presents a summary of associated public records reviews and site reconnaissance observations. **Figure 5** in **Appendix A** illustrates the location of the Potential Contaminated Sites with the study corridor. Documents obtained from the public record search for various sites are included in **Appendix H**

Table 4:
Potential Contamination Sites

Site No.	Map ID	Facility ID	Site Name	Site Address	Source/ Database	Risk Rating	Comments
1	**1**	FDEP # 9804761	Callahan Property	Avalon Road. 1.6miles north US 192, Orange County, FL. 348878	**LST, AST**	**Low**	This facility was a 50-site operated as a borrow pit. An AST was discovered in January 2002 which had not been used since 1980's but OVA screening indicated OVA readings ranging from 10 to 900 ppm. Discharge was reported to OCEPD on 2/26/2002. 311.77 tons of contaminated soils and the tank were removed by 6/02/2002. OVA reading after excavation were below detection levels. The discharge was granted No Further Assessment or remediation will be required with respect to the reported discharge on 7/26/2002. Facility is closed.
2	**2**	Incident No. 23337		Avalon Road and Hartzog Road	**SPILLS**	**No**	Diesel fuel spill at Avalon Road and Hartzog after vehicle accident on 6/16/2003. Based on records review and site reconnaissance, a risk of no was assigned.
3	**6**	9101558	Winter Garden Citrus Growers-1st Grove	14472 Hartzog Road, Winter Garden FL. 34787	**UST**	**Low**	This facility is located about 990 feet northeast of the project corridor ROW. It had two (2) 4,000-gallon USTs removed on 03/07/1991 and on 09/10/1992. Based on the records reviewed, the site is assigned a risk rating of Low
4	**7**	9814177	WAWA #5119	8849 W. Irlo Bronson Hwy Winter Garden FL 34777	**RCRA VSQG, UST**	**Low**	This facility had three (3) 20,000-gallon USTs installed 12/01/2012. As of August 2021, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility. Based on the records reviewed, the site is assigned a risk rating of Low
5	**5**	6818754	Gifford Substation	13046 Hartzog Road, Winter Garden, FL.34787	**Tier2**	**No**	This facility is located about 400 feet north east of the project corridor ROW. It is identified as a Substation operated by Duke Energy Florida, LLC. Based on records review and site reconnaissance, the facility was assigned a risk rating of no.

6	**8**	6814425	AdventHealth Four Corners ER	17430 Bali Blvd. Winter Garden FL 34787	**AST/Tier 2**	**Low**	This facility has one (1) 2,644-gallon AST (an emergency diesel. generator). As of December 12, 2019, there are no open violations and no discharge information reported Based on records review and site reconnaissance, the facility was assigned a risk rating of Low.

Abbreviations:

AST: Aboveground Storage Tank	RCRA: Resource Conservation and Recovery Act
FDEP: Florida Department of Environmental Protection	ROW: Right-of-Way
LST: Leaking Storage Tank	SPILLS: A discharge of one or more hazardous substances that adversely impact, or threaten to adversely impact
Map ID: Figure 5 Potential Contamination Site Map	Tier 2: An annual federal report that is mandatory for companies that store hazardous materials.
OCEPA: Orange County Environmental Protection Agency	VSQG: Very Small Quantity Generators
OVA: Organic Vapor Analyzer	UST: Underground Storage Tank

5.3 Agricultural Land Uses

Agricultural activities usually involve the use and storage of agrochemicals such as fertilizer, herbicides, pesticides, and petroleum products. Agrochemicals when applied in farmland usually accumulate in the shallow subsurface and can leach into groundwater.

Information obtained from the historical aerial photograph review and site reconnaissance indicated that no agricultural lands currently located within the study corridor.

5.4 Well Sites

NADIC utilized ERIS to conduct a physical setting search (see **Appendix J**), which includes registered well sites within the project corridor. The search was primarily conducted to identify the locations of permitted public water supply wells; however, the search also included Public Water Systems Violations and Enforcement data (PWSV), Safe Drinking Water Information System (SDWIS), USGS National Water Information System, Florida Subsidence Incident Report, Oil and Gas Wells, Public Water Supply Wells (PWSW), Underground Injection Control Wells, Water Use Permit Sites – South Florida Water Management District, Water Well Completion – St. Johns River Water Management District (SJRWMD), Water Well Construction Permits, Water Well Construction Permits- Southwest Florida Water Management District and Well Surveillance Program Water Wells. The database search identified the following Public Water Systems Violations and Enforcement data wells (Table **5**) are outside the project corridor buffer zone.

Table 5:
Public Water Systems Violation and Enforcement Data Well

Map No.	Well ID	Distance (feet)	PWS Activity Description	PWS Deactivation Date	Source
89	FL34491008	4,188	Inactive	01/01/1988	PWSV, SDWIS
93	FL3491008	4,330	Inactive	21/01/1992	PWSV

6.0 RECOMMENDATION

A total of six (6) sites were identified within or adjacent to the project vicinity. Two (2) facilities were assigned a No risk assessment and four (4) were assigned Low risk assessment. No facility was assigned a Medium or High risk.

In the time period between completion of the CSE and roadway construction, the circumstances can change substantially. A contamination incident may have occurred within that time period or the materials handled may have changed. **NADIC** recommends that this CSER be updated for the facilities identified as No or Low in this report prior to construction activities. In addition, updated should be made if ROW acquisition or construction will occur more than one (1) year from the date of this report.

Potentially contaminated sites, within or near proposed roadway improvement corridor, have been identified and evaluated. Prior to roadway construction, an updated CSER is recommended to be performed to the determine if the conclusion made in this report has changed. Resolution of problems associated with contamination should be coordinated with appropriate regulatory agencies and, prior to construction, appropriate action will be taken where applicable.

7.0 CLOSURE

It is our opinion that a complete environmental assessment of known/potentially contaminated facilities be conducted prior to roadway construction. The major concern would be dewatering at or near known contaminated areas. Extensive dewatering can cause contamination migration and may require costly treatment systems to obtain approval.

Professional judgments expressed herein are based on the facts currently available within the limits of the existing data from the ERIS report, FDEP and the scope of work. To the extent that more definite conclusions are desired than are warranted by the currently available facts, it is specifically **NADIC**'s intent that the conclusions and recommendations made herein are intended as guidance.

8.0 REFERENCES

American Standard Testing and Materials, ASTM E1527-13; Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Florida Department of Environmental Protection (FDEP) database, September 20, 2021.

Florida Department of Transportation's (FDOT) Project Development and Environment (PD&E Manual, Part 2, Chapter 20, Contamination Impacts), dated July 1, 2020.

Florida Department of Environmental Protection Electronic Document Management System (OCULUS, 6.2; Nexus Enterprise Solution

Environmental Risk Information Services, Inc. (ERIS) Database Search, November 19, 2021.

Netronline Environmental Radius Report, November 3, 2021.

Orange County, Florida Future Land Use Map, Land Use Map, 2020.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey for Orange County, Florida, August 20, 2021

APPENDIX A

Figure 1	**Vicinity Map**
Figure 2	**Land Use Map/Vicinity Map**
Figure 3	**USGS Quadrangle Map**
Figures 4	**USDA/NRCS Soil Survey Map**



NOT TO SCALE

Approximate Project Location

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	11-11-2021
			CHECKED BY:	GNN	11-11-2021
			DESIGNED BY:	N/A	N/A
			CHECKED BY:	N/A	N/A
			APPROVED BY:		

NADIC
GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

ORANGE COUNTY FLORIDA

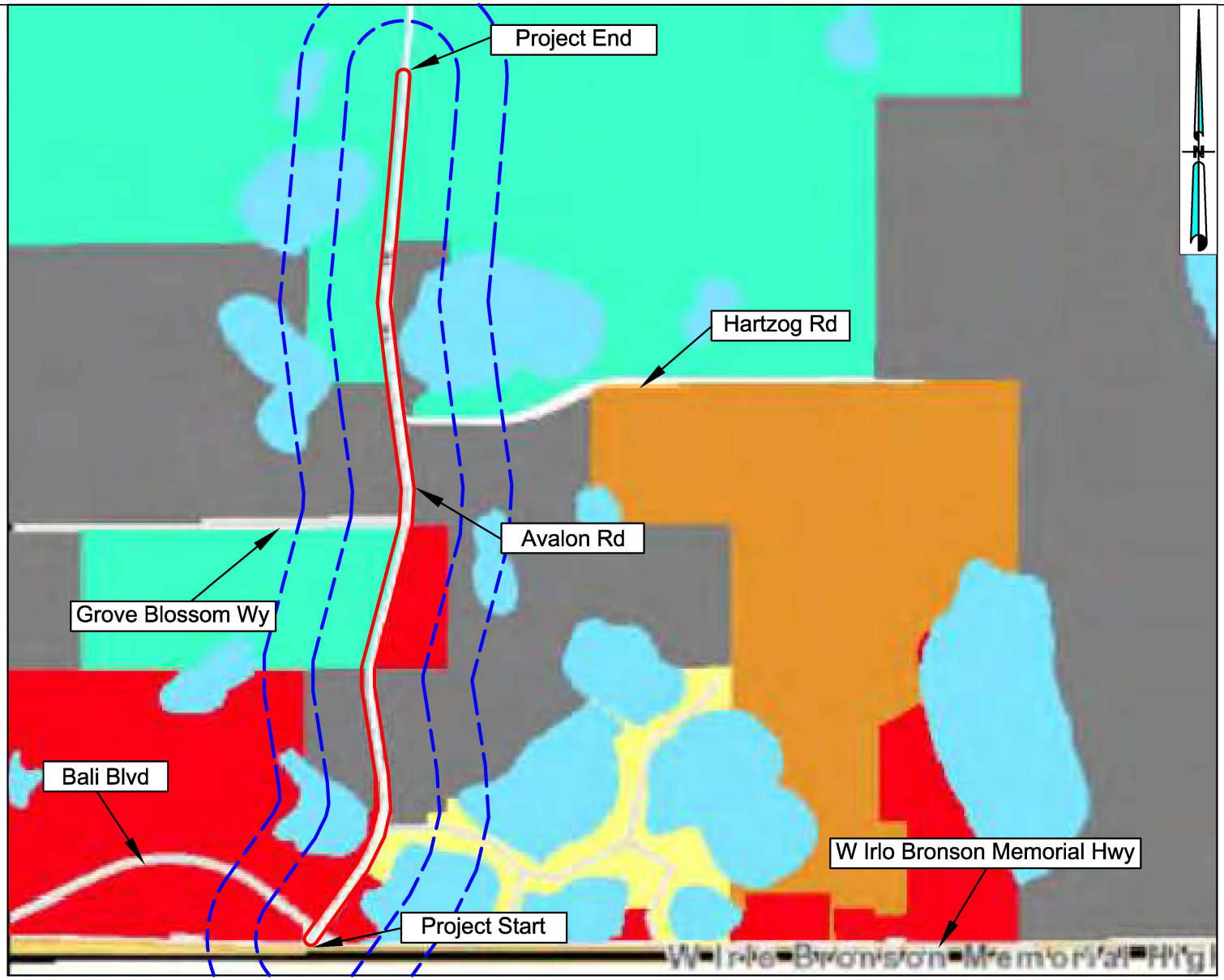
ORANGE COUNTY, FLORIDA

COUNTY	CONTRACT No.
ORANGE	Y20-835-CH

FIGURE 1
VICINITY MAP

PROJECT NAME:
AVALON ROAD
ROADWAY CONCEPTUAL ANALYSIS (RCA)

NADIC PROJECT NO.: PR.GEO.RD20041



LEGEND

- Low Density Residential
- Low-Medium Density
- Village
- Commercial
- Planned Development
- Water Body
- Approx. Project Location
- Buffer Outline

QUADRANGLE:	LAKE LOUISA SW, FL (2021)
SECTION:	30 & 31
TOWNSHIP:	T24S
RANGE:	R27E
REFERENCE:	Orange County InfoMap

NOT TO SCALE

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	11-17-2021
			CHECKED BY:	GNN	11-17-2021
			DESIGNED BY:	N/A	N/A
			CHECKED BY:	N/A	N/A
			APPROVED BY:		

NADIC
GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

ORANGE COUNTY, FLORIDA

COUNTY	PROJECT No.
ORANGE	Y20-835-CH

FIGURE 2
LAND USE MAP/VICINITY MAP

PROJECT NAME:
AVALON ROAD ROADWAY CONCEPTUAL ANALYSIS (RCA)

NADIC PROJECT NO.: PR.GEO.RD20041



NOT TO SCALE

Approximate Project Location

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	11-11-2021
			CHECKED BY:	GNN	11-11-2021
			DESIGNED BY:	N/A	N/A
			CHECKED BY:	N/A	N/A
			APPROVED BY:		

NADIC
GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

ORANGE COUNTY, FLORIDA

COUNTY	CONTRACT No.
ORANGE	Y20-835-CH

FIGURE 3
TOPOGRAPHIC MAP

PROJECT NAME:
AVALON ROAD
ROADWAY CONCEPTUAL ANALYSIS (RCA)

NADIC PROJECT NO.: PR.GEO.RD20041



NOT TO SCALE

Approximate Project Location

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	11-11-2021
			CHECKED BY:	GNN	11-11-2021
			DESIGNED BY:	N/A	N/A
			CHECKED BY:	N/A	N/A
			APPROVED BY:		

NADIC
GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

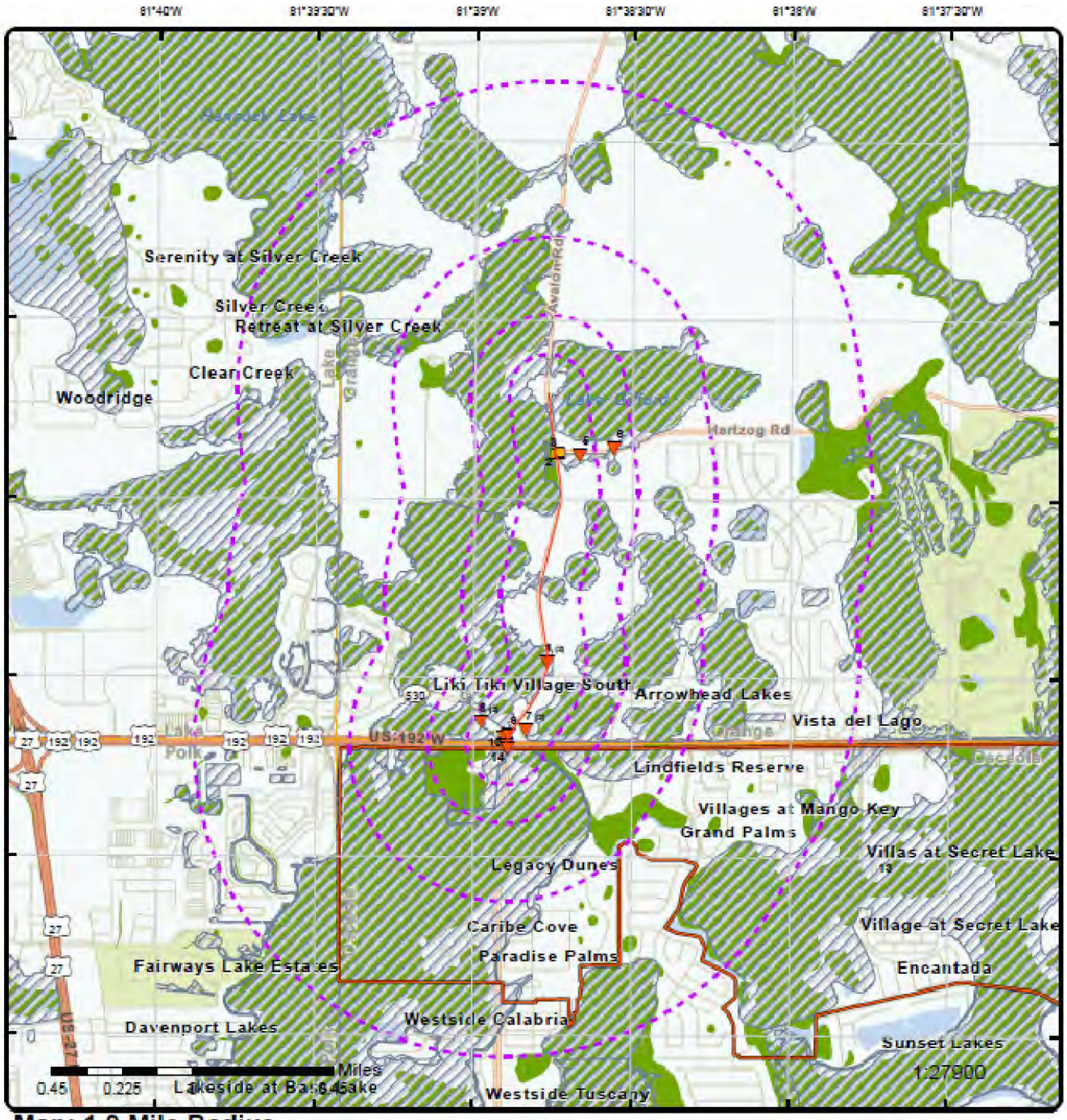
ORANGE COUNTY, FLORIDA

COUNTY	CONTRACT No.
ORANGE	Y20-835-CH

FIGURE 4
SOIL SURVEY MAP

PROJECT NAME:
AVALON ROAD ROADWAY CONCEPTUAL ANALYSIS (RCA)

NADIC PROJECT NO.: PR.GEO.RD20041



Map: 1.0 Mile Radius

Order Number: 21111600024

Address: Avalon Road, Winter Garden, FL

ERIS

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Eris Areas with Higher Elevation
- Eris Areas with Same Elevation
- Eris Areas with Lower Elevation
- Eris Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Priority List Sites
- National Wetland
- Indian Reserve Land
- Historic Fill
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- Plume

POTENTIAL CONTAMINATION SITE

MAP ID	SITE NAME	RISK RATING
1	CALLAHAN PROPERTY	LOW
2	SPILLS	NO
5	GIFFORD SUBSTATION	NO
6	WINTER GARDEN CITRUS GROWERS-1ST GROVE	LOW
7	WAWA #5119	LOW
8	ADVENTHEALTH FOUR CORNERS ER	LOW

REVISIONS				NAMES	DATES
DATES	BY	DESCRIPTION	DRAWN BY:	MB	12-17-2021
			CHECKED BY:	GNN	12-17-2021
			DESIGNED BY:	N/A	N/A
			CHECKED BY:	N/A	N/A
			APPROVED BY:		

NADIC

GODWIN N. NNADI, Ph.D., P.E.
FL REGISTRATION NO. 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO, FL 32818
PH (407) 521-4771 FAX (407) 521-4772
CERTIFICATE OF AUTHORIZATION NO. 8214

ORANGE COUNTY FLORIDA

ORANGE COUNTY, FLORIDA

COUNTY	CONTRACT No.
ORANGE	Y20-835-CH

FIGURE 5

POTENTIAL CONTAMINATION SITE MAP

PROJECT NAME:

AVALON ROAD ROADWAY CONCEPTUAL ANALYSIS (RCA)

NADIC PROJECT NO.: PR.GEO.RD20041

APPENDIX B

Historical Aerials

ERIS

HISTORICAL AERIALS

Project Property: Avalon Road RCA Study from US 192 to Flamingo Crossing Boulevard
Avalon Road
Winter Garden FL 34787

Project No: Y20-835

Requested By: Nadic Engineering Services, Inc.

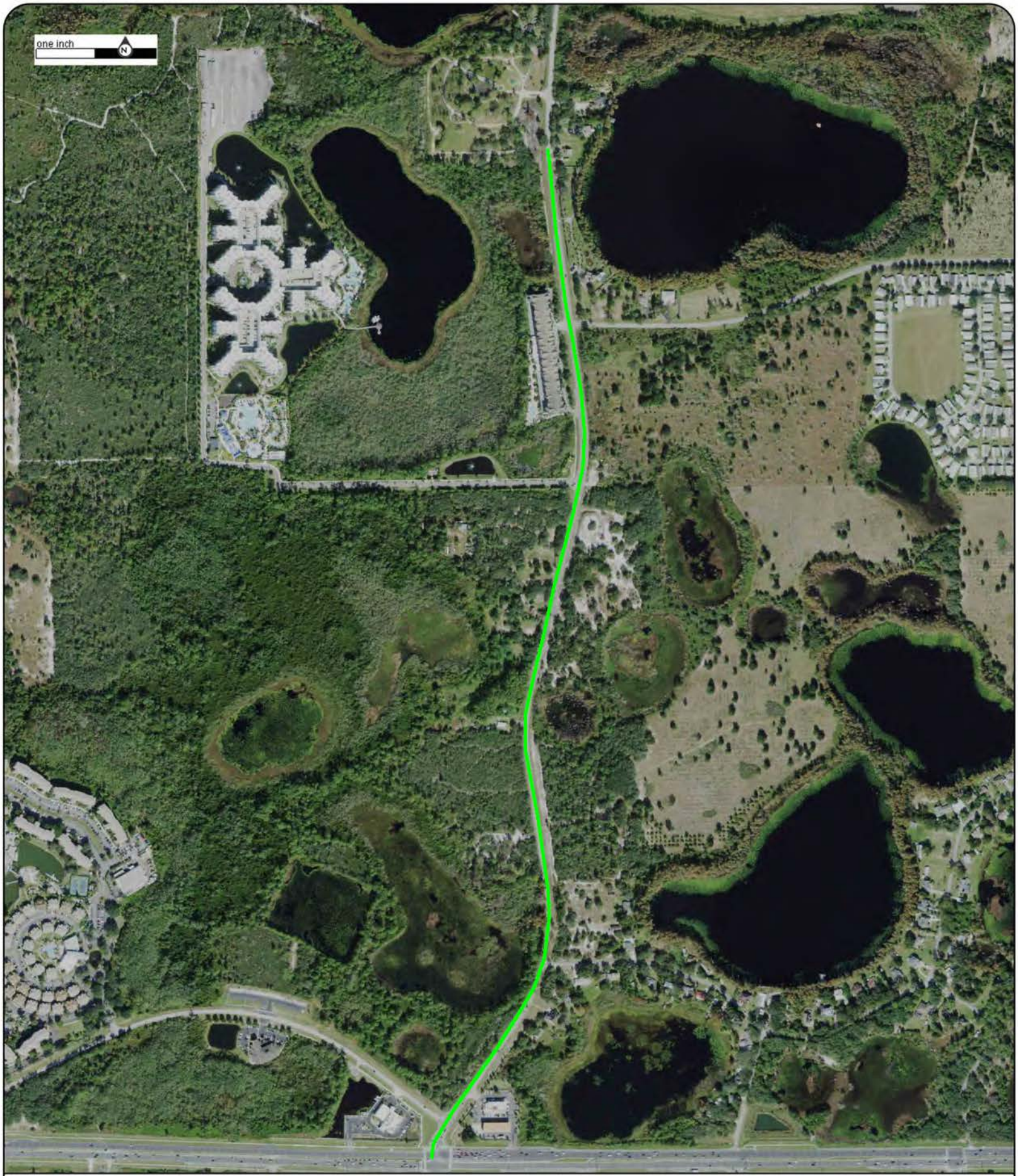
Order No: 21111600024

Date Completed: November 17,2021

Aerial Maps included in this report are produced by the sources listed above and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property. ERIS provides no warranty of accuracy or liability. The information contained in this report has been produced using aerial photos listed in above sources by ERIS Information Inc. (in the US) and ERIS Information Limited Partnership (in Canada), both doing business as 'ERIS'. The maps contained in this report do not purport to be and do not constitute a guarantee of the accuracy of the information contained herein. Although ERIS has endeavored to present information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Date	Source	Scale	Comments
2019	United States Departments of Agriculture	1" = 700'	
2017	United States Departments of Agriculture	1" = 700'	
2015	United States Departments of Agriculture	1" = 700'	
2013	United States Departments of Agriculture	1" = 700'	
2010	United States Departments of Agriculture	1" = 700'	
2006	United States Departments of Agriculture	1" = 700'	
1995	United States Geologial Survey	1" = 700'	
1984	United States Geologial Survey	1" = 700'	Best Copy Available
1974	United States Departments of Agriculture	1" = 700'	
1969	Agricultural Stabilization & Conserv. Service	1" = 700'	
1958	United States Geologial Survey	1" = 700'	
1952	United States Geologial Survey	1" = 700'	
1944	Agricultural Stabilization & Conserv. Service	1" = 700'	
1941	Agricultural Stabilization & Conserv. Service	1" = 700'	

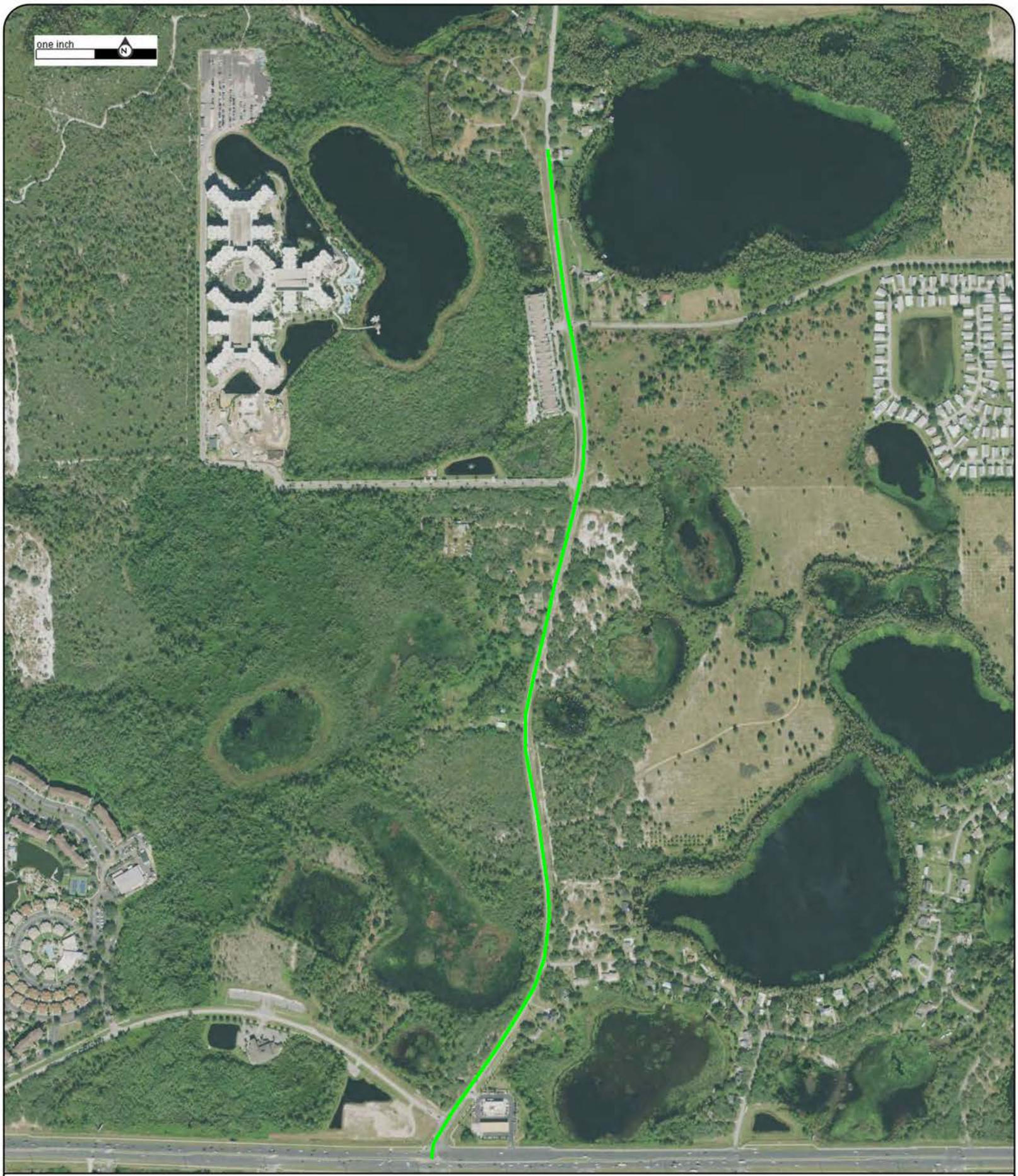


Year: 2019
Source: USDA
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 2017
Source: USDA
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS

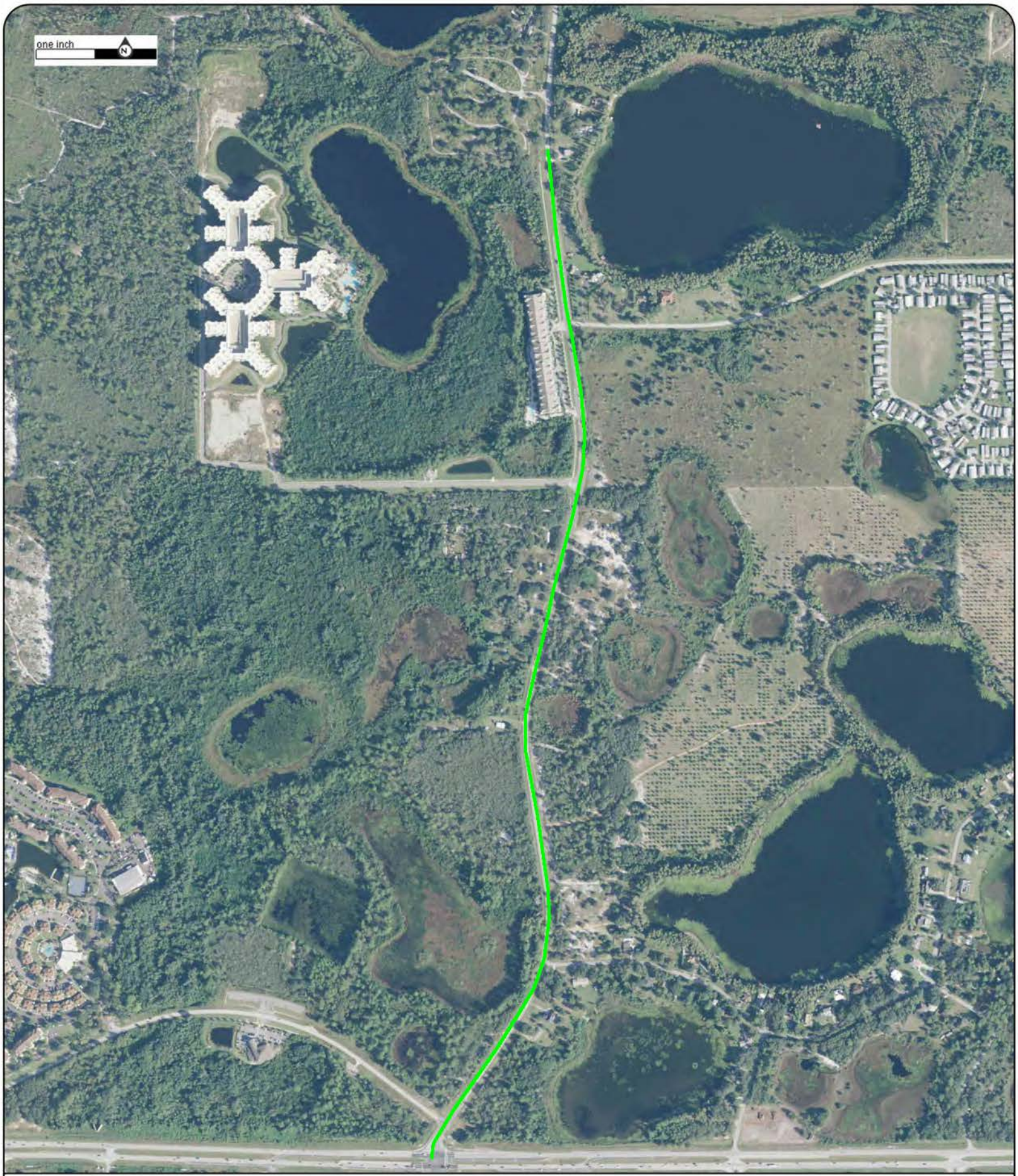


Year: 2015
Source: USDA
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 2013
Source: USDA
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 2010
Source: USDA
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 2006
Source: USDA
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 1995
Source: USGS
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS

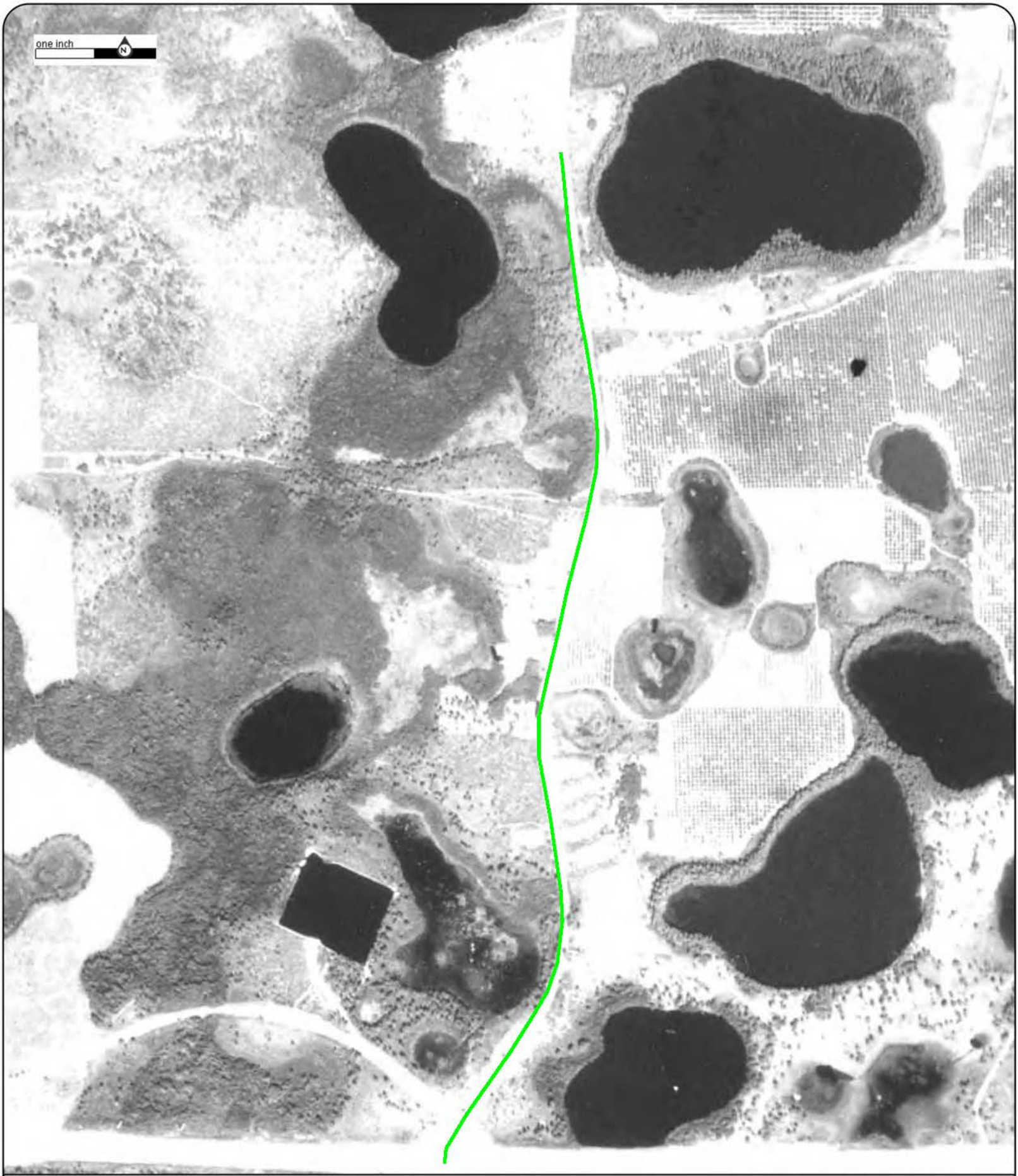


Year: 1984
Source: USGS
Scale: 1" = 700'
Comment: Best Copy Available

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 1974
Source: USDA
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 1969
Source: ASCS
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS

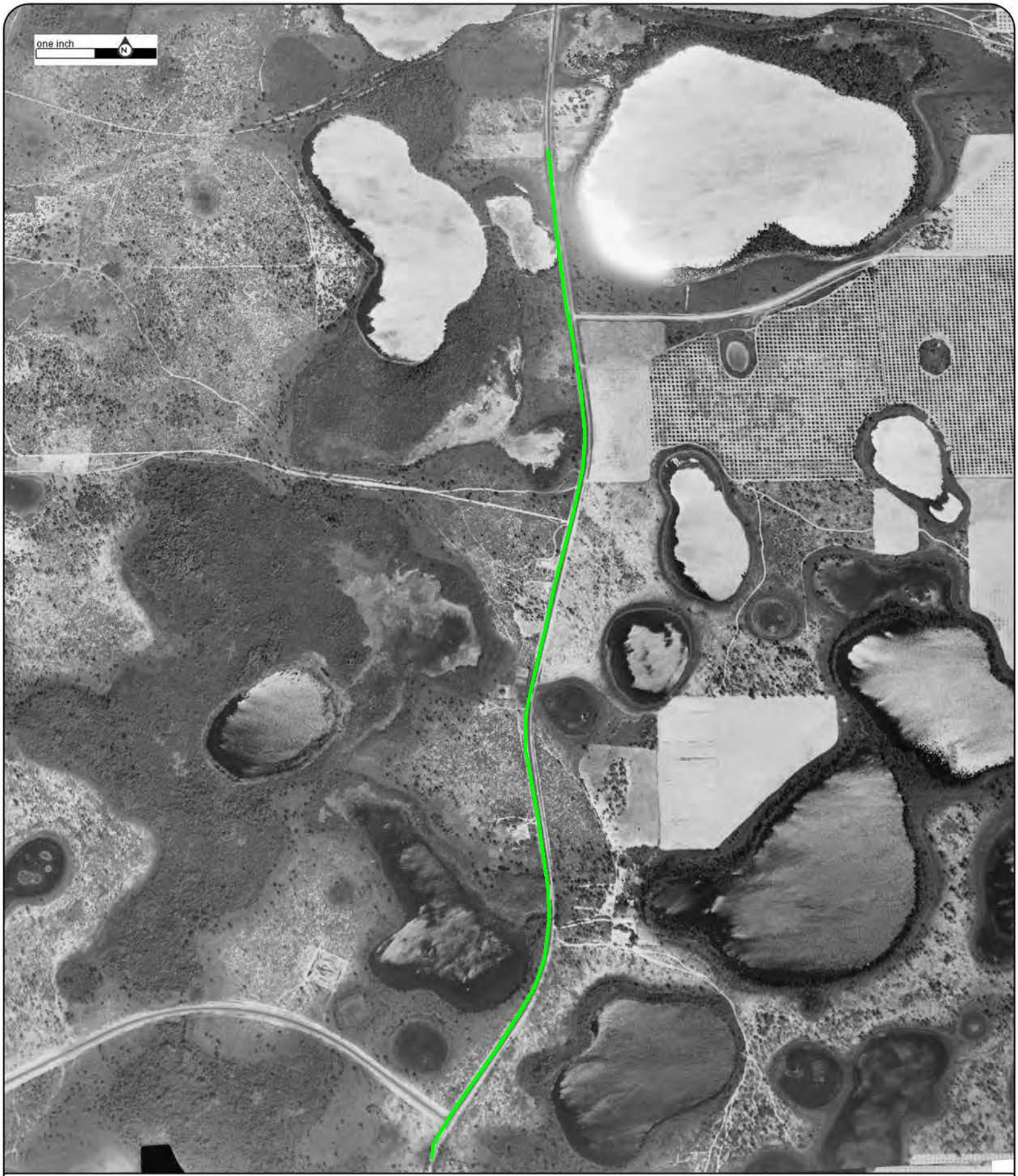


Year: 1958
Source: USGS
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS

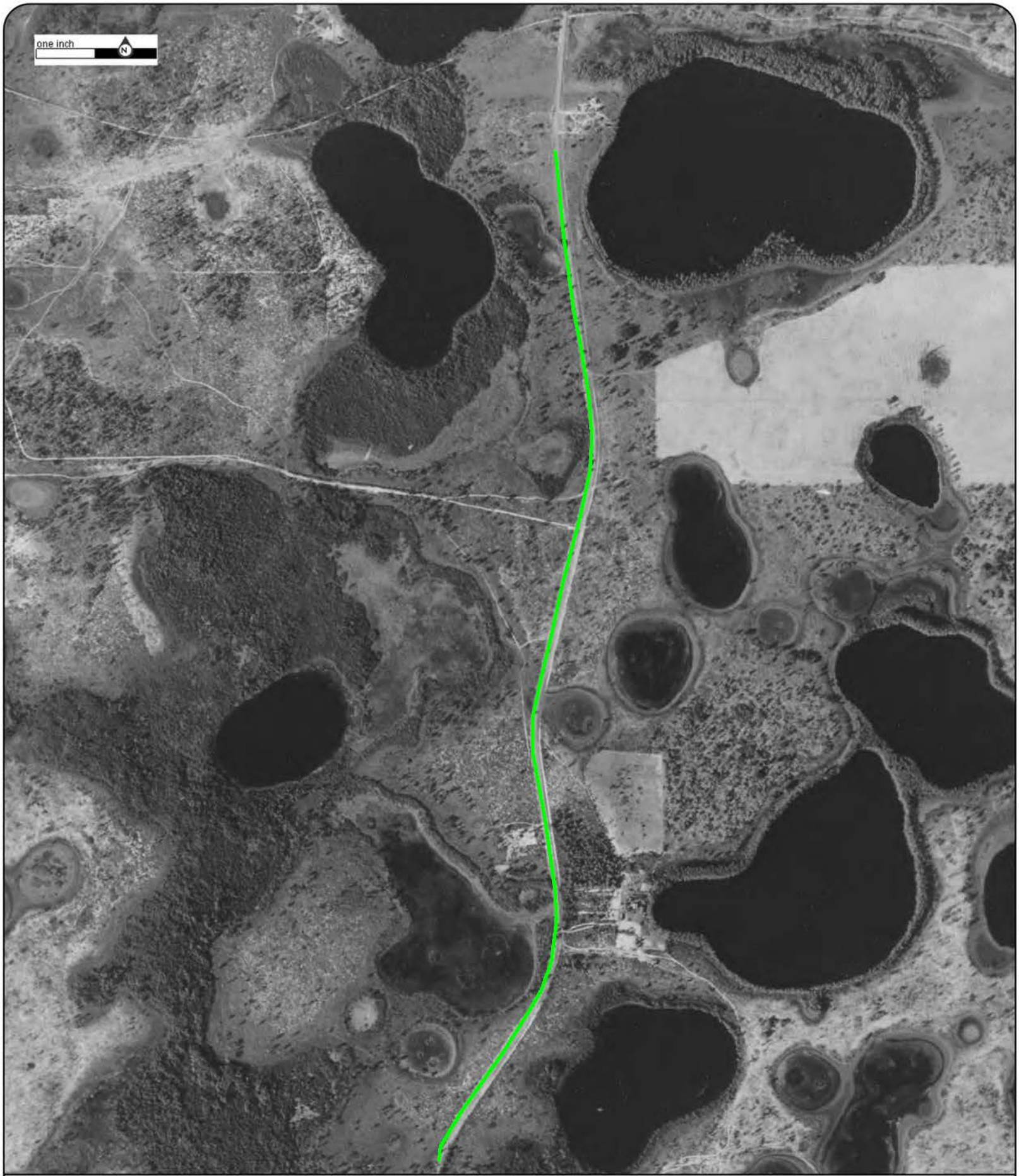


Year: 1952
Source: USGS
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS

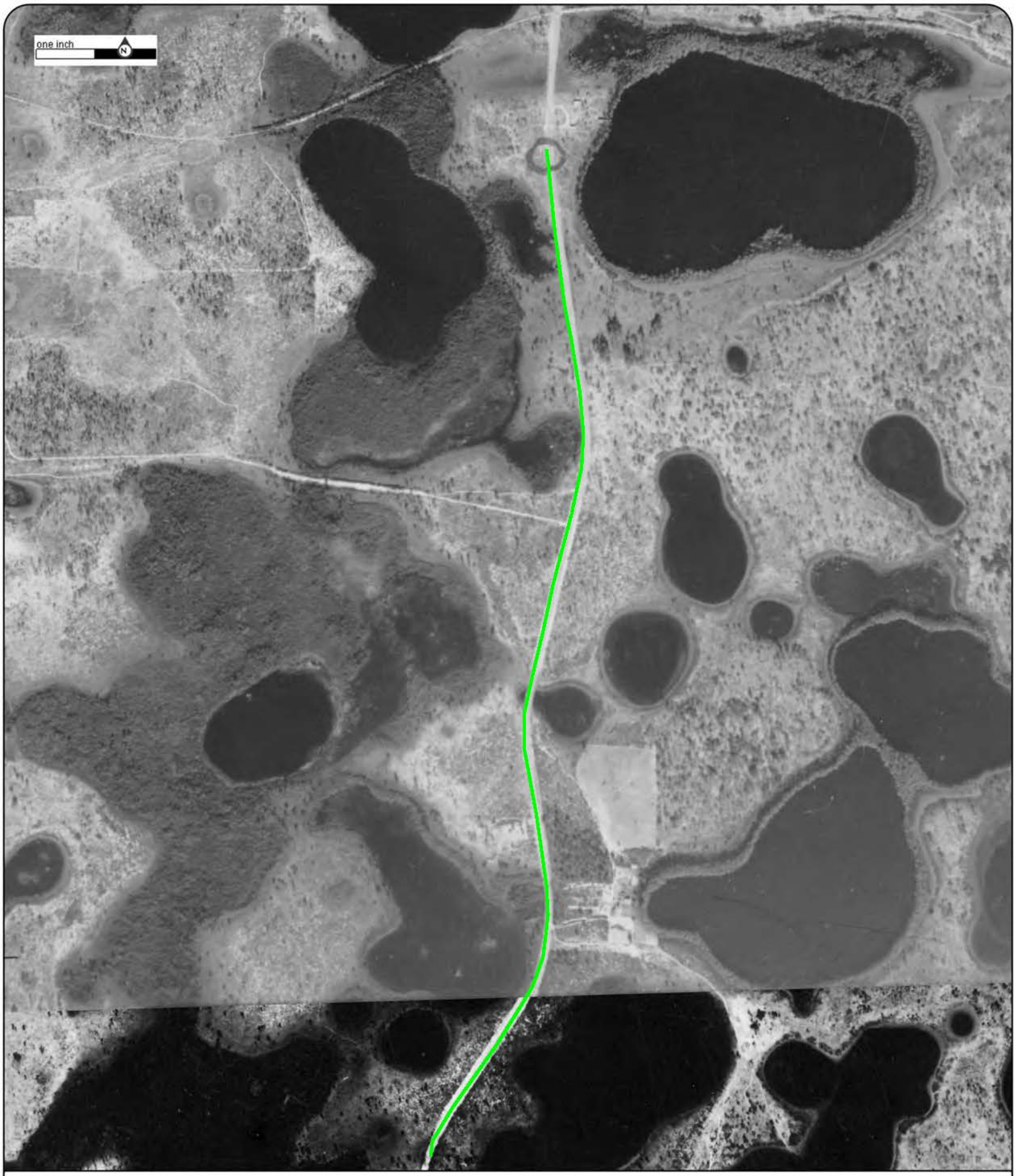


Year: 1944
Source: ASCS
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS



Year: 1941
Source: ASCS
Scale: 1" = 700'
Comment:

Address: Avalon Road, Winter Garden, FL
Approx Center: -81.64689051,28.35505186

Order No: 21111600024

ERIS

APPENDIX C

ERIS Topographic Maps

TOPOGRAPHIC MAPS

Project Property:	Avalon Road RCA Study from US 192 to■Flamingo Crossing Boulevard Avalon Road Winter Garden FL 34787
Project No:	Y20-835
Requested By:	Nadic Engineering Services, Inc.
Order No:	21111600024
Date Completed:	November 17, 2021

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

We have searched USGS collections of current topographic maps and historical topographic maps for the project property. Below is a list of maps found for the project property and adjacent area. Maps are from 7.5 and 15 minute topographic map series, if available.

Year	Map Series
2015	7.5
1985	7.5
1980	7.5
1970	7.5
1959	7.5

Topographic Map Symbology for the maps may be available in the following documents:

Pre-1947

Page 223 of 1918 Topographic Instructions

Page 130 of 1928 Topographic Instructions

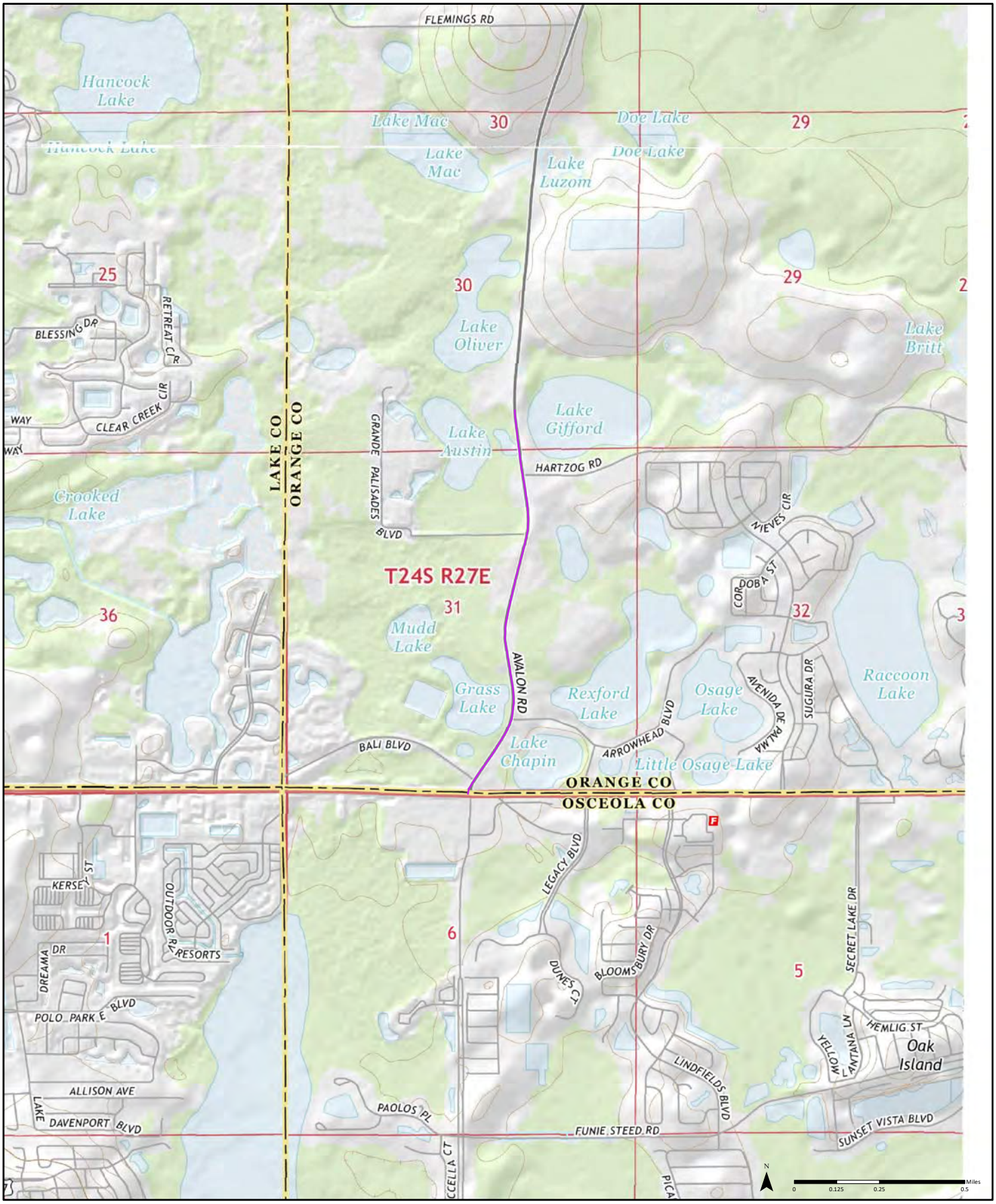
1947-2009

Topographic Map Symbols

2009-present

US Topo Map Symbols

Topographic Maps included in this report are produced by the USGS and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property.
No warranty of Accuracy or Liability for ERIS: The information contained in this report has been produced by ERIS Information Inc.(in the US) and ERIS Information Limited Partnership (in Canada), both doing business as 'ERIS', using Topographic Maps produced by the USGS. This maps contained herein does not purport to be and does not constitute a guarantee of the accuracy of the information contained herein. Although ERIS has endeavored to present you with information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

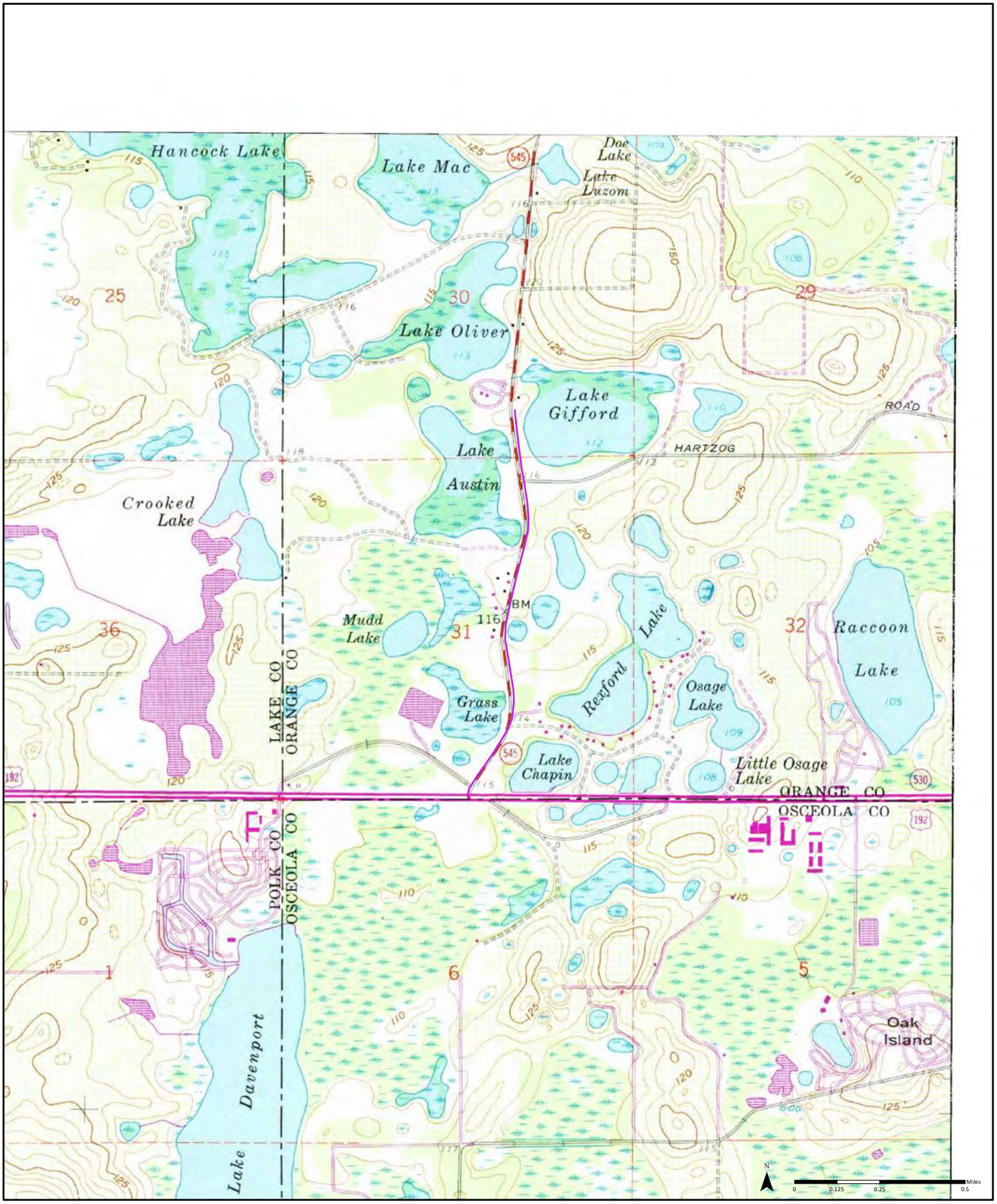


2015

Quadrangle(s): Lake Louisa SW, FL; Lake Louisa, FL

Order No. 21111600024

Source: USGS 7.5 Minute Topographic Map



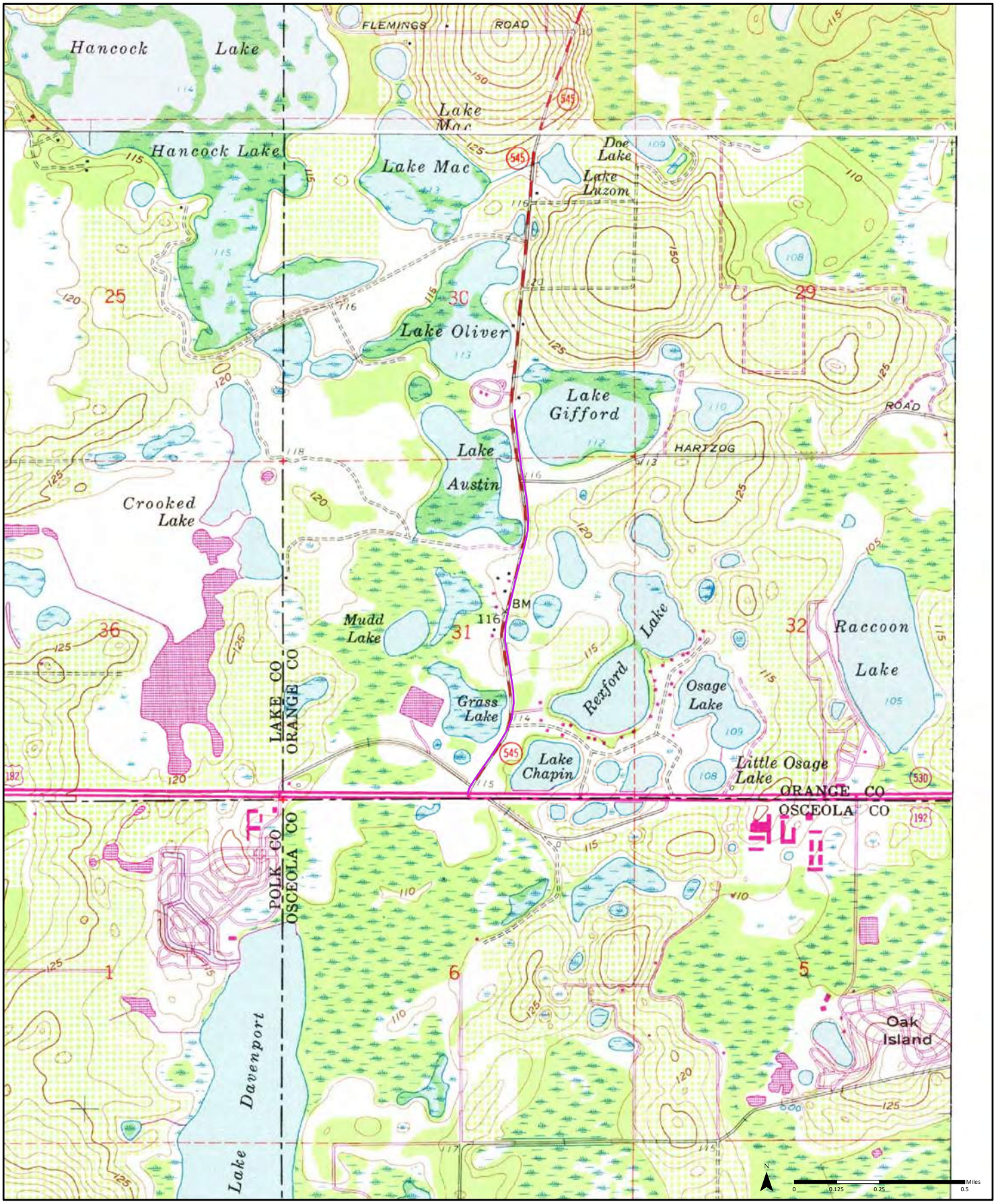
1985 (1)

Aerial Photo Year: 1977
Photo Revision Year: 1980

Quadrangle(s): Lake Louisa SW, FL (1)

Order No. 21111600024

Source: USGS 7.5 Minute Topographic Map



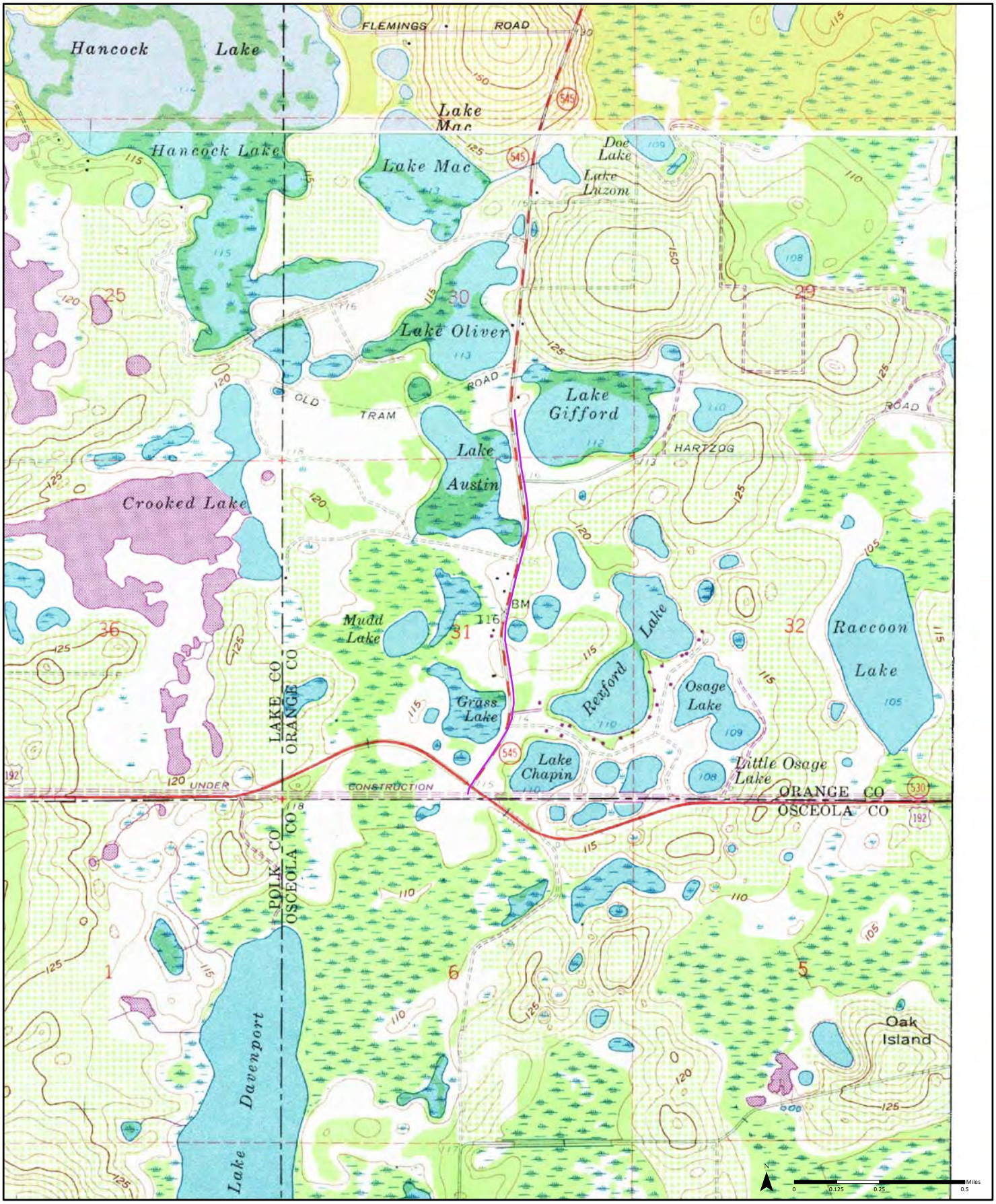
1980 (1) Aerial Photo Year: 1977 Photo Revision Year: 1980 (2) Aerial Photo Year: 1977 Photo Revision Year: 1980

Quadrangle(s): Lake Louisa SW, FL(1); Lake Louisa, FL(2)

Order No. 21111600024

Source: USGS 7.5 Minute Topographic Map

ERIS

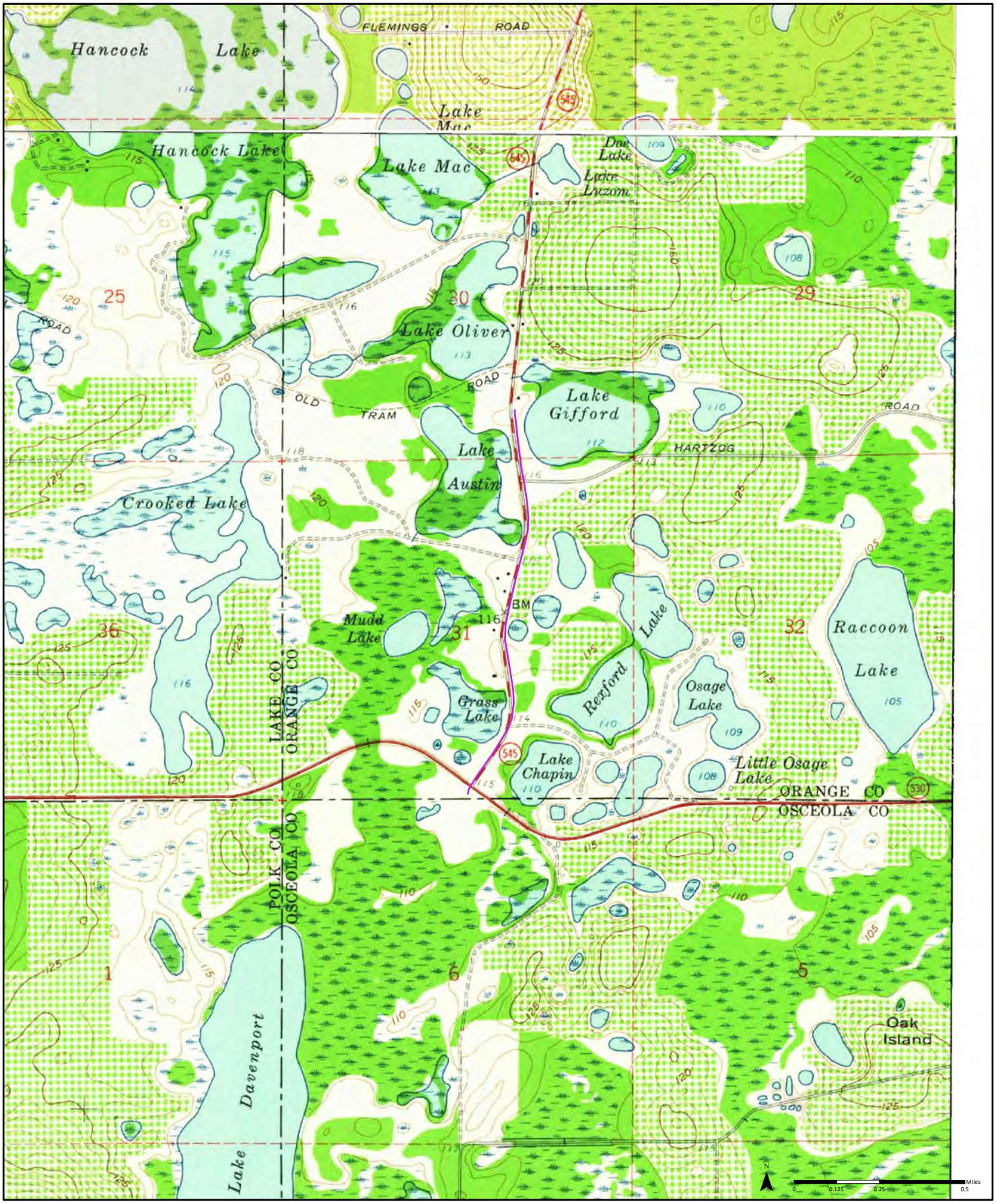


1970 (1) Aerial Photo Year: 1958 (2) Aerial Photo Year: 1970 Photo Revision Year: 1970

Quadrangle(s): Lake Louisa, FL(1); Lake Louisa SW, FL(2)

Order No. 21111600024

Source: USGS 7.5 Minute Topographic Map



1959 (1) Aerial Photo Year: 1958 (2) Aerial Photo Year: 1958

Quadrangle(s): Lake Louisa SW, FL(1); Lake Louisa, FL(2)

Order No. 21111600024

Source: USGS 7.5 Minute Topographic Map

ERIS

Appendix K

- SAI Reedy Creek Master Plan (Excerpts)



STORMWATER MANAGEMENT DIVISION

DISCLAIMER

Any information, including but not limited to, software and data, received from Orange County Public Works is provided "as is" without warranty of any representation of accuracy, timeliness or completeness. The burden of determining accuracy, completeness, timeliness, and suitability for use rests solely on the User. The User acknowledges and accepts the limitation of the Data, and assumes the entire risk as to the results and performance of any information obtained from Orange County Public Works. There are no implied warranties of merchantability or fitness for a particular purpose.

The Data provided herein is static and reflect current conditions at the time of study. Furthermore, this study does not address the level of detail required to perform design level engineering.

Contact: Orange County Stormwater Management Division, (407) 836-7990

REEDY CREEK AND CYPRESS CREEK DRAINAGE BASINS

Stormwater Management Master Plan

Prepared for

Orange County

Board of County Commissioners

by

Singhofen & Associates, Inc.
Stormwater Management and Civil Engineering

June, 1996

ACKNOWLEDGMENTS

The support and assistance of the following individuals not only made this document possible, but also ensured that a comprehensive and complete master plan for the Reedy Creek and Cypress Creek Drainage Basins was developed. The Board of County Commissioners of Orange County are gratefully acknowledged for their continued interest and support in making this project possible. The Orange County Stormwater Management Department was responsible for initiating the project and securing the necessary funding. The assistance and involvement of members of the Windermere Navigation District is also greatly appreciated. Special thanks is in order for the staff of the Reedy Creek Improvement District Stormwater Department and the CONSERV II project for their contribution of valuable data to this study. County Staff also contributed substantially through continuous coordination, retrieval of and assistance in gathering data and review of all interim documents.

ORANGE COUNTY

BOARD OF COUNTY COMMISSIONERS

Linda W. Chapin, Chairman

Bob Freeman, District 1

Tom Staley, District 2

Mary I. Johnson, District 3

Clarence M. Hoenstine, District 4

Bill Donegan, District 5

Mable Butler, District 6

ORANGE COUNTY STAFF

Ajit M. Lalchandani, P.E., Director, Public Works Division

William P. Baxter, P.E., Deputy Director, Public Works Division

M. Krishnamurthy, Ph.D., P.E., Manager, Stormwater Management Department

Roland Raymundo, P.E., Engineer III, Stormwater Management Department

Mary Vojanec, Environmental Coordinator, Stormwater Management Department

Eduardo Avellaneda, P.E., Assistant Manager, Highway Maintenance Department

David Fleming, Drawing Archives

Nick Sassic, Assistant Manager, Environmental Protection Department

Linda Jennings, Laboratory Supervisor, Environmental Protection Department

David C. Heath, AICP, Manager, Planning Department

David W. Martin, P.E., Engineer III, Development Engineering Department

OTHER CONTRIBUTORS

David MacIntyre, P.E., Manager, Groundwater Resources,
Parsons, Brinckerhoff, Gore & Storrie, Inc.

Doug Pickell, P.E., Senior Engineer, Parsons, Brinckerhoff, Gore & Storrie, Inc.

Alan Leavens, P.E., Staff Engineer, South Florida Water Management District

Mack Elsabagh, P.E., Senior Water Resources Engineer,
Reedy Creek Improvement District

Thomas R. Alex, Director of Golf Course Maintenance, Grand Cypress Resort

Jay Crocco, Assistant Superintendent, Bay Hill Club

David Leverant, General Manager, Windermere Country Club

H. Douglas "Doug" Miller, P.E., Project Engineer, H. Douglas Miller, Inc.

Robert D. Londeree, Landscape Architect

PROJECT TEAM

Prime Consultant

Singhofen & Associates, Inc.
Stormwater Management and Civil Engineering
6961 University Boulevard
Winter Park, Florida 32792

Surveying Services

Buchheit Associates, Inc.
401 Whooping Loop, Suite 1550
Altamonte Springs, Florida 32701

Water Quality Investigation

Environmental Research & Design, Inc.
3419 Trentwood Boulevard, Suite 101
Orlando, Florida 32812

Ecological Consulting Services

Lotspeich and Associates, Inc.
422 West Fairbanks Avenue, Suite 201
Winter Park, Florida 32789

TABLE OF CONTENTS

EXECUTIVE SUMMARY **ES-1**

1.0 Purpose of Study ES-1

2.0 The Study Area ES-1

3.0 The Study Approach ES-3

4.0 Existing Water Quality Assessment ES-4

5.0 Existing Ecological Assessment ES-8

6.0 Average Annual Pollutant Loading Assessment ES-9

7.0 Assessment of Existing Flooding Conditions ES-9

8.0 Action Items ES-10

9.0 Project Deliverables ES-11

RECOMMENDATIONS **R-1**

1.0 General R-1

2.0 Regulatory R-1

3.0 Water Quality R-2

4.0 Maintenance and Easements R-2

5.0 Capital Improvements R-3

CHAPTER 1 — BACKGROUND **1-1**

1.1 Purpose and Scope 1-1

1.2 Report Organization 1-3

TABLE OF CONTENTS (continued)

1.3 The Cypress Creek Drainage Basin Characterization 1-3

1.3.1 Existing Drainage Patterns 1-5
1.3.1.1 Urban Areas 1-5
1.3.1.2 Agricultural Areas 1-5
1.3.1.3 Lakes 1-5
1.3.1.4 Commercial/Resort Areas 1-6
1.3.1.5 Mabel / South System 1-6
1.3.1.6 RCID System 1-6
1.3.2 Climate 1-7
1.3.3 Topography 1-7
1.3.4 Geology and Physiography 1-7
1.3.5 Soils 1-11
1.3.6 Land Use 1-11
1.3.7 Water Quality Characterization 1-17
1.3.8 Ecological Characterization 1-17
1.3.8.1 Uplands 1-17
1.3.8.2 Wetlands 1-17
1.3.8.3 Critical Habitat for Listed Species 1-18
1.3.8.4 Conservation Efforts 1-18

1.4 Reedy Creek Drainage Basin Characterization 1-20

1.4.1 Existing Drainage Patterns 1-20
1.4.1.1 Lake Speer/Hancock/Hartley System 1-20
1.4.1.2 Lake Ingram 1-22
1.4.1.3 Lake Needham/Hickorynut Lake System 1-22
1.4.1.4 Bear Bay/Whittenhorse Creek System 1-23
1.4.1.5 Boggy Creek System 1-24
1.4.1.6 Southwest System 1-24
1.4.1.7 RCID System 1-24
1.4.2 Climate 1-25
1.4.3 Topography 1-25
1.4.4 Geology and Physiography 1-25
1.4.5 Soils 1-29
1.4.6 Land Use 1-29
1.4.7 Water Quality Characterization 1-35
1.4.8 Ecological Characterization 1-37
1.4.8.1 Uplands 1-37
1.4.8.2 Wetlands 1-37
1.4.8.3 Critical Habitat for Listed Species 1-37

TABLE OF CONTENTS (continued)

CHAPTER 2 — GENERAL METHODOLOGY AND DATA BASE FORMULATION 2-1

2.1 Hydrologic Data Development 2-1

2.1.1 Drainage Sub-Basin Data 2-2
2.1.2 Unit Hydrograph and Rainfall 2-5

2.2 Hydraulic Data Development 2-8

2.2.1 Node Data 2-8
2.2.2 Link Data 2-9

2.3 Pollutant Loading Estimation 2-11

2.3.1 Areal Loading Rate Estimation 2-11
2.3.2 Treatment Efficiency Calculation 2-13

2.4 Regulatory Planning for Volume Sensitive Systems 2-19

CHAPTER 3 — CYPRESS CREEK DRAINAGE BASIN 3-1

3.1 Lake Down / Rhea System 3-1

3.1.1 Available Information 3-1
3.1.1.1 Hydrologic Data 3-1
3.1.1.2 Development Plans 3-3
3.1.1.3 Water Quality Data 3-4
3.1.2 Existing Conditions Analysis 3-8
3.1.2.1 Stormwater Inflow Points to Lake Down 3-8
3.1.2.2 Lake Outfalls 3-12
3.1.2.3 Problem Areas 3-12
3.1.2.4 Existing Condition Simulation Results 3-13
3.1.2.5 Water Quality Analysis 3-19
3.1.2.6 Pollution Loading Analysis Results 3-19
3.1.3 Future Conditions 3-20
3.1.3.1 Future Setting 3-21
3.1.3.2 Water Quality / Pollutant Loading Results 3-21
3.1.4 Proposed Improvements 3-25
3.1.4.1 Water Quantity Considerations 3-25
3.1.4.2 Water Quality / Pollutant Loading Considerations 3-25

TABLE OF CONTENTS (continued)

3.2 Lake Crescent / Whitney System 3-27

3.2.1 Available Information 3-27
3.2.1.1 Hydrologic Data 3-27
3.2.1.2 Development Plans 3-30
3.2.1.3 Water Quality Data 3-30
3.2.2 Existing Conditions Analysis 3-31
3.2.2.1 Stormwater Inflow Points to Lakes Crescent and Whitney 3-32
3.2.2.2 Lake Outfalls 3-34
3.2.2.3 Problem Areas 3-34
3.2.2.4 Existing Condition Simulation Results 3-35
3.2.2.5 Water Quality Analysis 3-40
3.2.2.6 Pollution Loading Analysis Results 3-40
3.2.3 Future Conditions 3-41
3.2.3.1 Future Setting 3-45
3.2.3.2 Water Quality / Pollutant Loading Results 3-45
3.2.4 Proposed Improvements 3-46
3.2.4.1 Water Quantity Considerations 3-46
3.2.4.2 Water Quality / Pollutant Loading Considerations 3-46

3.3 Lake Butler / Estes / William Davis System 3-48

3.3.1 Available Information 3-48
3.3.1.1 Hydrologic Data 3-48
3.3.1.2 Development Plans 3-52
3.3.1.3 Water Quality Data 3-52
3.3.2 Existing Conditions Analysis 3-53
3.3.2.1 Stormwater Inflow Points 3-54
3.3.2.2 Lake Outfalls 3-56
3.3.2.3 Problem Areas 3-58
3.3.2.4 Existing Condition Simulation Results 3-58
3.3.2.5 Water Quality Analysis 3-66
3.3.2.6 Pollution Loading Analysis Results 3-68
3.3.3 Future Conditions 3-73
3.3.3.1 Future Setting 3-73
3.3.3.2 Water Quality / Pollutant Loading Results 3-73
3.3.4 Proposed Improvements 3-75
3.3.4.1 Water Quantity Considerations 3-75
3.3.4.2 Water Quality / Pollutant Loading Considerations 3-76

3.4 Lake Bessie / Blanche / Chase System 3-77

3.4.1 Available Information 3-77

TABLE OF CONTENTS (continued)

3.4.1.1 Hydrologic Data 3-77
3.4.1.2 Development Plans 3-81
3.4.1.3 Water Quality Data 3-82
3.4.2 Existing Conditions Analysis 3-82
3.4.2.1 Stormwater Inflow Points to Lake Bessie, Blanche and Chase 3-83
3.4.2.2 Lake Outfalls 3-86
3.4.2.3 Problem Areas 3-91
3.4.2.4 Existing Condition Simulation Results 3-92
3.4.2.5 Water Quality Analysis 3-99
3.4.2.6 Pollution Loading Analysis Results 3-101
3.4.3 Future Conditions 3-106
3.4.3.1 Future Setting 3-107
3.4.3.2 Water Quality / Pollutant Loading Results 3-107
3.4.4 Proposed Improvements 3-109
3.4.4.1 Water Quantity Considerations 3-109
3.4.4.2 Water Quality / Pollutant Loading Considerations 3-109

3.5 Lake Tibet System 3-110

3.5.1 Available Information 3-110
3.5.1.1 Hydrologic Data 3-110
3.5.1.2 Development Plans 3-110
3.5.1.3 Water Quality Data 3-114
3.5.2 Existing Conditions Analysis 3-114
3.5.2.1 Stormwater Inflow Points for Lake Tibet 3-114
3.5.2.2 Lake Tibet Outfall 3-117
3.5.2.3 Problem Areas 3-119
3.5.2.4 Existing Condition Simulation Results 3-119
3.5.2.5 Water Quality Analysis 3-127
3.5.2.6 Pollution Loading Analysis Results 3-127
3.5.3 Future Conditions 3-129
3.5.3.1 Future Setting 3-130
3.5.3.2 Water Quality / Pollutant Loading Results 3-130
3.5.4 Proposed Improvements 3-131
3.5.4.1 Water Quantity Considerations 3-131
3.5.4.2 Water Quality / Pollutant Loading Considerations 3-133

3.6 Lake Louise / Isleworth System 3-139

3.6.1 Available Information 3-139
3.6.1.1 Hydrologic Data 3-139
3.6.1.2 Development Plans 3-139

TABLE OF CONTENTS (continued)

3.6.1.3 Water Quality Data 3-142
3.6.2 Existing Conditions Analysis 3-142
3.6.2.1 Stormwater Inflow Locations and Outfall 3-143
3.6.2.2 Lake Outfalls 3-145
3.6.2.3 Problem Areas 3-145
3.6.2.4 Existing Condition Simulation Results 3-145
3.6.2.5 Water Quality Analysis 3-150
3.6.2.6 Pollution Loading Analysis Results 3-151
3.6.3 Future Conditions 3-152
3.6.3.1 Future Setting 3-152
3.6.3.2 Water Quality / Pollutant Loading Results 3-155
3.6.4 Proposed Improvements 3-157
3.6.4.1 Water Quantity Considerations 3-157
3.6.4.2 Water Quality / Pollutant Loading Considerations 3-157

3.7 Lake Burden System 3-158

3.7.1 Available Information 3-158
3.7.1.1 Hydrologic Data 3-158
3.7.1.2 Development Plans 3-158
3.7.1.3 Water Quality Data 3-158
3.7.2 Existing Conditions Analysis 3-158
3.7.2.1 Stormwater Inflow Points to Lake Burden 3-158
3.7.2.2 Lake Burden Outfall 3-161
3.7.2.3 Problem Areas 3-161
3.7.2.4 Existing Condition Simulation Results 3-161
3.7.2.5 Water Quality Analysis 3-166
3.7.2.6 Pollution Loading Analysis Results 3-166
3.7.3 Future Conditions 3-166
3.7.3.1 Future Setting 3-166
3.7.3.2 Water Quality / Pollutant Loading Results 3-169
3.7.4 Proposed Improvements 3-170
3.7.4.1 Water Quantity Considerations 3-170
3.7.4.2 Water Quality / Pollutant Loading Considerations 3-170

3.8 Ruby Lake System 3-171

3.8.1 Available Information 3-171
3.8.1.1 Hydrologic Data 3-171
3.8.1.2 Development Plans 3-171
3.8.1.3 Water Quality Data 3-171
3.8.2 Existing Conditions Analysis 3-171

TABLE OF CONTENTS (continued)

3.8.2.1 Stormwater Inflow Locations and Outfall 3-171
3.8.2.2 Ruby Lake Outfall 3-175
3.8.2.3 Problem Areas 3-175
3.8.2.4 Existing Condition Simulation Results 3-175
3.8.2.5 Water Quality Analysis 3-179
3.8.2.6 Pollution Loading Analysis Results 3-179
3.8.3 Future Conditions 3-179
3.8.3.1 Future Setting 3-179
3.8.3.2 Water Quality / Pollutant Loading Results 3-181
3.8.4 Proposed Improvements 3-182
3.8.4.1 Water Quantity Considerations 3-182
3.8.4.2 Water Quality / Pollutant Loading Considerations 3-182

3.9 Lake Mabel / South System 3-183

3.9.1 Available Information 3-183
3.9.1.1 Hydrologic Data 3-183
3.9.1.2 Development Plans 3-183
3.9.1.3 Water Quality Data 3-184
3.9.2 Existing Conditions Analysis 3-190
3.9.2.1 Stormwater Inflow Points for Lake Mabel and South Lake 3-190
3.9.2.2 Lake Outflows 3-194
3.9.2.3 Problem Areas 3-194
3.9.2.4 Existing Condition Simulation Results 3-194
3.9.2.5 Water Quality Analysis 3-196
3.9.2.6 Pollution Loading Analysis 3-196
3.9.3 Future Conditions 3-202
3.9.3.1 Future Setting 3-202
3.9.3.2 Water Quality / Pollutant Loading Results 3-203
3.9.4 Proposed Improvements 3-204
3.9.4.1 Water Quantity Considerations 3-204
3.9.4.2 Water Quality / Pollutant Loading Considerations 3-205

3.10 Lake Sheen / Pocket / Fish System 3-206

3.10.1 Available Information 3-206
3.10.1.1 Hydrologic Data 3-206
3.10.1.2 Development Plans 3-206
3.10.1.3 Water Quality Data 3-211
3.10.2 Existing Conditions Analysis 3-211
3.10.2.1 Stormwater Inflow Points 3-212
3.10.2.2 Lake Outflows 3-212

TABLE OF CONTENTS (continued)

3.10.2.3 Problem Areas 3-214
3.10.2.4 Existing Condition Simulation Results 3-214
3.10.2.5 Water Quality Analysis 3-222
3.10.2.6 Pollution Loading Analysis Results 3-224
3.10.3 Future Conditions 3-225
3.10.3.1 Future Setting 3-225
3.10.3.2 Water Quality / Pollutant Loading Results 3-228
3.10.4 Proposed Improvements 3-230
3.10.4.1 Water Quantity Considerations 3-230
3.10.4.2 Water Quality / Pollutant Loading Considerations 3-230

3.11 The Cypress Creek Swamp 3-232

3.11.1 Available Information 3-232
3.11.1.1 Hydrologic Data 3-232
3.11.1.2 Development Plans 3-232
3.11.1.3 Water Quality Data 3-233
3.11.2 Existing Conditions Analysis 3-236
3.11.2.1 Stormwater Inflow Points for the Cypress Creek Swamp 3-236
3.11.2.2 Problem Areas 3-242
3.11.2.3 Existing Condition Simulation Results 3-242
3.11.2.4 Water Quality Analysis 3-242
3.11.2.5 Pollution Loading Analysis 3-247
3.11.3 Future Conditions 3-247
3.11.3.1 Future Setting 3-248
3.11.3.2 Water Quality / Pollutant Loading Results 3-249
3.11.4 Proposed Improvements 3-254
3.11.4.1 Water Quantity Considerations 3-254
3.11.4.2 Water Quality / Pollutant Loading Considerations 3-254

CHAPTER 4 — REEDY CREEK DRAINAGE BASIN 4-1

4.1 Lake Speer / Hancock / Hartley System 4-1

4.1.1 Available Information 4-1
4.1.1.1 Hydrologic Data 4-1
4.1.1.2 Development Plans 4-2
4.1.1.3 Water Quality Data 4-10
4.1.2 Existing Conditions Analysis 4-10
4.1.2.1 Stormwater Inflow Points 4-11
4.1.2.2 Lake Outflows 4-12
4.1.2.3 Problem Areas 4-16

TABLE OF CONTENTS (continued)

4.1.2.4 Existing Condition Simulation Results 4-16
4.1.2.5 Water Quality Analysis 4-24
4.1.2.6 Pollution Loading Analysis Results 4-24
4.1.3 Future Conditions 4-25
4.1.3.1 Future Setting 4-26
4.1.3.2 Water Quality / Pollutant Loading Results 4-26
4.1.4 Proposed Improvements 4-33
4.1.4.1 Water Quantity Considerations 4-33
4.1.4.2 Water Quality / Pollutant Loading Considerations 4-33

4.2 Lake Sawyer / Reams System 4-34

4.2.1 Available Information 4-34
4.2.1.1 Hydrologic Data 4-34
4.2.1.2 Development Plans 4-35
4.2.1.3 Water Quality Data 4-36
4.2.2 Existing Conditions Analysis 4-42
4.2.2.1 Stormwater Inflow Points 4-43
4.2.2.2 Lake Reams Outfall 4-43
4.2.2.3 Problem Areas 4-44
4.2.2.4 Existing Condition Simulation Results 4-44
4.2.2.5 Water Quality Analysis 4-53
4.2.2.6 Pollution Loading Analysis Results 4-53
4.2.3 Future Conditions 4-55
4.2.3.1 Future Setting 4-55
4.2.3.2 Water Quality / Pollutant Loading Results 4-55
4.2.4 Proposed Improvements 4-61
4.2.4.1 Water Quantity Considerations 4-61
4.2.4.2 Water Quality / Pollutant Loading Considerations 4-61

4.3 Lake Tub / Huckleberry / Sawgrass System 4-62

4.3.1 Available Information 4-62
4.3.1.1 Hydrologic Data 4-62
4.3.1.2 Development Plans 4-67
4.3.1.3 Water Quality Data 4-69
4.3.2 Existing Conditions Analysis 4-69
4.3.2.1 Stormwater Inflow and Outflow Points 4-70
4.3.2.2 Problem Areas 4-71
4.3.2.3 Existing Condition Simulation Results 4-71
4.3.2.4 Water Quality Analysis 4-78
4.3.2.5 Pollution Loading Analysis Results 4-79
4.3.3 Future Conditions 4-84

TABLE OF CONTENTS (continued)

4.3.3.1 Future Setting 4-84
4.3.3.2 Water Quality / Pollutant Loading Results 4-84
4.3.4 Proposed Improvements 4-85
4.3.4.1 Water Quantity Considerations 4-85
4.3.4.2 Water Quality / Pollutant Loading Considerations 4-85

4.4 Lake Needham / Hickorynut Lake System 4-86

4.4.1 Available Information 4-86
4.4.1.1 Hydrologic Data 4-86
4.4.1.2 Drainage Information 4-86
4.4.1.3 Water Quality Data 4-90
4.4.2 Existing Conditions Analysis 4-90
4.4.2.1 Stormwater Inflow Points 4-91
4.4.2.2 Hickorynut Lake Outfall 4-92
4.4.2.3 Problem Areas 4-93
4.4.2.4 Existing Condition Simulation Results 4-94
4.4.2.5 Water Quality Analysis 4-99
4.4.2.6 Pollution Loading Analysis Results 4-99
4.4.3 Future Conditions 4-104
4.4.3.1 Future Setting 4-104
4.4.3.2 Water Quality / Pollutant Loading Results 4-104
4.4.4 Proposed Improvements 4-105
4.4.4.1 Water Quantity Considerations 4-105
4.4.4.2 Water Quality / Pollutant Loading Considerations 4-108

4.5 Panther Lake / Reedy Lake System 4-114

4.5.1 Available Information 4-114
4.5.1.1 Hydrologic Data 4-114
4.5.1.2 Drainage Information 4-115
4.5.1.3 Water Quality Data 4-115
4.5.2 Existing Conditions Analysis 4-119
4.5.2.1 Stormwater Inflow Points 4-119
4.5.2.2 Reedy Lake Outfall 4-120
4.5.2.3 Problem Areas 4-120
4.5.2.4 Existing Condition Simulation Results 4-120
4.5.2.5 Water Quality Analysis 4-128
4.5.2.6 Pollution Loading Analysis Results 4-128
4.5.3 Future Conditions 4-128
4.5.3.1 Future Setting 4-131
4.5.3.2 Water Quality / Pollutant Loading Results 4-131
4.5.4 Proposed Improvements 4-131

TABLE OF CONTENTS (continued)

4.5.4.1 Water Quantity Considerations 4-131
4.5.4.2 Water Quality / Pollutant Loading Considerations 4-132

4.6 Lake Ingram / Lake Heney System....4-133

4.6.1 Available Information....4-133
4.6.1.1 Hydrologic Data 4-133
4.6.1.2 Drainage Information 4-133
4.6.1.3 Water Quality Data....4-138
4.6.2 Existing Conditions Analysis....4-138
4.6.2.1 Stormwater Inflow Points....4-138
4.6.2.2 Lake Outfalls 4-139
4.6.2.3 Problem Areas 4-139
4.6.2.4 Existing Condition Simulation Results 4-139
4.6.2.5 Water Quality Analysis 4-145
4.6.2.6 Pollution Loading Analysis Results 4-145
4.6.3 Future Conditions 4-145
4.6.3.1 Future Setting 4-147
4.6.3.2 Water Quality / Pollutant Loading Results....4-147
4.6.4 Proposed Improvements....4-147
4.6.4.1 Water Quantity Considerations 4-147
4.6.4.2 Water Quality / Pollutant Loading Considerations 4-147

4.7 Bear Bay / Whittenhorse Creek System....4-148

4.7.1 Available Information....4-148
4.7.1.1 Hydrologic Data 4-148
4.7.1.2 Drainage Information 4-154
4.7.1.3 Water Quality Data....4-154
4.7.2 Existing Conditions Analysis....4-154
4.7.2.1 Stormwater Inflow Points....4-155
4.7.2.2 Problem Areas 4-158
4.7.2.3 Existing Condition Simulation Results 4-159
4.7.2.4 Water Quality Analysis 4-160
4.7.2.5 Pollution Loading Analysis Results 4-160
4.7.3 Future Conditions 4-164
4.7.3.1 Future Setting 4-165
4.7.3.2 Water Quality / Pollutant Loading Results....4-165
4.7.4 Proposed Improvements....4-165
4.7.4.1 Water Quantity Considerations 4-165
4.7.4.2 Water Quality / Pollutant Loading Considerations 4-165

TABLE OF CONTENTS (continued)

4.8 Southwest System 4-186

4.8.1 Available Information 4-186
4.8.1.1 Hydrologic Data 4-186
4.8.1.2 Drainage Information 4-186
4.8.1.3 Water Quality Data 4-192
4.8.2 Existing Conditions Analysis 4-192
4.8.2.1 Stormwater Inflow and Outflow Points 4-193
4.8.2.2 Problem Areas 4-195
4.8.2.3 Existing Condition Simulation Results 4-196
4.8.2.4 Water Quality Analysis 4-196
4.8.2.5 Pollution Loading Analysis Results 4-197
4.8.3 Future Conditions 4-197
4.8.3.1 Future Setting 4-198
4.8.3.2 Water Quality / Pollutant Loading Results 4-198
4.8.4 Proposed Improvements 4-198
4.8.4.1 Water Quantity Considerations 4-198
4.8.4.2 Water Quality / Pollutant Loading Considerations 4-198

4.9 Boggy Creek System 4-220

4.9.1 Available Information 4-220
4.9.1.1 Hydrologic Data 4-220
4.9.1.2 Drainage Information 4-220
4.9.1.3 Water Quality Data 4-224
4.9.2 Existing Conditions Analysis 4-225
4.9.2.1 Stormwater Inflow and Outflow Points 4-215
4.9.2.2 Problem Areas 4-228
4.9.2.3 Existing Condition Simulation Results 4-229
4.9.2.4 Water Quality Analysis 4-229
4.9.2.5 Pollution Loading Analysis Results 4-236
4.9.3 Future Conditions 4-237
4.9.3.1 Future Setting 4-237
4.9.3.2 Water Quality / Pollutant Loading Results 4-237
4.9.4 Proposed Improvements 4-238
4.9.4.1 Water Quantity Considerations 4-238
4.9.4.2 Water Quality / Pollutant Loading Considerations 4-238

REFERENCES RF-1

LIST OF FIGURES

Follows Page Number

CHAPTER 1 — BACKGROUND

1.1 The Reedy Creek and Cypress Creek Basins 1-1
1.2 The Cypress Creek Basin 1-3
1.3 Potentiometric Contour and Hydrologic Station Location Map 1-8
1.4 Comparison of Historical Water Levels in Lake Butler and the Potentiometric Surface of the Floridan Aquifer at the Palm Lake and Lake Sawyer Wells 1-8
1.5 Cypress Creek Basin General Soils Map 1-12
1.6 Cypress Creek Basin General Land Use Map 1-14
1.7 The Reedy Creek Basin 1-20
1.8 Water Levels in the Lake Oliver and Bay Lake Wells 1-26
1.9 Comparison of Historical Water Levels in Lake Ingram and the Potentiometric Surface of the Floridan Aquifer at Four CONSERV II Well Sites 1-26
1.10 Reedy Creek Basin General Soils Map 1-30
1.11 Reedy Creek Basin General Land Use Map 1-32

CHAPTER 2 — GENERAL METHODOLOGY AND DATA BASE FORMULATION

2.1 Non-Dimensional Unit Hydrograph for K' = 323 2-6
2.2 Post-Development Retention Requirements 2-21

CHAPTER 3 — CYPRESS CREEK DRAINAGE BASIN

3.1 Lake Down Drainage System 3-4
3.2 Lake Down Historical Water Levels 3-4
3.3 Lake Rhea Historical Water Levels 3-4
3.4 10-, 25- and 100-Year 24-Hour Stage Hydrographs for Lake Down 3-14
3.5 10-, 25- and 100-Year 72-Hour Stage Hydrographs for Lake Down 3-14
3.6 10-, 25- and 100-Year 24-Hour Stage Hydrographs for Lake Rhea 3-14
3.7 10-, 25- and 100-Year 72-Hour Stage Hydrographs for Lake Rhea 3-14
3.8 Lake Crescent Drainage System 3-27
3.9 Lake Crescent Historical Water Levels 3-27
3.10 10-, 25- and 100-Year 24-Hour Stage Hydrographs for Lake Crescent 3-35
3.11 10-, 25- and 100-Year 72-Hour Stage Hydrographs for Lake Crescent 3-35
3.12 10-, 25- and 100-Year 24-Hour Stage Hydrographs for Lake Whitney 3-35

LIST OF FIGURES (continued)

		Follows Page Number
3.13	10-, 25- and 100-Year 72-Hour Stage Hydrographs for Lake Whitney	3-35
3.14	Lake Butler Drainage System	3-49
3.15	Lakes Butler and Down Historical Water Levels	3-49
3.16	10-, 25- and 100-Year 24 Hour Stage Hydrographs for Lake Butler	3-59
3.17	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Butler	3-59
3.18	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Estes	3-59
3.19	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Estes	3-59
3.20	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake William Davis	3-59
3.21	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake William Davis	3-59
3.22	Lake Bessie Drainage System	3-77
3.23	Lake Bessie Historical Water Levels	3-77
3.24	Lake Blanche Historical Water Levels	3-77
3.25	10-, 25- and 100-Year 24 Hour Stage Hydrographs for Lake Bessie	3-92
3.26	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Bessie	3-92
3.27	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Blanche	3-92
3.28	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Blanche	3-92
3.29	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Chase	3-92
3.30	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Chase	3-92
3.31	Lake Tibet-Butler Drainage System	3-111
3.32	Lake Tibet-Butler Historical Water Levels	3-111
3.33	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Tibet	3-121
3.34	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Tibet	3-121
3.35	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Sand Lake Hills	3-121
3.36	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Sand Lake Hills	3-121
3.37	10-, 25- and 100-Year 24-Hour Water Surface Profiles for the Existing Sand Lake Hills Outfall	3-121
3.38	Proposed Improvements for the Sand Lake Hills Outfall	3-133
3.39	10-, 25- and 100-Year 24-Hour Water Surface Profiles for the Sand Lake Hills Outfall Proposed Condition	3-133
3.40	Lake Louise Drainage System	3-139
3.41	Lake Louise Historical Water Levels	3-139
3.42	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Louise	3-145
3.43	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Louise	3-145
3.44	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Isleworth	3-145
3.45	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Isleworth	3-145
3.46	Lake Burden Drainage System	3-158
3.47	Lake Burden Historical Water Levels	3-158
3.48	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Burden	3-163
3.49	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake	3-163
3.50	Lake Ruby Drainage System	3-171
3.51	Lake Ruby Historical Water Levels	3-171

		Follows Page Number
3.52	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Ruby Lake	3-175
3.53	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake	3-175
3.54	Lake Mabel Drainage System	3-184
3.55	South Lake Drainage System	3-184
3.56	Lake Mabel Historical Water Levels	3-184
3.57	South Lake Historical Water Levels	3-184
3.58	South Lake Stage Data	3-184
3.59	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Mabel	3-196
3.60	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Mabel	3-196
3.61	10-, 25- and 100-Year 24-Hour Stage Hydrograph for South Lake	3-196
3.62	10-, 25- and 100-Year 72-Hour Stage Hydrograph for South Lake	3-196
3.63	Lake Sheen Drainage System	3-206
3.64	Lake Sheen Historical Water Levels	3-206
3.65	Pocket Lake Historical Water Levels	3-206
3.66	Little Fish Lake Historical Water Levels	3-206
3.67	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Sheen	3-215
3.68	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Sheen	3-215
3.69	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Pocket Lake	3-215
3.70	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Pocket Lake	3-215
3.71	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Fish Lake	3-215
3.72	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Fish Lake	3-215
3.73	Cypress Creek Drainage System	3-233
3.74	Cypress Creek Stage Data	3-233
3.75	Cypress Creek Profile	3-240
3.76	10-, 25- and 100-Year 24-Hour Stage Hydrograph Upstream of C.R. 535	3-242
3.77	10-, 25- and 100-Year 72-Hour Stage Hydrograph Upstream of C.R. 535	3-242
3.78	10-, 25- and 100-Year 24-Hour Stage Hydrograph at C.R. 535	3-242
3.79	10-, 25- and 100-Year 72-Hour Stage Hydrograph at C.R. 535	3-242

CHAPTER 4 — REEDY CREEK DRAINAGE BASIN

4.1	Lake Speer Drainage System	4-3
4.2	Lake Speer Historical Water Levels	4-3
4.3	Lake Hancock Historical Water Levels	4-3
4.4	Lake Hartley Historical Water Levels	4-3
4.5	Comparison of Lakes Speer, Hartley and Hancock	4-13
4.6	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Speer	4-17
4.7	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Speer	4-17
4.8	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Hartley	4-17
4.9	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Hartley	4-17

LIST OF FIGURES (continued)

		Follows Page Number
4.10	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Hancock	4-17
4.11	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Hancock	4-17
4.12	Lake Reams Drainage System	4-36
4.13	Lake Sawyer Historical Water Levels	4-36
4.14	Lake Reams Historical Water Levels	4-36
4.15	Lake Sharp Historical Water Levels	4-36
4.16A	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Sawyer	4-44
4.16	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Sawyer	4-44
4.17	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Little Lk. Sawyer	4-44
4.18	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Little Lk. Sawyer	4-44
4.19	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Reams	4-44
4.20	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Reams	4-44
4.21	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Sharp	4-44
4.22	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Sharp	4-44
4.23	Lake Sawyer Pollutant Load Comparison by Land Use	4-56
4.24	Lakes Tub, Huckleberry and Sawgrass Drainage Systems	4-62
4.25	Lake Tub (Lartigue) Historical Water Levels	4-62
4.26	Huckleberry Lake Historical Water Levels	4-62
4.27	Sawgrass Lake Historical Water Levels	4-62
4.28	S-405A Historical Stage Data	4-67
4.29	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Tub	4-71
4.30	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Tub	4-71
4.31	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Huckleberry Lake	4-71
4.32	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Huckleberry Lake	4-71
4.33	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Sawgrass Lake	4-71
4.34	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Sawgrass Lake	4-71
4.35	Lake Tub Pollutant Load Comparison by Land Use	4-82
4.36	Hickorynut Lake Drainage System	4-86
4.37	Hickorynut Lake Historical Water Levels	4-86
4.38	Lake Needham Historical Water Levels	4-86
4.39	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Needham	4-94
4.40	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Needham	4-94
4.41	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Hickorynut Lake	4-94
4.42	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Hickorynut Lake	4-94
4.42A	Comparison of Cumulative Departure from Normal Rainfall and Water Levels in Hickorynut Lake	4-105
4.42B	Comparison of Historical Water Levels in Hickorynut Lake and Lake Needham	4-109
4.42C	Hickorynut Lake Outfall Improvements	4-109
4.43	Reedy Lake Drainage System	4-115
4.44	Reedy Lake Historical Water Levels	4-115

LIST OF FIGURES (continued)

		Follows Page Number
4.45	S-46 Historical Stage Data	4-115
4.46	10-, 25- and 100-Year 24-Hour Stage Hydrograph for East Panther Lake	4-121
4.47	10-, 25- and 100-Year 72-Hour Stage Hydrograph for East Panther Lake	4-121
4.48	10-, 25- and 100-Year 24-Hour Stage Hydrograph for West Panther Lake	4-121
4.49	10-, 25- and 100-Year 72-Hour Stage Hydrograph for West Panther Lake	4-121
4.50	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Reedy Lake	4-121
4.51	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Reedy Lake	4-121
4.52	Lake Heney Drainage System	4-133
4.53	Lake Ingram Drainage System	4-133
4.54	Lake Heney (Cheney) Historical Water Levels	4-133
4.55	Lake Ingram Historical Water Levels	4-133
4.56	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Heney	4-140
4.57	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Heney	4-140
4.58	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Ingram	4-140
4.59	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Ingram	4-140
4.60	Whittenhorse Creek Drainage System	4-148
4.61	Whittenhorse Creek at S-411 Historical Stage Data	4-148
4.62A	Whittenhorse Creek Stage Data at Hartzog Road	4-148
4.62B	Whittenhorse Creek Stage Data at Hartzog Road	4-148
4.62C	Whittenhorse Creek Stage Data at Hartzog Road	4-148
4.63	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Star	4-165
4.64	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Star	4-165
4.65	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Mac	4-165
4.66	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Mac	4-165
4.67	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Sentinel	4-165
4.68	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Sentinel	4-165
4.69	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Luzom	4-165
4.70	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Luzom	4-165
4.71	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Doe	4-165
4.72	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Doe	4-165
4.73	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Britt	4-165
4.74	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Britt	4-165
4.75	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Britt, North	4-165
4.76	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Britt, North	4-165
4.77	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Britt Pond	4-165
4.78	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Britt Pond	4-165
4.79	10-, 25- and 100-Year 24-Hour Stage Hydrograph for West Bear Bay	4-165
4.80	10-, 25- and 100-Year 72-Hour Stage Hydrograph for West Bear Bay	4-165
4.81	10-, 25- and 100-Year 24-Hour Stage Hydrograph for East Bear Bay	4-165
4.82	10-, 25- and 100-Year 72-Hour Stage Hydrograph for East Bear Bay	4-165
4.83	Southwest Drainage System	4-186

LIST OF FIGURES (continued)

		Follows Page Number
4.84	Lake Rexford Historical Water Levels	4-186
4.85	Lake Oliver Historical Water Levels	4-186
4.86	Lake Austin Historical Water Levels	4-186
4.87	Lake Gifford Historical Water Levels	4-186
4.88	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Oliver	4-205
4.89	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Oliver	4-205
4.90	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Gifford	4-205
4.91	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Gifford	4-205
4.92	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Austin	4-205
4.93	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Austin	4-205
4.94	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Mudd Lake	4-205
4.95	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Mudd Lake	4-205
4.96	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Rexford	4-205
4.97	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Rexford	4-205
4.98	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Lake Chapin	4-205
4.99	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Lake Chapin	4-205
4.100	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Apache Lake	4-205
4.101	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Apache Lake	4-205
4.102	Boggy Creek Drainage System	4-220
4.103	Boggy Creek at S-410 Historical Stage Data	4-220
4.104	Raccoon Lake Historical Water Levels	4-220
4.105	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Raccoon Lake	4-229
4.106	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Raccoon Lake	4-229
4.107	10-, 25- and 100-Year 24-Hour Stage Hydrograph for Osage Lake	4-229
4.108	10-, 25- and 100-Year 72-Hour Stage Hydrograph for Osage Lake	4-229
4.109	10-, 25- and 100-Year 24-Hour Water Surface Profiles for Boggy Creek	4-229
4.110	10-, 25- and 100-Year 72-Hour Water Surface Profiles for Boggy Creek	4-229

LIST OF TABLES

EXECUTIVE SUMMARY

ES.1. Ranking of Cypress Creek Basin Lakes According to Average TSI Values During the 1990's ES-6

ES.2. Ranking of Reedy Creek Basin Lakes According to Average TSI Values During the 1990's ES-7

CHAPTER 1 — BACKGROUND

1.1 Areas and Percentages of Soils Types in the Cypress Creek Drainage Basin 1-14

1.2 Areas and Percentages of Land Use Types in the Cypress Creek Drainage Basin 1-16

1.3 Ranking of Cypress Creek Basin Lakes According to Average TSI Values During the 1990's. 1-19

1.4 Areas and Percentages of Soil Types in the Reedy Creek Drainage Basin ... 1-32

1.5 Areas and Percentages of Land Use Types in the Reedy Creek Drainage Basin 1-34

1.6 Ranking of Reedy Creek Basin Lakes According to Average TSI Values During the 1990's 1-36

CHAPTER 2 — GENERAL METHODOLOGY AND DATA BASE FORMULATION

2.1 SCS Curve Numbers for the Cypress Creek and Reedy Creek Drainage Basins 2-3

2.2 Estimated Times of Concentration Based on Sub-Basin Area 2-5

2.3 Rainfall Amounts Used for Simulations 2-6

2.4 Pollutant Loading Rates for the Cypress Creek and Reedy Creek Drainage Basin Study 2-15

2.5 Removal Efficiencies for Typical Stormwater Treatment Systems in Orange County, Florida 2-18

2.6 Curve Number Relationships for Dry, Average and Wet Conditions 2-23

2.7 5-Day Antecedent Rainfall Amounts for Dry, Average and Wet Conditions 2-24

LIST OF TABLES (continued)

CHAPTER 3 — CYPRESS CREEK DRAINAGE BASIN

3.1 Lake Information for the Cypress Creek Drainage Basin 3-2
3.2 Structure Information at Inflow Points to Lake Down 3-10
3.3 Summary of Maximum Stages in Lake Down and Lake Rhea 3-14
3.4 Existing Pollutant Loading Information for Lake Down 3-22
3.5 Existing Pollutant Loading Information for Lake Rhea 3-23
3.6 Relative Ranking of Pollutant Contributions to Lake Down by Inflow Point 3-24
3.7 Existing and Future Loading Comparison for Lake Down 3-24
3.8 Lake Stages Measured in Lake Whitney 3-27
3.9 Structure Information at Inflow Points to Lake Crescent 3-33
3.10 Summary of Maximum Stages in Lake Crescent and Lake Whitney 3-35
3.11 Existing Pollutant Loading Information for Lake Crescent 3-42
3.12 Existing Pollutant Loading Information for Lake Whitney 3-43
3.13 Relative Ranking of Pollutant Contributions to Lake Crescent by Inflow Point 3-44
3.14 Existing and Future Average Pollutant Loading Comparison for Lake Crescent 3-45
3.15 Estimated Water Levels in Lake Butler Based on Historical Data 3-49
3.16 Structure Information at Inflow Points to Lake Butler 3-57
3.17 Summary of Maximum Stages in Lakes Butler, Estes and William Davis 3-59
3.18 Existing Pollutant Loading Information for Lake Butler 3-70
3.19 Existing Pollutant Loading Information for Lake Estes 3-71
3.20 Existing Pollutant Loading Information for Lake William Davis 3-71
3.21 Relative Ranking of Pollutant Contributions to Lake Butler by Inflow Point 3-72
3.22 Existing and Future Pollutant Loading Comparison for Lake Butler 3-74
3.23 Existing and Future Pollutant Loading Comparison for Lake Estes 3-74
3.24 Existing and Future Pollutant Loading Comparison for Lake William Davis 3-75
3.25 Structure Information at Inflow Points to Lake Bessie 3-88
3.26 Structure Information at Inflow Points to Lake Blanche 3-89
3.27 Structure Information at Inflow Points to Lake Chase 3-90
3.28 Summary of Maximum Stages in Lakes Bessie, Blanche and Chase 3-92
3.29 Existing Pollutant Loading Information for Lake Bessie 3-102
3.30 Existing Pollutant Loading Information for Lake Blanche 3-103
3.31 Existing Pollutant Loading Information for Lake Chase 3-104
3.32 Relative Ranking of Pollutant Contributions to Lake Bessie by Inflow Point 3-105
3.33 Relative Ranking of Pollutant Contributions to Lake Blanche by Inflow Point 3-105

LIST OF TABLES (continued)

3.34 Relative Ranking of Pollutant Contributions to Lake Chase by Inflow Point 3-106
3.35 Existing and Future Pollutant Loading Comparison for Lake Bessie....3-108
3.36 Existing and Future Pollutant Loading Comparison for Lake Blanche....3-108
3.37 Existing and Future Pollutant Loading Comparison for Lake Chase 3-109
3.38 Structure Information at Inflow Points to Lake Tibet....3-118
3.39 Summary of Maximum Stages in Lake Tibet and Lake Valerian....3-121
3.40 Existing Pollutant Loading Information for Lake Tibet 3-128
3.41 Relative Ranking of Pollutant Contributions to Lake Tibet by Inflow Point 3-129
3.42 Existing and Future Pollutant Loading Comparison for Lake Tibet....3-131
3.43 Summary of Maximum Stages in Lake Valerian Before and After Recommended Improvements 3-132
3.44 Cost Opinion for Proposed Improvements to the Sand Lake Hills Outfall ...3-136
3.45 Structure Information at Inflow Points to Lake Louise 3-144
3.46 Structure Information at Inflow Points to Lake Isleworth 3-144
3.47 Summary of Maximum Stages in Lake Louise and Lake Isleworth....3-145
3.48 Existing Pollutant Loading Information for Lake Louise....3-153
3.49 Existing Pollutant Loading Information for Lake Isleworth....3-154
3.50 Relative Ranking of Pollutant Contributions to Lake Louise by Inflow Point 3-155
3.51 Relative Ranking of Pollutant Contributions to Lake Isleworth by Inflow Point 3-155
3.52 Existing and Future Pollutant Loading Comparison for Lake Louise 3-156
3.53 Existing and Future Pollutant Loading Comparison for Lake Isleworth....3-156
3.54 Structure Information at Inflow Points to Lake Burden 3-162
3.55 Summary of Maximum Stages in Lake Burden....3-163
3.56 Existing Pollutant Loading Information for Lake Burden....3-168
3.57 Relative Ranking of Pollutant Contributions to Lake Burden by Inflow Point 3-169
3.58 Existing and Future Pollutant Loading Comparison for Lake Burden 3-169
3.59 Structure Information at Inflow Points to Lake Ruby 3-174
3.60 Summary of Maximum Stages in Lake Ruby....3-178
3.61 Existing Pollutant Loading Information for Lake Ruby....3-180
3.62 Existing and Future Loading Comparison for Lake Ruby....3-181
3.63 Structure Information at Inflow Points to Lake Mabel....3-191
3.64 Structure Information at Inflow Points to South Lake....3-192
3.65 Summary of Maximum Stages in Lake Mabel and South Lake 3-196
3.66 Existing Pollutant Loading Information for Lake Mabel 3-200
3.67 Existing Pollutant Loading Information for South Lake 3-201
3.68 Relative Ranking of Pollutant Contributions to Lake Mabel by Inflow Point 3-202

LIST OF TABLES (continued)

3.69 Relative Ranking of Pollutant Contributions to South Lake by Inflow Point 3-202
3.70 Existing and Future Pollutant Loading Comparison for Lake Mabel....3-204
3.71 Existing and Future Pollutant Loading Comparison for Lake South....3-204
3.72 Structure Information at Inflow Points to Lake Sheen 3-213
3.73 Summary of Maximum Stages in Lake Sheen, Pocket Lake and Little Fish Lake 3-215
3.74 Existing Pollutant Loading Information for Lake Sheen....3-226
3.75 Existing Pollutant Loading Information for Pocket Lake....3-226
3.76 Existing Pollutant Loading Information for Little Fish Lake....3-227
3.77 Relative Ranking of Pollutant Contributions to lake Sheen by Inflow Point 3-229
3.78 Existing and Future Pollutant Loading Comparison for Lake Sheen 3-229
3.79 Existing and Future Pollutant Loading Comparison for Pocket Lake 3-230
3.80 Existing and Future Pollutant Loading Comparison for Little Fish Lake 3-230
3.81 Structure Information at Inflow Points to Cypress Creek....3-237
3.82 Structure Information at Inflow Points to South Cypress Creek 3-238
3.83 Existing Pollutant Loading Information for Cypress Creek 3-250
3.84 Existing Pollutant Loading Information for South Cypress Creek....3-251
3.85 Relative Ranking of Pollutant Contributions to Cypress Creek by Inflow Point 3-252
3.86 Relative Ranking of Pollutant Contributions to South Cypress Creek by Inflow Point 3-252
3.87 Existing and Future Pollutant Loading Comparison for Cypress Creek....3-253
3.88 Existing and Future Pollutant Loading Comparison for South Cypress Creek....3-253

CHAPTER 4 — REEDY CREEK DRAINAGE BASIN

4.1 Lake Information for the Reedy Creek Drainage Basin....4-8
4.2 Structure Information at Inflow Points to Lake Speer 4-15
4.3 Summary of Maximum Stages in Lake Speer, Lake Hartley and Lake Hancock 4-17
4.4 Existing Pollutant Loading Information for Lake Cawood 4-28
4.5 Existing Pollutant Loading Information for Lake Speer....4-29
4.6 Existing Pollutant Loading Information for Lake Hancock....4-30
4.7 Existing Pollutant Loading Information for Lake Hartley....4-31
4.8 Relative Ranking of Pollutant Contributions to Lake Speer by Inflow Point....4-32
4.9 Relative Ranking of Pollutant Contributions to Lake Hartley by Inflow Point 4-32
4.10 Existing and Future Pollutant Loading Comparison for Lake Cawood....4-33
4.11 Structure Information at Inflow Points to Lake Reams 4-41

LIST OF TABLES (continued)

4.12 Summary of Maximum Stages in Lake Sawyer, Little Lake Sawyer, Lake Reams and Lake Sharp....4-44
4.13 Existing Pollutant Loading Information for Lake Sawyer and Little Lake Sawyer....4-58
4.14 Existing Pollutant Loading Information for Lake Reams....4-58
4.15 Existing Pollutant Loading Information for Lake Sharp....4-59
4.16 Existing Pollutant Loadings for Each Land Use in the Lake Sawyer Basin..4-60
4.17 Relative Ranking of Pollutant Contributions to Lake Reams by Inflow Point....4-60
4.18 Existing and Future Pollutant Loading Comparison for Lake Sawyer and Little Lake Sawyer....4-61
4.19 Summary of Maximum Stages in Lake Tub, Huckleberry Lake and Lake Sawgrass....4-71
4.20 Existing Pollutant Loading Information for Lake Tub....4-80
4.21 Existing Pollutant Loading Information for Huckleberry Lake....4-80
4.22 Existing Pollutant Loading Information for Sawgrass Lake....4-81
4.23 Existing Pollutant Loading Information for the RCID Wetland....4-81
4.24 Existing Pollutant Loadings for Each Land Use in the Lake Tub Basin....4-82
4.25 Relative Ranking of Pollutant Contributions to the RCID Wetland by Inflow Point....4-82
4.26 Summary of Maximum Stages in Lake Needham and Hickorynut Lake....4-94
4.27 Existing Pollutant Loading Information for Hickorynut Lake....4-101
4.28 Existing Pollutant Loading Information for Lake Needham....4-102
4.29 Relative Ranking of Pollutant Contributions to Hickorynut Lake by Inflow Point....4-103
4.30 Relative Ranking of Pollutant Contributions to Lake Needham by Inflow Point....4-103
4.30A Comparison of Existing and Project Condition Flood Stages for the Lakes in the Hickorynut Area....4-112
4.30B Cost Opinion for Proposed Improvements to the Hickorynut Lake Outfall....4-113
4.31 Lake Stage Data for Panther Lake....4-115
4.32 Summary of Maximum Stages in East Panther, West Panther and Reedy Lakes....4-121
4.33 Existing Pollutant Loading Information for Reedy Lake....4-129
4.34 Existing Pollutant Loading Information for West Panther Lake....4-129
4.35 Existing Pollutant Loading Information for East Panther Lake....4-130
4.36 Relative Ranking of Pollutant Contributions to Reedy Lake by Inflow Point....4-131
4.37 Summary of Maximum Stages in Lake Heney and Lake Ingram....4-140
4.38 Existing Pollutant Loading Information for Lake Ingram and Lake Heney..4-146
4.39 Lake Stage Data for Lakes in the Whittenhorse Creek / Bear Bay System...4-148

LIST OF TABLES (continued)

4.40 Summary of Maximum Stages in the Whittenhorse Creek / Bear Bay System....4-159
4.41 Existing Pollutant Loading Information for East Bear Bay....4-161
4.42 Existing Pollutant Loading Information for West Bear Bay....4-162
4.43 Existing Pollutant Loading Information for Lakes in the Bear Bay / Whittenhorse Creek System....4-163
4.44 Relative Ranking of Pollutant Contributions to East Bear Bay by Inflow Point....4-164
4.45 Relative Ranking of Pollutant Contributions to West Bear Bay by Inflow Point....4-164
4.46 Lake Stage Data for Lakes in the Southwest System....4-186
4.47 Summary of Maximum Stages in the Southwest System....4-196
4.48 Existing Pollutant Loading Information for Lake Oliver....4-200
4.49 Existing Pollutant Loading Information for Lake Austin....4-200
4.50 Existing Pollutant Loading Information for Lake Mudd / Grass....4-200
4.51 Existing Pollutant Loading Information for Lake Rexford....4-200
4.52 Existing Pollutant Loading Information for Lake Gifford....4-203
4.53 Existing Pollutant Loading Information for Lakes in the Southwest System....4-203
4.54 Relative Ranking of Pollutant Contributions to Lake Oliver by Inflow Point....4-204
4.55 Relative Ranking of Pollutant Contributions to Lake Mudd by Inflow Point....4-204
4.56 Relative Ranking of Pollutant Contributions to Lake Rexford by Inflow Point....4-204
4.57 Existing and Future Pollutant Loading Comparison for Lake Rexford....4-205
4.58 Existing and Future Pollutant Loading Comparison for Lake Mudd / Grass....4-205
4.59 Structure Information at Inflow Points to Raccoon Lake....4-226
4.60 Summary of Maximum Stages in Raccoon Lake and Osage Lake....4-229
4.61 Existing Pollutant Loading Information for Lake Osage....4-239
4.62 Existing Pollutant Loading Information for Lake Raccoon....4-240
4.63 Existing Pollutant Loading Information for Boggy Creek....4-241
4.64 Relative Ranking of Pollutant Contributions to Osage Lake by Inflow Point....4-242
4.65 Relative Ranking of Pollutant Contributions to Lake Raccoon by Inflow Point....4-242
4.66 Relative Ranking of Pollutant Contributions to Boggy Creek by Inflow Point....4-242
4.67 Existing and Future Pollutant Loading Comparison for Osage Lake....4-243
4.68 Existing and Future Pollutant Loading Comparison for Boggy Creek....4-243

Executive Summary

1.0 Purpose of Study

The purpose of this study is to present a comprehensive Stormwater Management Master Plan (SWMMP) for the Cypress Creek and Reedy Creek Basins. The primary objectives are to identify existing flooding problems, characterize existing water quality and ecological conditions in the study area, estimate existing and future surface water pollutant loadings to major water bodies, and present a plan to alleviate water quantity and quality problems. Recommendations for general aspects of the project as well as regulatory, water quality, maintenance and easements, and capital improvements are provided in this document.

A comprehensive inventory of the primary drainage infrastructure was conducted as part of this investigation. All relevant information collected from this effort has been placed into a graphical mapping and data base system and is available to Orange County staff for information retrieval purposes. The information collected for this inventory was also used to develop a stormwater computer model of the study area which simulates responses of the basins to various rainfall events. Results from these simulations were used to identify areas subject to flooding and aid in suggesting possible solutions to reduce that flooding.

An analysis of historical trends, based on water quality measurements collected by Orange County Environmental Protection Department (OCEPD), was conducted to assess the current state of "health" of the major water bodies in the study area. Additionally, a pollutant loading analysis was performed for existing and future land use conditions in an attempt to determine what effects development will have on loadings from the basin. Identification of locations in the study area where water quality problems exist or significant changes in loading rates are predicted to occur will be used in planning and regulation of future development.

An ecological assessment of the study area was also performed as part of this study to determine if and where critical habitats are present. This information aids in determining the kinds and locations of threatened or endangered species that may occur in the study area. Special regulatory guidelines can be enacted, if deemed necessary by the County, to further protect these species from encroachment of their habitat.

2.0 The Study Area

The study area encompasses approximately 71 square miles and is located in southwest Orange County. The drainage basins are generally bounded by Florida's Turnpike to the north and northeast, Apopka-Vineland Road and Dr. Phillips Boulevard to the east, U.S. 192 to the south and U.S. 27 to the west. The divide between the Reedy

Creek Basin and the Cypress Creek Basin generally follows C.R. 535 (Winter Garden - Vineland Road) between its intersection with Apopka-Vineland Road in the south and Lake Butler Boulevard in the north. Both systems ultimately drain into the Reedy Creek Improvement District (RCID) before reaching Reedy Creek itself near the Osceola County line. Offsite areas of the Reedy Creek drainage basin located in Lake County and, to a lesser extent, Polk and Osceola Counties were included for modeling purposes. Portions of the RCID were also included for modeling purposes, but were not included in plan development phase of the project.

The Cypress Creek drainage basin encompasses approximately 33.4 square miles and is generally bounded by Apopka-Vineland Road and Dr. Phillips Boulevard on the east, C.R. 535 on the south and west and the town of Gotha to the north. The Town of Windermere is located in the north-central portion of the study area. The major hydrologic feature of this basin is the Butler Chain of Lakes which was designated an Outstanding Florida Water (OFW) in 1984. There are several other lakes in this study area which are not specifically considered to be part of the Butler Chain of Lakes. These lakes include Lakes Whitney, Crescent, Rhea, Burden, Bessie, Ruby, Mabel and South Lake. The latter two are not hydrologically connected to the Butler Chain or its outfall through the Cypress Creek swamp but discharge through an Amil gate to the RCID. The six remaining lakes listed discharge to the Butler Chain, but are at different elevations than those lakes in the Chain itself.

Surface outflow from the lake system is through the Cypress Creek swamp near the southern edge of Lake Sheen. Discharge of lake waters from the Chain to the swamp begins at about elevation 99.5± feet. Flow through the swamp meanders south towards twin 60-inch culverts under C.R. 535 and then through a trolley crossing of the Grand Cypress golf course. Two large concrete box culverts pass water under this trolley towards twin Amil gates at the boundary of the Reedy Creek Improvement District (RCID).

During the last 10 to 20 years, the Cypress Creek basin has undergone significant urban development, especially in the northeastern portions of the basin. Stormwater runoff from most of these urbanized areas is generally treated in stormwater ponds associated with that development prior to its discharge to the Butler Chain. Although discharges from some of these ponds flow through sloughs, natural wetland systems or man-made systems before ultimately reaching the lakes, many discharge directly to the lakes.

The southern portion of the Cypress Creek basin consists of commercial and resort-type development. Stormwater runoff originates from the Grand Cypress golf courses, villas in the southwestern portion of the basin and on highly impervious commercial areas in the southern and southeastern areas of the basin. Nearly all of the stormwater generated in this area (north and east of C.R. 535) enters the Cypress Creek swamp upstream of C.R. 535. However, a large portion of the runoff generated by the

Grand Cypress hotel site south of C.R. 535 discharges to Cypress Creek downstream of the C.R. 535 crossing while the remainder of that site discharges south towards Black Lake and Lake Buena Vista in RCID. A USGS gaging station is located at the C.R. 535 crossing.

The Reedy Creek Basin included in this investigation encompasses approximately 37.9 square miles. It is generally bounded by C.R. 535 on the east, U.S. 192 on the south, U.S. 27 on the west and Avalon Claypit Road to the north.

The basin contains several large lake systems including Lakes Speer, Hancock, Reams, Hickorynut and the Bear Bay wetland system. Some of the stormwater inflows to these systems originate from several large lake/wetland systems located in Lake County. Those systems include Sawgrass Lake, Sawgrass Bays, Hancock Bays, Hancock Lake and Boggy Marsh. These lakes were included in this study area for the purpose of estimating stormwater flows and flood stage elevations.

Drainage in this basin can be separated into six separate regions: (1) the Lake Speer/Hancock/Hartley system; (2) Lake Ingram system; (3) the Lake Needham / Hickorynut Lake system; (4) the Bear Bay/Whittenhorse Creek system; (5) the Boggy Creek system; and, (6) the Southwest system. Each system ultimately discharges to the RCID through an Amil gate except for the Southwest system which discharges south under U.S. 192 to Davenport Creek in Osceola County and the Lake Ingram system which is land-locked.

3.0 The Study Approach

The stormwater management master plan described in this document involved applying several analytical procedures for both water quantity and water quality assessments. A comprehensive hydrologic and hydraulic computer model was prepared for the Cypress Creek and Reedy Creek Basins to simulate the rainfall-runoff process. Volumes and rates of stormwater runoff were determined for six synthetic storm events. Hydraulic responses to these storm events in lakes, wetlands, depressions, channels, and at roadway crossings were calculated throughout the study area for each of the six storm events. The Interconnected Channel and Pond Routing Model (ICPR, Version 2.0) was used for all hydrologic and hydraulic calculations. This model has been accepted by the Federal Emergency Management Agency (FEMA) for use on flood plain investigations associated with flood insurance applications.

The quantitative modeling effort required the inventory, collection, and assimilation of massive amounts of data. These data were managed with a sophisticated graphical user interface (ICPR for AutoCAD) which relates mapping features such as roadways, culverts, channels, and lakes with actual model parameters and results. A digital relationship was established between graphical entities in AutoCAD, dBASE IV

data files, and ICPR model parameters and results. Copies of all pertinent data files used for modeling purposes have been provided to Orange County.

Pollutant loading estimates were determined by relating land use within each drainage sub-basin with typical average annual pollutant loading rates for various constituents. Allocations were made, where appropriate, for pollutant removals as a result of stormwater treatment systems. The polygon processing computer program, Valence, was used to calculate weighted pollutant loadings throughout the study area.

4.0 Existing Water Quality Assessment

The analysis of available water quality data reveals that most water bodies in the Cypress Creek drainage basin have excellent water quality. In fact, the water quality conditions of lakes in the Cypress Creek basin represent some of the best conditions found in all of Orange County. All of the lakes examined, with the exception of Fish Lake which has been classified as slightly mesotrophic, are characterized as being in an oligotrophic status based on conditions measured in the 1990's. Oligotrophic lakes exhibit low levels of nutrients and chlorophyll-a and high water column transparency. Furthermore, Lake Bessie is the most oligotrophic lake while Fish Lake is the least.

All lakes examined in the Cypress Creek Basin as part of this investigation are phosphorus limited. The practical implication of this observation is that certain treatment system types are more effective depending on the which nutrient is found to be limiting. In this case, phosphorus control will be an important consideration in the future if the existing excellent water quality conditions are to be maintained.

Available water quality data generally indicates that little or no changes in overall water quality have occurred in these lake systems from the 1970's to the 1990's. However, this trend does not necessarily guarantee that the present excellent water quality will continue into the future. Large lake systems, like those in the Cypress Creek basin, typically demonstrate significant lag times in water quality changes after receiving altered nutrient loadings and this basin has undergone some extensive development in recent years. A continued monitoring program will help the County recognize problems quickly, as they develop, and will result in effective regulation of development in the area.

The analysis of available water quality data reveal that the water bodies in the Reedy Creek drainage basin can be divided into one of three general categories. Those categories, based on overall water quality conditions, are excellent, moderate or degraded.

Excellent water quality exists in Lakes Hancock, Ingram, Hickorynut and Huckleberry. The water quality of these lakes is similar to that found in the Cypress Creek basin and can be generally characterized as oligotrophic with respect to TSI values.

Oligotrophic lakes typically exhibit low levels of total nitrogen and total phosphorus. Based on the water quality data obtained, there is no evidence that indicates any water quality degradation is occurring. Results of the analysis indicate that many important water quality parameters have been better during the 1990's than any previous time for which data has been collected.

Lakes Mabel, Needham, South and Speer are grouped in the moderate water quality category. These lakes can be characterized as oligotrophic to borderline oligotrophic-mesotrophic with respect to TSI values. Mesotrophic lakes typically exhibit moderate levels of both total nitrogen and total phosphorus.

The remaining lakes, Lakes Sawyer and Tub, are classified as degraded water bodies. They are characterized as mesotrophic to eutrophic with respect to TSI values. Eutrophic lakes are generally representative of those heavily impacted by urban development and typically exhibit elevated levels of both total nitrogen and total phosphorus. Hickorynut Lake is the most oligotrophic lake while Lake Sawyer is the least and is classified as eutrophic. All lakes examined have been found to be phosphorus limited except Lakes Mabel and South which are balanced with respect to phosphorus and nitrogen.

In general, available water quality data indicates that little or no changes in overall water quality have occurred in these lake systems from the 1970's to the 1990's. Rankings of existing water quality in terms of trophic state index (TSI) are presented in tables ES.1 and ES.2 for the Cypress Creek and Reedy Creek Basins, respectively.

Chapter 1 — Background

This report is the culmination of a study authorized by the Orange County Board of County Commissioners for the development of a Stormwater Management Master Plan for the Reedy Creek and Cypress Creek Basins. The study area is located in southwest Orange County as shown in Figure 1.1. The drainage basins are generally bounded by Florida's Turnpike to the north and northeast, Apopka-Vineland Road and Dr. Phillips Boulevard to the east, U.S. 192 to the south and U.S. 27 to the west. The divide between the two basins generally follows C.R. 535 (Winter Garden - Vineland Road) between its intersection with Apopka-Vineland Road in the south and Lake Butler Boulevard in the north. Both systems ultimately drain into the Reedy Creek Improvement District (RCID) before reaching Reedy Creek itself near the Osceola County line.

The detailed study area includes approximately 71 square miles in Orange County. Additionally, offsite areas of the Reedy Creek drainage basin located in Lake County and, to a lesser extent, Polk and Osceola Counties were included for modeling purposes. Portions of the RCID were also included for modeling purposes, but were not included in plan development phase of the project.

1.1 Purpose and Scope

The purpose of this study is to present a comprehensive Stormwater Management Master Plan (SWMMP) for the Cypress Creek and Reedy Creek Basins. The primary objectives were to identify existing flooding problems, characterize existing water quality and ecological conditions in the study area, estimate existing and future surface water pollutant loadings to major water bodies, and present a plan to alleviate water quantity and quality problems.

A comprehensive inventory of the primary drainage infrastructure was conducted as part of this investigation. All relevant information collected from this effort has been placed into a graphical mapping and data base system and is available to Orange County staff for information retrieval purposes. A description of the information contained in this data base is presented in Chapter 2. The information collected for this inventory was also used to develop a stormwater computer model of the study area which simulates responses of the basins to various rainfall events. Results from these simulations were used to identify areas subject to flooding and aid in suggesting possible solutions to reduce that flooding.

An analysis of historical trends, based on water quality measurements collected by Orange County Environmental Protection Department (OCEPD), was conducted to assess the current state of "health" of the major water bodies in the study area. Additionally, a pollutant loading analysis was performed for existing and future land use conditions in an attempt to determine what effects development will have on loadings from the basin.

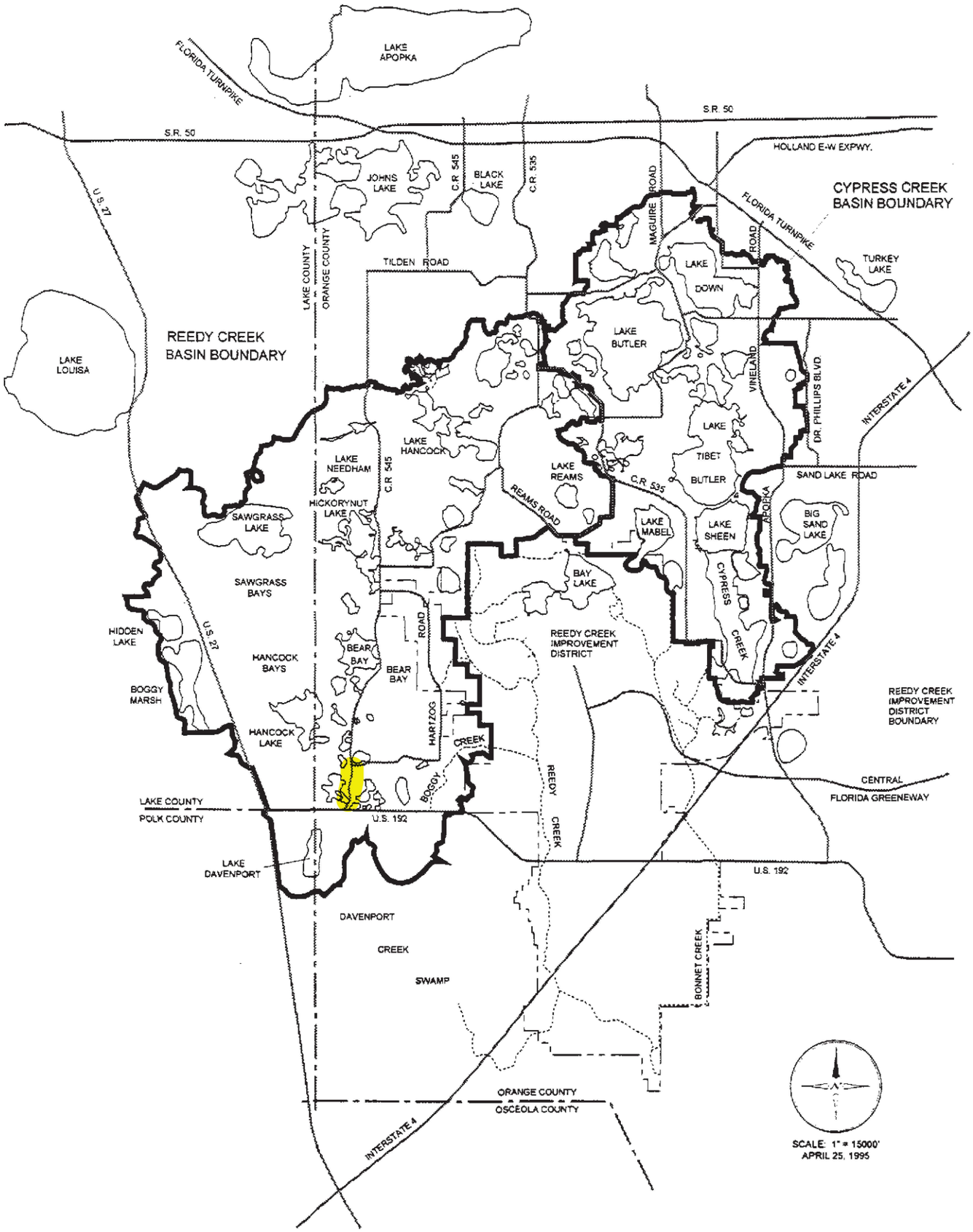


Figure 1.1 The Reedy Creek and Cypress Creek Basins.

SINGHOFEN & ASSOCIATES, INC.
Stormwater Management and Civil Engineering

Identification of locations in the study area where water quality problems exist or significant changes in loading rates are predicted to occur will be used in planning and regulation of future development.

An ecological assessment of the study area was also performed as part of this study to determine if and where critical habitats are present. This information aids in determining the kinds and locations of threatened or endangered species that may occur in the study area. Special regulatory guidelines can be enacted, if deemed necessary by the County, to further protect these species from encroachment of their habitat.

1.2 Report Organization

This report is organized to be of maximum benefit to the County for future planning purposes. Chapters 1 and 2 provide general background information, methodology for analyses, and data base formulation for the project. Chapter 3 provides details of the Cypress Creek Basin for each major water body and/or drainage system including available information, analysis of existing conditions, assessment of future conditions, and recommended improvements. Water quantity and quality for each of these aspects are addressed. Chapter 4 is similar to Chapter 3 except it provides details of the Reedy Creek Basin. An Executive Summary and Summary of Recommendations are provided at the front of this document.

1.3 Cypress Creek Drainage Basin Characterization

The Cypress Creek drainage basin encompasses approximately 33.4 square miles. It is generally bounded by Apopka-Vineland Road and Dr. Phillips Boulevard on the east, C.R. 535 on the south and west and the town of Gotha to the north as depicted on Figure 1.2. The Town of Windermere is located in the north-central portion of the study area.

The major hydrologic feature of this basin is the Butler Chain of Lakes which was designated an Outstanding Florida Water (OFW) in 1984. OFW's are waters designated by the Environmental Regulation Commission when recommended by the Florida Department of Environmental Protection (FDEP) as worthy of special protection because of their natural attributes. The lakes included under the aquatic preserve program are Lake Butler, Lake Down, Wauseon Bay, Lake Louise, Lake Palmer (also known as Lake Isleworth), Lake Chase, Lake Tibet, Lake Sheen, Pocket Lake, Fish Lake and the waterways which connect these lakes. In 1987 Lake Blanche and its connecting waterway was included in this designation.

There are several other lakes in this study area which are not specifically considered to be part of the Butler Chain of Lakes. These lakes include Lakes Whitney, Crescent, Rhea, Burden, Bessie, Ruby, Mabel and South Lake (Figure 1.2). The latter

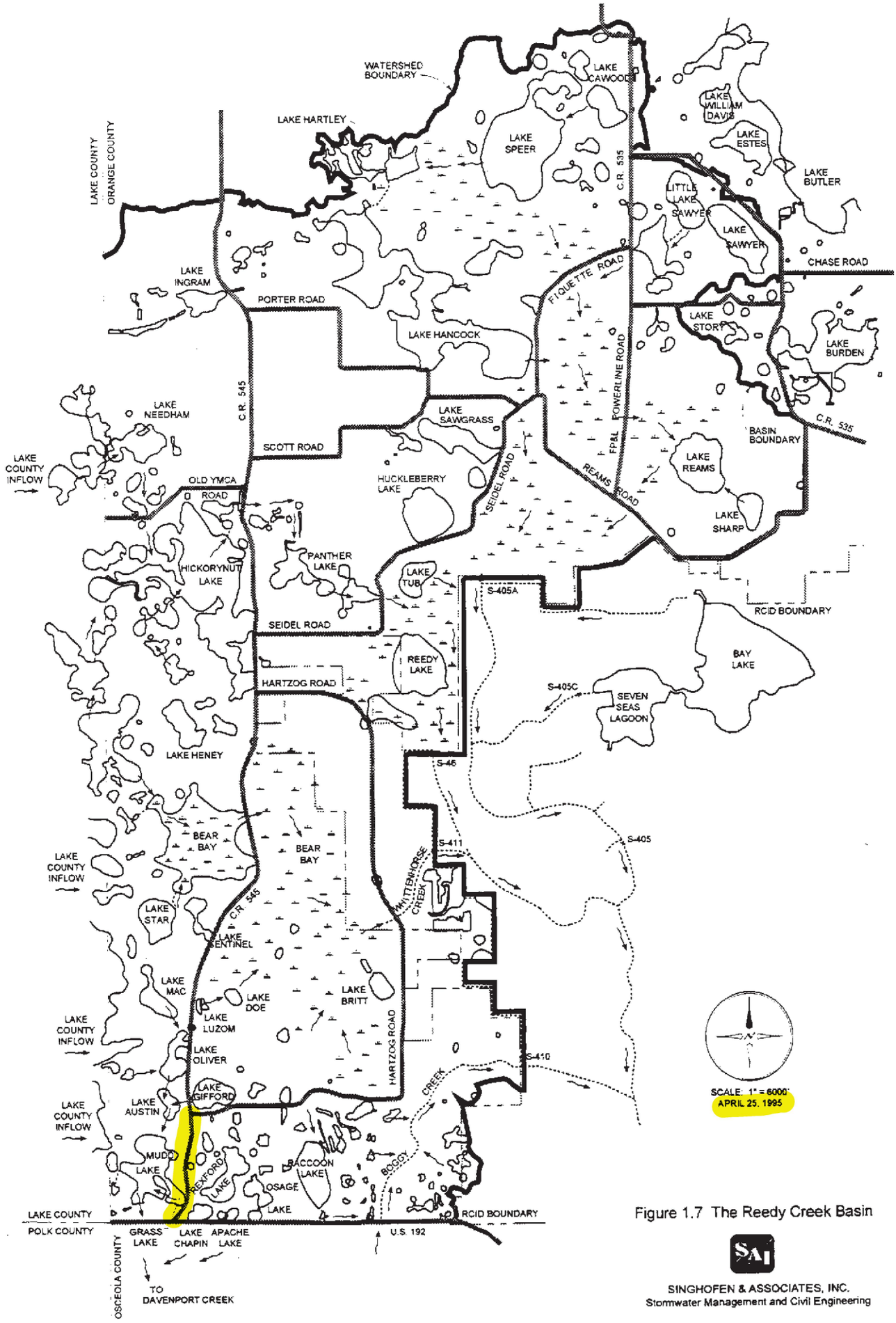


Figure 1.7 The Reedy Creek Basin

SINGHOFEN & ASSOCIATES, INC.
Stormwater Management and Civil Engineering

constructed a large mitigation area to the southeast of the creek that provides additional storage if stages in the creek rise high enough. This mitigation area is well connected to Whittenhorse Creek and the perimeter ditch located west of the RCID levee. The RCID perimeter ditch/levee system will be described in a later section.

1.4.1.5 Boggy Creek System. The Boggy Creek system is located in the southern portion of the Reedy Creek basin (Figure 1.7). It consists of a natural stream that collects runoff from roadside drainage along U.S. 192, discharges from Raccoon Lake and the Orange Lakes development to the west and a large wetland system south of U.S. 192. Several isolated depressions are located along the eastern side of the stream most of which do not discharge for even extreme hydrologic conditions and are considered land-locked.

The creek conveys flow in a northerly direction to an Amil gate at the RCID property line. Stormwater discharges from the Orange Lake development and some of the depressions mentioned above enter the stream along its southern half. Inflows to the northern half are generally from overland runoff of areas adjacent to the stream itself. The stream has a natural section along its entire length from U.S. 192 to the Amil gate at the RCID levee system.

1.4.1.6 Southwest System. The southwest system contains many lakes that either discharge south under U.S. 192 to Davenport Creek or are land-locked. The land-locked lakes include Rexford and Osage Lake. The remaining lakes include Lakes Mac, Oliver, Gifford, Austin, Apache, Chapin and Grass and Mudd Lakes (Figure 1.7).

Lakes Mac, Oliver, Gifford and Austin (in that order) cascade to one another towards the Mudd / Grass Lake area. Lake Oliver and Mudd Lake receive inflows from Hancock Lake and Crooked Lake, respectively, in southeast Lake County through a series of interconnected depressions with natural overflows (Figure 1.3). Stormwater collected in the Mudd / Grass Lake area discharges under a paved roadway through six (6) 48-inch RCP's to a depression immediately north of U.S. 192. It then flows under that roadway through triple 3 x 10 feet box culverts towards Lake Davenport in Polk and Osceola Counties.

The Lake Davenport area receives runoff from areas in northeast Polk County and additional inflows from Lakes Chapin and Apache, located immediately north of U.S. 192. The drainage basins of Lakes Chapin and Apache, as well as Lake Rexford and Osage, have experienced some residential development with more planned in the future. Stormwater discharges from these lakes, along with some drainage from U.S. 192 itself, flow southeasterly toward the swamp adjacent to Lake Davenport. Inflows to this swamp then flow south to a 32 x 48 inch elliptical CMP under a dirt roadway and on to the Davenport Creek swamp.

1.4.1.7 RCID System. As described in section 1.3.1.6, the RCID system consists of an extensive network of canals and water control structures. The western half of the RCID generally drains to Reedy Creek. The northwestern portion of the system consists of a

2.4 Regulatory Planning for Volume Sensitive Systems

Most of the lakes in the Cypress Creek and Reedy Creek Basins are either land-locked or are severely limited relative to outlet capacity. Therefore, these basins are considered to be volume sensitive. It is important to understand the hydrologic nature of volume sensitive systems when considering regulatory approaches to future land planning activities.

Water levels in volume sensitive lakes are affected by inflow and outflow and outflow amounts. Inflows occur from direct rainfall on the lakes, surface runoff from upland areas, and lateral seepage into the lakes from the surrounding water table. Surface runoff is dependent on the soil's ability to absorb rainfall and land cover conditions. For example, more stormwater runoff occurs from a paved area than from a pervious surface. Sandy soils can also accept more rainfall than a clayey or silty soil.

Once water enters the soil column, a number of things occur. It is temporarily (albeit, for a relatively long time) stored in the surficial aquifer and can move in three different directions. Most of the water is used by plants and vegetation in the form of evapotranspiration. A portion may move down gradient towards the water body through the surficial aquifer. The rate of movement depends on soil properties and the slope of the water table. Some of the water will also percolate downward into the Floridan aquifer. This is often referred to as deep recharge and the rate of recharge depends on properties of the confining layer (i.e., the semi-impermeable material between the surficial aquifer and the Floridan), local fractures in the confining layer, and the relative differences in pressure between the Floridan aquifer and the surficial aquifer.

Outflows from the lakes and other water bodies include evaporation and deep percolation through the bottom of the lake. If the inflow volume exceeds the outflow volume, increases in water levels will result. Likewise, if outflows exceed inflows, stages will decrease.

The soil's ability to absorb precipitation is typically reduced when open land is developed. Evapotranspiration rates can also be changed significantly by land development. If unmitigated, the natural hydrologic balance for the receiving water body can be adversely affected. Surface runoff typically increases, evapotranspiration and deep percolation may decrease. This will cause increases in water levels in volume sensitive systems.

The impacts of development for volume sensitive areas can be partially mitigated by providing a mechanism for excess stormwater runoff to enter the soil column. This can be accomplished by directing runoff into open areas such as swales, parks, and retention/percolation ponds. It is important, however, to insure that the open areas are distributed throughout the project site and that these "recharge" areas are not short-circuited with the receiving water body. For example, a pond placed next to a receiving

water body that is designed to "bleed" either through seepage or a mechanical device into the water body does nothing to mitigate the volumetric impact of a development. However, if this pond could be replaced with a system of open swales and several smaller ponds throughout the project, stormwater runoff would tend to percolate more uniformly over the project site, allowing more opportunity for recharge and evapotranspiration.

Several relationships were developed (refer to Figure 2.2) as part of this investigation between pre-development runoff curve number and the required total post-development retention capacity. The curve number method was selected because of its wide use and application for design purposes and its ease of use from a regulatory standpoint. Each relationship depicted in Figure 2.2 is dependent on the time frame required to fully recover the retention storage. The procedure used to develop these relationships is described in the following paragraphs.

A pre-development runoff curve number based on average antecedent moisture conditions was first set. Then, daily runoff amounts were calculated for the period of record for the Isleworth rain gage (1916 through 1982). The SCS curve number method was used to calculate the excess rainfall on each day. Each day was treated as a separate storm event since hourly rainfall for the Isleworth station was not available. Five-day antecedent rainfall conditions were tracked continuously and adjustments were made to the pre-development curve number depending on dry, average or wet conditions. Curve number relationships between dry, average and wet conditions are provided in Table 2.6 (ref. McCuen, 1982).

Further adjustments were made depending on time of year. For example, the growing season was assumed to occur from May through August and the dormant season was assumed to be from November to the end of February. Shoulder seasons occurred in the remaining months. It takes substantially more rainfall in the growing season to transition from average conditions to wet conditions than the dormant season. An average annual pre-development runoff amount was determined for the period of record. The criteria used for curve number adjustments are included in Table 2.7.

The objective of a mitigation plan for the volumetric impacts of development is to maintain the pre-development average annual surface runoff volumes from the site. This can only be accomplished by adding permanent retention in the form of percolation ponds, open swales, exfiltration systems, or by utilizing other open areas for percolation. Stormwater reuse may be required for areas with high water tables and low percolative capacity.

The amount of retention required to maintain average annual pre-development runoff volumes was calculated by first assuming that 100% of the rainfall on any given day during the simulation period (65 year period of record) was available for runoff. Then a total retention amount (in inches) was assumed and an associated recovery time in days was set. For example, a retention amount of 2.5 inches with a recovery period of 3 days means that the first 2.5 inches of rainfall will stay on the project site and either be

percolated into the ground and/or evaporated within 3 days following the storm event. If the assumed retention amount did not result in approximately the same amount of runoff as the pre-developed condition, the value was adjusted and the calculations were repeated.

The relationships between pre-development curve number, post-development retention requirements and recovery time are presented in Figure 2.2. The retention requirement increases as the pre-development curve number decreases. Also, as recovery time decreases, retention requirements also decrease.

It is recommended that the relationships depicted in Figure 2.2 be used in part for regulation of future development in the Cypress Creek and Reedy Creek Basins. These requirements do not in any way alleviate or supersede peak rate attenuation or stormwater treatment requirements.

Table 4.1 Lake Information for the Reedy Creek Drainage Basin.

Lake Name	Lake [1] Area (ac)	Drainage Area (ac)	Number [2] of Docks	Normal High [3] Water Elevation (ft)	Date	100-Year [3] Flood Level (ft)	Date	Historic Measured [3] High Water Levels (ft)	Date
Apache	9	28	0	108.7	12/89	109.4	3/90	108.7	12/89
Austin	60	135	0	112.6	4/94	---	---	112.0	4/73
Britt	268	738	0	105	/94	---	---	104.8	6/66
Sawyer	101	205	17	106	3/83	107.6	no date	107.9	4/73
Little Sawyer	84	246	1	106	3/83	107.6	no date	107.9	4/73
Cawood	56	307	0	102	6/91	---	---	103.2	6/68
Chapin	16	41	3	110.5	5/85	112.1	5/85	---	---
Doe	31	100	0	108	6/94	---	---	---	---
Gifford	70	254	1	112	1/83	113.8	1/83	110.5	4/73
Hancock	465	1090	6	97.3	4/84	100.2	8/84	99.4	8/60
Hartley	61	298	0	98.7	12/92	---	---	96.4	5/66
Heney	50	224	0	105	6/94	---	---	102.4	9/71
Hickorynut	429	2322	14	101.5	10/82	104.1	10/82	104.1	6/60
Huckleberry	174	420	3	97	10/83	98.8	no date	95.2	9/71
Ingram	55	1527	4	95	4/83	98.0	no date	92.95	2/96
Lartigue (Tub)	71	147	0	96	6/84	---	---	98.1	8/60
Luzom	8	75	1	110.7	/94	---	---	---	---
Mac	58	161	0	113	4/94	---	---	112.5	9/71
Mudd / Grass	124	1093	0	112.5	4/94	113.6	no date	---	---
Needham	76	7536	0	102	1/94	---	---	105.4	8/60
Oliver	55	1724	0	112.7	4/94	---	---	113.6	8/60
Osage	41	127	3	110.5	4/83	112.5	no date	---	---
Panther, West	54	397	0	97.4	4/94	---	---	98.9	8/60
Panther, East	28	140	0	97.4	4/94	---	---	98.9	8/60

Table 4.1 Lake Information for the Reedy Creek Drainage Basin (continued).

Lake Name	Lake [1] Area (ac)	Drainage Area (ac)	Number [2] of Docks	Normal High [3] Water Elevation (ft)	Date	100-Year [3] Flood Level (ft)	Date	Historic Measured [3] High Water Levels (ft)	Date
Raccoon	90	414	10	104.3	1/94	105.7	no date	104.9	4/73
Reams	139	2653	0	96.9	2/91	99.43	3/91	97.8	7/68
Reedy	387	881	0	96.5	5/94	---	---	97.6	8/60
Rexford / Scott	62	251	8	111	4/83	112.3	no date	109.8	6/66
Sawgrass	78	355	0	98.3	1/94	---	---	97.8	11/67
Sentinel	23	71	0	110.3	5/94	---	---	109.96	6/66
Sharp	36	171	0	98	4/91	---	---	98.6	8/60
Speer / Joval	708	1854	0	100.5	6/93	101.4	6/93	101.7	8/60
Star	59	145	0	111.3	4/94	---	---	111.0	4/73

Key:
1 All lake areas are measured at the normal high water elevations reported in this table.
2 The number of docks is based on 1993 aerial photographs
3 Elevations and dates obtained from "Lake Index" for Orange County (January 19, 1993)

4.8 Southwest System

This system is located north of U.S. 192 in the vicinity of the intersection with C.R. 545 (Avalon Road) as depicted on Figure 4.83. As the name suggests, it is located in the southwestern corner of Orange County and in the southern portion of the Reedy Creek drainage basin. Several lakes are included in this section for discussion purposes including Lakes Oliver, Gifford, Austin, Mudd, Rexford, Chapin and Apache.

Several lakes in this system are land-locked including Lake Rexford and, during typical storms, Lake Gifford. However, discharge from Lakes Mudd/Grass, Chapin and Apache under U.S. 192 occurs at several locations. These discharges flow to Davenport Creek in Osceola County. The Orange and Osceola County line lies along U.S. 192 in this area.

4.8.1 Available Information

4.8.1.1 Hydrologic Data. Orange County has recorded stage data for lakes in this system from 1960 to 1984. Readings were generally taken on an annual to quarterly interval during that time. The data is available at the County. Maximum and minimum stages recorded as well as the period of record are listed in Table 4.46. The normal high water elevation (NHWE) is also reported in that table. Historical water levels for several lakes in this system are depicted in Figures 4.84 through 4.87. Other relevant lake data for these lakes are presented in Table 4.1.

Table 4.46. Lake Stage Data for Lakes in the Southwest System.

Lake	Period of Record	Maximum Stage	Date	Minimum Stage	Date	NHWE	Date
Rexford	1962-1984	111.35	8/3/84	106.15	6/7/74	111.00	4/83
Oliver	1960-1975	113.58	8/60	108.00	6/6/74	112.70	4/94
Chapin	1972	110.72	8/3/72	110.72	8/3/72	110.50	5/85
Austin	1971-1975	112.00	4/12/73	108.97	6/7/74	112.60	4/73
Gifford	1971-1975	110.50	4/12/73	107.45	6/7/74	112.00	1/83
Mudd	N/A	N/A	N/A	N/A	N/A	112.50	4/94

4.8.1.2 Drainage Information. Some residential development has occurred in this system around the U.S. 192 area, unlike the other systems discussed to this point. Drainage information for this system was obtained from a number of different sources. Some information consisted of either "as-built" or approved plans for residential developments obtained from private consultants or Orange County. Data for structures under or near U.S. 192 were obtained from preliminary roadway construction plans for

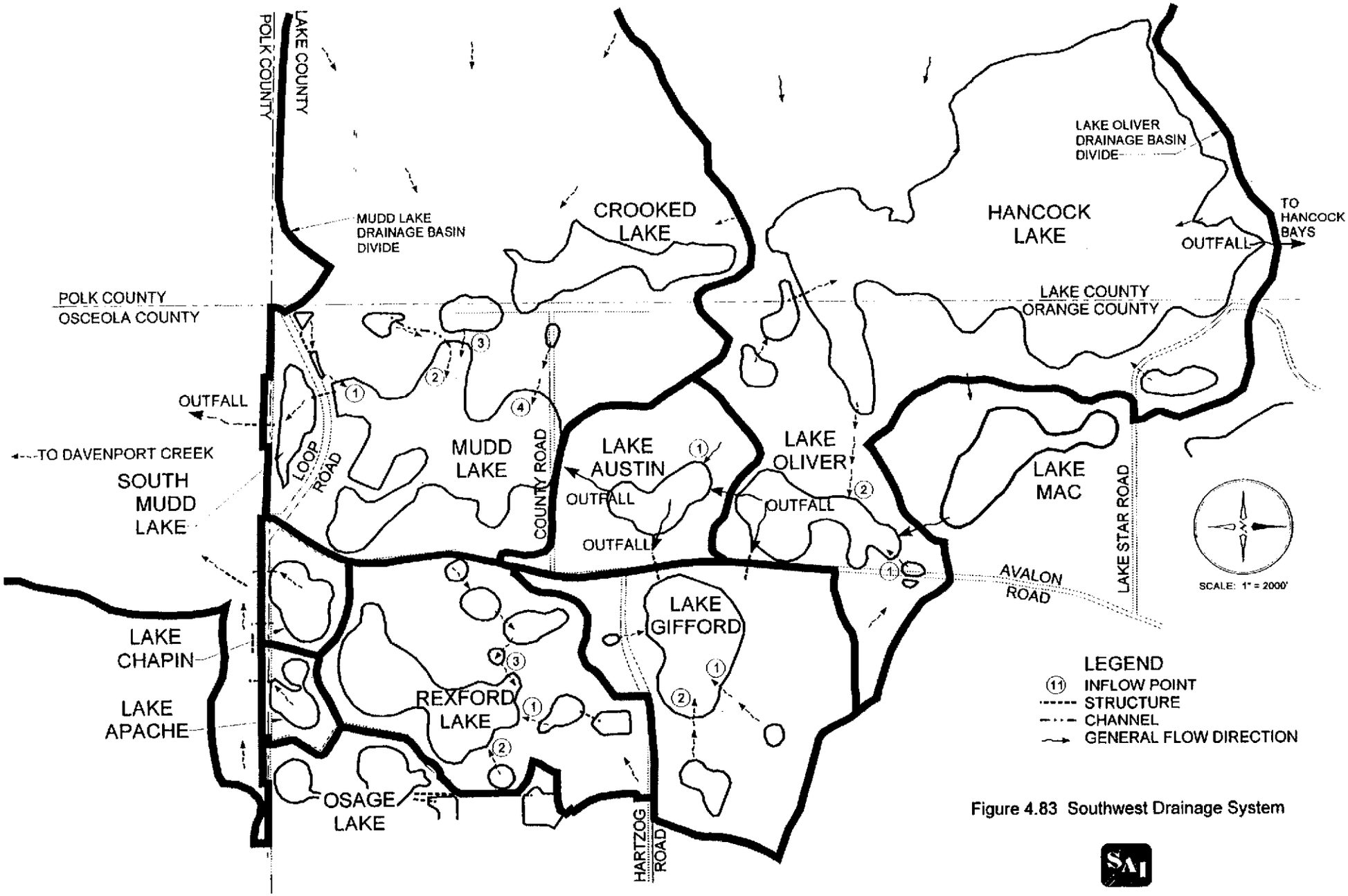


Figure 4.83 Southwest Drainage System

SINGHOFEN & ASSOCIATES, INC.
Stormwater Management and Civil Engineering

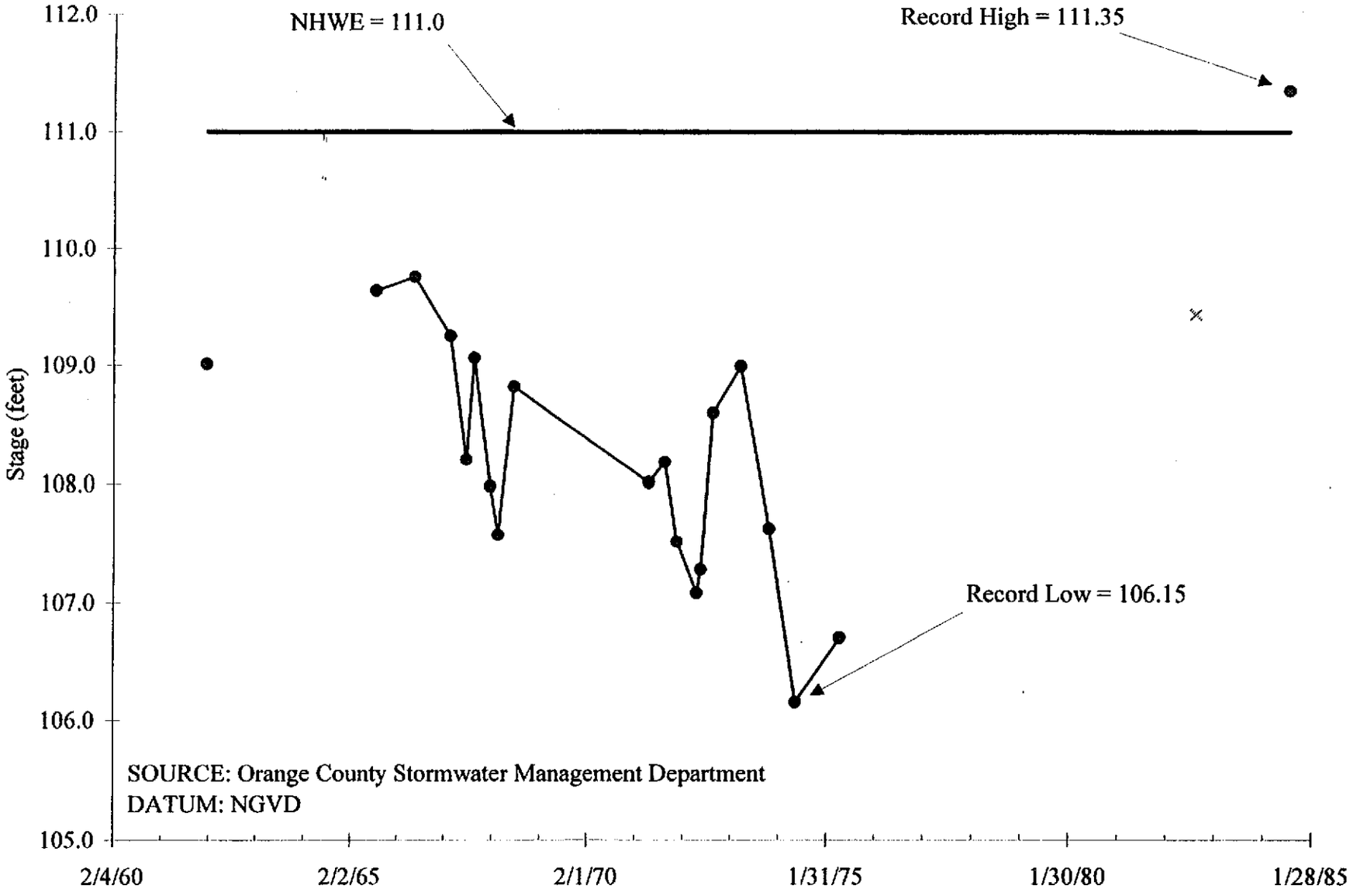


Figure 4.84. Lake Rexford Historical Water Levels

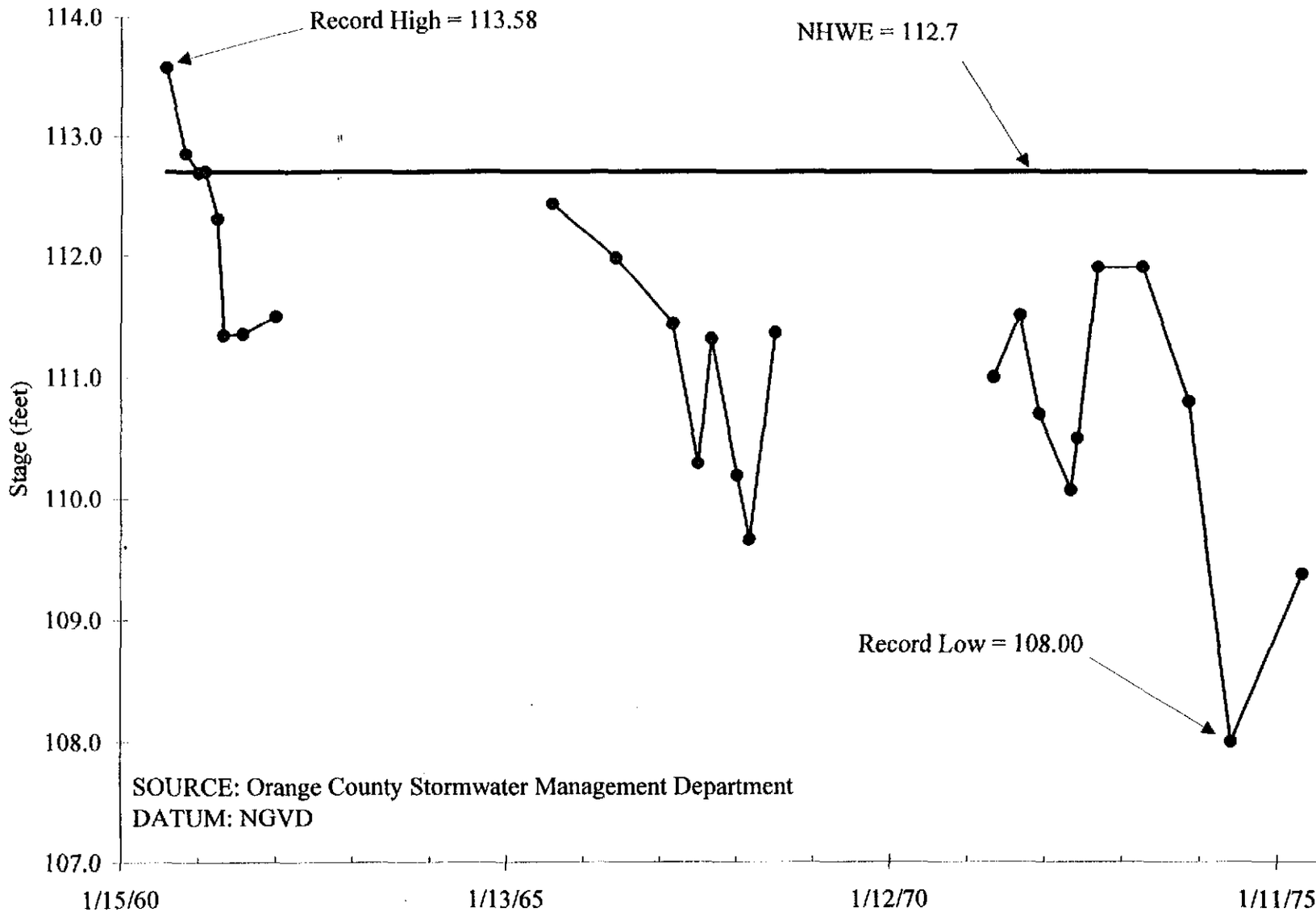


Figure 4.85. Lake Oliver Historical Water Levels

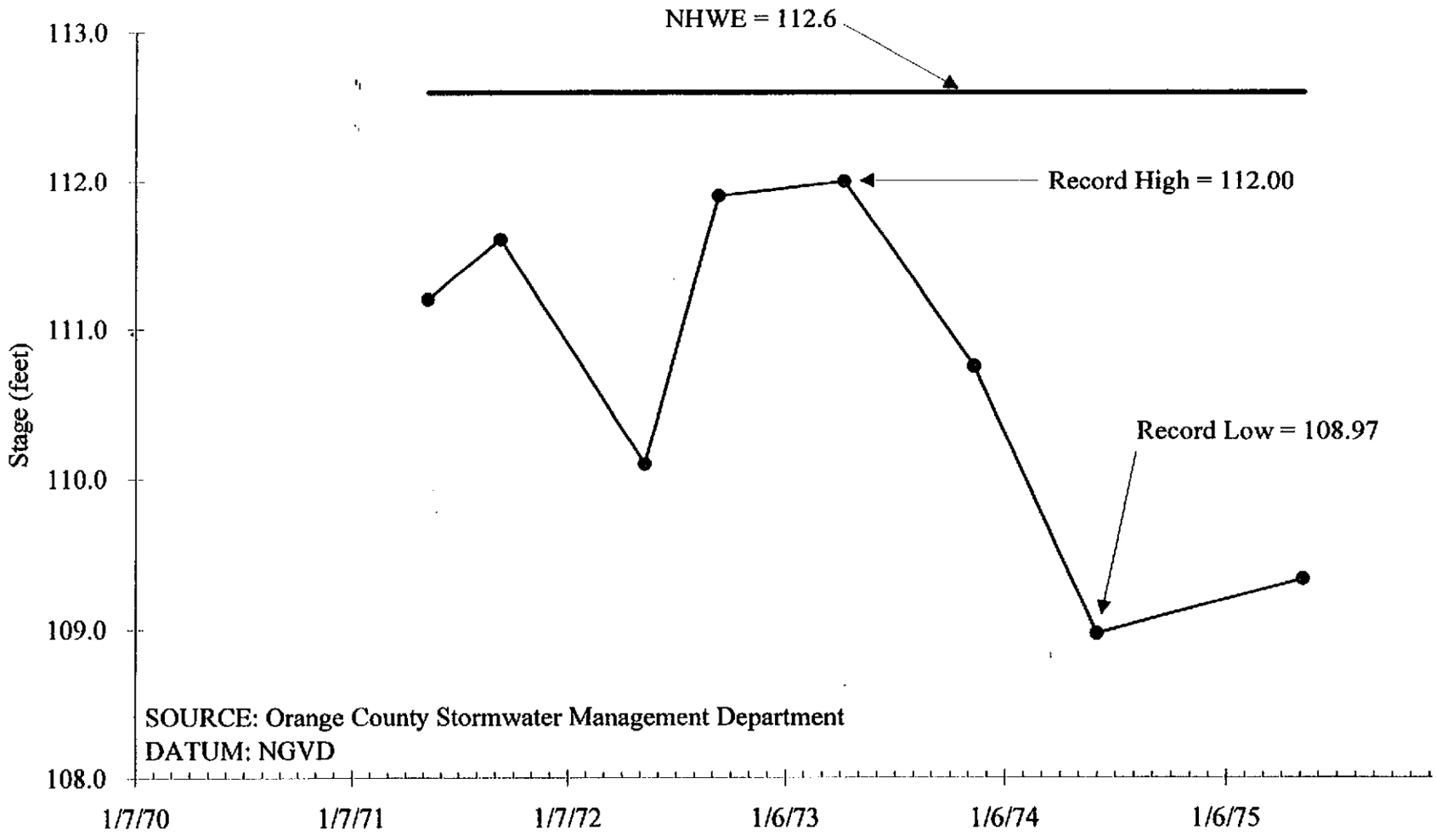


Figure 4.86. Lake Austin Historical Water Levels

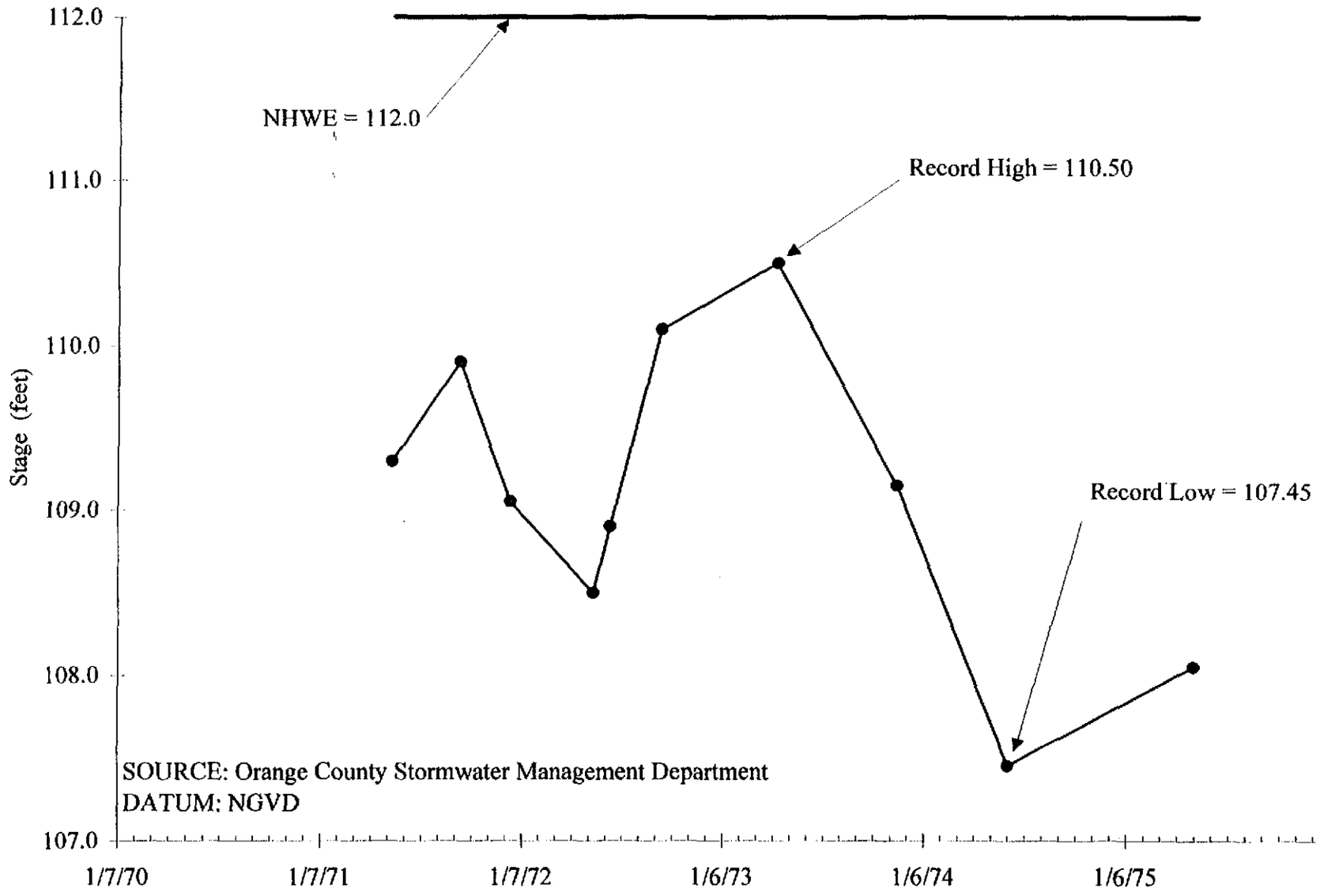


Figure 4.87. Lake Gifford Historical Water Levels

improvements to that roadway.

Several sets of construction plans for residential development in the area were obtained from the County including plans for the following developments: Twin Lakes Resort (a.k.a. Bali International) and Vista del Lago. These sets included paving and grading plans as well as drainage structure information. However, because they were not "as-built" plans, field visits were performed to verify or estimate missing drainage structure information. A "Grading and Stormwater Management Plan" for Vista del Lago was obtained from Bowyer-Singleton & Associates, Inc. to supplement information obtained from Orange County. All of this information was used to determine drainage sub-basin divides, pond stage-volume data and discharge structure information for this area.

Copies of construction plans for improvements to U.S. 192 (dated 1969) were obtained from the Florida Department of Transportation. Partial plans for proposed improvements to that roadway and survey of existing structures along the roadway were obtained from Dyer, Riddle, Mills & Precourt, Inc. While the plans had not been completed, the survey data provided much information regarding existing cross-drains and side-drains.

Drainage information for the remaining undeveloped portions of this system was primarily based on aerial photographs (1-foot contours dated March, 1984) provided by Orange County. Field surveys were conducted of primary structures or drainage facilities in the system for which data could not be obtained or reasonably estimated from the information described above. The Orange County Stormwater Management Department has been supplied with this information.

4.8.1.3 Water Quality Data. No water quality data has been collected by the Orange County Environmental Protection Department for any water bodies in this system.

4.8.2 Existing Conditions Analysis

This system can be divided into two general classifications relative to development. Generally, those areas west of C.R. 545 in the Orange County portion of the basin consist of native vegetation such as scrub/brush or lake/wetland associations. A few scattered developments are located in this region including Twin Lakes Resort (a.k.a. Bali International) west of Lake Mudd and Outdoor World northeast of Lake Austin. The portion of the basin east of C.R. 545 has been developed to either residential or agricultural (citrus) land uses with the residential development concentrated in the southeastern portion of the system (around Lake Rexford).

Several inflow locations to this system have been designated on Figure 4.83. These inflow points are described in some detail in the following sections.

4.8.2.1 Stormwater Inflow and Outflow Points. Lake Oliver lies at the northern-most portion of this system. It collects stormwater overflows from Lake Mac when flood stages in that lake rise to an approximate elevation of 114.5 feet or more. Several interconnected depressions to the northeast also overflow into Lake Oliver at inflow point 1 as shown on Figure 4.83. There is a 15-inch CMP cross-drain under C.R. 545 that is supposed to drain a small depression immediately east of that road. However, during a field inspection it was silted to approximately 90-100% of its diameter. For analysis purposes, the pipe was ignored and the crossing was modeled as a broad-crest weir. This depression overflows C.R. 545 into a slightly larger depression which overflows a dirt roadway to the south between itself and Lake Oliver. No pipe was located under this roadway so it was modeled as a broad-crest weir as well. Both roads have an estimated elevation of 114.5 feet.

The Hancock Lake area was briefly mentioned in discussion of the Bear Bay / Whittenhorse Creek system (Section 4.7). This area is in southeast Lake County and contributes stormwater flows to several lakes in this and the Bear Bay system. Drainage area associated with the lake is approximately 1493 acres including contributing areas in both Lake and Orange County. Stormwater outflow is primarily north to Hancock Bays and, to a lesser extent, west to Lake Mac. Drainage from Hancock Bays, as previously mentioned, eventually enters the West Bear Bay wetland and ultimately drains to RCID by way of Whittenhorse Creek. Overflows from Hancock Lake to Hancock Bays occur at elevation 114.9 over a dirt roadway. No pipe was found at this overflow point, however, the road profile was field surveyed.

A lower, albeit narrower, outfall conveys much smaller flows from Hancock Lake to Lake Mac which then overflows to Lake Oliver near inflow point 1. Thus, drainage contributions from Lake County to Lake Oliver generally flow through Lake Mac prior to reaching Lake Oliver.

Drainage from two small depressions southwest of Lake Oliver typically overflow to Hancock Lake through a 12 x 24-inch elliptical CMP at an approximate elevation of 113.4 feet. Information for this pipe was estimated based on field observations. The roadway over the pipe was estimated at elevation 115.4 feet based on Orange County aerial photogrammetry. Minor overflow to the east and Lake Oliver occurs when flood levels in these depressions reach an approximate elevation of 115.5. That is the elevation of a natural overflow point between the depressions and the lake.

The primary outfall from Lake Oliver is south to Lake Austin over a natural saddle between the two lakes. The elevation of this saddle was estimated at elevation 112.8 from aerial photogrammetry provided by Orange County. A minor connection from Lake Oliver under C.R. 545 to Lake Gifford exists near the southeast shoreline of Lake Oliver. It consists of a 24 inch CMP cross-drain (highest invert elevation 112.49). While the invert elevation of the pipe is below the primary outfall elevation mentioned above, approximately 3-5 inches of siltation was noted at the time of field survey. Thus,

based on both conveyance and invert, the natural overflow is the main outfall from Lake Oliver.

A second cross-drain under C.R. 545 (south of the one just discussed) connects Lake Gifford to Lake Austin. This cross-drain consists of an 18-inch CMP pipe (highest invert elevation 112.64). The primary outfall from Lake Austin south to Lake Mud occurs as a result of overflow of a dirt road between those lakes. The elevation of this road was estimated at 113.5 feet based on aerial photogrammetry. Thus, this elevation is the controlling elevation for Lake Austin as well as Lakes Oliver and Gifford. The connections between these three lakes (all lower than the dirt road elevation of 113.5 feet) tend to equalize stages and , under most conditions, result in the three lakes being land-locked as a single water body. This is especially true for Lake Gifford because its outfall capacity is relatively limited, even when stages are above the 113.5 feet control elevation.

Lake Mudd, including Grass Lake, discharges south towards U.S. 192. The lake has been divided into two portions: a small section located north of U.S. 192 and south of a minor loop road and the remaining portion of the lake north of that loop road (See Figure 4.81). The portion of the lake between U.S. 192 and the loop road will is referred to as South Lake Mudd for discussion purposes. Lake Mudd collects drainage from the Bali International development at two locations: Inflow points 1 and 2. Bali International is a timeshare or resort development. A small amount of drainage from the southern portion of the development enters Lake Mudd at inflow point 1 from a small, two-pond system. A slightly larger lake drains the northern portion of the development. Discharges from this lake enter Lake Mudd through a man-made ditch at inflow point 2. Grading information for these areas was determined from "as-built" plans obtained from Orange County. Information regarding the outfall from the larger lake was based on field observation.

The majority of stormwater inflows to Lake Mudd originate in the Crooked Lake area of southeast Lake County. This system, with a contributing area of approximately 767 acres, overflows into a small depression west of Lake Mudd when stages in Crooked Lake rise to about elevation 115.6 or higher. That is the estimated elevation of a dirt roadway that lies between Crooked Lake and the Lake Mudd system. The small depression overflows into Lake Mudd when flood stages at that location rise to elevation 113.5 feet or higher (inflow point 3).

Discharge from Lake Mudd to South Lake Mudd is through six (6) 48-inch RCP's under the loop road. A small elevated area (approximate elevation of 112.2) is located immediately north of the loop road between Lake Mudd and these cross-drains. Flows from Lake Mudd overflow this point to the culverts where the lowest invert is 108.24 feet. South Lake Mudd consists of a small wetland system bounded by the loop road to the north and U.S. 192 to the south. Flow from this area is conveyed under U.S. 192 through triple 3 x 10-foot box culverts (invert 109.92) to Davenport Creek swamp.

Lakes Chapin and Apache, located immediately north of U.S. 192, outfall under that road through a total of three (3) cross-drains. Both lakes have experienced residential development along their northern shorelines and are bounded by that development on the north and U.S. 192 on the south. Lake Apache discharges stormwater under that road through one of the 36-inch RCP cross-drains (invert 108.9). This discharge is to the eastern portion of a small wetland which may have been a borrow area at one time. The wetland has been divided into two segments by recent construction of an apparent future roadway. Discharge from Lake Chapin flows under U.S. 192 to the western portion of the wetland through the remaining cross-drains (invert elevations 109.38 and 110.46).

The small wetland is bounded by the southern extension of the loop road mentioned above. It discharges stormwater under the loop road through a 24-inch RCP (invert elevation 108.51) to Davenport Creek swamp. Information for structures in this area was obtained from roadway plans for proposed improvements to U.S. 192 and was field verified as to pipe material and size by Buchheit & Associates, Inc. (the project surveyor). However, no information was obtained for the cross-drain under the future roadway that bisects the small wetland. Therefore, the invert elevation was assumed to be equal to that of the eastern outfall from Lake Chapin (located near the future roadway) and the pipe size was assumed to be equal to the 24-inch RCP outfall described in this paragraph.

Davenport Creek swamp generally flows in a southeasterly direction in Osceola County. Flood stages for the swamp were obtained from personal communication with Russell Forrest of the Polk County Engineering Department. The 10-year flood level was reported to be 111.3 feet and the 100-year flood was 112.1 feet. Estimates of the time distribution of stages in this large wetland system were estimated by SAI.

Rexford Lake is a land-locked lake immediately north of Lakes Chapin and Apache. It is a land-locked lake that has experienced some residential development along its southern, eastern and northeastern shoreline. Stormwater from the residential development along the southern and eastern shoreline enters the lake via direct runoff. The residential development northeast of the lake is part of the Vista del Lago development. This discharge (at inflow point 1) is from a retention pond in that development. Information for the control structure from that pond was determined from plans obtained from Orange County and field checked to make any necessary adjustments to the plan information. A fringe wetland is associated with the lake along its northern shoreline where discharge from a series of interconnected depressions enter the lake (inflow points 2 and 3). The remainder of the shoreline remains undeveloped and receives direct runoff from surrounding agricultural lands.

4.8.2.2 Problem Areas. One problem area noted in this system is located on C.R. 545 approximately 4000 feet north of its intersection with the southern end of Hartzog Road. As described above, the drainage system consists of two depressions on either side of C.R. 545 with no positive outfall. In addition, the existing cross-drain under C.R. 545 is,

for all intents and purposes, completely silted. The roadway elevations in this area are approximately 114.5 feet.

Simulations indicate that C.R. 545 will flood for all modeled storms. The 10-year 24-hour storm event will rise to elevations 114.63 and 114.60 finsl on the east and west side of C.R. 545, respectively for at approximately 15 hours.

A possible solution is to provide a positive outfall for these depressions. This could be accomplished by cleaning the outfall pipe across C.R. 545 between the two depressions and adding another one between the westerly depression and Lake Oliver under the dirt road to the south of that depression.

No other major complaints or problems have been noted for this area.

4.8.2.3 Existing Condition Simulation Results. Peak flood levels for the Southwest System for each of the six storms simulated are presented in Table 4.46. Stage hydrographs for the various lakes in this system are depicted in Figures 4.88 through 4.101 at the end of section 4.8. The Orange County Stormwater Management Department has a complete automated data base of all input data and results from each simulation. Stage and flow hydrographs are available for each node and link in the model including the various inflow points previously described.

Flood plain maps have been delineated on aerial photographs for this area and are available for inspection at the Orange County Stormwater Management Department.

Table 4.47. Summary of Maximum Stages in the Southwest System.

System	10-Year 24-Hour	25-Year 24-Hour	100-Year 24-Hour	10-Year 72-Hour	25-Year 72-Hour	100-Year 72-Hour
Oliver	113.8	113.9	114.1	114.1	114.2	114.8
Gifford	113.6	113.6	113.8	113.8	114.0	114.4
Austin	113.8	113.9	114.1	114.1	114.2	114.7
Mudd	112.9	113.1	113.4	113.3	113.8	114.7
Rexford	111.9	112.2	112.6	112.5	112.8	113.3
Chapin	111.5	111.8	112.2	111.9	112.1	112.5
Apache	111.5	111.8	112.2	111.9	112.1	112.5

4.8.2.4 Water Quality Analysis. No water quality data has been collected for lakes in this system.

4.8.2.5 Pollution Loading Analysis Results. Estimated average annual pollutant loads from stormwater runoff to the lakes in this system are presented in Tables 4.48 through 4.53. The loadings presented in those tables have been tabulated for each inflow point shown on Figure 4.83 for the specified lake and are based on loadings from runoff only. Groundwater contributions were not included in the calculations. The total loads presented in those tables are representative of predicted pollutant loads from contributing areas to the lakes excluding those systems that are land-locked for the 10-year 24-hour storm and the lake area itself. Also, if the majority of a specific sub-basin for a lake was located outside Orange County, pollutant loads from that sub-basin were ignored. Examples of such situations are the areas around Crooked Lake or Hancock Lake in Lake County that are tributary to Lake Mudd and Lake Oliver, respectively.

Tables 4.54, 4.56, and 4.57 list inflow points to Lakes Oliver, Mudd and Rexford and their rank relative to the percentage of total pollutant load attributed to that location. A rank of 1 indicates the highest percentage. The greatest percentage of all pollutant loads to the lakes in this system, including Lakes Austin, Gifford, Apache and Chapin, is generated by inflows that enter the lakes via direct runoff with the exception of Lake Rexford. This is described as the lake shore system in Tables 4.48 through 4.53. This area also ranks first in contributing area for those systems. While the Crooked and Hancock Lake areas were included in the contributing area calculation, pollutant loads from that vicinity were not.

Contributing area to inflow point 2 of Lake Rexford is land-locked for the 10-year 24-hour storm event. Therefore, the remaining inflow locations account for all of the pollutant loads to the lake. The highest percentage of pollutant loads to the lake is generally associated with the Vista del Lago outfall (inflow point 1) with the exception of total suspended solids (TSS) and total lead (Pb). The greatest percentage of these two pollutants is generated by the lake shore area.

4.8.3 Future Conditions

Little change is predicted to occur in most of this system as currently planned. In fact, according to the Future Land Use Map of the Orange County Planning Department (dated July 1, 1991) development in much of this area through the year 2010 is currently restricted to rural settlement land uses (0.1 DU/ac) with the exception of the areas in the vicinity of U.S. 192.

The area between Hartzog Road south to U.S. 192 is generally planned to be developed to commercial land uses. This includes areas surrounding Lakes Mudd/Grass, Chapin, Apache and Rexford. The following sections discuss implications of this future development on the Southwest system. Conclusions presented in these sections have been made based on future development as currently planned. Passage of the Horizon West plan or any changes to the Future Land Use Map as it currently stands may affect results of the analyses performed for this study.

4.8.3.1 Future Setting. Proposed development in this system will include both land use changes and roadway improvement projects. Proposed land development in the vicinity of U.S. 192 is possible in many areas including upland areas surrounding Lake Mudd/Grass, Apache, Chapin and Rexford. As mentioned above, the open space areas in those basins is planned to be developed to commercial land uses.

Construction plans are currently being developed by Dyer, Riddle, Mills & Precourt, Inc. for improvements to U.S. 192 in this vicinity. The improvements include widening of the existing roadway, addition of several turn lanes and construction of stormwater treatment ponds. Scheduled construction date is not known at this time.

4.8.3.2 Water Quality / Pollutant Loading Results. This area will be subjected to the greatest developmental pressures of all Reedy Creek systems discussed to this point. Unfortunately, no water quality data was available to enable long-term trend analysis or establishment of the current "state of health" of the lakes in this system. It is strongly recommended that a water quality sampling program be initiated in this area for at least a few of the lakes so that monitoring of potential changes can be possible.

No changes in pollutant loadings are expected for Lakes Oliver, Austin, Gifford, Apache and Chapin because no changes in the future land use of these areas are planned. However, future pollutant loadings are noted to substantially increase for those areas subject to development along U.S 192. All pollutants loads, except phosphorus, are predicted to increase in the Lake Rexford basin while every pollutant load to Lake Mudd is predicted to increase. The predicted loads of metals (Pb and Zn) are more than twice the current loads calculated for Lake Mudd. These increased loads are a direct result of changing scrub/brush areas to commercial areas despite construction of concurrent treatment systems.

4.8.4 Proposed Improvements

4.8.4.1 Water Quantity Considerations. Corrections to this system to relieve the predicted flooding have been discussed previously. Several suggestions were made in section 4.8.2.2, are minor in nature and can generally be handled as maintenance or included in roadway improvements if or when the county designs them.

4.8.4.2 Water Quality / Pollutant Loading Considerations. As mentioned, no water quality data were available for this system. However, initiation of a sampling program in this area is suggested prior to any significant changes in land use. This would result in establishing baseline data so that monitoring of future impacts could be possible if and when significant development begin.

As mentioned, little change in surface pollutant loadings are anticipated for most of this system because future development is currently limited to land uses similar to

those already present in this basin. However, substantial changes in pollutant loads are anticipated in the area between Hartzog Road and U.S. 192 in this system.

Table 4.48. Existing Pollutant Loading Information for Lake Oliver.

Inflow Point	Area		Total Nitrogen (TN)		Ortho-Phosphorus (OP)		Total Phosphorus (TP)		Total Suspended Solids (TSS)		Biochemical Oxygen Demand (BOD)		Total Zinc (ZN)		Total Lead (PB)	
	(ac)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%
1	40.0	2.4	194.9	25.4	9.0	23.5	15.3	21.8	1,810.7	26.6	276.6	17.3	1.2	16.8	1.7	13.7
2	1,570.4	92.6	168.8	22.0	6.7	17.7	13.1	18.8	1,258.0	18.5	315.4	19.8	0.8	12.1	2.8	22.8
Areas adjacent to the lake shore	85.4	5.0	404.0	52.6	22.4	58.8	41.6	59.4	3,735.8	54.9	1,004.8	62.9	4.9	71.0	7.8	63.5
Total	1,695.8	100.0	767.7	100.0	38.1	100.0	70.0	100.0	6,804.4	100.0	1,596.7	100.0	6.9	100.0	12.3	100.0

Table 4.49. Existing Pollutant Loading Information for Lake Austin.

Inflow Point	Area		Total Nitrogen (TN)		Ortho-Phosphorus (OP)		Total Phosphorus (TP)		Total Suspended Solids (TSS)		Biochemical Oxygen Demand (BOD)		Total Zinc (ZN)		Total Lead (PB)	
	(ac)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%
1	17.8	15.0	55.8	10.1	1.7	5.8	3.9	6.8	445.6	8.5	99.4	7.1	0.2	3.4	1.0	8.9
Areas adjacent to the lake shore	100.8	85.0	497.5	89.9	28.3	94.2	53.6	93.2	4,814.7	91.5	1,304.9	92.9	7.2	96.6	10.6	91.1
Total	118.6	100.0	553.3	100.0	30.0	100.0	57.4	100.0	5,260.3	100.0	1,404.3	100.0	7.4	100.0	11.6	100.0

Table 4.50. Existing Pollutant Loading Information for Lake Mudd/Grass.

Inflow Point	Area		Total Nitrogen (TN)		Ortho-Phosphorus (OP)		Total Phosphorus (TP)		Total Suspended Solids (TSS)		Biochemical Oxygen Demand (BOD)		Total Zinc (ZN)		Total Lead (PB)	
	(ac)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%
1	13.9	1.3	16.0	1.3	2.2	2.1	3.0	1.8	597.5	2.6	33.2	1.1	0.0	0.5	0.0	0.2
2	36.1	3.4	199.3	15.7	27.3	25.7	37.4	22.5	7,297.5	31.7	403.7	13.6	0.2	1.9	0.2	0.9
3	803.0	76.1	175.8	13.9	19.6	18.5	27.6	16.6	4,886.3	21.2	356.5	12.0	0.1	1.5	0.6	3.4
4	11.9	1.1	54.3	4.3	5.7	5.4	8.3	5.0	1,653.9	7.2	99.0	3.3	0.1	0.7	0.3	1.6
Areas adjacent to the lake shore	190.3	18.0	821.4	64.8	51.2	48.3	90.1	54.1	8,593.0	37.3	2,081.9	70.0	9.1	95.5	16.3	93.8
Total	1,055.2	100.0	1,266.8	100.0	106.0	100.0	166.5	100.0	23,028.3	100.0	2,974.3	100.0	9.5	100.0	17.3	100.0

Table 4.51. Existing Pollutant Loading Information for Lake Rexford.

Inflow Point	Area		Total Nitrogen (TN)		Ortho-Phosphorus (OP)		Total Phosphorus (TP)		Total Suspended Solids (TSS)		Biochemical Oxygen Demand (BOD)		Total Zinc (ZN)		Total Lead (PB)	
	(ac)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%
1	58.9	29.2	637.1	48.6	43.6	55.2	78.7	54.5	2,468.2	28.1	1,538.1	51.3	11.1	57.4	1.9	16.2
2	9.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	68.7	34.0	288.6	22.0	12.8	16.2	24.1	16.7	2,537.1	28.9	483.0	16.1	2.9	14.9	4.4	37.1
Areas adjacent to the lake shore	64.6	32.0	385.3	29.4	22.6	28.6	41.5	28.8	3,771.2	43.0	975.5	32.6	5.4	27.7	5.5	46.7
Total	201.8	100.0	1,311.0	100.0	79.0	100.0	144.3	100.0	8,776.5	100.0	2,996.5	100.0	19.3	100.0	11.8	100.0

Table 4.52. Existing Pollutant Loading Information for Lake Gifford.

Inflow Point	Area		Total Nitrogen (TN)		Ortho-Phosphorus (OP)		Total Phosphorus (TP)		Total Suspended Solids (TSS)		Biochemical Oxygen Demand (BOD)		Total Zinc (ZN)		Total Lead (PB)	
	(ac)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%	(lb/yr)	%
1	19.1	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	53.3	25.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	7.1	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Areas adjacent to the lake shore	131.5	62.3	633.5	100.0	35.2	100.0	58.9	100.0	6,801.4	100.0	1,133.2	100.0	4.8	100.0	7.9	100.0
Total	211.0	100.0	633.5	100.0	35.2	100.0	58.9	100.0	6,801.4	100.0	1,133.2	100.0	4.8	100.0	7.9	100.0

Table 4.53. Existing Pollutant Loading Information for Lakes in the Southwest System.

System Designation	Lake Area (ac)	Contributing Area (ac)	Total Nitrogen (TN) (lb/yr)	Ortho-Phosphorus (OP) (lb/yr)	Total Phosphorus (TP) (lb/yr)	Total Suspended Solids (TSS) (lb/yr)	Biochemical Oxygen Demand (BOD) (lb/yr)	Total Zinc (ZN) (lb/yr)	Total Lead (PB) (lb/yr)
Lake Chapin	14.7	26.4	262.2	17.4	36.6	3,954.0	804.7	9.2	10.6
Lake Apache	8.7	19.0	184.2	12.3	25.8	2,815.5	561.5	6.6	7.7

Table 4.54. Relative Ranking of Pollutant Contributions to Lake Oliver by Inflow Point.

Inflow Point	Area Rank	TN Rank	OP Rank	TP Rank	TSS Rank	BOD Rank	Zn Rank	Pb Rank
1	3	2	2	2	2	3	2	3
2	1	3	3	3	3	2	3	2
Areas adjacent to the lake shore	2	1	1	1	1	1	1	1

Table 4.55. Relative Ranking of Pollutant Contributions to Lake Mudd by Inflow Point.

Inflow Point	Area Rank	TN Rank	OP Rank	TP Rank	TSS Rank	BOD Rank	Zn Rank	Pb Rank
1	4	5	5	5	5	5	5	5
2	3	2	2	2	2	2	2	4
3	1	3	3	3	3	3	3	2
4	5	4	4	4	4	4	4	3
Areas adjacent to the lake shore	2	1	1	1	1	1	1	1

Table 4.56. Relative Ranking of Pollutant Contributions to Lake Rexford by Inflow Point.

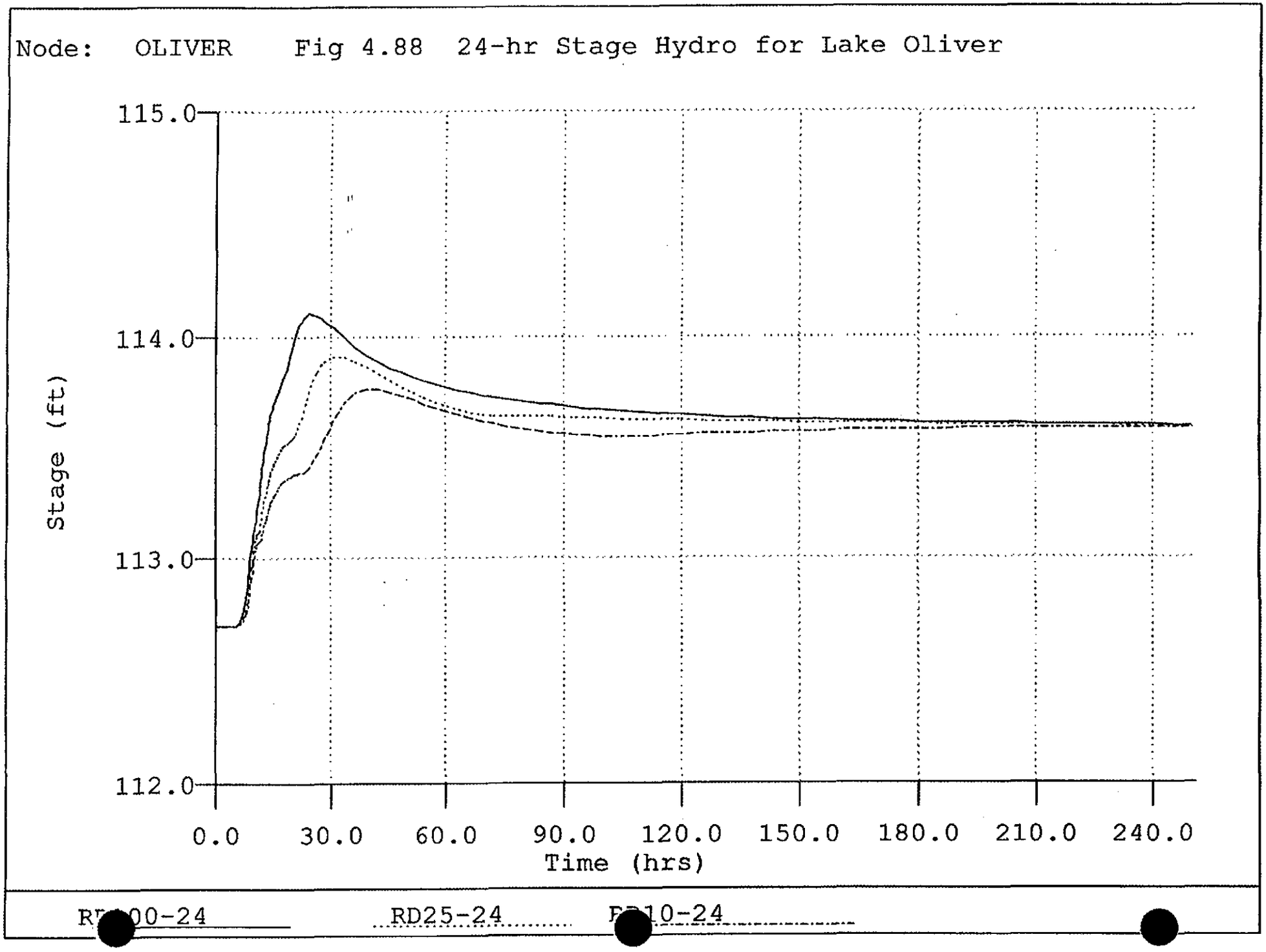
Inflow Point	Area Rank	TN Rank	OP Rank	TP Rank	TSS Rank	BOD Rank	Zn Rank	Pb Rank
1	3	1	1	1	3	1	1	3
2	4	4	4	4	4	4	4	4
3	1	3	3	3	2	3	3	2
Areas adjacent to the lake shore	2	2	2	2	1	2	2	1

Table 4.57. Existing and Future Pollutant Loading Comparison for Lake Rexford.

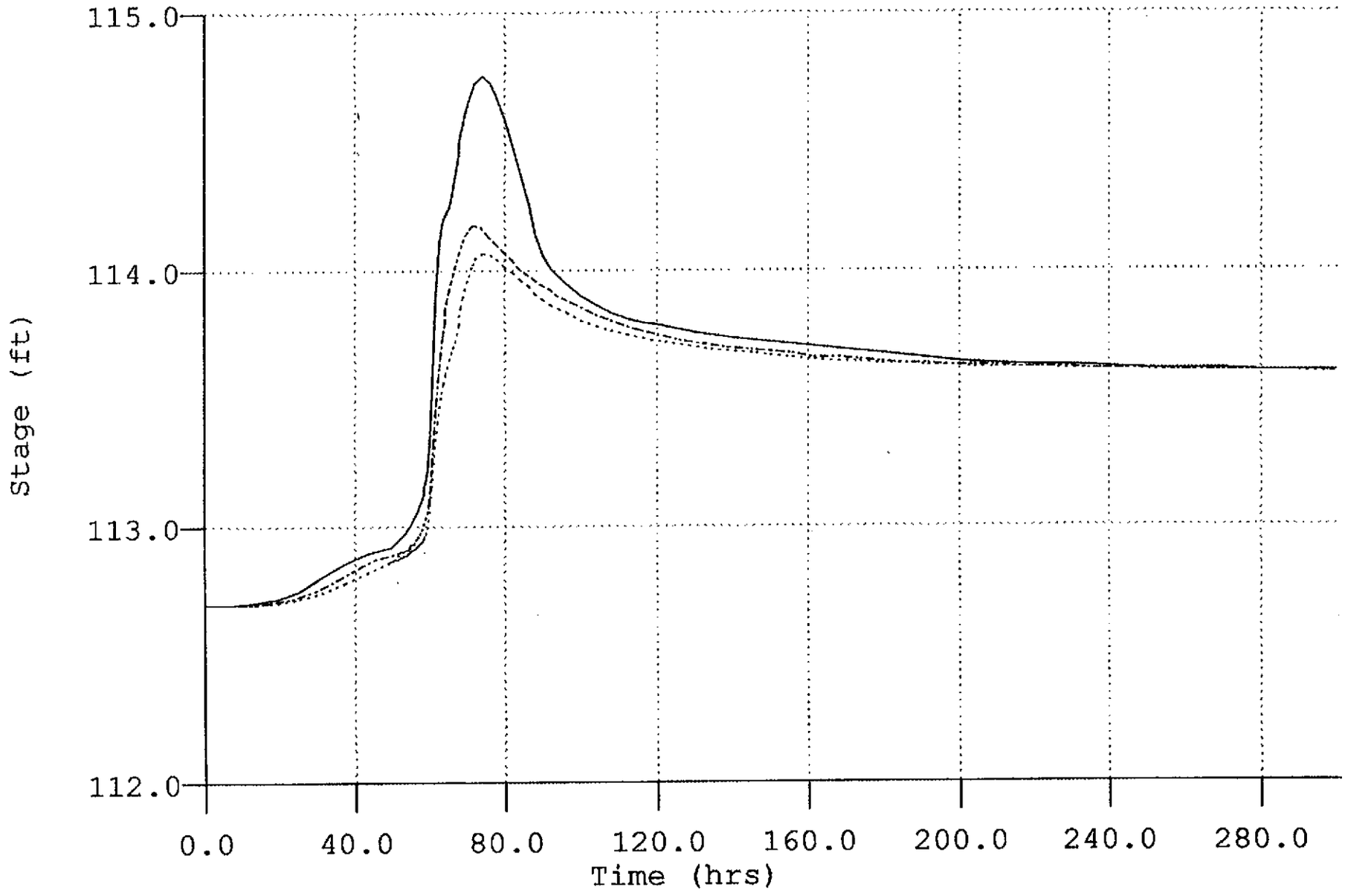
Pollutant	Existing Load (lb/yr)	Future Load (lb/yr)	% Change
Total Nitrogen	1311.0	1745.1	33.1
Ortho-Phosphorus	79.0	63.7	-19.4
Total Phosphorus	144.3	119.8	-16.9
Total Suspended Solids	8776.5	10651.8	21.4
Biochemical Oxygen Demand	2996.5	4560.6	52.2
Total Zinc	19.3	20.2	4.5
Total Lead	11.8	28.4	141.6

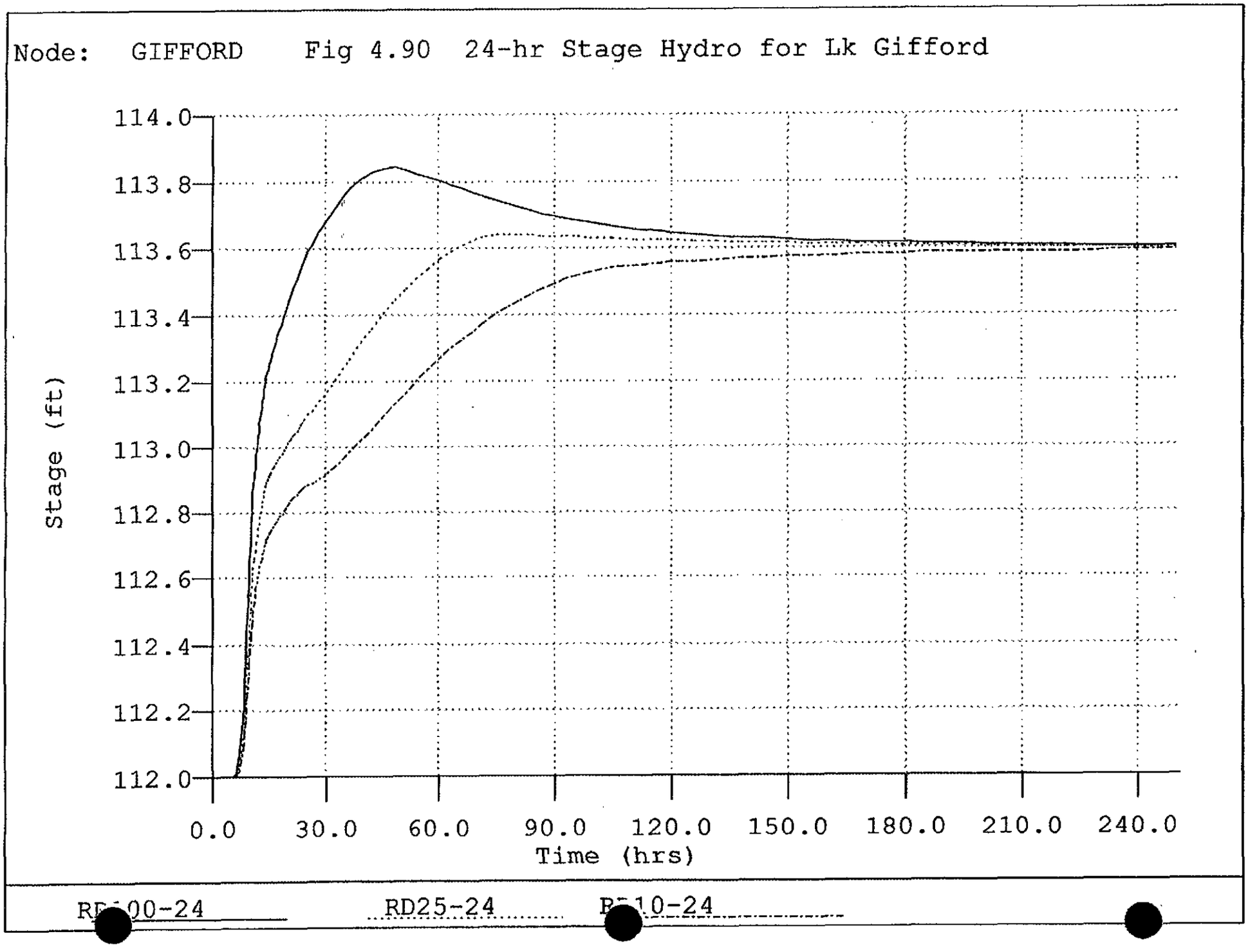
Table 4.58. Existing and Future Pollutant Loading Comparison for Lake Mudd/Grass.

Pollutant	Existing Load (lb/yr)	Future Load (lb/yr)	% Change
Total Nitrogen	1266.8	1327.3	4.8
Ortho-Phosphorus	106.0	118.9	12.2
Total Phosphorus	166.5	176.5	6.0
Total Suspended Solids	23028.3	26485.2	15.0
Biochemical Oxygen Demand	2974.3	4776.6	60.6
Total Zinc	9.5	31.9	234.7
Total Lead	17.3	44.2	154.9

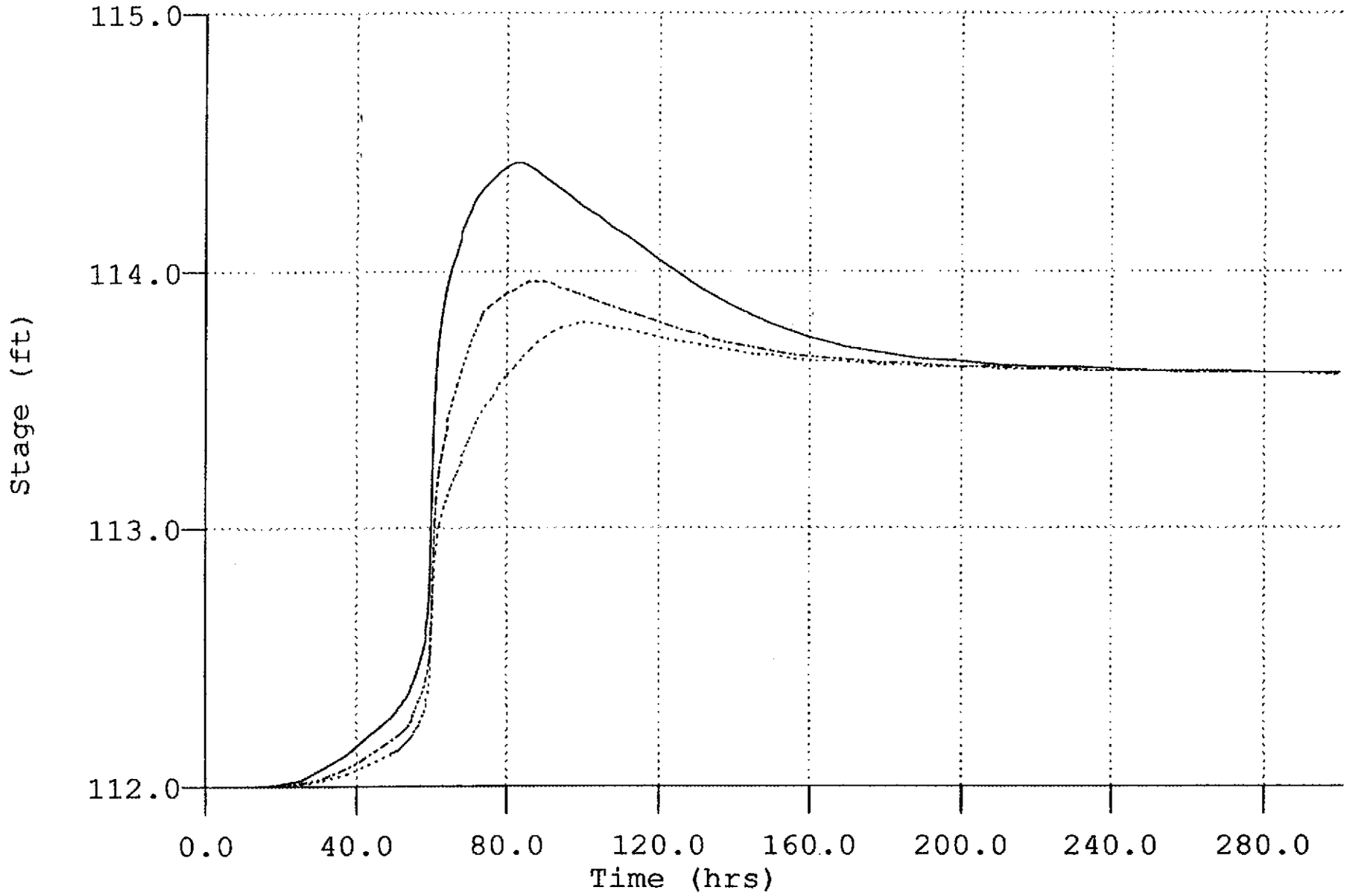

Node: OLIVER Fig 4.88 24-hr Stage Hydro for Lake Oliver
115.0
114.0
113.0
112.0
Stage (ft)
0.0
30.0
60.0
90.0
120.0
150.0
180.0
210.0
240.0
Time (hrs)
RD100-24
RD25-24
RD10-24

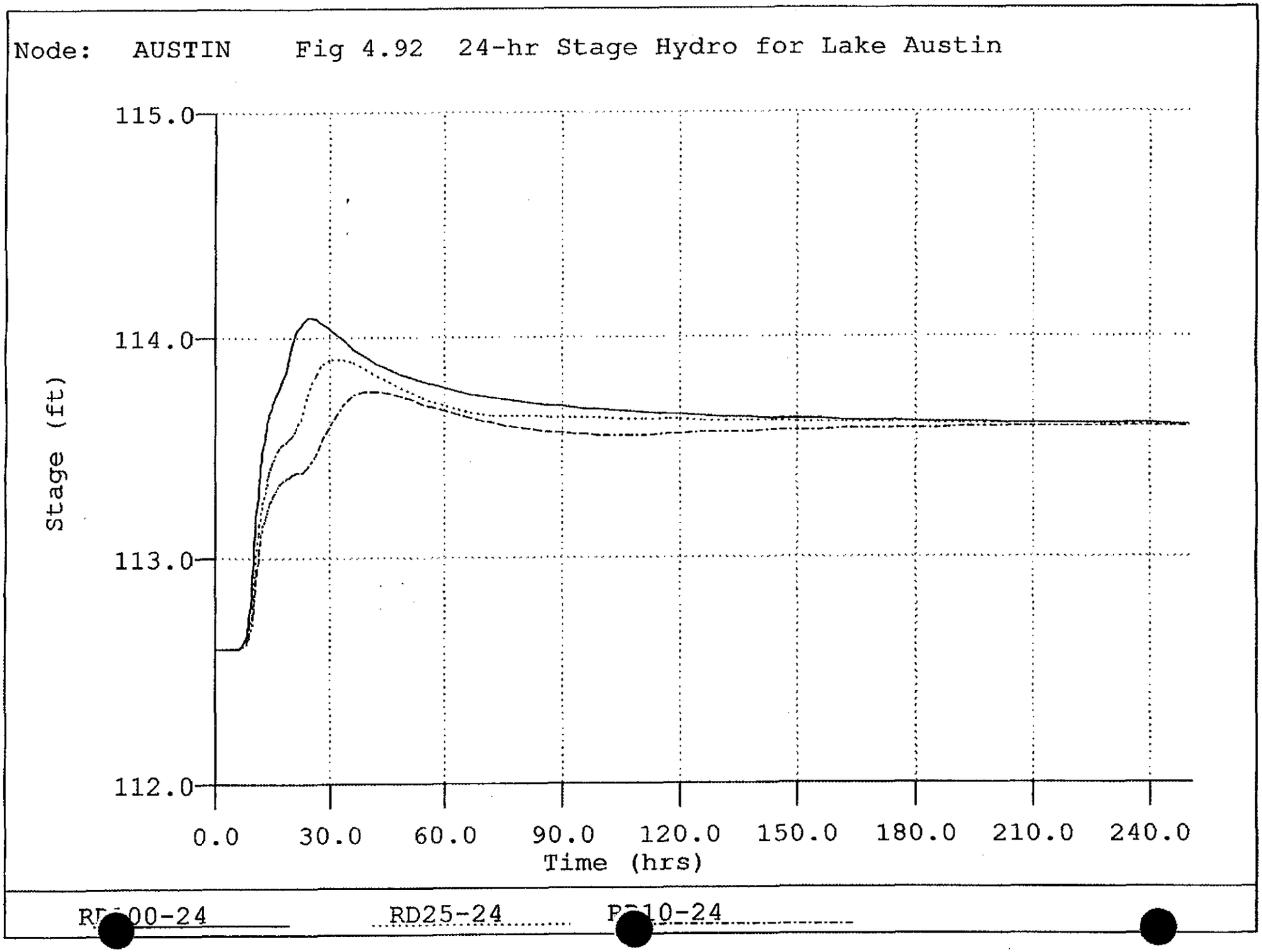
Node: OLIVER Fig 4.89 72-hr Stage Hydro for Lake Oliver



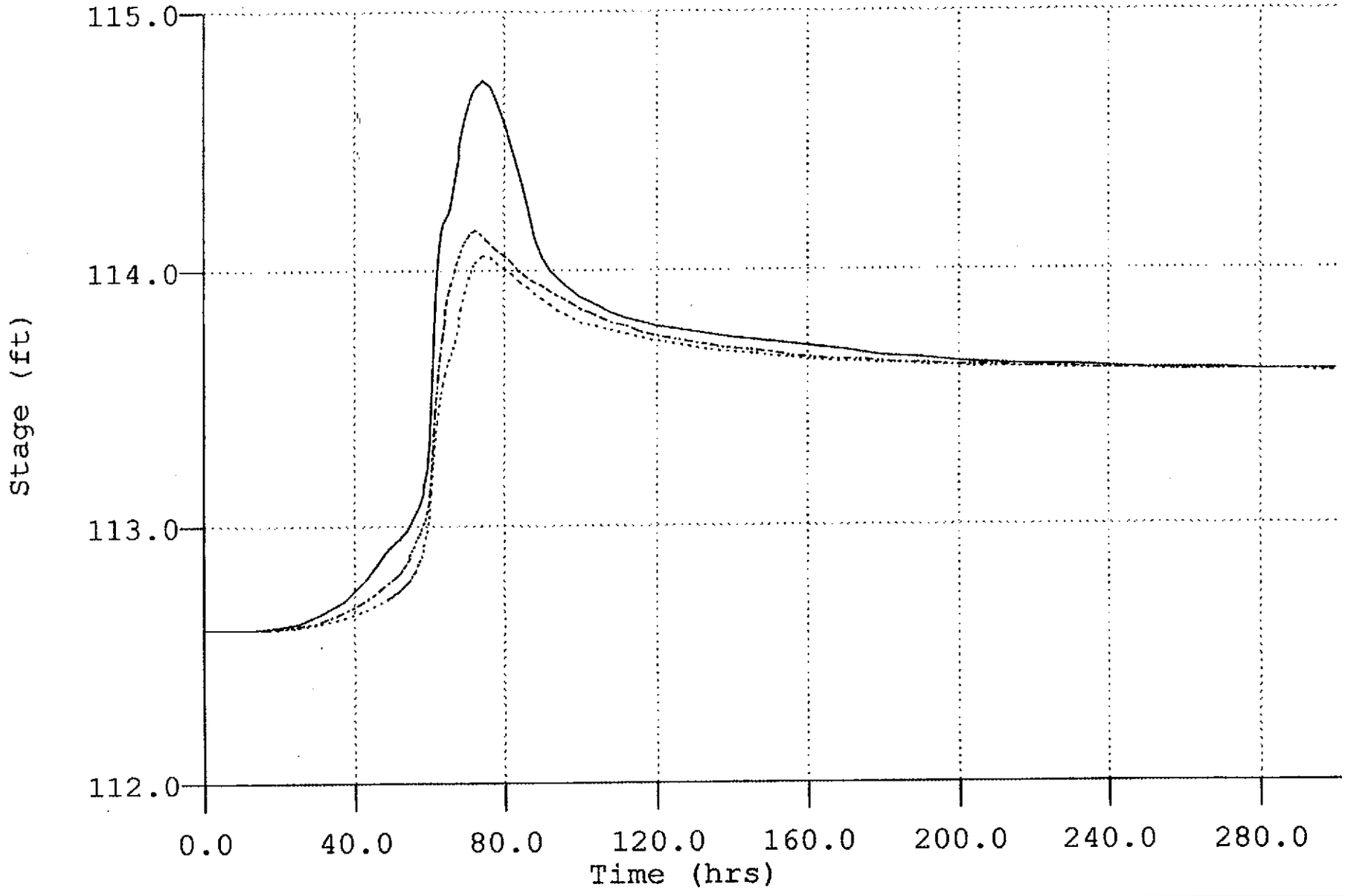

Node: GIFFORD Fig 4.90 24-hr Stage Hydro for Lk Gifford
114.0
113.8
113.6
113.4
113.2
113.0
112.8
112.6
112.4
112.2
112.0
Stage (ft)
0.0
30.0
60.0
90.0
120.0
150.0
180.0
210.0
240.0
Time (hrs)
RD100-24
RD25-24
RD10-24

Node: GIFFORD Fig 4.91 72-hr Stage Hydro for Lk Gifford

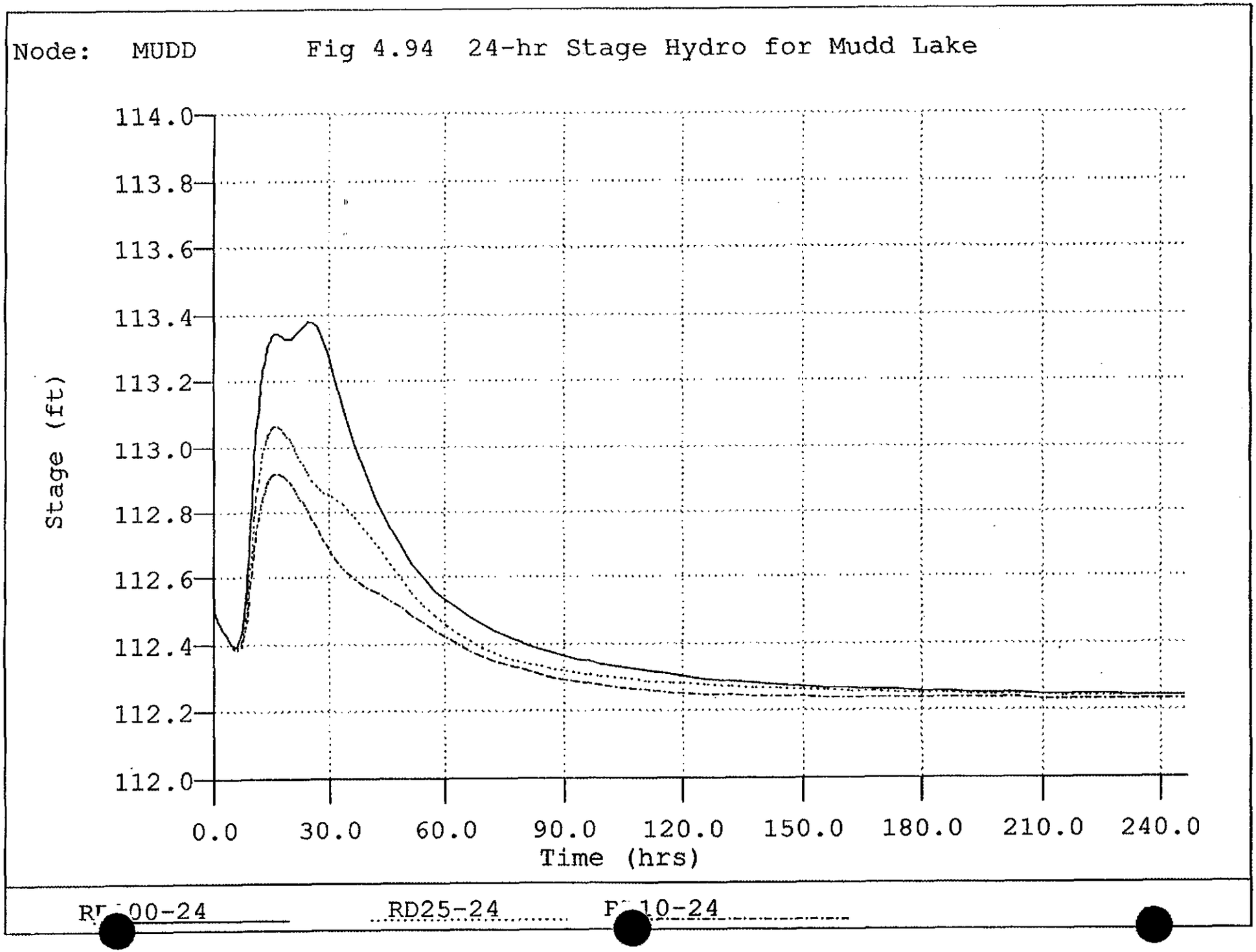



Node: AUSTIN Fig 4.92 24-hr Stage Hydro for Lake Austin
115.0
114.0
113.0
112.0
Stage (ft)
0.0
30.0
60.0
90.0
120.0
150.0
180.0
210.0
240.0
Time (hrs)
RD100-24
RD25-24
RD10-24

Node: AUSTIN Fig 4.93 72-hr Stage Hydro for Lake Austin

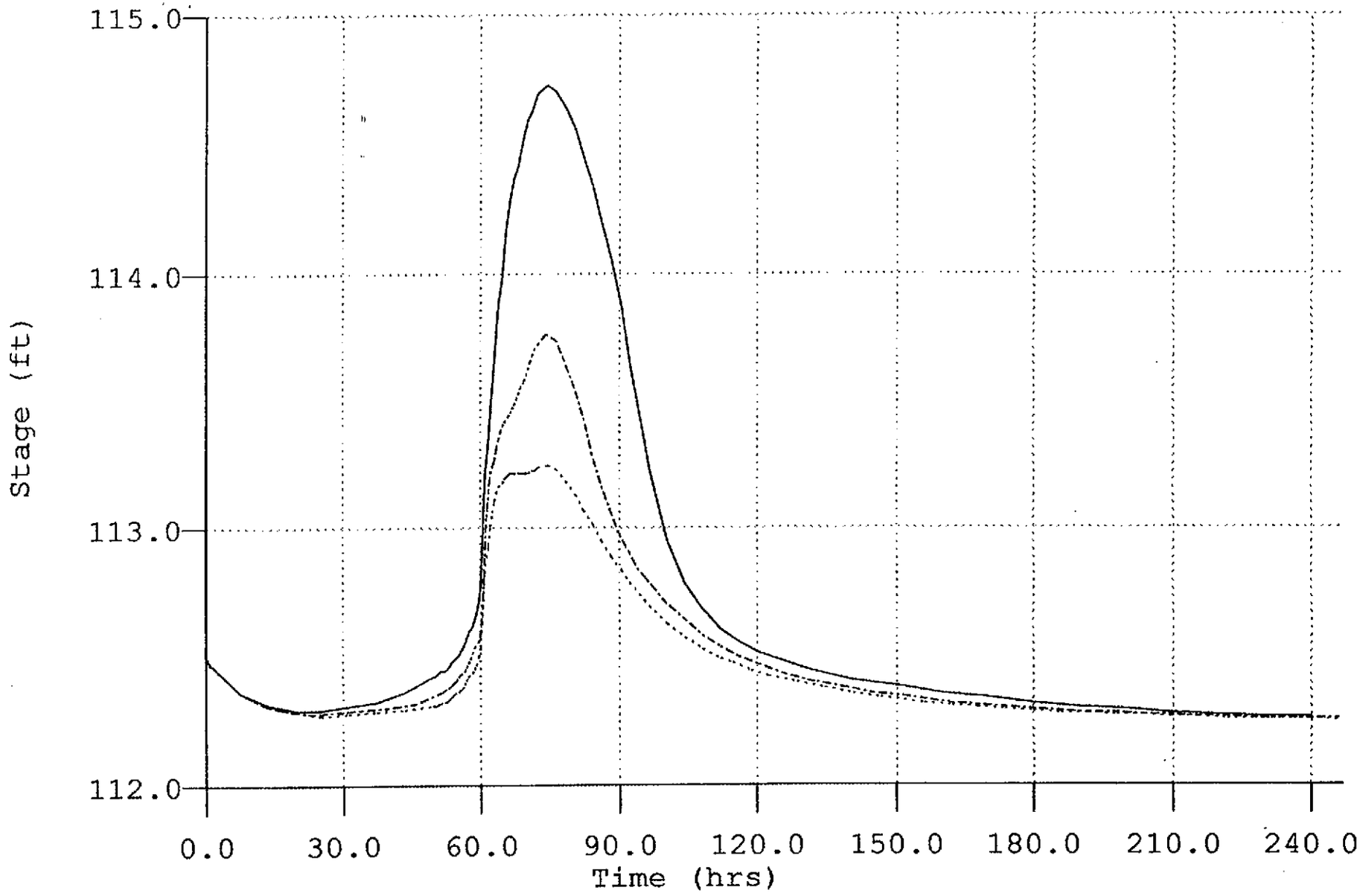


Node: MUDD Fig 4.94 24-hr Stage Hydro for Mudd Lake

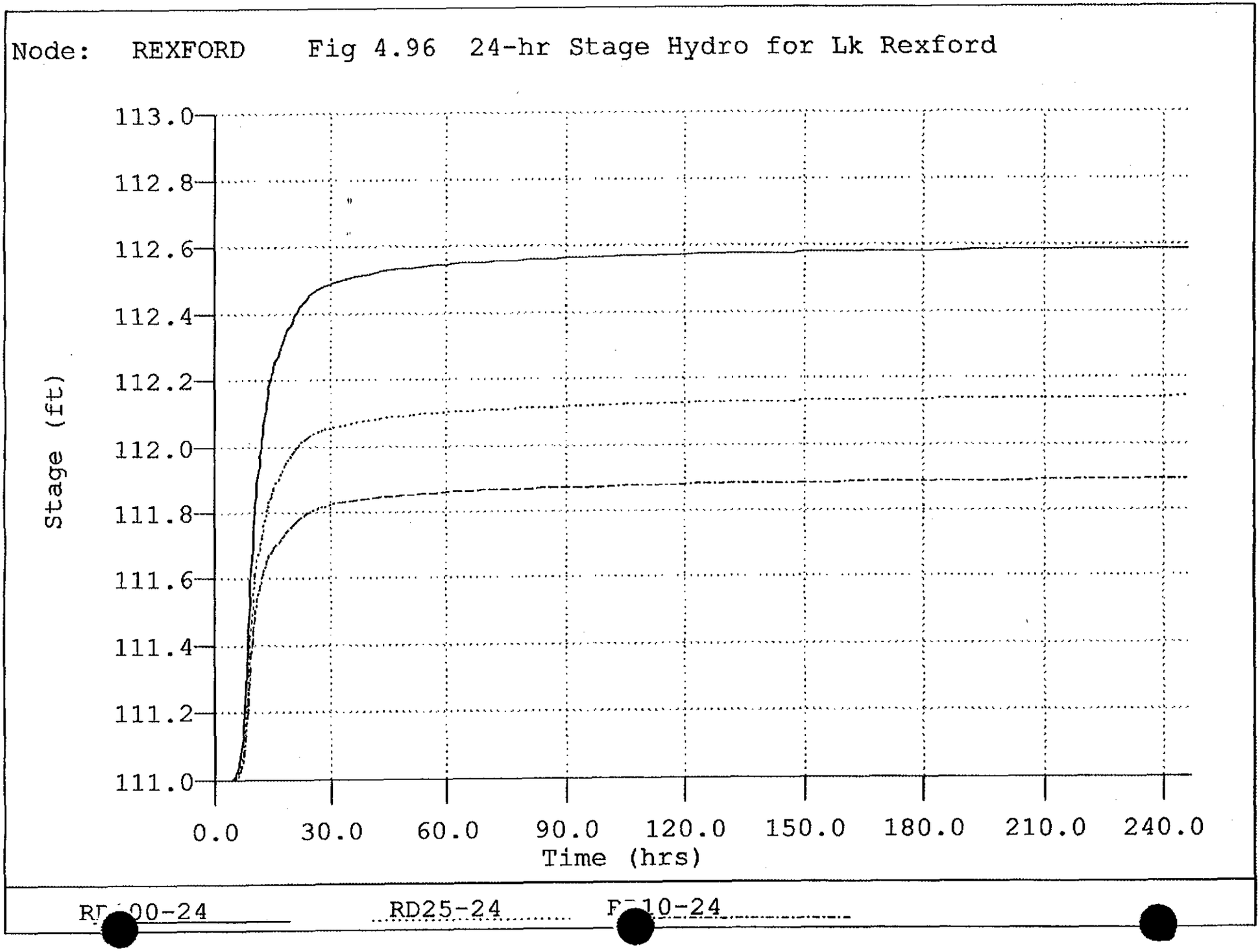


Node: MUDD

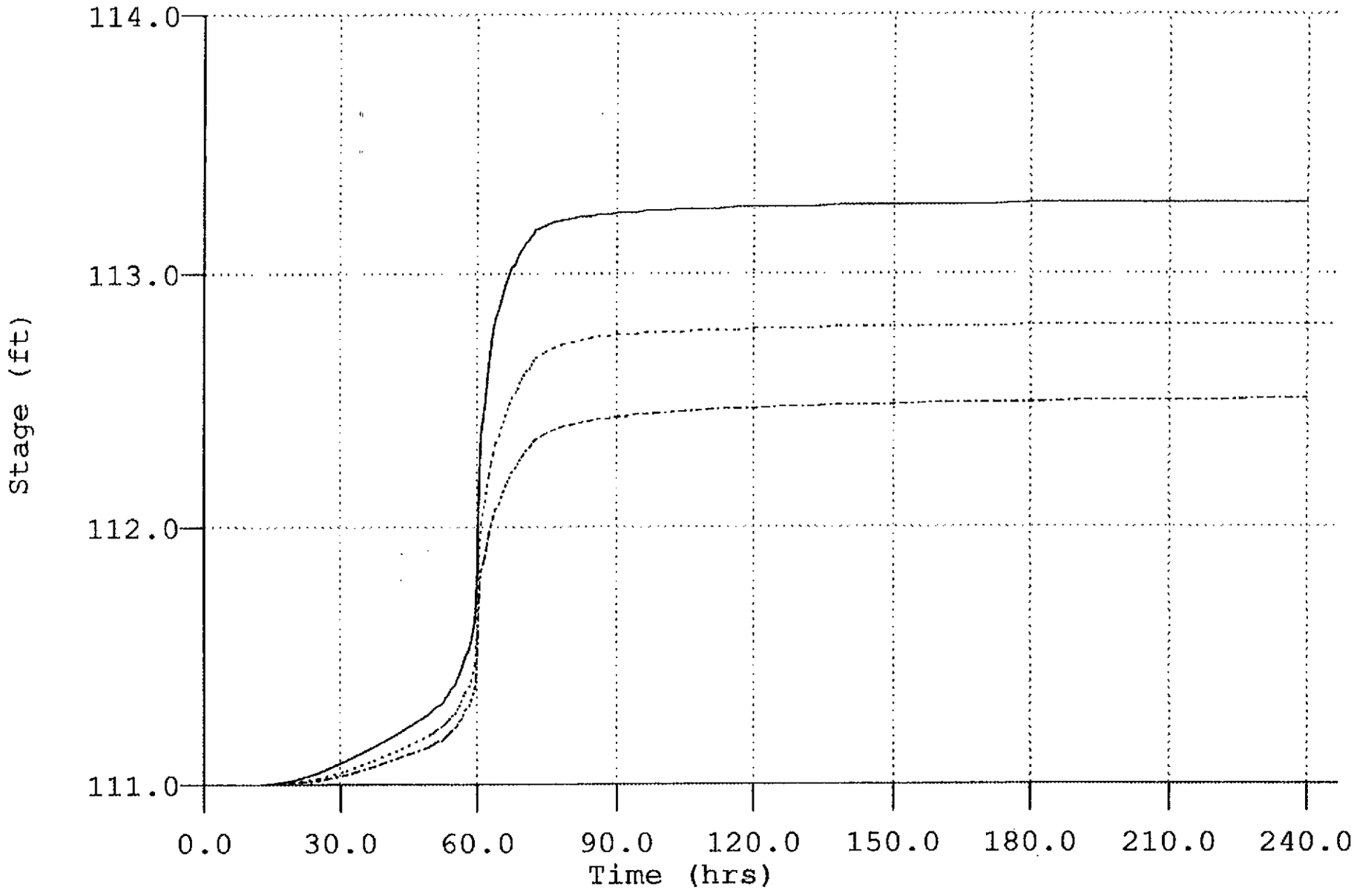
Fig 4.95 72-hr Stage Hydro for Mudd Lake

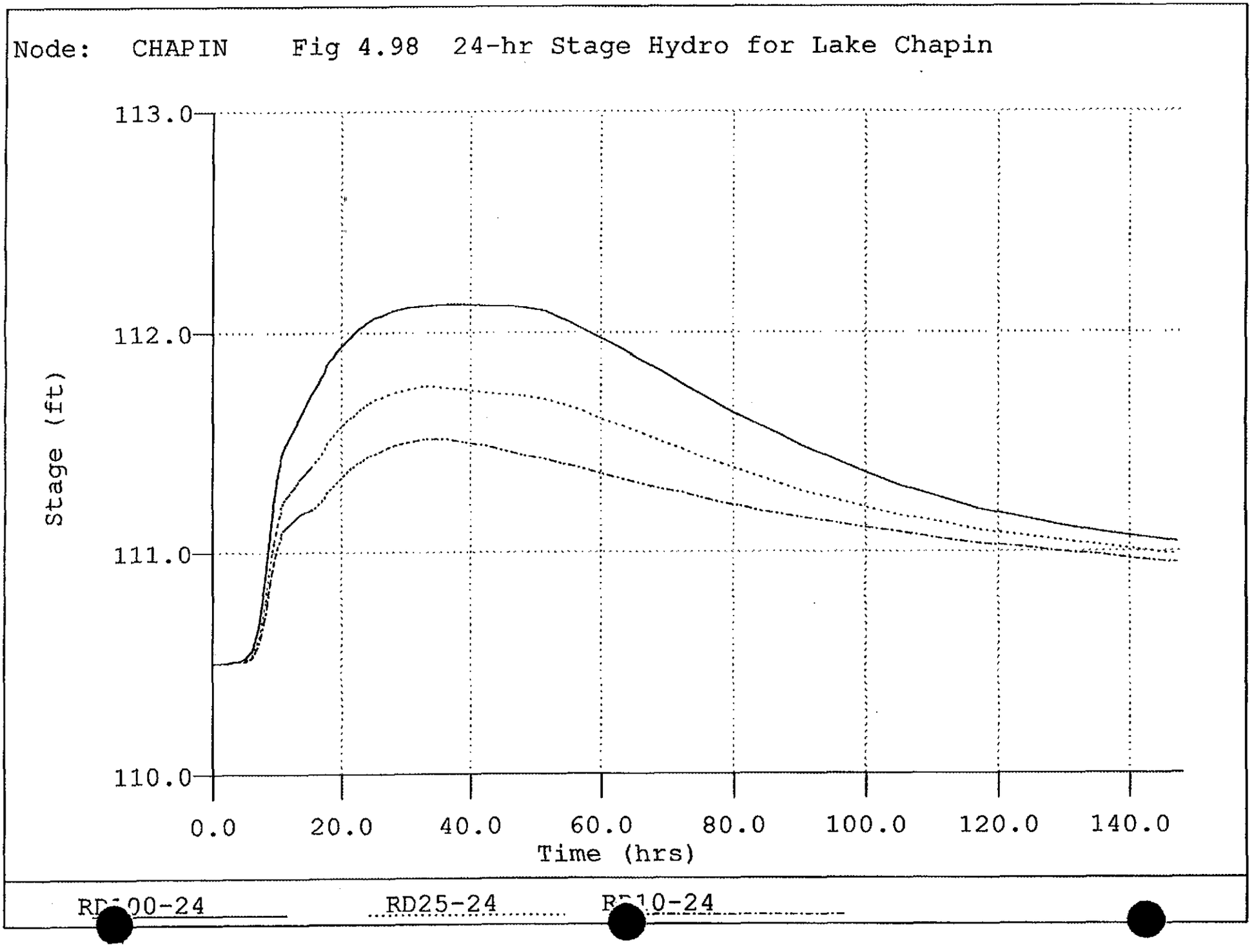


Node: REXFORD Fig 4.96 24-hr Stage Hydro for Lk Rexford

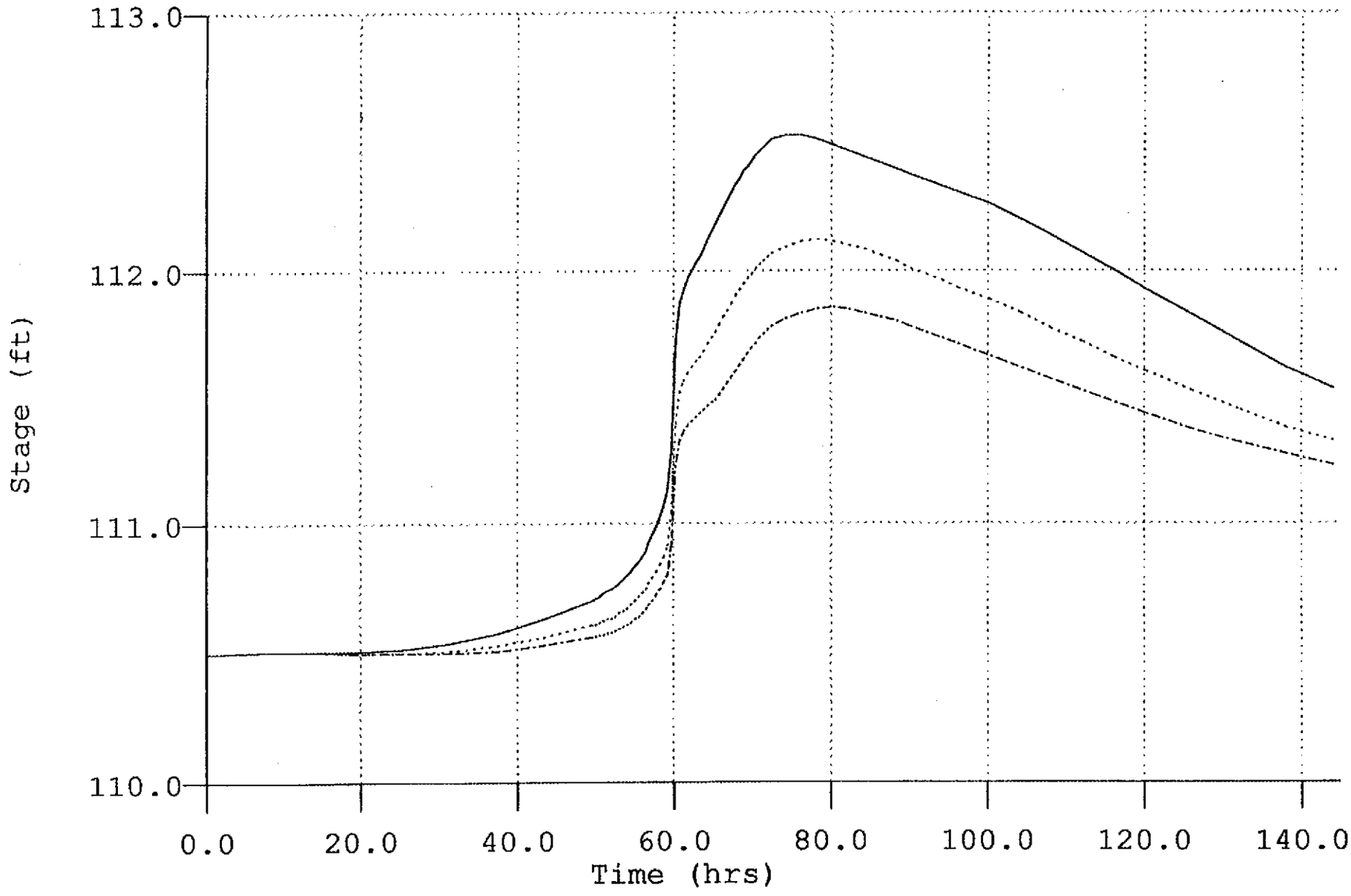


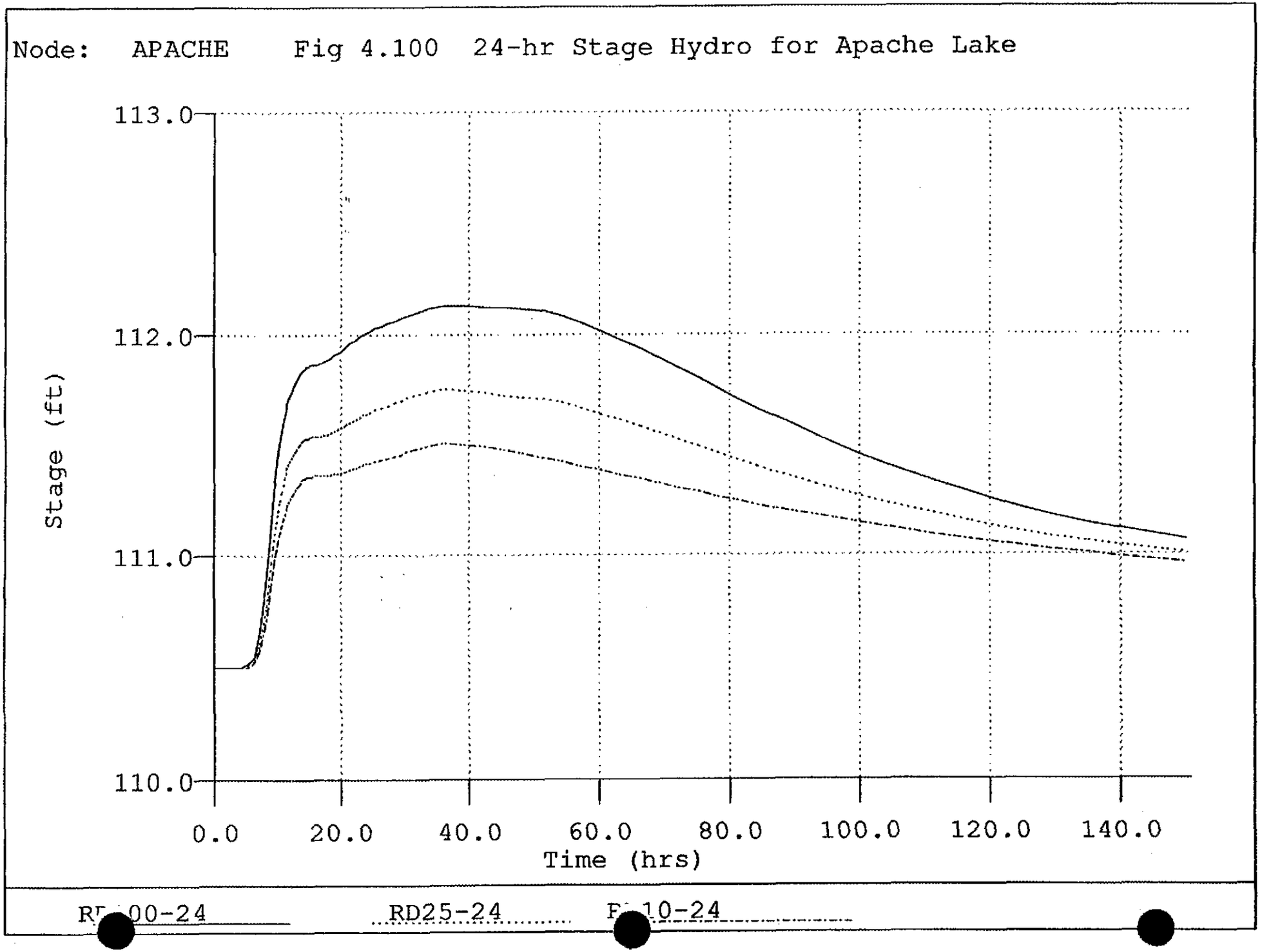
Node: REXFORD Fig 4.97 72-hr Stage Hydro for Lk Rexford




Node: CHAPIN Fig 4.98 24-hr Stage Hydro for Lake Chapin
113.0
112.0
111.0
110.0
Stage (ft)
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Time (hrs)
RD100-24
RD25-24
RD10-24

Node: CHAPIN Fig 4.99 72-hr Stage Hydro for Lake Chapin




Node: APACHE Fig 4.100 24-hr Stage Hydro for Apache Lake
113.0
112.0
111.0
110.0
Stage (ft)
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Time (hrs)
RD00-24
RD25-24
RD10-24

Node: APACHE Fig 4.101 72-hr Stage Hydro for Apache Lake

