FINAL

POND SITING REPORT

Florida Department of Transportation

District One

SR 72 (Clark Road) PD&E Study

From East of I-75 to Lorraine Road

Sarasota County, Florida

Financial Management Number: 444634-1

ETDM Number: 14441

Date: October 10, 2024

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by FHWA and FDOT.

PROFESSIONAL ENGINEER CERTIFICATION

POND SITING REPORT

Project: SR 72 (Clark Road) PD&E Study

ETDM Number: 14441

Financial Project ID: 444634-1-22-01

Federal Aid Project Number: N/A

This pond siting report contains engineering information that fulfills the purpose and need for SR 72 (Clark Road) Project Development & Environment Study from East of I-75 to Lorraine Road in Sarasota County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Kimley-Horn and Associates Inc., and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice for this project.

Victor Gallo 2025.04.08 17:19:43 -04'00'

This item has been digitally signed and sealed by Victor H. Gallo, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) Study along SR 72 in Sarasota County to evaluate roadway capacity and safety improvements. The PD&E study limits extend approximately 3 miles from east of I-75 to Lorraine Road. The project corridor is characterized by commercial and residential development comprised of mobile home parks, recreational parks, a plant nursery, and reclaimed recreational properties (historical golf courses).

SR 72 is currently classified by FDOT as an urban minor arterial within the study project area. The proposed typical section consists of a 4-lane divided highway with a 22-foot median and 12-foot shared-use paths along both sides of the road. The existing roadside stormwater ditches would be replaced by a closed drainage system with curb and gutter.

To reduce the right-of-way needs for off-site ponds and to address the treatment and attenuation for this project, an Environmental Look-Around (ELA) meeting was conducted. The purpose of this ELA meeting was to coordinate with all stakeholders and determine a regional approach that addresses water quality for not only the SR 72 (Clark Road) study, but also the surrounding area.

The project traverses two Waterbody IDs (WBIDs), the Phillippi Creek Tributary (WBID 1966) and Cow Pen Slough (WBID 1924). Both of these are located in the Sarasota Bay Watershed and are impaired for nutrients. The project limits can be divided into 4 basins with 2-3 potential pond options in each. The pond options were sited and evaluated based on hydrologic and hydraulic factors such as existing ground elevation, soil types, estimated seasonal high water (ESHW), stormwater conveyance feasibility, allowable hydraulic grade line (HGL), environmental resource impacts, floodplain impacts, estimated right-of-way acquisition, impacts to cultural resources, and hazardous materials contamination.

Based on preliminary stormwater management needs, the ponds were sized using a combination of Southwest Florida Water Management District (SWFWMD) presumptive criteria, nutrient loading criteria for Impaired Water Bodies, FDOT stormwater management standards, and practical design criteria. The proposed stormwater management facilities were designed to treat one inch (1") of runoff from the contributing basin area and to ensure that post development discharge rates are less than pre-development rates for the 25-year/24-hour design storm event. The recommended pond sites are shown below.

Basin	Recommended Pond Alternative
Basin 1	Pond 1A
Basin 2	Pond 2B
Basin 3	Pond 3B
Basin 4	Pond 4C

Additional coordination and concurrence will be needed to ensure NEPA compliance with the use of the Twin Lakes Park joint-use pond (Pond 1A), as it is a protected recreational Section 4(f) resource.

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1.0 Introduction

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) Study along SR 72 (Clark Road) in Sarasota County to evaluate roadway capacity and safety improvements. The PD&E study limits extend approximately 3 miles from east of I-75 to Lorraine Road within unincorporated Sarasota County (**Figure 1**). The purpose of this project is to improve the operational capacity of SR 72 (Clark Road) from east of I-75 to Lorraine Road to accommodate future travel demand projected as a result of area-wide population and employment growth. Other goals of the project include enhancing safety conditions and accommodating multimodal activity. The PD&E study will evaluate the benefits, costs and impacts of widening this portion of SR 72 from a two-lane undivided roadway to a four-lane divided roadway. In keeping with the objectives of the Sarasota/Manatee Metropolitan Planning Organization (MPO), the proposed project may include shared-use paths on both sides of the roadway to enhance bicycle and pedestrian mobility.

The existing roadway right-of-way is generally 100 feet in width; intermittent wider and narrower sections exist along the length of the corridor. Additional right-of-way is anticipated to be acquired to accommodate the proposed improvements.

The primary vertical datum in this report and in the calculations is the North American Vertical Datum of 1988 (NAVD 88).

Figure 1: Project Location Map

2.0 Project Summary

The purpose of this project is to improve the operational capacity of the roadway, enhance safety conditions, and accommodate multimodal activity by widening the roadway and adding shared-use paths on both sides of the roadway. The existing roadside stormwater ditches will be replaced by a closed drainage system with curb and gutter. The project study limits extend approximately 3 miles from east of I-75 to Lorraine Road and are shown on the Location Map located in **Appendix A**.

This report will investigate stormwater management treatment and attenuation options and identify alternate sites within each of the four proposed basins. Sites will be evaluated based on hydrologic and hydraulic factors such as existing ground elevation, soil types, estimated seasonal high water (ESHW), stormwater conveyance feasibility, allowable hydraulic grade line (HGL), environmental resource impacts including wetlands and threatened or endangered species, floodplain impacts, major utility conflict potential, estimated right-of-way acquisition, impacts to cultural resources, and hazardous materials contamination. The project is located within two sub-basins of the Sarasota Bay Watershed, Phillippi Creek Tributary (WBID 1966) and Cow Pen Slough (WBID 1924). Both of these waterbodies are impaired for nutrients. An existing drainage map is included in **Appendix A**.

2.1 Existing Typical Section

The existing typical section of this roadway is a 2-lane undivided highway with 5-foot bike lanes on both flushed shoulders. Roadway run-off is collected with an open drainage system, utilizing swales to convey run-off to one of six outfalls located within the project limits. See **Figure 2** below for the Existing Typical Section of SR 72.

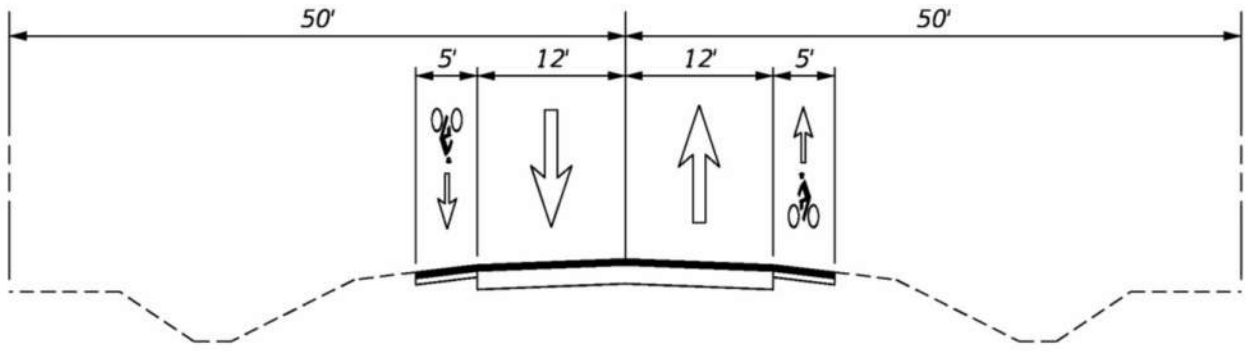


Figure 2: Existing Typical Section

2.2 Proposed Typical Section

The proposed typical section was developed in consideration of input from local agencies and public comments received at the public meetings. The proposed typical section includes providing a 4-lane divided highway with a 22-foot median and 12-foot shared-use paths along both sides of the road. The existing roadside stormwater ditches would be replaced by a closed drainage system with curb and gutter. See **Figure 3** below for the Proposed Typical Section of SR 72.

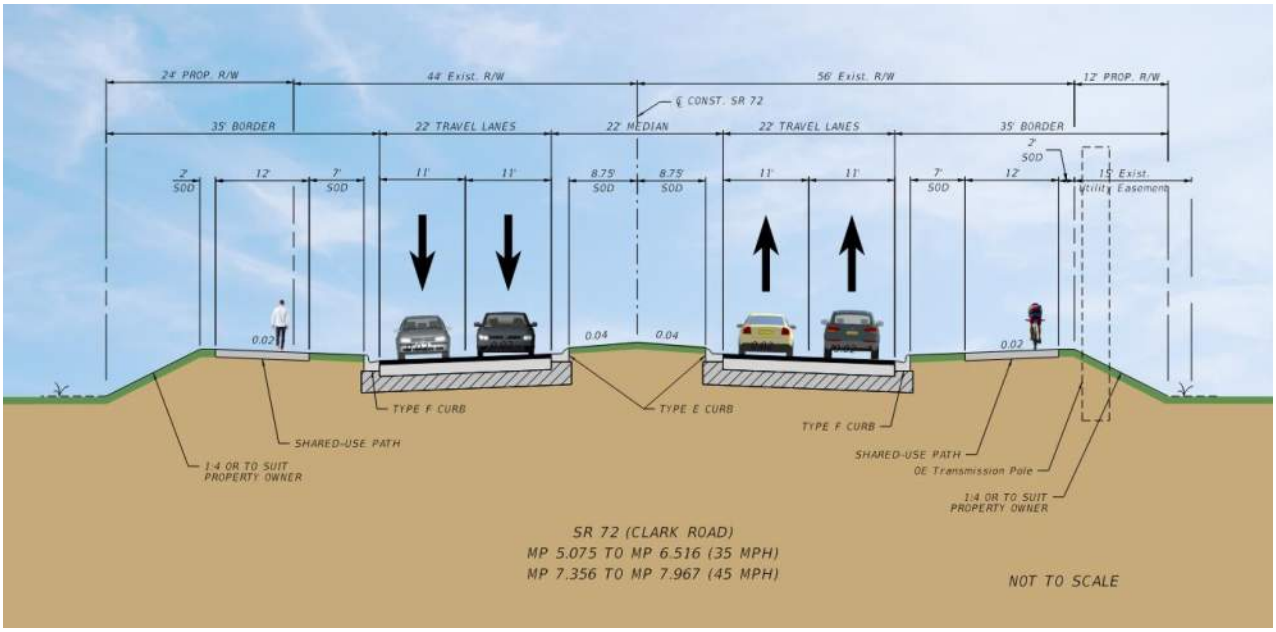


Figure 3: Proposed Typical Section

3.0 Design Criteria

The primary available stormwater management treatment method is wet detention due to the high stages of the Seasonal High Groundwater Table (SHGWT). The design criteria for the ponds consists of a combination of Southwest Florida Water Management District (SWFWMD) presumptive criteria, nutrient loading criteria for Impaired Water Bodies, FDOT stormwater management standards, and practical design criteria. Water treatment and attenuation requirements will comply with the guidelines as defined in Chapter 62-330 of the Florida Administration Code (F.A.C) and the SWFWMD ERP manual.

3.1 Water Quality

Treatment will be provided for one inch (1") of runoff from the contributing area. The wet detention systems are designed to include a minimum of 35 percent littoral zone. An outfall control structure shall be designed to drawdown a maximum of one-half inch (0.5") of the detention volume in 24 hours.

The project traverses two WBIDs, the Phillippi Creek Tributary (WBID 1966) and Cow Pen Slough (WBID 1924), which are both located in the Sarasota Bay Watershed. The Phillippi Creek Tributary is impaired for Escherichia Coli, macrophytes, and Total Nitrogen. Cow Pen Slough is impaired for macrophytes.

3.2 Water Quantity

The SWFWMD requires that the post development peak discharge shall be at or below pre-development peak discharge for the 25-year/24-hour storm event. The proposed stormwater management facilities were designed to ensure post development discharge rates are less than pre-development rates for the design storm.

3.3 Detention Pond Facilities Configuration

The proposed pond will include a 15-foot minimum maintenance berm width, minimum 1:4 (Vertical:Horizontal) for pond side slopes and tie up/down slopes to existing ground, and a minimum 1-foot freeboard from the inside maintenance berm to the Peak Design Stage. The littoral area shall be shallower than 6 feet as measured from below the control elevation. The minimum shallow, littoral area shall be no deeper than 3.5 feet below the design overflow elevation and 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. The SWFWMD states that the best practice for wet detention water quality treatment systems is to be designed with a 100-foot minimum width for linear areas in excess of 200 feet in length.

4.0 Data Collection

The design team collected and reviewed data from the following sources:

- FDOT Drainage Manual, January 2024
- FDOT Drainage Design Guide, January 2024
- Environmental Resource Permit Information Manual, 2014
- Environmental Resource Permit Applicant's Handbook Volume I, December 22, 2020
- Environmental Resource Permit Applicant's Handbook Volume II, June 1, 2018
- Federal Emergency Management Agency (FEMA), Panel Nos. 12115C0164G, 12115C0168G, and 12115C0169G dated March 27, 2024
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Sarasota County, Florida, 2021
- 1-foot contours from National Oceanic and Atmospheric Administration (NOAA) LiDAR for Sarasota County, 2007
- SWFWMD Environmental Resource Permitting Website

- Comprehensive Verified List of Impaired Water Bodies, Florida Department of Environmental Protection (FDEP), November 2022
- Sarasota County Property Appraiser's Website (GIS parcel lines), 2023
- Sarasota County ICPR4 watershed models for Phillippi Creek and Dona Bay (Sarasota County FTP site), 2022
- National Wetland Inventory (NWI) from U.S. Fish and Wildlife Service (USFWS)
- Cultural Resource Assessment Desktop Analysis by Archaeological Consultants, Inc., October 2022
- Preliminary Contamination Risk Ratings (CRRs) by Geotechnical and Environmental Consultants, Inc., September, 2022
- Audubon Center for Birds of Prey Website
- Sarasota County North County Athletic Facilities Master Plan

5.0 Existing Drainage Conditions

5.1 Topography & Hydrologic Features

The topography of the project area is relatively flat with elevations ranging from a high of 36 feet to a low of 25 feet NAVD 88. There are six (6) existing cross drains within the study limits of SR 72 allowing for conveyance of offsite and onsite runoff to the Phillippi Creek (Basins 1 and 2) and to Cow Pen Slough Canal (Basins 3 and 4). The size and geometry of the cross drains were obtained from existing SWFWMD permits and the FDOT Straight Line Diagram of Road Inventory for SR 72 as well as during field reconnaissance. Please refer to **Table 1** for a summary of existing cross drains. A Topographic Map is included in **Appendix A** and see **Appendix B** for the FDOT Straight Line Diagram and SWFWMD ERP 40200.001 Permitted Plans for SR 72.

Table 1: Summary of Existing Cross Drains

Structure Number	Basin	Approx. Station	Description
CD-01	Basin 1	305+00	Double 42" Pipe
CD-02	Basin 1	322+10	Double 30" Pipe
CD-03	Basin 2	345+10	Double 36" Pipe
CD-04	Basin 3	398+36	Single 24" Pipe
CD-05	Basin 4	440+00	Single 30" Pipe
CD-06	Basin 4	455+11	Double 30" Pipe

5.2 Soils Data & Geotechnical Features

The project traverses several different soil types according to the Natural Resource Conservation Service (NRCS) Soil Survey for Sarasota County. Most of the soils have a hydrologic soil group

(HSG) of A/D or B/D and relatively high SHGWT elevations. Refer to **Table 2** for a summary of the predominant soil types found along the project and **Appendix A** for a Soils Map.

Table 2: Summary of Predominant Soil Types

NRCS Map Unit	Soil Type	HSG	Depth to Water Table (ft)	Approximate Percentage of Area
10	EauGallie, Myakka fine sands	B/D	0.5 - 1.5	10.0%
22	Holopaw fine sand, frequently ponded	A/D	0	3.2%
30	Ona fine sand	B/D	0.5 - 1.5	3.1%
51	Bradenton fine sand- Urban land complex	B/D	0.25 - 1.5	1.0%
55	EauGallie-Myakka fine sands- Urban land complex	B/D	0.5 - 1.5	39.2%
62	Gator-Gator drained mucks, ponded-Urban land complex	C/D	0 - 0.5	1.0%
63	Holopaw fine sand- Urban land complex	A/D	0	17.4%
67	Ona Fine Sand- Urban land complex	B/D	0.5 - 1.5	21.0%
69	Pineda fine sand- Urban land complex	A/D	0.5 - 1.5	0.5%
99	Water	-	0	3.6%

5.3 Basins

There are four existing roadway basins within project limits. These basins were delineated based on Sarasota County ICPR4 models for Phillippi Creek and Cow Pen Slough / Dona Bay, obtained from the Sarasota County FTP site; WBID Maps from FDEP; and 1-foot NOAA LiDAR contours. See **Table 3** for the summary of existing drainage basins. A legacy drainage map for the beginning of the project study limits provided by FDOT is included in **Appendix A**.

Table 3: Summary of Existing Drainage Basins

Basin Name	From Station	To Station	Approx. Outfall Location(s)
Basin 1	298+40	331+40	305+00 and 322+10
Basin 2	331+40	378+20	345+10
Basin 3	378+20	418+50	416+50
Basin 4	418+50	458+00	440+00 and 455+11

Basin 1 spans from the beginning of the project to the intersection of SR 72 with Ibis Street and Talon Boulevard. Roadway runoff is collected and conveyed in swales to one of two existing

outfalls in this basin. The first outfall is located at approximately Station 305+00 and the second one is located at approximately Station 322+10. Both of these outfalls flow north via riverines and connect before ultimately outfalling to the Phillippi Creek.

Basin 2 is from the intersection of SR 72 with Ibis Street and Talon Boulevard to just east of the intersection of SR 72 with Proctor Road and Dove Avenue. Swales along both sides of the roadway collect and convey roadway runoff to the basin outfall. Basin 2 outfalls north to the Phillippi Creek via the swale located to the east of Red Hawk Reserve neighborhood at approximately Station 345+10.

Basin 3 begins just east of the intersection of SR 72 with Proctor Road and Dove Avenue and spans to the intersection of SR 72 with Coash Road and Hawkins Road. Swales along both sides of the roadway collect and convey roadway runoff to the basin outfall. This basin outfalls to the west via the swale that is located at the northwest corner of the intersection of SR 72 with Hawkins Road and is conveyed to the Cow Pen Slough Canal.

Basin 4 spans from the intersection of SR 72 with Coash Road and Hawkins Road to the end of the project at Lorraine Road. Roadway runoff is collected and conveyed in swales to one of two existing outfalls in this basin. The first outfall is a riverine located at approximately Station 440+00 and the second outfall is swale located at approximately Station 455+11. Both of these flow south and connect before ultimately outfalling to the Cow Pen Slough Canal.

5.4 Twin Lakes Park

Twin Lakes Park is located adjacent to SR 72, south of the roadway Basin 1. There are five (5) basins within the Twin Lakes Park, totaling to approximately 125 acres. These basins were delineated based on the Sarasota County ICPR4 model for Phillippi Creek, obtained from the Sarasota County FTP site. There are two (2) retention ponds in Twin Lakes Park, TLP Pond 1 and TLP Pond 2, both are located in the northern portion of the Park's property. There is no existing Environmental Resource Permit (ERP) for these ponds. According to the Sarasota County ICPR4 watershed models for Phillippi Creek, the ponds are hydraulicly connected with a 24" equalizer pipe. Discharge from the ponds is routed to the outfall through a control structure located in Pond TL-B that drains to a ditch connected to cross drain CD-2. See **Appendix A** for the Twin Lakes Park Basins exhibit.

5.5 Environmental Characteristics

5.5.1 Land Use Data

This project begins just east of the intersection of SR 72 with I-75 and spans 2.9 miles east of that intersection. The project corridor is characterized by commercial and residential development comprised of mobile home parks, recreational parks, a plant nursery, and reclaimed recreational properties (historical golf courses). Future land use of this corridor is anticipated to stay consistent with existing land use conditions.

5.5.2 Cultural Features

A desktop analysis for the Cultural Resource Assessment was performed by Archaeological Consultants, Inc. to determine, preliminarily, if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the construction of any of the proposed improvement alternatives within the project corridor in Sarasota County. The background research indicated that no archaeological sites had been recorded within the study corridor but there is a low to moderate probability for aboriginal archaeological sites within the study corridor and a low probability for historic archaeological sites. The historic findings during the desktop analysis noted approximately 32 historic resources (11 previously recorded, 21 newly identified) located within the project corridor. A field survey will be necessary for proper identification and evaluation of each historic resource within the project corridor at which time an Area of Potential Effects (APE) will be set prior to field work. See **Appendix C** for the Cultural Resource Assessment Desktop Analysis Report.

5.5.3 Natural and Biological Features

The following threatened or endangered species have the potential to occur within the study area:

- Bald eagle
- Crested caracara
- Florida bonneted bat

There are two bald eagle nest sites located near the project limits, one near Basin 1 and one near Basin 4. Species surveys are underway for the crested caracara and Florida bonneted bat. No impacts to the habitats of these species are anticipated.

5.5.4 Contamination

A Preliminary Contamination Risk Ratings (CRRs) screening for the project study area was performed by Geotechnical and Environmental Consultants, Inc. (GEC). The intent of this screening is to identify and evaluate known or potential contamination problems, present testing or remedial recommendations concerning these problems and discuss possible project impacts. There are seven (7) sites with medium contamination risk based on current or past activities. The predominant potential contamination in the study area is the three (3) petroleum tank sites. Three (3) sites have concerns with Solid Waste or Solid Waste/Waste Cleanup and one (1) site has a concern due to the likely use of fertilizers, herbicides, and pesticides. None of the proposed pond sites for this study fall within or adjacent to the identified contamination sites. See **Appendix D** for the Preliminary Contamination Risk Ratings Report.

Phillippi Creek Tributary (WBID 1966) and Cow Pen Slough (WBID 1924) are both impaired for nutrients. The Phillippi Creek Tributary is impaired for Escherichia Coli, macrophytes, and Total Nitrogen. Cow Pen Slough is impaired for macrophytes. A BMPTrains analysis was performed for each of the four proposed stormwater management facility alternatives that are located within

the Phillippi Creek Tributary waterbody (Pond 1A, Pond 1B, Pond 2A, and Pond 2B). See **Table 4** below for the results of this analysis and see **Appendix E** for the BMPTrains Complete Report.

Table 4: Nutrient Loading Efficiency for Basins 1 and 2

SMF	Target Nitrogen Load Reduction	Percent Nitrogen Load Reduction
1A	10.54%	41.65%
1B	5.06%	41.36%
2A	23.00%	41.29%
2B	22.06%	41.22%

5.6 Floodplains/ Floodways

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for the study area. The relevant FIRM panel numbers are 12115C0164G, 12115C0168G and 12115C0169G for Sarasota County, Florida dated March 27, 2024. The majority of the project lies within Flood Zone X, areas outside of the 100-year floodplain. Some portions of Basins 1 and 2 are designated as Zone AE. See **Appendix A** for the effective FEMA Floodplain Maps.

Due to the proposed roadway widening, floodplain impacts are anticipated in Basins 1 and 2. There are twelve areas where the proposed improvements will encroach into the effective floodplain, with a total of approximately 4.62 Ac-ft of floodplain impacts. See **Appendix A** for the FEMA Floodplain Impact Areas Map for the effective FEMA floodplain.

5.7 Wetland Impacts

The existing wetlands within the project corridor include freshwater emergent wetlands, freshwater ponds and riverines. Minor impacts to freshwater emergent wetlands are anticipated between Proctor Road and Churchill Downs Road given the widening of the roadway, proposed sidewalk, and proposed roundabout. Gravity walls behind the sidewalk and other mitigation measures may be feasible to minimize wetland impacts. No wetland impacts are anticipated from the stormwater management facilities. See **Appendix A** for a Wetlands Map

6.0 Proposed Drainage Conditions

6.1 Proposed Ponds

Each of the four basins have two to three stormwater management facility alternatives, see **Appendix A** for an exhibit of the pond site alternatives. Due to the shallow depth to the water table in the majority of the project area, these facilities are all designed to be wet detention ponds. These wet detention ponds were designed for both water quality and attenuation, featuring treatment volumes equal to or greater for one inch (1") of runoff from the contributing area. The proposed stormwater management facilities (excluding Pond 1A, which proposes altering an

existing Twin Lakes Park pond) are designed to have 20-foot maintenance berms and 1:4 (Vertical:Horizontal) pond side slopes and tie up/down slopes to existing ground, and a minimum 1-foot freeboard. All proposed pond sites were based on proximity to SR 72 and to the existing outfalls to reduce the cost for additional easements and drainage infrastructure. Negotiations with property owners will be needed for pond placement within the property for the proposed ponds that do not take up the entire parcel. A proposed drainage map is included in **Appendix A**.

6.2 Environmental Look-Around (ELA) Meeting

To reduce the right-of-way needs for off-site ponds and to address the treatment and attenuation for this project, an Environmental Look-Around (ELA) meeting was conducted. Those that attended the ELA meeting included the project study team, members of the SR 72 widening design project team, FDOT staff, representatives for Sarasota County, representatives for FPL, and representatives for Twin Lakes Park and the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS). The purpose of this ELA meeting was to coordinate with all stakeholders and determine a regional approach that addresses water quality for not only the SR 72 (Clark Road) study, but also the surrounding area.

The ELA meeting was held on March 1, 2023 at the UF/IFAS Green Room located at Twin Lakes Park. The location of the meeting was chosen because Twin Lakes Park is located off of SR 72 within the project study limits. This meeting involved an open discussion with representatives of each of the stakeholder organizations on future development plans, future stormwater needs, and the topic of a joint use pond for Basin 1 and the Twin Lakes Park, utilizing existing Pond TL-A (Pond 1A Alternative). A summary of the meeting can be found in **Appendix F**.

6.2.1 Twin Lakes Park Master Plan Site Improvements

The Twin Lakes Park Master Plan was brought to the attention of the stakeholders when discussing the topic of a joint use pond for Basin 1. The proposed plan includes additional athletic fields and facilities; recreational features such as a walking trail and an exercise track, additional picnic pavilions, an additional playground, and a dog park; and additional and improved parking areas. See **Appendix F** for an excerpt from the Sarasota County *North County Athletic Facilities Master Plan* detailing the Twin Lakes Park Master Plan Site Improvements.

During further coordination with Twin Lakes Park on the Pond 1A alternative for Basin 1, the Park requested that the proposed improvements to the existing ponds, TLP Pond 1 and TLP Pond 2, will be designed to be able to accommodate the increase in runoff due to the Master Plan improvements.

6.3 Methodology of Pond Determination

The pond siting analysis assumes that all ponds will be designed using the wet detention pond design criteria. The following parameters were considered in the selection of potential pond sites:

- Hydrologic and hydraulic factors such as existing ground elevation, soil types, estimated seasonal high water (ESHW), stormwater conveyance feasibility, allowable hydraulic grade line (HGL);
- Environmental resource impacts including wetlands and threatened or endangered species;
- Floodplain impacts;
- Major utility conflict potential;
- Estimated right-of-way acquisition;
- Impacts to cultural resources; and
- Hazardous Materials Contamination
- Construction
- Public Opinion
- Maintenance
- Aesthetic
- Total Cost

See **Table 5** for information on the pond sites and see **Appendix G** for a Pond Site Evaluation Matrix.

Table 5: Pond Site Information

Basin	Pond Site	Parcel ID*	Owner*	Parcel Acreage*	Pond Acreage Required
Basin 1	Pond 1A	0285010001	Sarasota County	121.9	8.64
	Pond 1B	0264100003	Underhill Family LTD Partnership	19.4	3.61
Basin 2	Pond 2A	0266110003; 0266110004	Redpath H Michael, Redpath Linda R; SAFARI 2 CLARK LLC	0.6; 9.1	3.21
	Pond 2B	0283040003	Do Family LLC	6.0	3.96
Basin 3	Pond 3A	0281120001	Academy for Canine Excellence	8.6	2.08
	Pond 3B	0281150003	Page M Knoebel Trust	6.4	2.49
Basin 4	Pond 4A	0282004001	3 H Ranch LLC	178.6	4.30
	Pond 4B	0282010130	DLT of SW Florida LLC, CHT of SW Florida LLC	721.7	3.41
	Pond 4C	0282004001	3 H Ranch LLC	178.6	3.71

*Parcel Information is per the Sarasota County Property Appraiser

6.4 Stormwater Pond Evaluation

6.4.1 Basin 1 Pond Alternatives

Basin 1 is located between the beginning of the project to the intersection of SR 72 with Ibis Street and Talon Boulevard. There are two stormwater management facility alternatives for this basin. The first pond alternative, Pond 1A, is a joint-use wet detention pond located at Twin Lakes Park. Pond 1A is the proposed expansion of the pond located to the west of the park entrance from SR 72. The normal water level of the existing pond is approximately 29.00', this was obtained from 1-

foot contours. A treatment volume of 1.67 Ac.-ft is provided for this pond option (1.64 Ac.-ft was determined to be needed) and an attenuation volume of 7.25 Ac.-ft is provided (6.09 Ac.-ft are needed). The total acreage required for Pond 1A is 8.64 acres, however no ROW will need to be acquired since this is a joint-use pond. Proposed Pond 1A is located within the 100-year floodplain. In order to minimize floodplain impacts for the project, the volume of the current floodplain storage within the footprint of the proposed pond site is to be provided in addition to the available treatment volume and attenuation volume storages in the proposed pond design. No wetland, cultural, or contamination impacts are anticipated. Since the pond's outfall, Phillippi Creek Tributary, is impaired for Total Nitrogen, a nutrient loading analysis was performed for the basin and a net reduction of 41.65% of Nitrogen has been provided, meeting the pre vs post loading requirements for the basin.

In order to design Pond Alternative 1A to be able to accommodate the proposed Twin Lakes Park Master Plan Site Improvements, assumptions were made to determine the increase in impervious area per basin based on the Proposed Design Plan. There is an overall net increase of 3.86 acres of impervious area due to the improvements, see **Table 6** below for the differences in existing and proposed impervious area per basin. The assumption was made that Twin Lakes Park Basins 1 and 2 will drain to Pond 1A and Twin Lakes Park Basins 3 and 4 will drain to an improved Pond TLP 2. Twin Lakes Park Basin 5 appears to drain to offsite to the south. Since there is a net reduction in impervious area for Basin 5, additional runoff calculations were not performed for this basin. Calculations for the increase in attenuation volume needed were performed and 1.09 Ac.-ft and 1.01 Ac.-ft of additional volume is needed for Pond 1A and Pond TLP 2, respectively, see **Appendix I**. Pond 1A was sized to be able to attenuate the additional runoff volume from the Park Basins 1 and 2, it provides an attenuation volume of 7.25 Ac.-ft is provided (7.18 Ac.-ft are needed for both the SR 72 Basin 1 and the Twin Lakes Park Basins 1 and 2). Calculations were also performed to analyze the effect of the additional volume of water in the existing TLP Pond 2. It was determined that this existing pond has the capacity to hold an additional 6.09 Ac.-ft of runoff (1.01 Ac.-ft was determined to be needed for the runoff from the Twin Lakes Park Basins 3 and 4). See **Appendix I** for these calculations. The additional treatment volume needed was determined to be 0 Ac.-ft for both ponds since there is no evidence of basin limit changes due to the Master Plan improvements.

Table 6: Twin Lakes Park Basin Summary

Basin	TLP Basin 1	TLP Basin 2	TLP Basin 3	TLP Basin 4	TLP Basin 5
Total Acreage	20.12	18.44	40.19	17.28	28.97
Impervious Area Added by Improvements (Ac.)	1.14	1.07	1.34	0.11	0.20
Impervious Area Removed by Improvements (Ac.)	0.64	0	0	0	0.30
Sum (Ac.)	0.50	1.07	1.34	0.11	-0.10

Pond 1B is located on the northern side of SR 72, north of the entrance to Twin Lakes Park. The land use for this area is currently for grazing. The existing ground is at 30.5′ (obtained from 1-foot contours) and the SHWT is at existing ground. A treatment volume of 1.41 Ac.-ft is provided (1.17 Ac.-ft are needed) and attenuation volume of 2.38 Ac.-ft is provided (2.32 Ac.-ft are needed). The acreage required for Pond 1B is 3.04 acres and a total of 3.61 acres of additional ROW is needed. There is a bald eagle nest located northwest of Pond 2B. The majority of the pond lies within the 330′ to 660′ buffer, however there is about 0.5 acres that lie within the 0′ to 330′ buffer. No wetland, floodplain, cultural, or contamination impacts are anticipated. Since the pond's outfall, Phillippi Creek Tributary, is impaired for Total Nitrogen, a nutrient loading analysis was performed for the basin and a net reduction of 41.36% of Nitrogen has been provided, meeting the pre vs post loading requirements for the basin.

The recommended pond for Basin 1 is Pond 1A because it is a joint-use opportunity with no right-of-way acquisition needed and it avoids potentially impacting the Bald Eagle's nest located near Pond 1B.

6.4.2 Basin 2 Pond Alternatives

Basin 2 is located between the intersection of SR 72 with Ibis Street and Talon Boulevard to just east of the intersection of SR 72 with Proctor Road and Dove Avenue. There are two stormwater management facility alternatives for this basin. The first pond alternative, Pond 2A, is wet detention pond located on the northern side of SR 72 at approximately Station 346+50. The current land use for this area is a residential vacant site. The existing ground is at 32.0′ (obtained from 1-foot contours) and the depth to the SHWT is approximately 2.5 feet. A treatment volume of 1.49 Ac.-ft is provided (1.47 Ac.-ft is needed) and 2.94 Ac.-ft is provided (2.86 Ac.-ft is needed). The acreage required for Pond 2A is 3.21 acres and a total of 9.83 acres of additional ROW is needed. The majority of the additional ROW acreage is to accommodate easements for storm sewer conveyance from SR 72 to the pond and for the conveyance of the pond to the outfall. No wetland, floodplain, cultural, or contamination impacts are anticipated. Since the pond's outfall, Phillippi Creek Tributary, is impaired for Total Nitrogen, a nutrient loading analysis was performed for the basin and a net reduction of 41.29% of Nitrogen has been provided, meeting the pre vs post loading requirements for the basin.

Pond 2B is a wet detention pond located on the southern side of SR 72 at approximately Station 341+00. The current land use for this area is an occupied single-family home. The existing ground is at 32.0′ (obtained from 1-foot contours) and the depth to the SHWT is approximately 2.5 feet. An existing freshwater pond lies within pond site 2B. A treatment volume of 1.62 Ac.-ft is provided (1.47 Ac.-ft is needed) and an attenuation volume of 3.08 Ac.-ft is provided (2.86 Ac.-ft is needed). The acreage required for Pond 2B is 3.96 acres and a total of 5.82 acres of ROW are needed. Proposed Pond 2B is located within the 100-year floodplain. In order to minimize floodplain impacts for the project, the volume of the current floodplain storage within the footprint of the

proposed pond site is to be provided in addition to the available treatment volume and attenuation volume storages in the proposed pond design. No wetland, cultural, or contamination impacts are anticipated. Since the pond's outfall, Phillippi Creek Tributary, is impaired for Total Nitrogen, a nutrient loading analysis was performed for the basin and a net reduction of 41.22% of Nitrogen has been provided, meeting the pre vs post loading requirements for the basin.

The recommended pond for Basin 2 is Pond 2B because it requires less total ROW and doesn't require an easement for the drainage connectivity to the road.

6.4.3 Basin 3 Pond Alternatives

Basin 3 spans from just east of the intersection of SR 72 with Proctor Road and Dove Avenue and extends to the intersection of SR 72 with Coash Road and Hawkins Road. There are two stormwater management facility alternatives for this basin. The first pond alternative, Pond 3A, is a wet detention pond located on the southern side of SR 72 at approximately Station 413+50. The current land use for this area is a dog and cat kennel. The existing ground is at 33.0' (obtained from 1-foot contours) and the depth to the SHWT is approximately 1 foot. A treatment volume of 0.93 Ac.-ft is provided (0.87 Ac.-ft are needed) and an attenuation volume of 1.56 Ac.-ft is provided (1.45 Ac.-ft is needed). The total acreage of additional ROW required for Pond 3A is 2.08 acres. There is a septic drain field located at the Academy for Canine Excellence (Parcel ID 0281120001), south of SR 72, adjacent to the proposed Pond 3A site. Due to concerns over fecal contamination, the adjacent septic should be converted to the county sanitary sewer system if Pond 3A were to be selected. No wetland, floodplain, or cultural impacts are anticipated.

Pond 3B is located on the northern side of SR 72, at approximately Station 412+00. The current land use for this area is a vacant residential site. The existing ground is at 32.0' (obtained from 1-foot contours) and the depth to the SHWT is approximately one foot. A treatment volume of 1.12 Ac.-ft is provided (0.93 Ac.-ft are needed) and an attenuation volume of 1.99 Ac.-ft is provided (1.93 Ac.-ft is needed). The total acreage of additional ROW required for Pond 3B is 2.49 acres. No wetland, floodplain, cultural, or contamination impacts are anticipated.

The recommended pond for Basin 3 is Pond 3B because it is a vacant site and it avoids the septic drain field.

6.4.4 Basin 4 Pond Alternatives

Basin 4 is located between intersection of SR 72 with Coash Road and Hawkins Road to the end of the project at Lorraine Road. There are three stormwater management facility alternatives for this basin. The first pond alternative, Pond 4A, is located at the western corner of the intersection of SR 72 with Lorraine Road. The current land use for this area is grazing land. The existing ground is at 26.5' (obtained from 1-foot contours) and the depth to the SHWT is approximately one foot. A treatment volume of 1.90 Ac.-ft is provided (1.58 Ac.-ft is needed) and 3.36 Ac.-ft of attenuation

volume is provided (3.23 Ac.-ft is needed). The total acreage of additional ROW required for Pond 4A is 4.30 acres. No wetland, floodplain, cultural, or contamination impacts are anticipated.

Pond 4B is located at the western corner of the intersection of SR 72 with Lorraine Road. The current land use for this area is grazing land soil. The existing ground is at 25.5' (obtained from 1-foot contours) and the depth to the SHWT is approximately one foot. A treatment volume of 1.75 Ac.-ft is provided (1.40 Ac.-ft are needed) and an attenuation volume of 3.88 Ac.-ft is provided (3.01 Ac.-ft is needed). The total acreage of additional ROW required for Pond 4B is 3.41 acres. There is a bald eagle nest located south of Pond 4B. The pond overlaps with the 330' to 660' buffer around the nest but is outside of the 330' buffer. No wetland, floodplain, cultural, or contamination impacts are anticipated.

Pond 4C is comprised of two ponds, Pond 4C North (Pond 4C-N) and Pond 4C South (Pond 4C-S). Pond 4C-N and Pond 4C-S are located on the western side of SR 72, at approximate Stations 438+00 and 440+00, respectively. The current land use for this area is grazing land soil. The pond is divided into two smaller ponds to avoid impacting the riverine wetland at approximately Station 440+00. This wetland is also one of the existing outfalls for Basin 4. The existing ground is at 26.5' (obtained from 1-foot contours) and the depth to the SHWT is approximately one foot. A total treatment volume of 1.66 Ac.-ft is provided (1.42 Ac.-ft is needed) and an attenuation volume of 2.80 Ac.-ft is provided (2.62 Ac.-ft is needed). The total acreage of additional ROW required for the ponds is 3.71 acres. No wetland, floodplain, cultural, or contamination impacts are anticipated.

The recommended pond for Basin 4 is Pond 4C because it doesn't have the potential to impact the Bald Eagle's nest that Pond 4B does and it requires less ROW than Pond 4A.

6.5 Floodplain Impacts

The floodplains associated with this project are mainly isolated to locations where flow traverses the project and are generally not associated with depressional storage areas. Floodplain impacts are anticipated in Basins 1 and 2 due to the existing roadway widening. There are 12 Floodplain Impact Areas resulting from the roadway improvements, see **Appendix A** for the FEMA Floodplain Impact Areas Map. Floodplain impact volumes were calculated using contours to determine the volume under the base flood elevation within the floodplain footprint that will be impacted by the proposed widening, see **Appendix H**.

Since the proposed typical section of SR 72 includes modifying the flushed shoulders to curb and gutter, runoff that was draining to the floodplain in the existing condition will now be collected by curb inlets and conveyed away from the floodplains adjacent to the road. Calculations were performed to determine the Captured Existing Runoff Volume per Floodplain Impact Area that will no longer be contributing to the floodplains adjacent to SR 72, see **Appendix H**. The difference in the Floodplain Impact Volumes due to the roadway widening versus the Captured Existing Runoff Volume per identified Floodplain Area is seen in **Table 7**.

Table 7: Summary of Floodplain Impacts

Floodplain Impact Area	Basin	Floodplain Impact Vol (Ac-ft)	Captured Existing Runoff Vol (Ac-ft)	Net Storage Impacts Vol (Ac-ft)
1	1	0.08	(0.30)	(0.22)
2		0.01	(0.15)	(0.14)
3		0.12	(0.22)	(0.10)
4		0.71	(1.79)	(1.08)
5		0.32	(0.87)	(0.55)
6		0.84	(1.42)	(0.57)
Basin 1 Totals:		2.09	(4.75)	(2.66)
7	2	0.06	(0.58)	(0.52)
8		0.16	(1.07)	(0.91)
9		1.38	(1.34)	0.04
10		0.68	(0.58)	0.09
11		0.23	(0.49)	(0.27)
12		0.03	(0.20)	(0.17)
Basin 2 Totals:		2.53	(4.26)	(1.73)

Floodplain compensation sites for Floodplain Impact Areas 9 and 10 in Basin 2 will be determined in the design phase of this project. The acreages for the total ROW needed for acquisition for Ponds 2A and 2B include additional area adjacent to the floodplain that can serve as floodplain compensation areas.

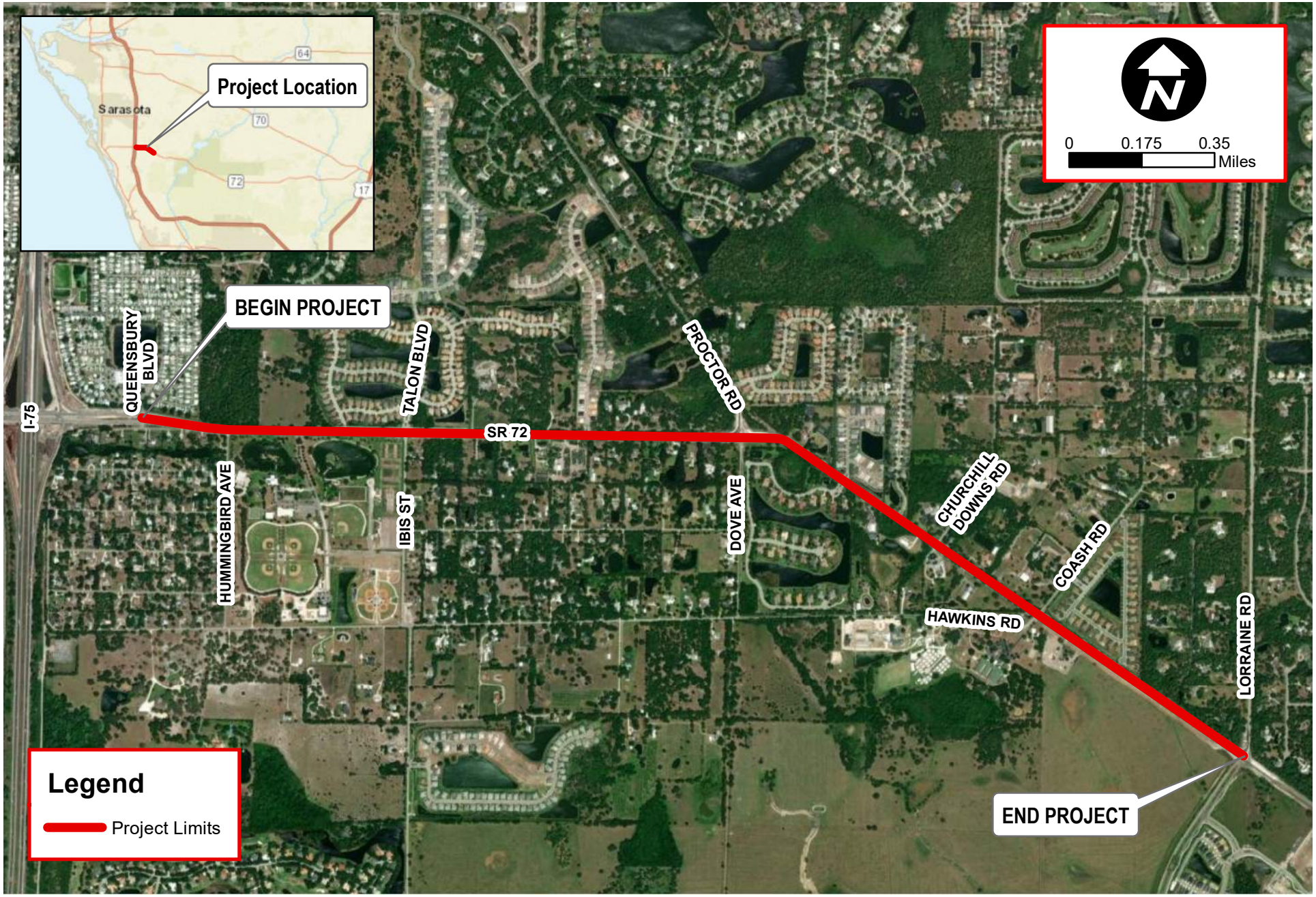
7.0 Conclusions and Recommendations

Potential pond sites have been identified along the project limits for this PD&E Study. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. Pond sizing calculations are included in **Appendix I** and graphics showing the roadway alignment and associated pond sites are included in the Pond Site Alternatives exhibit in **Appendix A** of this Pond Siting Report. Please note that the recommendations were based on pond sizes and locations determined from preliminary data calculations, reasonable engineering judgment, and assumptions. Pond sizes and configurations may change during final design as more detailed information on SHWT, wetland normal pool elevation, final roadway profile design, etc. become available. Please refer to **Table 8** for recommended stormwater ponds.

Table 8: Recommended Stormwater Ponds

Basin	Recommended Pond	Pond Acreage Required	Remarks
Basin 1	Pond 1A	8.64	Joint-use opportunity, avoids impacting eagle nest
Basin 2	Pond 2B	3.96	Smaller ROW impact
Basin 3	Pond 3B	2.49	Avoids septic drain field
Basin 4	Pond 4C	3.71	Avoids impacting eagle nest, smaller ROW impact

APPENDIX A – EXHIBITS



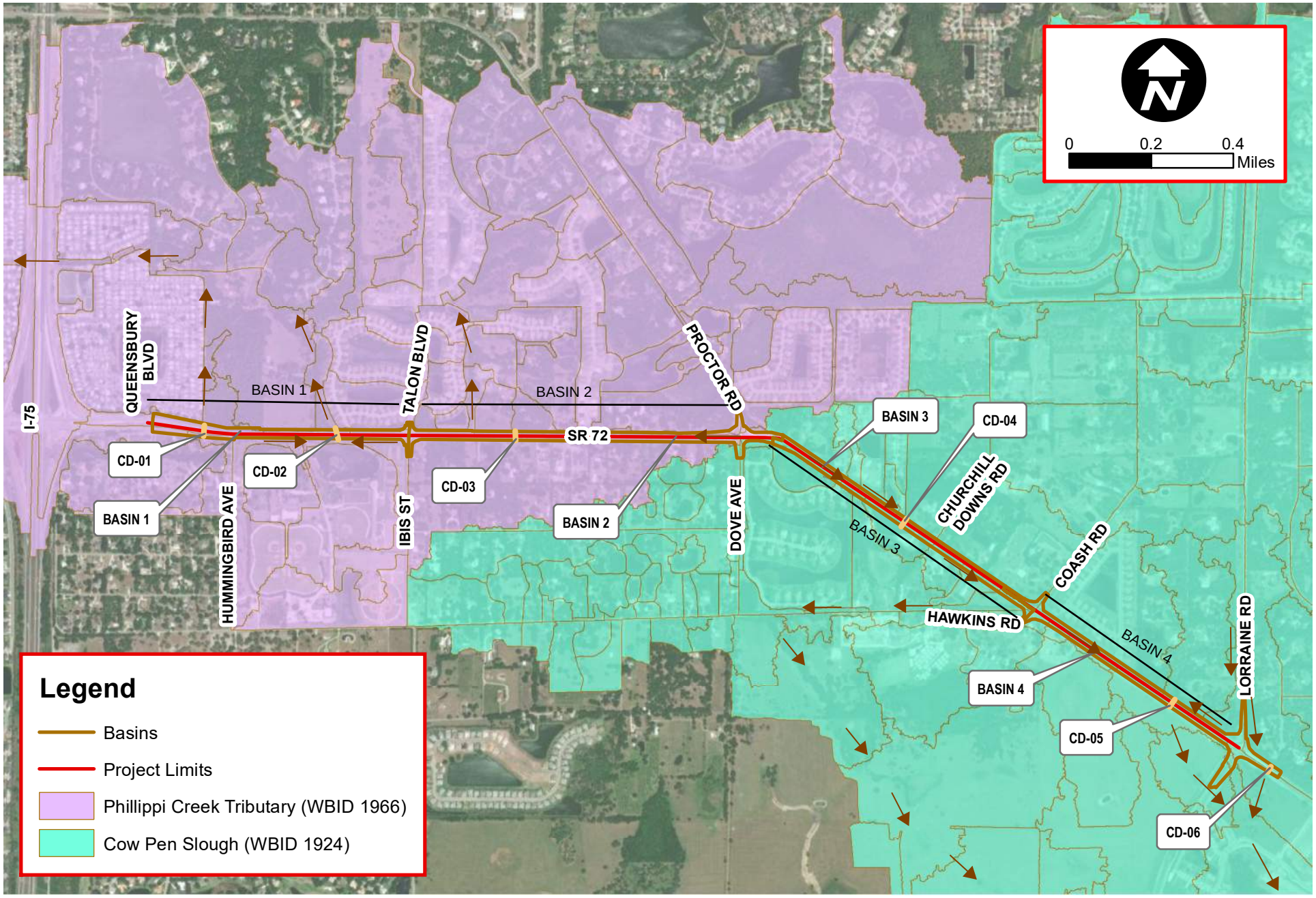
Kimley»Horn

200 South Orange Ave, Suite 600
Orlando, FL 32801
www.kimley-horn.com CA 00000696

LOCATION MAP

SR 72

SARASOTA COUNTY, FLORIDA



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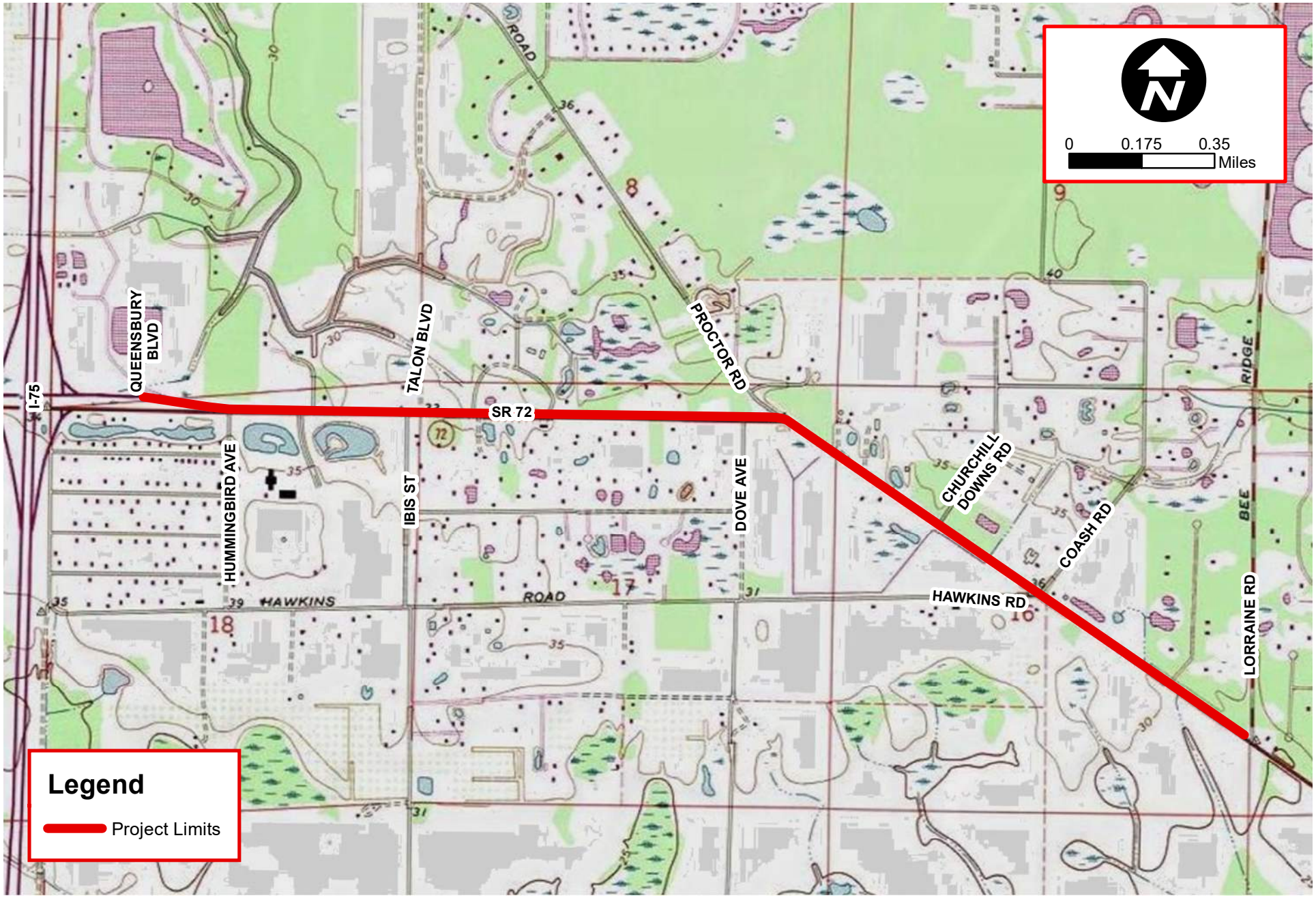
EXISTING DRAINAGE MAP

SR 72

SARASOTA COUNTY, FLORIDA



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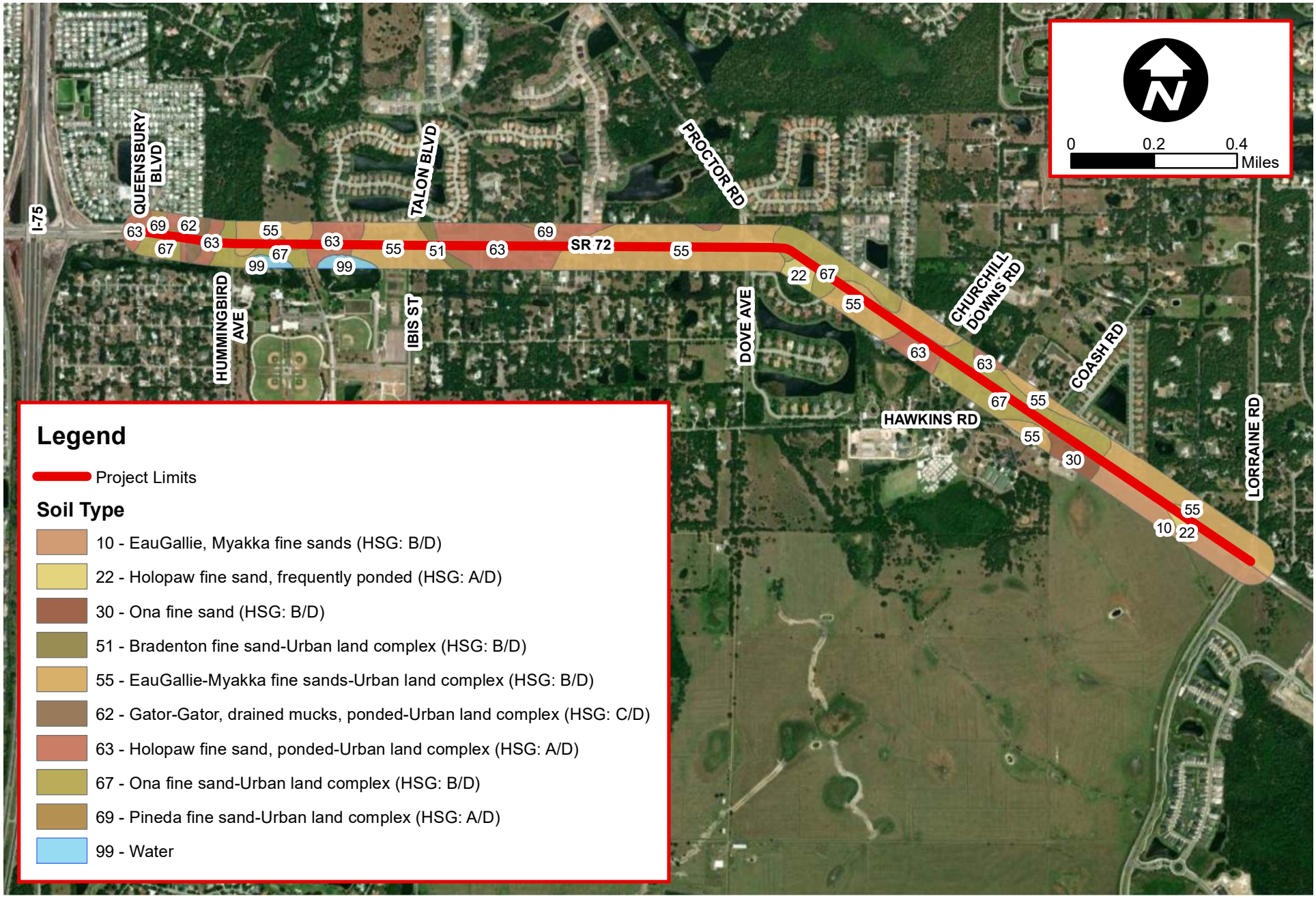
TOPOGRAPHY MAP

SR 72

SARASOTA COUNTY, FLORIDA



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SOILS MAP

SR 72

SARASOTA COUNTY, FLORIDA

Approximate
I-75 Location

SR 72

280

285

290

295

300

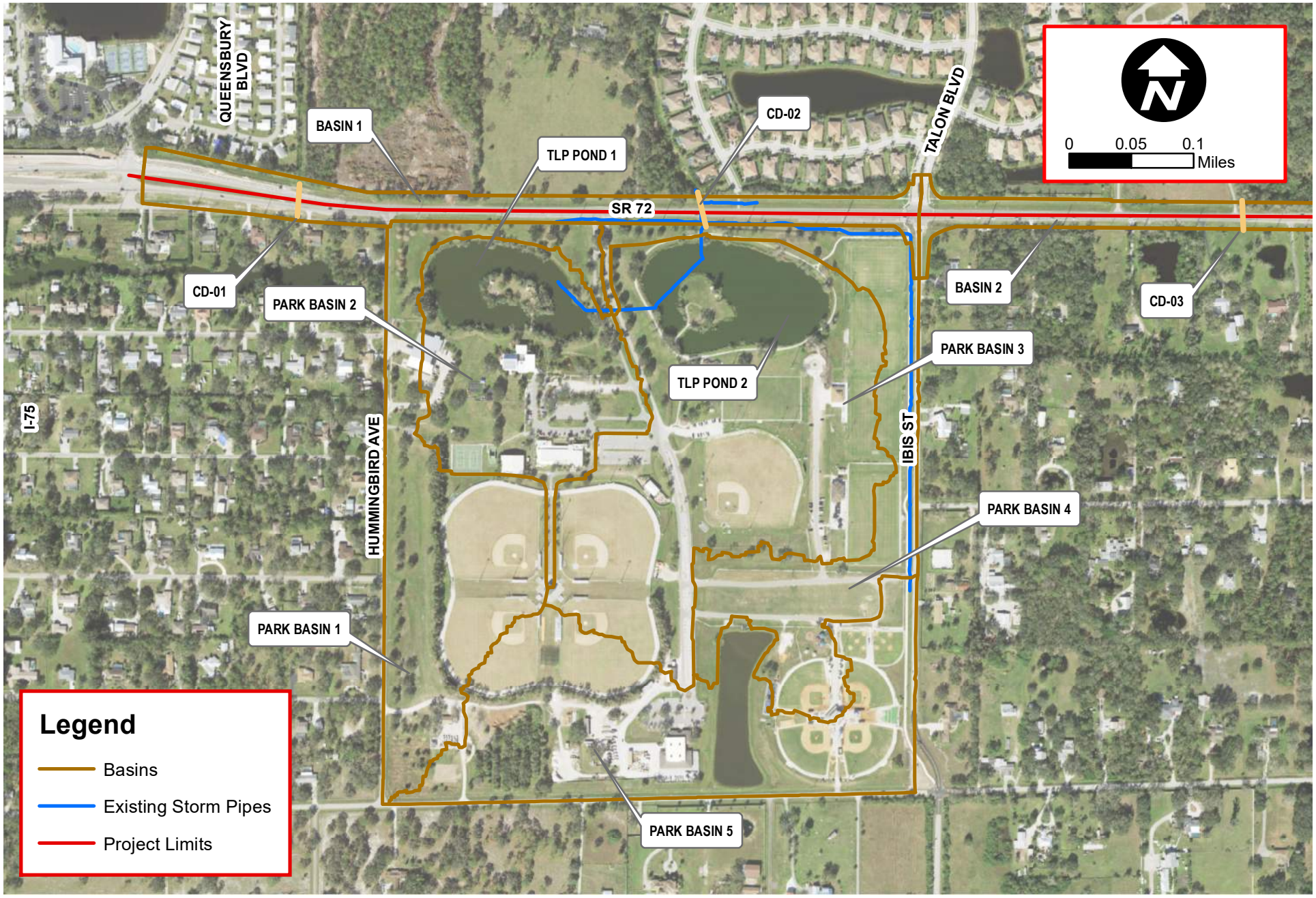
Approximate
Project Start

Hagner Ave

PHOTO DATE 1-13-69
APPROX SCALE 1"=200'

SHEET 5 OF 5

FDOT Legacy Drainage Map
1/13/1969



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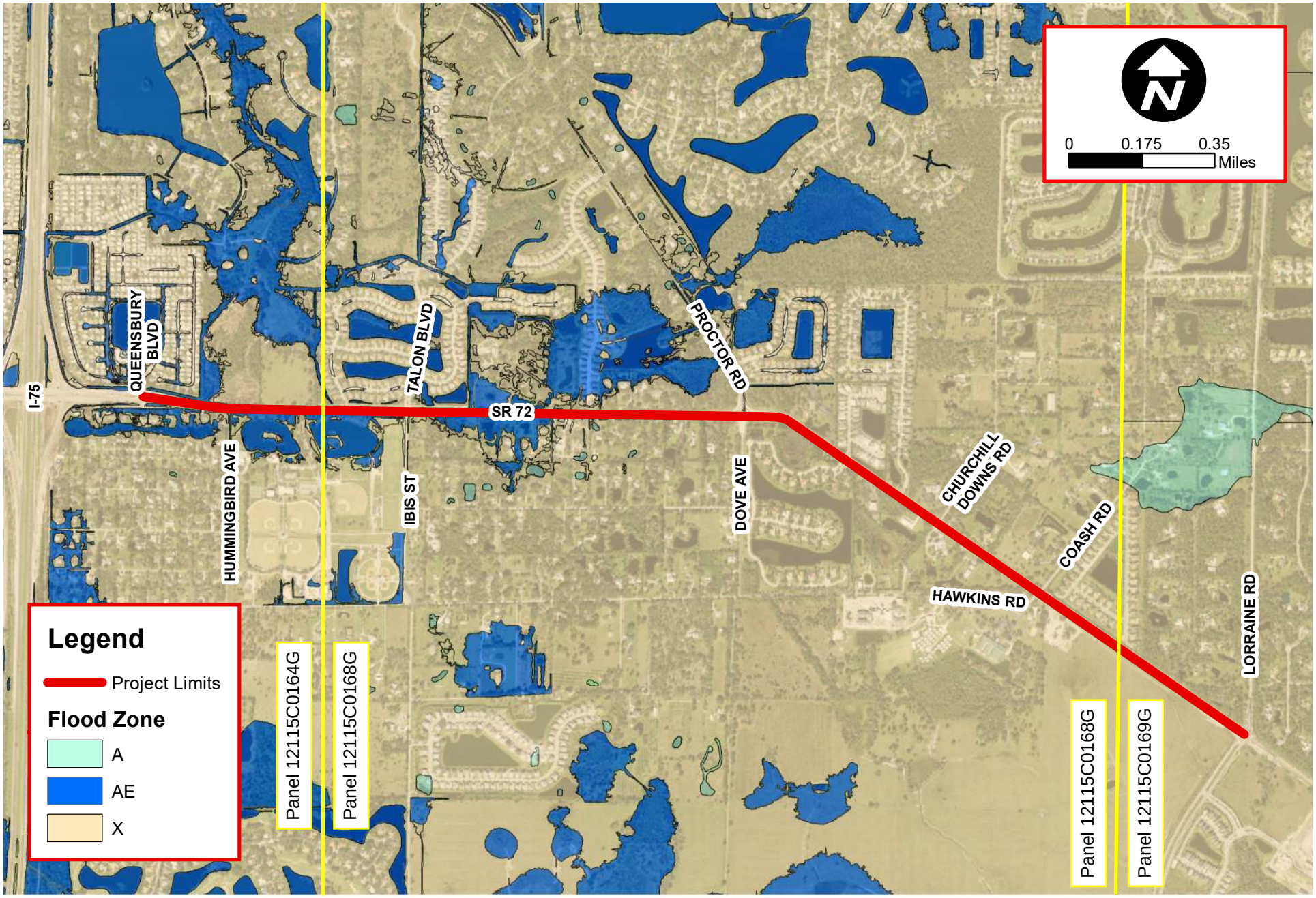
TWIN LAKES PARK DRAINAGE MAP

SR 72

SARASOTA COUNTY, FLORIDA



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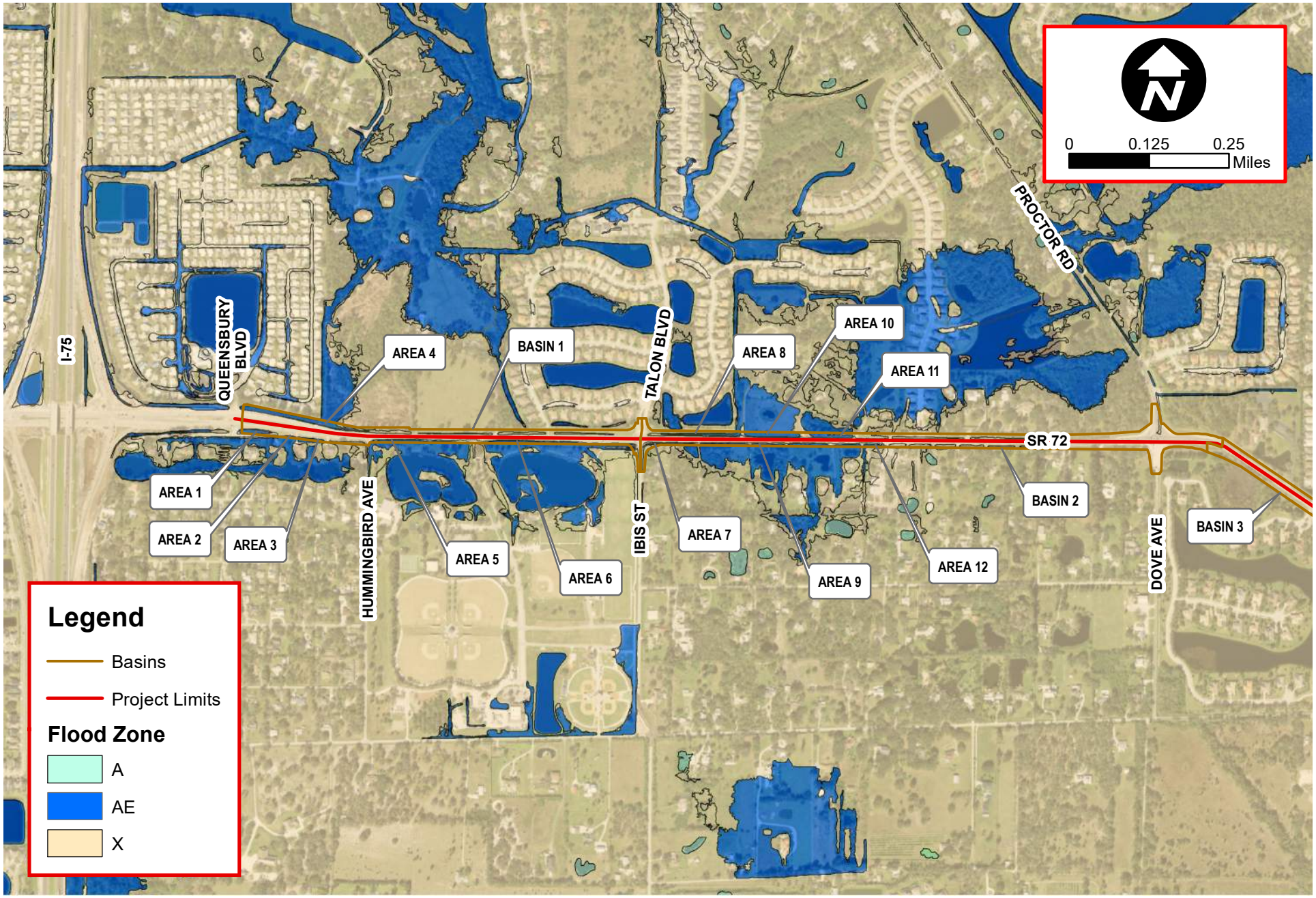
EFFECTIVE FEMA FLOODPLAIN MAP

SR 72

SARASOTA COUNTY, FLORIDA



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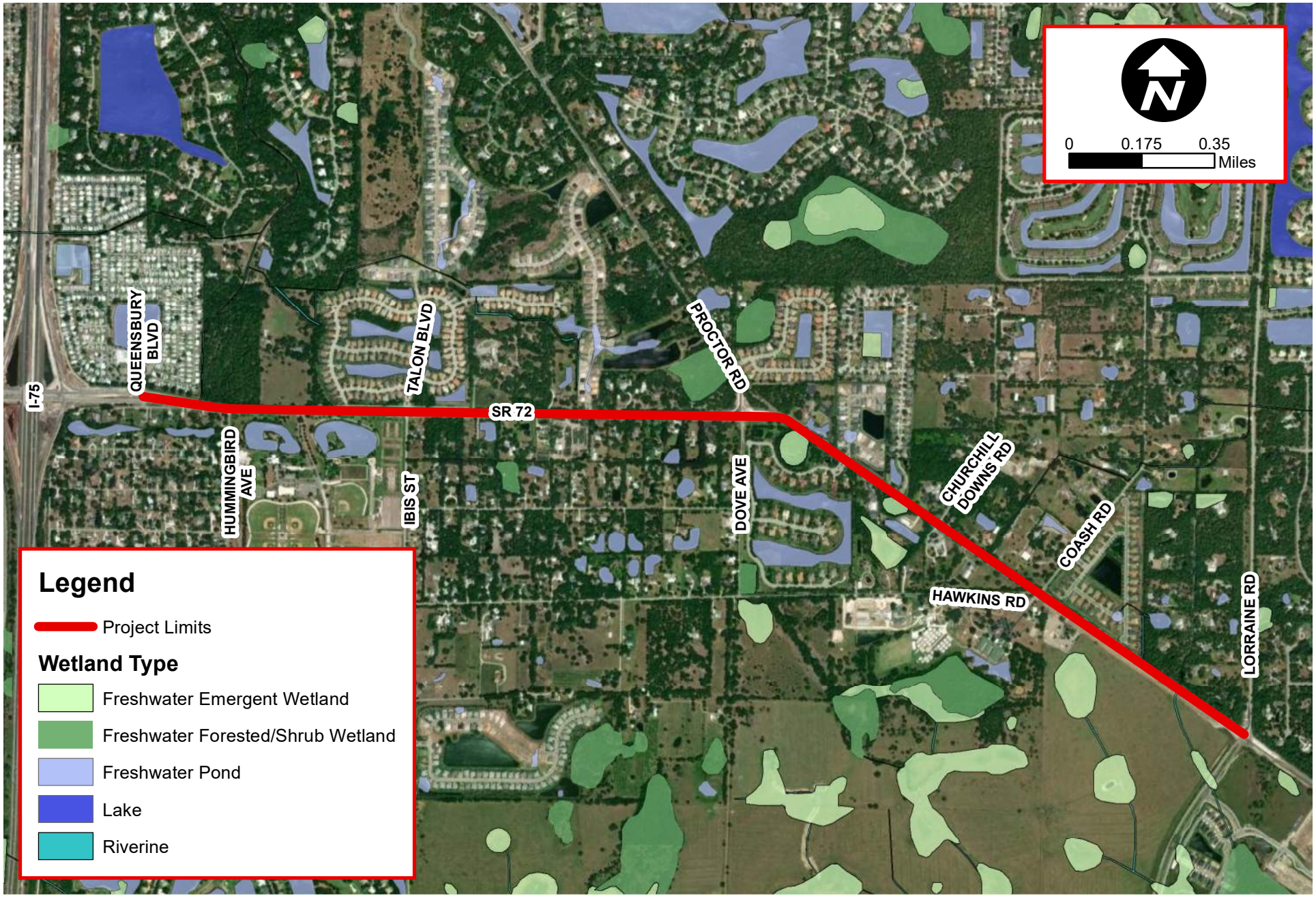
FEMA FLOODPLAIN IMPACT AREAS MAP

SR 72

SARASOTA COUNTY, FLORIDA



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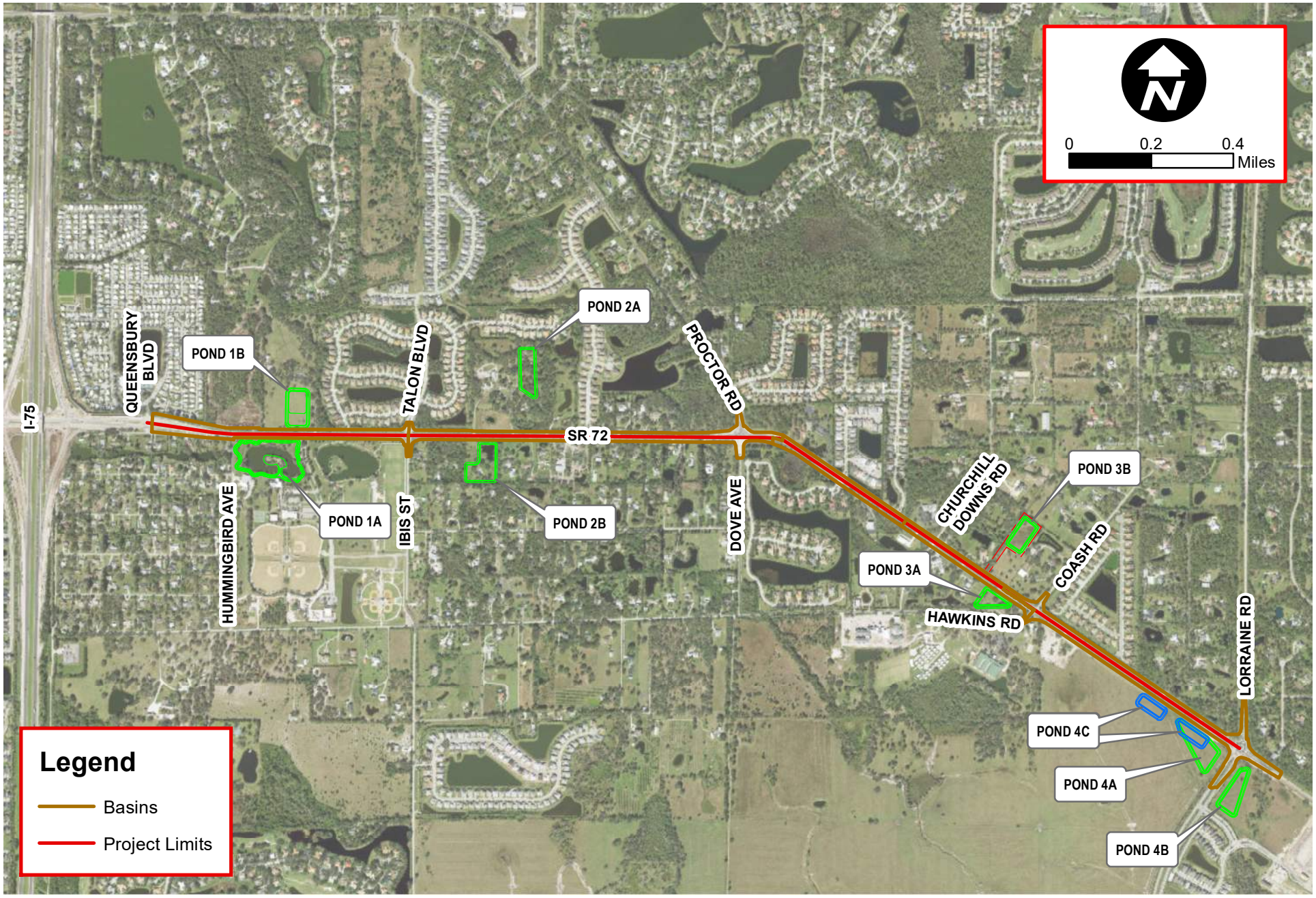
WETLANDS MAP

SR 72

SARASOTA COUNTY, FLORIDA



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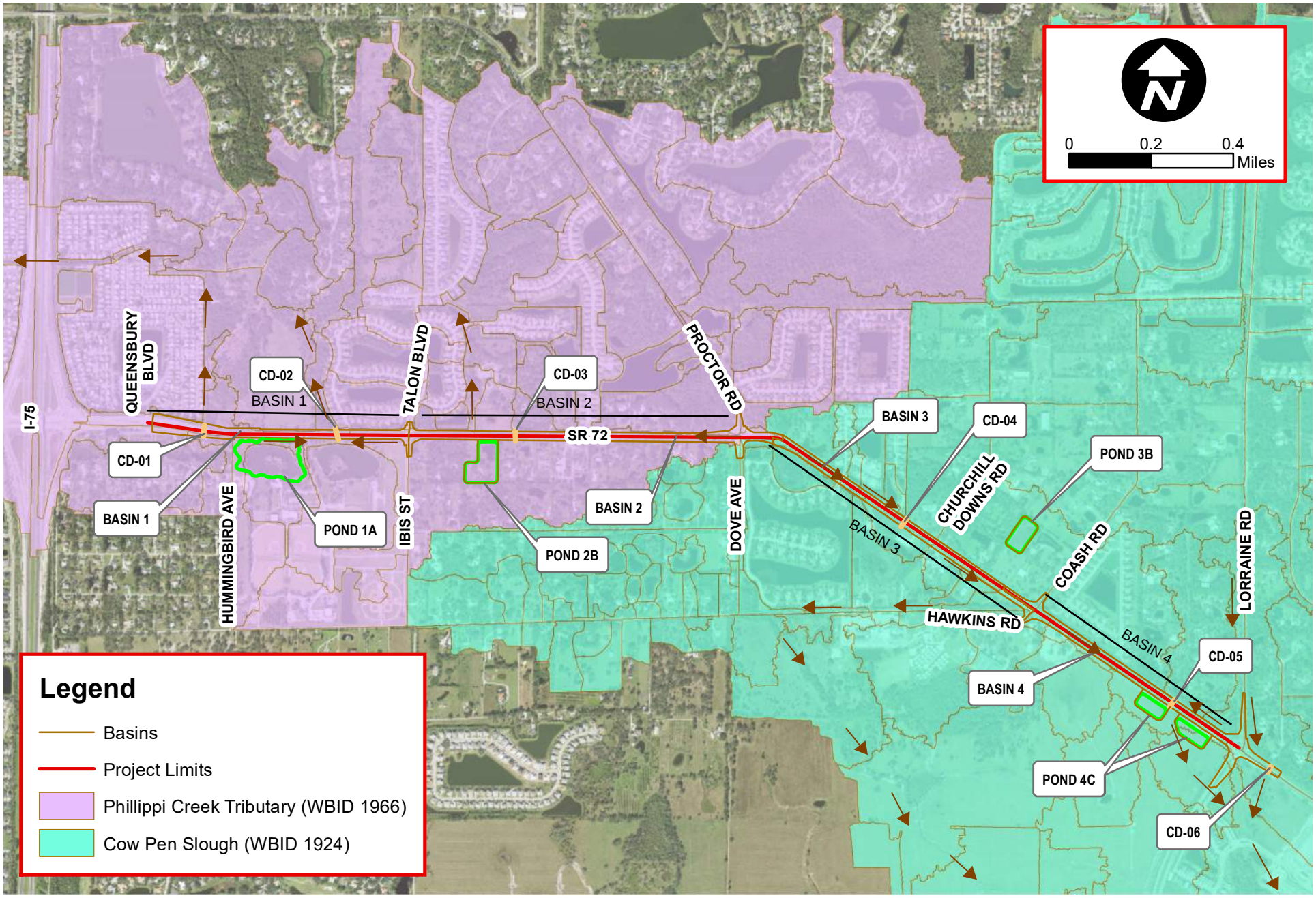
PROPOSED POND SITE ALTERNATIVES

SR 72

SARASOTA COUNTY, FLORIDA



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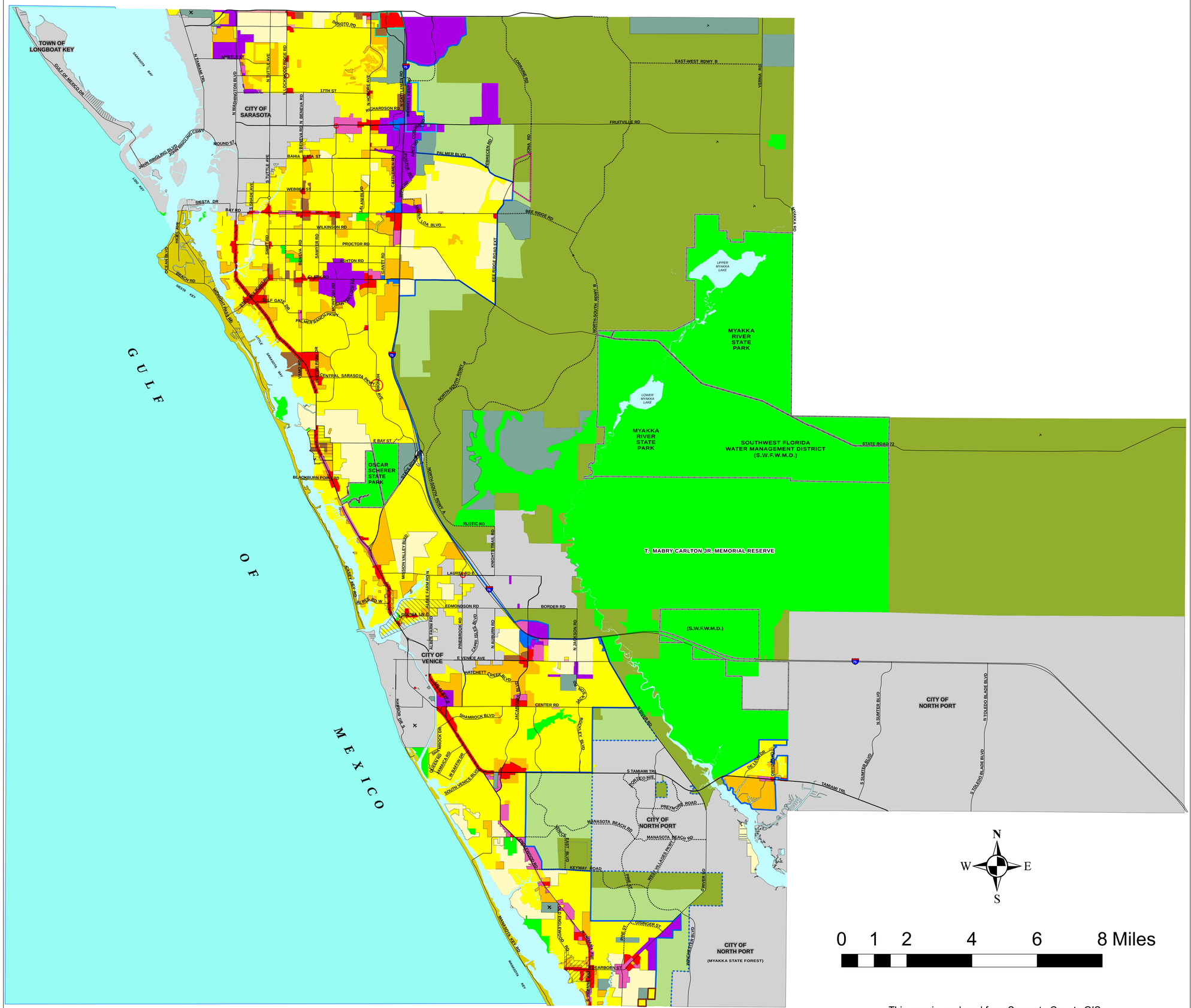
PROPOSED DRAINAGE MAP

SR 72

SARASOTA COUNTY, FLORIDA

FUTURE LAND USE MAP

SARASOTA COUNTY
OCTOBER 2016



This map is produced from Sarasota County GIS, and is representative information only. The County does not warrantee, guarantee, or assume any responsibility for geographic information completeness and/or accuracy. This map should not be used as guide for navigation.
Copyright © SCGIS 2017

LEGEND

FUTURE LAND USE

- PUBLIC CONSERVATION/PRESERVATION
- RURAL
- SEMI-RURAL
- LOW DENSITY RESIDENTIAL (< 2 DUs/ACRES)
- MODERATE DENSITY RESIDENTIAL (≥ 2 AND < 5 DUs/ACRE)
- MEDIUM DENSITY RESIDENTIAL (≥ 5 AND ≤ 9 DUs/ACRE)
- HIGH DENSITY RESIDENTIAL(> 9 AND ≤ 13 DUs/ACRE)
- LIGHT OFFICE
- COMMERCIAL CENTER
- COMMERCIAL CORRIDOR
- COMMERCIAL HIGHWAY INTERCHANGE
- MAJOR EMPLOYMENT CENTER - MEC
- MAJOR GOVERNMENT USES
- OFFICE/MULTI-FAMILY RESIDENTIAL
- BARRIER ISLAND
- INCORPORATED AREA
- WATER

AREA NAME

- COMMERCIAL CENTER UNDEFINED BOUNDARIES

AIRPORT FACILITY

- Public
- Private
- URBAN SERVICE AREA BOUNDARY
- FUTURE URBAN SERVICE AREA BOUNDARY
- ENGLEWOOD TOWN CENTER
- NOKOMIS VILLAGE CENTER
- OSPREY VILLAGE CENTER
- FUTURE FULL ACCESS INTERCHANGE
- AFFORDABLE HOUSING OVERLAY
- SPECIAL PLANNING AREA 1 - UNIVERSITY TOWN CENTER - SIPOC
- SPECIAL PLANNING AREA 2 - MEDICAL BOULEVARD
- SPECIAL PLANNING AREA 3 - FRUITVILLE INTERCHANGE EAST COMPACT URBAN EcoDev
- FUTURE THOROUGHFARE

NOTE: THIS MAP CANNOT BE CORRECTLY INTERPRETED INDEPENDENT OF THE SARASOTA COUNTY COMPREHENSIVE PLAN AS ADOPTED BY SARASOTA COUNTY ORDINANCE NO. 89-18, AS THE SAME MAY BE AMENDED FROM TIME TO TIME. THE BOUNDARIES OF LAND USE DESIGNATIONS, WHERE THEY HAVE BEEN ESTABLISHED, MAY BE REVIEWED AT SARASOTA COUNTY PLANNING SERVICES, 1660 RINGLING BOULEVARD, SARASOTA, FLORIDA.

PREPARED BY SARASOTA COUNTY GIS

Map published using ArcGIS 10.x on Thursday, May 04, 2017

Path: N:\Growth Management\Land Use Land Cover\FUTURE_LANDUSE\2016Updates\2016OCTOBER_FLU_LDUSE36x48.mxd

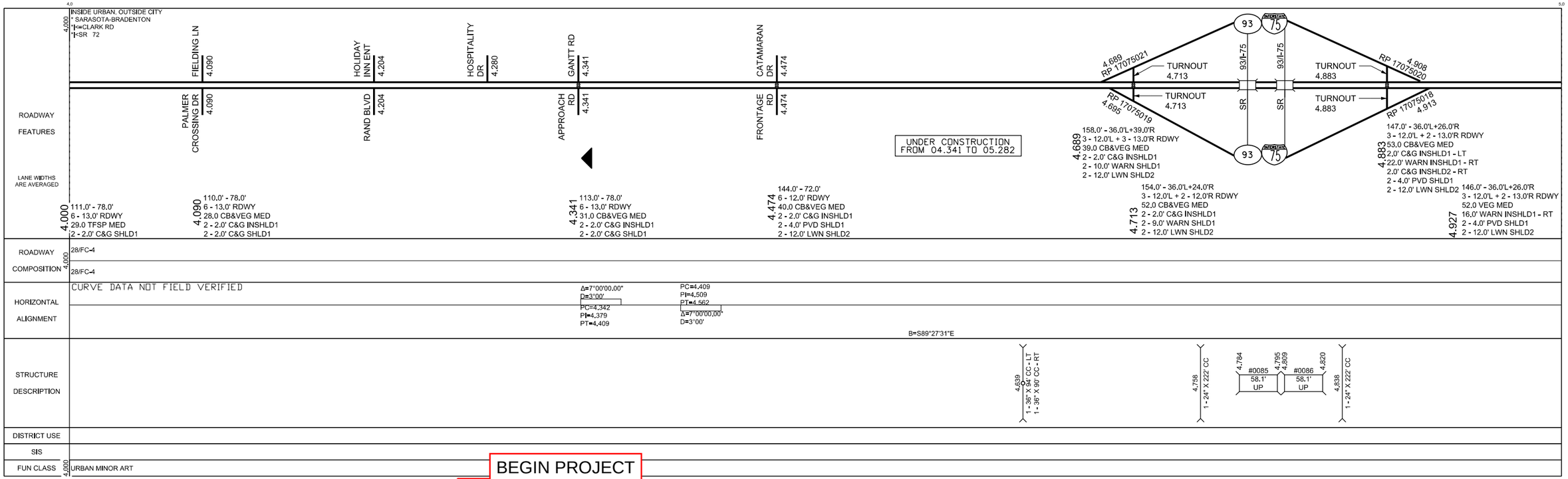
APPENDIX B – FDOT STRAIGHTLINE DIAGRAM AND SWFWMD ERP 40200.001 PERMITTED PLANS

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/01/2023	03/14/2023				
BY	FTE	FTE				

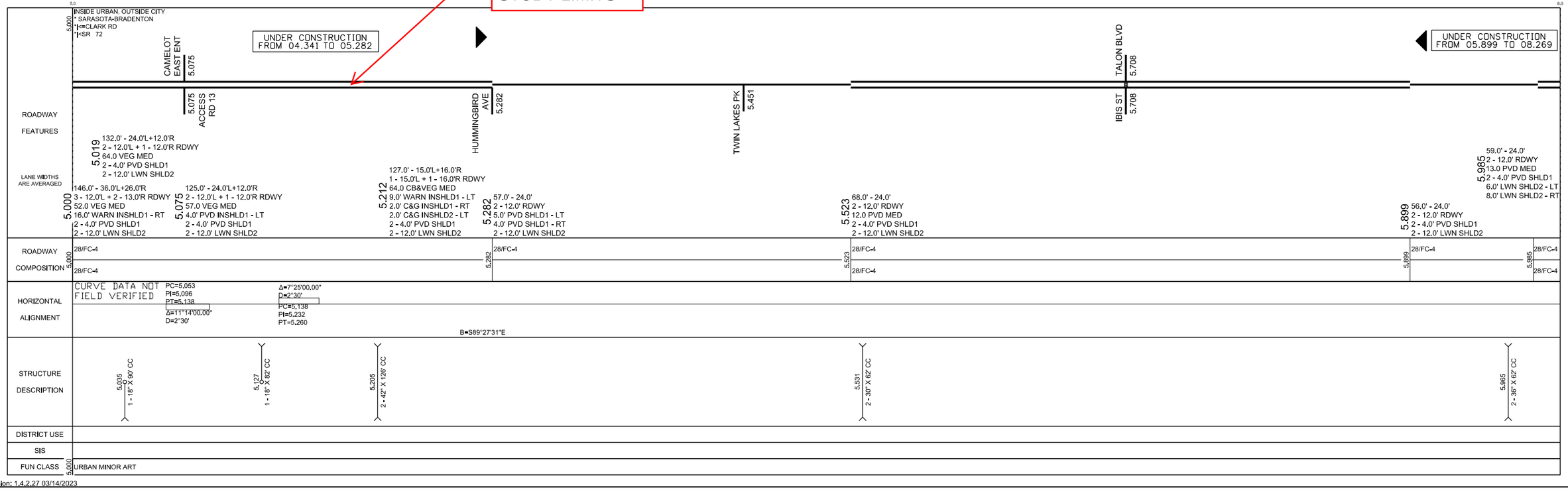
FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 72	SARASOTA	01	17070000	2 OF 7



BEGIN PROJECT STUDY LIMITS

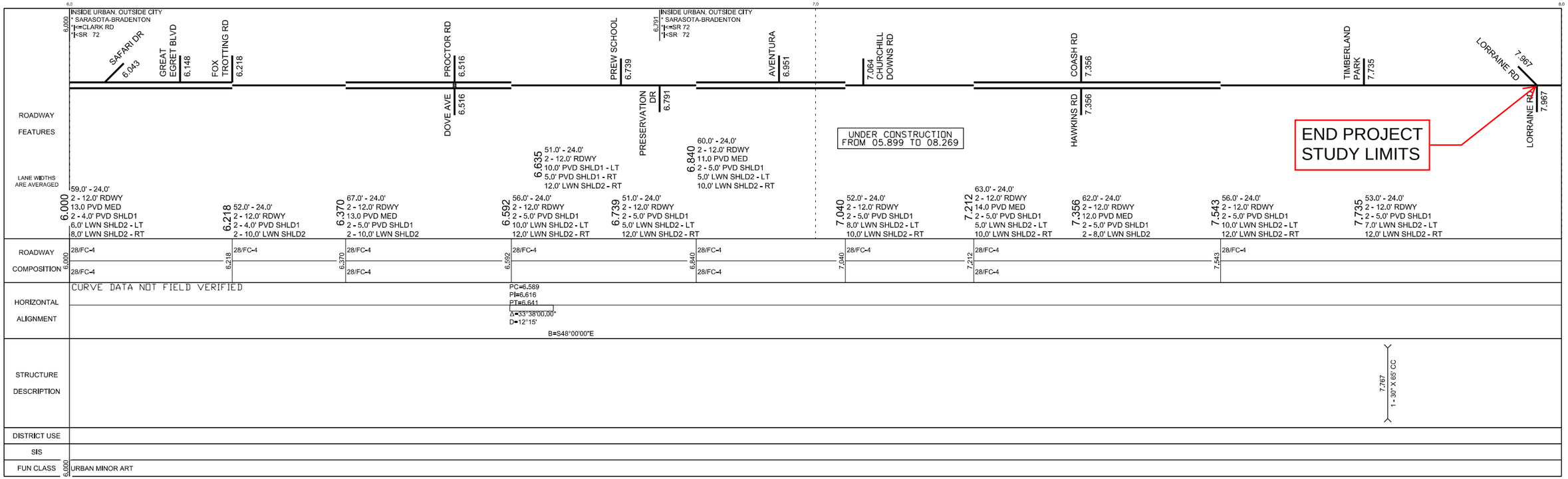


	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/01/2023	03/14/2023				
BY	FTE	FTE				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO.
02		SR 72	SARASOTA	01	17070000	3 OF 7

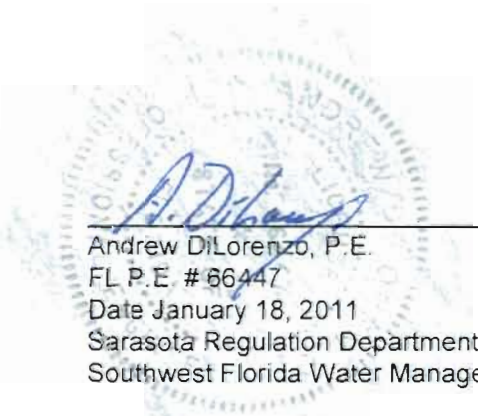


Version: 1.4.2.27 03/14/2023

PROFESSIONAL CERTIFICATION*
FOR THE ENGINEERING EVALUATION REPORT

MSSW/ERP Permit Number:	47040200.001
Date Application Received:	December 29, 2010
Permittee's Name:	Florida Department of transportation
Address:	Post Office Box 1249 Bartow, FL 33831-1249
Project Name:	SR 72 from Proctor Road to Saddle Creek Trail
Project Description:	Roadway
Project Size:	37.0 acres
Activity:	Construction
Section(s)/Township/Range:	15,16,17,22,23/37S/19E

I HEREBY CERTIFY that the engineering features described in the referenced application to construct and/or operate a surface water management system associated with the indicated project have been evaluated regarding provision of reasonable assurance of compliance with Part IV, Chapter 373, Florida Statutes, and Chapters 40D-4, 40D-40 or 40D-400, Florida Administrative Code (F.A.C.), as applicable. I have not evaluated and do not make any certifications as to other aspects of the proposal.



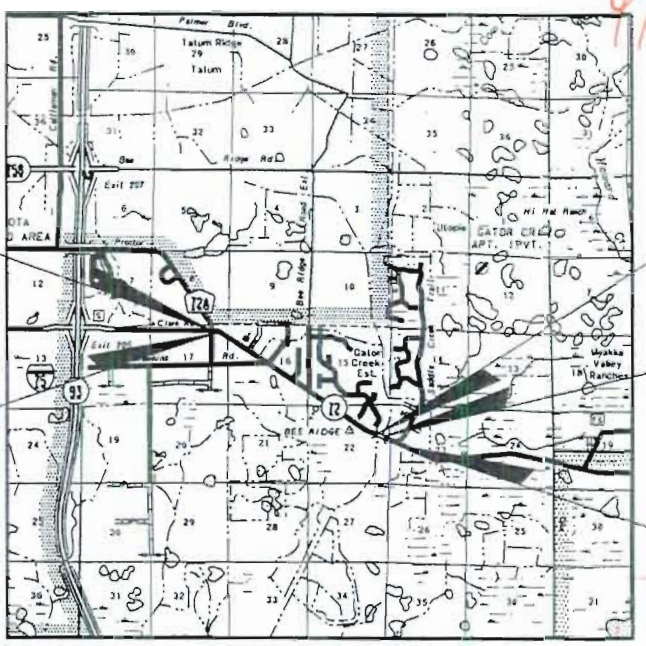
_____(Seal)
Andrew DiLorenzo, P.E.
FL P.E. # 66447
Date January 18, 2011
Sarasota Regulation Department
Southwest Florida Water Management District

* When required by Subsection 61G15-26.001(1), F.A.C., a professional engineer's seal, signature and date (i.e., "Professional Certification") means that the work indicated has been conducted under the responsible supervision, direction or control of a person licensed by the State to practice engineering, who by authority of their license is required to have some specialized knowledge of engineering. Professional Certification is not a guaranty or warranty of fitness or suitability, either explicit or implied.

043816

IMAGED

470460200.001



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD)
PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department, when construction begins.

RDiLorenzo

FPID 425254-1-52-01
STATE ROAD NO. 72
SARASOTA COUNTY (17070)

FILE OF RECORD

400-400.447

FROM PROCTOR ROAD
TO EAST OF SADDLE CREEK TRAIL
MP 6.589 TO MP 9.648

SOUTHWEST FLORIDA WATER MGMT DISTRICT
DEC 29 2010
RR. SARASOTA

863-519-2557

BRENT SETCHELL, P.E.
P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

12-21-10
DATE

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72		SARASOTA COUNTY	
	BY	FROM PROCTOR RD. TO E. OF SADDLE CR. TR.	
DRAWN	MWS	F.P.I.D. 425254-1-52-01	SHEET 1 OF 17
CHECKED	JRW		

GENERAL NOTES

1. The Florida Department of Transportation proposes to mill and resurface a 3.05 mile stretch of SR 72 in Sarasota County, Florida. The project includes the construction of five foot paved shoulders with the regrading of the front slopes, which will result in minor surface water and wetland impacts to the existing linear ditches that parallel SR 72.

2. Strict adherence to Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction used in conjunction with this application provide reasonable assurance that water quality will not be violated.

3. Types of equipment involved in the construction will include: gradeall, dump trucks, bulldozer, and front end loader. The equipment will be trucked or self propelled to the site.

4. Turbidity curtains, silt fences, inlet protection barriers, synthetic bales or some combination of these items will be used as directed by the project engineer to maintain State Water Quality Standards.

5. Any unsuitable material excavated during the installation of the shoulders will be disposed of and contained in upland sites provided by the contractor.

6. Traffic will be maintained on SR 72 during construction.

47040200.001

7. All fill shall be comprised of clean, suitable, borrow materials.

8. All elevations shown in this permit application are referenced to U.S.G.S. National Vertical Datum of 1929.

9. No dewatering will be conducted for this project.

10. Approximately 0.015 acres of wetland impacts are proposed for this project.

11. Approximately 0.483 acres of other surface water impacts (relatively permanent water impact) are proposed for this project.

12. The following volume represents fill within wetlands and other surface waters of the State:

Wetland Jurisdictional Fill: 72 cubic yards (+/- 0.015 Acres)
Other Surface Water Excavation: 94 cubic yards
Other Surface Water Fill: 441 cubic yards

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD)
PERMITTED DRAWINGS
For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department, when construction begins.

STATEMENT OF CERTIFICATION FOR DNR SUBMERGED LANDS

Pursuant to Section 339.135, F.S., the Florida Department of Community Affairs has determined that this project is not Inconsistent with the local comprehensive plan for the affected area.

FILE OF RECORD

SOUTHWEST FLORIDA WATER MGMT DISTRICT
DEC 29 2010
RR SARASOTA

12-21-10
BRENT SETCHELL, P.E. DATE
P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

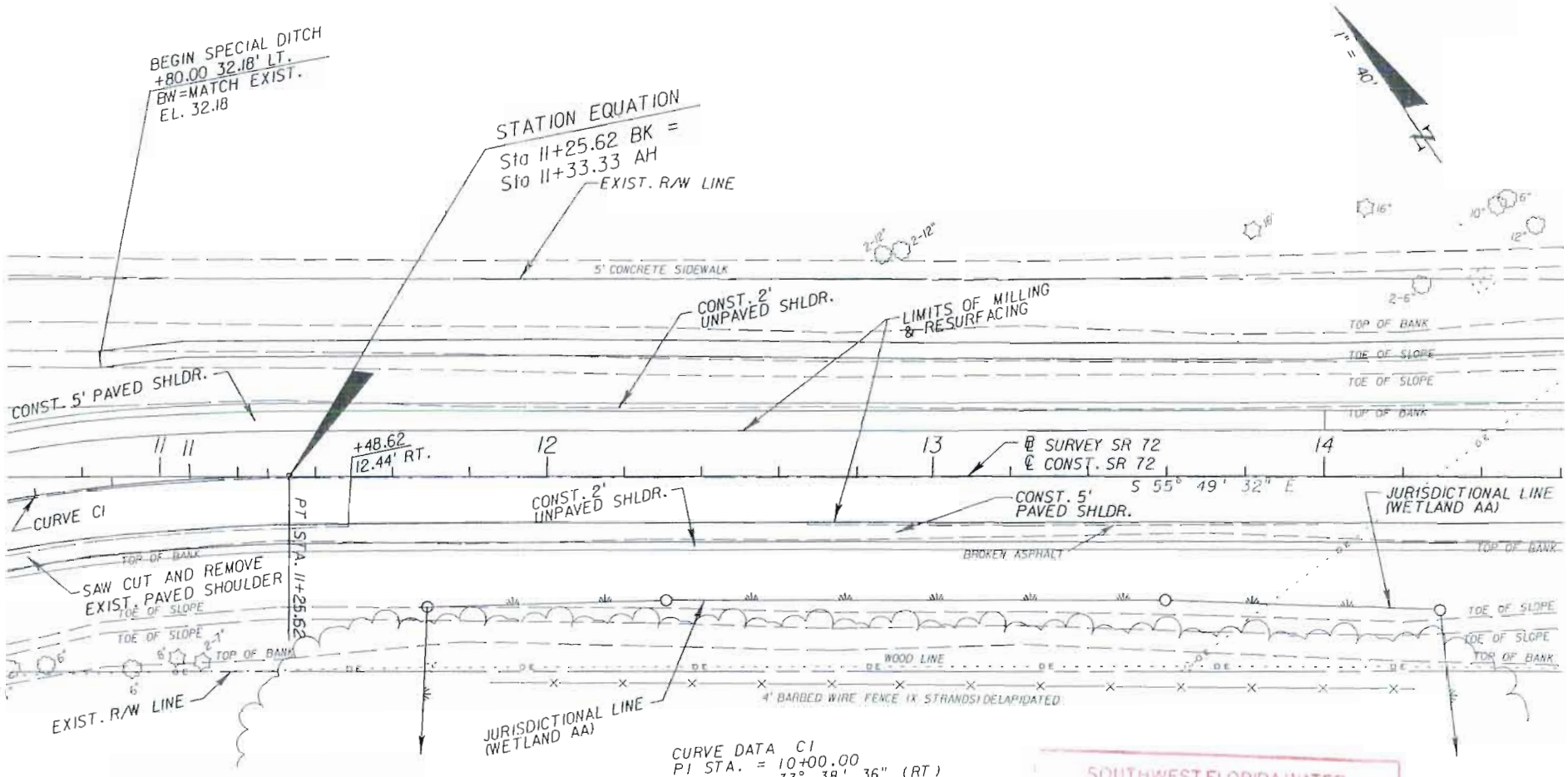
FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

	BY
DRAWN	MWS
CHECKED	JRW

FROM PROCTOR RD. TO E. OF SADDLE CR. TR.

F.P.I.D. 425254-1-52-01 SHEET 2 OF 17



CURVE DATA C1

PI STA.	=	10+00.00
DELTA	=	33° 38' 36" (RT)
D	=	12° 59' 32"
T	=	133.33
L	=	258.95
R	=	441.00
PC STA.	=	8+66.67
PT STA.	=	11+25.62
e	=	0.051

47040200.001

OTHER SURFACE WATER IMPACT
(RELATIVELY PERMANENT WATER IMPACT)

JURISDICTIONAL FILL

FILE OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins.

A DiLorenzo

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
DEC 29 2010
REGULATION DEPT. SARASOTA

12-21-10
BRENT SETCHELL, P.E. DATE

P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

	BY	
		FROM PROCTOR RD. TO E. OF SADDLE CREEK TR.
DRAWN	MWS	F.P.I.D. 425254-1-52-01 SHEET 3 OF 17
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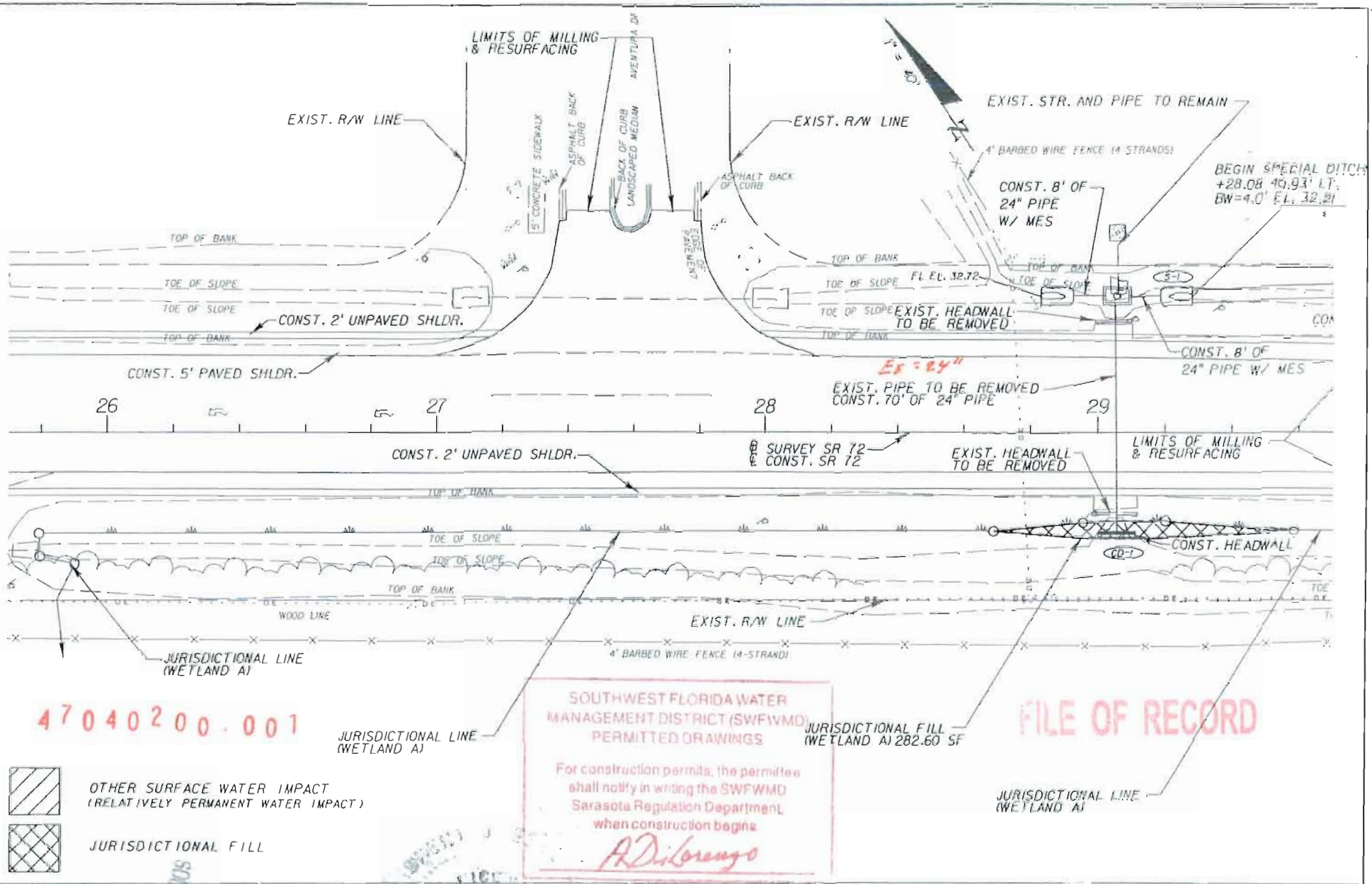


SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins.

A Dibrango

FILE OF RECORD

DEC 29 2010
FDOT SARASOTA

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Brent Setchell 63134 12-21-10
BRENT SETCHELL, P.E. DATE

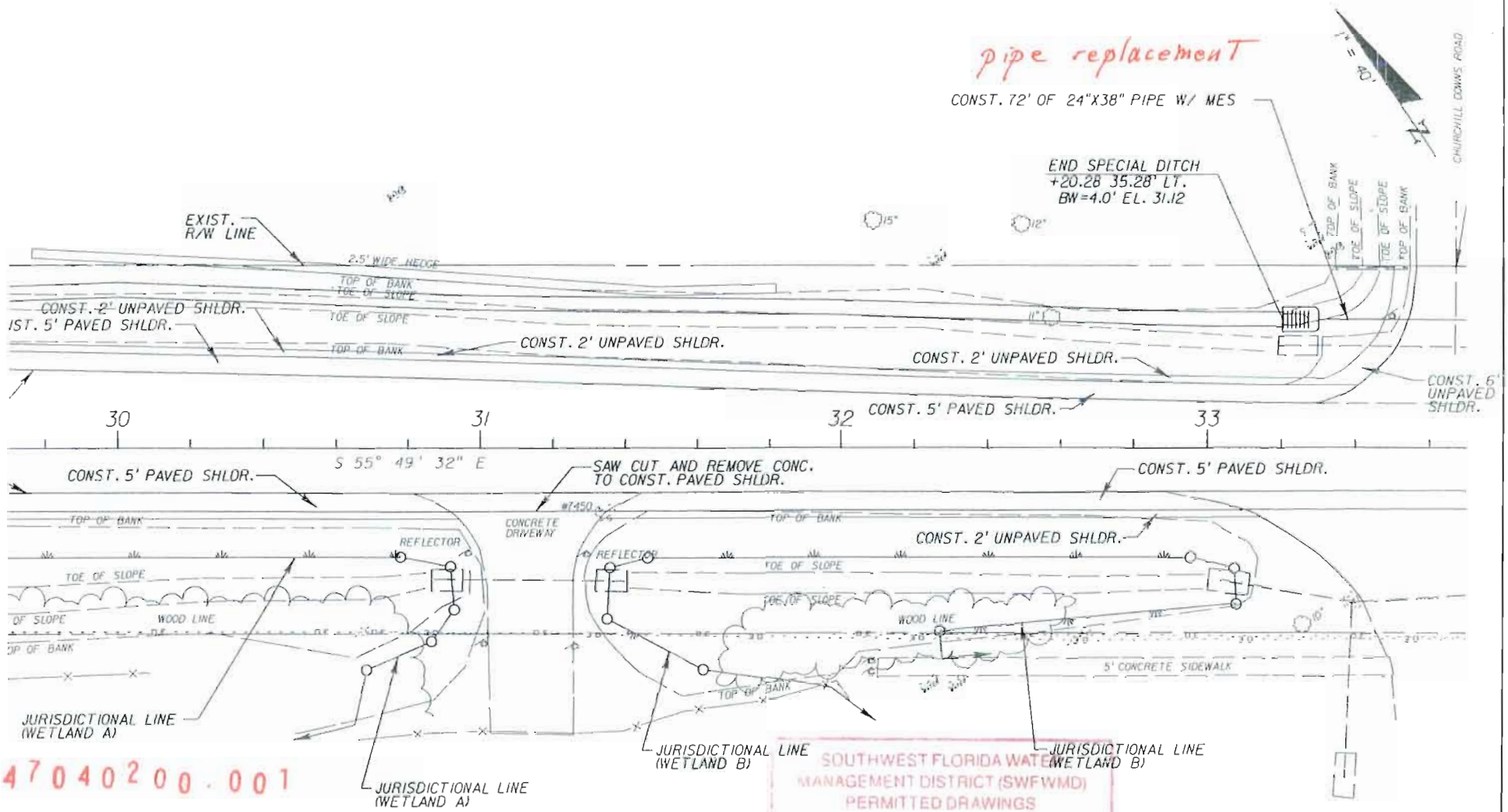
P.E. NUMBER 63134

FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

	BY	FROM PROCTOR RD. TO E. OF SADDLE CREEK TR.
DRAWN	MWS	F.P.I.D. 425254-1-52-01
CHECKED	JRW	SHEET 4 OF 17



47040200.001

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department, when construction begins.

A Dilorenzo

FILE OF RECORD

DEC 29 2010 SARASOTA SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

BRENT SETCHELL, P.E.
P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL. 33831

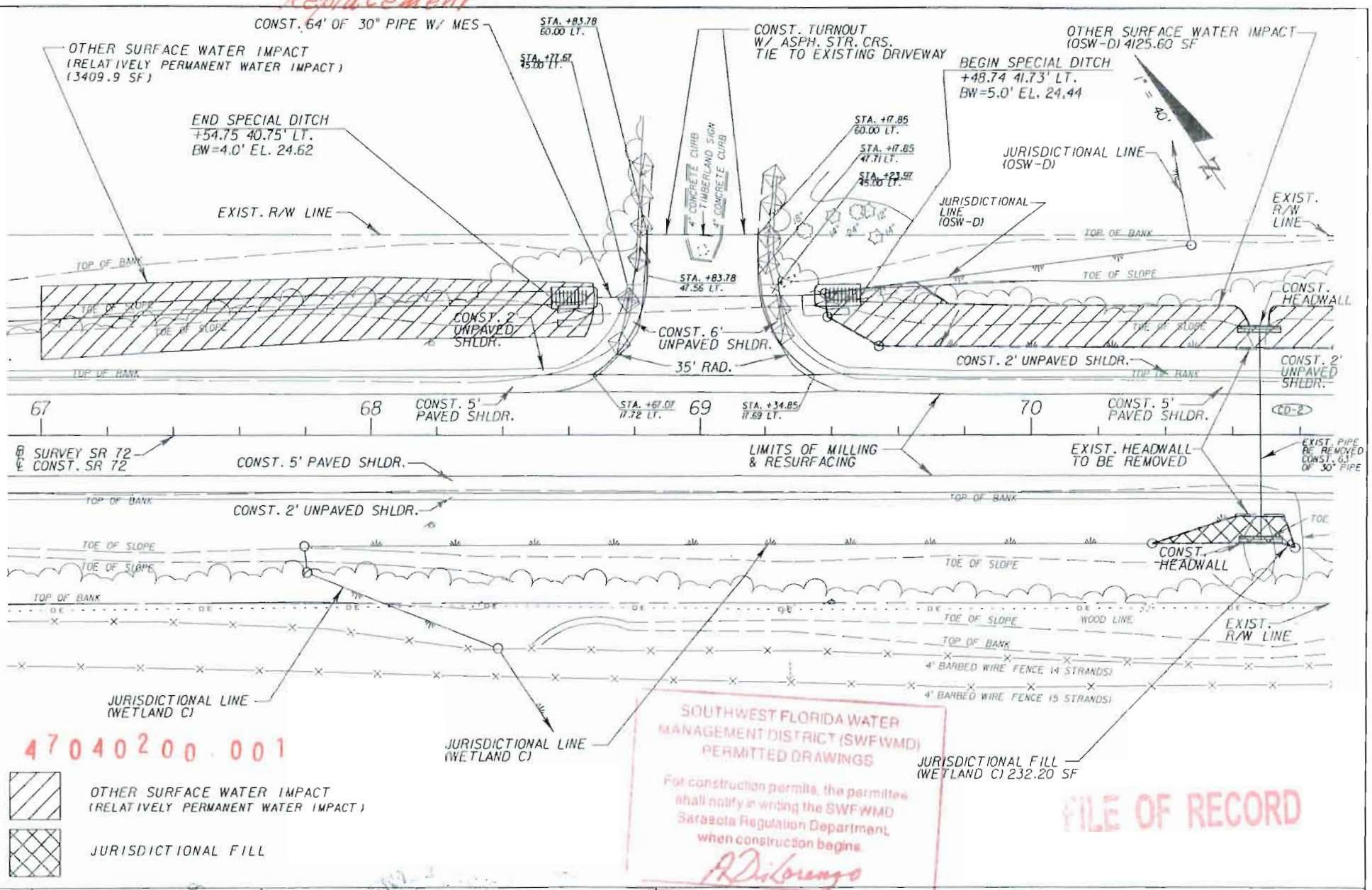
12-21-10
DATE

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

	BY	FROM PROCTOR RD. TO E. OF SADDLE CREEK TR.	
DRAWN	MWS	F.P.I.D. 425254-1-52-01	SHEET 5 OF 17
CHECKED	JRW		

Replacement



4704020.001

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins.

A DiGrango

FILE OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RECEIVED
DEC 29 2010
REGULATION DEPARTMENT
SARASOTA

Brent Setchell 12-21-10
BRENT SETCHELL, P.E. DATE

P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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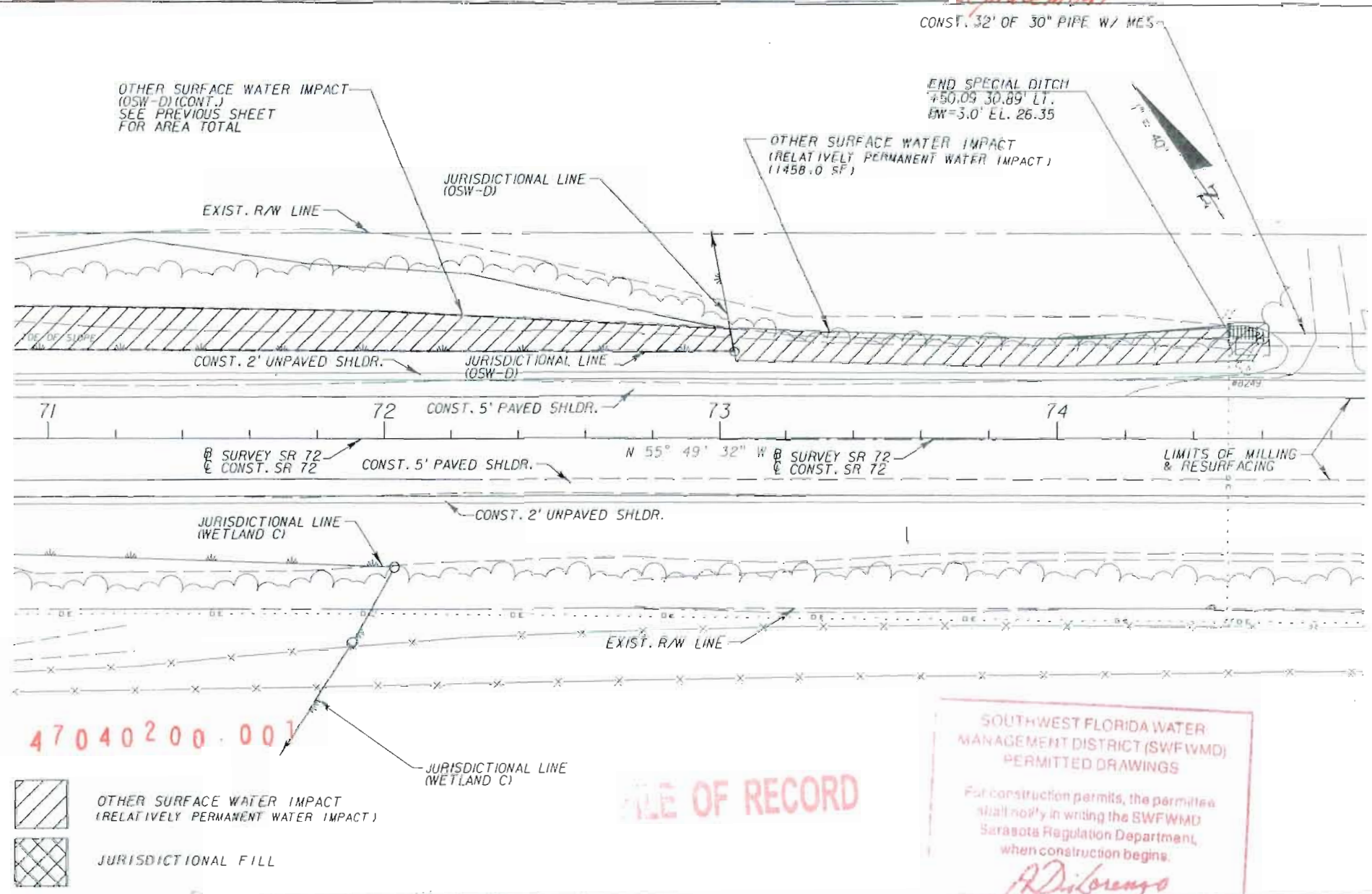

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TITLE OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department, when construction begins.

R DiLorenzo

DEC 29 2010

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
SARASOTA

B A Setchell 12-21-10
BRENT SETCHELL, P.E. DATE

P.E. NUMBER 63134

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801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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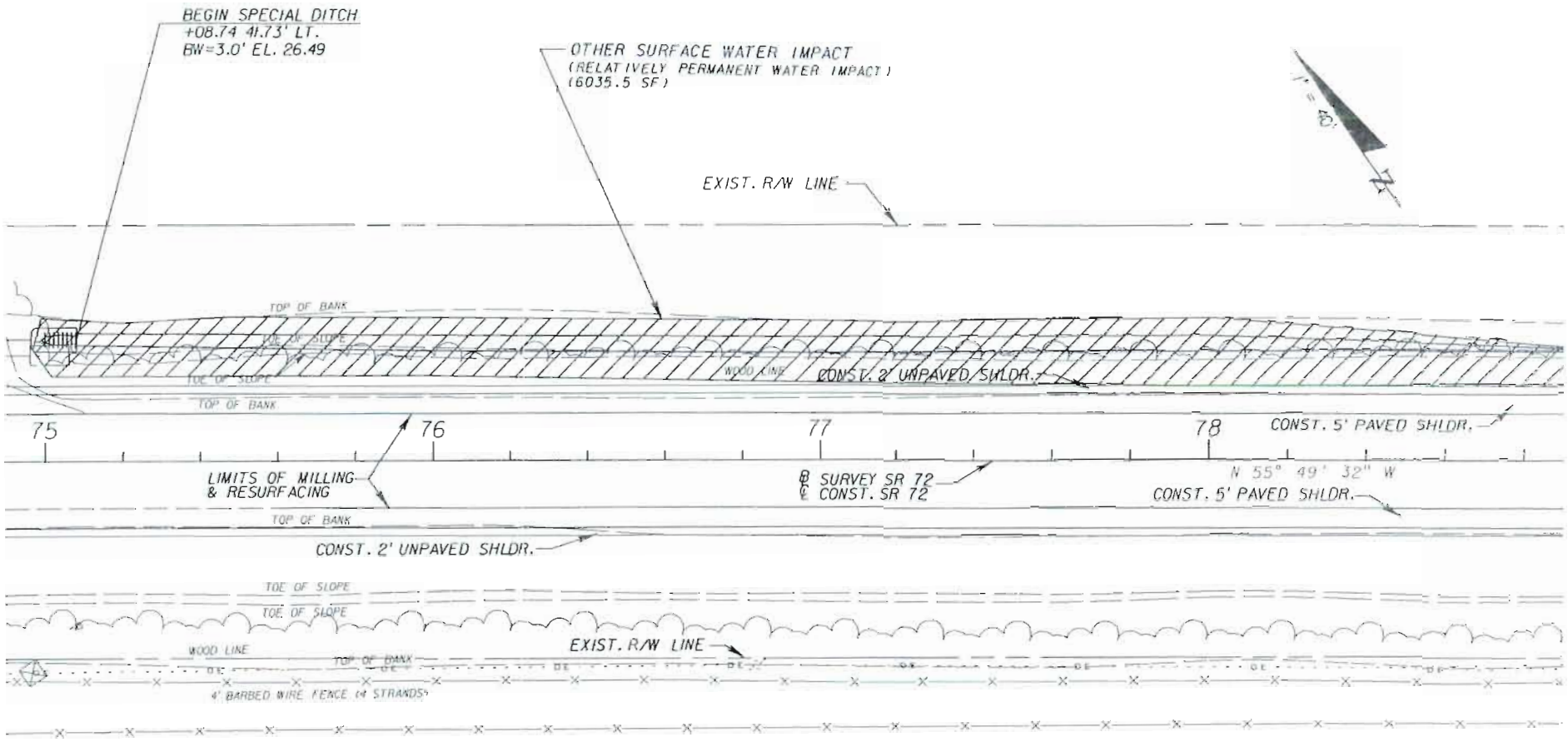

47040200.001

OTHER SURFACE WATER IMPACT
(RELATIVELY PERMANENT WATER IMPACT)

JURISDICTIONAL FILL

OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins.

R. DeLorenzo

RECEIVED
DEC 29 2010
R.R. SARASOTA
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Brent Setchell 12-21-10
BRENT SETCHELL, P.E. DATE
P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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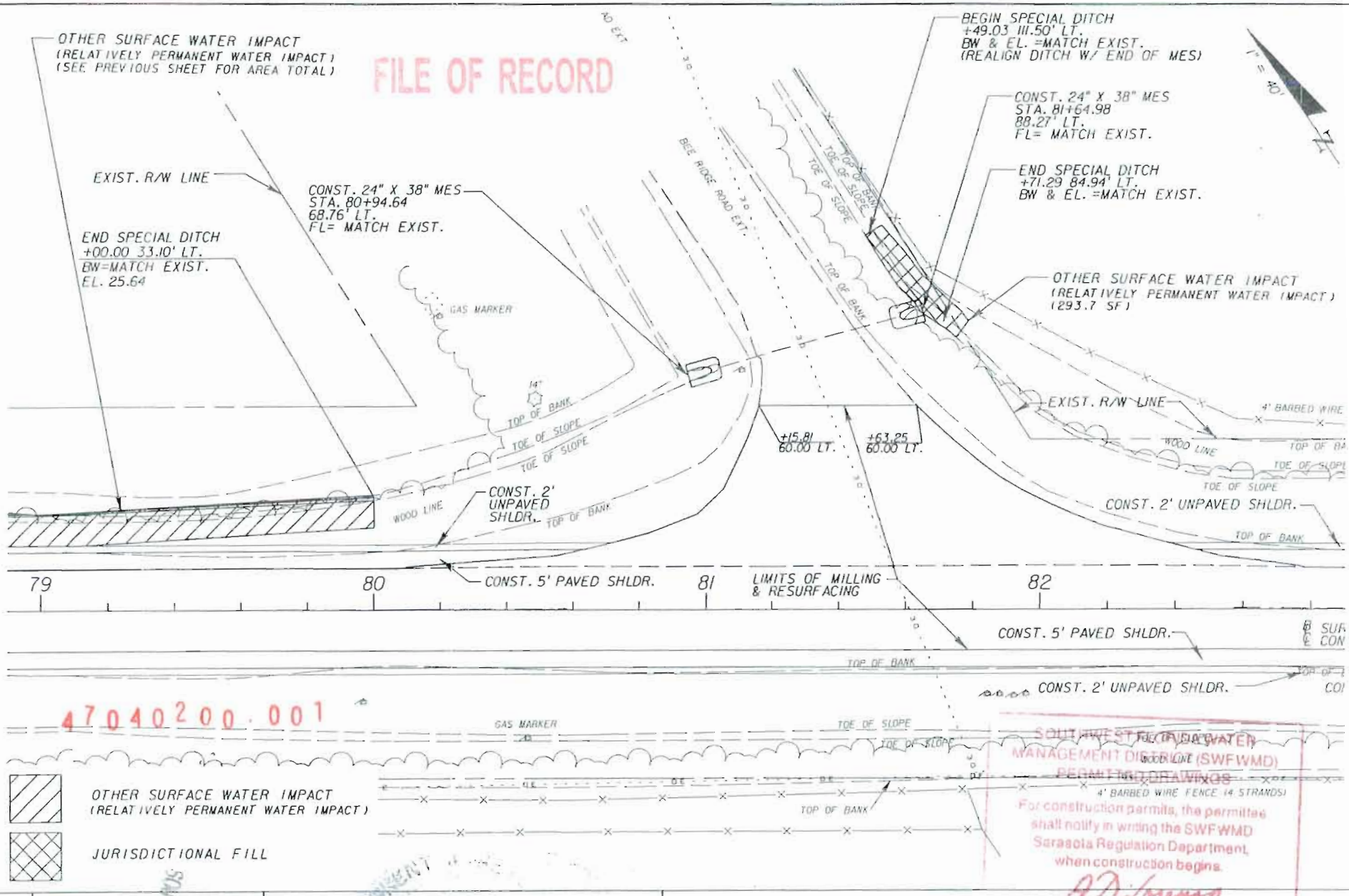

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD)
PERMIT INFORMATION
For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department, when construction begins.

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DEC 29 2010
SARASOTA

BRENT SETCHELL, P.E.
P.E. NUMBER 53134
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BARTOW, FL 33831

12-21-10
DATE

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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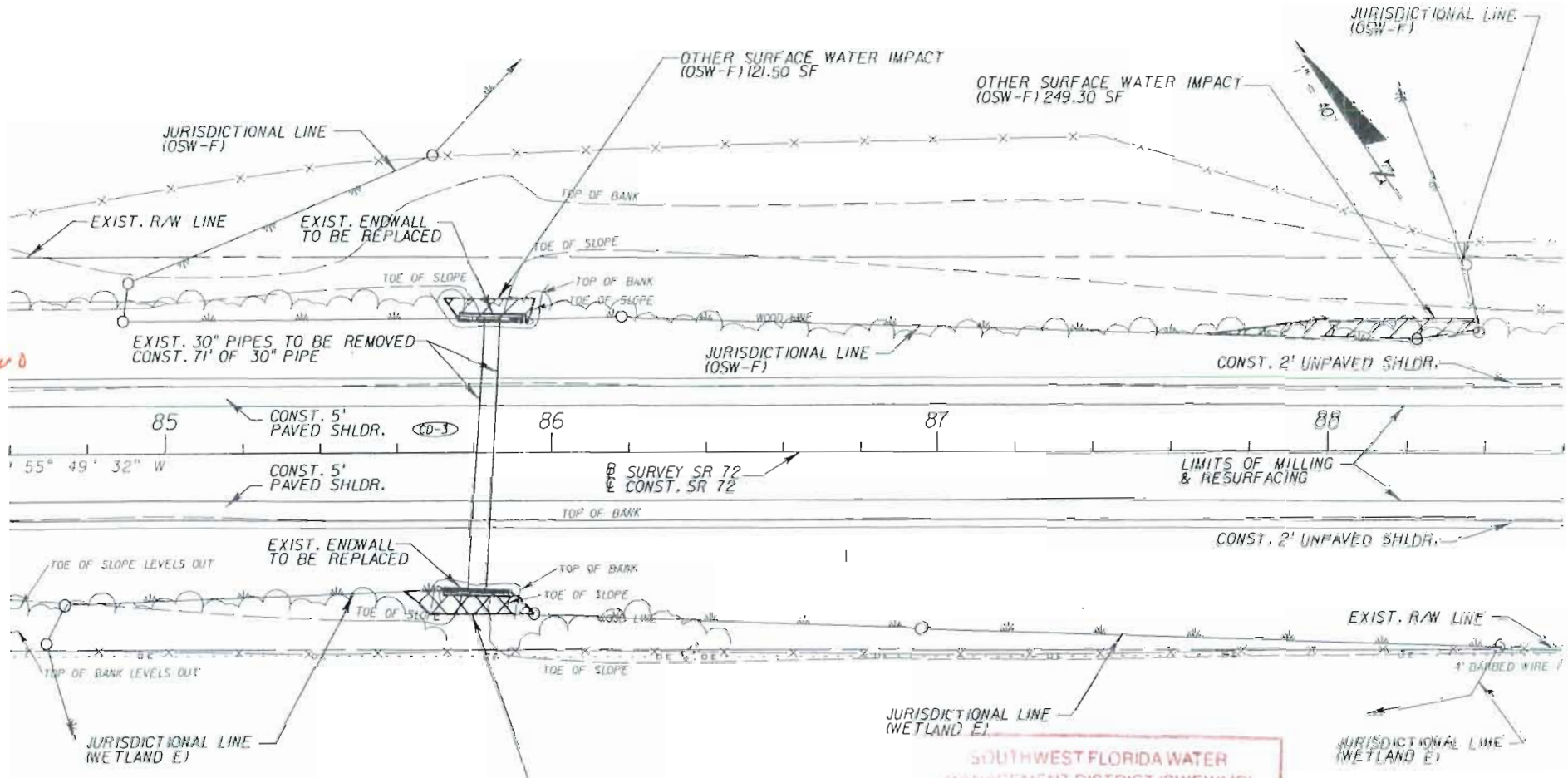

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OTHER SURFACE WATER IMPACT
(RELATIVELY PERMANENT WATER IMPACT)

JURISDICTIONAL FILL

BRENT SETCHELL, P.E. 12-21-10 DATE

P.E. NUMBER 63134

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801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

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FROM PROCTOR RD. TO E. OF SADDLE CREEK TR.

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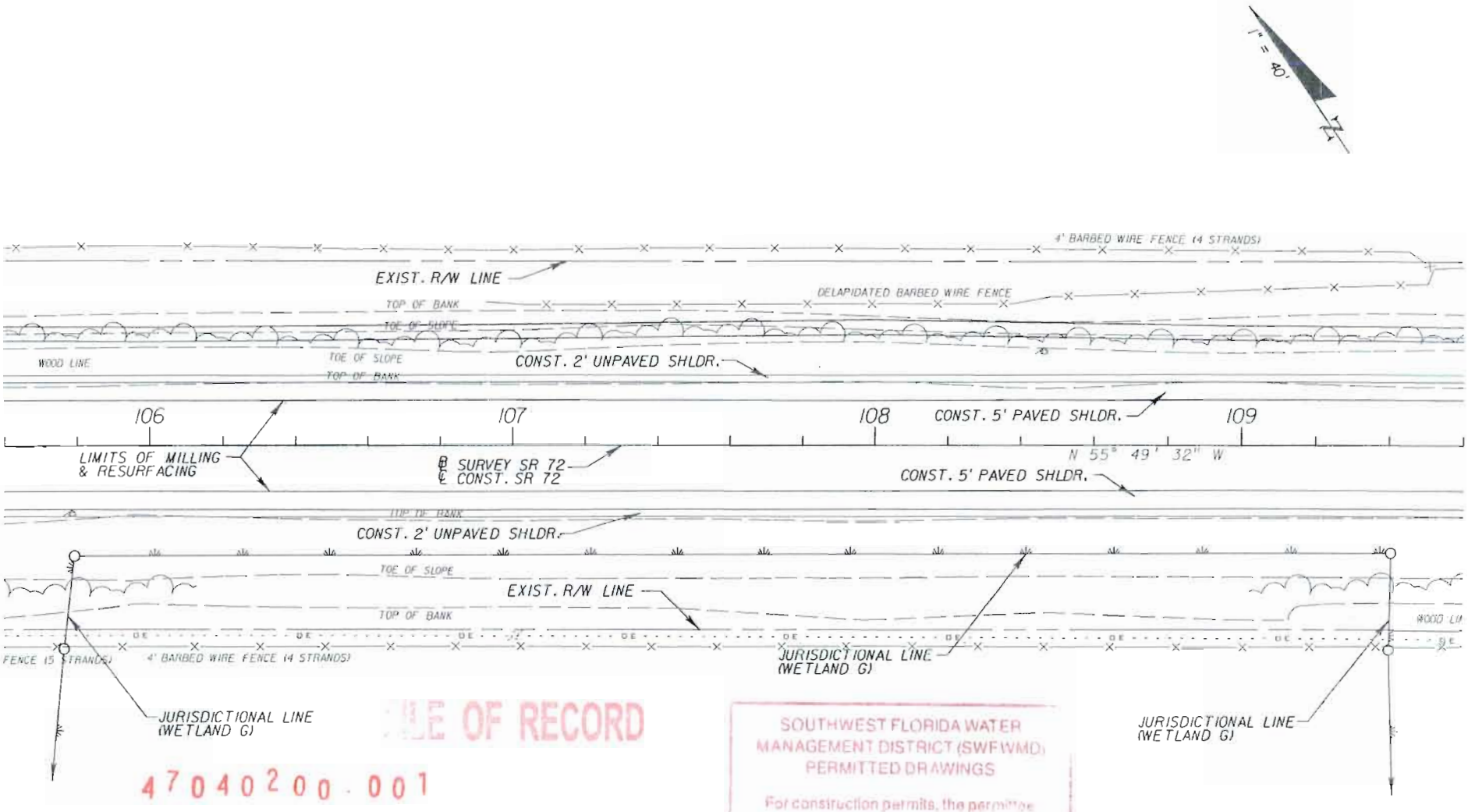

12-21-10

BRENT SETCHELL, P.E. — DATE

P.E. NUMBER 63134

FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 — SARASOTA COUNTY

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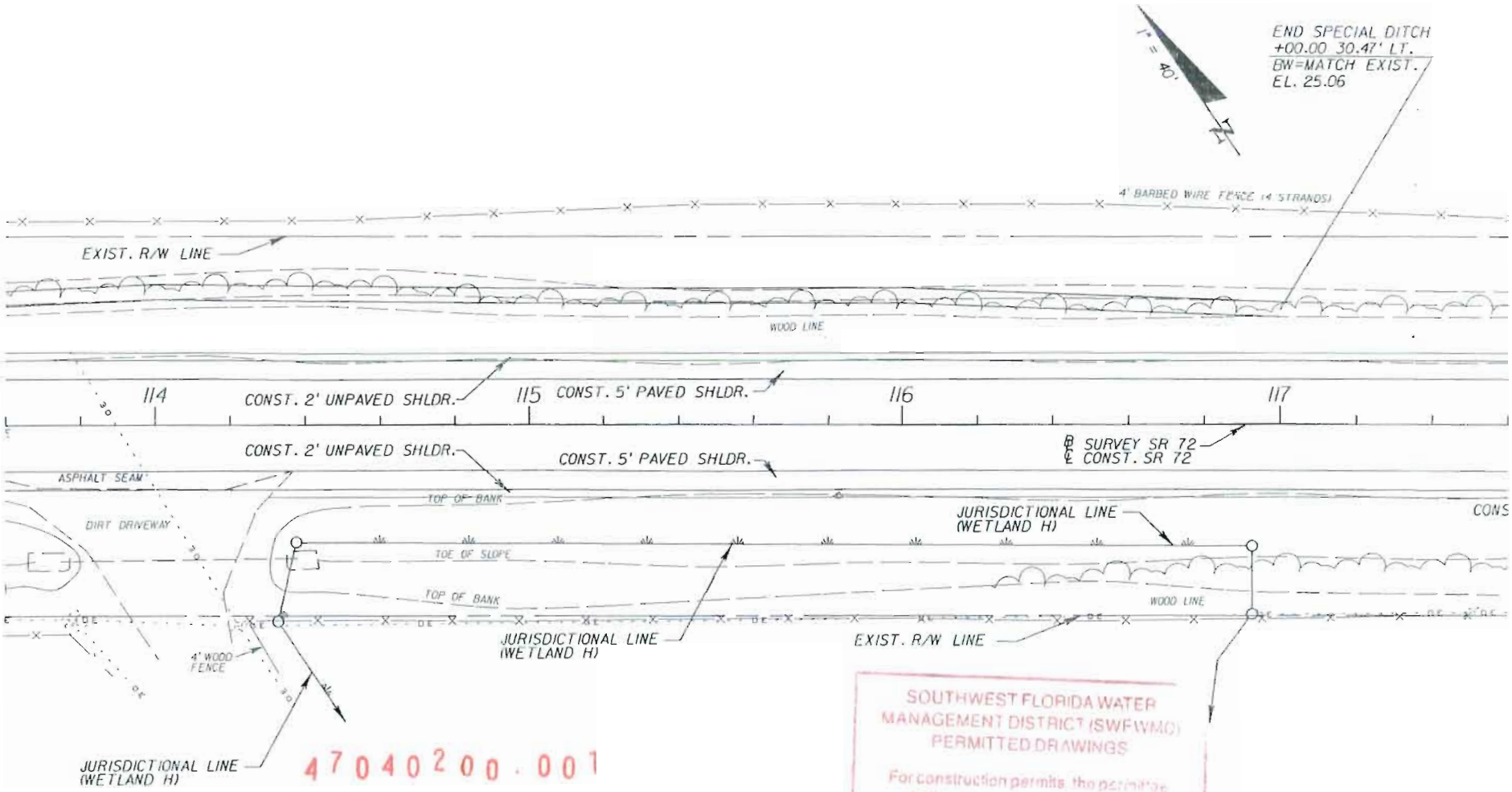

47040200.001

FILE OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins

A DiLorenzo

RECEIVED SARASOTA DEC 29 2010 SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

12-21-10
BRENT SETCHELL, P.E. DATE

P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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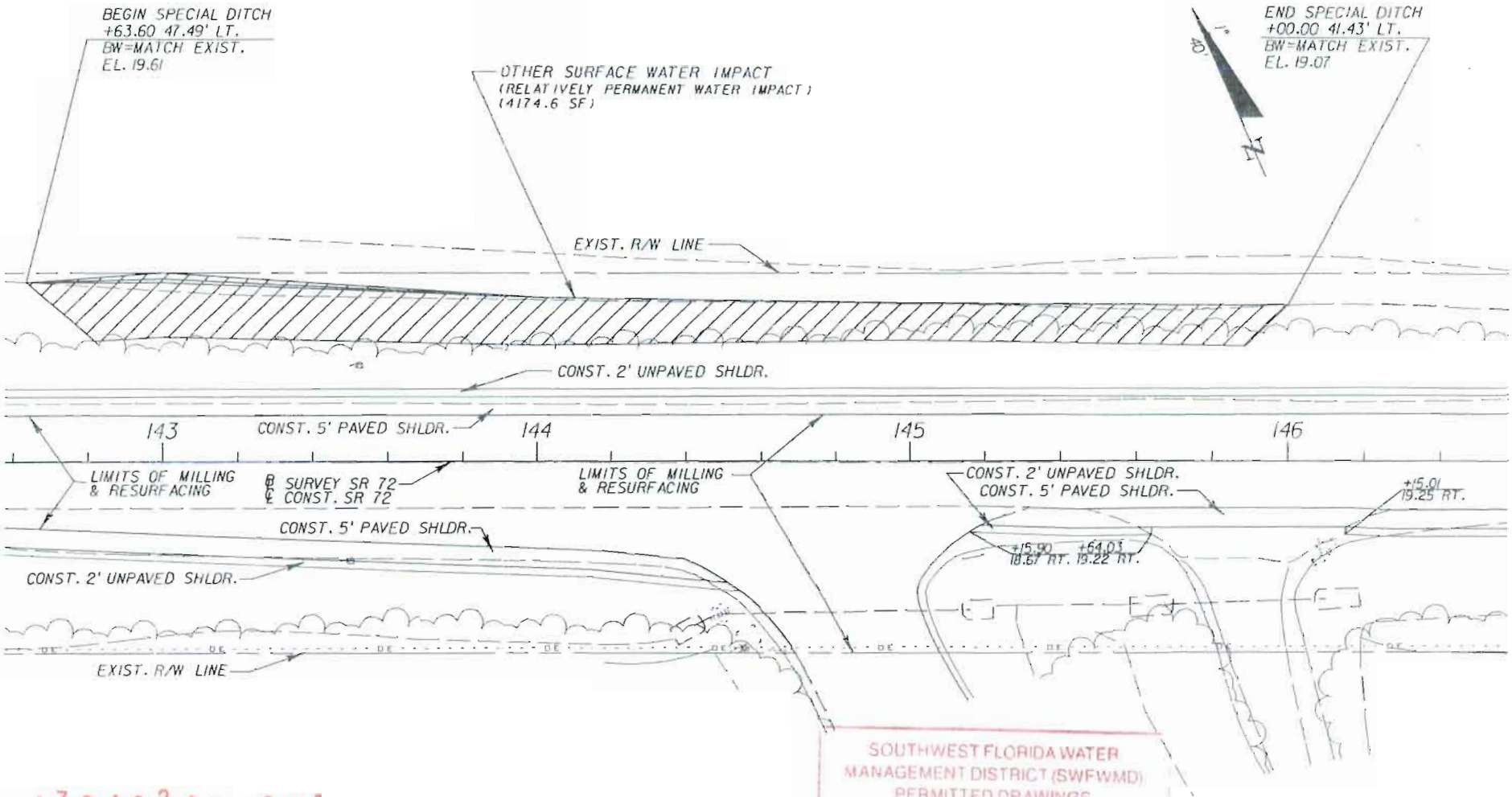

47040200.001

FILE OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department, when construction begins.

A DiGrango

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RECEIVED
DEC 29 2010
REGULATION DEPT.
SARASOTA

Brent Setchell 12-21-10
BRENT SETCHELL, P.E. DATE

P.E. NUMBER 63134

FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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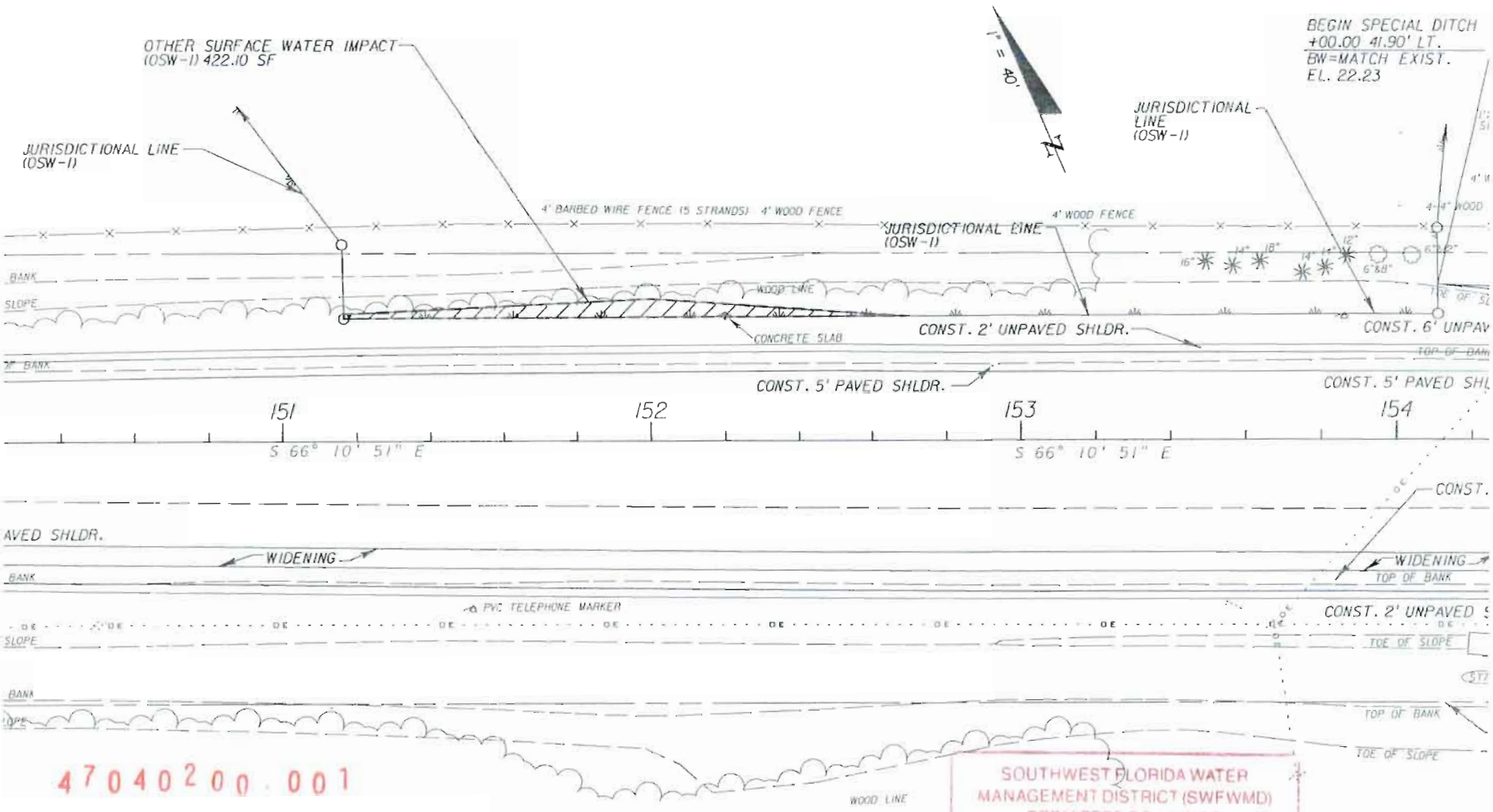

4704020 0 001

OTHER SURFACE WATER IMPACT
(RELATIVELY PERMANENT WATER IMPACT)

JURISDICTIONAL FILL

E OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins.

DEC 29 2010
RECEIVED SARASOTA
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Bt Setchell 12-21-10
BRENT SETCHELL, P.E. DATE

P.E. NUMBER 63134
FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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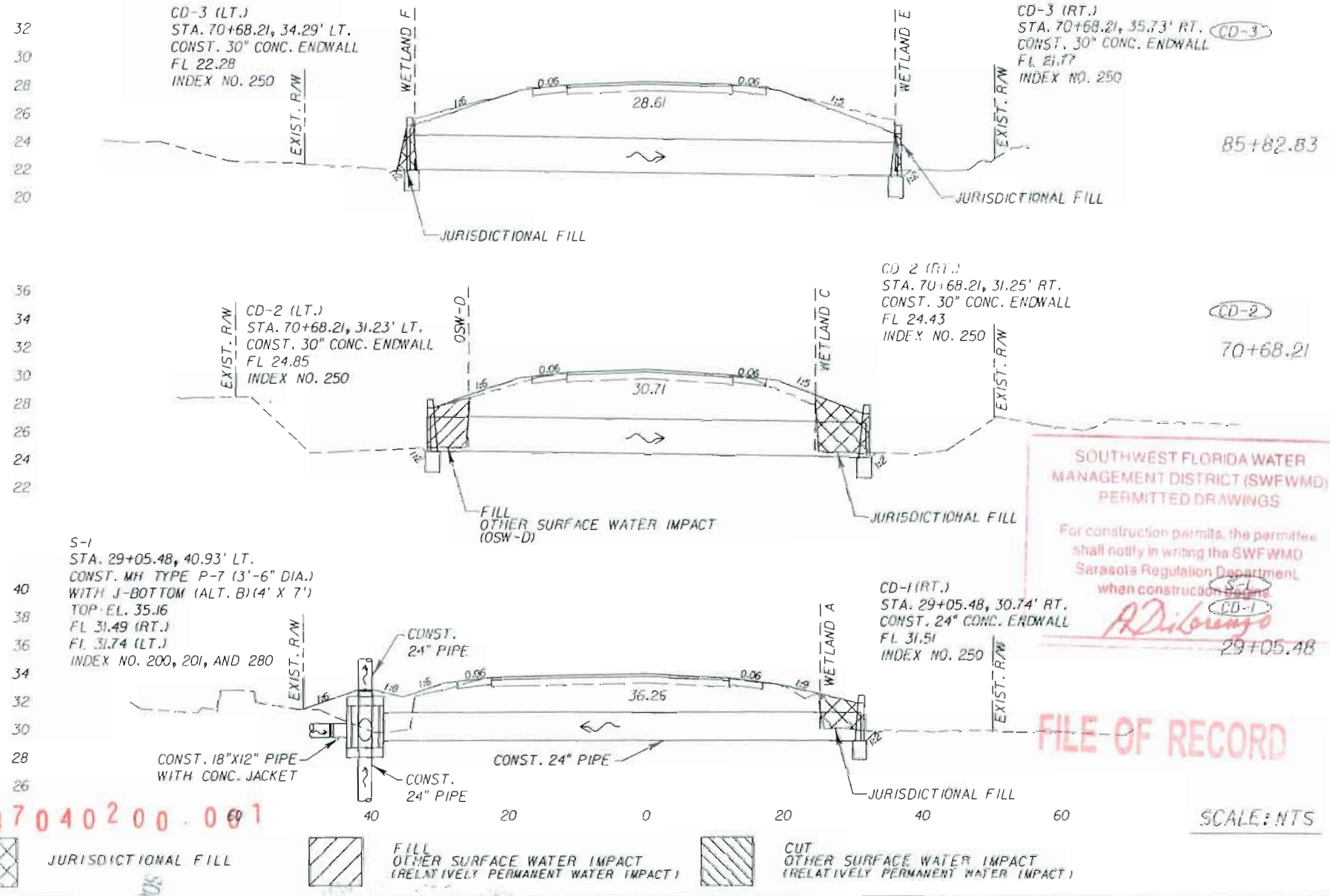

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins.

FILE OF RECORD

47040200.001

RECEIVED DEC 29 2010 SARASOTA SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

BRENT SETCHELL, P.E. 12-21-10 DATE

P.E. NUMBER 63134

FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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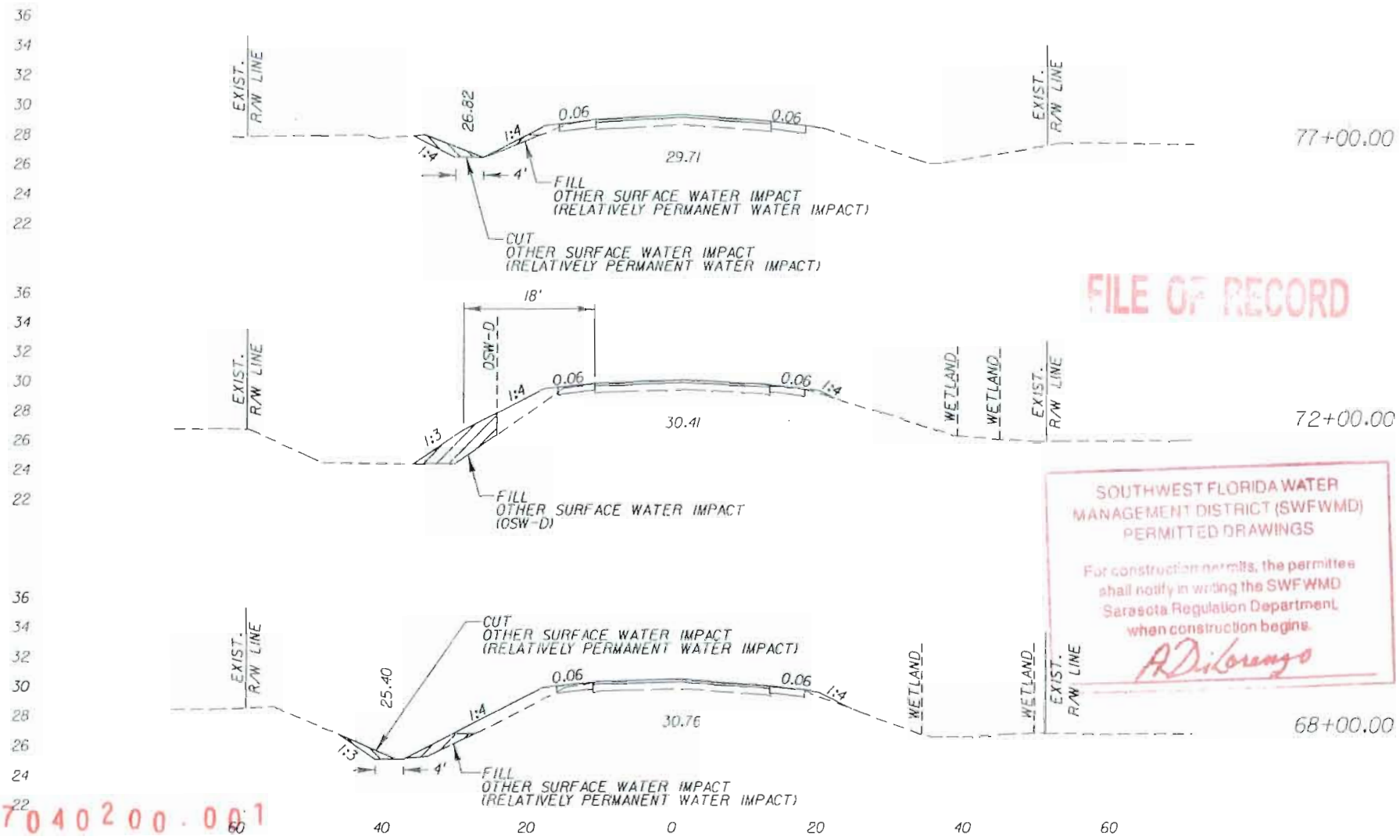

FILE OF RECORD

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) PERMITTED DRAWINGS

For construction permits, the permittee shall notify in writing the SWFWMD Sarasota Regulation Department when construction begins.

A DiLorenzo

47040200.001

SCALE: NTS

JURISDICTIONAL FILL

FILL OTHER SURFACE WATER IMPACT (RELATIVELY PERMANENT WATER IMPACT)

CUT OTHER SURFACE WATER IMPACT (RELATIVELY PERMANENT WATER IMPACT)

RECEIVED DEC 29 2010 FDOT-DISTRICT 1 PLANNING & ENVIRONMENTAL MANAGEMENT OFFICE RE: SARASOTA

12-21-10

BRENT SETCHELL, P.E. DATE

P.E. NUMBER 63134

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801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 SARASOTA COUNTY

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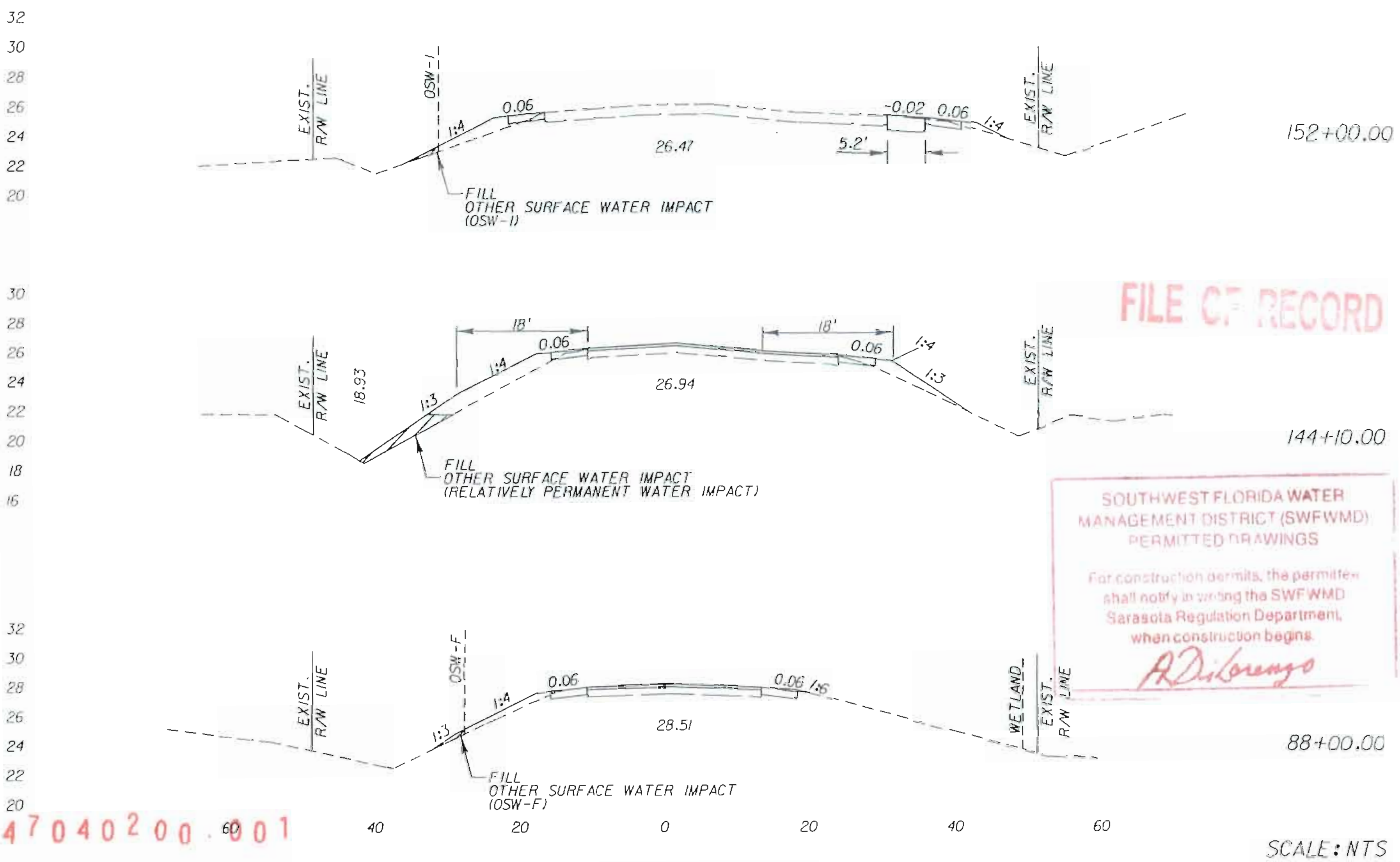

JURISDICTIONAL FILL	
FILL OTHER SURFACE WATER IMPACT (RELATIVELY PERMANENT WATER IMPACT)	
CUT OTHER SURFACE WATER IMPACT (RELATIVELY PERMANENT WATER IMPACT)	

BRENT SETCHELL, P.E. 12-21-10 DATE

P.E. NUMBER 63134

FL. DEPT. OF TRANSPORTATION
801 N. BROADWAY AVE.
BARTOW, FL 33831

FLORIDA DEPARTMENT OF TRANSPORTATION
SR 72 RESURFACING

STATE ROAD NO. 72 — SARASOTA COUNTY

FROM PROCTOR RD. TO E. OF SADDLE CREEK TR.

	BY
DRAWN	MWS
CHECKED	JRW

F.P.I.D. 425254-1-52-01

SHEET 17 OF 17

APPENDIX C – CULTURAL RESOURCE ASSESSMENT DESKTOP ANALYSIS REPORT

CULTURAL RESOURCE ASSESSMENT DESKTOP ANALYSIS

SR 72 (CLARK ROAD) FROM EAST OF I-75 TO LORRAINE ROAD SARASOTA COUNTY, FLORIDA

Financial Project ID No.: 444634-1-22-01
ETDM No.: 14441

Prepared for:

Florida Department of Transportation
District One
801 N. Broadway Avenue
Bartow, Florida 33830

October 2022

CULTURAL RESOURCE ASSESSMENT DESKTOP ANALYSIS

SR 72 (CLARK ROAD) FROM EAST OF I-75 TO LORRAINE ROAD SARASOTA COUNTY, FLORIDA

Financial Project ID No.: 444634-1-22-01
ETDM No.: 14441

Prepared for:

Florida Department of Transportation
District One
801 N. Broadway Avenue
Bartow, Florida 33830

Prepared by:

Archaeological Consultants, Inc.
8110 Blaikie Court, Suite A
Sarasota, Florida 34240

October 2022

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) study along State Road (SR) 72 (Clark Road) extending 3.39 miles from east of I-75 to Lorraine Road in unincorporated Sarasota County (**Figures 1 and 2**). The purpose of this project is to improve the operational capacity of SR 72 (Clark Road) from east of I-75 to Lorraine Road in order to accommodate future travel demand projected as a result of area-wide population and employment growth. The study will evaluate the effects of widening this section of SR 72 from a two-lane undivided roadway to up to four-lanes. The project also includes enhancing safety conditions and accommodating multimodal activity (FDOT 2021).

As part of the study, Archaeological Consultants, Inc. (ACI) conducted a desktop analysis within the study corridor in association with Kimley-Horn and Associates, Inc. to determine, preliminarily, if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the construction of any of the proposed improvement alternatives within the project corridor in Sarasota County. Known or potentially significant cultural resources are defined as those sites that are listed, determined eligible, or considered potentially eligible for listing in the National Register of Historic Places (NRHP). All work will be conducted in compliance with the provisions of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended, and the implementing regulations 36 CFR 800, as well as with the provisions contained in the revised Chapter 267, *Florida Statutes* (*FS*).

ACI's study includes the identification and description of known archaeological sites and historic resources along the study corridor, as well as a discussion of potential archaeologically sensitive areas. The evaluation factors included previously recorded sites within or immediately adjacent to the study corridor, soil type, elevation, and distance to freshwater for archaeological sites. For historic resources, pertinent United States Geological Survey (USGS) quadrangle maps (USGS 1973), and the Sarasota County Property Appraiser's website (Furst 2022) were reviewed to determine the potential for unrecorded buildings (45 years of age or older; constructed in 1977 or earlier). Other cultural resource assessment surveys (CRAS) were also reviewed (ACI 2018a, 2018b, 2019). In addition, ACI reviewed the Efficient Transportation Decision Making (ETDM) report (ETDM #14441) for this project. An ETDM *Programming Screen Summary Report* containing comments from the Environmental Technical Advisory Team (ETAT) was published on October 21, 2021 (FDOT 2021).

The archaeological background research indicated that six archaeological sites are recorded within one mile of the study corridor (**Figure 3**). These sites consist of three lithic scatters, two historic refuse sites, and one artifact scatter; three were determined not eligible for listing in the NRHP by the State Historic Preservation Officer (SHPO) and three have not been evaluated. The background research indicated a low to moderate probability within the entire study corridor. The ETAT review determined there was a minimal degree of effect (FDOT 2019a). Thus, there is a potential for discovering evidence of additional historic and/or prehistoric archaeological sites along the SR 72 corridor.

Historical/architectural background research, including a review of previous CRAS reports, the Florida Master Site File (FMSF) and the NRHP, indicated that 11 historic resources (8SO03217, 8SO03218, 8SO03219, 8SO03220, 8SO03221, 8SO07074, 8SO14342, 8SO14343, 8SO14344, 8SO14345, 8SO14358) are located along the SR 72 study corridor (**Figure 3**). These historic resources include the Hawkins Property Building Complex Resource Group (8SO03221) with four contributing buildings (8SO03217, 8SO03218, 8SO03219, 8SO03220), as well as six (6) historic

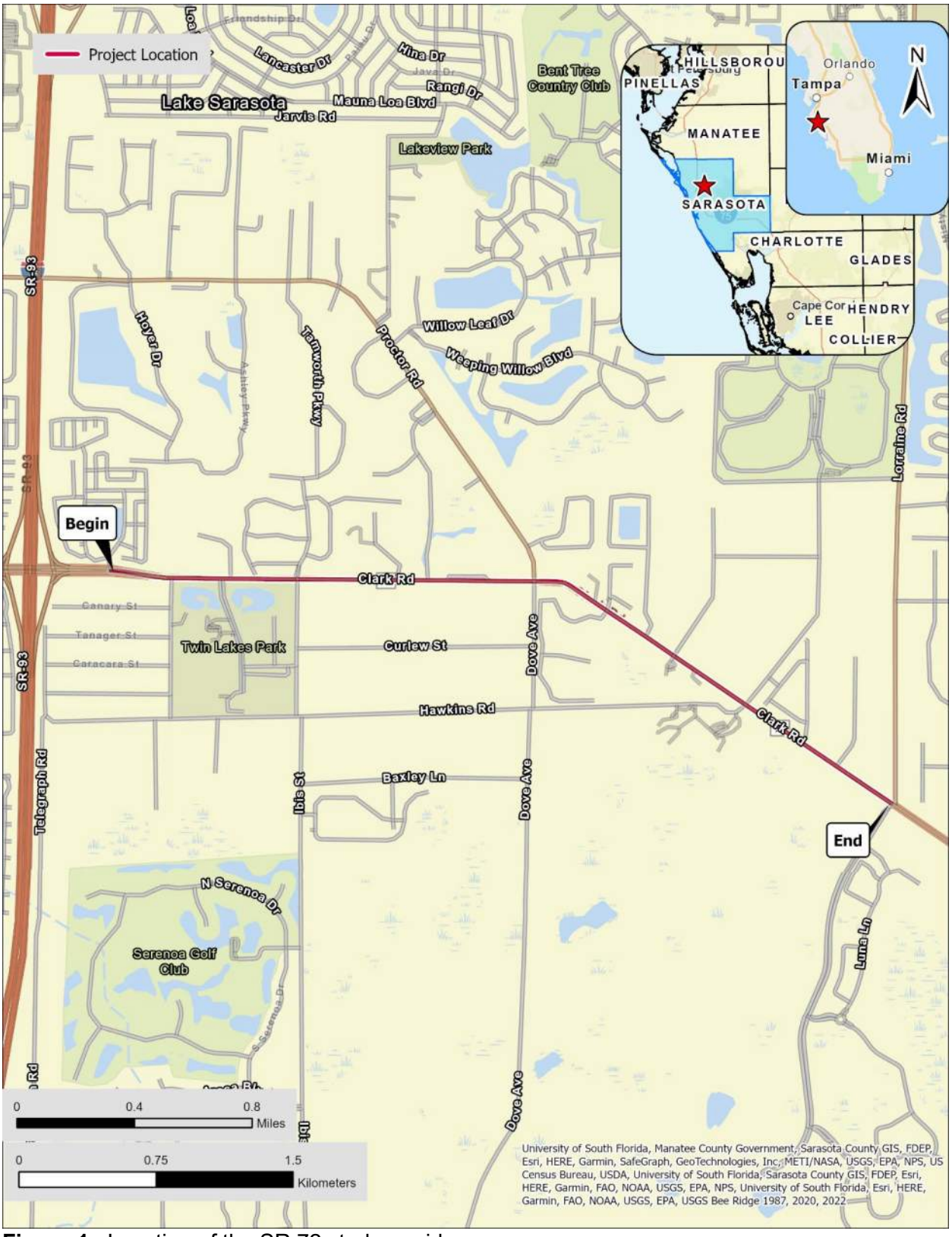


Figure 1. Location of the SR 72 study corridor.

Figure 2. Environmental setting of the SR 72 study corridor.

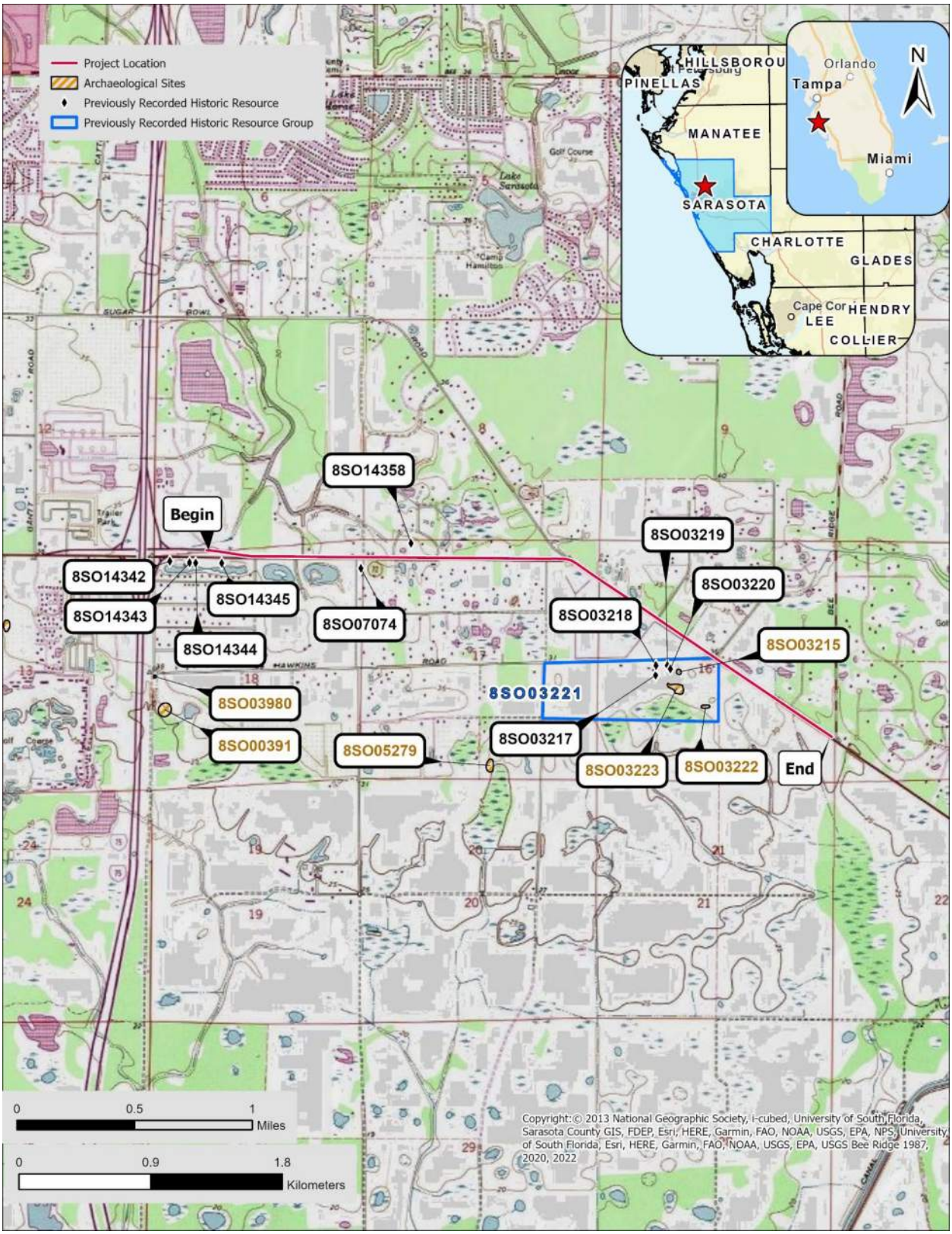


Figure 3. Location of cultural resources along the SR 72 study corridor.

buildings (8SO07074, 8SO14342, 8SO14343, 8SO14344, 8SO14345, and 8SO14358) constructed between circa (ca.) 1920 and 1963. Of these, 10 have been determined ineligible for listing in the NRHP by the SHPO (8SO03217, 8SO03218, 8SO03219, 8SO03220, 8SO03221, 8SO07074, 8SO14342, 8SO14343, 8SO14344, and 8SO14345) and one building located at 7025 Clark Road (8SO14358) was recorded by ACI in 2022 and has not been evaluated by the SHPO. A review of the Sarasota County Property Appraiser data and historic aerial photographs suggested approximately 21 historic resources, 45 years of age or older (constructed in 1977 or earlier), are located within the study corridor (Furst 2022).

Based on the background research, there is a potential for discovery of one or more historic and/or aboriginal archaeological sites as well as historic resources in the project study area. Sites in this region are typically small lithic and/or artifact scatters, which are not considered eligible for listing in the NRHP. As such, following the selection of the preferred alternative, a systematic archaeological field survey and a historical/architectural field survey is recommended to document additional cultural resources within the SR 72 corridor. The fieldwork should meet the requirements set forth in Chapters 267, 373 and 872.05, *FS*, as revised; Part 2, Chapter 8 ("Archaeological and Historical Resources") of the Florida Department of Transportation's (FDOT) *Project Development and Environment (PD&E) Manual* (FDOT 2020); the standards and guidelines contained in the *Cultural Resource Management Standards and Operational Manual*: *Module 3* (Florida Division of Historical Resources [FDHR] 2003); and Chapter 1A-46, *Florida Administrative Code* (*FAC*) as well as any other federal regulations for determining possible effects on historic properties listed, or eligible for listing in the NRHP, or otherwise of historical, architectural, or archaeological value. The study should also comply with Chapter 66, Sec 66-76(b) of the Sarasota Code of Ordinances,

1.1 Purpose

The purpose of this project is to improve the operational capacity of SR 72 (Clark Road) from east of I-75 to Lorraine Road within Sarasota County in order to accommodate future travel demand projected as a result of area-wide population and employment growth. Other goals of the project include enhancing safety conditions and accommodating multimodal activity.

1.2 Project Description

This roadway project proposes the potential widening of 3.39 miles of two-lane undivided SR 72 (Clark Road) up to four lanes from east of I-75 to Lorraine Road within unincorporated Sarasota County. Additionally, associated but not part of this project, there are roundabout improvements proposed along the project corridor at Proctor Road/Dove Avenue and Lorraine Road and a temporary traffic signal proposed at Ibis Road. SR 72 (Clark Road) plays an important role in the transportation network as it facilitates east-west movement within Sarasota County for both local and regional traffic, including truck traffic. Within the region, SR 72 (Clark Road) provides connections to US 41, I-75, and beaches at Siesta Key on the west and SR 70 on the east within DeSoto County, just west of the City of Arcadia. In keeping with the objectives of the Sarasota/Manatee Metropolitan Planning Organization (MPO), the proposed project may include shared-use paths on both sides of the roadway to enhance bicycle and pedestrian mobility.

The project segment of SR 72 (Clark Road) is classified as 'Urban Minor Arterial.' East of the I-75 interchange, SR 72 (Clark Road) narrows to four lanes before becoming a two-lane undivided roadway with 12-foot travel lanes in each direction and intermittent right-turn and center left-turn lanes. The project corridor currently contains paved shoulders west of Proctor Road/Dove Avenue, marked bicycle lanes east of Proctor Road/Dove Avenue, and intermittent sidewalks

[primarily on the north side of the road where the master planned residential developments are located; however, there are some sidewalks on the south side of the road near Twin Lakes Park and east of Sandhill Lake Drive/Preservation Drive]. An open drainage system is provided via the grass swales located along each side of the roadway. The posted speed limits along the project corridor are 55 miles per hour (mph) from I-75 to Proctor Road and 45 mph from Proctor Road to Lorraine Road, with the exception of a curved portion of the road just east of Proctor Road where there is an advisory 25 mph. As part of the nearby I-75 Diverging Diamond Interchange (DDI) project, the speed limit on the west end of the project corridor [near Twin Lakes Park] is being lowered to 35 mph. The existing context classification for the project corridor is C3C-Suburban Commercial. However, the approved future context classification for the project corridor is C3R-Suburban Residential.

The existing roadway right-of-way is generally 100 feet (ft) in width; intermittent wider and narrower sections exist along the length of the corridor. Additional right-of-way is anticipated to accommodate the proposed improvements; right-of-way requirements will be determined during the PD&E Study.

2.0 LOCATION AND ENVIRONMENTAL SETTING

The study corridor is located in Sections 7, 8, 9, 16, 17, and 18 of Township 37 South, Range 19 East (USGS 1973) (**Figure 2**). Much of the study corridor has been densely developed for residential purposes; however, a recreational parcel is present as well as some low density, partially agricultural residential parcels. Elevation of the study corridor is between 25-35 ft above mean sea level (amsl). Freshwater sources in the project area include ponds and wetlands.

The U.S. Department of Agriculture (USDA) soil survey indicates that the study corridor crosses two soil associations (USDA 1991). The area is characterized by soils of the EauGallie-Myakka-Holopaw-Pineda and Felda-Holopaw-Delray soil associations (**Figures 4 and 5**). The former is a nearly level, poorly and very poorly drained soil of the flatwoods. The native vegetation would have included South Florida slash pine and scattered cabbage palms with an understory of inkberry, saw palmetto, chalky and creeping bluestem, pineland threeawn, waxmyrtle, panicum, and other grasses in the flatwoods. Baldcypress, pondcypress, cabbage palm, waxmyrtle, sand cordgrass, St. Johnswort, and blue maidencane grow in the very poorly drained areas. The very poorly drained Felda-Holopaw-Delray soil association are nearly level to depressional soils that support blue maidencane, broomsedge, St. Johnswort, wax myrtle, panicums, sand cordgrass, white bracted sedge, pipewort, stiff paspalum, cutgrass, and other water-tolerant weeds and grasses (USDA 1991:12, 14). **Table 1** provides a list of the various soil types found within the project area.

Table 1. Soil types, drainage, and environmental setting within the study corridor.

NAME	DRAINAGE	SETTING
Bradenton fine sand	Poor	Low ridges and hammocks adjacent to flood plains, sloughs and depressions
Delray fine sand, depressional	Very poor	Depressions on flatwoods
EauGallie and Myakka fine sands	Poor	Broad flatwoods
Felda fine sand, depressional	Very poor	Depressions
Gator muck	Very poor	Freshwater marshes and swamps
Holopaw fine sand, frequently flooded	Very poor	Depressions
Ona fine sand	Poor	Broad flatwoods

Pineda-Pineda, wet	Poor	Sloughs, depressions

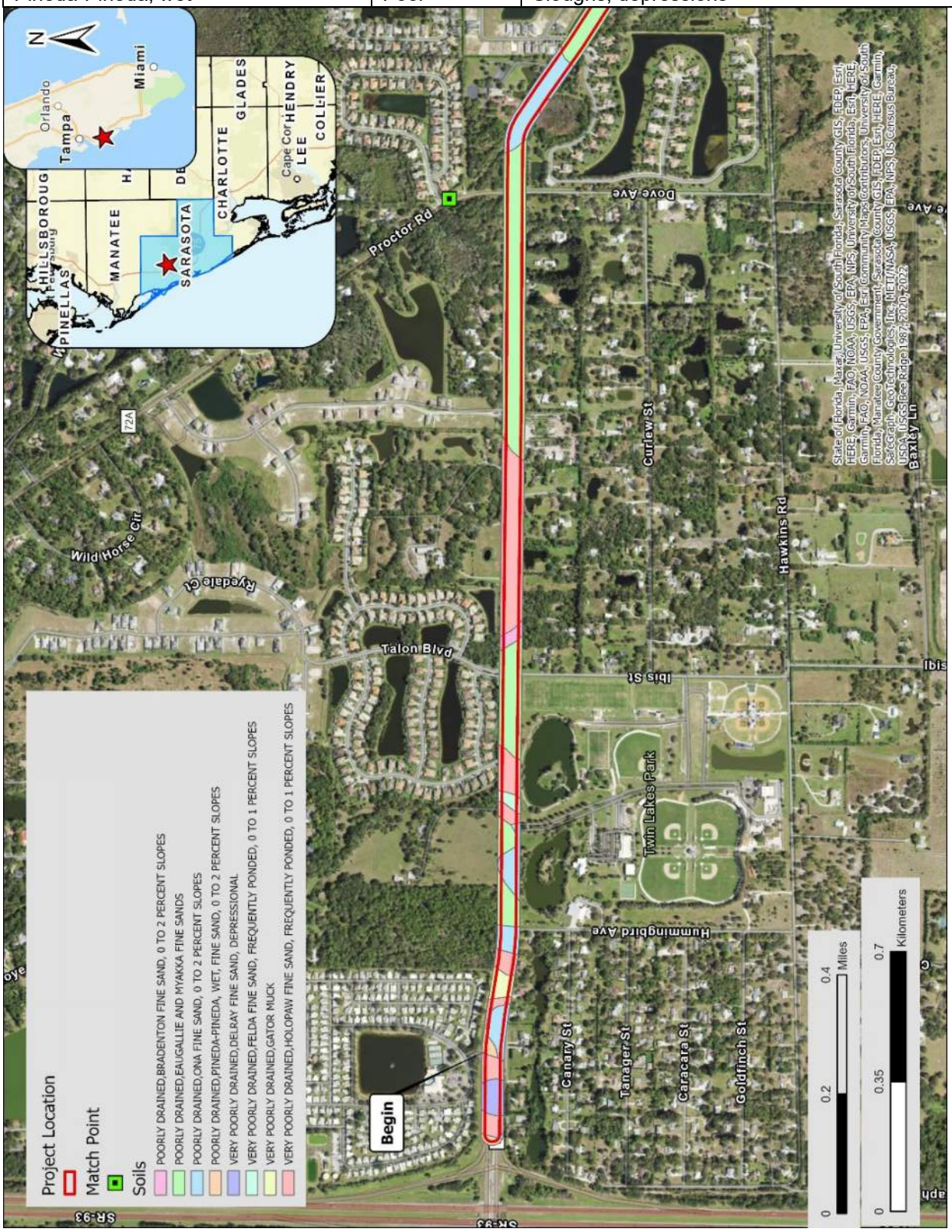


Figure 4. Soil types along the SR 72 study corridor.

Figure 5. Soil types along the SR 72 study corridor.

3.0 BACKGROUND RESEARCH AND LITERATURE REVIEW

A review of pertinent archaeological and historical literature, records, and other documents and data pertaining to the general area was conducted. The focus of this analysis was to ascertain the types of cultural resources known in the project vicinity, as well as the potential for the occurrence of yet unrecorded resources. Research included a review of the ETDM report (#14441), sites listed in the NRHP and the FMSF (August 2021), an examination the Sarasota County Property Appraiser's data (Furst 2022), soil survey information, plats, field notes, and tract book records (State of Florida 1847.), historic aerial photographs (USDA 1948; FDOT 1985a, 1985b), regional prehistories, histories, and site location predictive models, and relevant CRAS reports and manuscripts. **Table 2** provides a list of the CRAS projects conducted within one mile of the study corridor.

Table 2. CRAS projects conducted within one mile of the study corridor.

REFERENCE	PROJECT & FDHR SURVEY #
ACI 1991a	Cultural Resources Survey of Sarasota Memorial Care Center East (#3373)
ACI 1991b	Cultural Resources Survey of the Fountain Real Estate Ventures Limited Property Sarasota County, Florida (#3563)
Janus Research 2003	CRAS of the Suncoast Community Church Project Area, Sarasota County (#9377)
ACI 2003	CRAS Rezone Petition: 03-37 (PIN 0268-09-0001) Coash Estates, Sarasota County, Florida (#9739)
Burger 2003	Phase I CRAS of the Proposed "Trillium" Subdivision, Sarasota County, Florida (#9501)
Driscoll 2004	An Archaeological and Historical Survey of the Interstate Substation Project Area in Sarasota County, Florida (#9814)
Dickinson et al. 2005	CRAS, Biggy Parcel, Sarasota County, Florida (#11993)
ACI 2006	Cultural Resource Assessment Survey DiGiovanni Property Sarasota County, Florida (#16946)
ACI 2008a	CRAS PD&E Study I-75 (S.R. 93) from South of S.R. 681 to North of University Parkway Sarasota and Manatee Counties, Florida (#16012)
ACI 2008b	Addendum to the Project Development and Environment (PD&E) Study, from South of S.R. 681 to North of University Parkway, Sarasota and Manatee Counties, Florida for Preferred Pond Sites FDIP No.: 201277-1-22-01 (#17269)
Handley 2014	A Cultural Resource Assessment Survey of the Ashton Palms Tract, Sarasota County, Florida (#21175)
ACI 2016	Cultural Resource Assessment Survey, L.T. Ranch, Sarasota County, Florida (#23945)
ACI 2017	Cultural Resource Assessment Survey, Rivo Lakes Subdivision, Sarasota County, Florida (#24153)
ACI 2018a	Cultural Resources Assessment Survey Technical Memorandum, SR 72 at Proctor Road/Dove Avenue, Sarasota Co., Florida; FPID No.:440686-1-52-01; FAP No.: D118 005 B (#25147)
ACI 2018b	Cultural Resources Assessment Survey Technical Memorandum, SR 72 at Ibis Street Sarasota Co., Florida; FPID No.:439590-1-52-01 (#25329)
ACI 2019	Cultural Resource Assessment Survey, Technical Memorandum, I-75 (SR 93) at SR 72 (Clark Road), Sarasota County, Florida; FPID No. 201277-3-32-01 (#25830)
ACI 2020	Historic Resources Survey Update Technical Memorandum, I-75 (SR 93) at SR 72 (Clark Road), Sarasota County, Florida; FPID No. 201277-3-32-01
ACI 2022	Cultural Resource Assessment Survey of the Siesta Paradise Parcel, Sarasota County, Florida

3.1 Archaeological Considerations

The archaeological background research indicated that six archaeological sites are recorded within one mile of the study corridor (**Figure 3**). These sites consist of three lithic scatters, two historic refuse sites, and one artifact scatter; three were determined not eligible for listing in the NRHP by the SHPO and three have not been evaluated.

Based on the information gathered during a review of previously recorded sites and location criteria, including elevation, soil drainage characteristics, and proximity to freshwater, there is a pattern favoring the relatively better-drained terrain near a permanent or semi-permanent source of potable water including rivers, creeks, and freshwater marshes. Upland sites well removed from potable water are rare. In the pine flatwoods, sites tend to be situated on ridges and knolls near a freshwater source. It should be noted that the settlement patterns noted above could not be applied to sites of the Paleoindian and Early Archaic periods, which precede the onset of modern environmental conditions. Given these known patterns of aboriginal settlement, the project area was considered to have a low to moderate probability for archaeological site occurrence (**Figure 6**).

Research suggests that the most likely type of aboriginal site would be an artifact or lithic scatter. Background research also suggested a low potential for the discovery of 19th century and earlier archaeological sites along the SR 72 study corridor.

3.2 Historical Considerations

A review of the historic aerial photos revealed a moderate potential for historic resources within the historic study corridor which includes parcels within 500 ft of the centerline of SR 72 (Clark Road). The area was dominated by undeveloped wetlands and agricultural pasture in ca. 1948 and the segment of Clark Road west of Proctor Road had not been constructed (USDA 1948) (**Figures 7-10**). By ca. 1977, the western portion of Clark Road had been constructed and light residential development had occurred, including a subdivision in the southwest end of the project corridor and scattered residences surrounded by wetlands and pasture (FDOT 1977a, 1977b). Twin Lakes Park – a training base for minor and major league baseball utilized by the Baltimore Orioles and a multi-sport complex – had also been constructed along the southern portion of the corridor. Development continued, including the construction of I-75, and the area became more densely populated with residences (FDOT 1985a, 1985b). The area surrounding the project corridor did not reach the current configuration until the ca. 2000s and Lorraine Road – located at the eastern end of the study corridor – was extended south of Clark Road in ca. 2019 (Google Earth 2022).

Historic/architectural background research, including a review of previous CRAS reports, the FMSF and the NRHP, indicated that 11 historic resources (8SO03217, 8SO03218, 8SO03219, 8SO03220, 8SO03221, 8SO07074, 8SO14342, 8SO14343, 8SO14344, 8SO14345, 8SO14358) were previously recorded within the study corridor (**Figure 3; Table 3**). These historic resources include the Hawkins Property Building Complex Resource Group (8SO03221), a sugar cane mill (8SO03220), two Ranch style (8SO03219 and 8SO07074), four Masonry Vernacular style (8SO14342, 8SO14343, 8SO14344, 8SO14345), and three Frame Vernacular style (8SO03217, 8SO03218, 8SO14358) buildings, constructed between ca. 1920 and 1963. Of the 11 previously recorded historic resources located within the study corridor, 10 have been determined ineligible

Figure 6. Moderate archaeological probability zones within the study corridor; areas not marked are low probability.

Figure 7. 1948 and 1985 historical aerial photographs of the SR 72 study corridor.

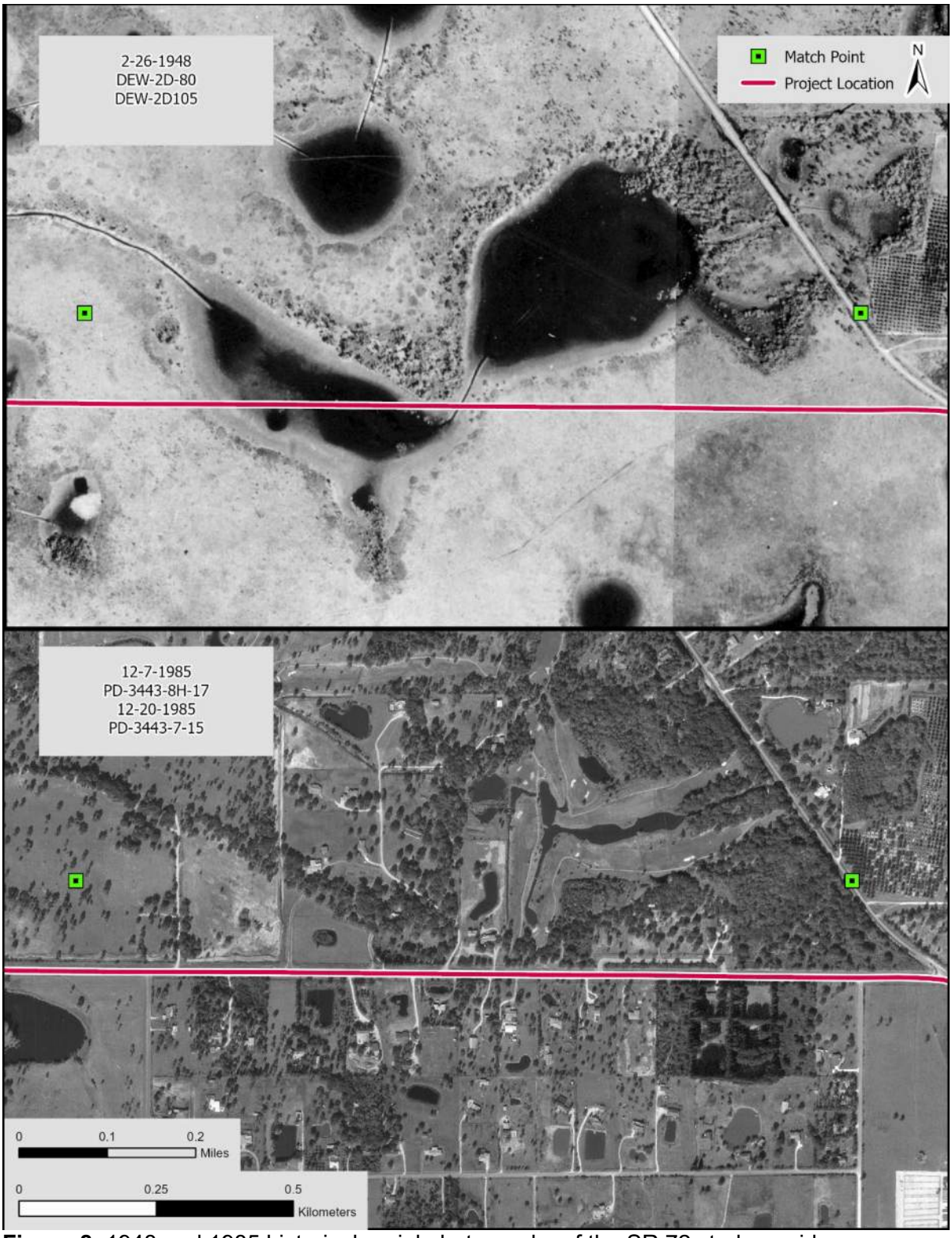


Figure 8. 1948 and 1985 historical aerial photographs of the SR 72 study corridor.

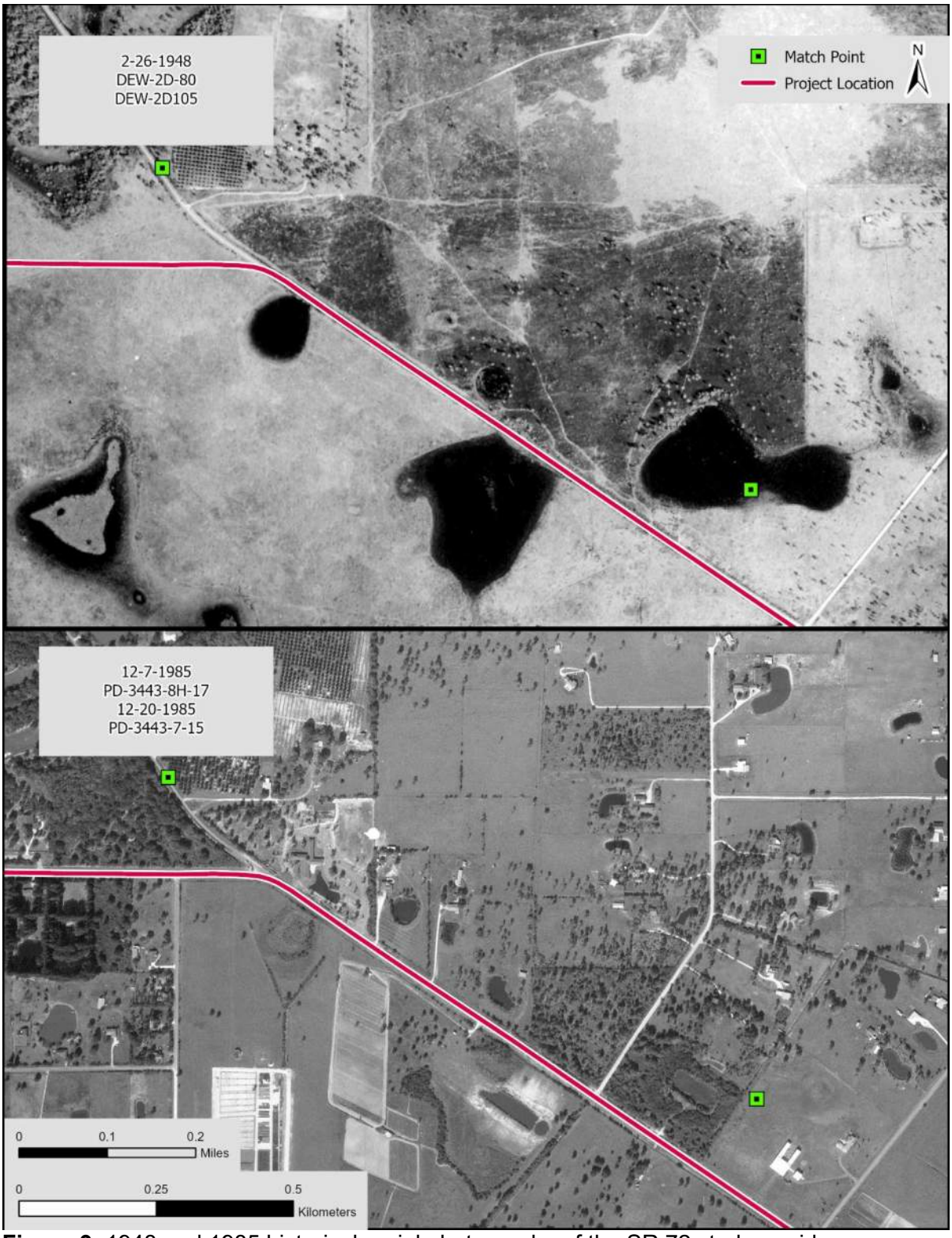


Figure 9. 1948 and 1985 historical aerial photographs of the SR 72 study corridor.

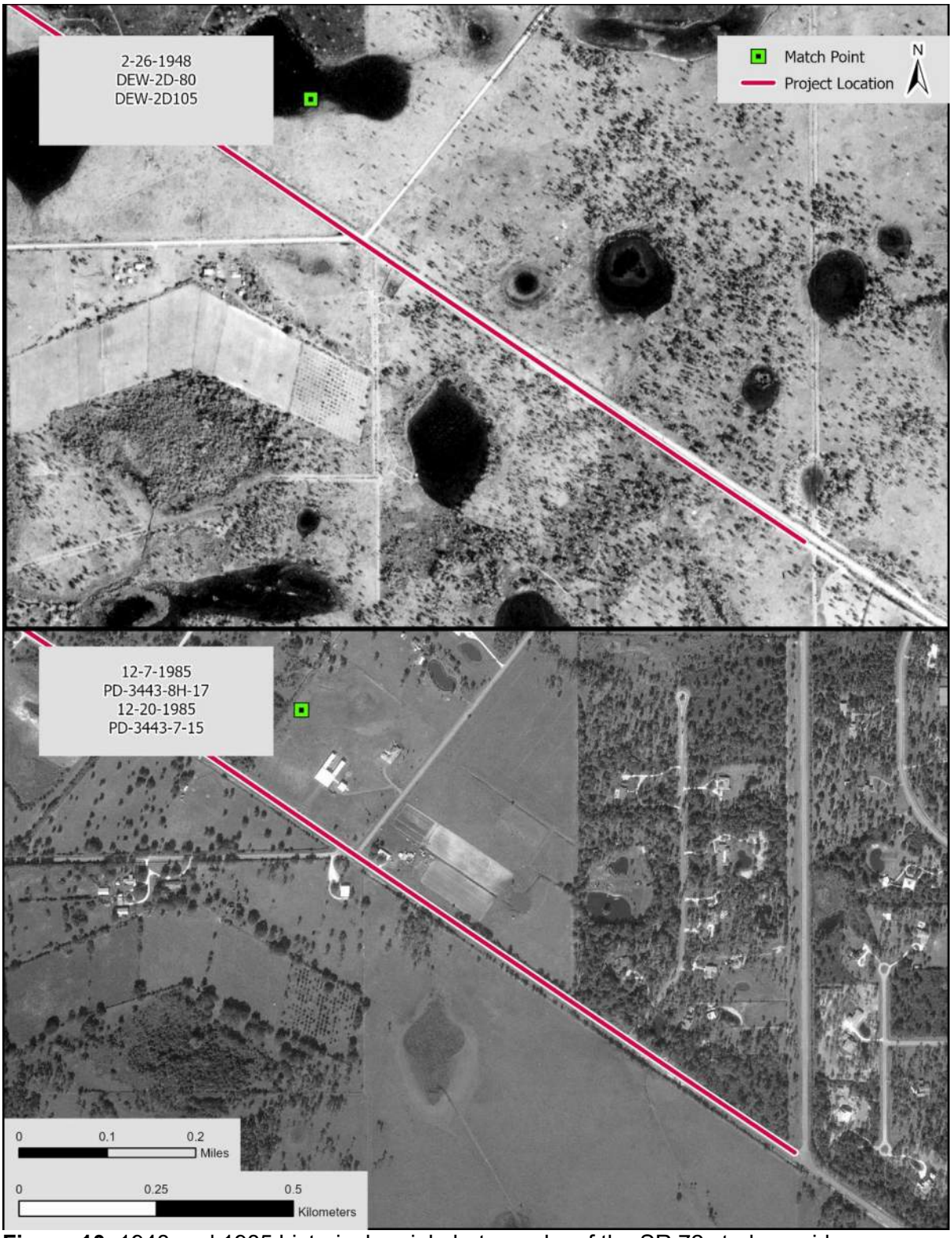


Figure 10. 1948 and 1985 historical aerial photographs of the SR 72 study corridor.

for listing in the NRHP by the SHPO (8SO03217, 8SO03218, 8SO03219, 8SO03220, 8SO03221, 8SO07074, 8SO14342, 8SO14343, 8SO14344, and 8SO14345) and one building located at 7025 Clark Road (8SO14358) was recorded by ACI in 2022 and has not been evaluated by the SHPO.

Table 3. Previously recorded and newly identified historic resources within the SR 72 study corridor.

FMSF No.	Address / Site Name	Build Date	Style / Use	SHPO Evaluation	Survey No.
8SO14342	6122 Clark Road	ca. 1956	Masonry Vernacular	Ineligible	Not assigned
8SO14343	6224 Clark Road	ca. 1960	Masonry Vernacular	Ineligible	Not assigned
8SO14344	6314 Clark Road	ca. 1964	Masonry Vernacular	Ineligible	Not assigned
8SO14345	6428 Clark Road	ca. 1962	Masonry Vernacular	Ineligible	Not assigned
	6121 Canary Street	ca. 1976	Single Family		
	6211 Canary Street	ca. 1969	Single Family		
	6215 Canary Street	ca. 1965	Single Family		
	6219 Canary Street	ca. 1977	Single Family		
	6415 Canary Street	ca. 1975	Single Family		
	6419 Canary Street	ca. 1977	Single Family		
	6517 Canary Street	ca. 1958	Single Family		
	6529 Canary Street	ca. 1967	Single Family		
	6685 Clark Road	ca. 1969	Single Family		
8SO07074	6920 Clark Road	ca. 1961	Ranch	Ineligible	25329
	6932 Clark Road	ca. 1977	Single Family		
	7024 Clark Road	ca. 1971	Single Family		
	7036 Clark Road	ca. 1971	Single Family		
8SO14358	7025 Clark Road	ca. 1963	Frame Vernacular	Not evaluated	Not assigned
	7105 Clark Road	ca. 1956	Single Family		
	7040 Clark Road	ca. 1963	Single Family		
	7145 Clark Road	ca. 1965	Single Family		
	7228 Clark Road	ca. 1977	Single Family		
	7240 Clark Road	ca. 1974	Single Family		
	7350 Clark Road	ca. 1964	Single Family		
	7501 Clark Road	ca. 1971	Outbuilding		
8SO03221	Hawkins Property	Various	Building Complex Resource Group	Ineligible	9377
8SO03217	7940 Hawkins Road/ Hawkins Tractor Barn	ca. 1953	Frame Vernacular	Ineligible	9377
8SO03218	7940 Hawkins Road/ Buck Hawkins House	ca. 1934	Frame Vernacular	Ineligible	9377
8SO03219	1351 15th Street/ Arlin Hawkins House	ca. 1953	Ranch	Ineligible	9377
8SO03220	7940 Hawkins Road/ Sugar Cane Mill	ca. 1920	No Style	Ineligible	9377

The Hawkins Property (8SO03221) is comprised of seven contributing resources (8SO03214, 8SO03215, 8SO03216, 8SO03217, 8SO03218, 8SO03219, 8SO03220); however, only four are located within the study corridor (8SO03217, 8SO03218, 8SO03219, 8SO03220). The resource group and contributing resources were identified and recorded in 2003 during the *Cultural Resource Assessment Survey of the Suncoast Community Church Project Area, Sarasota County* conducted by Janus Research (Janus 2003; Survey No. 9377). Based on Sarasota County Property Appraiser website, the contributing resource 8SO03216 was demolished by 2021 to make way for new construction (Furst 2022). The overall resource group and contributing resources were determined ineligible for listing in the NRHP by the SHPO in 2004. Per the ETDM, these previously recorded resources will require updating in the FMSF and coordination with local authorities regarding local significance and mitigation.

The Ranch style building (8SO07074) located at 6920 Clark Road was identified and recorded in 2018 during the *Cultural Resources Assessment Survey Technical Memorandum, SR 72 at Ibis Street Sarasota County,* conducted by ACI (ACI 2018b; Survey No. 25329). Four historic resoruces (8SO14342, 8SO14343, 8SO14344, 8SO14345) were identified and recorded in 2020 during the *Historic Resources Survey Update Technical Memorandum, I-75 (SR 93) at SR 72 (Clark Road), Sarasota County, Florida*, conducted by ACI (ACI 2020). The report has not been posted to the FMSF site; however, based on the SHPO letter dated September 2020, the SHPO concurred with the survey findings that no significant historic resources were located within the Area of Potential Effects (APE) (SHPO File No. 2019-1096-B; Parsons 2020). Also, in 2022, ACI conducted a survey of the Siesta Paradise Parcel that resulted in the identification and recording of a resource located at 7025 Clark Road (8SO14358). The findings of the survey resulted in no eligible historic resources on the property. The survey was conducted in anticipation of permitting requirements and has yet to be submitted to the SHPO for review. As such, the resource has not been evaluated by the SHPO. However, the Sarasota County Historical Resources concurred with the findings and found the report complete and sufficient under Chapter 66, Sec 66-76(b) of the Sarasota Code of Ordinances (Koski 2022).

A review of the Sarasota County Property Appraiser data and historic aerial photographs suggested the potential for 21 historic resources, 45 years of age or older (constructed in 1977 or earlier), located within the study corridor (Furst 2022). **Table 3** and **Figure 11** provides a summary of the desktop analysis for historic resources identified within the SR 72 study corridor. The suggested build date is taken from the Sarasota County Property Appraiser and is not always accurate; therefore, it is important to conduct a field survey for proper identification and evaluation.

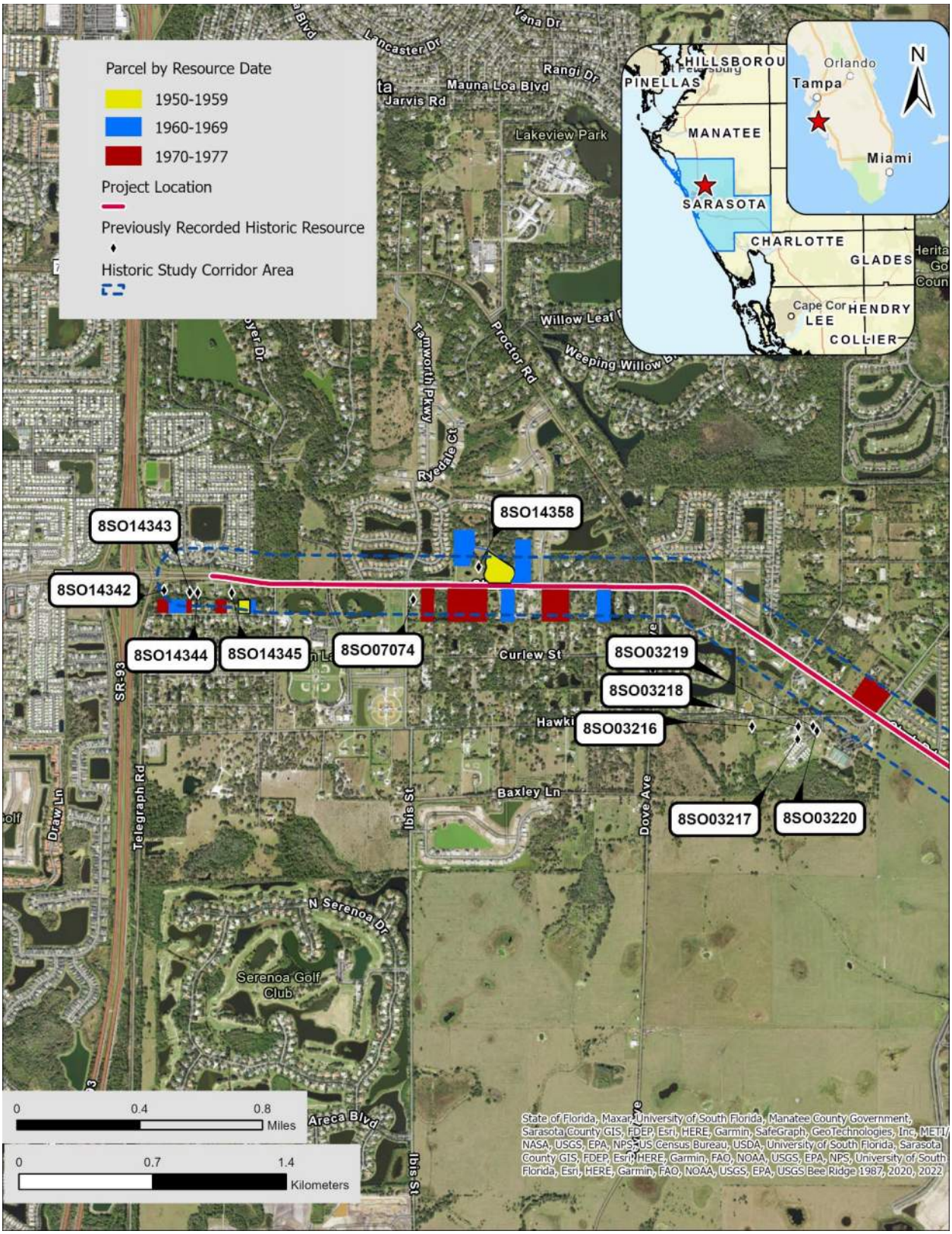


Figure 11. Previously recorded and newly identified historic resources within the SR 72 study corridor.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The background research indicated that no archaeological sites had been recorded within the study corridor but there is a low to moderate probability for aboriginal archaeological sites within the study corridor and a low probability for historic archaeological sites. The historic findings during the desktop analysis noted approximately 32 historic resources (11 previously recorded, 21 newly identified) located within the project corridor. A field survey will be necessary for proper identification and evaluation of each historic resource within the project corridor at which time an APE will be set prior to field work. The APE which as defined in 36 CFR Part § 800.16(d), is the "geographic area or areas within which an undertaking may directly or indirectly [visual/audible/atmospheric] cause alterations in the character or use of historic properties, if any such properties exist."

Based on these results, following selection of the preferred alternative, a systematic archaeological field survey and a historical/architectural field survey is recommended to document additional cultural resources within the project area. The fieldwork should meet the requirements set forth in Chapters 267, 373 and 872.05, *FS*, as revised; Part 2, Chapter 8 ("Archaeological and Historical Resources") of the Florida Department of Transportation's (FDOT) *Project Development and Environment (PD&E) Manual* (FDOT 2020); the standards and guidelines contained in the *Cultural Resource Management Standards and Operational Manual*: *Module 3* (FDHR 2003); and Chapter 1A-46, *Florida Administrative Code* (*FAC*) as well as any other federal regulations for determining possible effects on historic properties listed, or eligible for listing in the NRHP, or otherwise of historical, architectural, or archaeological value. The study should also comply with Chapter 66, Sec 66-76(b) of the Sarasota Code of Ordinances,

5.0 BIBLIOGRAPHY

Archaeological Consultants, Inc. (ACI)

1991a Cultural Resources Survey of Sarasota Memorial Care Center East. ACI, Sarasota. Survey No. 3373.

1991b Cultural Resources Survey of the Fountain Real Estate Ventures Limited Property Sarasota County, Florida. ACI, Sarasota. Survey No. 3563.

2003 Cultural Resource Assessment Survey Rezone Petition: 03-37 (PIN 0268-09-0001) Coash Estates, Sarasota County, Florida. ACI, Sarasota. Survey No. 9739.

2006 Cultural Resource Assessment Survey DiGiovanni Property Sarasota County, Florida. ACI, Sarasota. Survey No. 16946.

2008a Cultural Resource Assessment Survey Project Development and Environment (PD&E) Study I-75 (S.R. 93) from South of S.R. 681 to North of University Parkway Sarasota and Manatee Counties, Florida. ACI, Sarasota. Survey No. 16012.

2008b Addendum to the Project Development and Environment (PD&E) Study, from South of S.R. 681 to North of University Parkway, Sarasota and Manatee Counties, Florida for Preferred Pond Sites FDIP No.: 201277-1-22-01. ACI, Sarasota. Survey No. 17269.

2016 Cultural Resource Assessment Survey, L.T. Ranch, Sarasota County, Florida. ACI, Sarasota. Survey No. 23945.

2017 Cultural Resource Assessment Survey, Rivo Lakes Subdivision, Sarasota County, Florida. ACI, Sarasota. Survey No. 24153.

2018a Cultural Resources Assessment Survey Technical Memorandum, SR 72 at Proctor road/Dove Avenue, Sarasota Co., Florida; FPID No.:440686-1-52-01; FAP No.:D118 005 B. ACI, Sarasota. Survey No. 25147.

2018b Cultural Resources Assessment Survey Technical Memorandum, SR 72 at Ibis Street Sarasota Co., Florida; FPID No.:439590-1-52-01. ACI, Sarasota. Survey No. 25329.

2019 Cultural Resource Assessment Survey, Technical Memorandum, I-75 (SR 93) at SR 72 (Clark Road), Sarasota County, Florida; FPID No. 201277-3-32-01. ACI, Sarasota. Survey No. 25830.

2020 Historic Resources Survey Update Technical Memorandum, I-75 (SR 93) at SR 72 (Clark Road), Sarasota County, Florida; FPID No. 201277-3-32-01. ACI, Sarasota.

2022 Cultural Resource Assessment Survey of the Siesta Paradise Parcel, Sarasota County, Florida ACI, Sarasota.

Burger, B.W.

2003 Phase I Cultural Resources Assessment Survey of the Proposed "Trillium" Subdivision, Sarasota County, Florida. B.W. Burger, Terra Ceia Island. Survey No. 9501.

Dickinson, Martin F., Gifford J. Waters, and Lucy B. Wayne

2005 Cultural Resource Assessment, Biggy Parcel, Sarasota County, Florida. SouthArc, Inc., Gainesville. Survey No. 11993.

Driscoll, Kelly A.

2004 An Archaeological and Historical Survey of the Interstate Substation Project Area in Sarasota County, Florida. Panamerican Consultants, Inc., Tampa. Survey No. 9814.

Florida Department of Transportation (FDOT)
1977a Aerial Photograph. 12-19-77, PD-2180-6-14. *Aerial Photo Look Up System (APLUS).* Aerial Photography Archive, Tallahassee.
1977b Aerial Photograph. 12-19-77, PD-2180-8-23. *Aerial Photo Look Up System (APLUS).* Aerial Photography Archive, Tallahassee.
1985a Aerial Photograph. 12-7-85, PD-3443-8H-17. *Aerial Photo Look Up System (APLUS).* Aerial Photography Archive, Tallahassee.
1985b Aerial Photograph. 12-20-85, PD-3443-7-15. *Aerial Photo Look Up System (APLUS).* Aerial Photography Archive, Tallahassee.
2020 Project Development and Environment Manual, Part 2, Chapter 8, "Archaeological and Historical Resources." Florida Department of Transportation, Tallahassee.
2021 ETDM Report #14441: SR 72 (Clark Road) from East of I-75 to Lorraine Road, Sarasota County, Florida. October 21.

Florida Division of Historical Resources (FDHR)
2003 *Cultural Resource Management Standards and Operational Manual*. FDHR, Tallahassee.

Florida Master Site File (FMSF)
n.d. Various Florida Master Site File Forms. FDHR, Tallahassee

Furst, Bill
2022 Sarasota County Property Appraiser. Accessed October 5, 2022. https://www.sc-pa.com/propertysearch.

Google Earth
2022 Google Earth Imagery.

Handley, Brent
2014 A Cultural Resource Assessment Survey of the Ashton Palms Tract, Sarasota County, Florida. Environmental Services, Inc., Jacksonville. Survey No. 21175.

Janus Research
2003 Cultural Resource Assessment Survey of the Suncoast Community Church Project Area, Sarasota County. Janus Research, St. Petersburg. Survey No. 9377.

Koski, Steven H.
2022 Sarasota County Historical Resources Concurrence Letter, Application #22-110500-PA; PID Numbers 0284-04-0016.: Cultural Resource Assessment Survey of the Siesta Paradise Parcel, Sarasota County, Florida. SCHR, Sarasota.

Parsons, Timothy
2020 SHPO Concurrence Letter, DHR Project File No.: 2019-1096-B: Historic Resource Survey Update I-75 (SR 93) at SR 72 (Clark Road) Sarasota County, Florida. FDHR, Tallahassee.

State of Florida, Department of Environmental Protection
1847 Plat. Township 37 South, Range 19 East.

United States Department of Agriculture (USDA)
1948 Aerial Photograph. 2-27-48, DEW-2D-80, 105. PALMM, Gainesville.
1991 *Soil Survey of Sarasota County, Florida*. Soil Conservation Service, Washington, D.C.

United States Geological Survey (USGS)
1973 Bee Ridge, Fla.

APPENDIX D – PRELIMINARY CONTAMINATION RISK RATINGS REPORT

Geotechnical and Environmental Consultants, Inc.

MEMORANDUM

Date: September 20, 2022

To: Cris Schooley, PE, AICP

From: Lisa T. Messing and Richard McCormick, P.G.

Subject: Existing Conditions – Geotechnical and Contamination
SR 72 (Clark Road) PD&E STUDY
EDTM No. 14441
FDOT Financial ID No. 444634-1-22-01
Sarasota County, Florida
GEC Project No. 5027E

CONTAMINATION

In support of your request, this memorandum summarizes the preliminary Contamination Risk Ratings (CRRs) for this approximately 2.9-mile segment of State Road 72 (Clark Road) in Sarasota, Sarasota County, Florida.

GEC performed a preliminary review of relevant information from the FDEP Map Direct website regarding known or potential contamination sites within the study area. In accordance with Part 2, Chapter 20 of the FDOT PD&E Manual, Section 20.2.2.4, Contamination Risk Rating (CRR), all sites with tank listings and tank sites with contamination impacts were given a Medium Risk Rating.

The following seven facilities have preliminarily been assigned a Low, Medium, or High CRR; the site descriptions follow. The site locations are shown on the attached **Figure 1**. These CRRs may change once the Contamination Screening Evaluation is performed.

Seven potential contamination site listings are located along State Road 72 (Clark Road) east of the interchange with I-75. This area is characterized by commercial and residential development comprised of mobile home parks, recreational parks, a plant nursery, and reclaimed recreational properties (historical golf courses) that can generate contamination impacts to soil and/or groundwater. Utilizing aerial photographs, Google Earth, and FDEP's Map Direct website, GEC

has identified the following potential contamination concerns in the study area that will be considered in the evaluation of the project:

Table 1
Potential Contamination Concerns in Study Area

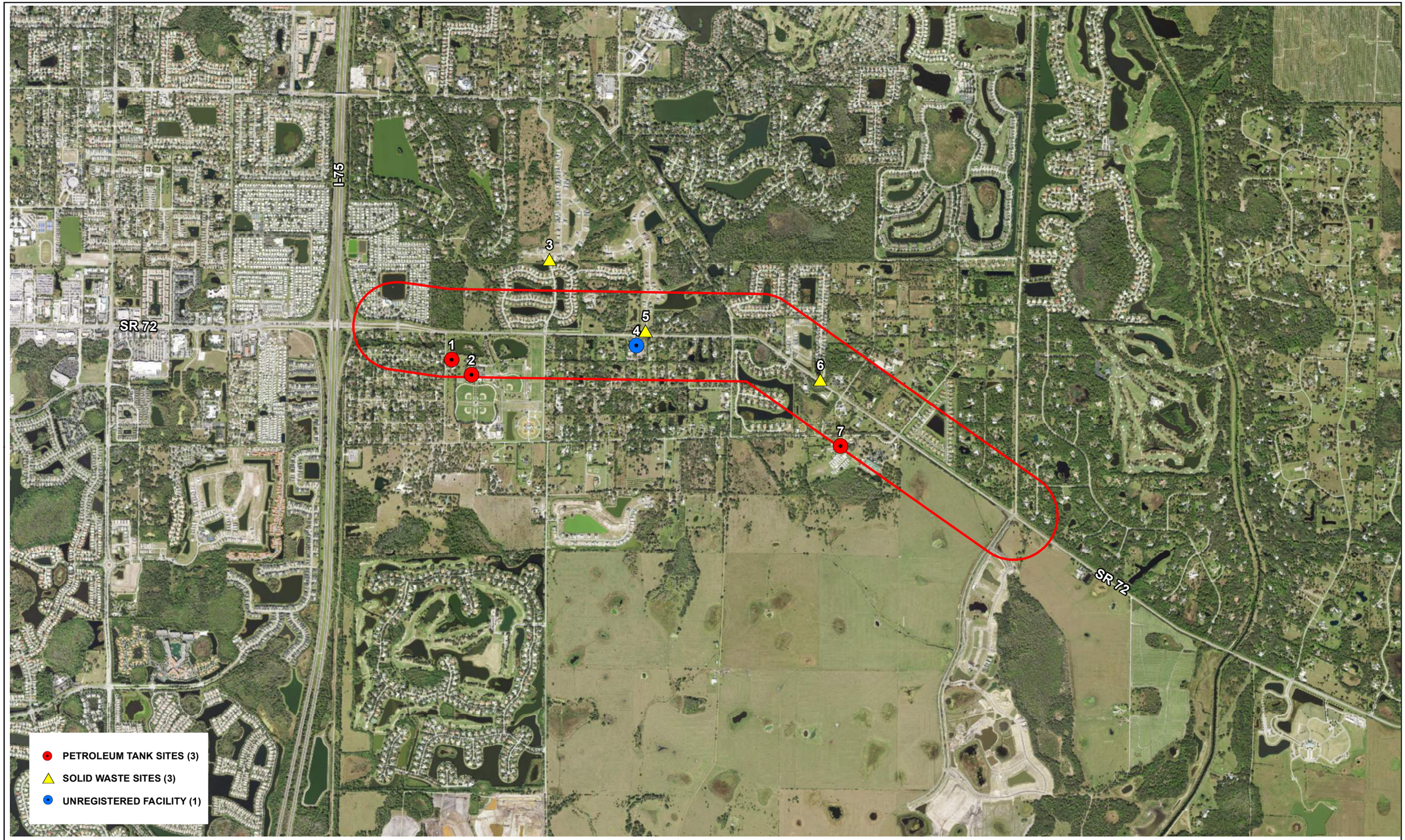
Site No.	Facility Name	Facility ID	Concerns	Summary	Risk Rating
1	Sarasota County Fire Station #16	9814559	Tanks; No Contamination Reported	Registered storage tanks. No discharges reported.	Medium
2	Twin Lakes Baseball Complex	8629359	Tanks; No Contamination Reported	Registered storage tanks. No discharges reported.	Medium
3	Sugarbowl / Proctor Road Landfill	ERIC_10009	Solid Waste / Waste Cleanup	Former landfill from 1940s through 1972. Former golf courses from 1975 through 2006. Soil and groundwater contamination has been confirmed.	Medium
4	Trent Culleny Landscaping, Inc.	n/a	Aerial Photographs	Unregistered facility Use of fertilizers, herbicides, pesticides likely. No discharges reported.	Medium
5	Foxfire Properties, LLC	ERIC_10063	Solid Waste / Waste Cleanup	Former landfill from 1940s through 1972. Former golf courses from 1975 through 2006. Arsenic contamination confirmed. Clean fill imported prior to residential development.	Medium
6	72 Land, LLC	95520	Solid Waste	Former landscaping debris facility. Remediated and in-compliance in 2016.	Medium
7	L H Hawkins & Son	8734886	Tanks; No Contamination Reported	Registered storage tanks. No discharges reported.	Medium

The predominant indicator of potential contamination in the study area is the 3 petroleum tank sites. Petroleum storage tanks are prone to leakage and spills, causing contaminated soil and/or groundwater. The presence of petroleum contamination can impact roadway construction activities including soil excavation and dewatering. Construction in petroleum-impacted areas typically has to be performed by a Contamination and Remediation (CAR) contractor and project costs increase due to the requirement for special handling and treatment of contaminated material.

The presence of non-petroleum contaminated environmental media (soil, groundwater, surface water, and sediment) can also have a significant negative impact on the cost and schedule to complete a roadway development project. The purpose of the contamination screening

evaluation will be the early identification of potential contamination sites that could impact this project and to provide valuable input for the design, right-of-way acquisition, and construction phases. The sites and land uses listed above will be further evaluated during the contamination screening process to assess their impact on alignment alternatives.

Attachments:
Contamination Existing Conditions Figure



POTENTIAL CONTAMINATION SITE LOCATION MAP

0 1,000 2,000

Feet

N

NOTE: Numbers correlate with table 1 in memo.

STATE ROAD 72 (CLARK RD)
CONTAMINATION EXISTING CONDITIONS

FIGURE 1

\\GEC-FS\Projects\J5027E SR 72 PD&E (Clark Road)\CADD\ArcGIS\5027E potential contam.mxd 9/19/2022

APPENDIX E – BMPTRAINS COMPLETE REPORT

Complete Report (not including cost) Ver 5.3.2

Project: SR 72 - Pond 1A
Date: 6/4/2024 8:43:13 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 1A
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	52.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	19.63
Rational Coefficient (0-1)	0.50
Non DCIA Curve Number	91.29
DCIA Percent (0-100)	36.80
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	42.335
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	79.342
Phosphorus Loading (kg/yr)	10.440

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	19.63
Rational Coefficient (0-1)	0.65
Non DCIA Curve Number	96.27
DCIA Percent (0-100)	45.40
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	55.365

Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	103.762
Phosphorus Loading (kg/yr)	13.653

Catchment Number: 1 Name: Pond 1A

Project: SR 72 - Pond 1A
Date: 6/4/2024

Wet Detention Design

Permanent Pool Volume (ac-ft)	13.200
Permanent Pool Volume (ac-ft) for 31 days residence	4.702
Annual Residence Time (days)	87
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	19.63
Contributing Area (acres)	19.630
Non-DCIA Curve Number	96.27
DCIA Percent	45.40
Rainfall Zone	Florida Zone 4
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	24
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	24
Provided TP Treatment Efficiency (%)	73

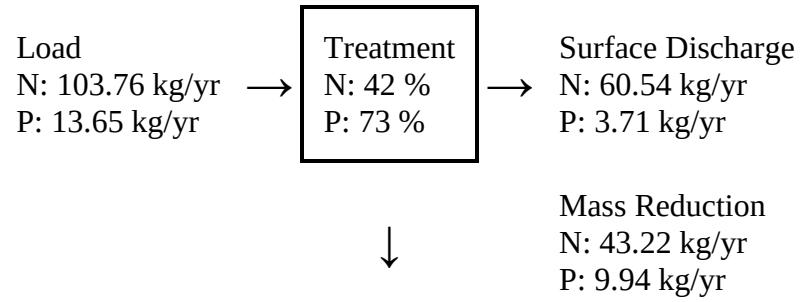
Media Mix Information

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

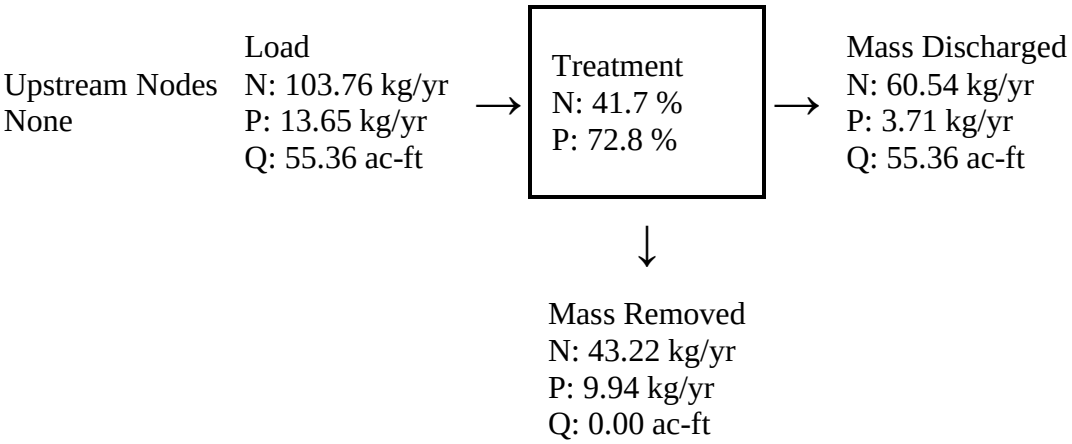
Groundwater Discharge (Stand-Alone)

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: 5.3.2

Project: SR 72 - Pond 1A Date:6/4/2024

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Pond 1A)
Wet Detention
Based on discharge load to 2 decimal places

Routing Summary
Catchment 1 Routed to Outlet

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

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	79.34 kg/yr	
Total N post load	103.76 kg/yr	
Target N load reduction	23.53 %	
Target N discharge load	79.34 kg/yr	
Percent N load reduction	41.65 %	
Provided N discharge load	60.54 kg/yr	133.49 lb/yr
Provided N load removed	43.22 kg/yr	95.3 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	10.44 kg/yr	
Total P post load	13.653 kg/yr	
Target P load reduction	23.53 %	
Target P discharge load	10.44 kg/yr	
Percent P load reduction	72.84 %	
Provided P discharge load	3.709 kg/yr	8.18 lb/yr
Provided P load removed	9.944 kg/yr	21.927 lb/yr

Complete Report (not including cost) Ver 5.3.2

Project: SR 72 - Pond 1B
Date: 3/30/2023 4:07:32 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 1B
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	52.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	14.03
Rational Coefficient (0-1)	0.51
Non DCIA Curve Number	91.95
DCIA Percent (0-100)	36.80
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	31.085
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	58.259
Phosphorus Loading (kg/yr)	7.666

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	14.03
Rational Coefficient (0-1)	0.54
Non DCIA Curve Number	90.54
DCIA Percent (0-100)	47.20
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	32.742

Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	61.364
Phosphorus Loading (kg/yr)	8.074

Catchment Number: 1 Name: Pond 1B

Project: SR 72 - Pond 1B
Date: 3/30/2023

Wet Detention Design

Permanent Pool Volume (ac-ft)	6.800
Permanent Pool Volume (ac-ft) for 31 days residence	2.781
Annual Residence Time (days)	76
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	14.03
Contributing Area (acres)	14.030
Non-DCIA Curve Number	90.54
DCIA Percent	47.20
Rainfall Zone	Florida Zone 4
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	5
Provided TN Treatment Efficiency (%)	41
Required TP Treatment Efficiency (%)	5
Provided TP Treatment Efficiency (%)	72

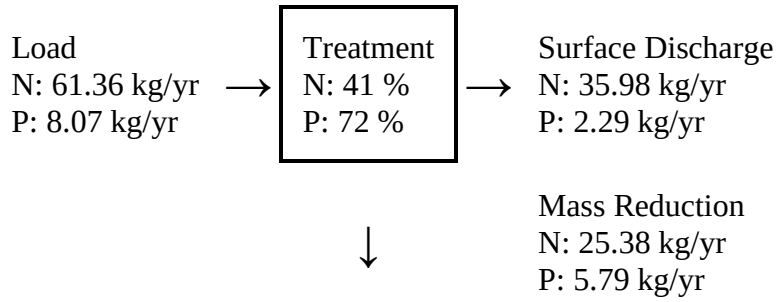
Media Mix Information

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

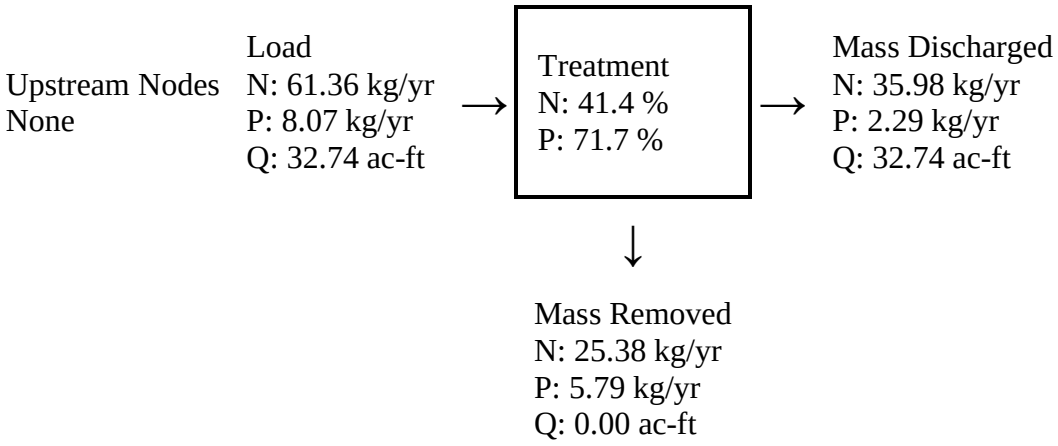
Groundwater Discharge (Stand-Alone)

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: 5.3.2

Project: SR 72 - Pond 1B Date:3/30/2023

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Pond 1B)
Wet Detention
Based on discharge load to 2 decimal places

Routing Summary
Catchment 1 Routed to Outlet

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

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	58.26 kg/yr	
Total N post load	61.36 kg/yr	
Target N load reduction	5.06 %	
Target N discharge load	58.26 kg/yr	
Percent N load reduction	41.36 %	
Provided N discharge load	35.98 kg/yr	79.34 lb/yr
Provided N load removed	25.38 kg/yr	55.96 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	7.666 kg/yr	
Total P post load	8.074 kg/yr	
Target P load reduction	5.06 %	
Target P discharge load	7.666 kg/yr	
Percent P load reduction	71.7 %	
Provided P discharge load	2.285 kg/yr	5.04 lb/yr
Provided P load removed	5.789 kg/yr	12.765 lb/yr

Complete Report (not including cost) Ver 5.3.2

Project: SR 72 - Pond 2A
Date: 6/4/2024 8:54:12 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 2A
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	52.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	17.58
Rational Coefficient (0-1)	0.49
Non DCIA Curve Number	91.23
DCIA Percent (0-100)	36.40
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	37.661
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	70.582
Phosphorus Loading (kg/yr)	9.287

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	17.58
Rational Coefficient (0-1)	0.68
Non DCIA Curve Number	95.97
DCIA Percent (0-100)	56.80
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	51.723

Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	96.936
Phosphorus Loading (kg/yr)	12.755

Catchment Number: 1 Name: Pond 2A

Project: SR 72 - Pond 2A
Date: 6/4/2024

Wet Detention Design

Permanent Pool Volume (ac-ft)	10.400
Permanent Pool Volume (ac-ft) for 31 days residence	4.393
Annual Residence Time (days)	73
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	17.58
Contributing Area (acres)	17.580
Non-DCIA Curve Number	95.97
DCIA Percent	56.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	27
Provided TN Treatment Efficiency (%)	41
Required TP Treatment Efficiency (%)	27
Provided TP Treatment Efficiency (%)	71

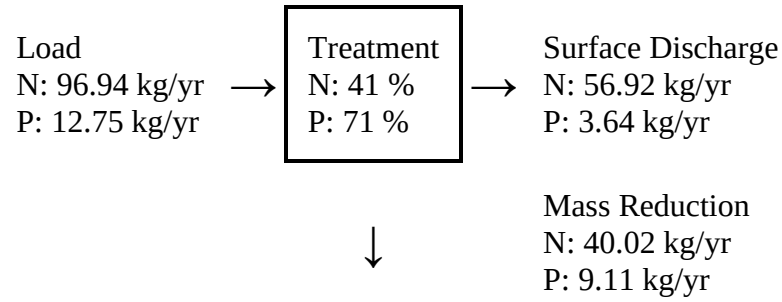
Media Mix Information

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

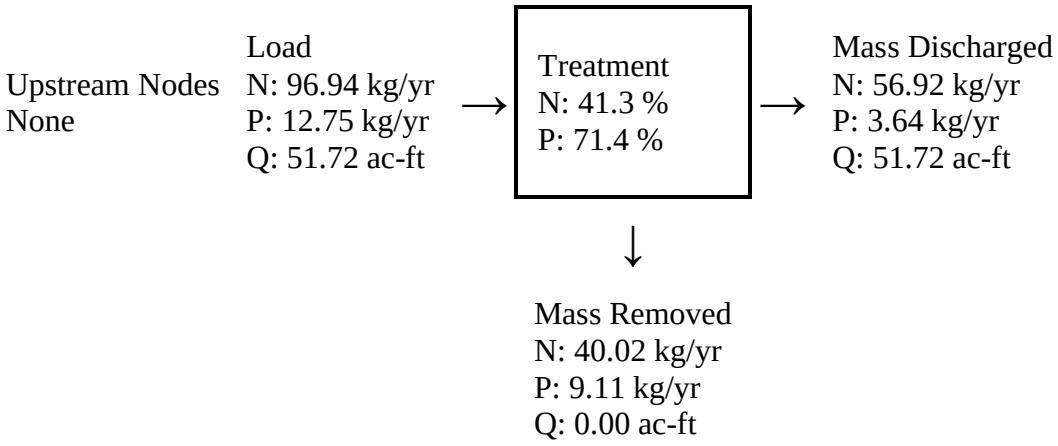
Groundwater Discharge (Stand-Alone)

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: 5.3.2

Project: SR 72 - Pond 2A Date:6/4/2024

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Pond 2A)
Wet Detention
Based on discharge load to 2 decimal places

Routing Summary
Catchment 1 Routed to Outlet

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

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	70.58 kg/yr	
Total N post load	96.94 kg/yr	
Target N load reduction	27.19 %	
Target N discharge load	70.58 kg/yr	
Percent N load reduction	41.29 %	
Provided N discharge load	56.92 kg/yr	125.5 lb/yr
Provided N load removed	40.02 kg/yr	88.25 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	9.287 kg/yr	
Total P post load	12.755 kg/yr	
Target P load reduction	27.19 %	
Target P discharge load	9.287 kg/yr	
Percent P load reduction	71.43 %	
Provided P discharge load	3.644 kg/yr	8.03 lb/yr
Provided P load removed	9.111 kg/yr	20.09 lb/yr

Complete Report (not including cost) Ver 5.3.2

Project: SR 72 - Pond 2B
Date: 6/4/2024 8:57:44 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 2B
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	52.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	17.58
Rational Coefficient (0-1)	0.49
Non DCIA Curve Number	91.23
DCIA Percent (0-100)	36.40
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	37.661
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	70.582
Phosphorus Loading (kg/yr)	9.287

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	17.58
Rational Coefficient (0-1)	0.68
Non DCIA Curve Number	95.97
DCIA Percent (0-100)	56.80
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	51.723

Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	96.936
Phosphorus Loading (kg/yr)	12.755

Catchment Number: 1 Name: Pond 2B

Project: SR 72 - Pond 2B
Date: 6/4/2024

Wet Detention Design

Permanent Pool Volume (ac-ft)	10.100
Permanent Pool Volume (ac-ft) for 31 days residence	4.393
Annual Residence Time (days)	71
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	17.58
Contributing Area (acres)	17.580
Non-DCIA Curve Number	95.97
DCIA Percent	56.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	52.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	27
Provided TN Treatment Efficiency (%)	41
Required TP Treatment Efficiency (%)	27
Provided TP Treatment Efficiency (%)	71

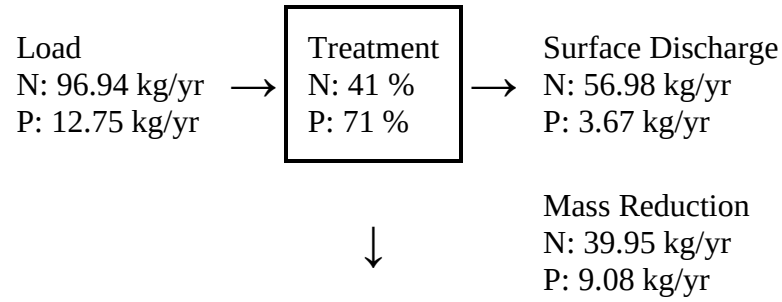
Media Mix Information

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

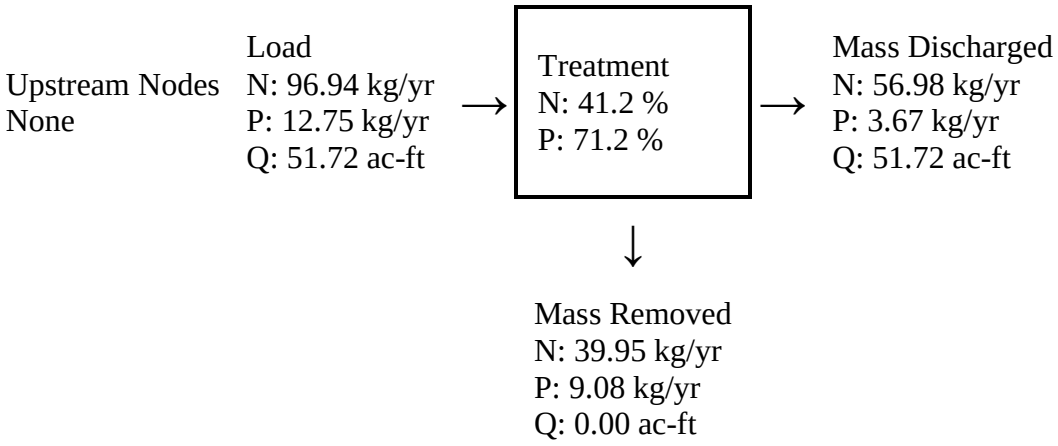
Groundwater Discharge (Stand-Alone)

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: 5.3.2

Project: SR 72 - Pond 2B Date:6/4/2024

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Pond 2B)
Wet Detention
Based on discharge load to 2 decimal places

Routing Summary
Catchment 1 Routed to Outlet

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

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	70.58 kg/yr	
Total N post load	96.94 kg/yr	
Target N load reduction	27.19 %	
Target N discharge load	70.58 kg/yr	
Percent N load reduction	41.22 %	
Provided N discharge load	56.98 kg/yr	125.65 lb/yr
Provided N load removed	39.95 kg/yr	88.1 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	9.287 kg/yr	
Total P post load	12.755 kg/yr	
Target P load reduction	27.19 %	
Target P discharge load	9.287 kg/yr	
Percent P load reduction	71.19 %	
Provided P discharge load	3.674 kg/yr	8.1 lb/yr
Provided P load removed	9.081 kg/yr	20.023 lb/yr

APPENDIX F – ELA MEETING SUMMARY

Environmental Look Around Meeting

FINAL

SUBJECT:	Clark Road (SR 72) PD&E Study, from east of I-75 to Lorraine Road FPID No. 444634-1-22-01; Contract No. CAI05; ETDM 14441; Sarasota County
MEETING DATE:	Wednesday 3/1/2023
MEETING TIME:	1:00 PM – 2:00 PM
LOCATION:	Twin Lakes Park (UF/IFAS Green Room) 6700 Clark Road, Sarasota FL

1) Introductions (see attached sign-in sheet)
   a) Kimley-Horn
   b) FDOT
   c) Twin Lake Park
   d) IFAS
   e) Sarasota County
   f) FPL

2) Project Presentation (see attached)
   a) An ELA is a process that explores alternative approaches to stormwater management.
   b) Project Limits from east of I-75 to Lorraine Road, approximately 3 miles.
   c) Scope of work includes widening from 2 to 4 lanes with a closed drainage system and ponds.
   d) Existing posted speed is 45 / 55 MPH, but proposed target speed is 35 / 45 MPH.
   e) Need is driven by increasing traffic volumes resulting from ongoing residential development.

3) Open Discussion
   - **IFAS**
     - **IFAS has their own Master Plans, that includes an addition to the current building footprint.**
     - **Existing bio swale that treats the parking lot runoff prior to entering the existing lake and are used as educational demonstrations for the public.**
     - **IFAS puts a large emphasis on water quality and has more demonstration/educational gardens planned.**
     - **Would the trees that we remove for pond regrading will be replaced? That is possible, usually as a separate project than the roadway project.**
     - **IFAS emphasized that the existing pond is used for fishing, small (non-motorized) boats, and wading.**
     - **Flat and easily accessible slopes will be required for new pond regrading, possibly a boat ramp, although one does not one in the existing condition.**
     - **Due to all the park uses of the pond, above standard treatments would be appropriate.**
     - **Main access on from SR 72 (not at an intersection) is critical for their facility.**

   - **Sarasota County**
     - **The County anticipates future stormwater needs within the park area due to future projects and would not want to jeopardize those future projects.**
     - **There are no current issues maintaining park draining, no erosion or difficulties.**
     - **County maintains park drainage outfall across the street to the canal.**
     - **Sarasota County as a whole puts a large emphasis on water quality.**

- **The park acts as a natural disaster hub for the County, the National Guard is present to hand out sandbags and supplies during storms.**
- **Would the proposed shared use paths along SR 72 continue through the new I-75 interchange? *Right now they are shown ending at Queensbury, but we can look at a more western terminus if that makes sense.***

- **Twin Lakes Parks**
  - **Future MURT (Multi-use Recreational Trail) trail and landscaping to go around the park and bring additional visitors.**
  - **There is an existing reclaimed water line that runs under SR 72 that is very important for the irrigation of the park.**
  - **Current park use includes about 2,500 regular participants in soccer, baseball, and football, 50 county employees, and 25,000 visitors per year.**
  - **A new Parks Administration Building is planned on Hummingbird Avenue, south of the fire station.**
  - **Who would maintain the pond once improved? That would be worked out during the future design phase.**

- **FPL**
  - **Proposed roadway improvements must allow for maintenance of poles.**

4) Site Walk

Environmental Look Around Meeting

SUBJECT: Clark Road (SR 72) PD&E Study, from east of I-75 to Lorraine Road
FPID No. 444634-1-22-01; Contract No. CAI05; ETDM 14441; Sarasota County

MEETING DATE: Wednesday 3/1/2023

MEETING TIME: 1:00 PM – 2:00 PM

LOCATION: Twin Lakes Park (UF/IFAS Green Room) 6700 Clark Road, Sarasota FL

Name	Initial	Organization	E-mail
Brent Setchell	online	FDOT	Brent.Setchell@dot.state.fl.us
Patrick Bateman	✓	FDOT	Patrick.Bateman@dot.state.fl.us
Sergio Figueroa	online	FDOT	Sergio.Figueroa2@dot.state.fl.us
Joey Sites		FDOT	Joseph.Sites@dot.state.fl.us
Cris Schooley		Kimley-Horn	Cris.Schooley@kimley-horn.com
Katie Gleason	KG	Kimley-Horn	Katie.Gleason@kimley-horn.com
Victor Gallo	VG	Kimley-Horn	Victor.Gallo@kimley-horn.com
Kate O'Brien	KO	Kimley-Horn	Kathryn.Obrien@kimley-horn.com
Colleen McGue	CM	Kimley-Horn	Colleen.McGue@kimley-horn.com
Nicole Selly	online	KCA for FDOT	NSelly@kcaeng.com
Christopher Bryant		FPL	Christopher.Bryant@nexteraenergy.com
Mike Sosadeeter		Sarasota	msosadee@scgov.net
Michael Mylett		Sarasota	mmylett@scgov.net
Michael Storino		Sarasota	mstorino@scgov.net
Jason Brown	online	Sarasota	jkbrown@scgov.net
Kimberly Heuberger		Sarasota	kheuberg@scgov.net

Name	Initial	Organization	E-mail
Steven Rauh	SD	Sarasota	srauh@scgov.net
Lee Hayes-Byron	LHB	IFAS	lhbyron@scgov.net
Katie Erenati	KEK	IFAS	KERENATI@SCGOV.NET
Nicole Monies	online	FDOT	nicole.monies@dot.state.fl.us

SR 72 Clark Road
Environmental Look Around
from East of I-75 to Lorraine Road

Prepared By:

FDOT

Kimley»Horn

Agenda

Agenda:

- Introductions
- What is an ELA?
- Project Overview
- Basin Breakdown
- Open Discussion
- Site Walk

Introductions

- Kimley Horn
- FDOT
- Twin Lakes Park
- IFAS
- Sarasota County
- FPL
- SWFWMD

Drainage Approach

Collect Data

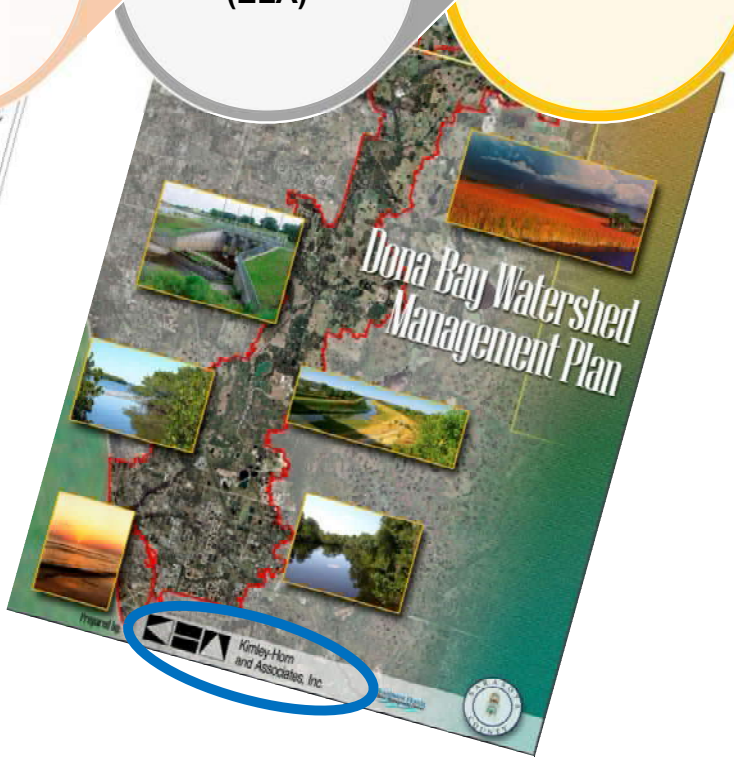
Analyze Data

Coordinate with County

Environmental Look Around (ELA)

Stakeholder Involvement

Stormwater Management Reports (LHR & PSR)



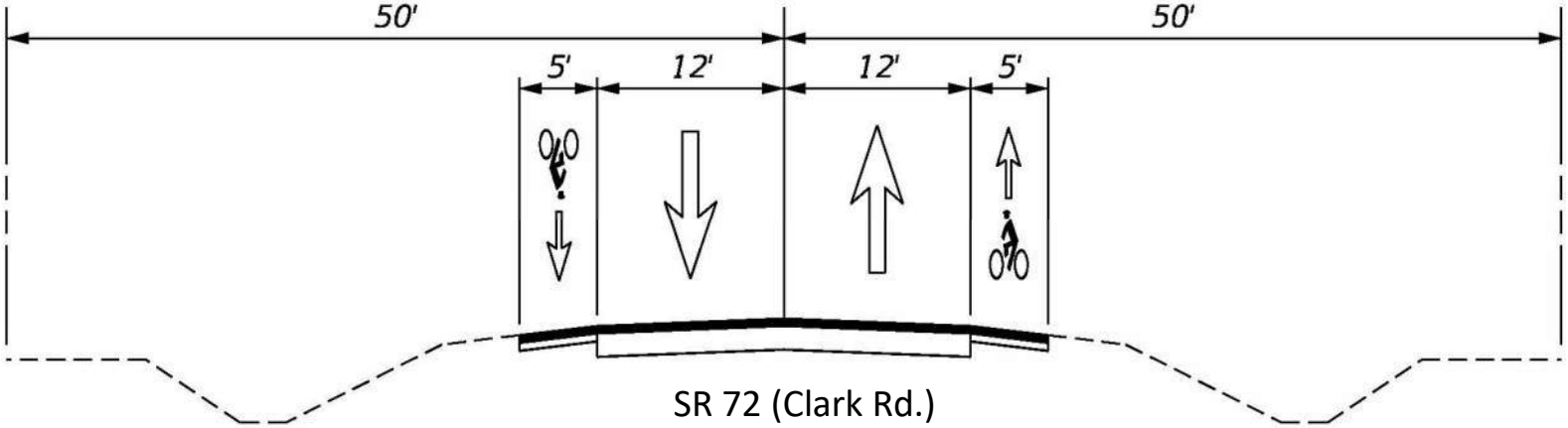
What is an Environmental Look Around?

A process that explores alternative approaches to stormwater management requirements

- Regional pond alternatives
- Utilizing existing water quality treatment credits
- Adding capacity to existing ponds adjacent to the project
- Partnering with local governments and agencies
- Accomplish both stormwater and floodplain needs
- Joint-Use opportunities

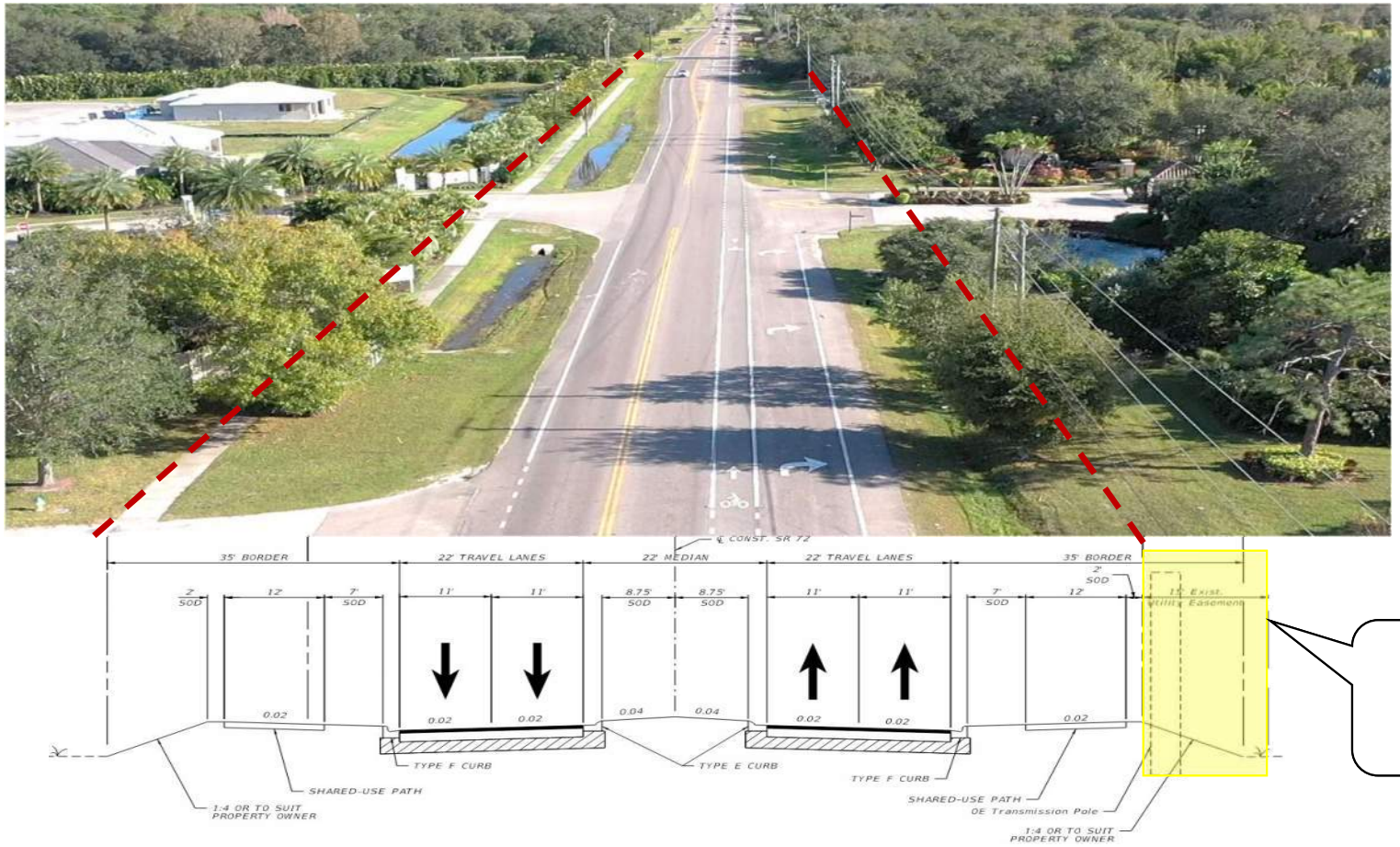
Study Limits

Existing Typical Section



SR 72 (Clark Rd.)

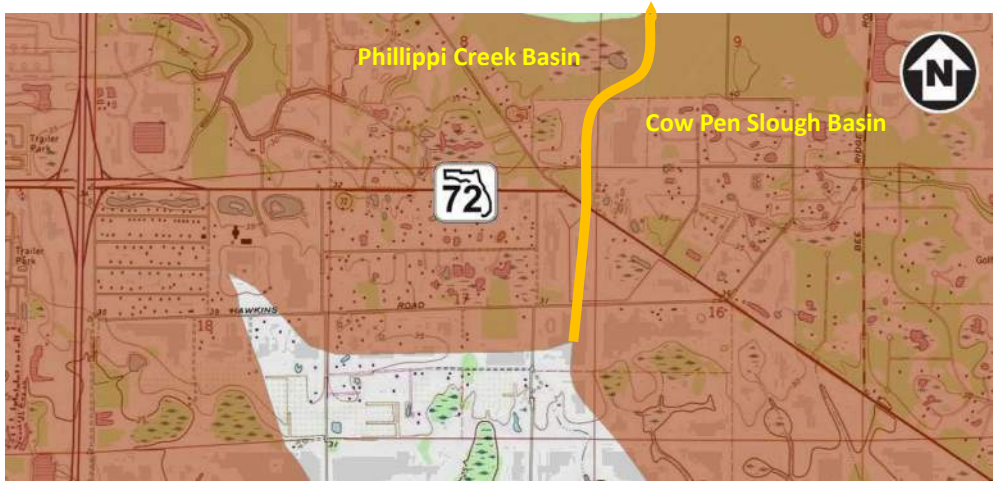
Proposed Typical Section



15' FPL Utility Easement

Existing Drainage

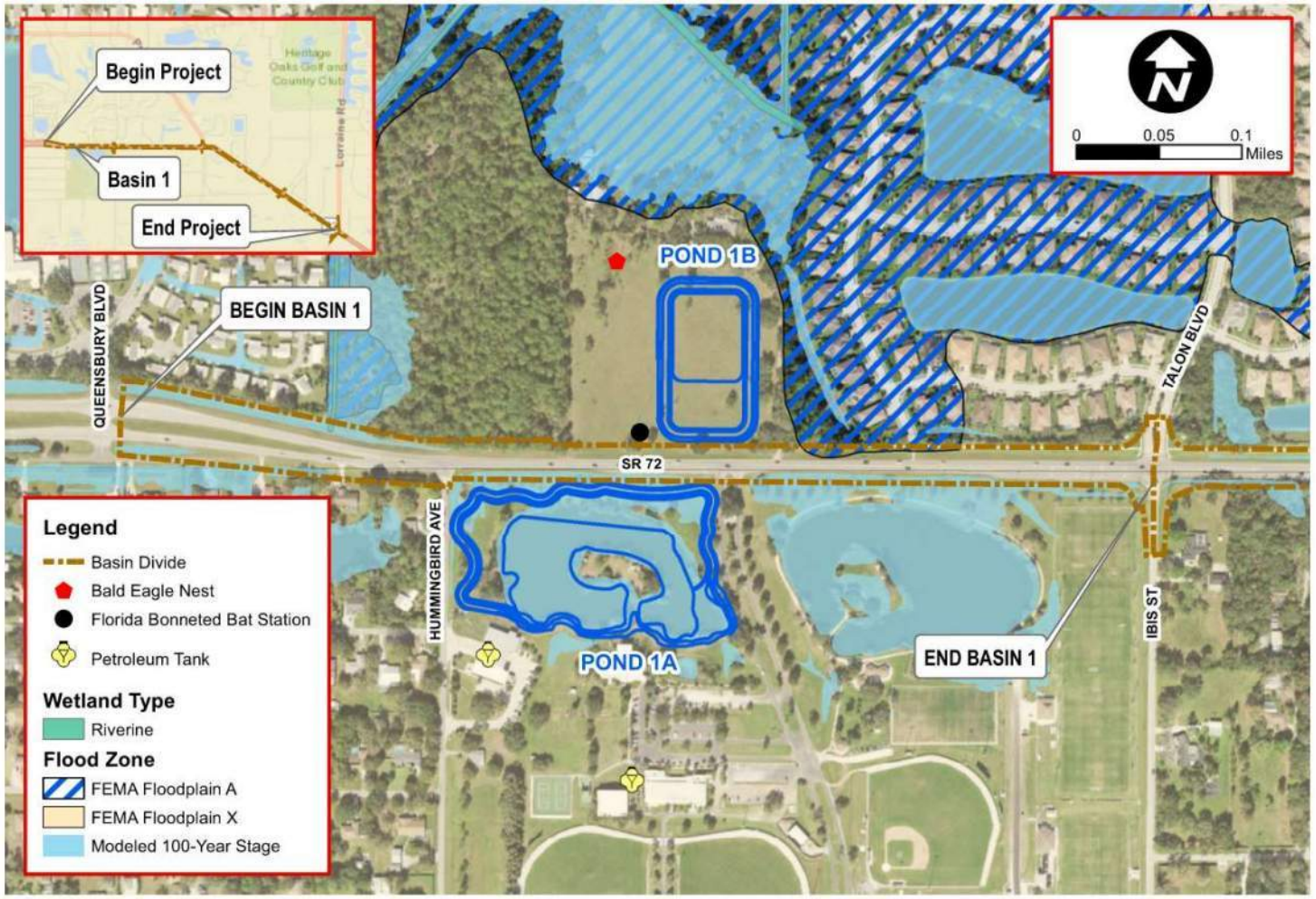
- Sarasota Bay Watershed
  - Phillippi Creek Basin (WBID 1966)
    - Impaired for nutrients
  - Cow Pen Slough Basin (WBID 1924)
    - Impaired for nutrients
- Topography
  - Flat terrain
  - Roadside ditches and open drainage (wet and dry)
  - 4 cross drains



Proposed Drainage

- Curb and inlet systems to replace the roadside swales
- 4 roadway basins
- 2-3 stormwater management systems identified per basin

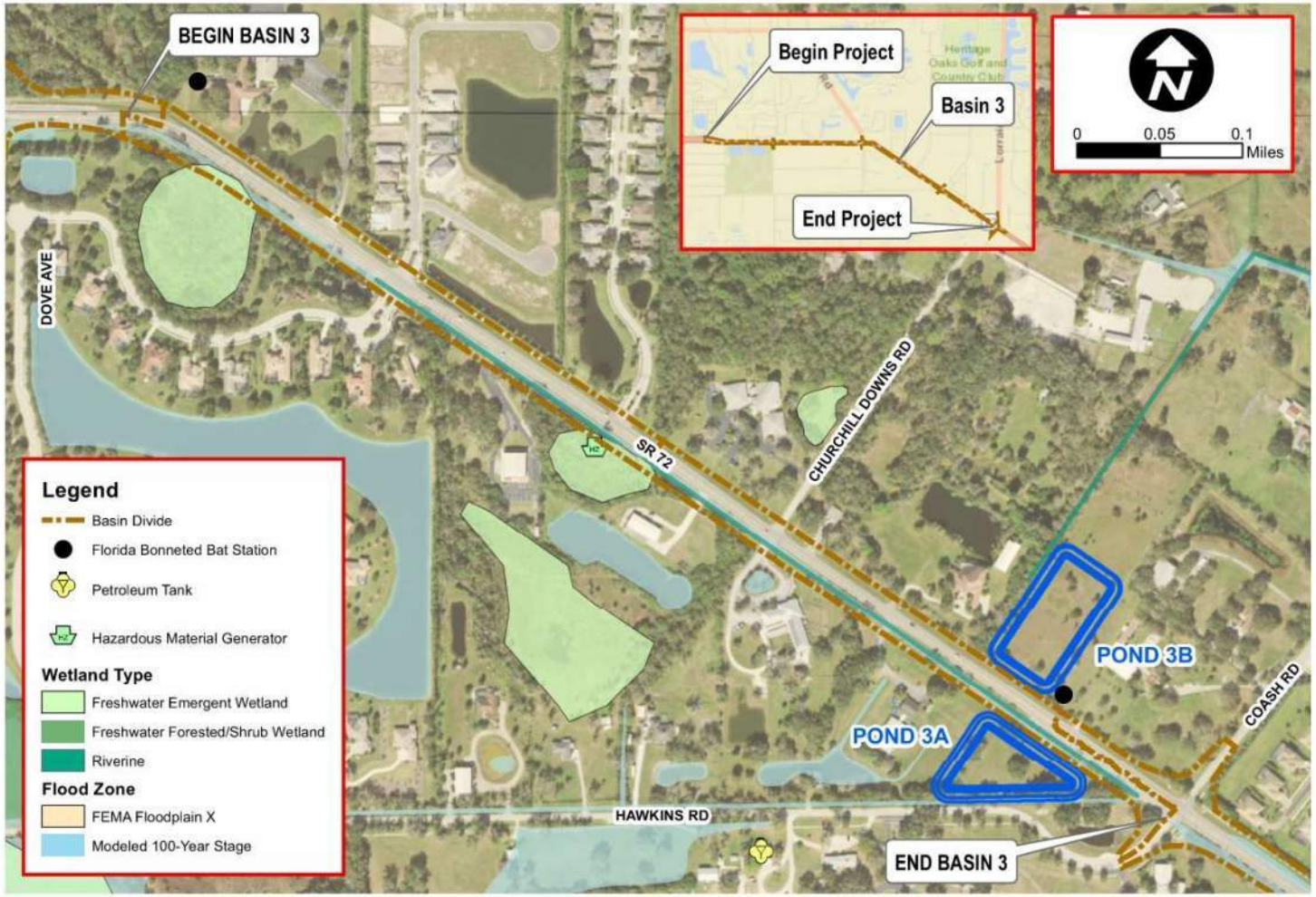
Basin 1


Begin Project
Basin 1
End Project
Heritage Oaks Golf and Country Club
Lorraine Rd
N
0
0.05
0.1
Miles
POND 1B
BEGIN BASIN 1
QUEENSBURY BLVD
TALON BLVD
SR 72
HUMMINGBIRD AVE
POND 1A
END BASIN 1
IBIS ST
Legend
Basin Divide
Bald Eagle Nest
Florida Bonneted Bat Station
Petroleum Tank
Wetland Type
Riverine
Flood Zone
FEMA Floodplain A
FEMA Floodplain X
Modeled 100-Year Stage

Basin 2


BEGIN BASIN 2
END BASIN 2
POND 2A
POND 2B
SR 72
TALON BLVD
PROCTOR RD
IBIS ST
DOVE AVE
TRENT CULLENY LANDSCPAING, INC.
0 0.05 0.1 Miles
Legend
Basin Divide
Florida Bonneted Bat Station
Hazardous Material Generator
Wetland Type
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Riverine
Flood Zone
FEMA Floodplain A
FEMA Floodplain X
Modeled 100-Year Stage
Begin Project
Basin 2
End Project

Basin 3


BEGIN BASIN 3
Begin Project
Basin 3
End Project
0
0.05
0.1
Miles
DOVE AVE
SR 72
CHURCHILL DOWNS RD
POND 3B
POND 3A
COASH RD
HAWKINS RD
END BASIN 3
Legend
Basin Divide
Florida Bonneted Bat Station
Petroleum Tank
Hazardous Material Generator
Wetland Type
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Riverine
Flood Zone
FEMA Floodplain X
Modeled 100-Year Stage

Basin 4


COASH RD
BEGIN BASIN 4
POND 3A
Begin Project
Basin 4
End Project
0 0.05 0.1
Miles
SR 72
LORRAINE RD
POND 4C
POND 4A
END BASIN 4
POND 4B
LORRAINE RD
Legend
Basin Divide
Bald Eagle Nest
Caracara Station
Florida Bonneted Bat Station
Wetland Type
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Riverine
Flood Zone
FEMA Floodplain X
Modeled 100-Year Stage

Wetland Mitigation Options

- Wetland Mitigation
  - Avoidance and minimization
  - Lacks mitigation bank
  - Cumulative impact analysis
  - Fox Creek Regional Offsite Mitigation Area

Twin Lakes Park Master Plan

1. Enhanced Park Entrance
3. Existing Pedestrian Path
4. Proposed Pedestrian Path
8. Proposed Parking
11. Improved Existing Parking

"Site development will most likely require a new ERP permit as the existing two lakes at the northern portion of the property will need to be modified."

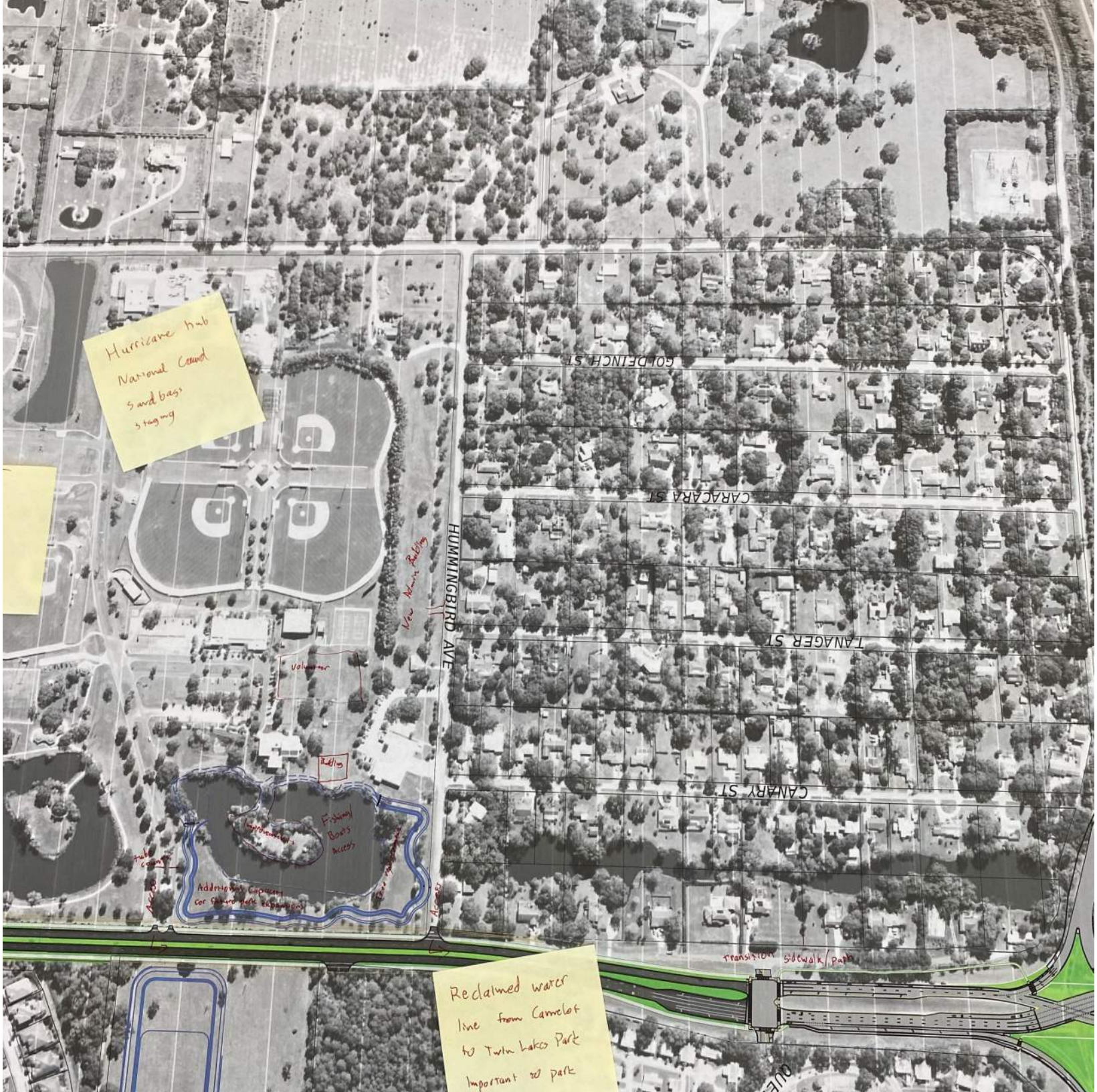
Twin Lakes Park Master Plan approved April 20, 2021

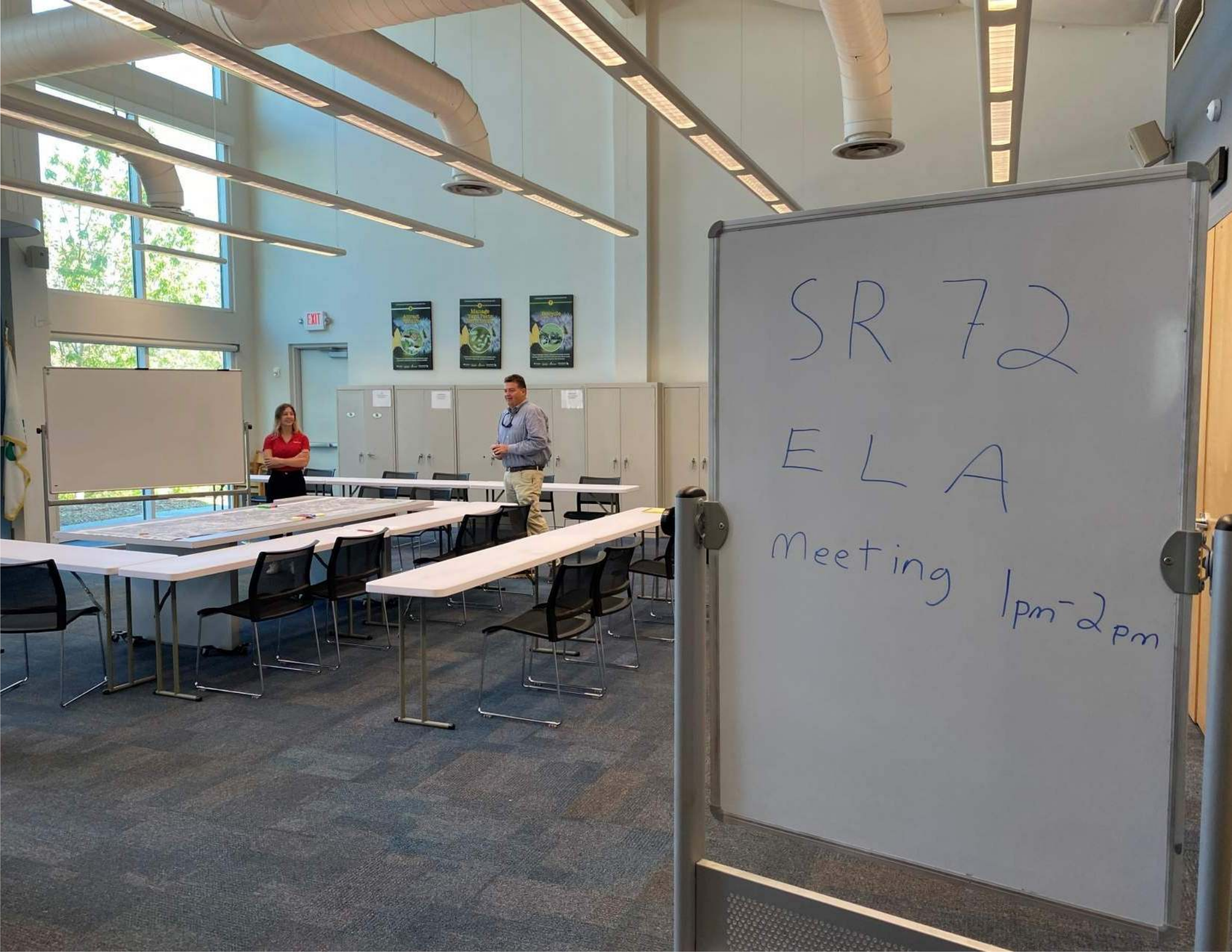
Discussions Topics

- Partnership Opportunities
- Pond Location Pros & Cons
- Regional Benefits
- Outside the Box Water Quality Improvements
- Regulatory Changes

Site Walk

Hurricane hub
National Guard
Sandbags
staging
Largest baseball
soccer
football
in Sarasota County
IBIS ST
Volunteer
Fishing/
Boats
access
Improvements
Additional Capacity
TALON BLVD


Hurricane hub
National Guard
Sandbags
staging
GOLDFINCH ST
CARACARA ST
TANAGER ST
CANARY ST
HUMMINGBIRD AVE
Volunteer
Building
Fishing
Boats
Access
Reclaimed water
line from Camelot
to Twin Lakes Park
important rd park
transition sidewalk/path


SR 72
ELA
Meeting 1pm-2pm
EXIT


Recycle
Reduce Stormwater Runoff


6
Manage Yard Pests Responsibly
7
Recycle
Reduce Stormwater Runoff
Protect the Waterfront
Kitchen

5.3 Twin Lakes Park Master Plan Site Improvements

5.3.1 Proposed Development Improvements

5.3.1.1 General Site Information

This site currently accommodates the organizations of Central Sarasota Little League, Sun Devils Football, and FC Sarasota. All these organizations have their own facilities onsite which will remain untouched by proposed redevelopment of the park. The existing UF/IFAS Extension Office and Sarasota County fire station will also remain as is. The Orioles Baseball minor league training facility is also located in the park. The Orioles currently have four full size professional level baseball fields, an 18,000 square foot clubhouse/office building, indoor batting cages, and associated maintenance facilities.

The proposed conceptual plan focuses on providing additional rectangular athletic fields for soccer, football, lacrosse and potentially rugby. The proposed plan also works to provide additional and improved parking areas which are needed to support the existing park uses as well as proposed features. These other proposed recreational features for Twin Lakes Park include a pickleball court facility, a dog park, additional picnic pavilions, an additional playground, and an exercise/fitness track. See proposed improvements plan at the end of this section.

5.3.1.2 Zoning Information

Proposed site improvements align with zoning requirements, and the site will not require rezoning.

5.3.2 Topography and Drainage

5.3.2.1 Stormwater Management

Site development will most likely require a new ERP permit as the existing two lakes at the northern portion of the property will need to be modified. These lakes do not have a permit on record. The outfall for these lakes appears to be corrugated metal pipe with no outfall structure. Site drainage around the site consists of shallow roadside swales with small culverts under roads. These culverts appear silted up and failing in some cases. The existing stormwater management systems provide an unspecified amount of treatment volume for the existing development. For the proposed system, the two lakes could be used for stormwater treatment if a control structure was added to the east lake. The west lake should be connected by a culvert. If one inch of treatment volume is provided over the park's 125-acre area, the volume is 10.42 acre-feet. This treatment volume can be provided in the proposed ponds/

lakes, dry swales, and exfiltration trenches where space is limited. The existing fire station stormwater system will remain unchanged.

The existing systems for some of the roads and maintenance facilities will be impacted, such as the roads near the proposed soccer fields. These roads will have storm pipes added to connect them to the wet ponds. The proposed grassed parking will have dry retention swales with underdrain/effluent treatment to provide the necessary treatment volume for the increased site impervious area. The proposed underdrains will ensure these dry swales next to the grass parking are well draining. The southern pond used to store reclaimed water for irrigation will remain separated from the stormwater management system and not outfall offsite.

The stormwater management system is required to not increase offsite discharge from the predevelopment to the post-development condition. The runoff from the 25-year 24-hour storm for the proposed site is approximately 65-acre feet of water. The proposed available storage volume is around 67 acre-feet of storage. The required storm conditions are shown below.

	Storm	Rainfall	Reason
	10-yr / 24-hr	7.5	Pipe Sizing
	25-yr / 24-hr	8.0	Perimeter Berm Containment
	100-yr / 24-hr	9.5	Building FFE

Table 5-7 Storm Condition Chart

5.3.3 Environmental Characteristics

(See Environmental Assessment in section A.15.1 of the appendix)

5.3.4 Site Utilities and Lighting

5.3.4.1 Water Service

Existing 4-inch PVC potable watermains on site may not be sufficient for fire hydrants by the maintenance and little league fields, playground, and Sun Devils fields. Additional utility lines could be run from the 16-inch PVC lines along Clark Road and Hummingbird Avenue to provide water necessary for hydrants.

5.3.4.2 Sanitary Sewer Service

Facility demand has potential to increase due to increased number of fields and the addition of a playground. Further research is required to determine if existing facilities can meet a potentially increased demand.

5.3.4.3 Reuse Water

Existing reuse lines are available from a reclaimed water pond to remain to serve the site for irrigation purposes. County watering requirements allow for 0.75 inches over the area to be watered once per week on assigned watering day.

5.3.4.4 Electrical and Lighting

Electrical utility demand will increase with the addition of paved parking area over the currently unpaved areas. Lighting will be required to illuminate these locations. Recreational field lighting not expected to change.

The sports lighting design is based on Illumination Engineering Society (Sports and Recreational Area Lighting, Recommended Practice 06-15) IES RP 06-15.

The Parking lot lighting will be design based on Florida Building Code (FBC 2017) Criteria 1 Foot Candle average and a 12 to 1 maximum to minimum ratio throughout the parking lot for safety.

The buildings will have exterior lighting for security purpose. The exits will comply with National Fire Protection Association (NFPA) 101 which requires 1 Foot Candle average to the sidewalk. The building egress lighting pathway will consist of 1 Foot Candle average as per NFPA 101.

Recommend using LED luminaire for the sports fields, buildings, and parking lot lighting to reduce maintenance and operating cost.

A proposed FPL primary pad mounted transformer close to the proposed multiuse fields restrooms/concession building will be installed. The size of the transformer will be determined by the new loads and existing loads to remain. This transformer will feed a Main Electrical Distribution Room (MEDR) that will feed the following proposed areas multiuse fields, restrooms/concessions, restrooms building, and parking lots.

The additional power load will be based on the sports field lighting package provided by the consultant, the new parking lots lighting and existing loads that are remaining.

5.3.4.5 Telephone

Demand for telephone lines is not expected to increase based on concept plan.

5.3.4.6 Cable/Fiber Optic

Demand for cable/fiber optic lines is not expected to increase based on concept plan.

5.3.5 Access and Circulation

5.3.5.1 Right of Way Information

All existing site entrances to remain and two new vehicle entrances proposed along Hummingbird Avenue.

5.3.5.2 Pedestrian Access

An accessible route will be provided from ADA spaces to site features. Off-site access connections are not feasible at this time, since there are no existing sidewalks along the park's boundary roads. Sidewalks are proposed along some of the existing roads, where new facilities are being added. A shell trail is proposed around the western pond.

5.3.5.3 Parking and Loading

The site would be considered outdoor recreational and requires 1 parking space per 3 fixed seats plus 1 space per 25 square feet exhibit or portable seating space. A fixed seat is considered 24 inches of any fixed seating. Minimum parking dimensions are required to be 9 ft by 18 ft. Parking stalls with a width less than 9 ft will be restricted to compact car parking. Parking for the site recreational field seating is estimated to be 210 spaces of 7 ADA spaces will be required. Existing parking and the proposed west parking lot will provide more than the minimum required parking. Existing parking primarily grassed.

Parking is provided to accommodate the many uses of the park whether seating is provided or not. This includes picnic pavilions, playgrounds, fitness trails, practice fields, dog parks, and court sports. Parking provided number also include parking for the existing IFAS Extension office and the Orioles offices. Extra parking spaces are also added for special events, league tournaments, or availability for added seating in the future.

	Required per Use	Seats	Required
	Bleachers (1 space per 3 Fixed Seats [24 inches of Bleacher Bench per Fixed Seat])	928	310
	Total Provided Spaces		1,210

Table 5-8 Parking Calculations

A minimum aisle width of 24 ft is required for typical 90-degree angle parking lot two-way drive aisles. This width may be reduced to 22 ft if the aisle is only one-way. Parking angled at 60 degrees requires 24 ft for a two-way aisle and 18 ft for a one-

way aisle. Parking spaces angled at 45 or 30 degrees require a 22 ft two-way drive aisle and a 15 ft one-way drive aisle. Parallel parking requires a 20 ft two-way drive aisle and a 15 ft one-way drive aisle.

Landscaped areas are to be protected from vehicle encroachment by curbing or wheel stops. Permeable surface parking areas may be used in place of curbing if administratively approved.

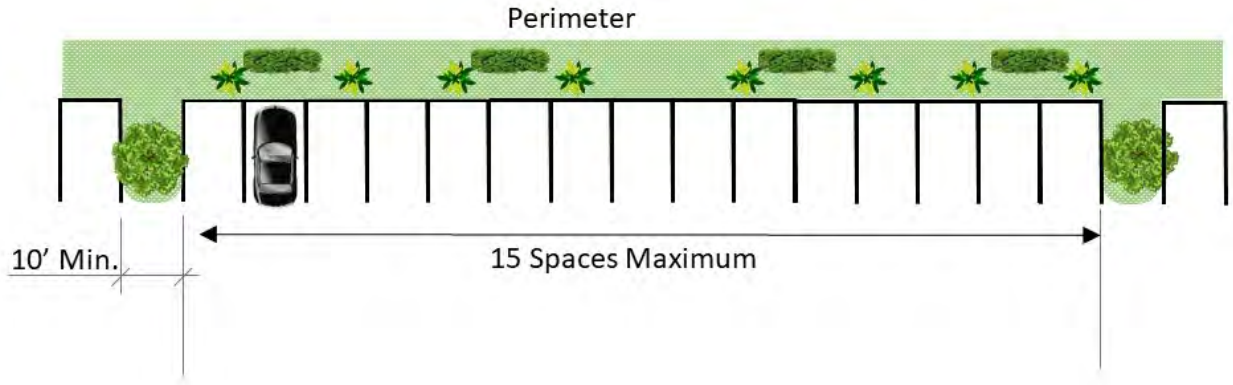


Figure 5-9 Landscape Islands

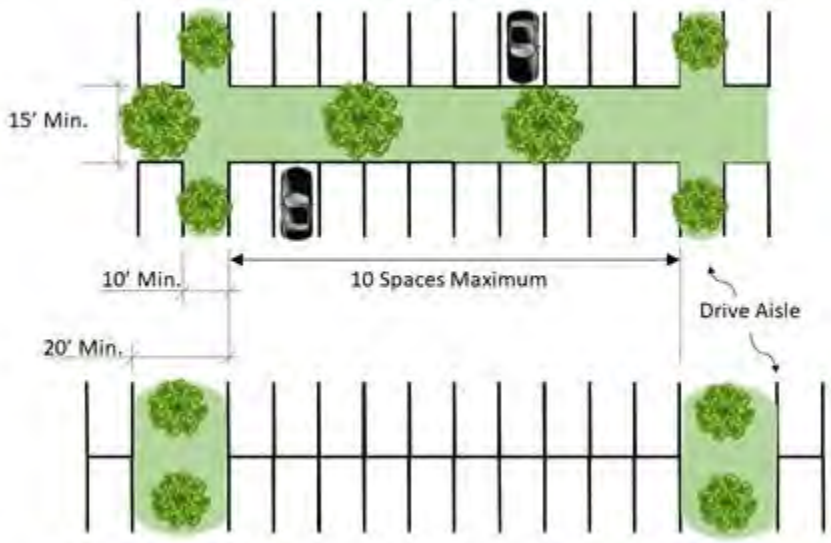


Figure 5-10 Medians Between Parking Tiers

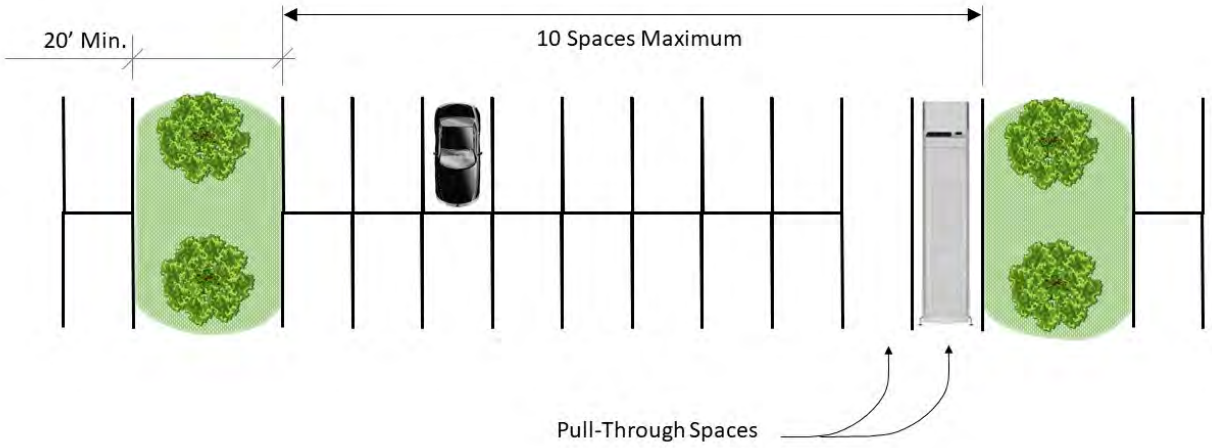


Figure 5-11 Multitier Parking Layout

ADA parking spaces shall be a minimum twelve (12) ft width x eighteen (18) ft length with adjacent five (5) ft wide access aisle. ADA spaces shall be placed nearest to the building access. Two (2) ADA spaces may share a single access aisle. The amount of ADA spaces to be provided shall (at a minimum) comply with the table below (Florida Accessibility Code). There are currently 11 spaces provided and will require a minimum of 7 ADA spaces.

Total Number of Parking Spaces Provided in Parking Facility	Minimum Number of Required Accessible Parking Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2 percent of total
1001 and over	20, plus 1 for each 100, or fraction thereof, over 1000

Table 5-9 ADA Table 208.2 Required Parking Spaces

5.3.5.3.1 Bicycle Spaces

Non-residential development providing more than 20 spaces, but less than 100 spaces, must provide at least 6 bicycle spaces. Sites providing more parking than this must provide 2 bicycle spaces per 33 vehicle parking spaces with a maximum requirement of 24 bicycle parking spaces. Bicycle parking requirements can be waived by

administration for government uses that do not have employees present daily. This site must provide at least 14 bicycle spaces unless waived.

5.3.5.3.2 Loading Zones

Based on Sarasota County requirements a loading zone would not be required at this location.

5.3.5.3.3 Internal Vehicular Circulation

Currently there are only two entrances to the park. There is the main entrance on Clark Road and a minor entrance on Ibis Street near the Sun Devils Football facility. There is a central spine boulevard that feeds all parking in the park starting at the main entrance at the north and continues south and dead ends into the maintenance facility.

Due to a severe parking shortage when all athletic facilities are being used, an additional parking lot is being proposed on the west side of the park. This large lot will primarily serve the baseball facility but also provides parking for the new dog park, as well as the pickleball and tennis courts.

The other modifications proposed to vehicular circulation include a 40-foot westward shift of about 700 feet of the central spine boulevard to accommodate the additional rectangular athletic fields. Additionally, the roadway that connects the central spine boulevard to Ibis Street will be slightly realigned to improve the functionality of the grass parking area between Central Sarasota Little League and Sun Devils Football.

5.3.6 Proposed Recreation Facilities

5.3.6.1 Soccer/Football/Lacrosse/Rugby Fields

The proposed plan provides three full size multiuse fields to accommodate regulation soccer, football, lacrosse, and rugby with the correct orientation. These replace an existing baseball field and an existing multiuse rectangular field that is undersized and not properly oriented. The existing baseball field is under-utilized and not structured for optimal recreational use. Additional rectangular multiuse fields of regulation size and orientation for soccer, football, and lacrosse are in great demand and this location provides an outstanding opportunity to increase the quantity of this recreational asset.

Existing parking to the east of these new fields will continue to be utilized. Added to this parking area will be sidewalks that will allow pedestrians to walk from their car to the recreation field without having to walk in the road, behind vehicles.

An additional 150 space parking lot is being provided on the west side of this new field complex. Associated with this new parking lot is a proposed new restroom

building that replaces an old restroom in this general location that is undersized for the expanded recreational uses proposed. These new restrooms and the new parking will also serve the existing picnic pavilions to the north. This location will also have a new 7,000 square foot playground to support families using both the new athletic fields and the picnic pavilions.

5.3.6.2 Picnic Pavilions

The existing pavilion referenced above is popular with park users. Therefore, additional pavilions are proposed to the north and east of the existing one to further accommodate this desired use.

One of the 600 square foot pavilions is located near the end of the parking lot on the east side of the fields, and another one is proposed as part of the east lake island feature. The large grass open space that surrounds these pavilions can be made available for special events, which the pavilions could help to accommodate.

5.3.6.3 Orioles Minor League Baseball Complex

The existing Orioles baseball complex will continue to be utilized for minor league baseball operations. A new grass parking lot will be provided to the west of the existing baseball complex. This new lot will alleviate a current parking shortage at the park and serve the baseball complex as well as the new dog park (see item 5.3.6.6 below). Access control features will be located as needed around the Orioles' facility.

5.3.6.4 Tennis Courts & Racquetball Courts

The existing tennis courts and racquetball facilities will remain as is.

5.3.6.5 Pickleball Courts

Six new pickleball courts will be added just to the north of the existing tennis courts and racquetball courts. New parking for these courts will be provided on the east side as an extension of the existing parking lot north of the Orioles baseball complex.

5.3.6.6 Dog Park

A new two-and-a-half-acre dog park is proposed at the southwest corner of the park. The former forestry area provides an excellent opportunity for a dog park in this location. The many existing trees creates the opportunity to have a dog park with a more naturalistic setting than the typical neighborhood dog park. Mounds, rock piles, and logs of various shapes and sizes, will create different environmental stimuli for dogs to enjoy while also enhancing the naturalistic setting of the park. The ample tree canopy will also create a pleasant environment for dog owners, giving them a wide selection of places to congregate or spend time away from the pack. The park has also been divided to create a dedicated area for large dogs, and another for small

dogs, while ensuring both groups have similar amenities. An accessible path will allow users of different abilities to enjoy the park and stay dry after periods of heavy rainfall. Additional amenities such as double gate entrances, dog watering stations, dog washing stations, benches, shade tree plantings (if needed), and waste stations will be sited throughout the park to create a comfortable environment for both people and dogs.

5.3.6.7 Walking Trails

The existing walking trail around the east lake of the two lakes is popular with park users. With this success, the proposed plan provides an additional trail around the west lake. Both trails are to connect to the proposed multi-use recreational trail (MURT) that will run along the west edge of Ibis Street.

These new trails will be part of an expanded pedestrian trail system that will connect all the recreation facilities of the park. Currently there are no pedestrian connections in the park. The new trail system will go south and west from the east lake trail to provide complete pedestrian connection for the entire park.

5.3.6.8 Fitness Trail

At the south end of the new trail system an exercise/fitness course is proposed. This new course will circle the south lake, taking advantage of this natural asset. Access for this fitness course will also be served by the improved parking area north and east of the Central Sarasota Little League complex.

The fitness course is proposed to be a flexible pavement surface with exercise stations at regular intervals along the trail. Flexible pavement surfacing is a preferred treatment for this type of facility helping to prevent injury to knees, ankles, and feet.

5.3.7 Supporting Park Elements

5.3.7.1 Landscaping

Associated with all proposed park improvements would be proposed landscape planting. These would consist of mostly tree planting to provide shade and buffering. Landscaping would also work to integrate the site, define circulation systems, and enhance proposed structures. Shade trees will be integrated into all new and existing parking facilities to help provide shade and define spaces. Trees will also be used to provide shade for trail systems and to give pedestrians a sense of protection.

Landscaping at the main entrance at Clark Road is proposed to enhance the entrance, develop a sense of arrival, and draw attention to the park. This new landscaping will continue down the main spine road to further amplify the boulevard effect of the principal roadway.

At specific nodes such as entry locations and buildings, detailed planting would be provided. Detailed planting of shrubs and groundcovers would be limited to minimize maintenance requirements and costs.

5.3.7.2 Irrigation

The existing irrigation for this site shall remain largely unchanged. The existing pump shall remain in its current location and its maximum capabilities are to be verified for the proposed expansion of irrigation. This expansion will include the new athletic field area, fitness trail, expanded main entrance landscaping at Clark Road, west parking lot off of Hummingbird Avenue, tennis/pickleball courts, the new sod farm, and any redesign as needed for the rest of the small modifications to the park. All existing irrigation systems related to existing uses are to remain as-is.

5.3.7.3 Maintenance Facilities

The existing maintenance yard will remain in place and expanded to the west. West of the existing maintenance yard is a former tree nursery. This area needs to be cleared of all invasive species, palms relocated as needed for use elsewhere in the park, and non-specimen trees removed. This would leave only a few specimen trees to remain. Maintenance will then be able to expand into this area and have yard operations work around these few remaining trees. Specific organization or reorganization of maintenance yard elements have not been provided as part of this conceptual plan.

West of the expanded maintenance yard, a one-acre sod farm is proposed as part of parks athletic operations. This sod farm is for the replacement of field turf at athletic fields in the County parks. Replacement of worn-out field turf is a standard parks maintenance need and this farm is anticipated to reduce these turf replacement costs.

5.3.7.4 Signage and Way Finding

There are many recreation elements to be added to this park as well as new roads and parking facilities. The addition of signage and wayfinding elements will be required. Some of the existing signs associated with organizations using the park can remain, but many will have to be added or replaced. It is anticipated that a specific signage and wayfinding system will need to be developed as part of a separate design package.

5.3.8 Proposed Design

See following page for proposed conceptual plan.

Figure 5-12 Twin Lakes Park - Proposed Design

Section 6 Sequencing and Timelines

This is a look at the logistics of how each of these parks are to be redeveloped. Some of these parks will have much of their facilities remain virtually untouched. Some will have only certain facility elements modified, such as parking. Some of these parks are proposed to have significant redevelopment activities creating long term disruption onsite. The Youth Athletic Complex is slated for almost complete redevelopment with substantial amounts of demolition and reconstruction.

Following is the sequence for redevelopment of each park.

6.1 17th Regional Street Park

1. Completely develop the eastern added property with the new multiuse field complex, adult and youth softball fields, and all associated parking, lighting, utilities, and buildings. Include the field improvement for field #6 at the existing Miss Sarasota Softball complex. Construct all drainage systems and retention ponds, dig new lake and make canal modifications. Build new internal road and make 17th Street improvements for new entry. Construct all trails and boardwalks. Include the Miss Sarasota Softball main multiuse building as part of this construction. This will not disrupt any existing recreational activities and will provide fields and facilities for use while others are being demolished in the next phases.
2. Relocate soccer play to new multiuse fields on the east property and relocate adult softball to the new adult softball fields on the east property. Relocate Miss Sarasota Softball parking to the new east parking lot with access from the new 17th Street Regional Park entry.
3. Construct the realignment of Gun Club Road and the connection to the new park road on the east property. Redevelop the existing Miss Sarasota Softball complex making all drainage improvements. Make drainage improvements to the Miss Sarasota Softball Complex constructing new sidewalks and the new pavilions. Make improvements to the south side parking and drop off area. Reconstruct and expand the maintenance yard and build overflow parking area. Provide for the continuation of maintenance during construction activities. Construct the playground. Construct all pedestrian trails on the north side of the maintenance yard and connect to the east property trail.
4. Construct new connector road from Gun Club Road to the west property and realign the north end of Gun Club Road in preparation for the tournament field by 17th Street. Provide all drainage improvements associated with these road improvements. Construct the rest of the pedestrian trail associated with Gun Club Road and connect to 17th Street.

5. Construct the new multiuse fields on the west property, the associated parking, drainage, lighting, utilities, and new restroom building. Include the new trails along the south side of the park as well as a connection to the Bobby Jones Golf Course /conservation area and the hammock boardwalk system.
6. Redevelop the 17th Street Dog Park to the new configuration with associated new parking and restroom building. Reconstruct the west park entry road. Construct new pedestrian trail, and Circus Hammock access.
7. Construct the new rectangle championship field and its associated buildings, drainage, lighting, utilities, and parking.

6.2 Fruitville Park

1. Construct all required stormwater pond improvements.
2. Make Sarasota Football Club parking improvements and sidewalk connections to Richardson Road. Build new pickleball courts.
3. Reconstruct Adult Softball Complex prior to current adult softball fields being demolished at 17th Street Park. Make north parking lot improvements. Refurbish the fitness trail. Make sidewalk and trail connections to Richardson Road.
4. Make south parking lot improvements and add fencing for basketball west side.

6.3 Twin Lakes Park

1. Realign the main central road and build the south two new multiuse fields. Build the new parking road on the south side of these multiuse fields, the new trail on the west side, and the sidewalk on the east side. Use the Ibis Street entrance for access to Central Sarasota Little League, Sun Devils Football and FC Sarasota.
2. Make sidewalk improvements along Sun Devils Football and FC Sarasota facilities. Construct the north new multiuse field and associated parking, restroom/concessions building, and new sidewalk on the east side. Build new playground. Build new trails connecting to existing East Lake trail and add West Lake trail. Build new picnic pavilions. Build new pickleball courts and associated new parking.
3. Make the improvements to the grass parking lot north of Sarasota Central Little League. Build the new fitness trail and the trail connections to the north and east. Conduct selective clearing of trees in the former forestry area and relocate palms. Expand and make improvements to the maintenance yard. Create new sod farm.
4. Build the new parking lot west of Orioles minor league baseball complex south to the new dog park. Make the connections from the new parking to baseball complex improvements and the trail connections to the east. Build new dog

park and the new associated restroom building and provide necessary selective clearing and grubbing.

6.4 Youth Athletic Complex

1. Reconstruct stormwater features on site to proposed configuration. These include the reconstruction of the open water features and the proposed dry ponds and their connections to off-site systems.
2. Relocate the tennis courts and build the new pickleball courts and basketball court. Build 17th Street new entrance, entry road, and the associated parking lot. Construct the new multipurpose field and associated lighting.
3. Build the west half of the new Cal Ripken baseball complex allowing the two eastern existing fields to remain active. Build the new parking along N Tuttle Avenue and maintain existing parking south of BMX and its access. Construct the new Bike park and make improvements to the north side of the BMX track. Relocate the maintenance yard to its new location and build bridge over internal canal at south end.
4. Build the east half of Cal Ripken baseball complex including the t-ball fields. Include the new central concession/restroom building and the new storage building. Build the new parking south of BMX and construct new BMX buildings, entry plaza, and security fencing. Build the new playground and new pump track. Build connecting bridges over internal canal.

APPENDIX G – POND SITE EVALUATION MATRIX

Basin	Pond Site	Parcel ID*	Station (LT/RT)	Parcel Acreage*	Pond Acreage Required (Ac.)	Estimated SHWT Elev. (ft. NAVD)	Required Treatment Volume (Ac-ft)	Provided Treatment Volume (Ac-ft)	Required Attenuation Volume (Ac-ft)	Provided Attenuation Volume (Ac-ft)	Total ROW Needed for Acquisition (Ac)	Wetland Impacts (Ac)	Floodplain Impacts (Ac)	Cultural Impacts	Contamination Impacts
Basin 1	**Pond 1A**	0285010001	314+00 (RT)	121.9	9.23	29.50	1.64	1.67	6.09	6.39	0.00	0	0	none	none
	Pond 1B	0264100003	317+00 (LT)	19.4	3.61	30.50	1.17	1.41	2.32	2.38	4.38	0	0	none	none
Basin 2	Pond 2A	0266110003, 0266110004	346+50 (LT)	9.7 (0.6, 9.1)	3.21	29.50	1.47	1.49	2.86	2.94	4.74	0	0	none	none
	Pond 2B	028304003	341+00 (RT)	6.0	3.96	29.50	1.47	1.63	2.86	3.08	5.90	0	0	none	none
Basin 3	Pond 3A	0281120001	413+50 (RT)	8.6	2.08	32.00	0.87	0.93	1.45	1.56	2.48	0	0	none	potential fecal
	Pond 3B	0281150003	412+00 (LT)	6.4	2.46	31.00	0.93	1.11	1.93	1.99	3.94	0	0	none	none
Basin 4	Pond 4A	0282004001	445+00 (RT)	178.6	4.30	25.50	1.60	1.89	3.33	3.36	5.35	0	0	none	none
	Pond 4B	0282010130	453+00 (RT)	721.7	3.41	24.50	1.48	1.76	3.52	3.91	4.35	0	0	none	none
	Pond 4C	0282004001	438+00 (RT) AND 444+00 (RT)	178.6	3.71	25.50	1.42	1.66	2.62	2.80	5.84	0	0	none	none

*Parcel Information is per the Sarasota County Property Appraiser

Recommended Pond Site shown in **Bold** text.

Basin	Pond Site	Parcel ID*	Station (LT/RT)	Residence Relocation	Distance to Outfall (ft)	Construction Cost ($)	Approximate ROW Cost* ($)	Public Opinion	Maintenance	Aesthetics	Total Cost ($)	Other
Basin 1	**Pond 1A**	0285010001	314+00 (RT)	no	700	$1,014,288.25	N/A	No Comments Received	Low	Enhanced	$1,014,288.25	Joint-use Opportunity
	Pond 1B	0264100003	317+00 (LT)	no	150	$973,206.99	$157,251.60	No Comments Received	Medium	Standard	$1,130,458.59	Within 330' of a Bald Eagle nest
Basin 2	Pond 2A	0266110003, 0266110004	346+50 (LT)	no	100	$1,692,334.01	$139,827.60	No Comments Received	Medium	Standard	$1,832,161.61	-
	Pond 2B	028304003	341+00 (RT)	yes	250	$1,793,696.82	$172,497.60	No Comments Received	Medium	Standard	$1,966,194.42	-
Basin 3	Pond 3A	0281120001	413+50 (RT)	no	50	$691,081.09	$90,604.80	No Comments Received	Medium	Standard	$781,685.89	Adjacent to septic drain field
	Pond 3B	0281150003	412+00 (LT)	no	600	$1,146,768.53	$108,464.40	No Comments Received	Medium	Standard	$1,255,232.93	-
Basin 4	Pond 4A	0282004001	445+00 (RT)	no	50	$1,500,293.65	$187,308.00	No Comments Received	Medium	Standard	$1,687,601.65	-
	Pond 4B	0282010130	453+00 (RT)	no	350	$1,258,475.11	$148,539.60	No Comments Received	Medium	Standard	$1,407,014.71	Within 660' of a Bald Eagle nest
	Pond 4C	0282004001	438+00 (RT) AND 444+00 (RT)	no	50	$1,409,296.35	$161,607.60	No Comments Received	Medium	Standard	$1,570,903.95	-

*Parcel Information is per the Sarasota County Property Appraiser

Recommended Pond Site shown in **Bold** text.

Pond Siting Alternatives Construction Cost Estimate - SR 72 Clark Road

ESTIMATED CONSTRUCTION COSTS

Pond 1A

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	5826 cy	$27.24
POND EXCAVATION:	3271 cy	$15.61
TOTAL COST:		$209,750.45

CLEARING AND GRUBBING

POND AREA:	8.64 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$708,168.96

POND SOD QUANTITIES

POND AREA:	8.64 ac
POND WATER AREA:	5.86 ac
TOTAL SOD AREA:	2.78 ac
TOTAL SOD AREA:	13455 sy
COST PER SY*:	$4.53
TOTAL COST:	$295,007,951.04

POND FENCING QUANTITIES

POND R/W PERIMITER:	0 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	0
COST PER EA*:	$10,369.32
TOTAL COST:	$0.00

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	150	$285.37	$42,805.50	(assumed 36" pipe)
MANHOLES:	2	$13,400.56	$26,801.12	(assumed J-8)
		TOTAL:	$96,364.31	

TOTAL CONSTRUCTION COSTS:	**$1,014,288.25**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

ESTIMATED CONSTRUCTION COSTS

Pond 1B

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	11032 cy	$27.24
POND EXCAVATION:	4628 cy	$15.61
TOTAL COST:		$372,746.97

CLEARING AND GRUBBING

POND R/W AREA:	4.38 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$359,002.32

POND SOD QUANTITIES

POND R/W AREA:	4.38 ac
POND WATER AREA:	1.43 ac
TOTAL SOD AREA:	2.95 ac
TOTAL SOD AREA:	14278 sy
COST PER SY*:	$4.53
TOTAL COST:	$313,048,005.60

POND FENCING QUANTITIES

POND R/W PERIMITER:	1789 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$53,770.46

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	470	$285.37	$134,123.90	(assumed 36" pipe)
MANHOLES:	2	$13,400.56	$26,801.12	(assumed J-8)
		TOTAL:	$187,682.71	

TOTAL CONSTRUCTION COSTS:	**$973,206.99**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

Pond Siting Alternatives Construction Cost Estimate - SR 72 Clark Road

ESTIMATED CONSTRUCTION COSTS

Pond 2A

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	30305 cy	$27.24
POND EXCAVATION:	1399 cy	$15.61
TOTAL COST:		$847,359.15

CLEARING AND GRUBBING

POND R/W AREA:	4.74 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$388,509.36

POND SOD QUANTITIES

POND R/W AREA:	4.74 ac
POND WATER AREA:	2.08 ac
TOTAL SOD AREA:	2.66 ac
TOTAL SOD AREA:	12874 sy
COST PER SY*:	$4.53
TOTAL COST:	$282,273,794.88

POND FENCING QUANTITIES

POND R/W PERIMITER:	2842 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$79,316.24

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	1040	$285.37	$296,784.80	(assumed 36" pipe)
MANHOLES:	4	$13,400.56	$53,602.24	(assumed J-8)
		TOTAL:	$377,144.73	

TOTAL CONSTRUCTION COSTS:	**$1,692,334.01**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

ESTIMATED CONSTRUCTION COSTS
Pond 2B

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	37373 cy	$27.24
POND EXCAVATION:	2585 cy	$15.61
TOTAL COST:		$1,058,392.22

CLEARING AND GRUBBING

POND R/W AREA:	5.90 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$483,587.60

POND SOD QUANTITIES

POND R/W AREA:	5.90 ac
POND WATER AREA:	2.79 ac
TOTAL SOD AREA:	3.11 ac
TOTAL SOD AREA:	15052 sy
COST PER SY*:	$4.53
TOTAL COST:	$330,026,880.48

POND FENCING QUANTITIES

POND R/W PERIMITER:	1859 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$55,468.66

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	500	$285.37	$142,685.00	(assumed 36" pipe)
MANHOLES:	2	$13,400.56	$26,801.12	(assumed J-8)
		TOTAL:	$196,243.81	

TOTAL CONSTRUCTION COSTS:	**$1,793,696.82**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

Pond Siting Alternatives Construction Cost Estimate - SR 72 Clark Road

ESTIMATED CONSTRUCTION COSTS

Pond 3A

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	10023 cy	$27.24
POND EXCAVATION:	3262 cy	$15.61
TOTAL COST:		$323,938.97

CLEARING AND GRUBBING

POND R/W AREA:	2.48 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$203,270.72

POND SOD QUANTITIES

POND R/W AREA:	2.48 ac
POND WATER AREA:	0.88 ac
TOTAL SOD AREA:	1.60 ac
TOTAL SOD AREA:	7744 sy
COST PER SY*:	$4.53
TOTAL COST:	$169,788,748.80

POND FENCING QUANTITIES

POND R/W PERIMITER:	1414 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$44,672.96

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	230	$285.37	$65,635.10	(assumed 36" pipe)
MANHOLES:	2	$13,400.56	$26,801.12	(assumed J-8)
		TOTAL:	$119,193.91	

TOTAL CONSTRUCTION COSTS:	**$691,081.09**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

ESTIMATED CONSTRUCTION COSTS
Pond 3B

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	16818 cy	$27.24
POND EXCAVATION:	2804 cy	$15.61
TOTAL COST:		$501,890.45

CLEARING AND GRUBBING

POND R/W AREA:	3.94 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$322,938.16

POND SOD QUANTITIES

POND R/W AREA:	3.94 ac
POND WATER AREA:	1.43 ac
TOTAL SOD AREA:	2.51 ac
TOTAL SOD AREA:	12148 sy
COST PER SY*:	$4.53
TOTAL COST:	$266,356,099.68

POND FENCING QUANTITIES

POND R/W PERIMITER:	2401 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$68,617.58

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	700	$285.37	$199,759.00	(assumed 36" pipe)
MANHOLES:	2	$13,400.56	$26,801.12	(assumed J-8)
		TOTAL:	$253,317.81	

TOTAL CONSTRUCTION COSTS:	**$1,146,768.53**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

Pond Siting Alternatives Construction Cost Estimate - SR 72 Clark Road

ESTIMATED CONSTRUCTION COSTS

Pond 4A

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	28172 cy	$27.24
POND EXCAVATION:	5429 cy	$15.61
TOTAL COST:		$852,153.25

CLEARING AND GRUBBING

POND R/W AREA:	5.35 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$438,507.40

POND SOD QUANTITIES

POND R/W AREA:	5.35 ac
POND WATER AREA:	2.48 ac
TOTAL SOD AREA:	2.87 ac
TOTAL SOD AREA:	13891 sy
COST PER SY*:	$4.53
TOTAL COST:	$304,558,568.16

POND FENCING QUANTITIES

POND R/W PERIMITER:	2124 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$61,897.56

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	330	$285.37	$94,172.10	(assumed 36" pipe)
MANHOLES:	2	$13,400.56	$26,801.12	(assumed J-8)
		TOTAL:	$147,730.91	

TOTAL CONSTRUCTION COSTS:	**$1,500,293.65**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

ESTIMATED CONSTRUCTION COSTS

Pond 4B

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	19481 cy	$27.24
POND EXCAVATION:	6560 cy	$15.61
TOTAL COST:		$633,059.27

CLEARING AND GRUBBING

POND R/W AREA:	4.35 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$356,543.40

POND SOD QUANTITIES

POND R/W AREA:	4.35 ac
POND WATER AREA:	1.68 ac
TOTAL SOD AREA:	2.67 ac
TOTAL SOD AREA:	12923 sy
COST PER SY*:	$4.53
TOTAL COST:	$283,334,974.56

POND FENCING QUANTITIES

POND R/W PERIMITER:	1978 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$58,355.60

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	550	$285.37	$156,953.50	(assumed 36" pipe)
MANHOLES:	2	$13,400.56	$26,801.12	(assumed J-8)
		TOTAL:	$210,512.31	

TOTAL CONSTRUCTION COSTS:	**$1,258,475.11**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

Pond Siting Alternatives Construction Cost Estimate - SR 72 Clark Road

ESTIMATED CONSTRUCTION COSTS

Pond 4C

EARTHWORK

	VOLUME	UNIT COST*
POND FILL:	20071 cy	$27.24
POND EXCAVATION:	5487 cy	$15.61
TOTAL COST:		$632,385.09

CLEARING AND GRUBBING

POND R/W AREA:	5.84 ac
COST PER ACRE*:	$81,964.00
TOTAL COST:	$478,669.76

POND SOD QUANTITIES

POND R/W AREA:	5.84 ac
POND WATER AREA:	1.57 ac
TOTAL SOD AREA:	4.27 ac
TOTAL SOD AREA:	20667 sy
COST PER SY*:	$4.53
TOTAL COST:	$453,123,723.36

POND FENCING QUANTITIES

POND R/W PERIMITER:	2672 ft
COST PER FT (TYPE B)*:	$24.26
20-FT CANTILEVER GATE:	1
COST PER EA*:	$10,369.32
TOTAL COST:	$75,192.04

ADDITIONAL POND STORMDRAIN QUANTITES

	QUANTITY	UNIT COST*	COST	
CONTROL STRUCTURE:	1	$9,812.39	$9,812.39	(assumed Type D Mod.)
OUTFALL MES:	2	$8,472.65	$16,945.30	(assumed 36" pipe)
PIPE (LF):	500	$285.37	$142,685.00	(assumed 36" pipe)
MANHOLES:	4	$13,400.56	$53,602.24	(assumed J-8)
		TOTAL:	$223,044.93	

TOTAL CONSTRUCTION COSTS:	**$1,409,296.35**

*Unit Costs per FDOT 12 Month Item Average Unit Cost From 09/01/2023 to 08/31/2024

APPENDIX H – FLOODPLAIN IMPACT CALCULATIONS

SR 72 Floodplain Impact Calculations

Area 1 0.08 Ac-ft BFE: 32.2

ELEV. (ft)	AREA (ac)	AVG (ac)	Delta (ft)	Delta (ac-ft)	Sum (ac-ft)
32.20	0.12				**0.08**
		0.11	0.20	0.02	
32.00	0.09				**0.06**
		0.06	1.00	0.06	
31.00	0.02				0.00

Area 2 0.01 Ac-ft BFE: 32.2

ELEV. (ft)	AREA (ac)	AVG (ac)	Delta (ft)	Delta (ac-ft)	Sum (ac-ft)
32.20	0.01				**0.01**
		0.01	1.20	0.01	
31.00	0.01				0.00

Area 3 0.12 Ac-ft BFE: 31.4

ELEV. (ft)	AREA (ac)	AVG (ac)	Delta (ft)	Delta (ac-ft)	Sum (ac-ft)
31.40	0.07				**0.12**
		0.07	0.40	0.03	
31.00	0.07				**0.10**
		0.06	1.00	0.06	
30.00	0.05				**0.04**
		0.04	1.00	0.04	
29.00	0.02				0.00

Area 4	0.71	Ac-ft			BFE:	31.2
ELEV.	**AREA**	**AVG**	**Delta**	**Delta**	**Sum**	
(ft)	**(ac)**	**(ac)**	**(ft)**	**(ac-ft)**	**(ac-ft)**	
31.20	0.58				**0.71**	
		0.55	0.20	0.11		
31.00	0.51				**0.61**	
		0.41	1.00	0.41		
30.00	0.31				**0.20**	
		0.20	1.00	0.20		
29.00	0.08				0.00	

Area 5	0.32	Ac-ft			BFE:	31.7
ELEV.	**AREA**	**AVG**	**Delta**	**Delta**	**Sum**	
(ft)	**(ac)**	**(ac)**	**(ft)**	**(ac-ft)**	**(ac-ft)**	
31.70	0.77				**0.32**	
		0.46	0.70	0.32		
31.00	0.14				0.00	

Area 6	0.84	Ac-ft			BFE:	31.5
ELEV.	**AREA**	**AVG**	**Delta**	**Delta**	**Sum**	
(ft)	**(ac)**	**(ac)**	**(ft)**	**(ac-ft)**	**(ac-ft)**	
31.50	1.03				**0.84**	
		0.86	0.50	0.43		
31.00	0.68				**0.42**	
		0.42	1.00	0.42		
30.00	0.15				0.00	

Area 7 0.06 Ac-ft BFE: 31.6

ELEV. (ft)	AREA (ac)	AVG (ac)	Delta (ft)	Delta (ac-ft)	Sum (ac-ft)
31.60	0.16				**0.06**
		0.11	0.60	0.06	
31.00	0.05				0.00

Area 8 0.16 Ac-ft BFE: 30.9

ELEV. (ft)	AREA (ac)	AVG (ac)	Delta (ft)	Delta (ac-ft)	Sum (ac-ft)
30.90	0.20				**0.16**
		0.18	0.90	0.16	
30.00	0.15				0.00

Area 9 1.38 Ac-ft BFE: 31.6

ELEV. (ft)	AREA (ac)	AVG (ac)	Delta (ft)	Delta (ac-ft)	Sum (ac-ft)
31.60	1.08				**1.38**
		1.00	0.60	0.60	
31.00	0.92				**0.78**
		0.61	1.00	0.61	
30.00	0.30				**0.17**
		0.17	1.00	0.17	
29.00	0.04				0.00

Area 10 0.68 Ac-ft BFE: 30.9

ELEV. (ft)	AREA (ac)	AVG (ac)	Delta (ft)	Delta (ac-ft)	Sum (ac-ft)
30.90	0.57				**0.68**
		0.48	0.90	0.43	
30.00	0.39				**0.25**
		0.25	1.00	0.25	
29.00	0.10				0.00

Area 11	0.23	Ac-ft			BFE:	31.2
ELEV.	**AREA**	**AVG**	**Delta**	**Delta**	**Sum**	
(ft)	**(ac)**	**(ac)**	**(ft)**	**(ac-ft)**	**(ac-ft)**	
31.20	0.30				**0.23**	
		0.28	0.20	0.05		
31.00	0.25				**0.17**	
		0.17	1.00	0.17		
30.00	0.09				0.00	

Area 12	0.03	Ac-ft			BFE:	31.6
ELEV.	**AREA**	**AVG**	**Delta**	**Delta**	**Sum**	
(ft)	**(ac)**	**(ac)**	**(ft)**	**(ac-ft)**	**(ac-ft)**	
31.60	0.07				**0.03**	
		0.05	0.60	0.03		
31.00	0.02				0.00	

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 1 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.20	19.60	98.00
Pervious Area						
Open space, grass good condition			80	0.14	11.20	80.00
			TOTALS	**0.34**	**30.80**	

COMPOSITE CN	**90.6**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.04**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.54**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.30**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 2 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.10	9.80	98.00
Pervious Area						
Open space, grass good condition			80	0.07	5.60	80.00
			TOTALS	**0.17**	**15.40**	

COMPOSITE CN	**90.6**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.04**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.54**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.15**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 3 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.15	14.70	98.00
Pervious Area						
Open space, grass good condition			80	0.10	8.00	80.00
			TOTALS	**0.25**	**22.70**	

COMPOSITE CN	**90.8**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.01**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.57**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.22**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 4 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	1.03	100.94	98.00
Pervious Area						
Open space, grass good condition			80	1.05	84.00	80.00
			TOTALS	**2.08**	**184.94**	

COMPOSITE CN	**88.9**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.25**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.33**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**1.79**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 5 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.47	46.06	98.00
Pervious Area						
Open space, grass good condition			80	0.55	44.00	80.00
			TOTALS	**1.02**	**90.06**	

COMPOSITE CN	**88.3**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.33**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.25**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.87**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 6 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.80	78.40	98.00
Pervious Area						
Open space, grass good condition			80	0.85	68.00	80.00
			TOTALS	**1.65**	**146.40**	

COMPOSITE CN	**88.7**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.27**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.30**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**1.42**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 7 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.27	26.46	98.00
Pervious Area						
Open space, grass good condition			80	0.42	33.60	80.00
			TOTALS	**0.69**	**60.06**	

COMPOSITE CN	**87.0**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.49**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.09**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.58**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 8 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.51	49.98	98.00
Pervious Area						
Open space, grass good condition			80	0.76	60.80	80.00
			TOTALS	**1.27**	**110.78**	

COMPOSITE CN	**87.2**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.46**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.11**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**1.07**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 9 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.67	65.66	98.00
Pervious Area						
Open space, grass good condition			80	0.91	72.80	80.00
			TOTALS	**1.58**	**138.46**	

COMPOSITE CN	**87.6**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.41**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.16**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**1.34**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 10 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.21	20.58	98.00
Pervious Area						
Open space, grass good condition			80	0.50	40.00	80.00
			TOTALS	**0.71**	**60.58**	

COMPOSITE CN	**85.3**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.72**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**9.86**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.58**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 11 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.18	17.64	98.00
Pervious Area						
Open space, grass good condition			80	0.42	33.60	80.00
			TOTALS	**0.60**	**51.24**	

COMPOSITE CN	**85.4**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.71**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**9.87**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.49**

English Worksheet

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE	
PROJECT NUMBER:		**DATE**
BASIN DESIGNATION:	**Floodplain Impact Area 12 Existing Runoff Volume**	05-Jun-24
BASIN ANALYSIS (PRE/POST):	**PRE-DEVELOPMENT**	05-Jun-24

RAINFALL (in) - P	**11.70**
DESIGN EVENT	**100Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.12	11.76	98.00
Pervious Area						
Open space, grass good condition			80	0.11	8.80	80.00
			TOTALS	**0.23**	**20.56**	

COMPOSITE CN	**89.4**

ESTIMATED RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**1.19**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**10.39**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.20**

APPENDIX I – POND SIZING CALCULATIONS

Post Development CN

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE			
PROJECT NUMBER:				**DATE**
BASIN DESIGNATION:	**Twin Lakes Park Basin 1**	**Pond 1 Sizing**	KAO	07-Oct-24
BASIN ANALYSIS (PRE/POST):	**POST-DEVELOPMENT**	**CHECKED BY:**		07-Oct-24

RAINFALL (in) - P	**8.58**
DESIGN EVENT	**25Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Net Additional Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.50	49.00	98.00
Pervious Area						
Open space, grass good condition			80	0.00	0.00	80.00
			TOTALS	**0.50**	**49.00**	

COMPOSITE CN	**98.0**

ESTIMATED PRE-DEVELOPMENT RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**0.20**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**8.34**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.35**

Post Development CN

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE			
PROJECT NUMBER:				**DATE**
BASIN DESIGNATION:	**Twin Lakes Park Basin 2**	**Pond 1 Sizing**	KAO	07-Oct-24
BASIN ANALYSIS (PRE/POST):	**POST-DEVELOPMENT**	**CHECKED BY:**		07-Oct-24

RAINFALL (in) - P	**8.58**
DESIGN EVENT	**25Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Net Additional Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	1.07	104.86	98.00
Pervious Area						
Open space, grass good condition			80	0.00	0.00	80.00
			TOTALS	**1.07**	**104.86**	

COMPOSITE CN	**98.0**

ESTIMATED PRE-DEVELOPMENT RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**0.20**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**8.34**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.74**

Post Development CN

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE			
PROJECT NUMBER:				**DATE**
BASIN DESIGNATION:	**Twin Lakes Park Basin 3**	**Pond 1 Sizing**	KAO	07-Oct-24
BASIN ANALYSIS (PRE/POST):	**POST-DEVELOPMENT**	**CHECKED BY:**		07-Oct-24

RAINFALL (in) - P	**8.58**
DESIGN EVENT	**25Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Net Additional Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	1.34	131.32	98.00
Pervious Area						
Open space, grass good condition			80	0.00	0.00	80.00
			TOTALS	**1.34**	**131.32**	

COMPOSITE CN	**98.0**

ESTIMATED PRE-DEVELOPMENT RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**0.20**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**8.34**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.93**

Post Development CN

Kimley-Horn & Associates

PROJECT TITLE:	SR 72 PDE			
PROJECT NUMBER:				**DATE**
BASIN DESIGNATION:	**Twin Lakes Park Basin 4**	**Pond 1 Sizing**	KAO	07-Oct-24
BASIN ANALYSIS (PRE/POST):	**POST-DEVELOPMENT**	**CHECKED BY:**		07-Oct-24

RAINFALL (in) - P	**8.58**
DESIGN EVENT	**25Yr-24hr**

BASIN RUNOFF CURVE NUMBER WORKSHEET

POST-DEVELOPMENT LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT	SUB-BASIN CN
Total Contributing Basin						
Net Additional Impervious Area						
Vehicular Pavement / Trail / Sidewalk			98	0.11	10.78	98.00
Pervious Area						
Open space, grass good condition			80	0.00	0.00	80.00
			TOTALS	**0.11**	**10.78**	

COMPOSITE CN	**98.0**

ESTIMATED PRE-DEVELOPMENT RUNOFF VOLUME

1) DETERMINE SOIL STORAGE - S

S = (1000 / CN) - 10

SOIL STORAGE (in)	**S**	**0.20**

2) DETERMINE RUNOFF - R

R = (P - 0.2*S)^2 / (P + 0.8*S)

RUNOFF (in)	**R**	**8.34**

3) DETERMINE RUNOFF VOLUME - V(R)

V(R) = R/12*AREA

RUNOFF (ac-ft)	**V(R)**	**0.08**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	10/07/24		
CHECKED BY:		DATE:	10/07/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 1A**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	19.63	ac	PULLED DATA
Paved Area =	6.62	ac	PULLED DATA
Pond Water Surface Area =	5.86	ac	PULLED DATA
Percentage Impervious =	48.08	%	CALCULATED !!

Pollutant Abatement Volume

1.00 " of runoff from the Contributing Area = 1.64 Ac-Ft CALCULATED !!

Pollutant Abatement Volume (PAV) = **1.64** Ac-Ft CALCULATED !!

CALCULATED !!

Controlling PAV=	**1.64**	Ac-Ft
Attenuation Volume=	**6.09**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
33.80	Inside Berm	6.94				**16.86**
			6.82	1.00	6.82	
32.80	DHW	6.69				**10.04**
			6.60	1.10	7.25	
31.70	BFE	1.17				**2.79**
			1.12	1.00	1.12	
30.70	Weir Elev	1.06				**1.67**
			0.99	1.70	1.67	
29.00	NWL	0.91				**0.00**

Min Required PAV: **1.64 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY: KAO DATE: 10/07/24
CHECKED BY: DATE: 10/07/24
CALCULATIONS FOR: SR 72 PDE POND: **TLP Pond 2** WMD **SWFWMD**

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
33.50	Inside Berm	5.98				**11.92**
			5.83	1.00	5.83	
32.50	DHW	5.68				**6.09**
			6.09	1.00	6.09	
31.50	BFE	5.40				**0.00**
			2.70	2.50	0.00	
29.00	NWL	0.00				**0.00**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	06/13/24		
CHECKED BY:		DATE:	06/13/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 1B**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	14.03	ac	PULLED DATA
Paved Area =	6.62	ac	PULLED DATA
Pond Water Surface Area =	1.43	ac	PULLED DATA
Percentage Impervious =	52.54	%	CALCULATED !!

Pollutant Abatement Volume

1.00 " of runoff from the Contributing Area =	1.17	Ac-Ft	CALCULATED !!
Pollutant Abatement Volume (PAV) =	**1.17**	Ac-Ft	CALCULATED !!
			CALCULATED !!

Controlling PAV=	**1.17**	Ac-Ft
Attenuation Volume=	**2.32**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
32.75	Inside Berm	2.56				**6.29**
			2.50	1.00	2.50	
31.75	DHW	2.44				**3.79**
			2.38	1.00	2.38	
30.75	Weir Elev	2.32				**1.41**
			1.88	0.75	1.41	
30.00	NWL	1.43				**0.00**

Min Required PAV: **1.17 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 2A**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	17.58	ac	PULLED DATA
Paved Area =	9.60	ac	PULLED DATA
Pond Water Surface Area =	2.08	ac	PULLED DATA
Percentage Impervious =	61.94	%	CALCULATED !!

Pollutant Abatement Volume

1.00 " of runoff from the Contributing Area = 1.47 Ac-Ft CALCULATED !!

Pollutant Abatement Volume (PAV) = **1.47** Ac-Ft CALCULATED !!

CALCULATED !!

Controlling PAV=	**1.47**	Ac-Ft
Attenuation Volume=	**2.86**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
32.00	Inside Berm	2.49				**6.85**
			2.42	1.00	2.42	
31.00	DHW	2.35				**4.43**
			2.26	1.30	2.94	
29.70	Weir Elev	2.17				**1.49**
			2.13	0.70	1.49	
29.00	NWL	2.08				**0.00**

Min Required PAV: **1.47 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 2B**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	17.58	ac	PULLED DATA
Paved Area =	9.60	ac	PULLED DATA
Pond Water Surface Area =	2.79	ac	PULLED DATA
Percentage Impervious =	64.91	%	CALCULATED !!

Pollutant Abatement Volume

1.00	" of runoff from the Contributing Area	=	1.47 Ac-Ft	CALCULATED !!
Pollutant Abatement Volume (PAV) =			**1.47** Ac-Ft	CALCULATED !!
				CALCULATED !!

Controlling PAV=	**1.47**	Ac-Ft
Attenuation Volume=	**2.86**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
32.50	Inside Berm	3.17				**7.29**
			2.59	1.00	2.59	
31.50	DHW	2.00				**4.70**
			1.93	1.60	3.08	
29.90	Weir el.	1.85				**1.62**
			1.81	0.90	1.62	
29.00	NWL	1.76				

Min Required PAV: **1.47 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 3A**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	10.48	ac	PULLED DATA
Paved Area =	6.65	ac	PULLED DATA
Pond Water Surface Area =	0.88	ac	PULLED DATA
Percentage Impervious =	69.27	%	CALCULATED !!

Pollutant Abatement Volume

1.00 " of runoff from the Contributing Area = 0.87 Ac-Ft CALCULATED !!

Pollutant Abatement Volume (PAV) = **0.87** Ac-Ft CALCULATED !!

CALCULATED !!

Controlling PAV=	**0.87**	Ac-Ft
Attenuation Volume=	**1.45**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
35.00	Inside Berm	1.20				**3.64**
			1.16	1.00	1.16	
34.00	DHW	1.11				**2.49**
			1.04	1.50	1.56	
32.50	Weir Elev	0.97				**0.93**
			0.93	1.00	0.93	
31.50	NWL	0.88				**0.00**

Min Required PAV: **.87 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 3B**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	11.20	ac	PULLED DATA
Paved Area =	6.65	ac	PULLED DATA
Pond Water Surface Area =	1.43	ac	PULLED DATA
Percentage Impervious =	68.07	%	CALCULATED !!

Pollutant Abatement Volume

1.00	" of runoff from the Contributing Area	=	0.93 Ac-Ft	CALCULATED !!
Pollutant Abatement Volume (PAV) =			**0.93** Ac-Ft	CALCULATED !!
				CALCULATED !!

Controlling PAV=	**0.93**	Ac-Ft
Attenuation Volume=	**1.93**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
33.50	Inside Berm	1.76				**4.83**
			1.71	1.00	1.71	
32.50	DHW	1.66				**3.12**
			1.60	1.25	1.99	
31.25	Weir Elev	1.53				**1.12**
			1.50	0.75	1.12	
30.50	NWL	1.46				**0.00**

Min Required PAV: **.93 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 4A**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	18.95	ac	PULLED DATA
Paved Area =	10.57	ac	PULLED DATA
Pond Water Surface Area =	2.48	ac	PULLED DATA
Percentage Impervious =	64.18	%	CALCULATED !!

Pollutant Abatement Volume

1.00 " of runoff from the Contributing Area = 1.58 Ac-Ft CALCULATED !!

Pollutant Abatement Volume (PAV) = **1.58** Ac-Ft CALCULATED !!

CALCULATED !!

Controlling PAV=	**1.58**	Ac-Ft
Attenuation Volume=	**3.23**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
28.00	Inside Berm	2.94				**8.12**
			2.86	1.00	2.86	
27.00	DHW	2.78				**5.26**
			2.69	1.25	3.36	
25.75	Weir Elev	2.59				**1.90**
			2.54	0.75	1.90	
25.00	NWL	2.48				**0.00**

Min Required PAV: **1.58 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 4B**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	16.77	ac	PULLED DATA
Paved Area =	10.57	ac	PULLED DATA
Pond Water Surface Area =	1.68	ac	PULLED DATA
Percentage Impervious =	70.05	%	CALCULATED !!

Pollutant Abatement Volume

1.00	" of runoff from the Contributing Area	=	1.40 Ac-Ft	CALCULATED !!
Pollutant Abatement Volume (PAV) =			**1.40** Ac-Ft	CALCULATED !!
				CALCULATED !!

Controlling PAV=	**1.40**	Ac-Ft
Attenuation Volume=	**3.01**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
28.00	Inside Berm	2.20				**7.76**
			2.14	1.00	2.14	
27.00	DHW	2.07				**5.63**
			1.94	2.00	3.88	
25.00	Weir Elev	1.81				**1.75**
			1.75	1.00	1.75	
24.00	NWL	1.68				**0.00**

Min Required PAV: **1.4 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 4C North**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	8.42	ac	PULLED DATA
Paved Area =	4.73	ac	PULLED DATA
Pond Water Surface Area =	0.74	ac	PULLED DATA
Percentage Impervious =	61.59	%	CALCULATED !!

Pollutant Abatement Volume

1.00	" of runoff from the Contributing Area	=	0.70 Ac-Ft	CALCULATED !!
Pollutant Abatement Volume (PAV) =			**0.70** Ac-Ft	CALCULATED !!
				CALCULATED !!

Controlling PAV=	**0.70**	Ac-Ft
Attenuation Volume=	**1.16**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
28.50	Inside Berm	1.02				**3.06**
			0.98	1.00	0.98	
27.50	DHW	0.93				**2.08**
			0.87	1.50	1.31	
26.00	Weir Elev	0.81				**0.78**
			0.78	1.00	0.78	
25.00	NWL	0.74				**0.00**

Min Required PAV: **.7 AC-FT**

Wet Detention Design

Kimley-Horn & Associates

MADE BY:	KAO	DATE:	09/15/24		
CHECKED BY:		DATE:	09/15/24		
CALCULATIONS FOR:	SR 72 PDE	POND:	**Pond 4C South**	WMD	**SWFWMD**

Water Quality

Basin outfall to O.F.W. (Y/N)?	n	INPUT (Y OR N)

Total Basin Area =	8.61	ac	PULLED DATA
Paved Area =	4.67	ac	PULLED DATA
Pond Water Surface Area =	0.83	ac	PULLED DATA
Percentage Impervious =	60.03	%	CALCULATED !!

Pollutant Abatement Volume

1.00 " of runoff from the Contributing Area = 0.72 Ac-Ft CALCULATED !!

Pollutant Abatement Volume (PAV) = **0.72** Ac-Ft CALCULATED !!

CALCULATED !!

Controlling PAV=	**0.72**	Ac-Ft
Attenuation Volume=	**1.46**	Ac-Ft

Stage Storage Calculations

ELEV.		AREA	AVG AREA	Delta D	Delta storage	Sum Storage
(ft)		(ac)	(ac)	(ft)	(ac-ft)	(ac-ft)
28.50	Inside Berm	1.15				**3.47**
			1.11	1.00	1.11	
27.50	DHW	1.06				**2.36**
			0.99	1.50	1.49	
26.00	Weir Elev	0.92				**0.88**
			0.88	1.00	0.88	
25.00	NWL	0.83				**0.00**

Min Required PAV: **.72 AC-FT**