SR 9/I-95 AT LANTANA ROAD

Palm Beach County, Florida

FPID No.: 413258-1-22-02 | ETDM# 14338

PD&E Study

Location Hydraulic Report

July 2020

LOCATION HYDRAULIC REPORT

Florida Department of Transportation

District Four

SR 9/I-95 at Lantana Road Interchange PD&E Study

Limits of Project: From North of Hypoluxo Road to South of 6th Avenue S (MP 18.420 to MP 19.158)

Palm Beach County, Florida

Financial Management Number: 413258-1-22-02

ETDM Number: 14338

July 12, 2020

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 December 14, 2016 and executed by FHWA and FDOT.

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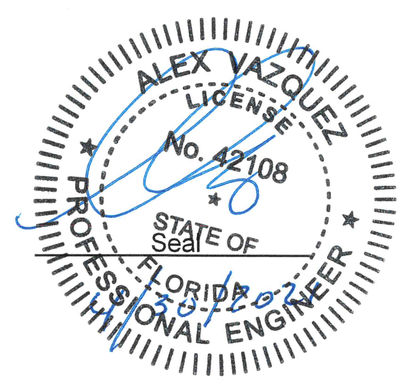

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District Four, is conducting a Project Development and Environment (PD&E) Study that proposes improvements to SR 9/I-95 at Lantana Road Interchange from High Ridge Road to Andrew Redding Road.

The purpose of this Location Hydraulic Report (LHR) is to provide information on designated floodplains and floodways with potential floodplain impact/compensation requirements if present within the project limits. This evaluation was conducted in accordance with Part 2, Chapter 24 of the FDOT PD&E Manual (2019).

1.1 PROJECT BACKGROUND

SR 9/I-95 is the main Interstate Highway on the East Coast of the United States serving areas from Florida to Maine. Within the State of Florida, SR 9/I-95 is a major state transportation resource critical in the facilitation of statewide travel and is included in the Strategic Intermodal System (SIS) established by the Florida Legislature in 2003, for its role in supporting the State's economy and mobility.

SR 9/I-95 has experienced increasing traffic volumes since its completion in Palm Beach County in 1980: fueled largely by population and economic growth within the County. The FDOT has responded to this increased transportation demand with various interventions to improve operations and safety along the SR 9/I-95 mainline including, adding a High Occupancy Vehicle (HOV) lane and auxiliary lanes from south of Linton Boulevard to north of PGA Boulevard in the 1990s and 2000s, and minor interchange improvements at eight interchange locations within this segment of SR 9/I-95.

In December 2015, the FDOT completed the SR 9/I-95 Interchange Master Plan for Palm Beach County to identify short-term and long-term needs at the interchange locations within the County through the 2040 design year horizon. This Master Plan included design concepts to address traffic spillback onto SR 9/1-95, improve interchange operations, reduce congestion, and increase safety at 17 interchanges from Linton Boulevard to Northlake Boulevard. SR 9/I-95 at Lantana Road Interchange was one of the interchange locations evaluated as part of the I-95 Interchange Master Plan.

A Concept Development Report (CDR) was completed for this interchange as part of the I-95 Interchange Master Plan Study for Palm Beach County. The CDR identified several preliminary short-term and long-term improvements at the SR 9/I-95 at Lantana Road Interchange including:

- Dual right-turn lanes for the SR 9/I-95 southbound off-ramp
- Dual eastbound left-turn lanes from Lantana Road to the SR 9/I-95 northbound on-ramp
- Additional westbound through the lane between the SR 9/I-95 southbound off-ramp and High Ridge Road
- Additional eastbound through the lane between the SR 9/I-95 northbound off-ramp and Andrew Redding Road
- Improvements at various intersections along Lantana Road including High Ridge Road, Andrew Redding Road, Sunset Road, and Shopping Center Drive

Within Palm Beach County, the Transportation Planning Agency (TPA) adopted a vision to transform the County into a place where bicycling is a safe and convenient transportation option and an attractive form of recreation for residents and visitors alike by 2035. In keeping with this vision, Palm Beach County adopted the Master Comprehensive Bicycle Transportation Plan (MCBTP) with recommendations to include/improve bicycle facilities throughout Palm Beach County. Lantana Road from Jog Road to Dixie Highway was identified as one of the corridors for inclusion in the Priority Bicycle Network.

This PD&E Study is being conducted to evaluate concepts that improve interchange operations and safety, accommodate future transportation demand at the Lantana Road Interchange, and provide bicycle accommodations along Lantana Road within the project limits.

1.2 PROJECT DESCRIPTION

The SR 9/I-95 at Lantana Road interchange is located within the Town of Lantana in Palm Beach County, Florida, between the 6th Avenue South (1.54 miles to the north) and the Hypoluxo Road (1.04 miles to the south) interchanges. The interchange provides access to the Palm Beach County Park/Lantana Airport, Hypoluxo Island, Lantana Scrub Natural Area, and the Lantana Lake Worth Health Center. The study interchange is a typical diamond interchange, and the limits along Lantana Road extend from High Ridge Road to Andrew Redding Road. The South Florida Rail Corridor (SFRC)/CSX Railroad runs parallel along the west side of SR 9/I-95 in this area and crosses below an elevated section of Lantana Road.

SR 9/I-95 near the Lantana Road interchange is a ten-lane divided urban interstate, providing four general-purpose lanes and one High Occupancy Vehicle (HOV) lane in each direction. Auxiliary lanes are provided in both the northbound and southbound directions within the study area. At the Lantana Road interchange, SR 9/I-95 crosses below an elevated section of Lantana Road. SR 9/I-95 is an SIS designated highway as well as an emergency evacuation route.

Within the project limits, Lantana Road is primarily a four-lane urban principal arterial under the jurisdiction of Palm Beach County, with two through lanes in each direction. At the interchange location, Lantana Road is elevated over SR 9/I-95 and the SFRC/CSX Railroad. There is one dedicated left-turn lane in each direction to access the SR 9/I-95 on-ramps and two through lanes in each direction. A single free-flow right-turn lane is also provided in both eastbound and westbound directions along Lantana Road to serve the SR 9/I-95 on-ramps. Sidewalks are provided along both sides of Lantana Road; however, bicycle lanes do not exist. The segment of Lantana Road from SR 9/I-95 to SR 5/US-1 is designated as an emergency evacuation route.

Land use adjacent to the interchange is predominantly commercial with some industrial, institutional, and residential uses. The adjacent signalized intersections within the project limits are High Ridge Road west of SR 9/I-95 southbound ramps, and Shopping Center Drive and Andrew Redding Road east of SR 9/I-95 northbound ramps.

The proposed improvements will include operational and safety improvements to the Interchange, including capacity improvements along Lantana Road, additional turning lanes at the SR 5/I-95 ramp terminal intersections and signal improvements. The project will also include improvements to sidewalks, ADA ramps, guide signs, and designated bicycle lanes. The project location map is shown in **Figure 1-1**.

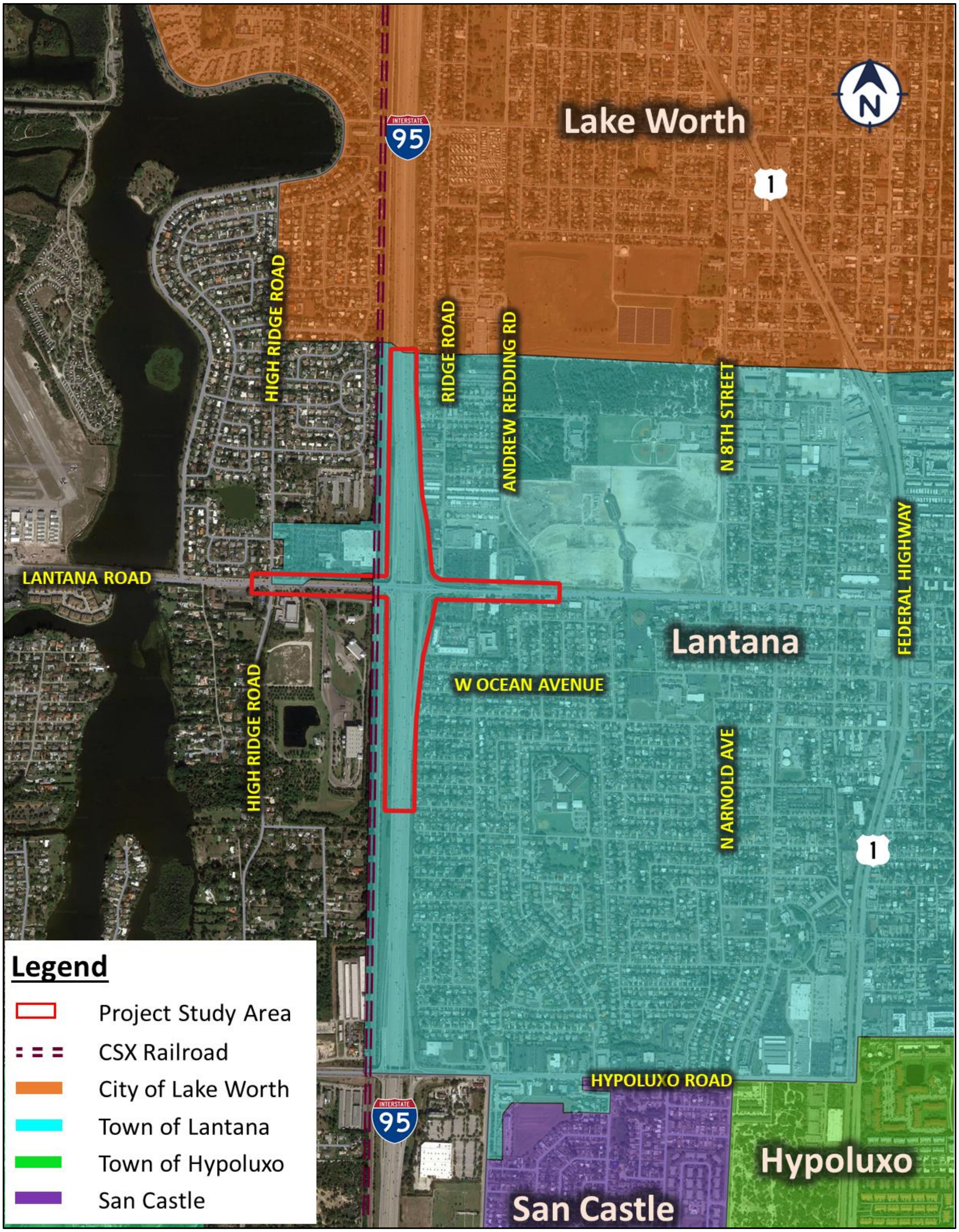


Figure 1-1 Project Location Map

1.3 PURPOSE AND NEED

The primary purpose of this interchange project is to improve the local and regional transportation network while also providing enhanced multimodal interrelationships at the SR 9/I-95/Lantana Road interchange. Additional features that will be improved include capacity and transportation demand, safety, and emergency evacuation. The study will evaluate alternatives that eliminate traffic spillback onto SR 9/I-95, enhance interchange operations and safety, reduce congestion, while providing for multimodal accommodations at this interchange location. The study will also consider accommodation for potential extension of I-95 Managed Lanes through Palm Beach County. The needs for this project are further described in the following sections:

1.3.1 Transportation Network

Lantana Road is a county roadway (CR 812) that provides access to the Town of Lantana and Hypoluxo Island via East Ocean Avenue (Lantana) Bridge. To the west, Lantana Road provides access to the Palm Beach County Park/Lantana Airport and the City of Atlantis. Although Lantana Road is not a designated road in the state's SIS, SR 9/I-95 is a part of the SIS system. The SIS includes Florida's important transportation facilities that support the State's economy and mobility. Improved interchange operations at Lantana Road will help to reduce traffic spillback onto I-95, thereby enhancing connectivity among the local and regional networks.

1.3.2 Multimodal Interrelationships

The SR 9/I-95 at Lantana Road interchange accommodates east-west sidewalks on the north and south sides of Lantana Road, from High Ridge Road to Shopping Center Drive, extending beyond both intersections. Bicycle lanes are not provided in both directions along Lantana Road within the project limits. The Palm Beach County Transportation Planning Agency (TPA) Master Comprehensive Bicycle Transportation Plan (MCBTP) includes recommendations to improve bicycle facilities throughout Palm Beach County. The MCBTP recommends a "Detailed Corridor Study" along Lantana Road. Additionally, the MCBTP designates segments of High Ridge Road as "Bike Level of Service (LOS) Threshold Met" and "Shoulder Candidate." As part of the study, provision of bike lanes would be evaluated along Lantana Road.

Four schools are located within approximately one mile of the interchange: Barton Elementary School, Lantana Elementary School, Lantana Middle School, and Palm Beach Maritime Academy. There are no Palm Tran transit bus stops within the project limits. However, bus stops are located on Lantana Road west of High Ridge Road and east of Andrew Redding Road. Adding improvements to bicycle and pedestrian facilities at the intersections within the study area will enhance the safety of the local community pedestrian users traveling the corridor.

1.3.3 Capacity and Transportation Demand

The SR 9/I-95 southbound ramps within the study area currently operate at an overall LOS E during the A.M. peak hours, while the northbound ramps operate at a LOS C. During the P.M. peak hours, the southbound ramps operate at LOS D, and the northbound ramps operate at LOS C. If no improvements are made to the SR 9/I-95 at Lantana Road interchange, it is forecasted that by 2045, both the southbound and northbound ramps will operate at LOS F for both the A.M. and P.M. peak hours.

Due to the current need to increase capacity, the proposed interchange improvements are included in the Palm Beach County TPA 2040 Long Range Transportation Plan (LRTP) as part of the 2020-2040 Desires Plan. Funding for Design (Preliminary Engineering and PD&E) are planned to be available in 2026-2030 and Construction in 2031-2040. The interchange improvements are also included in the SIS Cost Feasible Plan 2024-2040. The interchange is also included in the I-95 Interchange Master Plan.

1.3.4 Safety

Crash data from 2014 to 2018 for SR 9/I-95 (Roadway ID: 93220000) from south of Lantana Road to the north of Lantana Road, SR 9/I-95 Ramps at Lantana Road (Roadway ID: 93220037, 93220038, 93220039, and 93220040), and Lantana Road (Roadway ID: 93530000) from High Ridge Road to Andrew Redding Road (MP 2.80 to MP 3.50) was obtained from the FDOT State Safety Office GIS (SSOGis) Query Tool on the Traffic Safety Web Portal. Based on the crash analysis, 313 crashes occurred on the SR 9/I-95 mainline, 157 crashes occurred on the SR 9/I-95 ramps at Lantana Road interchange and 172 crashes occurred on Lantana Road within the study area from 2014 to 2018. The predominant crash types that occurred within the study area were rear-end collisions, sideswipe collisions, and angled collisions. Crashes of these types are typically attributed to congested conditions along the arterials and interchange ramps and terminals. As such, providing capacity improvements for different modes of transportation within the study area will help to improve safety by alleviating congestion.

1.3.5 Emergency Evacuation

Based on Palm Beach County's Evacuation Routes and Zones Map, Lantana Road is classified as an evacuation route from SR 5/US-1 to SR 9/I-95. Therefore, improvements to the interchange of I-95 and Lantana Road, along with improvements to nearby intersections, will decrease evacuation times by increasing connectivity between eastern and western towns/cities and SR 9/I-95. Additionally, emergency response times will be decreased by the proposed improvements.

1.4 PLANNED AND ONGOING ADJACENT PROJECTS

Transportation plans from the state, county, city, and municipal level were reviewed to identify projects that impact the SR 9/I-95 at Lantana Road PD&E Study Area. Transportation plans that were reviewed as part of this study include FDOT District 4 Five Year Work Program, Palm Beach County TPA 2040 LRTP, Palm Beach County Transportation Improvement Program (TIP) and Palm Beach County MCBTP. A number of planned or ongoing projects were identified within the influence area of the SR 9/I-95 at Lantana Road PD&E Study. **Table 1-1** below provides a summary of these projects.

Table 1-1 Ongoing and Adjacent Projects

Project #	Project Name	Work Mix	Fiscal Year
427516-2	SR 9/I-95 From Gateway Boulevard to Lantana Road	Resurfacing	2020
444202-1	I-95 Managed Lanes from Linton Blvd. to 6th Ave	PD&E Study	2024
413257-1	SR 9/I-95 at Hypoluxo Road	PD&E	2020
436963-1	SR 9/I-95 at 6th Avenue South	PD&E / P.E.	2020
444340-1	SR 9 @ 6th Avenue South	Landscaping	2022
20230001	Lantana Road from Hagen Ranch to SR 9/I-95	Resurfacing	2023
N/A	Water Town Commons Development	Mixed-Use Development	Ongoing

Lantana Road is also included as a priority corridor in the Palm Beach County adopted MCBTP), with recommendations for bicycle lanes along Lantana Road from Jog Road to Dixie Highway.

2.0 ALTERNATIVES CONSIDERED

The alternatives considered as part of the SR 9/I-95 at Lantana Road PD&E Study include a No-Action Alternative, Transportation System Management & Operations (TSM&O) Alternative, and three Build Alternatives. The Alternatives are described below:

2.1 NO-ACTION ALTERNATIVE

The No-Action Alternative assumes no proposed improvements to the study interchange and serves as a baseline for comparison against the Build Alternatives. The No-Action Alternative includes consideration for the Water Tower Commons Development located in the northeast quadrant of Lantana Road and Andrew Redding Road Intersection. This is a 73-acre mixed-use development with 1,100 residential units and 209,000 square feet of commercial space for offices, retail stores and restaurants.

2.2 TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS

The TSM&O Alternative considers minor improvements to enhance operations and safety without the addition of through lanes. TSM&O includes low-cost improvements such as adding turn lanes at intersections, adjusting signal phasing and timings, and considering opportunities to enhance alternative travel modes. It also includes implementation of intelligent transportation systems (ITS) technologies. The Build Alternatives developed for this IMR also incorporate TSM&O improvements. The proposed TSM&O improvements to be incorporated as part of the Build Alternatives include:

- Incident Management CCTV Cameras
- Wrong-Way Detection Technology
- Vehicle Detection System
- Dynamic Message Signs on Lantana Road east and west of SR 9/I-95

TSM&O improvements will only alleviate some operational, geometric, and safety deficiencies along some portions of the study area. Their implementation alone does not meet the purpose and need for this project. TSM&O improvements are only viable in combination with the Build Alternatives that are discussed in the next section of this report.

2.3 BUILD ALTERNATIVE 1

Build Alternative 1 considered for this Study is generally based on the preliminary conceptual design recommended as part of the I-95 Interchange Master Plan Study and described in Section 1.1. This Alternative maintains the existing Tight Urban Diamond Interchange (TUDI) configuration; however, additional improvements were incorporated into the original concept from the I-95 Interchange Master Plan Study to better accommodate the design year traffic demand. The following improvements are proposed under Build Alternative 1 (See **Figure 2-1**):

- Widen Lantana Road to provide 3 lanes in each direction from High Ridge Road to Andrew Redding Road.
- Widen the existing Lantana Road bridge over I-95 and the two ramp bridges.
- Provide triple right-turn lanes and dual left-turn lanes for the SR 9/I-95 northbound and southbound off-ramps.
- Provide dual eastbound and westbound right-turn lanes onto I-95 southbound and northbound on-ramps, respectively.
- Provide dual eastbound and westbound left-turn lanes from Lantana Road to the I-95 southbound and northbound on-ramps, respectively.
- Eliminate eastbound left-turn movement and provide directional median opening at the Sunset Road intersection.
- Provide exclusive southbound and northbound right-turn lane along High Ridge Road and extend the EB left urn storage from 200 ft to 300 ft.
- Widen right-turn lane at Sunset Road to accommodate WB62FL Design Vehicles.
- Provide 7 ft buffered bicycle lanes and 6 ft sidewalks along Lantana Road in both directions.

These improvements are necessary to enhance the operations of the intersections within the interchange influence area. The proposed improvements under this alternative will also require right of way impacts to 9 commercial properties along Lantana Road.

2.4 BUILD ALTERNATIVE 2

The diverging diamond concept requires drivers to briefly cross to the left, or opposite side of the road at carefully designed crossover intersections. Drivers travel for a short distance, then cross back to the traditional or right side of the road. This unconventional design allows movements for the left and right-turns to and from the I-95 ramps onto Lantana Road without crossing the path of opposing traffic. The crossover is made at the signal where the opposing traffic flows split the signal green time. The major advantage of this type of interchange is that the left-turning vehicles do not require a signal phase which makes this a two-phased signal system with more green time for the opposing traffic. In addition, the DDI has fewer conflict points (i.e. 14 for DDI, 26 for TUDI) resulting in significant safety and operational improvement at the interchange. The following improvements are proposed to accommodate the design year traffic demand under Build Alternative 2:

- Widen Lantana Road to provide 3 lanes in each direction between High Ridge Road and Andrew Redding Road.
- Replace the existing single Lantana Road bridge over I-95 and SFRC/CSX Railroad with two separate bridges over SR 9/I-95 and SFRC/CSX Railroad.
- Replace the existing ramp bridges for the southbound on and off ramps with embankment and MSE walls.
- Provide dual right-turn lanes and dual left-turn lanes for the SR 9/I-95 northbound and southbound off-ramps.
- Provide dual eastbound and westbound right-turn lanes from Lantana Road onto I-95 southbound and northbound on-ramps, respectively.
- Provide dual eastbound and westbound left-turn lanes from Lantana Road onto the I-95 northbound and southbound on-ramps.
- Eliminate the eastbound left-turn, northbound left-turn and thru movements and provide a directional median opening at the Sunset Road intersection with an underpass access road.
- Provide exclusive southbound and northbound right-turn lane along High Ridge Road.
- Widen westbound right-turn lane at Sunset Road to accommodate WB62FL Design Vehicles.
- Provide 7 ft buffered bicycle lanes and 6 ft sidewalks along Lantana Road in both directions.

These improvements are necessary to enhance the operations of the intersections within the interchange influence area. The proposed improvements under this alternative will also require right of way impacts to 6 commercial properties along Lantana Road.

2.5 BUILD ALTERNATIVE 3

Build Alternative 3 reconfigures the existing Tight Urban Diamond Interchange into a Single Point Urban Interchange (SPUI) configuration (See **Figure 2-3**). The SPUI concept consolidates the two intersections of a TUDI into one single intersection. This allows left-turning traffic from both directions of the intersecting roadways to turn simultaneously without crossing the path of the opposing left-turns. Since traffic passing through the SPUI is controlled by a single signal, vehicles can clear the intersection much more quickly compared to a TUDI. The major advantages of SPUI are improved operational efficiency and safety. This can be attributed to the single, three-phase traffic signal and less conflict points compared to the TUDI. In addition, the SPUI also allows for wider turns, easing movement for heavy trucks. The following improvements are proposed to accommodate the design year traffic demand under Build Alternative 3:

- Widen Lantana Road to provide 3 lanes in each direction from High Ridge Road to Andrew Redding Road
- Replace the existing Lantana Road bridge over I-95 and the two ramp bridges
- Provide triple right-turn lanes and dual left-turn lanes for the SR 9/I-95 northbound and southbound off-ramps.
- Provide dual eastbound and westbound right-turn lanes onto I-95 southbound and northbound on-ramps, respectively.
- Provide dual eastbound and westbound left-turn lanes from Lantana Road to the I-95 southbound and northbound on-ramps, respectively.
- Provide dual eastbound and westbound left-turn lanes from Lantana Road to the I-95 southbound and northbound on-ramps, respectively.
- Eliminate the eastbound left-turn, northbound left-turn and thru movements and provide a directional median opening at the Sunset Road intersection with an underpass access road.
- Provide exclusive southbound and northbound right-turn lane along High Ridge Road
- Widen right-turn lane at Sunset Road to accommodate WB62FL Design Vehicles
- Provide 7 ft buffered bicycle lanes and 6 ft sidewalks along Lantana Road in both directions.

These improvements are necessary to enhance the operations of the intersections within the interchange influence area. The proposed improvements under this alternative will also require right of way impacts to 9 commercial properties along Lantana Road.

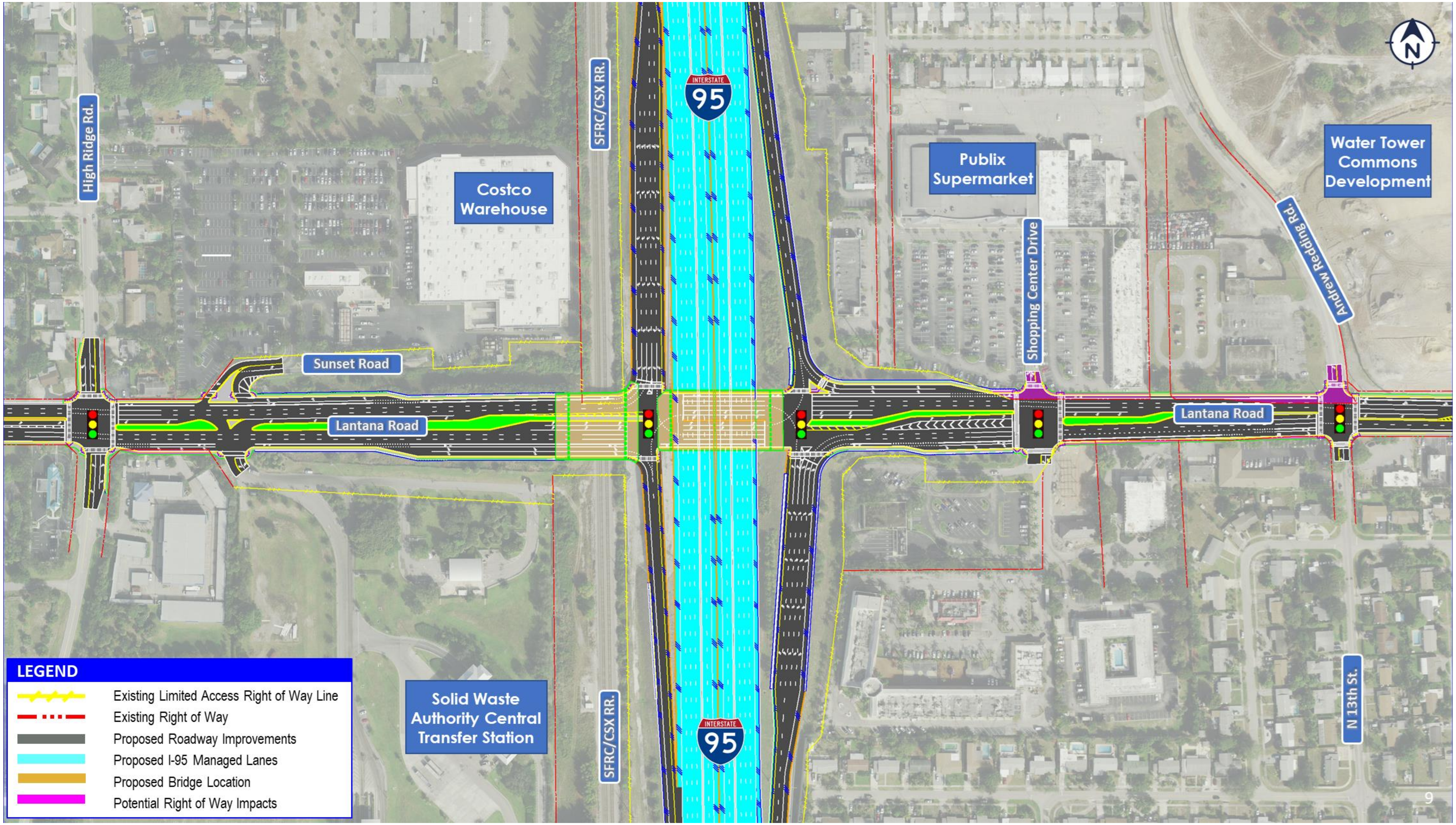


Figure 2-1 Build Alternative 1: Tight Urban Diamond Interchange (TUDI)

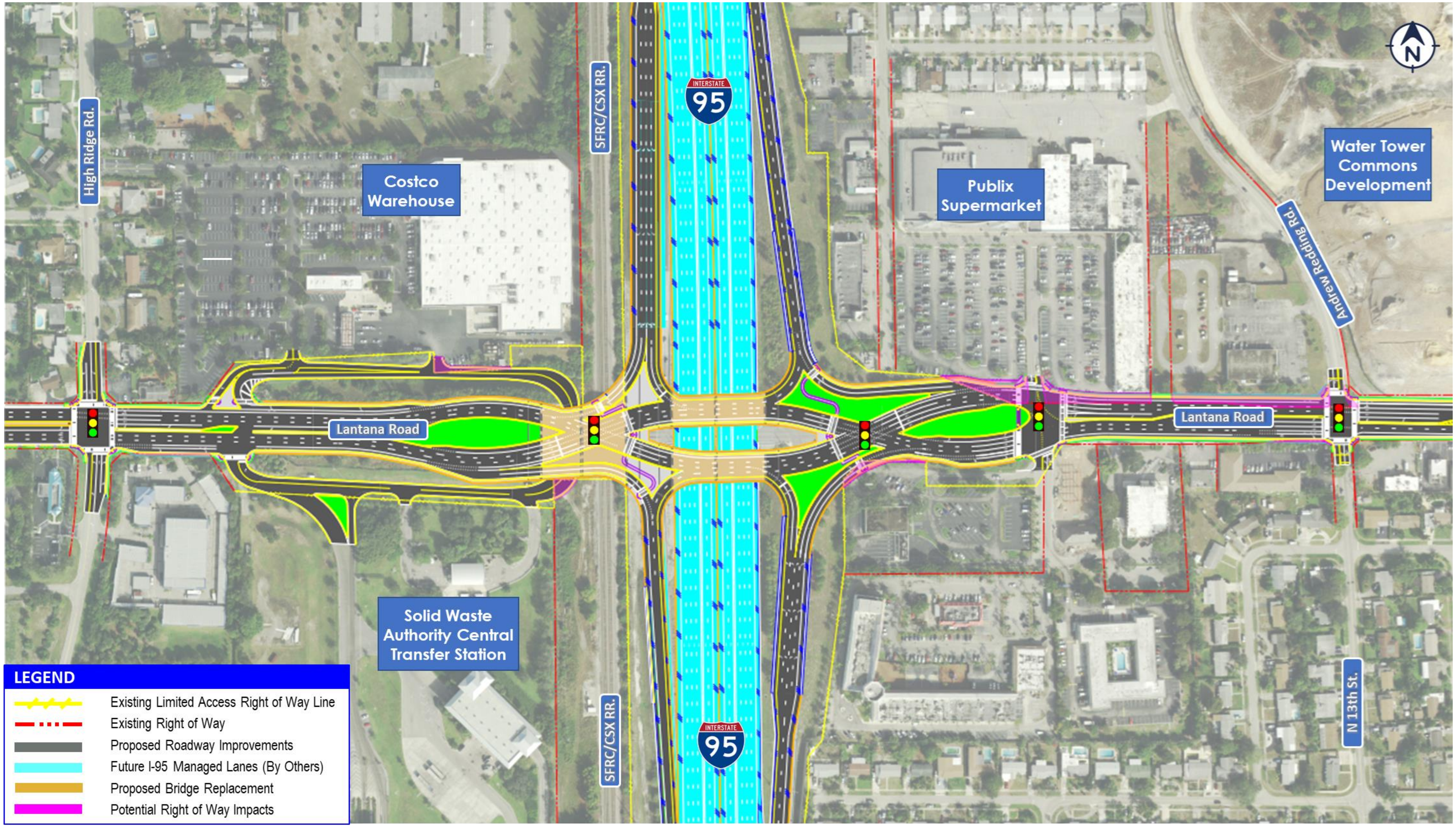


Figure 2-2 Build Alternative 2: Diverging Diamond Interchange (DDI)

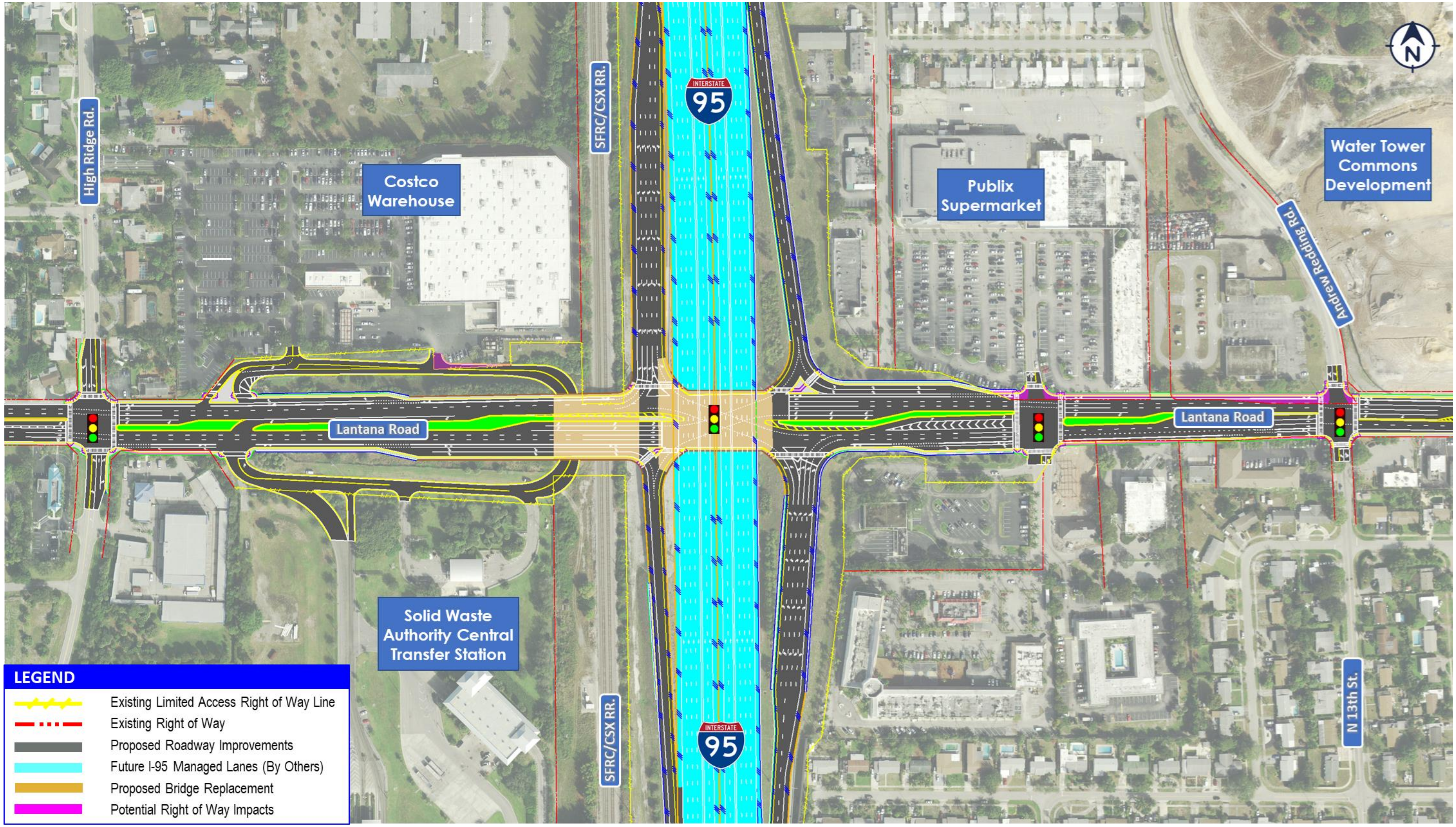


Figure 2-3 Build Alternative 3: Single Point Urban Interchange (SPUI)

3.0 EXISTING CONDITIONS

3.1 EXISTING DRAINAGE PATTERN

The exiting drainage patterns include conveyance of stormwater runoff via overland flow, swales, inlets, and pipes to the existing stormwater systems and ultimately discharged to the Lake Worth Drainage District (LWDD) E-4 Canal via several control structures. There are three main drainage basins in the vicinity of the I-95 and Lantana Road Interchange. **Figure 3.1** shows the existing drainage basin map.

3.1.1 Basin 1

This basin extends from north of Hypoluxo Road to just south of Lantana Road overpass, including the I-95 eastbound off-ramp. The basin also includes some adjacent areas south of Lantana Rd. from I-95 to approximately 350-ft to the east. The system is comprised of a dry swale/ditch (on both the east and west sides) that runs parallel to I-95 towards the south. Also, there is a French drain trunkline along the median that collects all stormwater runoff on the median. This French drain is connected with a dry detention pond at Hypoluxo Road on the westbound off-ramp, which ultimately discharges via a 60” pipe to the LWDD E-4 Canal. There is a control structure that maintains the water quality storage and controls the discharge from this system. The control elevation for this structure is set to 11.0 feet relative to the National Geodetic Vertical Datum of 1929 (ft NGVD).

3.1.2 Basin 2

This basin includes the segment of Lantana Rd. east and west of I-95 and the NE quadrant of I-95/Lantana Rd. Interchange. This basin captures the runoff on the NE quadrant of the Lantana Interchange through curb inlets and connects to an existing 48” pipe that runs west and ultimately discharges into Lake Osborne/LWDD E-4 Canal. Currently, no water quality treatment is being provided from this quadrant/system within this basin, but water quality is compensated within Basins 1 and 3. The existing drainage system along Lantana Rd. consists of a series of curb inlets on both sides of the road, collecting the stormwater runoff and connecting to a trunkline (located on the median along Lantana Rd.), which is connected to a 48” pipe that discharges into Lake Osborne.

3.1.3 Basin 3

This basin extends from the North of the Lantana Rd. overpass to the North, beyond the limits of the project study. There is a dry detention pond underneath the Lantana Rd. overpass and the I-95 on/off ramps. This pond has a detention control structure (S-255A) that connects and discharges into a northern swale on the west side of I-95 with an ultimate discharge to the Lake Osborne through an existing 60” pipe underneath 12th Avenue. Detention Control Structure S-255A is a ditch bottom inlet with a control elevation set to 15.75 ft-NGVD with a 3” circular bleeder orifice at elevation 14.16 ft-NGVD. This basin also has a French drain trunkline collection system along the median of I-95, which is connected to swales on both sides of I-95.

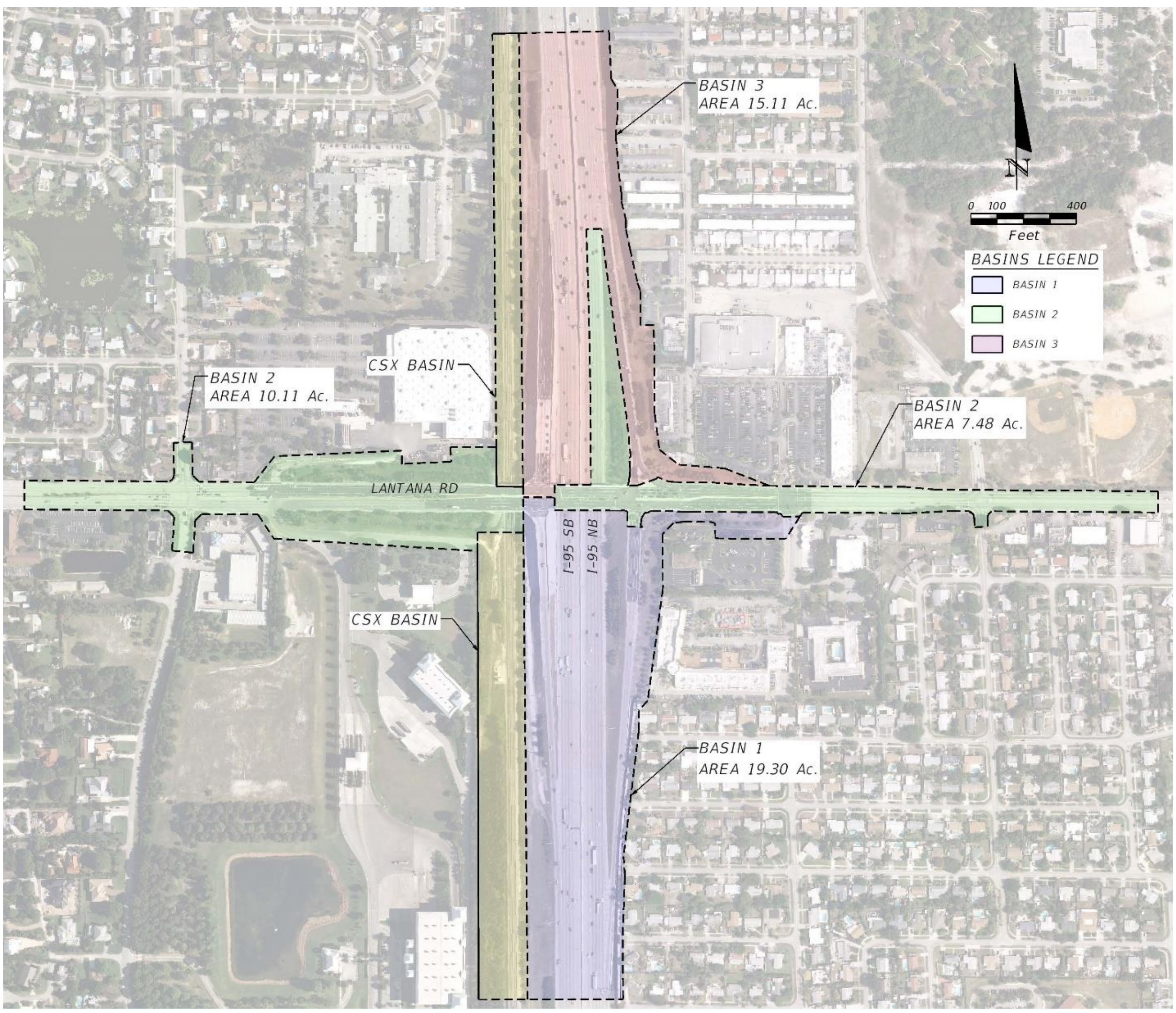


Figure 3-1 Existing Drainage Basin Map

3.2 LAND USE

The project area includes mainly transportation and commercial land uses. Adjacent areas include commercial, institutional, industrial, utilities, and residential land uses. **Figure 3.2** shows the existing land use within the project limits. Future land uses within the project location are anticipated to remain unchanged because of the fully build-out conditions of adjacent land parcels. The existing and future land use maps are provided in **Appendix A**.

3.3 SOILS

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey was reviewed for the project area. The soils encountered along the project limits are Myakka fine sand and St. Lucie-Paola-Urban land complex as shown in **Figure 3.3**. **Table 3.1** provides a summary of soil types for the project limits. The soil survey map and report for the project area are provided in **Appendix B**.

3.4 WETLANDS

Wetland features within the project area were identified using the National Wetland Inventory (NWI) and the Florida Department of Environmental Protection (FDEP) GIS database. Two wetlands are located to the west of the project area and include a lake and a pond reservoir as shown in **Figure 3.4**. No wetlands are located within the project limits. The wetlands map is provided in **Appendix C**.

3.5 FLOODPLAINS / FLOODWAYS

The project area is located outside of the 100 and 500-year floodplain (Zone X), as shown in **Figure 3.5**. Zone X represents areas outside the 500-year flood plain with less than 0.2% annual probability of flooding.

There are no regulated floodways within the project limits. There will be no floodplain involvement within Federally designated floodways. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM)s map within the vicinity of the project is provided in **Appendix D**.

3.6 EXISTING CROSS-DRAINS

There are no existing cross-drains on Lantana Road within the project limits. No cross-drains will be impacted along I-95. The FDOT Straight Line Diagram for I-95 within the project limits is provided in **Appendix E**.

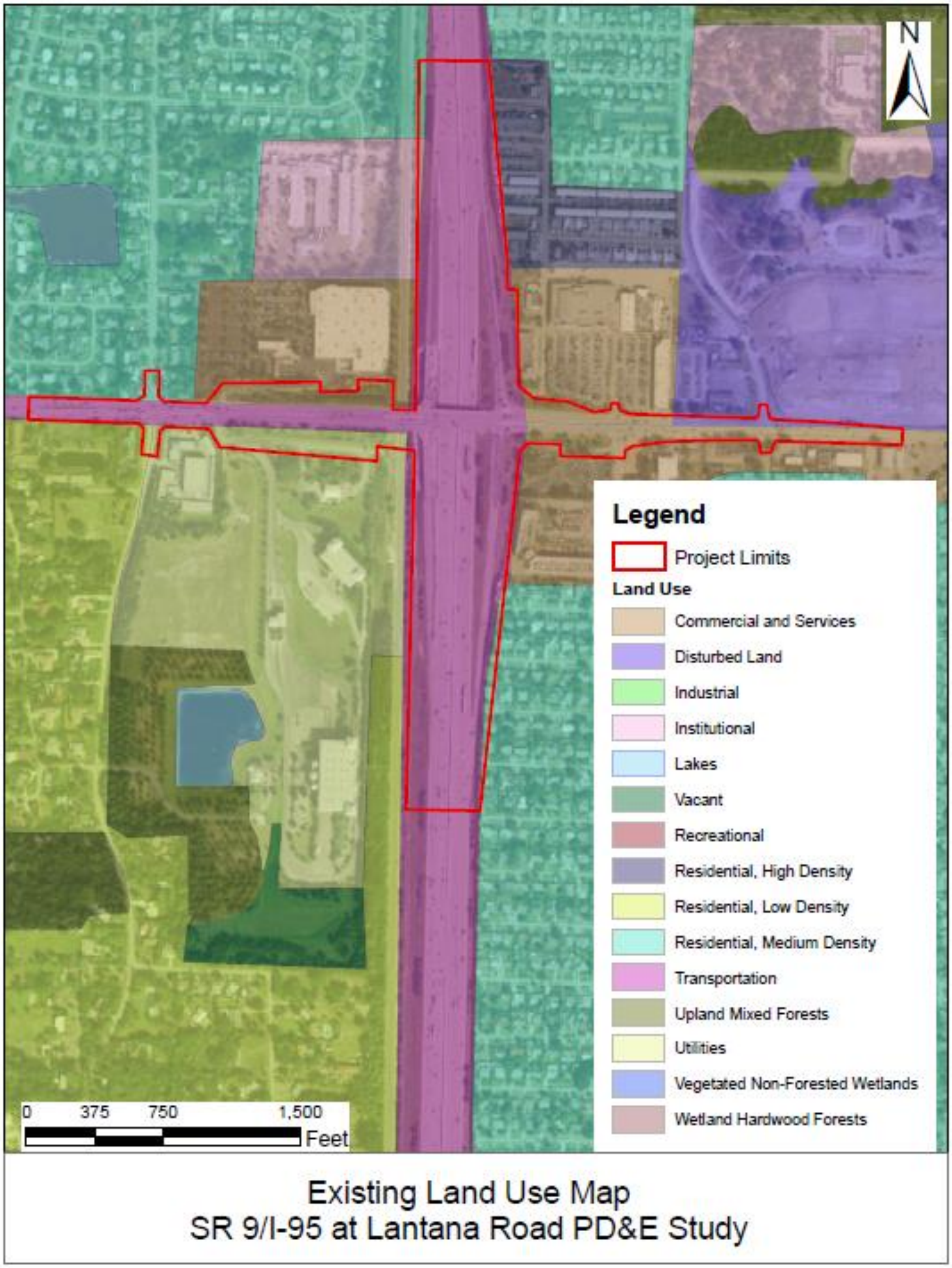


Figure 3-2 Existing Land Use Map

Soil numbers are described in **Table 3-1**.

Figure 3-3 Soil Survey Map

Table 3-1 Soil Types Summary			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
4	Arents-Urban land complex, 0 to 5 percent slopes	2.8	2.2%
8	Basinger and Myakka sands, depressional	2.2	1.7%
21	Myakka fine sand, 0 to 2 percent slopes	34.8	27.3%
22	Myakka-Urban land complex	3.6	2.8%
33	Pomello fine sand, 0 to 5 percent slopes	7.9	6.2%
35	Quartzipsamments, shaped, 0 to 5 percent slopes	1.9	1.5%
41	St. Lucie-Paola-Urban land complex, 0 to 8 percent slopes	70.9	55.5%
48	Urban land, 0 to 2 percent slopes	3.6	2.8%
Totals for Area of Interest (AOI)		**127.7**	**100.0%**

Figure 3-4 Wetlands Map

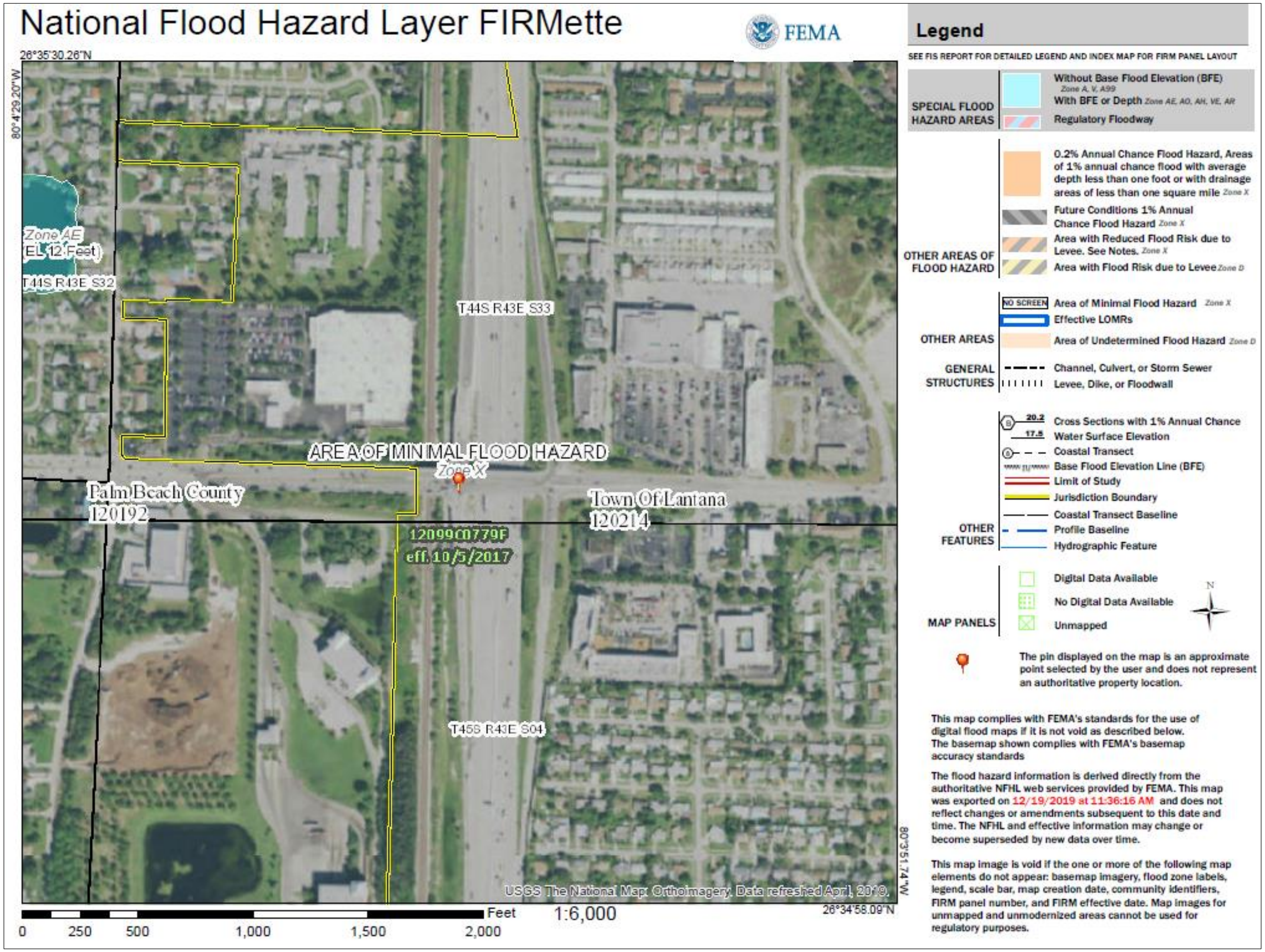


Figure 3-5 FEMA FIRM Maps

4.0 PROPOSED CONDITIONS

4.1 PROPOSED DRAINAGE PATTERN

The proposed Alternatives considered in this analysis, as outlined in **Section 2**, include the widening of Lantana Road at the SR 9/I-95 Interchange and the on/off ramps to/from I-95. The proposed improvements will result in additional runoff volume due to the new impervious areas for each basin and loss of storage of the existing dry detention pond for Alternative 2 and Alternative 3 only.

To mitigate the loss of storage volume within each basin and the additional runoff volume due to new impervious areas, French drains and dry detention/retention areas were proposed within the right-of-way. The detention/retention volumes will be provided below the control elevation of each basin, prior to discharging offsite, to maintain the currently permitted peak allowable discharge rates and water quality volumes. The detention/retention volumes provided for each basin were determined for the 25-year, 72-hour design storm event with a 13.0-inch rainfall depth for the project location. The French drain maximum capacity used for retention volume was limited to 3.28 inches or runoff, as required by the SFWMD. The proposed alternatives are included in **Appendix F, G,** and **H**.

The proposed conceptual stormwater management systems were analyzed based on a compensating volumetric analysis method. The ultimate stormwater management systems will need to be evaluated with a hydrodynamic hydrologic/hydraulic model to ensure that the resulting hydraulic grade lines meet the required flood protection criteria for the roadway and adjacent properties.

4.2 PROPOSED CROSS DRAINS

The drainage pattern in the proposed condition will remain similar to the existing condition. There are no existing cross-drains on Lantana Road within the project limits. No cross-drains will be impacted along I-95, The FDOT Straight Line Diagram for I-95 within the project limits is provided **in Appendix E**.

<u>Alternative 1</u> – Basin 2 proposed cross drain connects the proposed dry retention pond SMP.B2.3 to drainage structure S1-B2.2. The proposed cross drain will cross under the proposed MSE wall on Lantana Road west of I-95. The proposed Alternative 1 conceptual drainage system design is provided in **Appendix F**.

Alternative 2 – Basin 2 proposed drainage design is different from Alternative 1 and Alternative 2 and does not include any proposed cross drains. The proposed Alternative 2 conceptual drainage system design is provided in **Appendix G.**

Alternative 3 – Basin 2 proposed cross drain connects the proposed dry retention pond SMP.B2.3 to drainage structure S1-B2.2. The proposed cross drain will cross under the proposed MSE wall on Lantana Road west of I-95. The proposed Alternative 3 conceptual drainage system design is provided in **Appendix H**.

4.3 BRIDGE STRUCTURES

There are no bridge structures over waterways within the project limits.

5.0 LOCATION HYDRAULIC ISSUES

The environmental impacts are the same for all the alternatives described in Section 2 because there are minor variations between alternatives.

5.1 FLOODPLAINS / HISTORIC STORAGE

Protection of floodplains and floodways is required by Executive Order 11988, "Floodplain Management," USDOT Order 5650.2 "Floodplain Management and Protection," and Federal Aid Policy Guide 23 CFR 650A. These regulations intend to avoid or minimize highway encroachments within the 100-year (base) floodplains, where practicable, and to avoid supporting land use development which is incompatible with floodplain values. As shown in **Figure 3.5** the project limits are outside the 100-year floodplain. No floodplain impacts are anticipated, and no floodplain compensation is required.

5.2 HISTORY OF FLOODING

No records of historical flooding within the project limits were provided by FDOT.

5.3 LONGITUDINAL OR TRANSVERSAL ENCROACHMENT

The existing and proposed roadway corridor does not encroach into the 100-year floodplain, and no longitudinal or transversal encroachments are expected.

5.4 AVOIDANCE ALTERNATIVES

No floodplain encroachments resulting from the proposed improvements are expected due to the improvements being along the same roadway alignment, which lies outside any floodplain area.

5.5 EMERGENCY SERVICES AND EVACUATION

Based on Palm Beach County's Evacuation Routes and Zone Map, Lantana Road is classified as an evacuation route from SR 9/I-95 to US-1. Therefore, improvements to the intersection of SR9/I-95 and Lantana Road, along with improvements to nearby intersections, will decrease evacuation times by increasing connectivity between eastern and western cities and SR 9/I-95. Additionally, emergency response times will be decreased by the proposed improvements.

5.6 BASE FLOOD IMPACTS

The hydraulic performance of the proposed stormwater management systems will meet the current flood level of service and current permitting criteria. No changes to the base flood elevation will occur resulting from the proposed improvements.

5.7 REGULATORY FLOODWAYS

There are no regulatory floodways within the project limits.

5.8 NATURAL AND BENEFICIAL FLOODPLAIN VALUES

The natural and beneficial floodplain values will not be impacted due to the project being located outside the floodplain.

5.9 FLOODPLAIN CONSISTENCY AND DEVELOPMENT

The future land use-values are not expected to change significantly in this area, due to the build-out nature of the adjacent parcels. The proposed roadway improvements are consistent with the land use plan of Palm Beach County and will comply with local and state regulations.

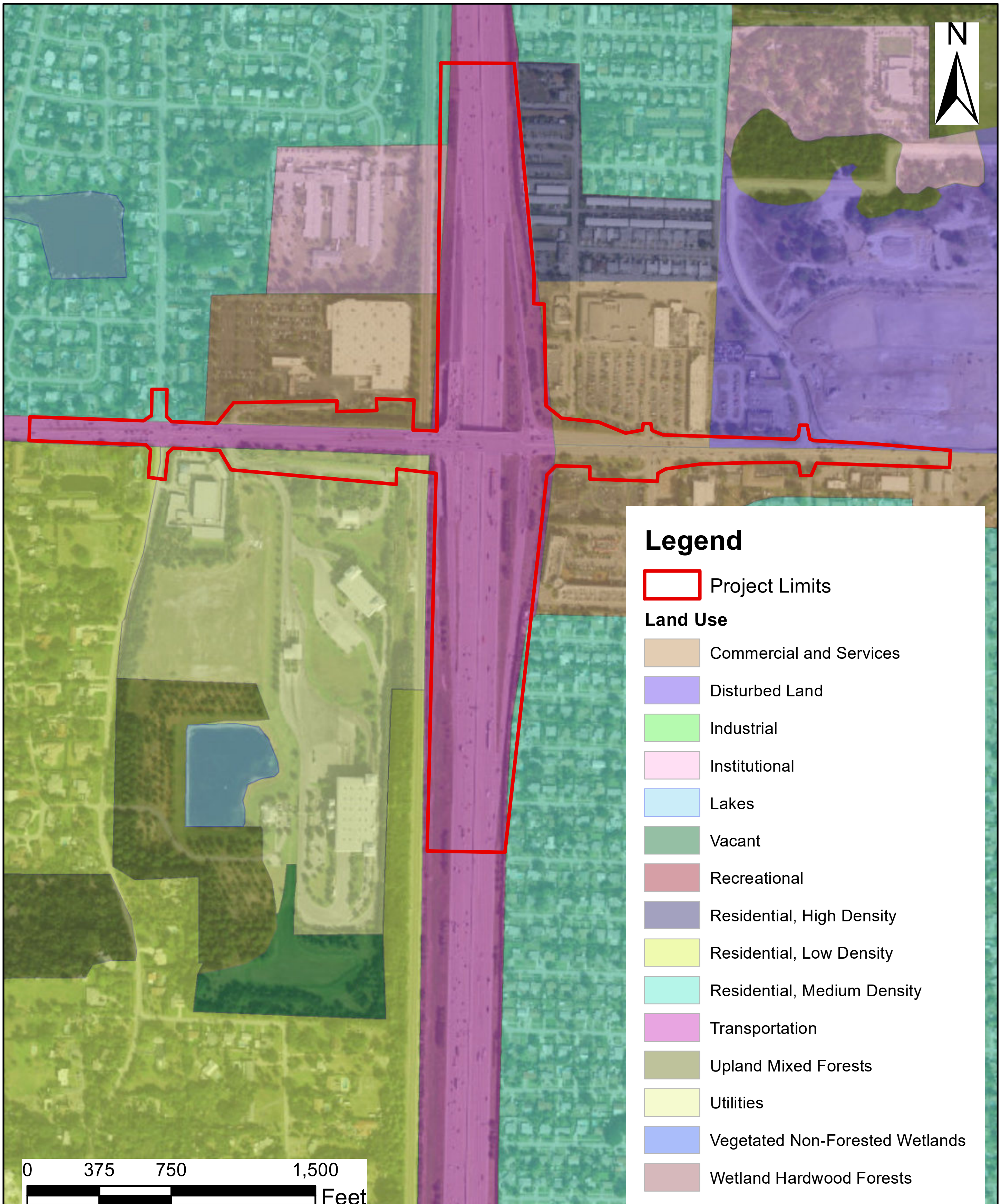
5.10 FLOODPLAIN ENCROACHMENT

No Floodplain encroachments are expected.

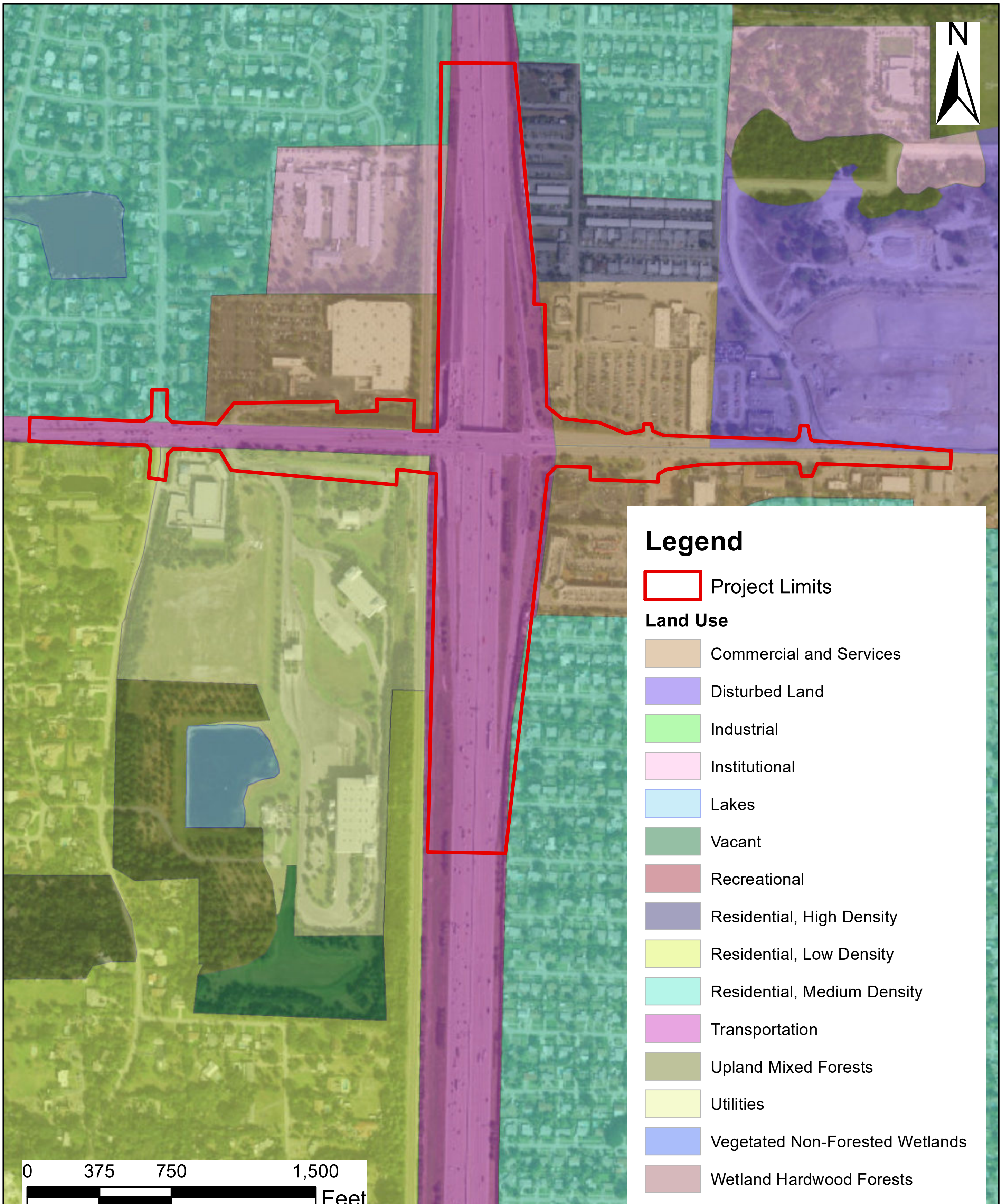
5.11 RISK ASSESSMENT

The proposed new structures and modified structures will perform hydraulically in a manner equal to or greater than the existing structures. As a result, there will be no significant change in flood risk.

Appendix A
Existing and Future Land Use Maps



Existing Land Use Map
SR 9/I-95 at Lantana Road PD&E Study



Future Land Use Map
SR 9/I-95 at Lantana Road PD&E Study

Appendix B
Soil Survey Map

United States Department of Agriculture

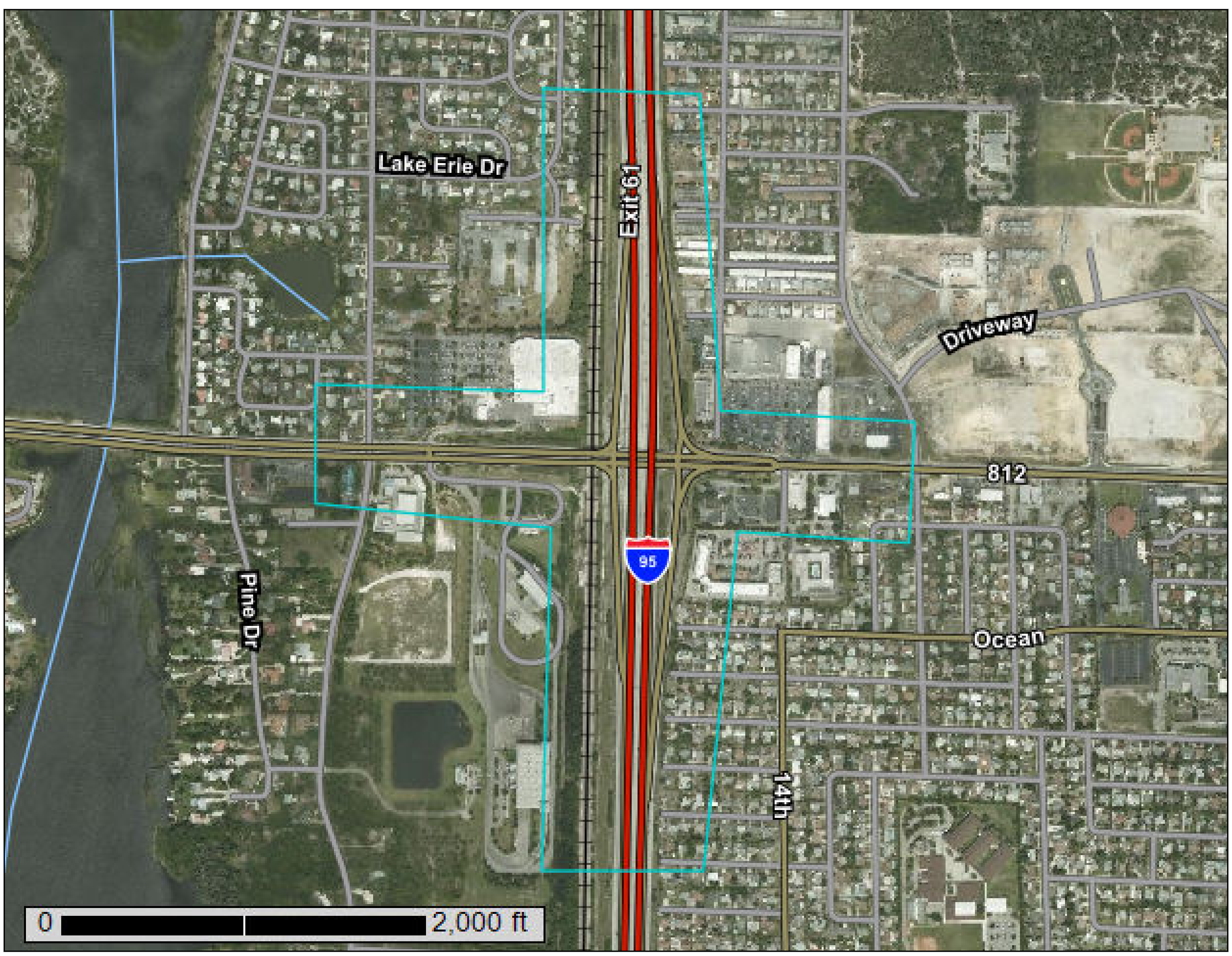
NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for

Palm Beach County Area, Florida



December 19, 2019

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

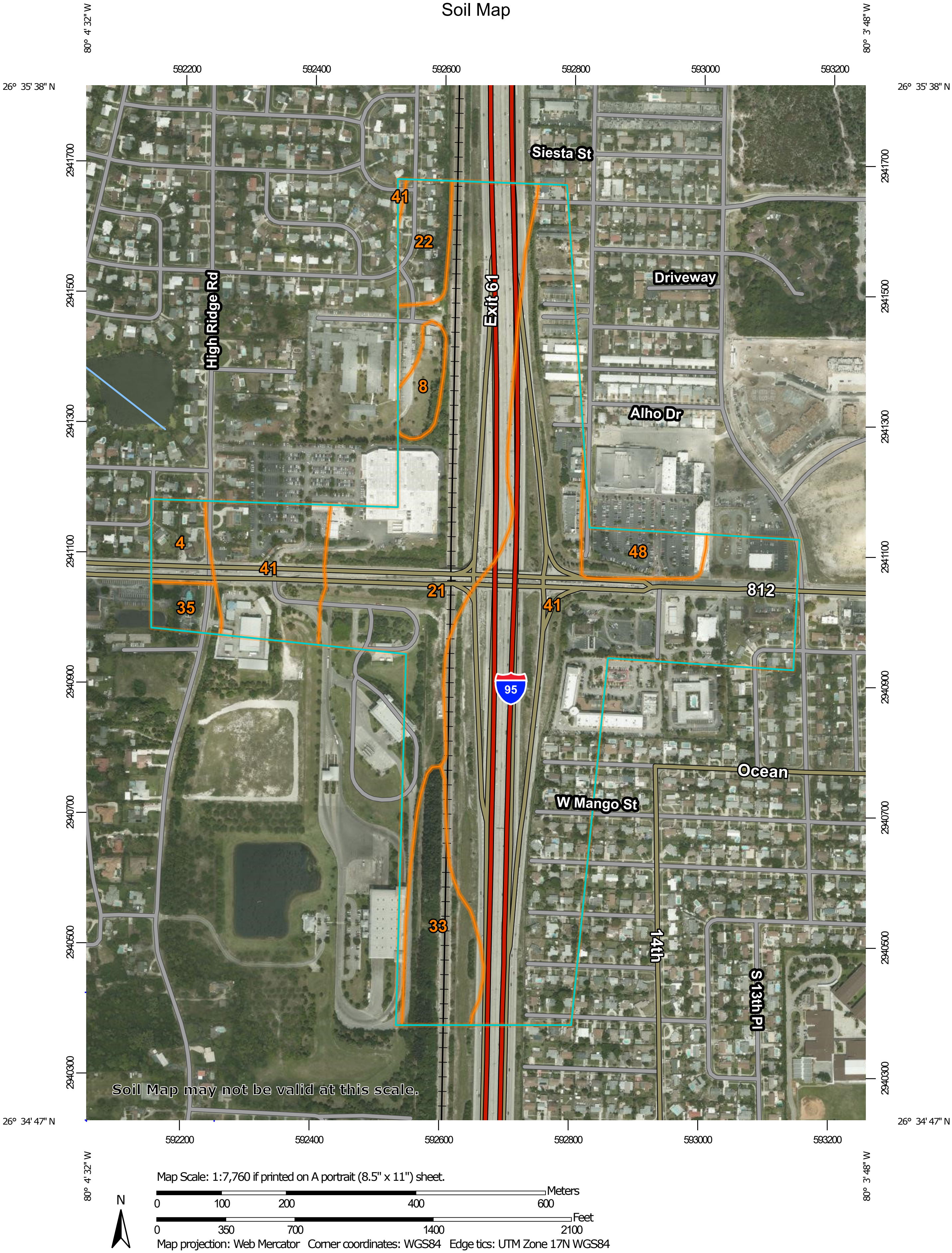
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree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

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

Soil Map

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

Soil Map



Map Scale: 1:7,760 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 100, 200, 400, 600

Feet: 0, 350, 700, 1400, 2100

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

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

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Palm Beach County Area, Florida
Survey Area Data: Version 15, Sep 17, 2019

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

Date(s) aerial images were photographed: Mar 26, 2019—Apr 22, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Arents-Urban land complex, 0 to 5 percent slopes	2.8	2.2%
8	Basinger and Myakka sands, depressional	2.2	1.7%
21	Myakka fine sand, 0 to 2 percent slopes	34.8	27.3%
22	Myakka-Urban land complex	3.6	2.8%
33	Pomello fine sand, 0 to 5 percent slopes	7.9	6.2%
35	Quartzipsamments, shaped, 0 to 5 percent slopes	1.9	1.5%
41	St. Lucie-Paola-Urban land complex, 0 to 8 percent slopes	70.9	55.5%
48	Urban land, 0 to 2 percent slopes	3.6	2.8%
Totals for Area of Interest		**127.7**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Palm Beach County Area, Florida

4—Arents-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1j7cp
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Arents and similar soils: 60 percent
Urban land: 35 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

A - 0 to 4 inches: sand
C1 - 4 to 32 inches: sand
C2 - 32 to 72 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Minor Components

Basinger

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

8—Basinger and Myakka sands, depressional

Map Unit Setting

National map unit symbol: 1j7ct
Elevation: 10 to 100 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Basinger, depressional, and similar soils: 47 percent
Myakka, depressional, and similar soils: 47 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger, Depressional

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: sand
Eg - 4 to 29 inches: sand
Bh/Eg - 29 to 36 inches: sand
Cg - 36 to 72 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G156AC145FL)
Hydric soil rating: Yes

Description of Myakka, Depressional

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: sand
E - 6 to 26 inches: sand
Bh - 26 to 47 inches: sand
C - 47 to 72 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G156AC145FL)
Hydric soil rating: Yes

Minor Components

Anclote

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Sanibel

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pompano

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

21—Myakka fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s3lg
Elevation: 0 to 130 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

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

Description of Myakka

Setting

Landform: Drainageways on flatwoods on marine terraces

Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 20 inches: fine sand
Bh - 20 to 36 inches: fine sand
C - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Minor Components

Basinger

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Wabasso

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Cassia

Percent of map unit: 3 percent
Landform: Rises on marine terraces, flatwoods on marine terraces

Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Satellite

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces, rises on marine terraces
Landform position (three-dimensional): Tread, talf, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

22—Myakka-Urban land complex

Map Unit Setting

National map unit symbol: 1j7d8
Elevation: 10 to 100 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Myakka and similar soils: 50 percent
Urban land: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myakka

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 7 inches: sand

E - 7 to 26 inches: sand
Bh - 26 to 47 inches: sand
C - 47 to 72 inches: sand

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting
Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Minor Components

Basinger
Percent of map unit: 4 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Pompano
Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Immokalee
Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf

Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

33—Pomello fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1j7dk
Elevation: 10 to 20 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Pomello

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 44 inches: fine sand
Bh - 44 to 60 inches: fine sand
Bw/C - 60 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Forage suitability group: Sandy soils on rises and knolls of mesic uplands (G156AC131FL)
Hydric soil rating: No

Minor Components

Myakka

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Immokalee

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Basinger

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Palm beach

Percent of map unit: 2 percent
Landform: Dunes on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Paola

Percent of map unit: 2 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

St. lucie

Percent of map unit: 2 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

35—Quartzipsamments, shaped, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1j7dm
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Quartzipsamments and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Quartzipsamments

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
C - 6 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

41—St. Lucie-Paola-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1j7ds
Elevation: 10 to 20 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

St. lucie and similar soils: 35 percent
Paola and similar soils: 33 percent
Urban land: 30 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of St. Lucie

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Eolian or sandy marine deposits

Typical profile

A - 0 to 5 inches: sand
C - 5 to 80 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Paola

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 3 inches: sand
E - 3 to 20 inches: sand
C - 20 to 80 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Minor Components

Palm beach

Percent of map unit: 1 percent
Landform: Dunes on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Pomello

Percent of map unit: 1 percent

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

48—Urban land, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9fc
Elevation: 0 to 200 feet
Mean annual precipitation: 40 to 68 inches
Mean annual air temperature: 68 to 79 degrees F
Frost-free period: 345 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Rises on marine terraces, hills on marine terraces, knolls on marine terraces, flatwoods on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser, rise, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: No parent material

Minor Components

St. augustine

Percent of map unit: 3 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Matlacha

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear

Hydric soil rating: No

Adamsville

Percent of map unit: 1 percent
Landform: Knolls on marine terraces, rises on marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R155XY008FL)
Hydric soil rating: No

Apopka

Percent of map unit: 1 percent
Landform: Hills on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R155XY002FL)
Hydric soil rating: No

Paola

Percent of map unit: 1 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, interfluve, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Hallandale

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Eaugallie

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pomello

Percent of map unit: 1 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, interfluve, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R155XY001FL)

Hydric soil rating: No

Immokalee

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Boca

Percent of map unit: 1 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 1 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

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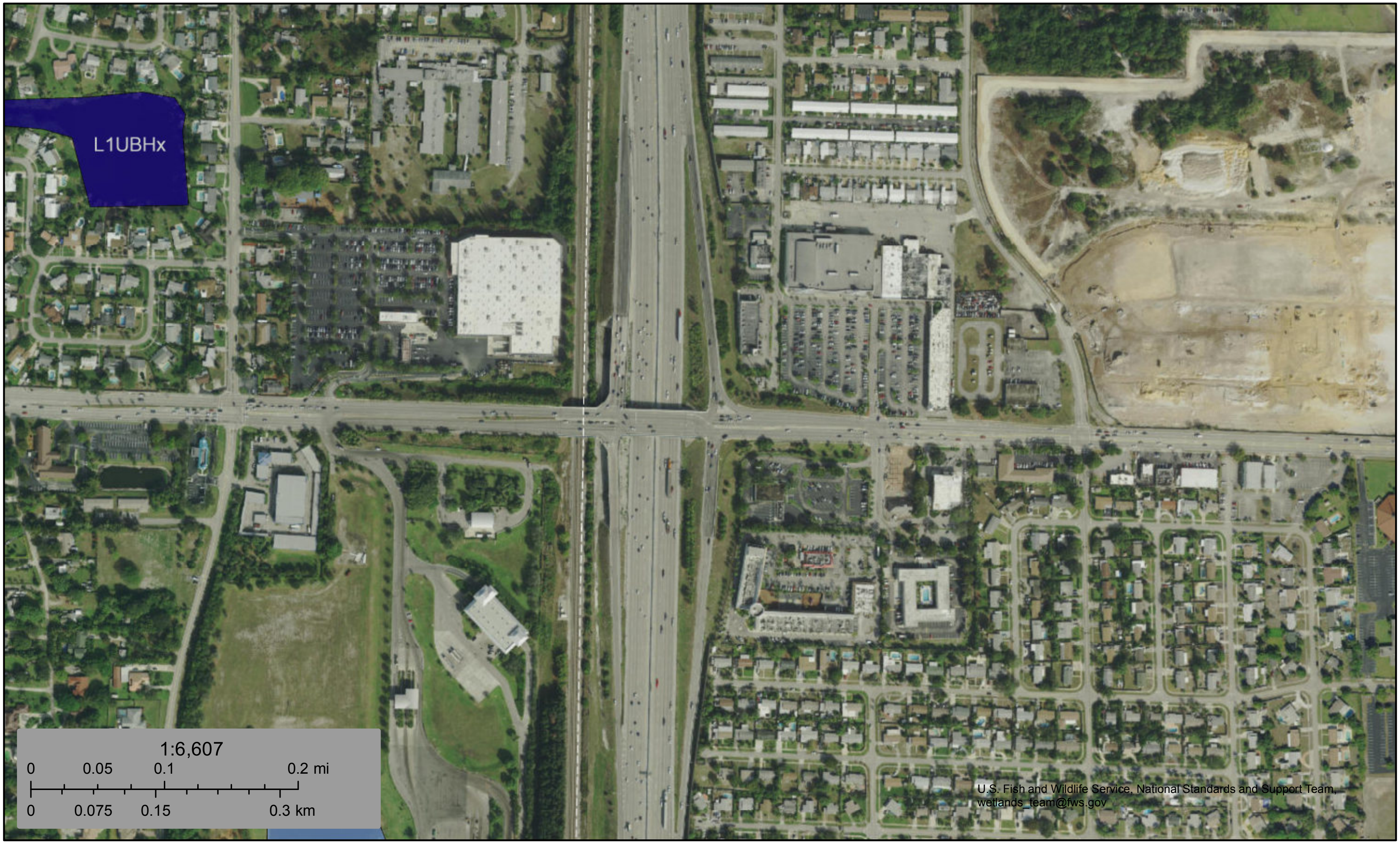
Appendix C
Wetland Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands Map



December 19, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Appendix D
FEMA FIRMs Map

National Flood Hazard Layer FIRMette

FEMA

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/19/2019 at 11:36:16 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

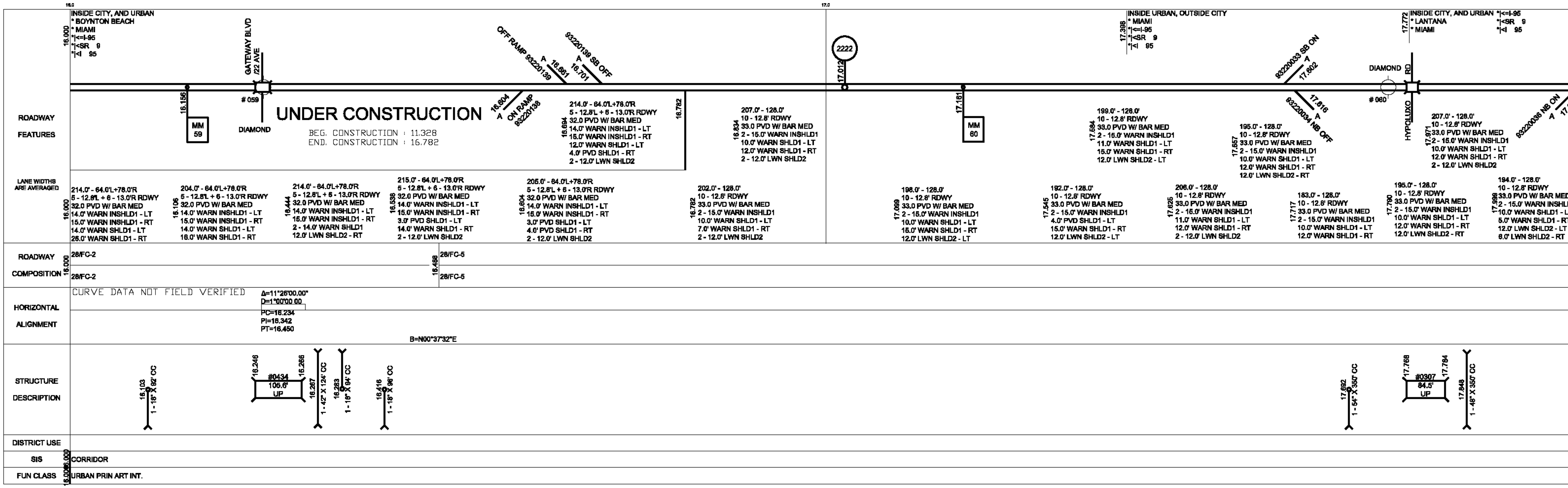
Appendix E
Straight Line Diagram for I-95

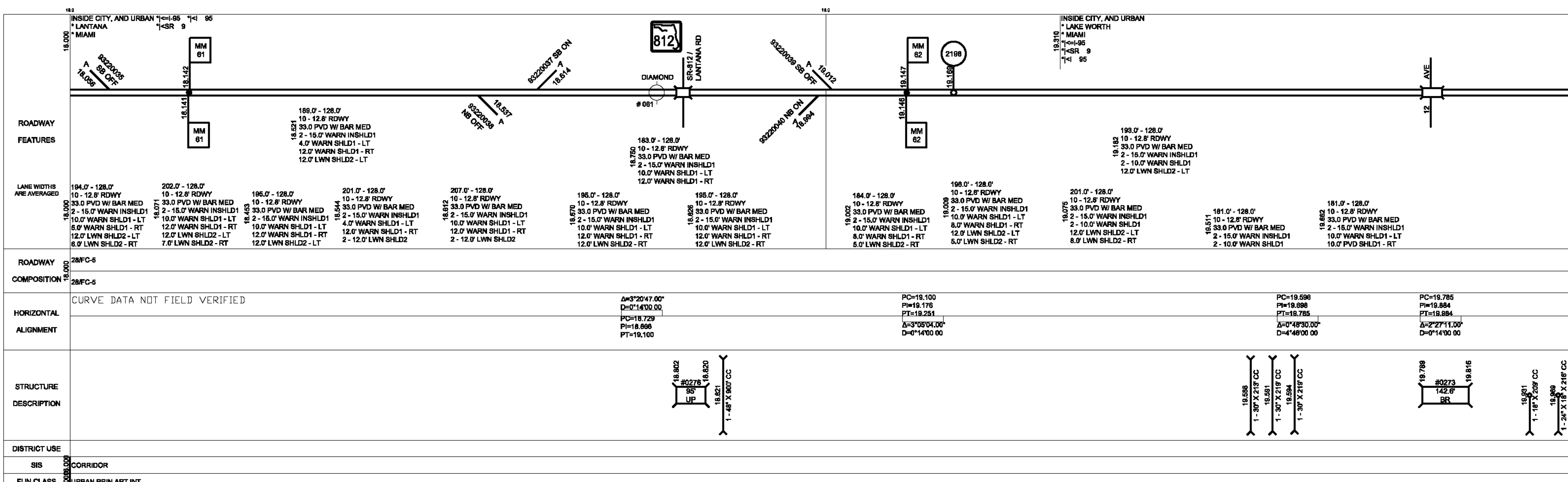
	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	09/12/2019	09/19/2019				
BY	CTS Engineering	CTS Engineering				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

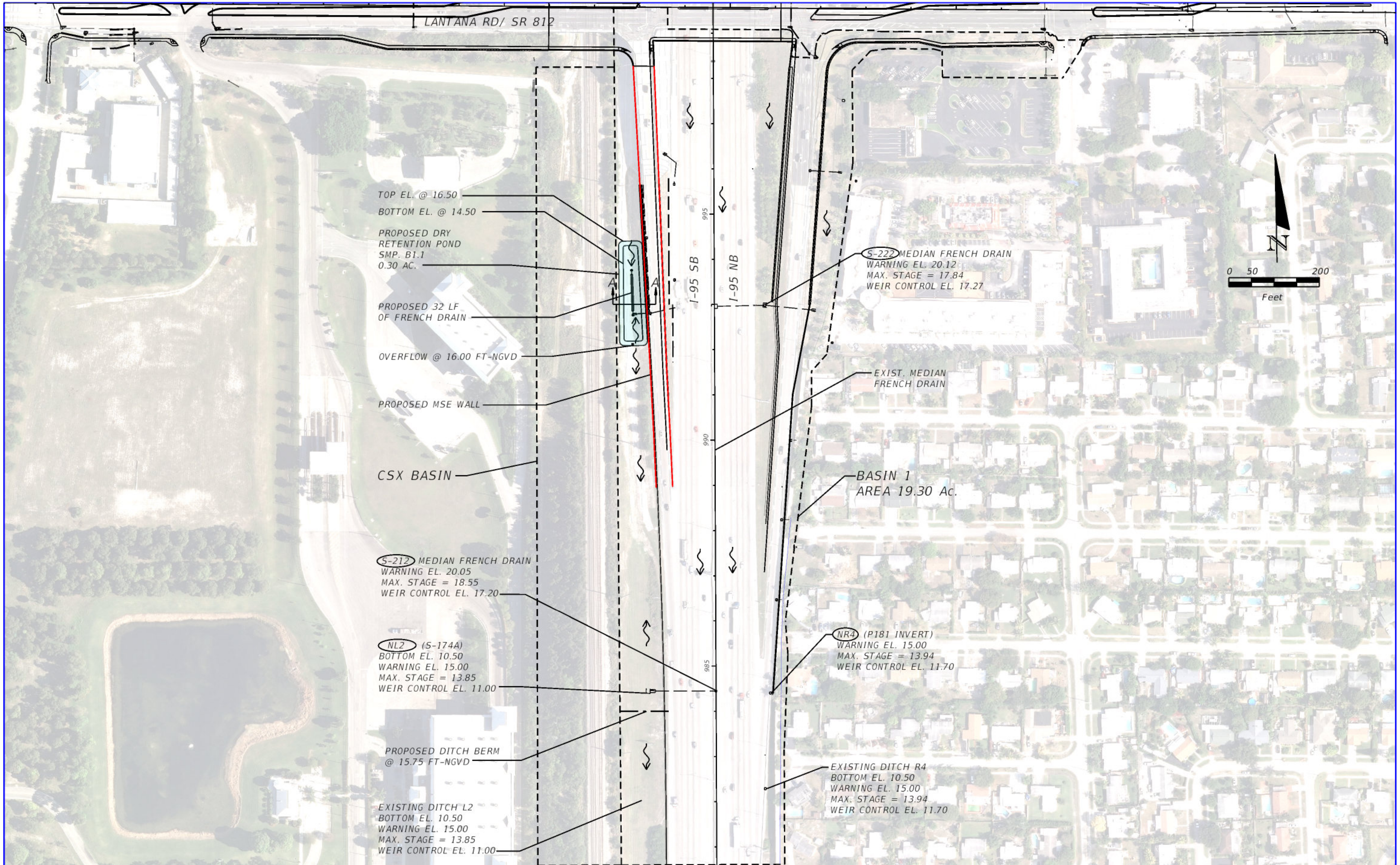
SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02	I 95	SR 9	PALM BEACH	04	93220000	5 OF 12





Version: 1.4.2.27 09/19/2019

Appendix F
Proposed Alternative 1



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

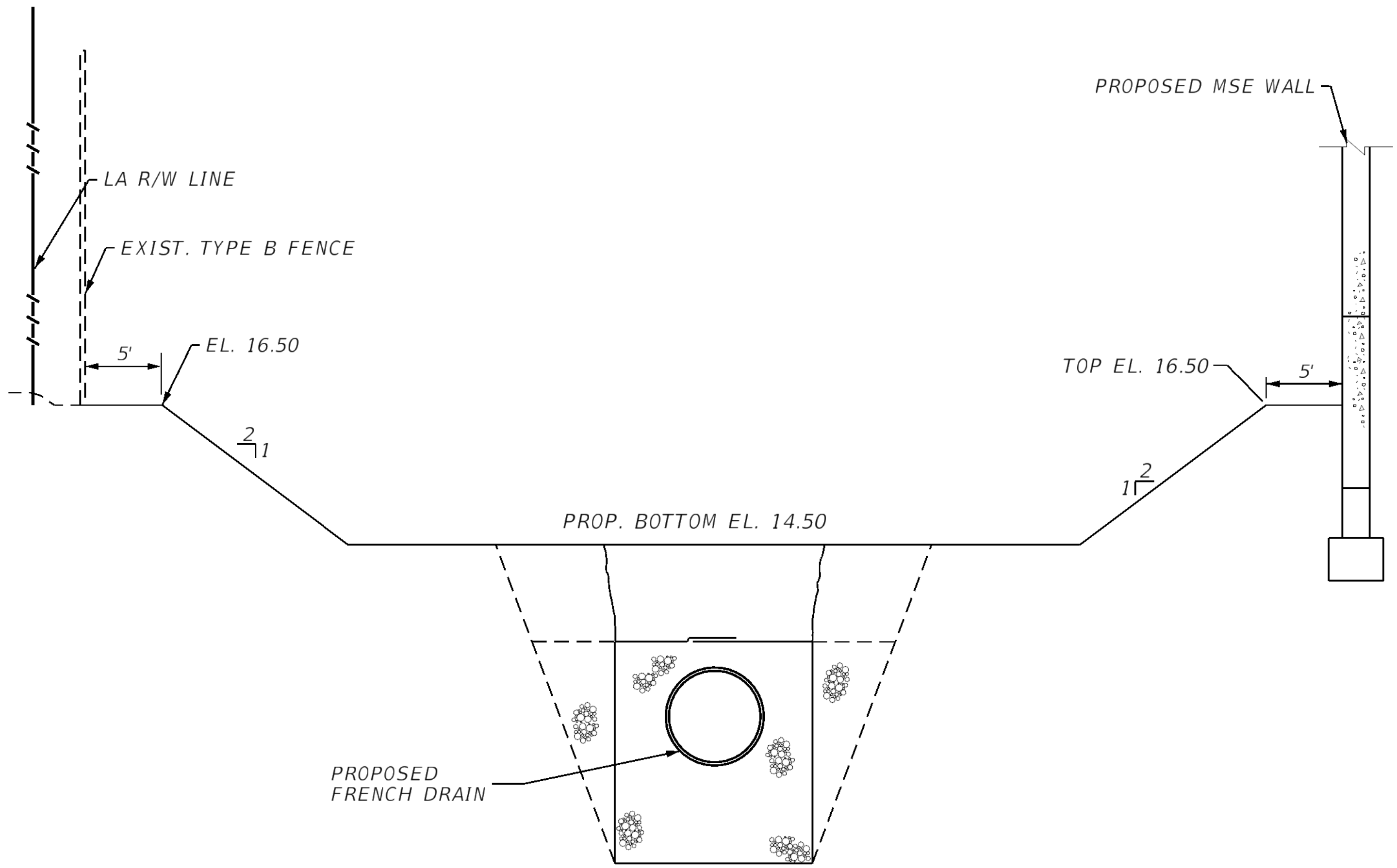
BCC ENGINEERING, INC.
ALEX VAZQUEZ, P.E. No. 42108
6401 SW 87th Ave, Suite 200,
Miami, Florida 33173.
P: (305) 670-2350 F: (305) 670-2351
Certificate of Authorization No. 7184

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD ALTERNATIVE 1 BASIN 1

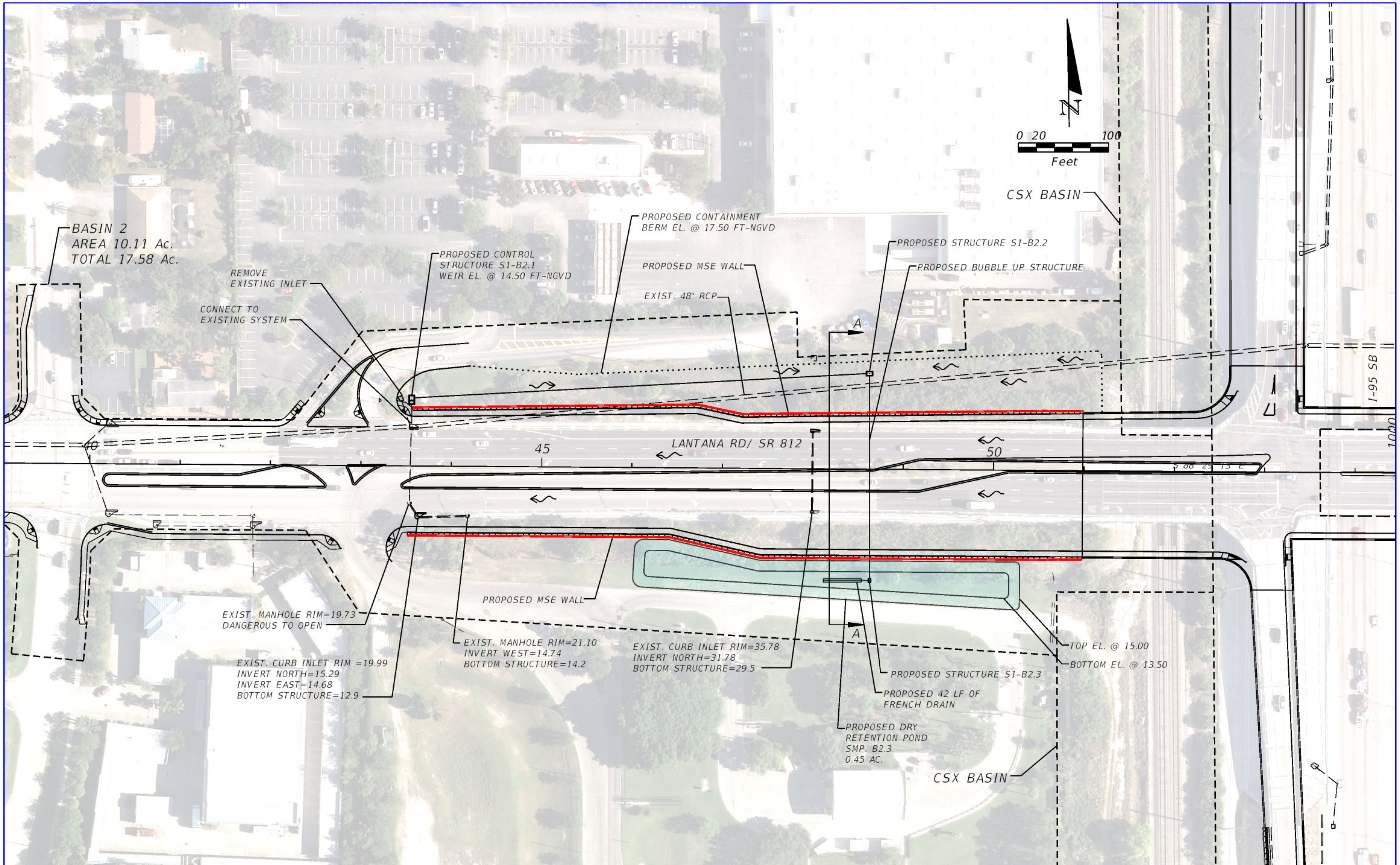
SHEET NO.
FG-2



SECTION A-A

NOT TO SCALE

BASIN 1 - ALTERNATIVE 1



REVISIONS			
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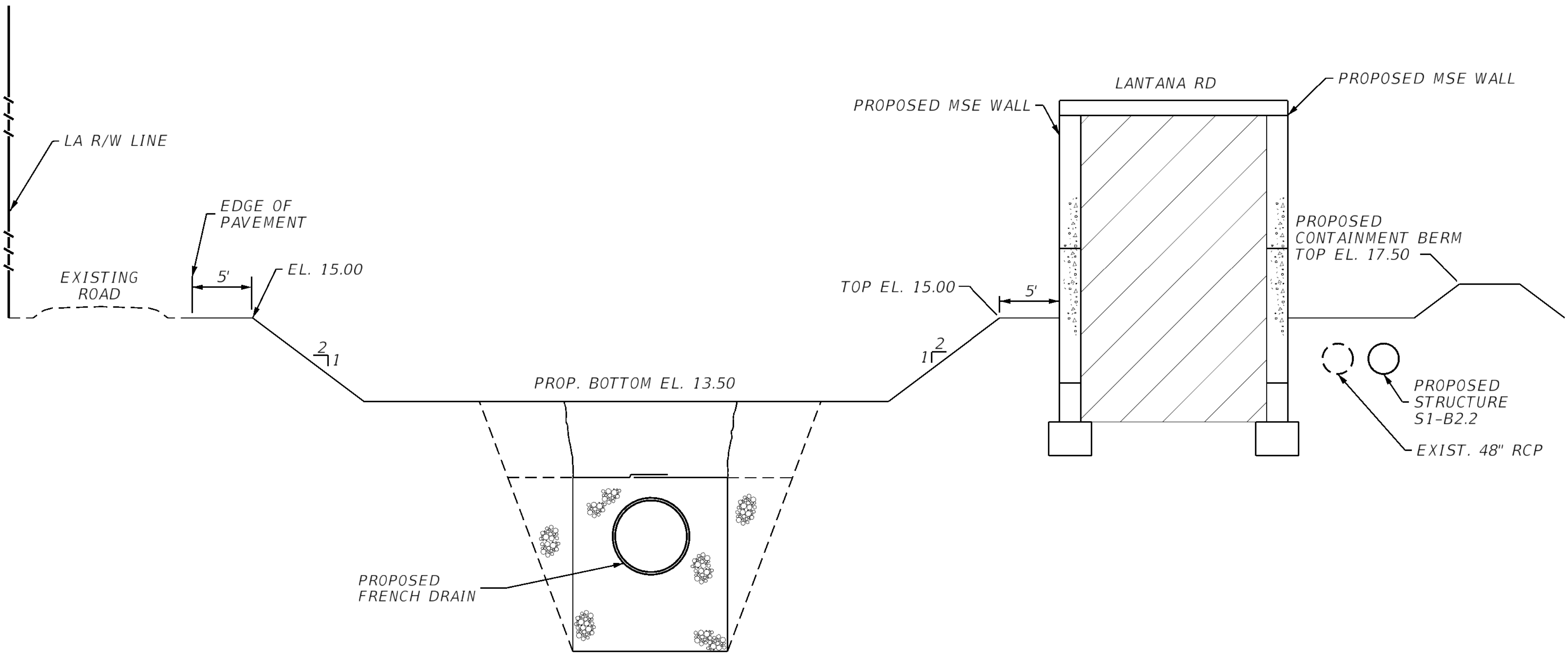
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD ALTRENATIVE 1 BASIN 2

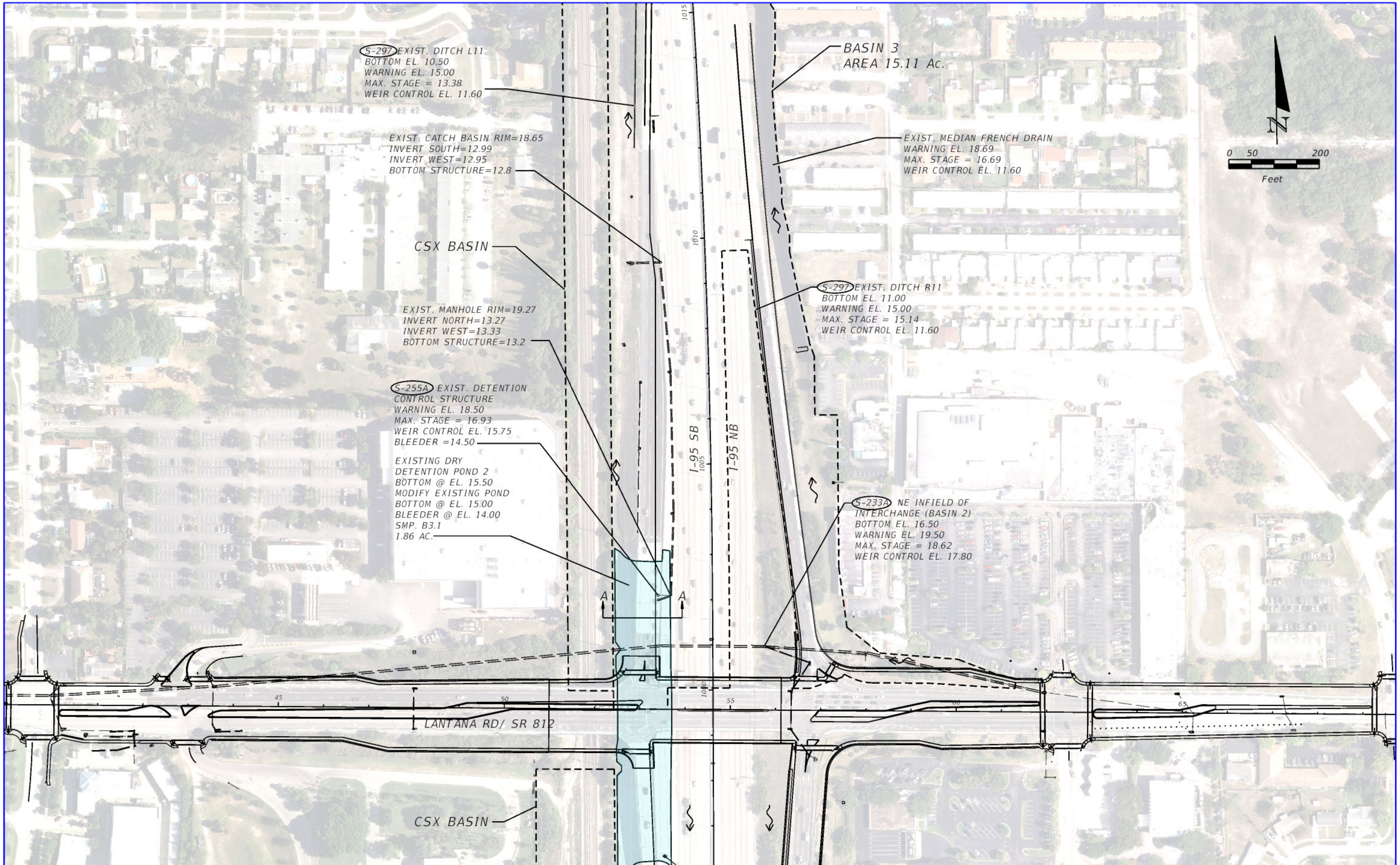
SHEET NO.
FG-2



SECTION A-A

NOT TO SCALE

BASIN 2 - ALTERNATIVE 1



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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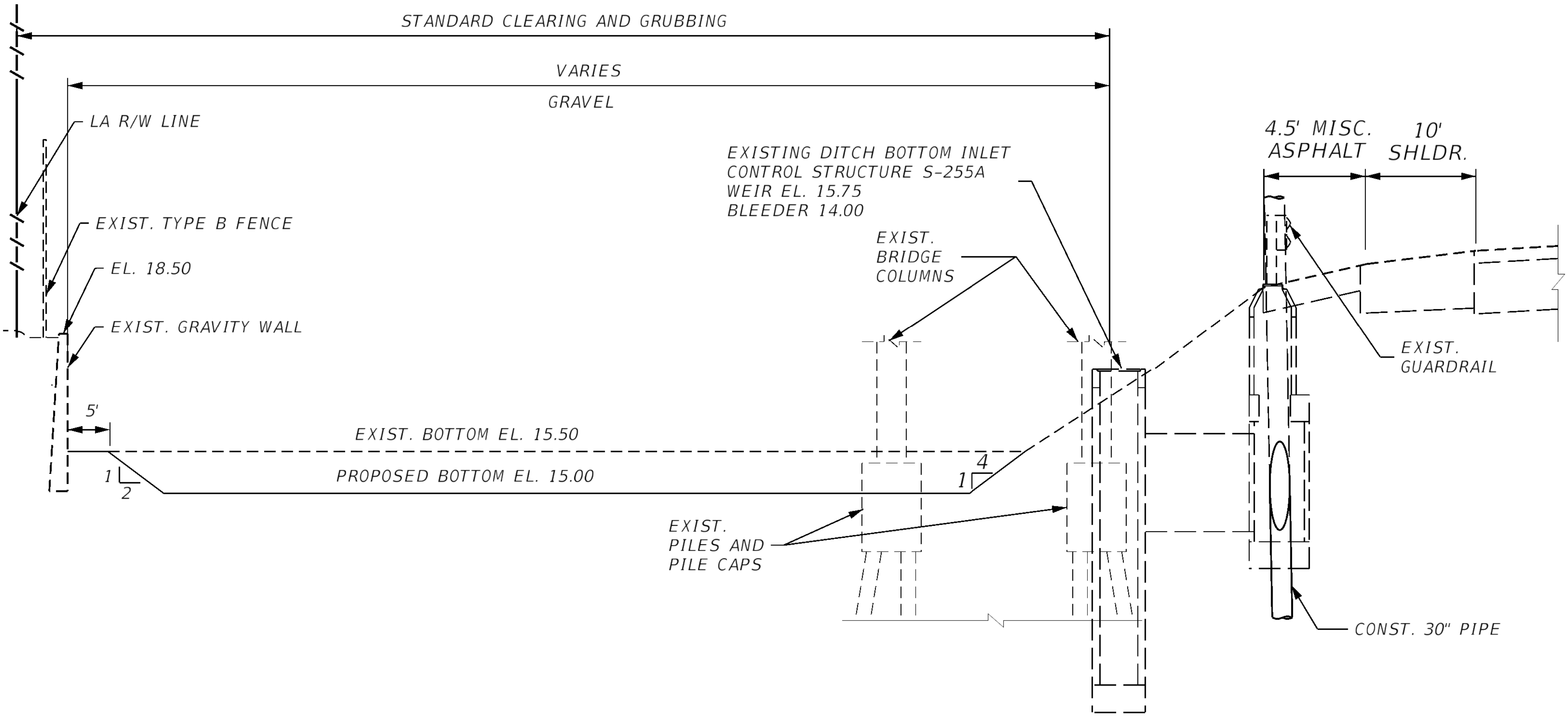
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD
ALTRENATIVE 1 BASIN 3

SHEET NO.
FG-4

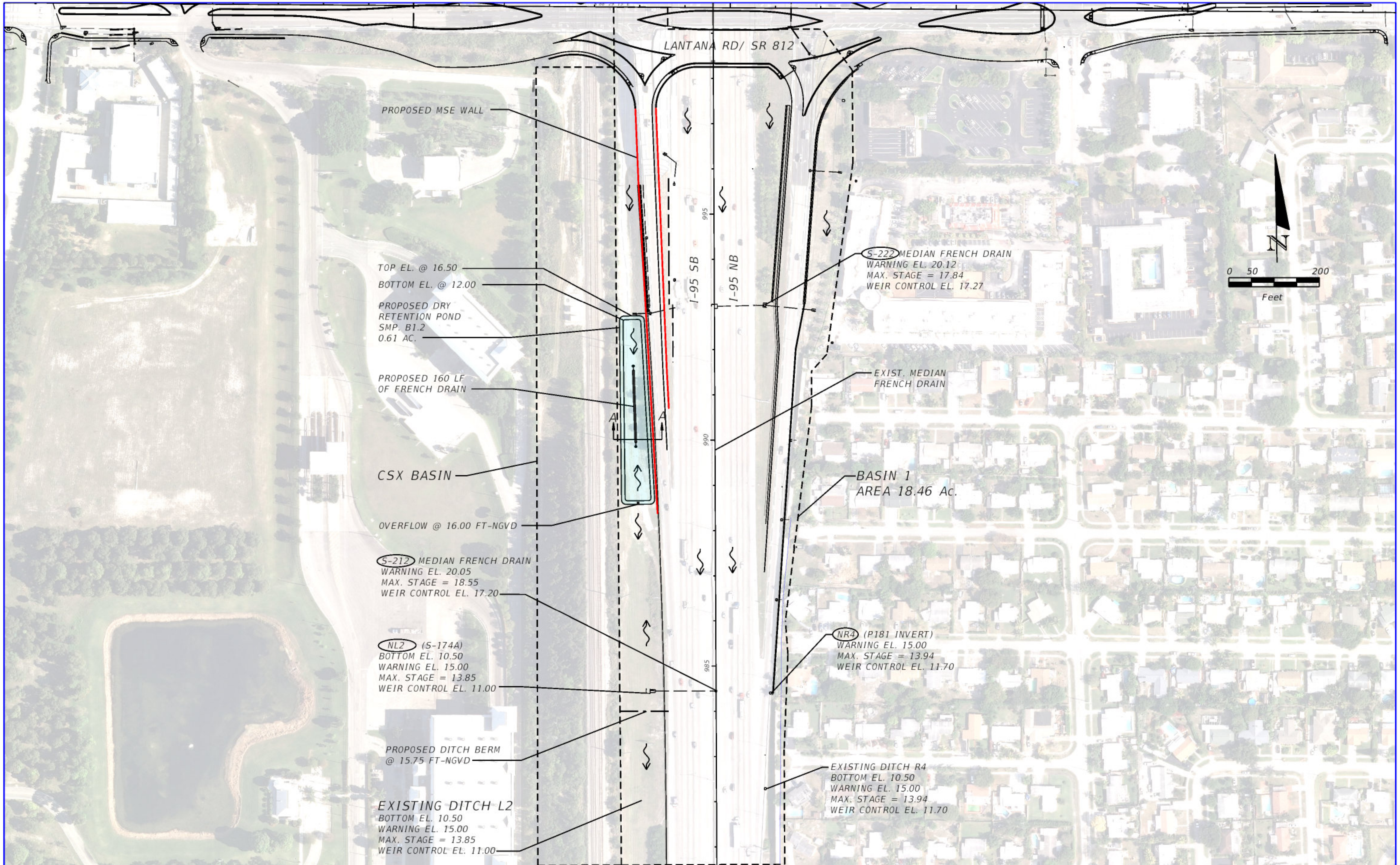


SECTION A-A

NOT TO SCALE

BASIN 3 - ALTERNATIVE 1

Appendix G
Proposed Alternative 2



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

BCC ENGINEERING, INC.
ALEX VAZQUEZ, P.E. No. 42108
6401 SW 87th Ave, Suite 200,
Miami, Florida 33173.
P: (305) 670-2350 F: (305) 670-2351
Certificate of Authorization No. 7184

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD
ALTERNATIVE 2 BASIN 1

SHEET NO.
FG-2

mramirez 11/26/2019 6:07:05 PM H:\CADD\PD&E I-95 at Lantana\drainage\DRMPRD03_PROP-B1-2.DGN

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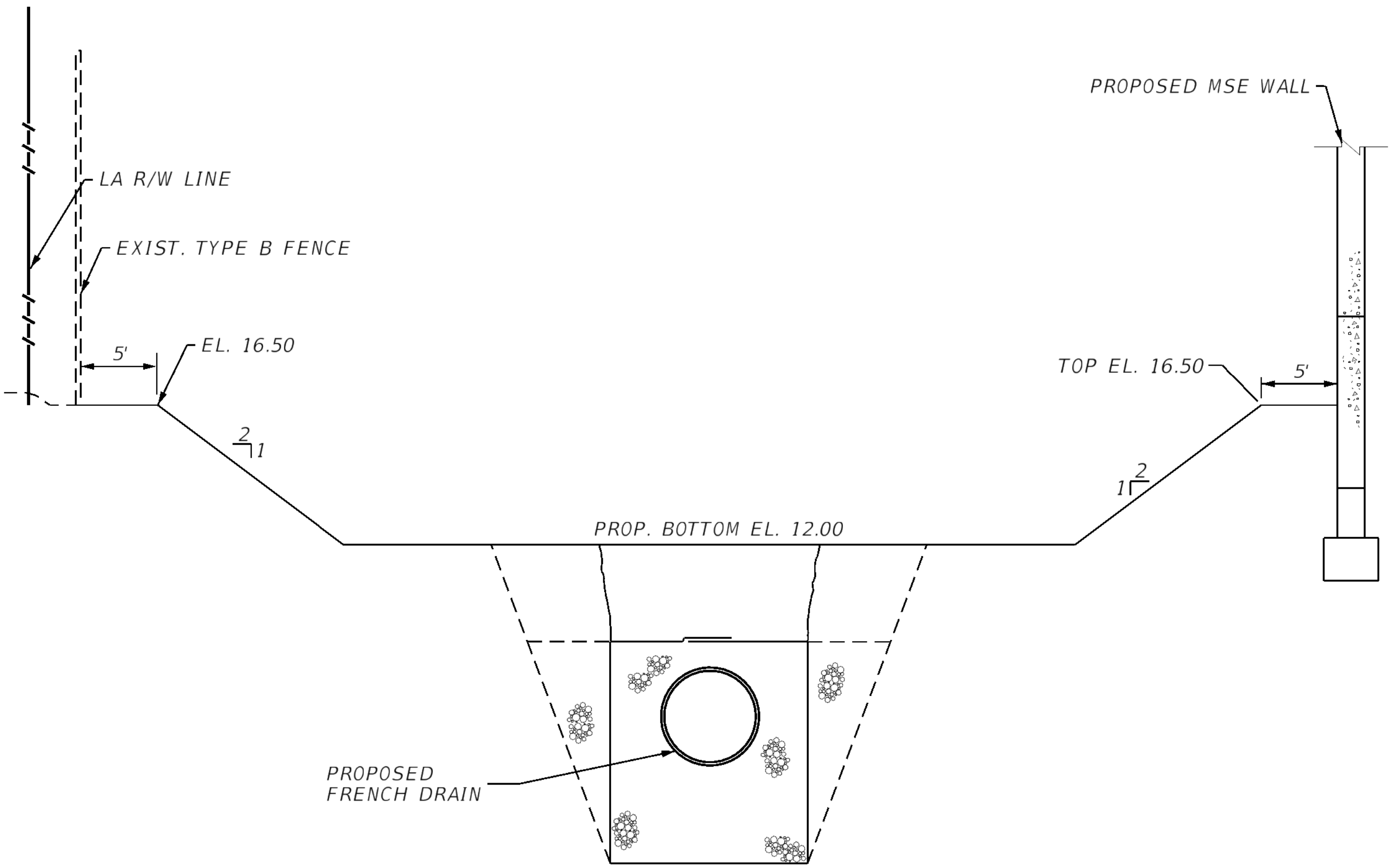
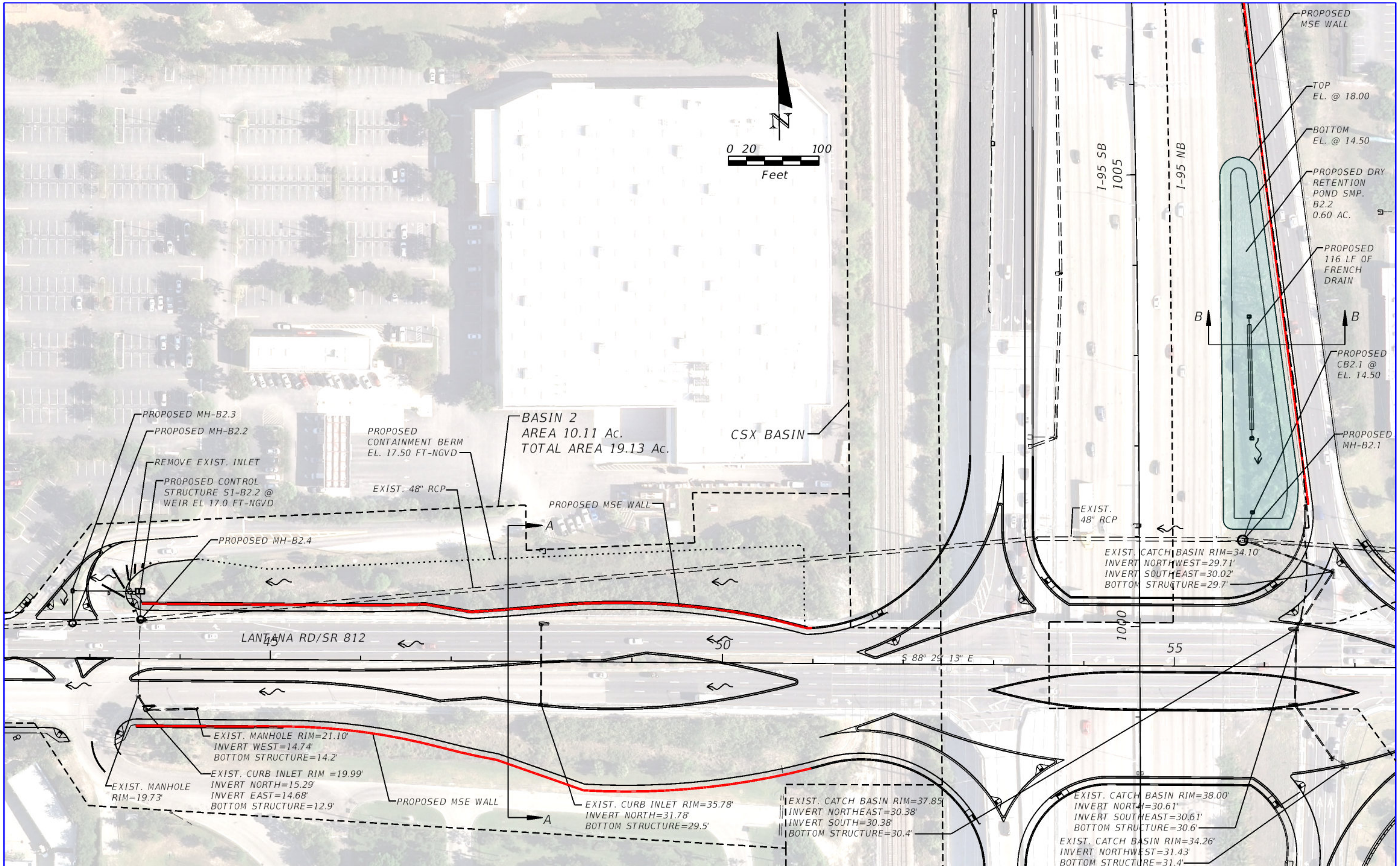


SECTION A-A

NOT TO SCALE

BASIN 1 - ALTERNATIVE 2



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DEPARTMENT OF TRANSPORTATION

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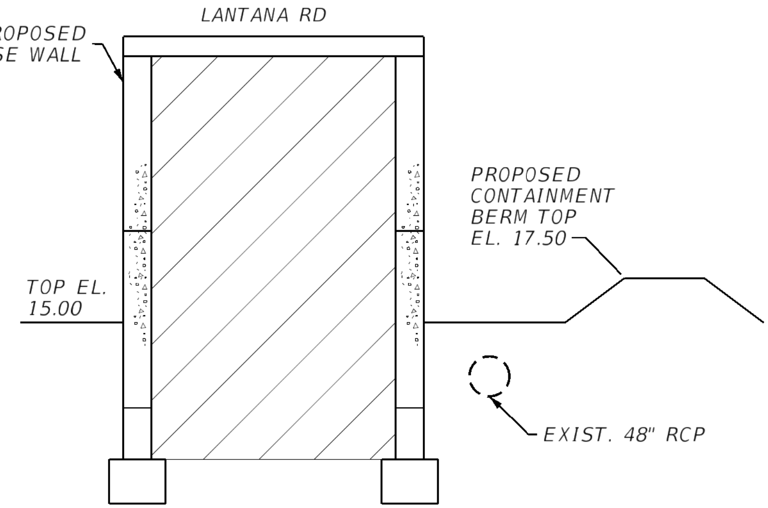
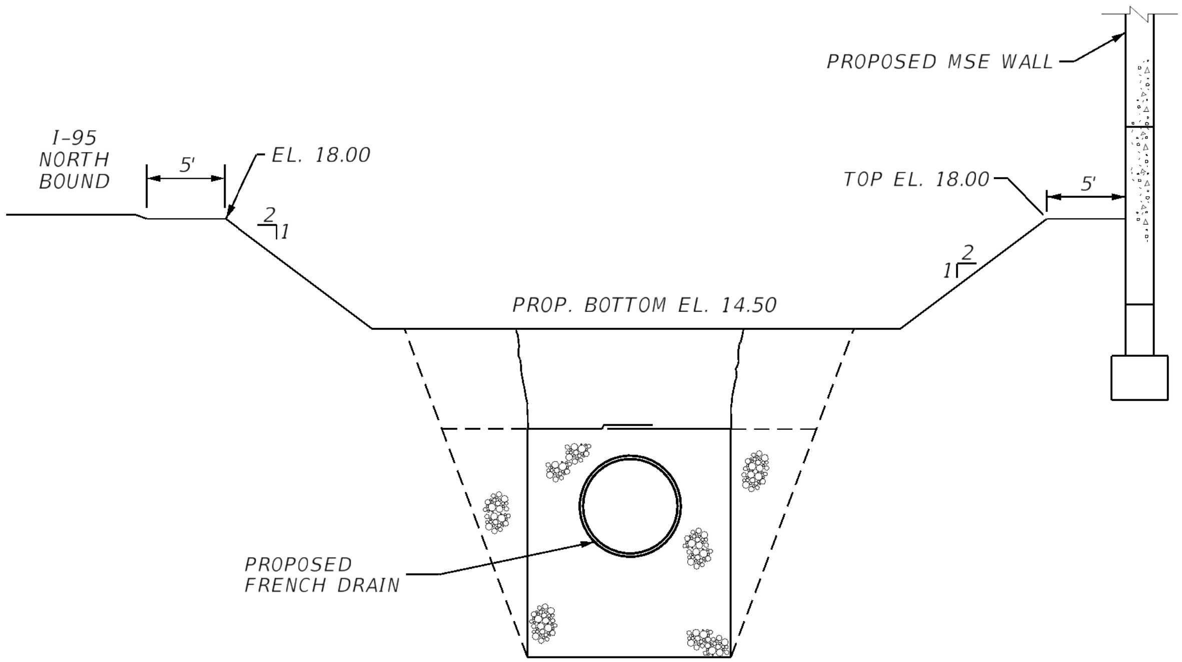
812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD ALTERNATIVE 2 BASIN 2

SHEET NO.
FG-3

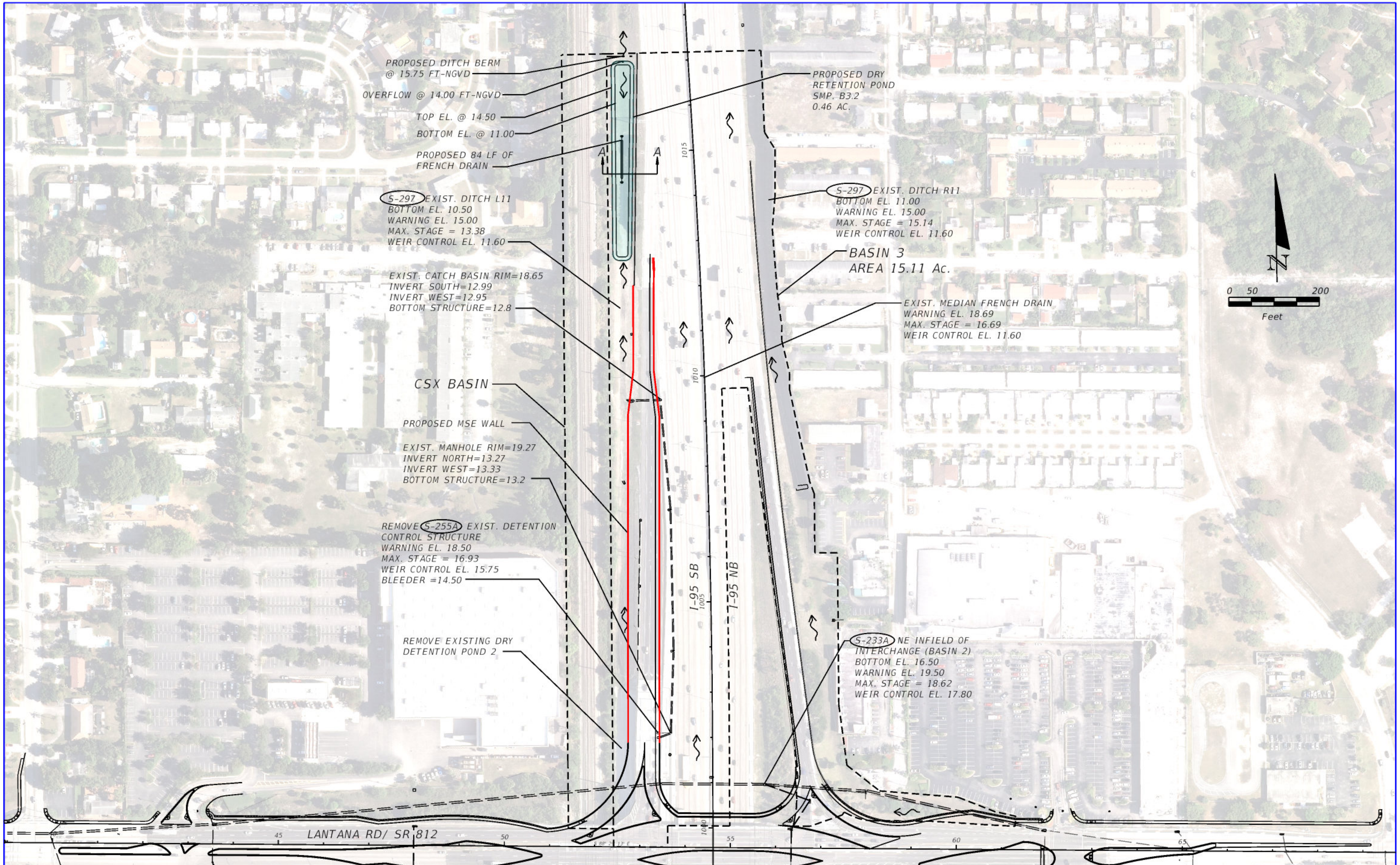


SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

BASIN 2 - ALTERNATIVE 2



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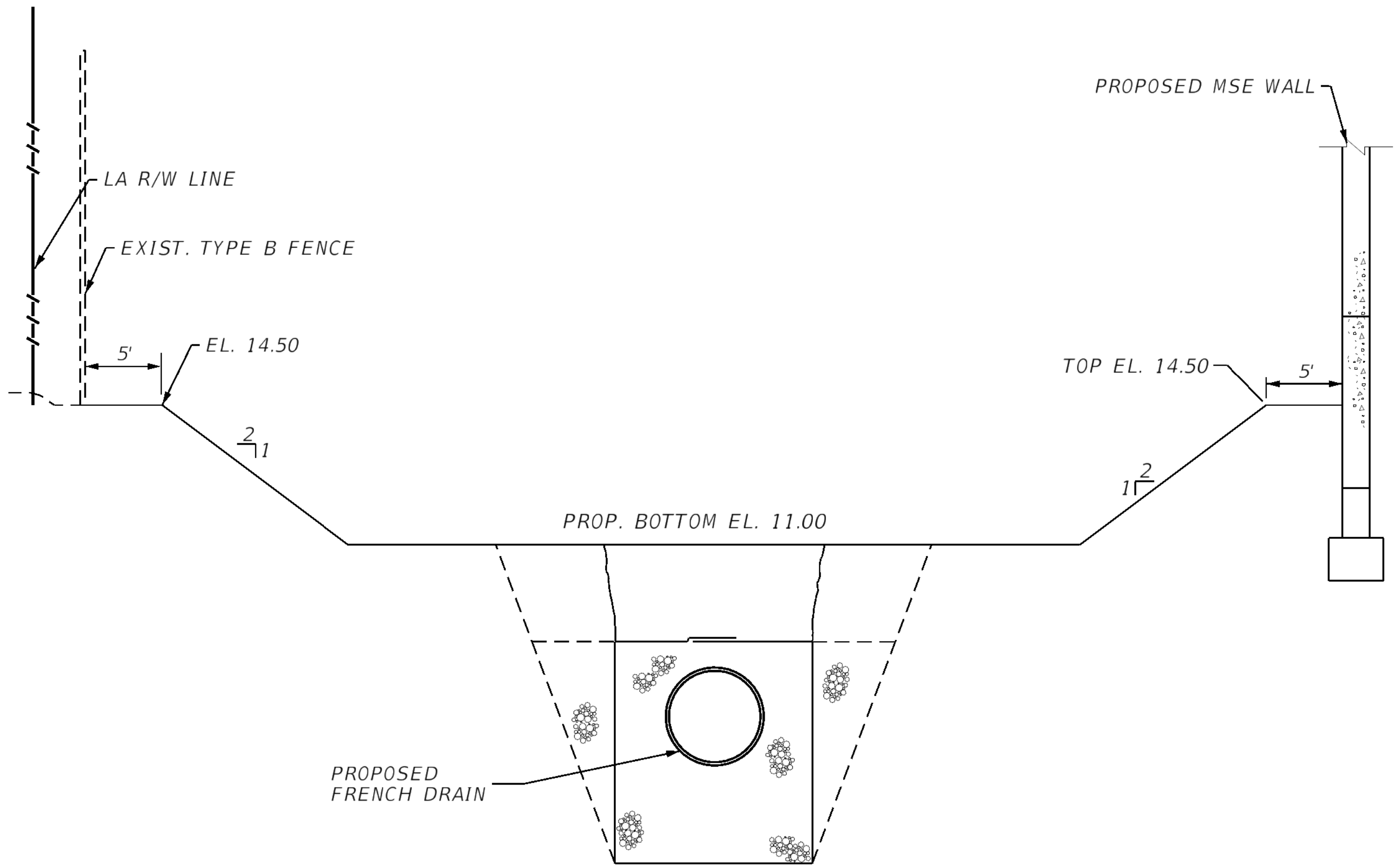
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD ALTRENATIVE 2 BASIN 3

SHEET NO. FG-4

mramirez 11/26/2019 6:23:10 PM H:\CADD\PD&E I-95 at Lantana\drainage\DRMPRD09_PROP-B3-2.DGN

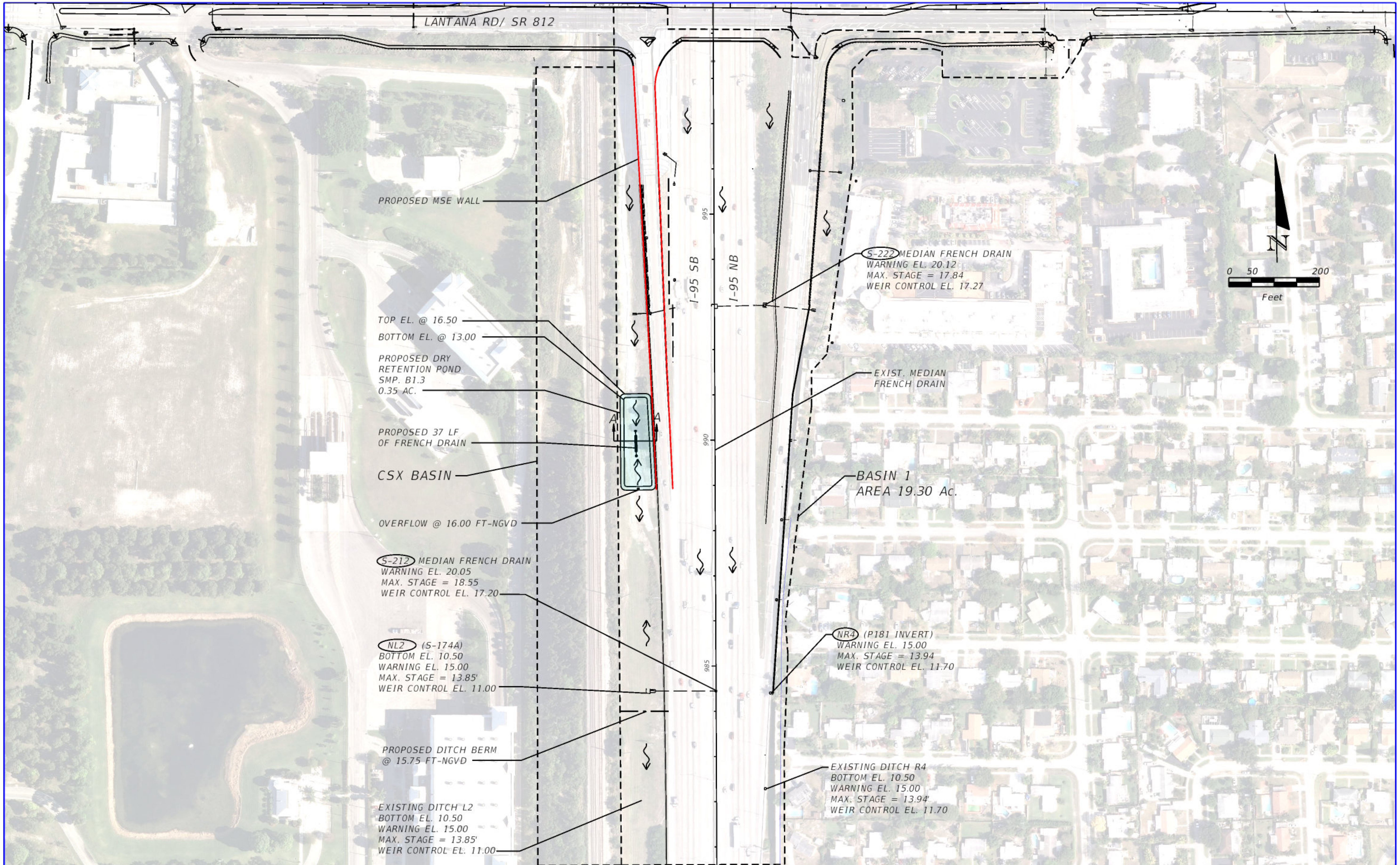


SECTION A-A

NOT TO SCALE

BASIN 3 - ALTERNATIVE 2

Appendix H
Proposed Alternative 3



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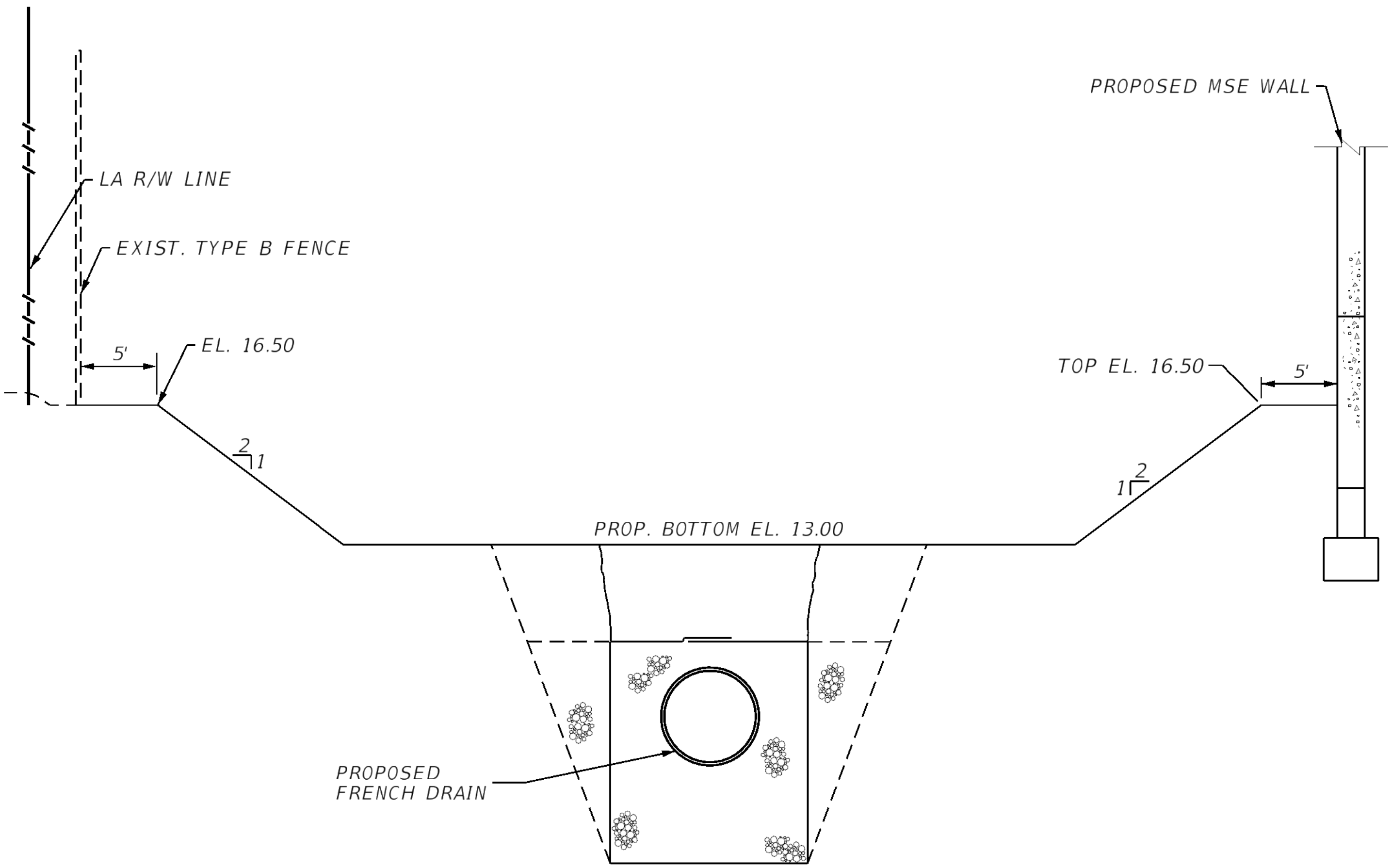
812	PALM BEACH	000000-0-00-00

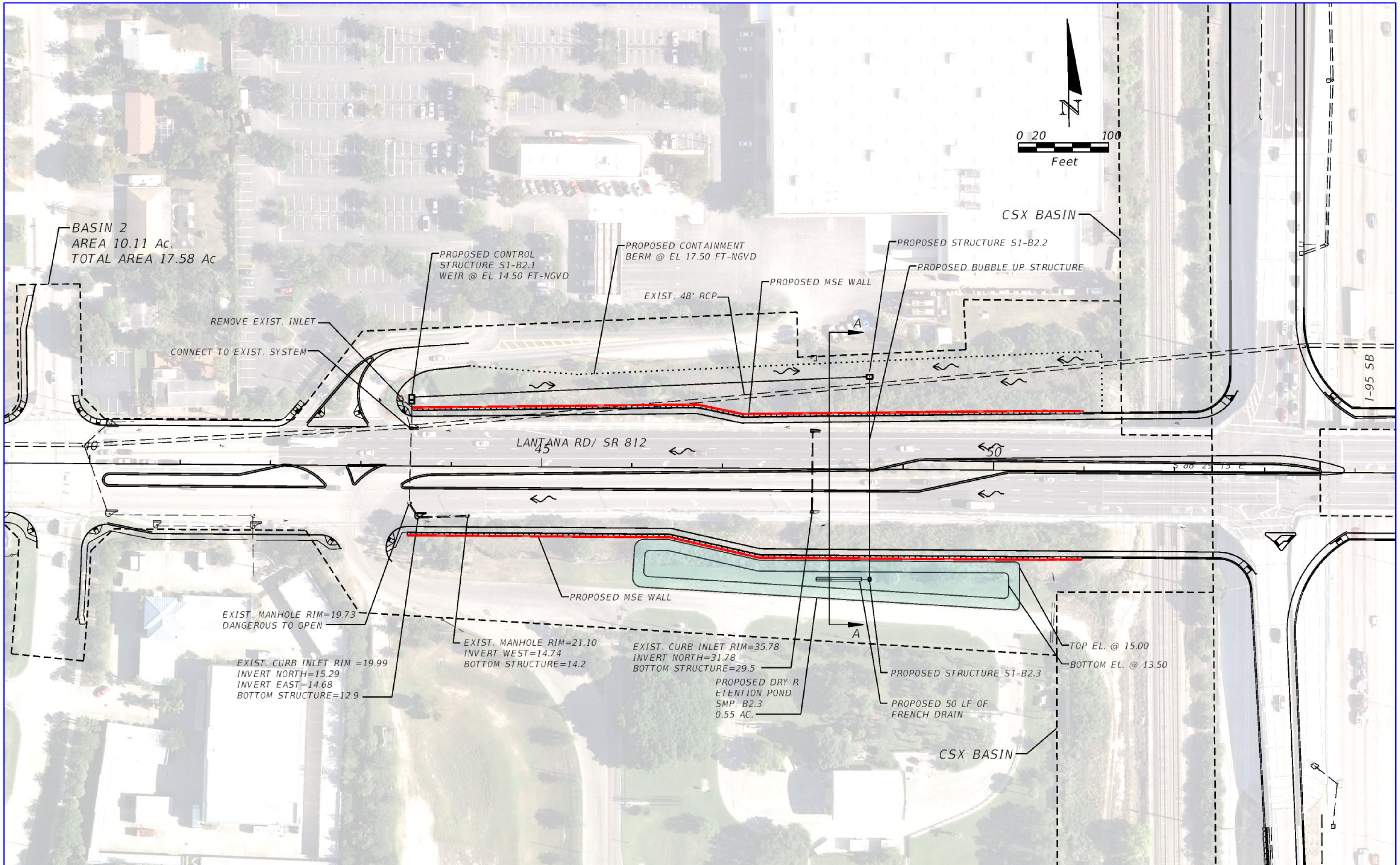
I-95 AND LANTANA RD
ALTERNATIVE 3 BASIN 1

SHEET NO.
FG-2



SECTION A-A
NOT TO SCALE

BASIN 1 - ALTERNATIVE 3



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812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD
ALTRENATIVE 3 BASIN 2

SHEET NO.
FG-2

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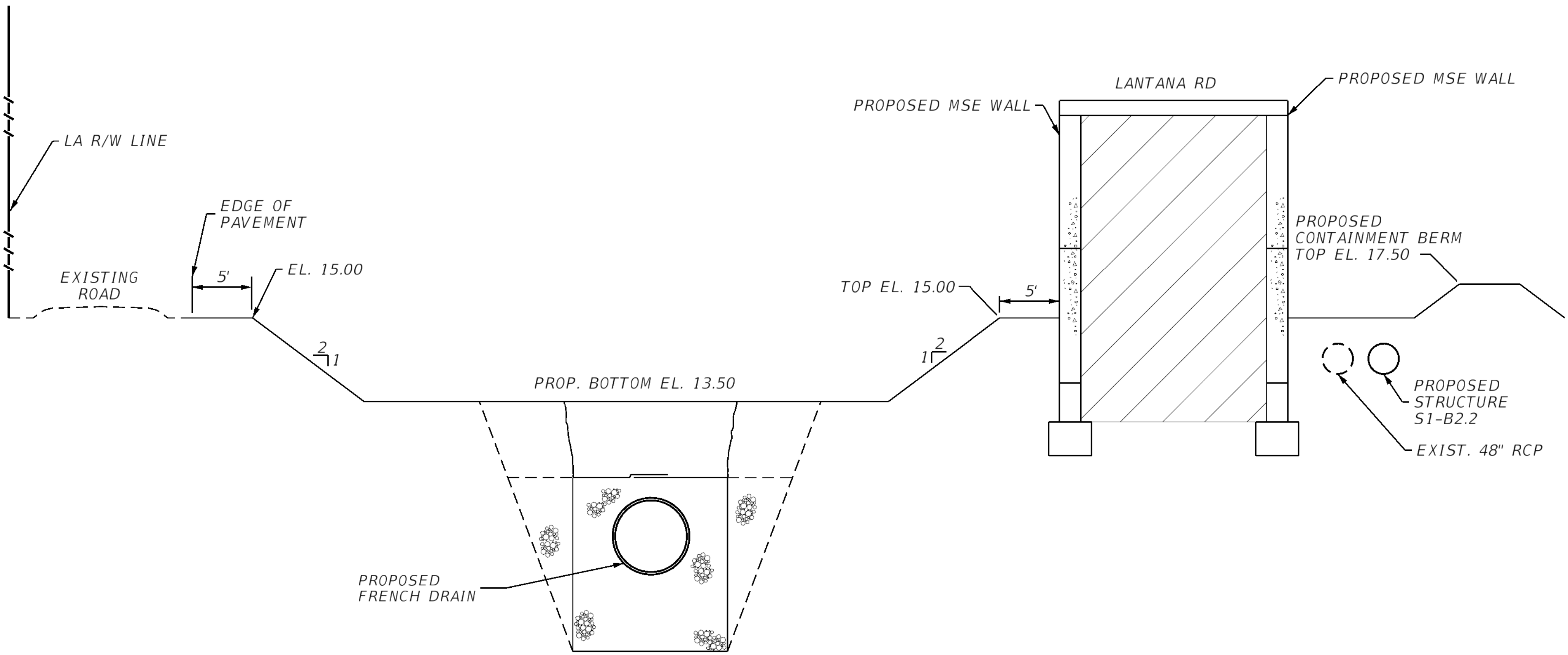
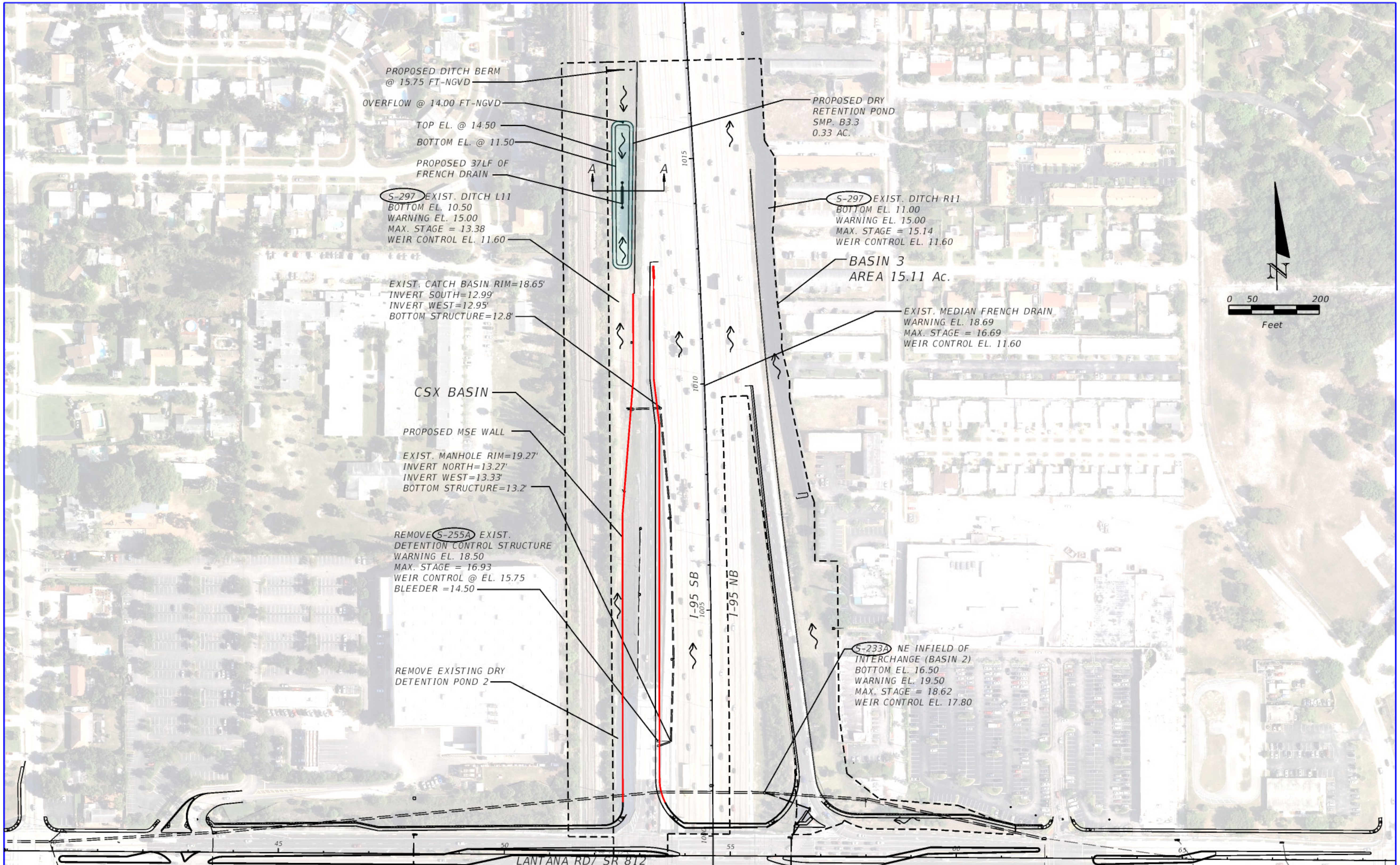


SECTION A-A

NOT TO SCALE

BASIN 2 - ALTERNATIVE 3



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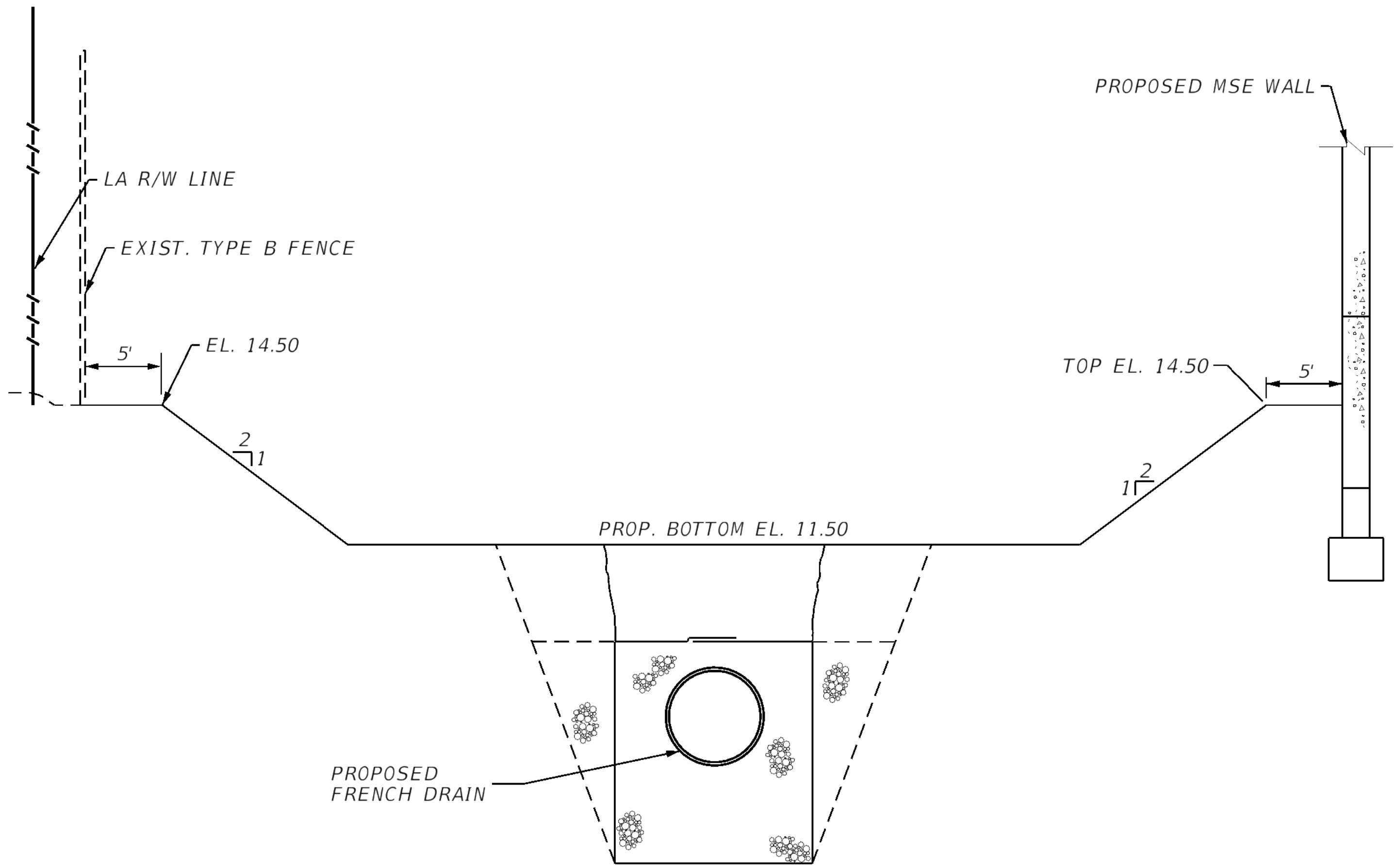
812	PALM BEACH	000000-0-00-00

I-95 AND LANTANA RD
ALTRENATIVE 3 BASIN 3

SHEET NO.
FG-4

mramirez 11/26/2019 6:26:03 PM H:\CADD\PD&E I-95 at Lantana\drainage\DRMPRD10_PROP-B3-3.DGN



SECTION A-A

NOT TO SCALE

BASIN 3 - ALTERNATIVE 3