



SR 400 (I-4) Project Development and Environment (PD&E) Study
FM No.: 201210-2-22-01



Preliminary Engineering Report

**Segment 5: State Road 400 (SR 400)/Interstate 4 (I-4)
from West of SR 25/US 27
to West of CR 532 (Polk/Osceola County Line)**

Polk County (16320)

June 2, 2017

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PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

ETDM Number: N/A

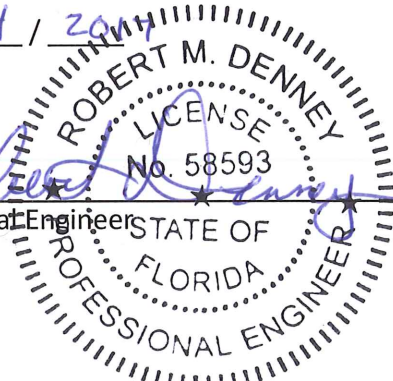
Financial Management Number: 201210-2-22-01

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This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) PD&E study.

6 / 14 / 2014
Date

Robert M. Denney
Professional Engineer



The seal is circular with a double-line border. The outer ring contains the text "ROBERT M. DENNEY" at the top and "PROFESSIONAL ENGINEER" at the bottom. The inner ring contains "LICENSE" at the top and "STATE OF FLORIDA" at the bottom. In the center, it reads "No. 58593".

Notes to Reviewer:

The typical section package for the entire I-4 (SR 400) Beyond the Ultimate corridor is submitted under separate cover.

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1.0 Summary of Project

The Florida Department of Transportation (FDOT) is conducting an update/reevaluation of the Project Development and Environment (PD&E) studies for the extension of proposed express lanes for State Road 400 (SR 400)/Interstate 4 (I-4). The project limits in the original PD&E studies were:

- West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line, (29.5 miles)
- CR 532 (Polk/Osceola County Line) to West of SR 528 Beachline Expressway (13.7 miles), and
- West of SR 528 Beachline Expressway to SR 472 (43 miles).

The corresponding environmental documents associated with these PD&E studies include: Environmental Assessment/Finding of No Significant Impact (EA/FONSI) for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line [Financial Project Number (FPN) 201210 (December 1998)] and from CR 532 (Polk/Osceola County Line) to West of SR 528 (Beachline Expressway) [FPN 242526 and 242483 (December 1999)] and Final Environmental Impact Statement (FEIS) for I-4 from SR 528 (Beachline Expressway) to SR 472 [FPN 242486, 242592 and 242703 (August 2002, Record of Decision Pending)].

The project limits of the current SR 400 (I-4) PD&E reevaluation, herein referred to as I-4 Beyond the Ultimate (BtU) PD&E Reevaluation Study, include a total of approximately 43 miles of roadway sections east and west of the 21-mile, I-4 Ultimate project. The I-4 Ultimate project, which began construction in early 2015, is reconstruction to include new express lanes, of the section of I-4 that extends from west of SR 435 (Kirkman Road) to east of SR 434. For analysis purposes, the current I-4 BtU PD&E study has been divided into the following five segments:

- Segment 1: SR 400 (I-4) from West of CR 532 (Polk/Osceola County Line) to West of SR 528 (Beachline Expressway) - Osceola County (92130) and Orange County (75280)
- Segment 2: SR 400 (I-4) from West of SR 528 (Beachline Expressway) to West of SR 435 (Kirkman Road) - Orange County (75280)
- Segment 3: SR 400 (I-4) from 1 Mile East of SR 434 to East of SR 15-600/US 17-92 (Seminole/Volusia County Line) - Seminole County (77160)
- Segment 4: SR 400 (I-4) from East of SR 15-600/US 17-92 (Seminole/Volusia County Line) to 1/2 Mile East of SR 472 - Volusia County (79110)
- Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) Polk County (16320)

This preliminary engineering report was prepared for Segment 5 of the SR 400 (I-4) BtU PD&E Reevaluation Study and contains detailed engineering information that fulfills the purpose and need for the SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) PD&E study.

The purpose of this preliminary engineering report is to document design changes in support of the PD&E reevaluation of the 4.5-mile segment of I-4 from West of SR 25/US 27 to West of CR 532 within the original FONSI for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line (FPN 201210, December 1998). This reevaluation includes environmental and engineering analysis of the original design concept, that showed six general use lanes (GUL) and four special use lanes (SUL) for high occupancy vehicles (HOV)/single occupant through vehicles (SOV), to the current proposed design that includes six GULs and four express lanes (EL) operating under a variable pricing toll plan. Other changes being reanalyzed include stormwater management, access plan and interchange configurations.

1.1 Commitments

To minimize impacts of this project on the environment, FDOT is committed to mitigation measures for impacts resulting from the Recommended Alternative. All project construction activities will be accomplished in accordance with the provisions in the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. The following are FDOT commitments for the project from the original EA/FONSI, with the current status provided in boldface type.

1. Wetland impacts which will result from the construction of this project will be mitigated pursuant to 373.4137 F.S. to satisfy all mitigation requirements of Part IV, Chapter 373, F.S. and 33 U.S.C.s. 1344. The FDOT is committed to minimize the temporary impacts to wetlands within the right-of-way due to clearing activities associated with the construction of the proposed improvements.
The current regulatory guidelines have changed since the EA/FONSI was completed. FDOT will direct the use of either 373.4137 F.S. or the purchase of mitigation bank credits to offset the impacts during project permitting. During the project reevaluation, the Wetland Evaluation Report (WER) identified a number of approved wetland mitigation banks with credit availability to offset impacts with both Southwest Florida Water Management District (SWFWMD) and U.S. Army Corps of Engineers (USACE) under the regulatory programs.
2. Wildlife and Habitat – the FDOT is committed to provide the opportunity for wildlife corridor enhancement by constructing low-level bridges at three locations in Polk County. The locations are shown on the concept plans. These structures will be designed in accordance with the criteria established through coordination with the U.S. Fish and Wildlife Service (USFWS) and the Florida Game and Freshwater Fish Commission (FGFWFC) to allow for their use as wildlife under-crossings. The locations of these structures were determined through a cooperative effort of regulatory and advisory agencies, local environmental interest groups, private consultants, local, state and regional government and the FDOT.
The locations of the 3 low-level bridges occur within segments from the original study that are outside of the area of I-4 BtU Segment 5. The design segment(s) they occur within have not yet

been constructed (FM 201214-1, FM 201215-1) and will be addressed when those projects move forward.

The FDOT is committed to mitigate for potential loss of habitat of the Florida scrub-jay through the use of the Highlands County Upland Mitigation Bank property at a ratio of 2:1 for impacts which may occur to scrub-jay territories at the time of construction.

- a. Since the construction phase of this project is not included in the current 5-year work program and because of the anticipated resulting delay in construction of the proposed I-4 improvements, a resurvey of the project corridor for the presence of listed species will be made prior to construction of this project.

Field surveys that were conducted during this study for listed species in October 2013, April 2014, and September 2015 concluded that the scrub-jay habitat identified within the project footprint is no longer present. Surveys for scrub-jays were negative during the field studies, therefore the commitment to mitigate for habitat impacts is no longer necessary. All potential listed species involvement was coordinated with USFWS during the project and resulted in the Biological Opinion (BO) dated February 21, 2017 being issued. (The BO for this project concluded that the project May Affect but will not Likely Adversely Affect the Florida scrub-jay).

- b. The eastern indigo snake could be present in the project area. In order to minimize harm to this species, the Florida Department of Transportation has committed to implement the following protection measures:
 1. The FDOT shall provide eastern indigo snake educational information as contained in the approved District One educational plan to construction employees prior to the initiation of any clearing activities. The FDOT District One educational exhibits shall be posted at sites immediately accessible to all employees.
 2. All construction activities shall cease in the immediate vicinity of any live eastern indigo snake found within the project area. Work may resume after the snake or snakes are allowed to leave the area on their own.
 3. Location of live sightings shall be reported to the USFWS Vero Beach Office at (561) 562-3909.
 4. If a dead eastern indigo snake is found on the project site, the snake shall be frozen as soon as possible and FDOT shall notify the Vero Beach Field Office immediately for further instructions.

Since eastern indigo snake habitat has been identified within the project area, FDOT will utilize the US Fish and Wildlife Service Standard Protection Measures for the Eastern Indigo Snake, as contained at the USFWS website:

http://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm

3. The FDOT is committed to the construction of feasible noise abatement measures at the specific locations (2, 6, 7, 11, 15, 16 & 17) contingent upon the following:
 - The barrier is subjected to a detailed noise analysis during the design phase of this project and the analysis supports the need for the abatement;
 - Reasonable cost analyses indicate that the economic cost of the barrier will not exceed the guidelines;
 - The affected property owners are surveyed and a positive desire for the barriers (including type, height, location, and access requirements) is obtained;
 - Preferences regarding compatibility with adjacent land uses as addressed by local officials has been noted;
 - All safety and engineering aspects of the barrier are reviewed and approved as they relate to the roadway user and the adjacent property owners.

None of the locations for noise barriers from the previous study are located within the limits of the I-4 BtU Segment 5 project. A barrier currently exists at location 6 but not at any of the others listed above. The commitment for these noise barriers will be carried forward with the design segments that include these barrier locations and addressed in those projects at that time.

The three noise barrier locations (NSA C, Festival Resort Orlando Phase I and II) identified in the updated Noise Study conducted for I-4 BtU Segment 5 have been determined to be reasonable and feasible and will be subject to the conditions above.

Additional Commitments made during the PD&E Study Update and the current Re-evaluation include the following:

1. FDOT has completed consultation with the USFWS to address impacts to listed species as proposed by the project. The Biological Opinion dated February 21, 2017 documents the results of the analysis and provides a statement for the Incidental Taking of listed species with the commensurate mitigation measures. Based upon this decision, FDOT commits to:
 - a. Acquire 42.08 credits providing 42.08 acres of skink habitat from a USFWS-approved Conservation Bank to compensate for the loss of skinks and 21.04 acres of skink habitat. Prior to construction, provide the USFWS a receipt or letter from the USFWS-approved conservation bank verifying that the 42.08 credits have been acquired. Following land clearing activities with the I-4 BtU Segment 5 project, FDOT must provide a letter or email to the USFWS providing the actual acreage of occupied skink habitat cleared by the project. Should anyone on the project locate a dead, injured, or sick threatened or endangered species, initial notification must be

- made to the nearest USFWS Law Enforcement Office; Fish and Wildlife Service; 20501 Independence Blvd.; Groveland, Florida 34736-8573; (352) 429-1064. Secondary notification should be made to the Florida Fish and Wildlife Conservation Commission; South Region; 3900 Drane Field Road; Lakeland, Florida; 33811-1299; 1 (800) 282-8002. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or in the handling of dead specimens to preserve biological material in the best possible state for later analysis as to the cause of death. In instances where the amount or extent of incidental take is to be exceeded, any operation must cease and consultation should be reinitiated.
- b. FDOT will coordinate with Bok Tower Gardens conservation staff from the Rare Plant Conservation Program to collect the seeds from scrub plum plants and translocate suitable specimens to public conservation lands or other lands acceptable to the USFWS prior to construction. Collected seeds should be under the protection of the Bok Tower Gardens and either stored or used for propagation. Collected plant specimens may be temporarily housed, depending on available space, at the National Collection Beds that exist on-site at the Bok Tower Gardens.
 2. FDOT will ensure that mitigation proposed for wetland impacts in any wood stork suitable foraging habitat (SFH) will adhere to the requirements of the Corps of Engineers and U. S. Fish and Wildlife Service Effect Determination Key for the Wood Stork in South Florida (2010). The mitigation should include at a minimum wetland credits comprised of 12.18 acres of short hydroperiod (< 180 days inundated annually) wetlands and 8.65 acres of long hydroperiod (> 180 days inundated annually) wetlands.
 3. During permitting, all potential gopher tortoise habitat that could be impacted by the project will be systematically surveyed according to the current guidelines published by the Florida Fish and Wildlife Conservation Commission. If gopher tortoise burrows are found, all practicable design measures will be employed to avoid impacts to the burrows. For burrows which cannot be avoided, a permit will be obtained from Florida Fish and Wildlife Conservation Commission (FFWCC) for relocation of gopher tortoises and commensals, and relocation will be performed at a time as close as practicable to the start of construction activities at the site of the burrows.

1.2 Recommendations

The FDOT recommends improvements to the 4.5-mile segment of I-4 which extends from west of US 27 to west of CR 532 (Polk/Osceola County Line) in Polk County. This recommendation was developed based on engineering and environmental analysis conducted as part of the PD&E Update/Re-evaluation studies, community input and coordination with local governments and other agencies.

The recommended improvements, as shown in the Concept Plans in Appendix A and described in detail in Chapter 6 of this report, provide for six general purpose lanes and four express lanes throughout the project limits, interchange modifications, grade-separated ramps, intersection modifications and/or other improvements. As a result of the Public Hearing, environmental and engineering analyses and interagency coordination, the Recommended Alternative is recommended for Location Design Concept Acceptance by the FHWA.

Typical Section

The recommended mainline typical section for I-4 Segment 5 will have a total of ten dedicated lanes (6 general use lanes + 4 express lanes), a 44' rail corridor in the median and a design speed of 70 miles per hour (mph) within a minimum 300-foot right-of-way.

The recommended typical section for US 27 will have four 11-foot travel lanes with a 7-foot buffered bike lane and 5-foot sidewalk in each direction, separated by a 22-foot median with Type E curb and gutter within a minimum 185-foot right-of-way. The bike lane is separated from the sidewalk by Type F curb and gutter and a 3-foot utility strip/landscape buffer.

Interchanges

The recommended alternative for I-4 Segment 5 provides one partial cloverleaf interchange at US 27. Additional improvements proposed as part of the I-4 Segment 5 recommended alternative include grade separations along US 27 and intersection improvements at US 27 and Posner Boulevard/Home Run Boulevard and US 27 and I-4 Eastbound Frontage Road.

Bridges

A total of thirteen bridge structures are required for the recommended alternative for I-4 Segment 5; the majority are multiple span structures. Ten new bridges are proposed to be constructed, two existing bridges will remain and one existing bridge will be replaced along the corridor.

Drainage

Stormwater management for the recommended alternative for I-4 Segment 4 will involve collection of runoff by storm sewer systems or roadside ditches and routing to existing or proposed stormwater ponds. There is a total of nine drainage basins within the project limits which will require 16 existing or proposed ponds to achieve water quality treatment and attenuation of project runoff. Additionally, two floodplain compensation ponds are proposed to compensate for floodplain impacts.

1.3 Description of Proposed Action

FDOT is proposing to reconstruct and widen I-4 as part of the I-4 BtU concept. This involves the build-out of I-4 to its ultimate condition through Central Florida, including segments in Polk, Osceola, Orange, Seminole and Volusia Counties. The concept design proposes the addition of two new express lanes in each direction, resulting in a total of ten dedicated lanes. The project limits for the segment analyzed in this report are within an approximate 4.5-mile segment of I-4 which extends from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line), from Milepost (MP) 27.145 to MP 31.607 in Polk County (herein referred to as I-4 Segment 5) and as shown in Figure 1.1. Although, the interstate is a designated east-west corridor, the alignment follows a southwest to northeast orientation through the limits of Segment 5. The study area in this section from west of SR 25/US 27 to west of CR 532 includes only one interchange at US 27.

The proposed improvements to I-4 include widening the existing six-lane divided urban interstate to a ten-lane divided highway. Generally, the typical section will be consistent throughout Segment 5 and will have three 12-foot general use travel lanes with 12-foot inside and outside shoulders and two 12-foot express lanes with 10-foot inside (median) and 12-foot outside shoulders in each direction. A two-foot barrier wall between the adjacent shoulders will separate the express lanes from the general use lanes. The typical section includes a 44-foot rail envelope in the median within a minimum 300-foot right-of-way (ROW). Figure 1.2 illustrates the proposed mainline typical section for I-4 Segment 5. Figure 1.3 illustrates the previously recommended typical section from the originally-approved EA/FONSI for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line [Financial Project Number (FPN) 201210 (December 1998)].

1.4 Purpose and Need

The proposed improvements to I-4 include widening the existing six-lane divided urban interstate to a ten-lane divided highway in order to improve traffic operations, enhance connectivity and improve mobility by providing travel choices to the motoring public. I-4 is an east-west limited access freeway which links the west and east coasts of Florida, from I-275 in Tampa to I-95 in Daytona Beach. I-4 spans across six counties in Central Florida, traversing many cities including Lakeland, Orlando, Altamonte Springs, Sanford and DeLand. I-4 is a critical component of Florida's Strategic Intermodal System (SIS) which links seaports, rail, airports and other intermodal facilities. This aspect of I-4's significance is evidenced through connectivity provided by major junctions with I-275 and I-75 in the Tampa Bay area, SR 429 (Daniel Webster Western Beltway), SR 417 (Southern Connector/Central Florida Greenway/Seminole Expressway), SR 528 (Martin Andersen Beachline Expressway), SR 91

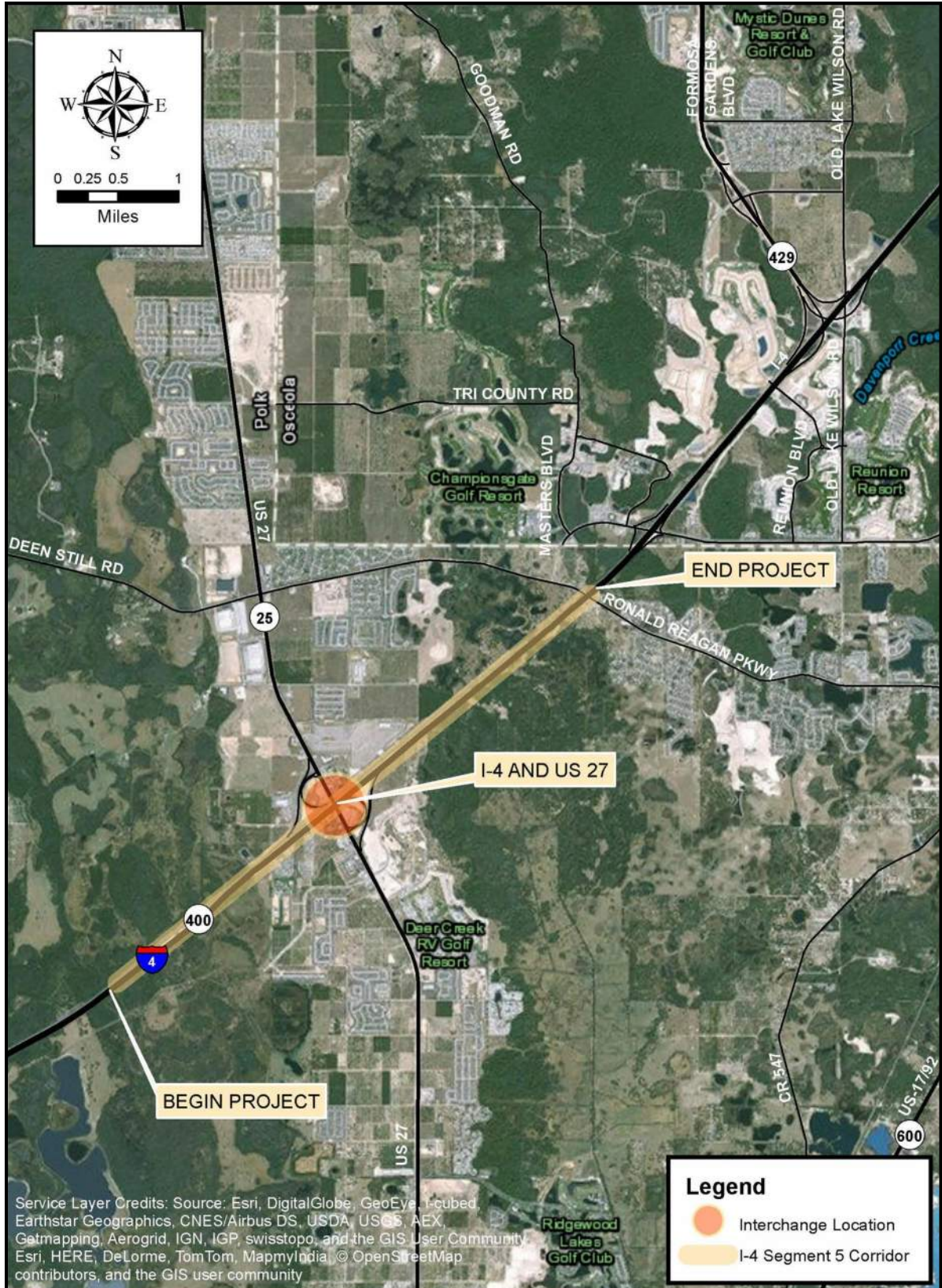
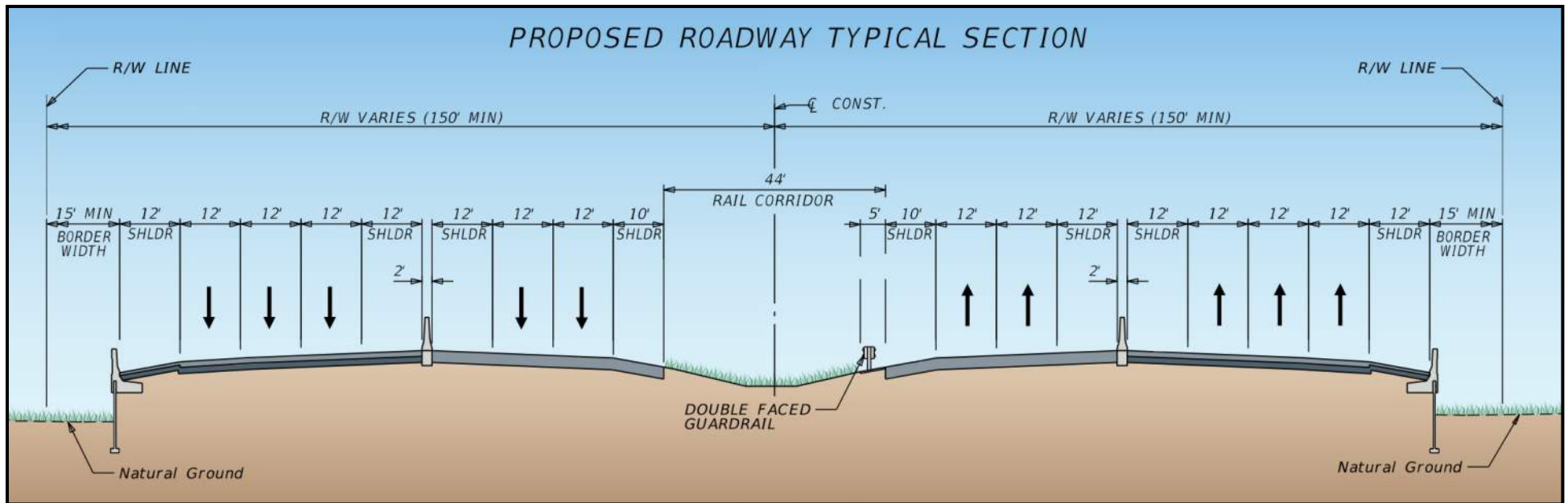


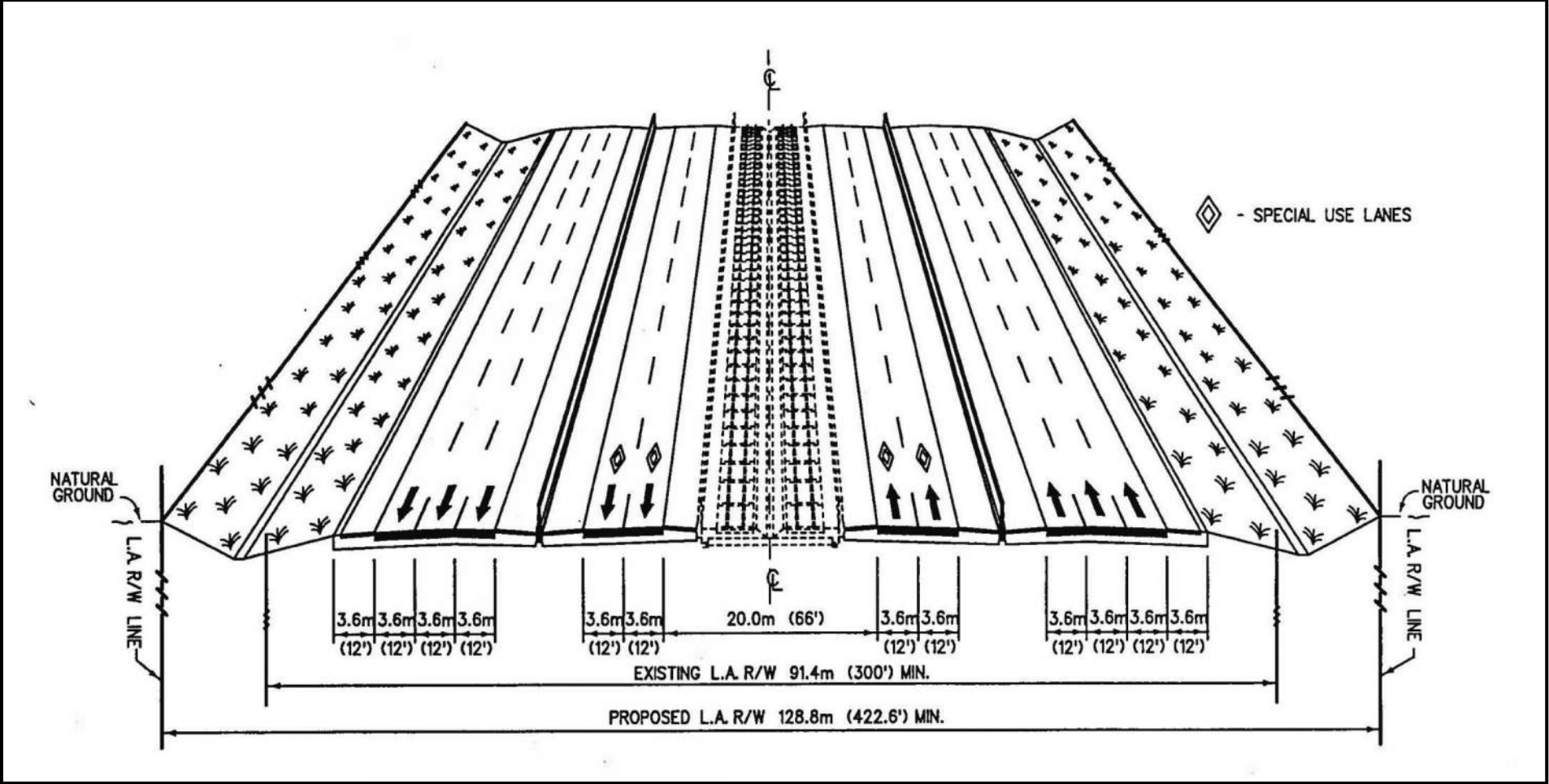
Figure 1.1 – Project Location Map



SR 400 (I-4) TYPICAL SECTION

Station 368 + 58.00 to Station 604 + 50.00, MP 27.145 to MP 31.613 (Polk County)

Figure 1.2 – SR 400 (I-4) Segment 5 Proposed Typical Section (6+4 with rail envelope)



SR 400 (I-4) 1998 EA/FONSI RECOMMENDED TYPICAL SECTION, [FPN: 20121012101, State Project No. 16320-1402 (Old)]
 (SR 33 to the Polk/Osceola County Line)

Figure 1.3 – SR 400 (I-4) Previously Recommended Typical Section (1998 EA/FONSI)

(Florida's Turnpike), SR 408 (Spessard Lindsay Holland East-West Expressway) in Central Florida and I-95 on the east coast.

I-4 serves as the primary corridor in the movement of people and freight between major population, employment and activity centers in the Central Florida region. When the entire Interstate was fully opened in the early 1960's, it was designed to serve intrastate and interstate travel by providing a critical link between the east and west coasts of Central Florida. Although this role continues to be a crucial transportation function of I-4, the highway also serves large volumes of local and commuter traffic with shorter trip distances. Today, the highway serves as the primary link between hotel/resort complexes and tourist attractions such as Walt Disney World, Universal Studios, Sea World, the International Drive Resort Area and downtown Orlando. Since I-4 is the only north-south limited access facility that is centrally located between the predominant employment centers and the major suburbs to the north, it has become the primary commuting corridor in the Central Florida metropolitan area.

Growth in Central Florida over the past decades has made it difficult for the transportation system to accommodate travel demand. Additionally, traffic congestion and crash incidents have resulted in major delays on the Interstate as well as other arterials surrounding the corridor. Increased congestion levels are experienced outside of the typical morning and afternoon rush-hour periods, affecting mobility levels for more hours of the day and impacting other non-commuter/non-weekday travel. The congestion on I-4 is further evidenced by the less than desirable levels of service on the Interstate as well as the crossroads.

Projections of future population and employment in the region indicate that travel demand will continue to increase well into the future. Table 1.1 and Table 1.2 respectively, provide a summary of the population and employment growth projections for counties surrounding the I-4 corridor. The ability to accommodate the new travel patterns resulting from growth must be provided to sustain the region's economy. Without the improvements, extremely congested conditions are expected to occur for extended periods of time in both the morning and evening peak periods. Due to these congested conditions, user travel times will continue to increase, the movement of goods through the urban area will be slower, and the deliveries of goods within the urban area will be forced to other times throughout the day. The need for improvements to I-4 is illustrated by the important transportation roles I-4 serves to the Central Florida region and the State of Florida. If no improvements are made to the Interstate, a loss in mobility for the area's residents, visitors, and commuters can be expected, resulting in a severe threat to the continued viability of the economy and the quality of life.

This reevaluation involves revising the original design concept showing 6 GUL + 4 SUL from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line, as recommended in the FONSI for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line (FPN 201210, December 1998), to the current proposed design of six general use and four express lanes. The express lanes are

tolled lanes and will extend the full length of the project. The access to/from the tolled lanes will be evaluated as part of this effort to determine if changes are needed from the previously approved concept for access to/from the SUL/HOV Lanes.

The original I-4 PD&E Studies involved physical separation between the general use lanes and the SUL/HOV lanes on I-4, with demand management in the HOV lanes. The original demand management strategy was to control the use of the HOV lanes by requiring a minimum number of occupants per vehicle to maintain an acceptable level of service (Level of Service D). This reevaluation also addresses revising the demand management tool to convert the HOV lanes to tolled express lanes. The express lanes will be separated from the general use travel lanes by two shoulders with a barrier wall between the shoulders. A variable pricing tolling plan is proposed for the express lanes. The tolls will vary by time of day and day of week to maintain acceptable levels of service in the express lanes. The tolls will be collected electronically through existing E-Pass, SunPass and other systems currently in place in the Central Florida area. The conversion to express lanes will maintain the same right-of-way limits as documented previously and will not change the impacts to the social, natural or physical environment. An update to the Systems Access Modification Report (SAMR) prepared in January 2013 is being completed in conjunction with this effort.

Table 1.1 - Population Projections for Counties in the I-4 Corridor

	April 1, 2013	2020	2030	2040
Flagler	97,843	124,863	160,705	191,861
Hillsborough	1,276,410	1,445,344	1,666,187	1,845,013
Lake	303,317	355,935	425,221	479,928
Orange	1,202,978	1,394,814	1,641,173	1,840,695
Osceola	288,361	360,478	452,651	532,472
Polk	613,950	691,355	794,061	883,393
Seminole	431,074	465,128	508,329	541,133
Sumter	105,104	138,220	181,846	219,396
Volusia	498,978	529,447	566,999	595,077
Total	4,818,015	5,505,584	6,397,172	7,128,968
Source: Florida Demographic Estimating Conference, February 2014 and the University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Bulletin 168, April 2014				

Table 1.2 - Employment Projections for Workforce Regions in the I-4 Corridor

	2014	2022	% Growth
Workforce Region	Total, All Occupations		
Flagler & Volusia Counties	200,541	224,127	11.8
Hillsborough County	699,877	789,163	12.8
Polk County	228,559	252,300	10.4
Lake, Orange, Osceola, Seminole and Sumter Counties	1,224,998	1,404,357	14.6
Source: Florida Department of Economic Opportunity			

2.0 Existing Conditions

The existing conditions within the I-4 study corridor were evaluated by reviewing existing plans and documents, coordination with regulatory agencies and performing field investigations. The following sections provide detailed descriptions of existing roadway characteristics, traffic and bridge features, drainage, soils and other physical features and traffic and crash data within the project study area.

2.1 Roadway Classification

I-4 is classified by FDOT as a Rural Principal Arterial - Interstate and Strategic Intermodal System (SIS) corridor throughout the limits of Segment 5. I-4 is a designated evacuation route by the Florida Division of Emergency Management.

2.2 Typical Section

The existing typical section for the I-4 mainline consists of three 12-foot travel lanes in each direction. The outside and inside shoulders are 12 feet wide with 10 feet paved. A cable barrier is provided on the inside shoulder of the eastbound and westbound lanes, in varying locations throughout the segment limits. The roadways are separated by a grass median that varies in width from 64 feet to 164 feet. Table 2.1 provides a summary of the existing median widths, auxiliary lanes and ROW width along the I-4 Segment 5 corridor. Figure 2.1 through Figure 2.6 illustrate the existing I-4 typical sections.

Table 2.1 – Existing Typical Section Features

Station From	Station To	Median Width (feet)	Number of Westbound Auxiliary Lanes	Number of Eastbound Auxiliary Lanes	ROW Width (feet)
365+50.00	414+00.00	Varies (57-145)	0	0	Varies (430-435)
414+00.00	424+00.00	Varies (44-145)	0	0	Varies (435-495)
424+00.00	437+00.00	Varies (44-60)	0	0	Varies (438-512)
437+00.00	441+00.00	Varies (44-72)	0	0	Varies (433-438)
441+00.00	457+00.00	Varies (72-134)	0	0	Varies (393-433)
457+00.00	475+00.00	164	0	0	333
475+00.00	508+00.00	164	0-1	0-2	445
508+00.00	521+00.00	Varies (133-164)	0	1-2	Varies (434-445)
521+00.00	576+00.00	152	0	0-1	Varies (428-438)
576+00.00	598+00.00	Varies (64-150)	0	0	Varies (438-486)
598+00.00	604+47.30	64	0	0	Varies (423-493)

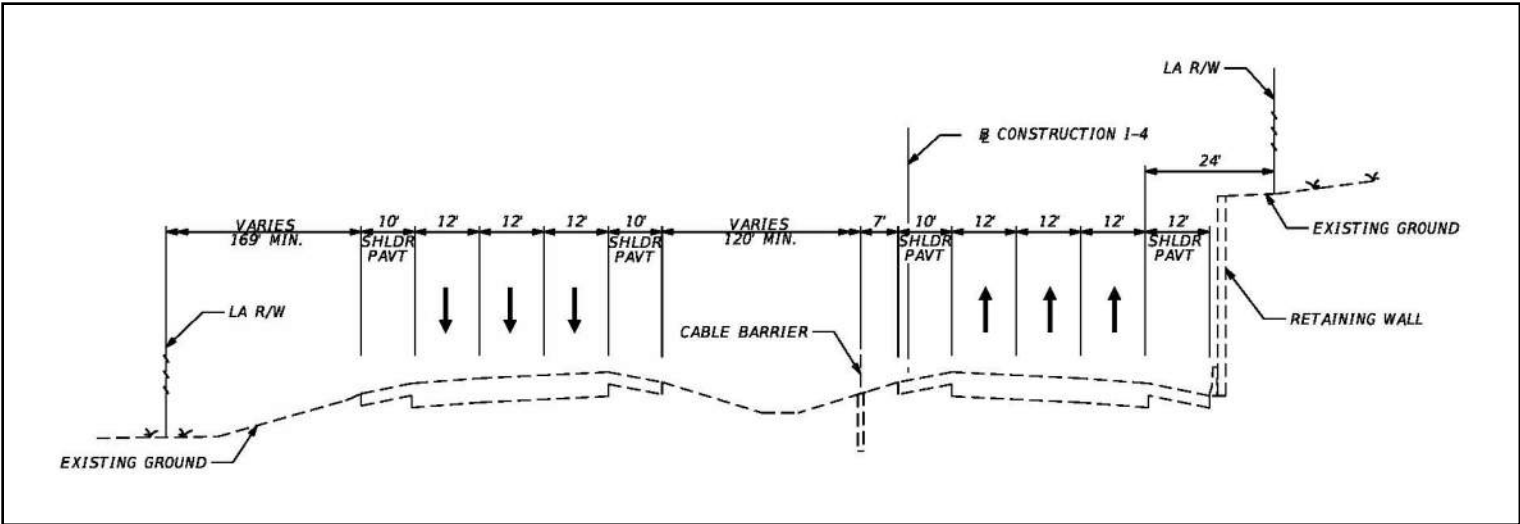


Figure 2.1 - Existing Typical Section (Sta. 457+00.00 to Sta. 475+00.00)

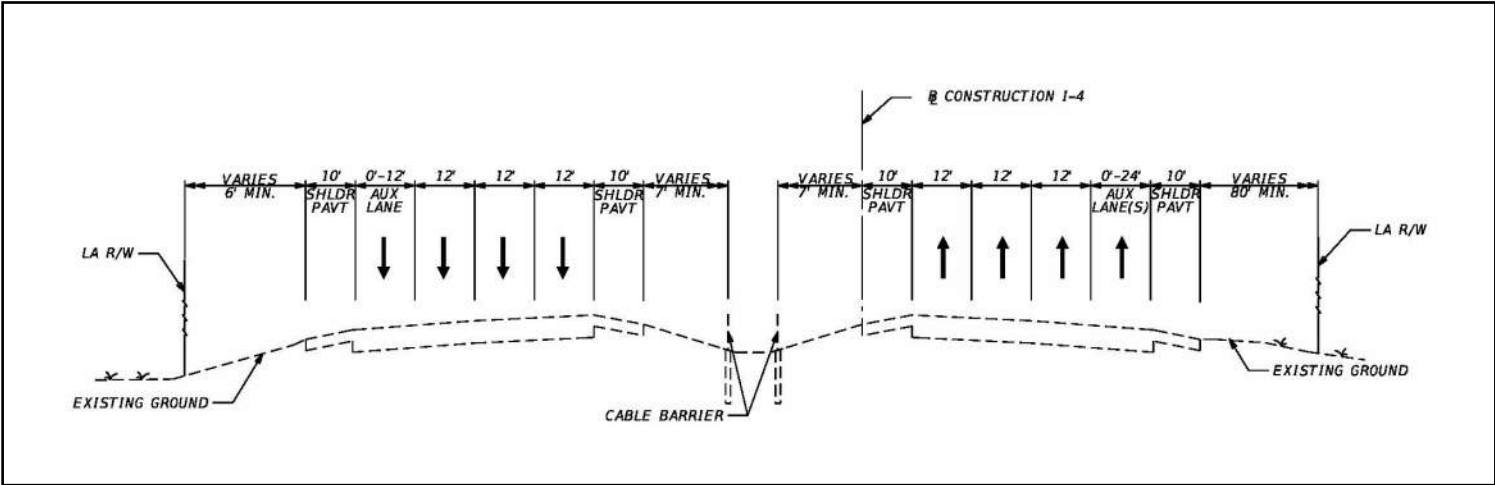


Figure 2.2 - Existing Typical Section (Sta. 475+00.00 to Sta. 508+00.00)

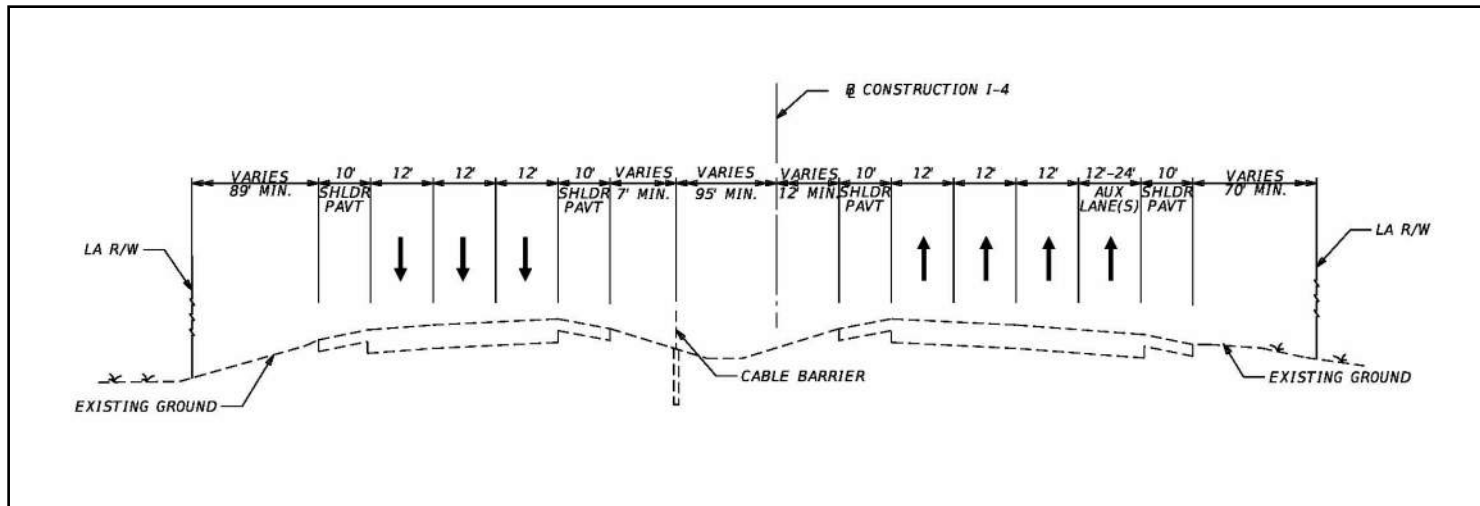


Figure 2.3 - Existing Typical Section (Sta. 508+00.00 to Sta. 521+00.00)

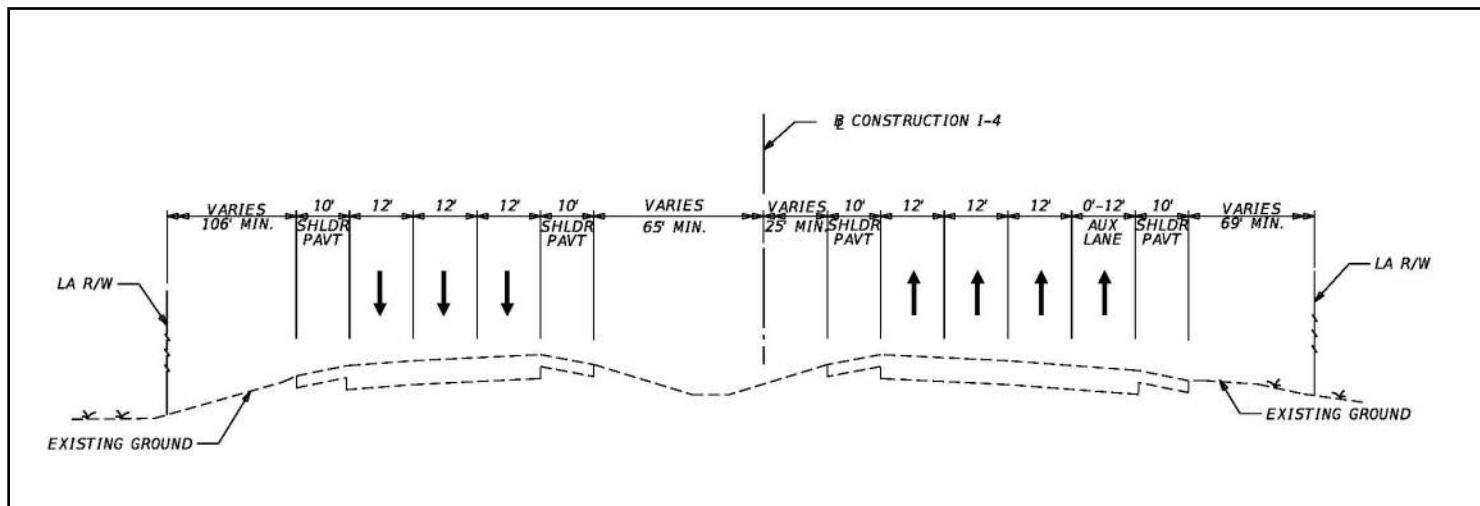


Figure 2.4 - Existing Typical Section (Sta. 521+00.00 to Sta. 576+00.00)

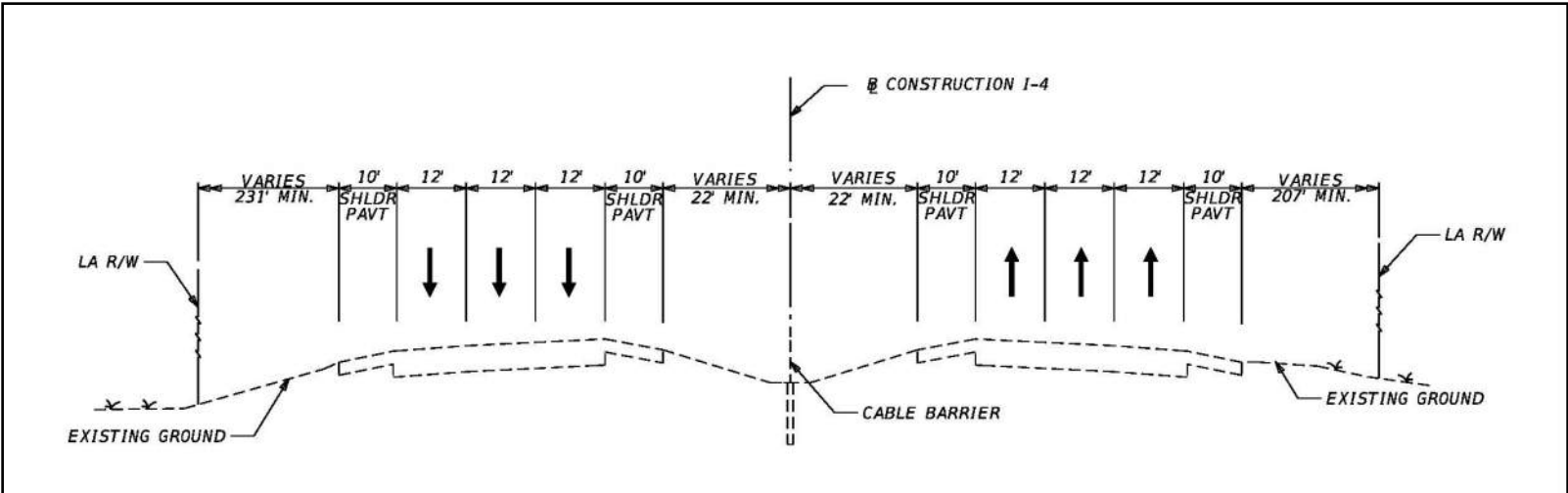


Figure 2.5 - Existing Typical Section (Sta. 576+00.00 to Sta. 598+00.00)

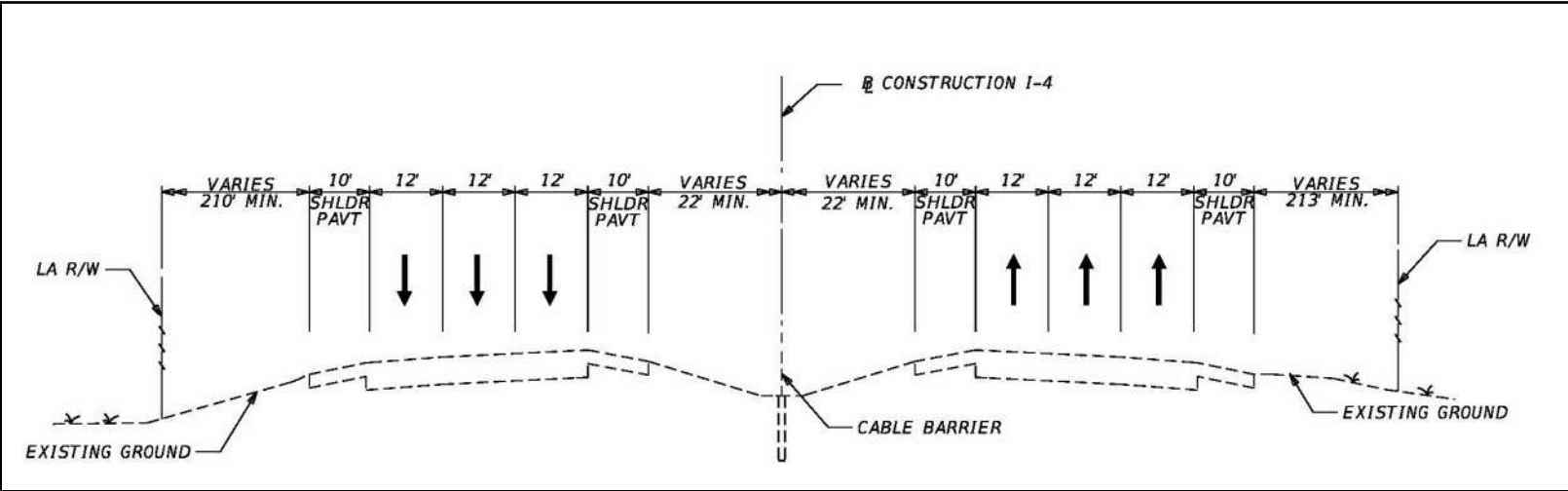


Figure 2.6 - Existing Typical Section (Sta. 598+00.00 to Sta. 604+47.30)

2.3 Right-of-way

The existing ROW throughout Segment 5 varies, but is typically 430-feet. The existing ROW widens within portions of the segment around the US 27 interchange. The ROW widths were previously listed in Table 2.1 and illustrated in the typical section figures in Section 2.2. The Concept Plans for this project, included in Appendix A, also show the existing ROW along the corridor.

2.4 Existing Property Lines and Land Use

The existing property lines for parcels within the project study area were obtained from the Polk County GIS database and are shown on the concept plans in Appendix A. Parcels affected by the proposed improvements are identified on the concept plans. The proposed improvements to the 4.5 mile I-4 Segment 5 corridor lie within unincorporated Polk County as shown in Figure 2.7.

Existing Land Use

The existing land use map was created using information from FDOT 2012 parcel tax data records compiled by the Florida Geographic Data Library (FGDL). The existing land use along the I-4 Segment 5 corridor varies with a mixture of uses. The southern portion of the corridor near the I-4 and US 27 interchange is characterized primarily by retail/office use. Other existing land uses along the corridor consist of vacant nonresidential parcels, agricultural use and acreage not zoned for agriculture. The existing land uses along the project corridor are shown in Figure 2.8.

Future Land Use

The future land use map was created using FGDL future land use data from the adopted comprehensive plan amendments for each municipality within the project's limits. Future land use along the I-4 Segment 5 corridor also varies with a mixture of uses. The southern portion of the corridor near the I-4 and US 27 interchange is designated as Regional Activity Center. The remainder of the corridor, to the north of the US 27 interchange is planned for medium density residential use interspersed with preservation areas. At the very north end of the corridor, the area on the west side of I-4 and north of CR 54 (Ronald Reagan Parkway) is designated for future Employment Center use. The future land uses along the corridor are shown in Figure 2.9.

2.5 Horizontal Alignment

There are no horizontal curves within the limits of Segment 5. The posted speed limit for Segment 5 is 70 mph from the beginning of the segment near milepost 27.145 to milepost 28.12 (west of US 27) 5, where it reduces to 65 mph until the end of the segment (west of CR 532). This segment of I-4 is classified on the Federal-Aid Primary System and the State System as a Rural Interstate Highway from SR 33 to the Polk/Osceola County line.

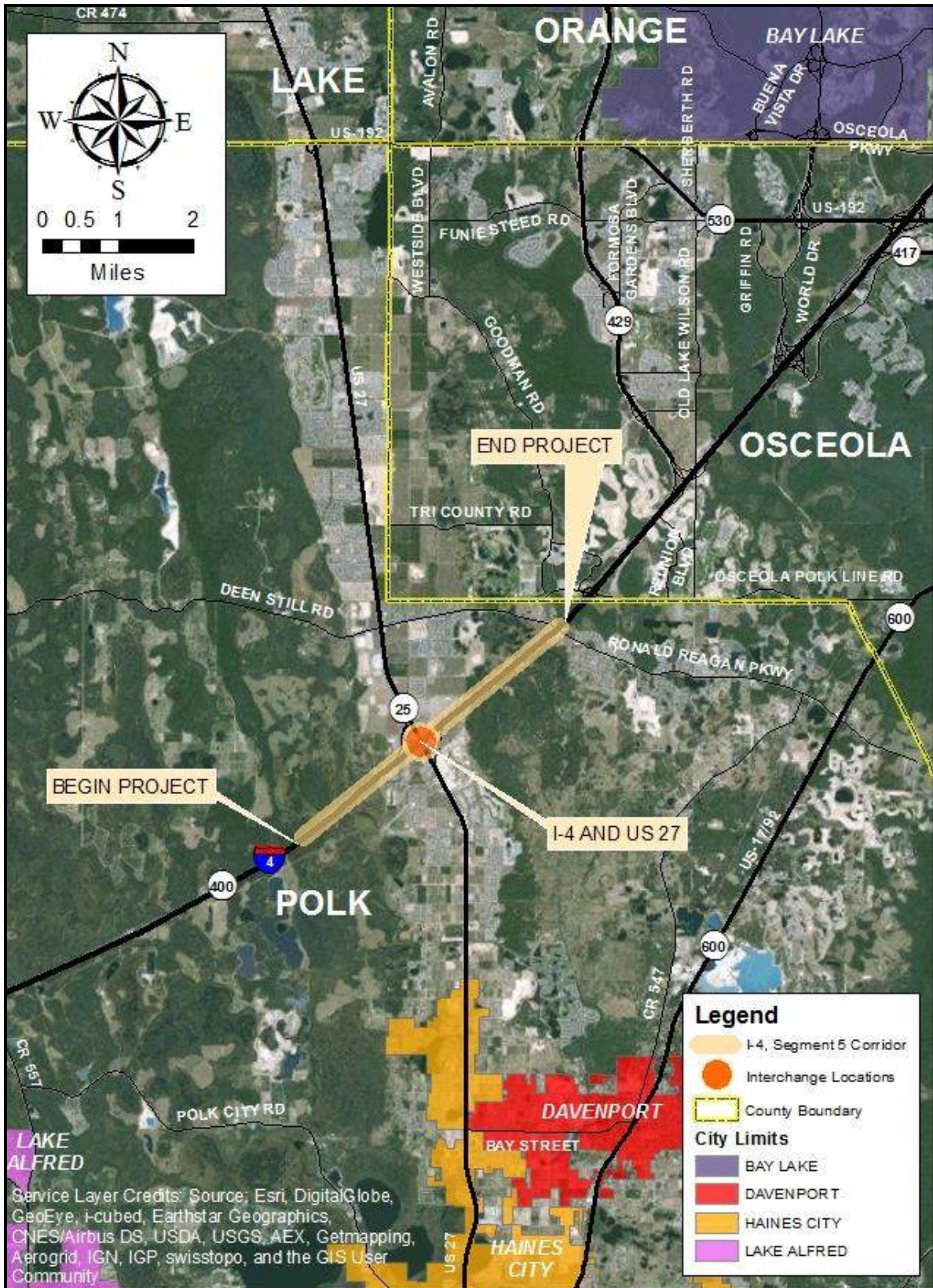


Figure 2.7 - Existing City Limits

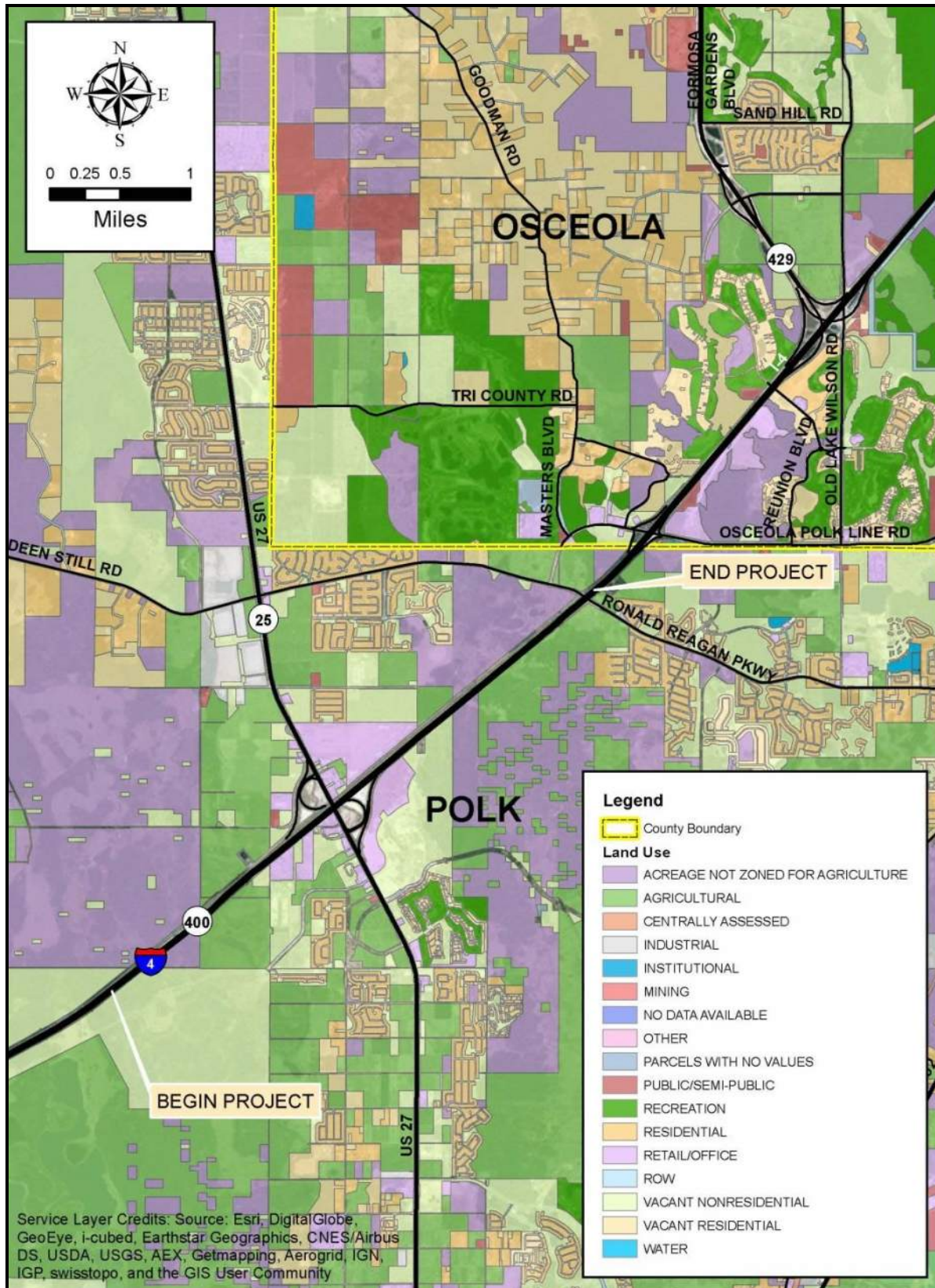


Figure 2.8 - Existing Land Use

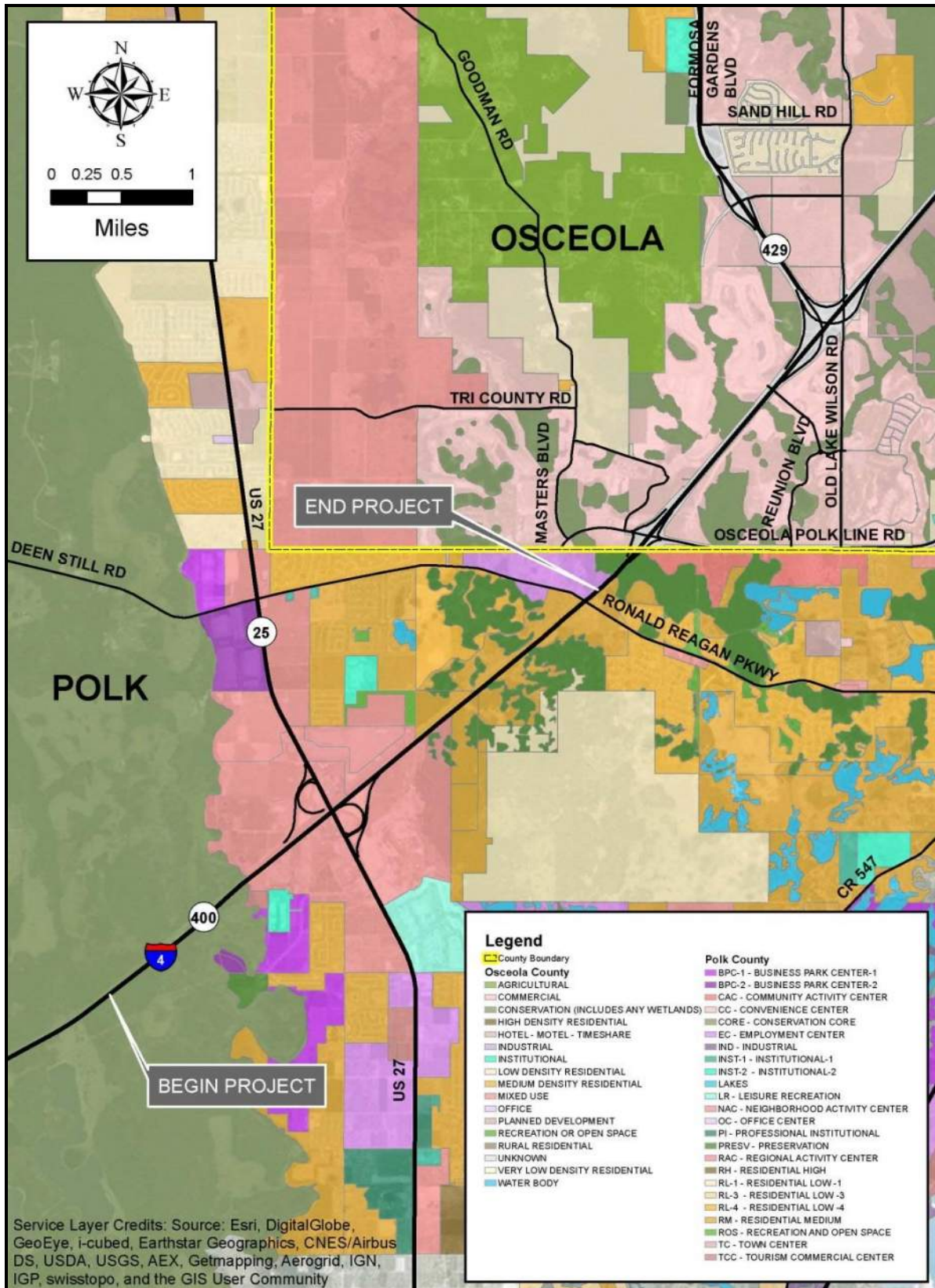


Figure 2.9 - Future Land Use

2.6 Vertical Alignment

Table 2.2 summarizes the vertical alignment of I-4 within the corridor study limits and the design speed associated with each curve based on current design criteria. Of the 11 vertical curves in Segment 5, none of the curves meet the current requirements for either length of curve on an interstate or 70 mph design speed based on curve constant, K. Reference location stationing is included on the Concept Plans included in Appendix A.

Table 2.2 - Existing Vertical Alignment

PVI Stationing	Direction	Grade In (%)	Grade Out (%)	Curve Length (ft)	Type	Existing K-Value
446+24.00	EB	1.2	1.9	400	Sag	571.43
451+11.00	WB	1.5	0.3	600	Crest	508.91
452+11.00	EB	1.9	0.4	800	Crest	533.33
474+24.00	EB	0.4	-0.3	600	Crest	857.14
474+24.00	WB	0.3	-0.3	600	Crest	1,000.00
493+11.00	WB	-0.3	0.3	800	Sag	1,333.33

2.7 Design and Posted Speed

The design speed for I-4 is 70 miles per hour (MPH). The posted speed limit along Segment 5 is 65 MPH for the entire segment.

2.8 Pedestrian Accommodations and Bicycle Facilities

I-4 is a limited access interstate facility that prohibits bicycle and pedestrian traffic. According to the Polk Transportation Planning Organization (TPO), there are no existing multi-use trail facilities within the study area. Existing pedestrian and bicycle facilities for the interchange and overpass along Segment 5 are described in the following sections.

I-4 and SR 25/US 27 Interchange

Near the I-4 and SR 25/US 27 interchange, existing pedestrian facilities include sidewalks along the east and west sides of SR 25/US 27 between the I-4 eastbound and westbound ramp terminals. The sidewalks on the SR 25/US 27 overpass are separated from the travel lanes by jersey barriers and shielded by chain link fencing. Existing crosswalks are provided on the north and west legs of the I-4 Eastbound and US 27 ramp terminal intersection. At the westbound ramp terminal intersection, crosswalks are provided on the south leg across SR 25/US 27 and between the channelizing right turn island and the sidewalk on the west side of SR 25/US 27. Paved shoulders/unmarked bicycle lanes are provided along northbound and southbound SR 25/US 27 within the vicinity of the interchange and beyond the ramp terminals.

I-4 and CR 54 Overpass Bridge

The existing CR 54 bridges over I-4 provide pedestrian sidewalks for both the northbound and southbound directions of the roadway. The sidewalks on the CR 54 overpass are separated from the travel lanes by jersey barriers and shielded by chain link fencing. Sidewalks are continuous and extend past the study limits to the east and west of the Interstate. Crosswalks exist on all four legs of the intersection of CR 54 and Champions Gate Boulevard, to allow for pedestrian crossings approximately ¼ mile west of the Interstate. There are no crosswalks east of the Interstate, within the study limits. Paved shoulders/unmarked bicycle lanes are provided along northbound and southbound CR 54 within the vicinity of the Interstate and beyond the study limits.

2.9 Existing Traffic

Existing (2011) traffic information including volume counts, geometry, signal timing plans and other pertinent data was collected as part of the *I-4 Beyond the Ultimate Systems Access Modification Report Re-evaluation, South Section - from West of US 27 to West of SR 435 (Kirkman Road) (March 2017)* prepared for this project. The data from this report was utilized to perform operational analyses of existing conditions.

2.9.1 Traffic Volumes

Existing traffic volume data consists of year 2011 AM and PM peak hour counts compiled from FDOT's Florida Traffic Information (FTI) database, Florida's Turnpike Enterprise, Polk County, other agencies and field data collection. The existing (year 2011) traffic counts for the I-4 Segment 5 study corridor were obtained from the *I-4 Beyond the Ultimate Systems Access Modification Report Re-evaluation, South Section - from West of US 27 to West of SR 435 (Kirkman Road) (March 2017)* prepared for this project and are depicted in Figure 2.10.

2.9.2 Intersection Geometry and Signalization

There is one existing interchange within the limits of I-4 Segment 5 which includes two signalized ramp terminals at US 27. The interchange configuration is described in detail in the following section and depicted in Figure 2.10.

I-4 and US 27 Interchange

The I-4 interchange at US 27 is a two-quadrant, partial cloverleaf interchange with loop ramps in the northeast and southwest quadrants. The northeast quadrant loop ramp is a single-lane off ramp from I-4 eastbound to US 27 which flares to three lanes at the signalized ramp terminal located approximately 1,100 feet east of the Interstate. US 27 southbound traffic enters I-4 East by using existing dual left lanes onto a directional on ramp at this signalized ramp terminal. US 27 northbound

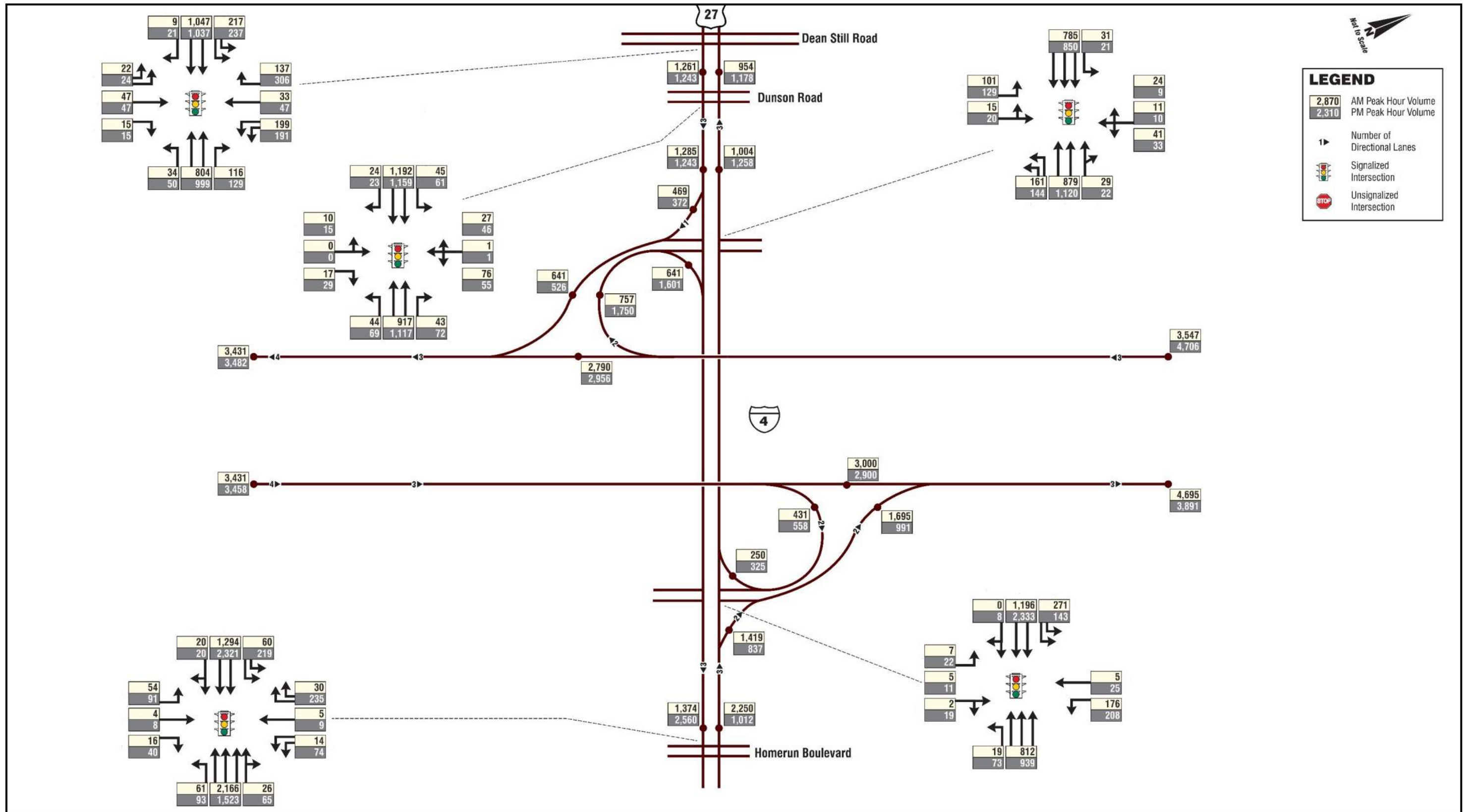


Figure 2.10 - Existing (Year 2011) Peak Hour Traffic Volumes

to I-4 East is accessed by a two-lane directional on ramp with the ramp entrance located approximately 2,200 feet east of the Interstate. The southwest quadrant loop ramp is a two-lane off ramp from I-4 westbound to US 27 which flares to five lanes at the signalized ramp terminal located approximately 1,300 feet west of the interstate. At the intersection, a single through lane and single left turn lane are separated from three right turn lanes by a large channelizing island. US 27 northbound traffic enters I-4 West by using existing dual left lanes onto a directional on ramp at this signalized ramp terminal. Access from US 27 southbound to I-4 West is from a single-lane directional on ramp, located approximately 800 feet north/west of this ramp terminal or 2,050 feet north/west of the Interstate.

2.9.3 Traffic Operational Analyses

Existing conditions operational analyses were performed using VISSIM (version 7.0) microsimulation software. All simulation output is based on the average data from 12 simulation runs which were conducted using VISSIM version 7.0; the Measures of Effectiveness (MOEs) that were assessed from the simulation analysis include the following:

- Intersection Node Evaluation: Volume, delay, and max queue length for the study area intersections.
- Link Evaluation Segments: Volume, Speed, and Density information for General Use Lanes and access points within the study area. Temporal and spatial speed profiles for segment evaluation.
- Network-wide Output: Total travel time, total delay time, latent volume and latent delay.

The results of the operational analyses for I-4 Segment 5 are summarized in Table 2.3 and Table 2.4. The link evaluation results from the VISSIM microsimulation show that all of the freeway segments within I-4 Segment 5 are operating with average speeds greater than 60 mph under existing conditions. The node evaluation results, which represent an estimated Level of Service (LOS) based on the Highway Capacity Manual (HCM), indicate that all intersections within I-4 Segment 5 are operating at LOS D or better. Detailed outputs from the software programs are provided in the supplemental report, *I-4 Beyond the Ultimate Systems Access Modification Report Re-evaluation, South Section - from West of US 27 to West of SR 435 (Kirkman Road) (March 2017)*.

Table 2.3 – I-4 Existing (2011) Summary of Link Evaluation Segments

Location	Average Speed (mph)	
	AM Peak Hour	PM Peak Hour
I-4 Segment 5 Eastbound		
I-4 EB South of US 27	68.8	67.0
I-4 EB near US 27 diverge	68.9	67.1
I-4 EB near US 27 merge	69.2	67.7
I-4 EB North of US 27	68.0	67.1
I-4 EB South of Ronald Reagan Pkwy	67.6	66.6
I-4 EB North of Ronald Reagan Pkwy	67.6	66.7

Table 2.3 – I-4 Existing (2011) Summary of Link Evaluation Segments

Location	Average Speed (mph)	
	AM Peak Hour	PM Peak Hour
I-4 Segment 5 Westbound		
I-4 WB South of US 27	68.0	68.3
I-4 WB near US 27 diverge	68.1	68.3
I-4 WB near US 27 merge	67.1	65.5
I-4 WB North of US 27	67.2	66.6
I-4 EB South of Ronald Reagan Pkwy	67.4	66.8
I-4 EB North of Ronald Reagan Pkwy	67.4	66.5

Table 2.4 – Existing (2011) Intersection Operational Analysis

Primary Road	Secondary Road	Existing AM		Existing PM	
		Delay (sec)	LOS	Delay (sec)	LOS
US 27	Deen Still Rd	23.5	C	25.9	C
	Dunson Road	8.3	A	9.8	A
	WB Ramps	21.0	C	28.0	C
	EB Ramps	22.3	C	21.6	C
	Posner Blvd	17.1	B	43.3	D

2.10 Lighting

Existing lighting consists of high mast lighting poles in the area surrounding the US 27 interchange. The remainder of the I-4 Segment 5 mainline does not have existing lighting.

2.11 Railroad

There are no at grade or grade separated rail/highway crossings within the project limits. The existing median throughout Segment 5 is wide enough to support a 44' future rail corridor.

2.12 Pavement Conditions

Pavement condition surveys for the I-4 PD&E study area are conducted annually by FDOT and are rated on a scale of zero to 10, with a rating of six or less considered critical. The pavement surface and base conditions on I-4 throughout the study area were rated as “fair” to “good” based on pavement survey ratings between 6.5 and 8.0. Table 2.5 provides the existing pavement condition ratings for 2013 and forecasted 2018 ratings for I-4 Segment 5.

Table 2.5 - Pavement Conditions I-4 Segment 5

Begin MP	End MP	County	Side	Crack Rating	Ride Rating	Rut Rating	Crack Rating	Ride Rating	Rut Rating
----------	--------	--------	------	--------------	-------------	------------	--------------	-------------	------------

				2013	2013	2013	2018	2018	2018
23.130	32.022	Polk	R	10.0	9.1	9.0	NA	NA	NA
22.600	32.022	Polk	C	7.0	7.2	NA	4.0	6.9	NA
21.978	32.022	Polk	C	6.5	7.6	NA	3.5	7.3	NA
23.070	32.022	Polk	L	9.5	9.1	9.4	NA	NA	NA

Source: Florida Department of Transportation, *All System Pavement Condition Forecast (2014 Ratings)*

2.13 Drainage and Hydrology

Existing drainage characteristics in the study area were determined by reviewing FDOT construction plans, the Straight Line Diagrams of Road Inventory, Southwest Florida Water Management District (SWFWMD) drainage and permitting files, United States Geological Survey (USGS) Quadrangle Maps, Geographic Information System (GIS) maps and Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM). Field reviews were also conducted along the corridor. The study area lies within the jurisdiction of SWFWMD.

2.13.1 Existing Drainage Patterns

The project is separated into nine (9) basins in the existing condition, all of which are open except two. Most of the basins consist of the pond sites and the full roadway right-of-way. The elevation difference between NGVD 29 and NAVD 88 varies along the project and ranges from 0.80 feet to 0.90 feet, with NGVD 29 higher in elevation than NAVD 88. The project lies within two (2) primary basins: Ocklawaha River Basin and Kissimmee River Basin. This section consists of dry retention and wet detention ponds.

This section of I-4 includes an interchange with SR 25/US 27 and an overpass at CR 54. The stormwater runoff, from the beginning of the project to west of the SR 25/US 27 interchange, is treated with wet detention ponds and eventually discharges to the Ocklawaha River Basin. The basin located in the north section of the interchange is treated with dry retention ponds and retains the runoff from the 100-year/24-hour storm event; therefore, this basin is considered a closed basin. The basins located east of the SR 25/US 27 interchange are designed as wet detention ponds and discharge to the Kissimmee River drainage basin. Typically, as I-4 was expanded beyond its original four lanes, water quality treatment was provided for the existing impervious area. There are portions of existing I-4 that currently receive no water quality treatment. Additional information on existing drainage patterns is presented in the supplemental report prepared for this project, *Pond Siting Report - Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (November 2016)*.

2.13.2 Cross Drains

There are four (4) existing cross drains (CD) within the study area; Table 2.6 depicts the existing cross drain data obtained from the Straight Line Diagram of Road Inventory pertinent to the project study area, as well as from existing permits and original construction plans. In the case where original construction plans were not found, cross drain invert elevations were obtained from existing permits and the original PD&E study. Some of the existing construction plans were in 1929 NGVD datum. A conversion of (-) 0.85 feet was used to convert to the NAVD datum. During the design phase, survey and field verification will be necessary to determine the actual pipe lengths and culvert flow lines.

Table 2.6 – Existing Cross Drains

CD No.	Station	Description from Original Construction Plans						
		Count	Span (in)	Rise (in)	Type	Length (ft)	Invert Elevation (ft NAVD)	
							Upstream	Downstream
CD-1	400+25	2	30	30	RCP	337	126.97	126.20
CD-2	431+19	1	30	30	RCP	212	125.30	125.00
CD-3	537+10	1	30	30	RCP	295	117.66	116.24
CD-4	572+15	2	42	42	RCP	293	113.50	113.20

Abbreviations: RCP – Reinforced Concrete Pipe

2.14 Existing Bridges

Within Segment 5 of the I-4 study corridor, there are three existing bridge structures which cross I-4. The existing bridges are listed in Table 2.7 and depicted in Figure 2.11. Table 2.7 summarizes the span lengths, deck widths, shoulder/lane widths and superstructure types.

Table 2.7 - Existing Bridge Structures

Facility	Bridge No.	No. of Spans	Bridge Length (ft)	Maximum Span Length (ft)	Deck Width (ft)	Lane/Shoulder Widths (ft)	Super-structure Type
US-27 (SR-25) over I-4 (SR-400)	160320	3	340.7	141	130	(2) 4' outside bike lanes, 6 lanes @ 12', 27' raised median, (2) 6' sidewalks, (2) 1'-6" outside shoulders, (2) 1'-6" inside shoulders	AASHTO Concrete Beam

Table 2.7 - Existing Bridge Structures

Facility	Bridge No.	No. of Spans	Bridge Length (ft)	Maximum Span Length (ft)	Deck Width (ft)	Lane/ Shoulder Widths (ft)	Super-structure Type
CR-54 NB Ronald Reagan Pkwy. over I-4	160331	2	335.5	167.75	47.1	2 lanes @ 11', 5'-8" inside shoulder, 4'-10" outside shoulder, 4' bike lane, 6' sidewalk	Steel Plate Girder
CR-54 SB Ronald Reagan Pkwy. over I-4	160332	2	335.5	167.75	40.8	2 lanes @ 11', 2'-6" inside shoulder, 2'-6" outside shoulder, 4' bike lane, 6' sidewalk	Steel Plate Girder

2.14.1 Type of Structure

The three existing bridge structures are overpass bridges which carry local roadways over I-4. The superstructures for the bridges over I-4 consist of a cast-in-place concrete deck carried by AASHTO prestressed precast concrete girders, steel plate girders, or steel box girders.

2.14.2 Current Conditions and Year of Construction

Table 2.8 provides a description of the existing bridges within the I-4 study corridor. This information was obtained from existing plans and the most recent bridge inspection reports. The sufficiency rating is derived from a formula that evaluates factors that are indicative of the structure's ability to remain in service. A rating of 100 percent represents an entirely sufficient bridge and a rating of zero percent represents an entirely deficient bridge.

Table 2.8 also includes data on the year of original construction and when the bridges were widened or replaced. This data was obtained from the most recent bridge inspection reports or approximated from the dates of the existing plans. All of the bridges in this section were constructed between 2004 and 2009.

None of the bridges crossing over I-4 is classified as "functionally obsolete" or "structurally deficient." As of 2008, a rating below 80 would require funding for repairs. Even though all of the bridges have a structural sufficiency rating above 80, consideration should be given to the need for future repairs for bridges 160320 and 160332 due to their sufficiency ratings of 83.6 and 83.7, respectively.



Figure 2.11 – Existing Bridge Locations

Table 2.8 - Current Structure Condition and Year of Construction

Facility	Bridge No.	Sufficiency Rating	Overall NBI Rating ^[1]				Year Built ^[2]	Year Replaced/Widened ^[2]
			Deck	Superstr.	Substr.	Channel		
US-27 (SR-25) over I-4 (SR-400)	160320	83.6	7	8	8	N/A	2004	N/A
CR-54 NB Ronald Reagan Pkwy. over I-4	160331	96.3	8	8	8	N/A	2004	2009
CR-54 SB Ronald Reagan Pkwy. over I-4	160332	83.7	8	8	8	N/A	2009	N/A

^[1] National Bridge Inventory (NBI) Rating: 9- Excellent; 8- Very Good; 7- Good; 6- Satisfactory; 5 – Fair
^[2] Construction and widening years obtained from Bridge Inspection Reports or Plans.

2.14.3 Horizontal and Vertical Alignments of Structures

Table 2.9 presents the pier locations and horizontal clearances for each of the bridges. Table 2.10 summarizes the vertical curve data at each location. Table 2.11 provides the vertical clearance information at each structure. Existing vertical clearances less than 16.5 feet are undesirable over the Interstate.

Table 2.9 - Horizontal Clearances at Bridges

Facility	Bridge No.	Horizontal Clearance to Substructure
US-27 (SR-25) over I-4 (SR-400)	160320	10' clear to Pier 2 & 3, EB 1 & 4
CR-54 NB Ronald Reagan Pkwy. over I-4	160331	29'-10" clear to Pier 2 and 84'-2" clear to End Bent 1, 85'-1" clear to End Bent 3
CR-54 SB Ronald Reagan Pkwy. over I-4	160332	29'-10" clear to Pier 2 and 84'-2" clear to End Bent 1, 85'-1" clear to End Bent 3

Table 2.10 - Vertical Curve Data at Bridges

Facility	Bridge No.	Vertical Curve Length (ft)	Vertical Curve Grade In/Grade Out
US-27 (SR-25) over I-4 (SR-400)	160320	525'	+0.689%/-3.355%
CR-54 NB Ronald Reagan Pkwy. over I-4	160331	500'	+1.046%/-3.00%
CR-54 SB Ronald Reagan Pkwy. over I-4	160332	500'	+1.046%/-3.00%

Table 2.11 - Vertical Clearances at Bridges

Location	Bridge No.	Vertical Clearance (ft)
US-27 (SR-25) over I-4 (SR-400)	160320	16.6
CR-54 NB Ronald Reagan Pkwy. over I-4	160331	16.5
CR-54 SB Ronald Reagan Pkwy. over I-4	160332	16.5

2.14.4 Span Arrangement

The existing span arrangement (number and length of spans) of the bridges within the project limits were listed in Table 2.7.

2.14.5 Historical Significance

Existing bridges in Segment 5 of the I-4 study corridor carry no historical significance. Thus, this section is not applicable to this project.

2.14.6 Channel Dimensions

I-4 does not cross any navigable channels within the Segment 5 project limits. Thus, this section is not applicable to this project.

2.14.7 Bridge Openings

Since the I-4 widening project does not involve any moveable bridges that fall within the study limits, this section is not applicable to this project.

2.14.8 Ship Impact Data

I-4 does not cross any navigable channels within the project limits. Thus, this section is not applicable to this project.

2.15 Crash Data

The five-year crash data between 2008 and 2012 was analyzed for the I-4 segment between west of SR 25/US 27 and CR 532 (Polk/Osceola County Line) in Polk County. The crash data was downloaded from the FDOT Crash Analysis Reporting System (CARS) system and includes data for the I-4 mainline as well as the ramps.

The five-year crash data analysis showed that there were 327 crashes within this approximate 4-mile segment of I-4 during the study period analyzed. Out of these 327 crashes, there were three fatal crashes, 149 injury crashes and 175 property damage only crashes. Figure 2.12 shows the crash distribution by severity along the I-4 Segment 5 mainline within Polk County. Table 2.12 provides a summary of crashes by severity within the study area.

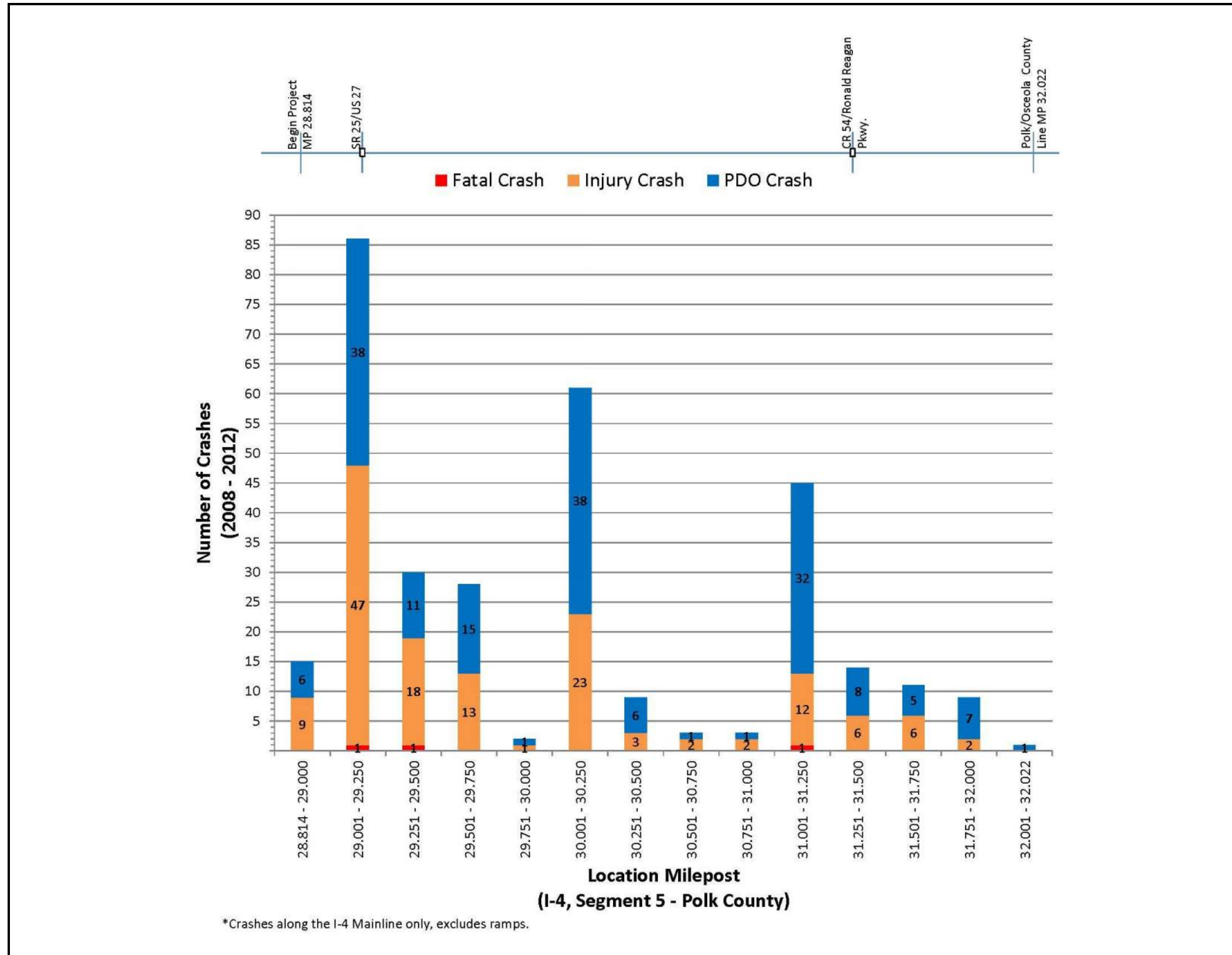


Figure 2.12 - Crash Distribution along I-4 Segment 5 Corridor (Polk County)

Table 2.12 – I-4 Segment 5 Crash Severity Summary

Crash Severity	2008	2009	2010	2011	2012	Total
Fatal	0	1	0	0	2	3
Injury	32	34	20	26	37	149
Property Damage Only	45	27	43	16	44	175
Total	77	62	63	42	83	327

During the five-year study period, of the crashes that were classified as specific crash events, the highest were rear end collisions (77 crashes, 24%), angle collisions (39 crashes, 12%) and collisions that resulted in overturned vehicles (36 crashes, 11%). The highest numbers of contributing causes were careless driving (171 crashes, 52%) and improper lane change (35 crashes, 11%). Table 2.13 provides a summary of the types of crashes within the study area and provides a summary of contributing causes.

Table 2.13 – I-4 Segment 5 Crash Event Summary

Harmful Event	2008	2009	2010	2011	2012	Total
All Other	4	4	5	2	11	26
Angle	14	5	6	4	10	39
Backed Into	2	-	-	-	-	2
Cargo Loss or Shift	1	-	-	-	1	2
Collision with Motor Vehicle on Road	-	-	1	5	6	12
Head-On	-	-	1	-	-	1
Hit Concrete Barrier Wall	-	1	2	-	1	4
Hit Fence	1	3	2	-	1	7
Hit Guardrail	5	6	4	2	12	29
Hit Sign/Sign Post	-	2	2	1	1	6
Hit Utility Pole	-	-	-	-	1	1
Moveable Object	3	3	2	1	1	10
Other Fixed Object	-	1	1	-	2	4
Overturned	5	14	8	3	6	36
Parked Car	1	-	1	-	1	3
Ran into Ditch/Culvert	8	6	3	2	1	20
Rear End	20	11	10	13	23	77
Sideswipe	9	5	13	-	-	27
Unknown/Not Coded	4	1	2	-	-	7
#N/A	-	-	-	9	5	14
Total	77	62	63	42	83	327

Table 2.14 - I-4 Segment 5 Crash Contributing Cause Summary

Contributing Cause	2008	2009	2010	2011	2012	Total
Alcohol-Under Influence	1	-	-	-	-	1
All Other	3	5	6	10	19	43
Careless Driving	42	40	28	19	42	171
Disregarded Other Traffic Control	1	-	-	-	-	1
Driving Wrong Side/Way	1	-	-	-	-	1
Exceeded Safe Speed Limit	1	2	2	-	1	6
Exceeded Stated Safe Speed Limit	-	-	-	-	1	1
Failed to Maintain Equipment	2	2	2	-	-	6
Failed to Yield Right-of-way	1	-	1	-	2	4
Followed Too Closely	1	-	-	-	1	2
Improper Backing	2	-	-	-	-	2
Improper Lane Change	12	7	16	-	-	35
Improper Load	-	-	1	-	-	1
Improper Passing	1	-	-	-	-	1
No Improper Driving	9	6	5	4	12	36
Obstructing Traffic	-	-	1	-	-	1
Unknown/Not Coded	-	-	1	-	-	1
#N/A	-	-	-	9	5	14
Total	77	62	63	42	83	327

Rear end collisions represent nearly 24% of the total crashes occurring along the I-4 Segment 5 study corridor for the five-year period analyzed. Over 53% (41 crashes) of the rear end collisions occurred during “clear” weather conditions, nearly 65% (50 crashes) occurred on dry roadway surface and approximately 69% (53 crashes) occurred during daylight lighting conditions. The data indicates that the high occurrence of rear end collisions may be due to peak periods of heavy congestion along the corridor.

As part of the crash data analysis, the FDOT District 1 High Crash Roadway Segments list was reviewed. Within I-4 Segment 5, the sections identified as high crash segments are shown in Table 2.15. The actual crash rates on these segments were greater than the average district wide crash rate for rural interstate facility type. The segments of I-4 in Polk County between MP 29.140 and MP 29.340 (immediately east and west of SR 25/US 27) and between MP 31.140 and 31.340 (just west of the CR 54/Ronald Reagan Parkway overpass) appear on the list for four of the five years of data analyzed. The segment between MP 30.140 and MP 30.240 (approximately 0.8 miles east of US 27) appears on the list for each of the five years of data analyzed.

Table 2.15 - I-4 Segment 5 High Crash Segment Summary

Year	County	Begin MP	End MP	Total # Crashes	ADT	Crash Rate	Average District Wide Crash Rate (Urban Interstate)
2008	Polk	29.040	29.340	9	88,562	0.928	0.304
	Polk	29.540	29.840	9	99,999	0.821	
	Polk	30.040	30.440	19	100,000	1.301	
	Polk	31.040	31.340	9	100,000	0.821	
2009	Polk	29.140	29.440	8	91,897	0.795	0.387
	Polk	30.040	30.440	11	95,500	0.788	
	Polk	31.140	31.440	9	95,500	0.860	
2010	Polk	29.040	29.340	9	87,796	0.936	0.325
	Polk	30.140	30.440	12	99,000	1.106	
	Polk	31.040	31.340	11	99,000	1.014	
2011	Polk	30.040	30.240	8	95,500	1.147	0.305
2012	Polk	29.140	29.640	22	100,960	1.194	0.325
	Polk	30.040	30.440	16	103,000	1.063	
	Polk	31.040	31.340	10	103,000	0.886	

2.16 Utilities

The utilities located within the ROW were identified through the use of existing plans and by sending plans to all of the utility companies identified via the Sunshine State One call system. Table 2.16 provides a list of the utility companies and contact information. Table 2.17 provides approximate locations of the major utilities that are within the project corridor. The easements by utility type and owner are shown in the Concept Plans (Appendix A).

Table 2.16 – Utility Contact Information

Utility	Contact Name	Address	Phone	E-Mail
BrightHouse Networks	Tom Sansing	1004 US Hwy 92 West Auburndale, FL 33826	(863) 288-2340 EXT. 84264	Tom.Sansing@mybighthouse.com
Central Florida Gas Company	Roger Freeze	1705 7 th St. SW Winter Haven, FL 33880	(863) 292-2937	rfreeze@fpuc.com

Table 2.16 – Utility Contact Information

Utility	Contact Name	Address	Phone	E-Mail
Comcast Communications	Cesar Rivera	4305 Vineland Rd. Suite G-2 Orlando, FL 32811	(407) 849-3611	cesar_rivera@cable.comcast.com
Duke Energy-Distribution	Sharon Dear	3300 Exchange Place NP4A Lake Mary, FL 32746	(407) 942-9421	sharon.dear@duke-energy.com
Duke Energy-Transmission	Jennifer Williams	20525 Amberfield Dr. Suite 201 Land O'Lakes, FL 34638	(813) 909-1210	jewilliams@ucseng.com
Level 3 Communications	Richard Simonton	380 South Lake Destiny Dr. Orlando, FL 32810	(407) 754-0106	richard.simonton@level3.com
Polk County Utilities Division	Eric Phillips	1011 Jim Keene Blvd. Winter Haven, FL 33880	(863) 298-4171	ericphillips@polk-county.net
TOHO Water Authority	Robert Pelham	4305 Vineland Rd. Suite G-2 Orlando, FL 32811	(407) 944-5132	rpelhan@tohowater.com
Verizon	Fred Valdes	120 E. Lime Street Lakeland, FL 33801	(863) 688-9714	Fred.n.Valdes@verizon.com

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Communications	BrightHouse Networks	Underground CATV	From end of project on US 27 west to intersection of Heller Brother Blvd & US 27	South side of road
Communications	BrightHouse Networks	Underground CATV	Crossing at intersection of Heller Brothers Blvd & US 27	West side of intersection

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Communications	BrightHouse Networks	Underground CATV	From 1070-ft east of intersection of I-4 westbound ramp to US 27 & US 27 west to intersection of Dunson Rd & US 27	South side of road
Communications	BrightHouse Networks	Underground CATV	Crossing at intersection of Dunson Rd & US 27	East side of intersection
Communications	BrightHouse Networks	Underground CATV	From 220-ft west to 580-ft east of intersection of I-4 westbound ramp to US 27 & US 27	South side of road
Communications	BrightHouse Networks	Aerial CATV	From intersection of Heller Brothers Blvd & US 27 west to 1070-ft east of intersection of I-4 westbound ramp to US 27 & US 27	South side of road
Communications	BrightHouse Networks	Aerial CATV	From intersection of Dunson Rd & US 27 west to end of US 27	South side of road
Communications	Comcast Communications	Aerial Coaxial and Fiber Optic Cable	Crossing of I-4 Corridor, 100-ft east of CR 54, I-4 overpass	N/A
Communications	Level 3 Communication	1.9" Underground Fiber Optic	Crossing of I-4 Corridor, at US 27, I-4 overpass	East side of overpass
Communications	Verizon	Underground Fiber Optic	From end of US 27 west to intersection of Frontage Rd & US 27	North side of road
Communications	Verizon	Underground Fiber Optic	From end of US 27 west to intersection of Frontage Rd & US 27	South side of road
Communications	Verizon	Underground Fiber Optic	From 190-ft to 640-ft west of intersection of Frontage Rd & US 27 on US 27	South side of road

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Communications	Verizon	Underground Fiber Optic	From 190-ft to 450-ft west of intersection of Frontage Rd & US 27 on US 27	North side of road
Communications	Verizon	Underground Fiber Optic	Crossing of US 27, 440-ft west of intersection of Frontage Rd & US 27	N/A
Communications	Verizon	Underground Fiber Optic	Crossing at intersection of Frontage Rd & US 27	East side of intersection
Communications	Verizon	Underground Fiber Optic	Crossing at intersection of Heller Brothers Blvd & US 27	West side of intersection
Communications	Verizon	Underground Fiber Optic	Two crossings of US 27, 1340-ft east of intersection of Frontage Rd & US 27	N/A
Communications	Verizon	Underground Fiber Optic	From 940-ft east of intersection of I-4 westbound ramp to US 27 west to 1190-ft east of intersection of Dunson Rd & US 27	North side of road
Communications	Verizon	Underground Fiber Optic	From 620-ft east to 300-ft east of intersection of I-4 westbound ramp to US 27 & US 27	North side of road
Communications	Verizon	Underground Fiber Optic	Crossing of US 27, 550-ft west of intersection of I-4 westbound ramp to US 27 & US 27	N/A
Communications	Verizon	Underground Fiber Optic	From 550-ft west of intersection of I-4 westbound ramp to US 27 & US 27 west to end of US 27	South side of road

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Communications	Verizon	Underground Fiber Optic	From 230-ft west to 1008-ft west of intersection of I-4 westbound ramp to US 27 & US 27	South side of road
Communications	Verizon	Underground Fiber Optic	Crossing at intersection of Richie Rd & US 27	East side of intersection
Communications	Verizon	Underground Fiber Optic	Crossing at intersection of Richie Rd & US 27	North side of intersection
Communications	Verizon	Underground Fiber Optic	Crossing of US 27, 150-ft east of intersection of Dunson Rd & US 27	N/A
Communications	Verizon	Underground Fiber Optic	Crossing of US 27, 150-ft east of intersection of Dunson Rd & US 27	North side of intersection
Communications	Verizon	Underground Fiber Optic	From 2800-ft to 1100-ft west of US 27, I-4 overpass on I-4 Corridor	East side of road
Communications	Verizon	Underground Fiber Optic	Crossing of I-4 Corridor, 1740-ft west of US 27, I-4 overpass	N/A
Communications	Verizon	Underground Fiber Optic	Two crossings of I-4 Corridor at CR 54, I-4 overpass	West side of overpass
Communications	Verizon	Underground Fiber Optic	Crossing of I-4 Corridor at CR 54, I-4 overpass	East side of overpass
Electric	Duke Energy Distribution	13 KV Aerial Electric	From end of US 27 west to 150-ft east of Ernie Caldwell Blvd, US 27 overpass	South of road
Electric	Duke Energy Distribution	13 KV Aerial Electric	Crossing of US 27, 1090-ft west of intersection of Heller Brothers Blvd & US 27	N/A

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Electric	Duke Energy Distribution	13 KV Aerial Electric	From 800-ft west to 1600-ft west of intersection of Heller Brothers Blvd & US 27	North side of road
Electric	Duke Energy Distribution	13 KV Aerial Electric	From 90-ft west of Ernie Caldwell Blvd, US 27 overpass west to end of US 27	South side of road
Electric	Duke Energy Distribution	13 KV Aerial Electric	Crossing of US 27, 720-ft east of intersection of Richie Rd & US 27	N/A
Electric	Duke Energy Distribution	13 KV Aerial Electric	From 230-ft to 700-ft west of intersection of I-4 westbound ramp to US 27 & US 27	South side of road
Electric	Duke Energy Distribution	13 KV Aerial Electric	From 940-ft east of intersection of I-4 westbound ramp to US 27 west to end of US 27	North side of road
Electric	Duke Energy Distribution	13 KV Aerial Electric	Crossing of US 27, 750-ft west of intersection of Richie Rd & US 27	N/A
Electric	Duke Energy Distribution	13 KV Aerial Electric	Crossing at intersection of Dunson Rd & US 27	East side of intersection
Electric	Duke Energy Distribution	13 KV Aerial Electric	From 2900-ft to 1010-ft west of US 27, I-4 Overpass	East side of road
Electric	Duke Energy Distribution	13 KV Aerial Electric	Crossing of I-4 Corridor, 100-ft east of CR 54, I-4 overpass	N/A
Electric	Duke Energy Distribution	120 V Aerial Electric	Crossing of US 27 1060-ft west of intersection Dunson Rd & US 27	N/A

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Electric	Duke Energy Distribution	13 KV Underground Electric	Crossing at intersection of Heller Brothers Blvd & US 27	West side of intersection
Electric	Duke Energy Distribution	13 KV Underground Electric	From 120-ft to 930-ft west of intersection of Richie Rd & US 27	South side of road
Electric	Duke Energy Distribution	13 KV Underground Electric	From 2100-ft east to 3300-ft east of US 27, I-4 overpass	East side of road
Electric	Duke Energy Distribution	7.2 KV Underground Electric	Crossing at Ernie Caldwell Blvd, US 27 overpass	South side of road
Electric	Duke Energy Distribution	120 V Underground Electric	Crossing of US 27 at Ernie Caldwell Blvd, US 27 overpass	West side of overpass
Electric	Duke Energy Distribution	120 V Underground Electric	Crossing of US 27 at Ernie Caldwell Blvd, US 27 overpass	East side of overpass
Electric	Duke Energy Distribution	120 V Underground Electric	Crossing at Ernie Caldwell Blvd, US 27 overpass	North side of road
Electric	Duke Energy Distribution	120 V Underground Electric	Crossing of I-4 Corridor, at CR 54, I-4 overpass	East side of overpass, Cast into CR 54 eastbound bridge
Electric	Duke Energy Distribution	120 V Underground Electric	Crossing of I-4 Corridor, at CR 54, I-4 overpass	West side of overpass, Cast into CR 54 eastbound bridge
Electric	Duke Energy Transmission	69 KV Aerial Electric	Crossing of I-4 Corridor, 100-ft east of CR 54, I-4 overpass	N/A
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Westbound side of I-4 from beginning of segment limits on I-4 to end of segment limits on I-4	West side of the road

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Crossing of the westbound I-4 lanes, 2770-ft west of US 27, I-4 overpass	N/A
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two lines on US 27 from the west side of the beginning of the US 27, I-4 overpass west for 340-ft on US 27	South side of road
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two Crossings of the westbound I-4 lanes, 320-ft west of US 27, I-4 overpass	N/A
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two Crossings of the westbound I-4 lanes, 2660-ft east of US 27, I-4 overpass	N/A
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two Crossings of the westbound I-4 lanes, 3560-ft west of the CR 54, I-4 overpass	N/A
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two Crossings of the westbound I-4 lanes, 1460-ft west of the CR 54, I-4 overpass	N/A
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two Crossings of the westbound I-4 lanes, 170-ft east of the CR 54, I-4 overpass	N/A
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Line on CR 54 from the west side of the beginning of the CR 54, I-4 overpass west on CR 54 for 330-ft	North side of road

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Natural Gas	Central Florida Gas	4" Natural Gas Main	From intersection of Frontage Rd & US 27 west on US 27 to 510-ft east of intersection of I-4 westbound ramp to US 27 & US 27	South side of road
Natural Gas	Central Florida Gas	4" Natural Gas Main	Crossing of I-4 Corridor, 140-ft east of CR 54, US 27 overpass	N/A
Sanitary/ Wastewater	Polk County Utilities	16" Force Main	From end of US 27 west to intersection of Home Run Blvd & US 27	South side of road
Sanitary/ Wastewater	Polk County Utilities	30" Force Main	Crossing at intersection of Home Run Blvd & US 27	South side of intersection
Sanitary/ Wastewater	Polk County Utilities	8" Force Main	Crossing at intersection of Heller Brothers Blvd & US 27	West side of intersection
Sanitary/ Wastewater	Polk County Utilities	6" Force Main	From end of US 27 west to intersection of Heller Brothers Blvd & US 27	North side of road
Sanitary/ Wastewater	Polk County Utilities	6" Force Main	Crossing at intersection of Dunson Rd & US 27	East side of intersection
Sanitary/ Wastewater	Polk County Utilities	4" Force Main	Crossing at intersection of Adventure Ct & US 27	South side of intersection
Sanitary/ Wastewater	Polk County Utilities	12" Force Main	Crossing of US 27, 980-ft west of intersection of Heller Brothers Blvd & US 27	N/A
Sanitary/ Wastewater	Polk County Utilities	20" Force Main	Crossing of US 27, 140-ft east of intersection of Home Run Blvd & US 27	N/A

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Sanitary/ Wastewater	Polk County Utilities	20" Force Main	Crossing of US 27, 140-ft east of intersection of Home Run Blvd & US 27	North side of road
Sanitary/ Wastewater	Polk County Utilities	36" Force Main	Crossing at intersection of Home Run Blvd & US 27	East side of intersection
Sanitary/ Wastewater	Polk County Utilities	36" Force Main	Crossing of US 27, 560-ft west of intersection of I-4 westbound ramp to US 27 & US 27	N/A
Sanitary/ Wastewater	Polk County Utilities	36" Force Main	From 560-ft west of intersection of I-4 westbound ramp to US 27 & US 27 west to intersection of Richie Rd & US 27	North side of road
Sanitary/ Wastewater	Polk County Utilities	36" Sanitary Main	From 270-ft west to 870-ft west of intersection of I-4 westbound ramp to US & US 27	South side of road
Sanitary/ Wastewater	Polk County Utilities	24" Force Main	From intersection of Richie Rd & US 27 west to 190-ft east of intersection of Dunson Rd & US 27	North side of road
Sanitary/ Wastewater	Polk County Utilities	24" Force Main	Crossing of US 27, 210-ft east of intersection of Dunson Rd & US 27	N/A
Sanitary/ Wastewater	Polk County Utilities	24" Force Main	From 210-ft east of intersection of Dunson Rd & US 27 west to end of US 27	South side of road
Sanitary/ Wastewater	Polk County Utilities	24" Force Main	Crossing of I-4 Corridor, 3110-ft west of US 27, I-4 overpass	N/A

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Sanitary/ Wastewater	Polk County Utilities	24" Force Main	Crossing of I-4 Corridor, 4430-ft east of US 27, I-4 overpass	N/A
Sanitary/ Wastewater	Polk County Utilities	24" Force Main	Crossing of I-4 Corridor, 180-ft west of CR 54, I-4 overpass	N/A
Sanitary/ Wastewater	Polk County Utilities	24 Raw Wastewater Main	Crossing at intersection of Dunson Rd & US 27	West side of intersection
Sanitary/ Wastewater	Polk County Utilities	18" Sanitary Main	From 570-ft east of intersection of Richie Rd & US 27 west to 600-ft east of intersection of Dunson Rd & US 27	South side of road
Sanitary/ Wastewater	Polk County Utilities	12" Sanitary Main	From 600-ft east of intersection of Dunson Rd & US 27 west to end of US 27	South side of road
Sanitary/ Wastewater	Polk County Utilities	20" Raw Wastewater Main	From intersection of Dunson Rd & US 27 west to end of US 27	North side of road
Water	Polk County Utilities	24" Reclaim Water Main	Crossing of US 27, 140-ft east of intersection of Home Run Blvd & US 27	N/A
Water	Polk County Utilities	24" Reclaim Water Main	Crossing of US 27, 590-ft west of intersection of I-4 westbound ramp to US 27 & US 27	N/A
Water	Polk County Utilities	24" Reclaim Water Main	From 590-ft west of intersection of I-4 westbound ramp to US 27 & US 27 west to 180-ft east of intersection of Dunson Rd & US 27	North side of road

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Water	Polk County Utilities	24" Reclaim Water Main	Crossing of US 27 180-ft east of intersection of Dunson Rd & US 27	N/A
Water	Polk County Utilities	24" Reclaim Water Main	From 180-ft east of intersection of Dunson Rd & US 27 west to end of US 27	South side of road
Water	Polk County Utilities	24" Reclaim Water Main	Crossing of I-4 Corridor, 3110-ft west of US 27, I-4 overpass	N/A
Water	Polk County Utilities	24" Reclaim Water Main	Crossing of I-4 Corridor, 200-ft west of CR 54, I-4 overpass	N/A
Water	Polk County Utilities	16" Reclaim Water Main	From end of US 27 west to intersection of Home Run Blvd & US 27	South side of road
Water	Polk County Utilities	8" Reclaim Water Main	From 230-ft west of intersection of Heller Brothers Blvd & US 27	South side of road
Water	Polk County Utilities	8" Reclaim Water Main	From 70-ft west of intersection of Adventure Ct & US 27	South side of road
Water	Polk County Utilities	30" Water Main	Crossing of I-4 Corridor, 160-ft west of CR 54, I-4 Overpass	N/A
Water	Polk County Utilities	24" Water Main	Crossing of US 27, 240-ft east of intersection of Dunson Rd & US 27	N/A
Water	Polk County Utilities	24" Water Main	Crossing of US 27, 140-ft west of intersection of Dunson Rd & US 27	N/A
Water	Polk County Utilities	24" Water Main	From 270-ft east of intersection of Dunson Rd & US 27 west to end of US 27	South side of road

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Water	Polk County Utilities	20" Water Main	Crossing of US 27, 610-ft west of intersection of I-4 westbound ramp to US 2 & US 27	N/A
Water	Polk County Utilities	20" Water Main	From 610-ft west of intersection of I-4 westbound ramp to US 27 & US 27 west to 240-ft east of intersection of Dunson Rd. & US 27	North side of road
Water	Polk County Utilities	20" Water Main	Crossing of I-4 Corridor, 3110-ft west of US 27, I-4 overpass	N/A
Water	Polk County Utilities	20" Water Main	Crossing of I-4 Corridor, 4430-ft east of US 27, I-4 overpass	N/A
Water	Polk County Utilities	16" Water Main	Crossing of US 27, 160-ft west of intersection of Home Run Blvd & US 27	N/A
Water	Polk County Utilities	14" Water Main	Crossing of US 27, at intersection of Heller Brothers Blvd & US 27	West side of intersection
Water	Polk County Utilities	12" Water Main	From 750-ft west of intersection of Richie Rd. & US 27 west to end of US 27	South side of road
Water	Polk County Utilities	12" Water Main	Crossing of US 27, 140-ft east of intersection of Dunson Rd & US 27	N/A
Water	Polk County Utilities	8" Water Main	From intersection of Adventure Ct & US 27 west to 440-ft west of intersection of Frontage Rd & US 27	South side of road

Table 2.17 – Major Utilities within I-4 Segment 5 Corridor

Type of Utility	Owner of Utility	Type of Facility	Limits	Offset/ Side
Water	Polk County Utilities	8" Water Main	Crossing of US 27, 710-ft west of intersection of Home Run Blvd & US 27	N/A
Water	Polk County Utilities	8" Water Main	From 780-ft to 700-ft west of intersection of I-4 westbound ramp to US 27 & US 27	North side of road
Water	Polk County Utilities	8" Water Main	From 280-ft west of intersection of I-4 westbound ramp to US 27 & US 27 west to 230-ft east of intersection Richie Rd & US 27	South side of road
Water	Polk County Utilities	8" Water Main	Crossing of south side of US 27, 750-ft east of intersection of Dunson Rd & US 27	N/A
Water	Polk County Utilities	6" Water Main	From 160-ft west of intersection of Home Run Blvd & US 27	South side of road
Water	Polk County Utilities	Water Main of various sizes	From end of US 27 west to 700-ft west of intersection of Posner Blvd & US 27	North side of road
Water	Polk County Utilities	2" Water Main	Crossing of south side of US 27, 100-ft east of end of US 27	N/A

2.17 Soils

A preliminary geotechnical review was conducted to assist in the evaluation of stormwater management system in the project corridor study area. Soils data from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and the United States Geological Society (USGS) Quadrangle Map was reviewed within the limits of the proposed improvements in Polk County to determine soil and groundwater conditions along the I-4 Segment 5 corridor. The predominant types of soils found in the study area and their corresponding properties are summarized in Table 2.18; the corresponding soils map is illustrated in Figure 2.13. Soil boring information,

permeability test results and detailed soil survey information can be found in the *Report of Preliminary Geotechnical Engineering Investigation for Ponds – Segment 5 (March 2016)* completed for this project.

Table 2.18 – Soil Types

Soil Name	Depth (in)	Soil Description	Soil Classification (AASHTO)	Seasonal High Ground-water Depth (ft)	Hydrologic Group
Candler sand, 0 to 5 percent slopes	0 - 63 63 - 80	Sand, fine sand Sand, fine sand	A-3 A-2-4, A-3	> 6.0	A
Candler sand, 5 to 8 percent slopes	0 - 63 63 - 80	Sand, fine sand Sand, fine sand	A-3 A-2-4, A-3	> 6.0	A
Eaton mucky fine sand, depressional	0 - 6 6 - 29 29 - 33 33 - 80	Mucky fine sand Fine sand, sand Sandy clay loam Sandy clay	A-2-4, A-3 A-2-4, A-3 A-7, A-4, A-6 A-7	+2.0 - 0.0	C/D
Pomona fine sand	0 - 21 21 - 26 26 - 48 48 - 73 73 - 80	Sand, fine sand Fine sand, sand, loamy fine sand Sand, fine sand Sandy clay loam, fine sandy loam, sandy clay Sandy loam, fine sand, loamy sand	A-2-4, A-3 A-2-4, A-3 A-2-4, A-3 A-2, A-4, A-6 A-2-4, A-3	0.5 - 1.5	A/D
Samsula muck	0 - 31 31 - 80	Muck Sand, fine sand, loamy sand	A-8 A-2-4, A-3	+2.0 - 0	B/D
Tavares fine sand, 0 to 5 percent slopes	0 - 80	Fine sand, sand	A-3	3.5 - 6.0	A
Myakka fine sand	0 - 25 25 - 36 36 - 80	Fine sand, sand Sand, fine sand Sand, fine sand	A-3 A-2-4, A-3 A-3	0.5 - 1.5	B/D
Smyrna fine sand	0 - 12 12 - 25 25 - 42 42 - 80	Fine sand, sand Sand, fine sand, loamy fine sand Sand, fine sand Sand, fine sand, loamy fine sand	A-2-4, A-3 A-2-4, A-3 A-3 A-2-4, A-3		

Table 2.18 – Soil Types

Soil Name	Depth (in)	Soil Description	Soil Classification (AASHTO)	Seasonal High Ground-water Depth (ft)	Hydrologic Group
Pomello fine sand	0 - 48 48 - 63 63 - 80	Fine sand, sand Sand, fine sand Sand, fine sand	A-3 A-2-4, A-3 A-3	2.0 - 3.5	C
Adamsville fine sand, 0 to 2 percent slopes	0 - 80	Fine sand, sand	A-2-4, A-3	1.5 - 3.5	A/D
Basinger mucky fine sand, depressional	0 - 7 7 - 80	Mucky fine sand Fine sand	A-2-4, A-3 A-2-4, A-3	+2.0 - 0	D
Felda fine sand	0 - 22 22 - 50 50 - 80	Fine sand, sand Sandy loam, fine sandy loam, sandy clay loam Sandy loam, fine sand, loamy sand	A-3 A-2-4, A-2-6 A-2-4, A-3	0.0 - 1.0	A/D

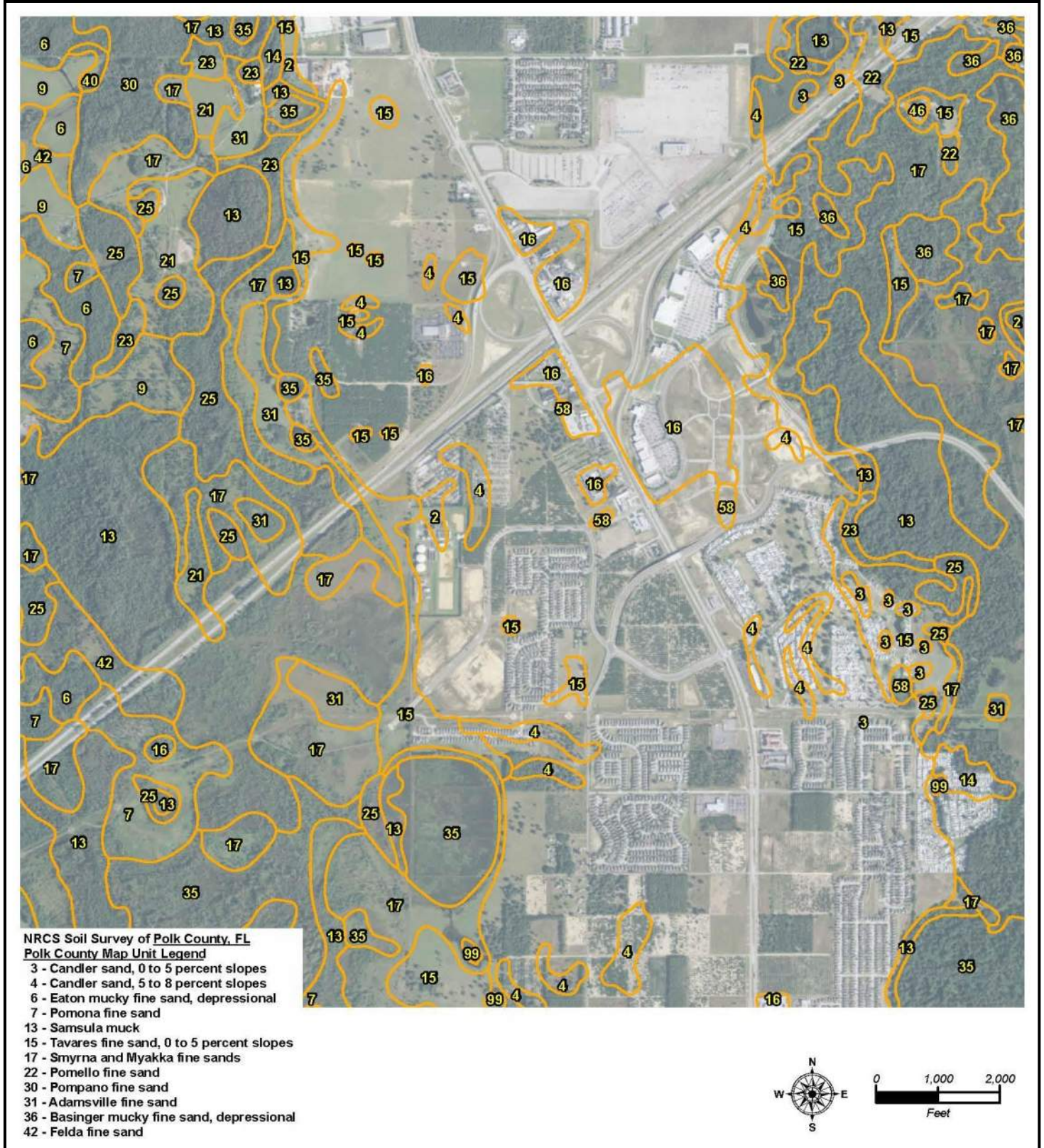


Figure 2.13 – Soils Map

2.18 Sociocultural Conditions

Sociocultural Effects (SCE) Evaluation is the process of determining and evaluating the effects a transportation action may have on a community and the quality of life of the citizenry. A community is defined as a geographic, manmade or natural boundary comprised of people and places which may share similar social, cultural, economic, and political or other characteristics. This section of the report identifies community features and characteristics surrounding the project corridor, including a data inventory of existing community facilities that will be used in the subsequent SCE evaluation.

2.18.1 Study Area

The SCE study area was determined by evaluating project plans, land use maps, local government comprehensive plans and other relevant resources. The I-4 Segment 5 improvements are located in Polk County which is within the U.S. Census designated Lakeland-Winter Haven Metropolitan Statistical Area. In this metro area, the corridor lies primarily within U.S. postal zip codes 33837 and 33896 in ChampionsGate and 33897 in Davenport.

2.18.2 Social Demographics

Based on the U.S. Census Bureau's 2013 population estimates, Polk County is the ninth most populous County in the State of Florida. With a 2013 population estimate of 623,009, the County represents approximately three percent of the total State population. Polk County experienced a growth rate of 3.5% over three years with a population increase of approximately 21,000 between 2010 and 2013. Over the ten-year period between 2000 and 2010, the County population increased at a rate of approximately 2.4% per year from approximately 484,000 in 2000 to 602,000 in 2010. The population projection for Polk County for the year 2040 is approximately 880,000, an increase of 44% over a 27-year period. Demographic statistics specific to the area surrounding the I-4 Segment 5 corridor were obtained from the U.S. Census Bureau's American Community Survey (ACS). The U.S. Census Bureau has developed Zip Code Tabulation Areas (ZCTAs) to represent U.S. Postal Service (USPS) ZIP code service areas. Since USPS ZIP codes can cross state, county, census tract and census block boundaries, the Bureau has developed the ZCTAs to provide a correlation between postal zip codes and census bureau geographic boundaries. The socioeconomic demographic data for Polk County and the ZCTAs in the study area is summarized in Table 2.19.

2.18.3 Economics

Average employment and wage information for Polk County was obtained from the Quarterly Census of Employment and Wages (QCEW) program by the Florida Department of Economic Opportunity. The average monthly employment in Polk County for all industries was approximately 195,000 in 2013. The top employment industries in Polk County for 2013 were: Trade, Transportation & Utilities (21.7%), Education & Health Services (13.5%), Government (12.8%) and Professional & Business

Table 2.19 – Community Demographics

Community Characteristic	Polk County	ZCTA 33837	ZCTA 33896	ZCTA 33897
Total Population	602,095	20,234	6,633	14,117
% White	75.2	77.4	79.3	77.6
% Black or African American	14.8	8.2	7.8	8.6
% Other	10.0	14.4	12.9	13.8
% Hispanic Or Latino (Of Any Race)	17.7	29.8	25.8	27.6
% 65 Years and Over	18	18.1	8.9	18.3
% High School Graduate or Higher	82.1	82.7	88.9	91.3
% Bachelor's Degree or Higher	18.2	17.8	24.1	22.8
% Speak English Less Than "Very Well"	7.9	14.3	7.9	11.5
% Employed*	50.4	54.8	71.6	55.8
% Unemployed*	6.8	7.5	3.4	8.1
Commuting to Work				
% Car, Truck, Or Van -- Drove Alone	81.0	76.7	84.7	76.4
% Car, Truck, Or Van – Carpooled	11.2	14.6	9.1	18.6
% Public Transportation (Excluding Taxicab)	0.5	0.0	0.0	0.2
Mean Travel Time to Work (Minutes)	25.8	30.6	25.4	28.2
Average Household Size	2.66	2.78	2.49	2.67
Average Family Size	3.17	3.09	2.98	3.10
Median Household Income (Dollars)	43,606	49,384	48,881	52,227
Mean Household Income (Dollars)	56,883	57,149	58,940	59,865
Per Capita Income (Dollars)	21,674	21,484	23,202	22,964
Income Below the Poverty Level				
% All People	17.5	15.1	9.3	8.6
% Under 18 Years	27.9	26.9	8.3	14.4
% 65 Years and Over	8.8	4.6	2.3	6.4
*% of population age 16 years and over in the civilian labor force				
Sources: General population characteristics - U.S. Census Bureau, 2010 Demographic profile data Selected social and economic characteristics - U.S. Census Bureau, 2008-2012 American Community Survey 5-year Estimates				

Services (12.0%). The average annual wage for all industries in Polk County in 2013 was \$37,484.00. Major employers in Polk County (non-government employers with 1,000 employees or more) include: Publix Supermarkets (Headquarters), Wal-Mart, Lakeland Regional Medical Center, Mosaic, Winter Haven Hospital, Geico Insurance, State Farm Insurance, Watson Clinic, GC Services and Florida’s Natural Growers.

2.18.4 Community Facilities and Services

Existing community resources within the I-4 Segment 5 project study area were identified as part of the sociocultural analysis. The entire corridor traverses through unincorporated Polk County. Much of the surrounding area is rural and undeveloped; however, development density increases around the US 27 corridor, north and south of I-4. The community facilities near the I-4 Segment 5 corridor serve the local residential population in the nearby communities of Loughman, Four Corners and Davenport and are primarily found around the US 27 corridor. These include educational facilities, medical/health services, recreational opportunities, historical points of interest and cultural centers. Community resources within the I-4 Segment 5 study area which serve the residential population in this region are listed in Table 2.20 and illustrated in Figure 2.14.

Table 2.20 – Community Facilities and Services

Community Facility/Service	Address	Location	
		Within 500 feet of I-4	Within ½ mile of I-4
School/College/Daycare Facilities			
Auntie's Christian Ministry Inc.	905 Scott Lane, Davenport	✓	
Health/Safety Facilities			
Legends Family Medical Center	1485 Legends Blvd, ChampionsGate		✓
Religious Facilities			
Oak Hill Baptist Church of Loughman	8060 Osceola Polk Line Rd, Loughman		✓
Parks/Recreation Facilities			
Themeworld RV Resort	2727 Frontage Rd, Davenport		✓
Fort Summit KOA Campground	2525 Frontage Rd, Davenport		✓
Champions Gate Golf Resort	1400 Masters Blvd, Davenport		✓
Other Community Facilities			
Posner Park Shopping Center	1200 – 3500 Posner Boulevard, Davenport 5000 – 6300 Grandview Parkway, Davenport		✓

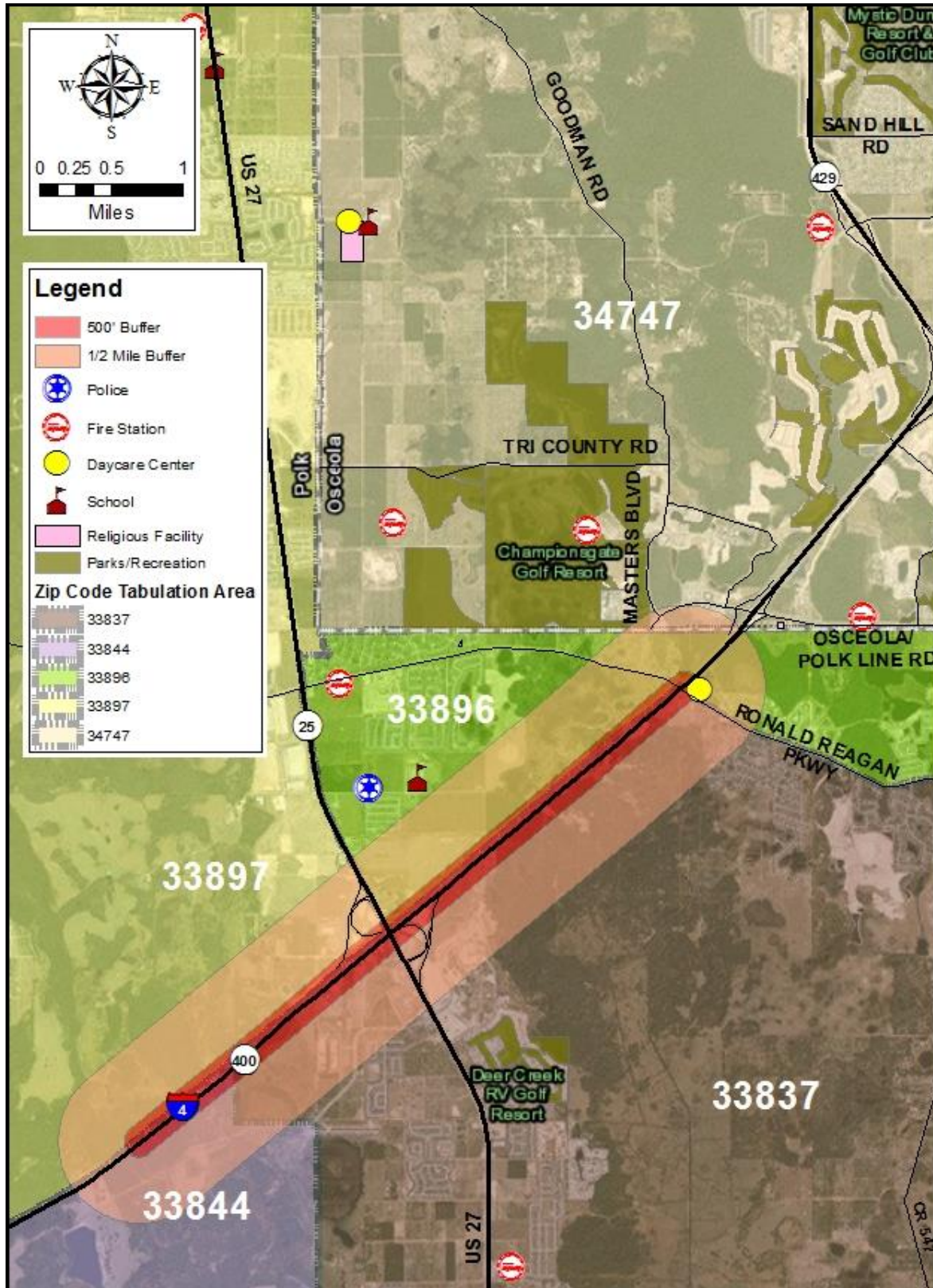


Figure 2.14 - Community Facilities and Services

3.0 Planning Phase/Corridor Analysis

The current PD&E study is a reevaluation of the previously approved PD&E study for I-4 from West of Memorial Boulevard to the Polk/Osceola County Line (FM No. 201210-1-21-01, FONSI - December 16, 1998). The original project followed a multi-level screening process which involved preliminary evaluations of the I-4 corridor with respect to constructability, design speeds and type of physical separation between the special use (HOV in the original design concept and express lanes in the current design concept) and general use lanes. The preliminary evaluations were reviewed with FDOT, and the corridor was analyzed with the following project goals:

- Use the existing infrastructure to the maximum extent possible
- Evaluate a barrier-separated facility
- Refine concept plans to minimize traffic disruptions during construction
- Minimize construction costs and ROW requirements
- Avoid and/or minimize impacts especially for wetlands, floodplains, Section 4(f) properties and Section 106 properties

Since the proposed project is a widening project, no alternative alignments were evaluated.

4.0 Design Criteria and Standards

The I-4 PD&E Study incorporates project elements with various design requirements. Table 4.1 presents the roadway design criteria established for each design element. The design criteria and standards are based on design parameters in accordance with *A Policy on Geometric Design of Highway and Streets* (AASHTO 2011), *Roadway Plans Preparation Manual (PPM), Volumes I and II* (FDOT, January 2015), and *Roadway and Traffic Design Standards* (FDOT, 2015).

Table 4.1 - Roadway Design Criteria

Design Element	Design Standard	Source(s)
Design Vehicle	WB-62FL	PPM, Pg. 1-19
Design Year	2040	FDOT Scope of Services
Design Speed Mainline I-4 / Express Lanes Diamond Ramps Loop Ramp	70 mph 50 mph 30 mph (25 mph min as per AASHTO)	FDOT PPM, Table 1.9.1 and 2011 AASHTO, Page 10-89
Median Width I-4	64 ft. without barrier 26 ft. minimum with barrier	FDOT PPM, Table 2.2.1
Maximum Degree of Curve Mainline I-4 / Express Lanes Direct Connection Ramp Loop Ramp	3°00' 8°15' 24°45'	FDOT PPM, Table 2.8.3 (e MAX – 0.10)
Length of Horizontal Curves Mainline I-4 / Express Lanes Ramps	Desirable: 30(V) ¹ Minimum: 15(V) ¹ Desirable: 15(V) ¹ Minimum: 400 ft.	FDOT PPM, Table 2.8.2a
Minimum Stopping Sight Distance Mainline I-4 / Express Lanes Diamond Ramps Loop Ramp	820 ft. 425 ft. 200 ft.	FDOT PPM, Table 2.7.1
Decision Sight Distance Mainline I-4 / Express Lanes Diamond Ramps Loop Ramp	1,445 ft. 910 ft. 490 ft	2011 AASHTO, Exhibit 3-3, Page 3-7
Maximum Shoulder "Roll-Over" Maximum Lane "Roll-Over"	7% 4%	FDOT Roadway & Traffic Design Standard Index No. 510, 2011 AASHTO pg. 4-5

Table 4.1 - Roadway Design Criteria

Design Element	Design Standard	Source(s)
Superelevation Transition Tangent Curve	80% desirable, 50% minimum 20% desirable, 50% maximum	FDOT PPM, Page 2-53
Maximum Superelevation Mainline I-4 / Express Lanes Ramps	10% 10%	
On- and Off-Ramp Design Diamond On-Ramps Diamond Off-Ramps Loop Ramp	Taper Design with 50:1 (1200 ft) Taper Design with 3° to 5° (Parallel Design: 1,200' Accel + 300' Taper and 800' Decel + 300' Taper – District Preference)	FDOT Roadway & Traffic Design Standard Index No 525
Maximum Profile Grade Mainline I-4 Express Lanes Diamond Ramp Loop Ramp	3% 5% 7%	FDOT PPM, Table 2.6.1
Maximum Change in Grade without Vertical Curve Mainline I-4 / Express Lanes Diamond Ramp Loop Ramp	0.20% 0.60% 1.00%	FDOT PPM, Table 2.6.2
Crest Vertical Curve Mainline I-4 / Express Lanes (Open Highway) Mainline I-4 / Express Lanes (w/interchange) Diamond Ramp Loop Ramp	K=506, min. length 1,000 ft. K=506, min. length 1,800 ft. K=136, min. length 300 ft. K=31, min. length 3V ¹	FDOT PPM, Table 2.8.5
Sag Vertical Curve Mainline I-4 / Express Lanes Diamond Ramp Loop Ramp	K=206, min. length 800 ft. K=96, min. length 200 ft. K=37, min. length 3V ¹	FDOT PPM, Table 2.8.6
Minimum Vertical Clearance Bridges over I-4 I-4 Bridges over Cross Roads Pedestrian Facilities over Rdwy Overhead Signs Roadway over Railroad	16'-6" ² 16'-6" ² 17'-6" ² 17'-6" ² 23'-6" ³	FDOT PPM, Tables 2.10.1 and 2.10.2

Table 4.1 - Roadway Design Criteria

Design Element	Design Standard		Source(s)
Lane Widths Mainline I-4 One-Lane Ramp Two-Lane Ramp	12 ft. – Tangent 15 ft. – Tangent 24 ft. – Tangent		FDOT PPM, Tables 2.1.1, 2.1.2 and 2.1.3
Lane Drop Taper Mainline I-4 / Express Lanes	70:1 Desirable		2011 AASHTO, Page 3-143
Shoulder Width – Roadway – Inside (or Left) Mainline I-4 One-Lane Ramp Two-Lane Ramp Two-Lane Express Lane	Total 12 ft. 6 ft. 8 ft. 6 ft.	Paved 10 ft. 2 ft. 4 ft. 6 ft.	FDOT PPM, Table 2.3.1
Shoulder Width – Roadway – Outside (or Right) Mainline I-4 Mainline with Auxiliary Lane One-Lane Ramp Two-Lane Ramp Two-Lane Express Lane	Total 12 ft. 12 ft. 6 ft. 12 ft. 10 ft.	Paved 10 ft. 10 ft. 4 ft. 10 ft. 10 ft.	FDOT PPM, Table 2.3.1
Typical Roadway Cross Section Slopes Roadways: 2 Lanes in Same Direction Addition Lane in Same Direction	0.02 0.03		FDOT PPM, Figure 2.1.1 and Table 2.3.1
Shoulders: Inside Shoulder Outside Shoulder	0.05 (0.06 for 4 or more lanes) 0.06		FDOT PPM, Figure 2.1.1 and Table 2.3.1
Recoverable Terrain (min. from edge of travel way) Mainline I-4 / Express Lanes (> 55 mph) Auxiliary Lane (> 55 mph) One-Lane Ramp (50 mph) Two-Lane Ramp (50 mph) Loop Ramp (30 mph)	36 ft. 24 ft. 14 ft. 24 ft. 18 ft.		FDOT PPM Table 2.11.11
Shoulder Width – Bridge Structures – Inside Mainline I-4 One-Lane Ramp Two-Lane Ramp	10 ft. 6 ft. 6 ft.		FDOT PPM, Figure 2.0.1

Table 4.1 - Roadway Design Criteria

Design Element	Design Standard	Source(s)
Shoulder Width – Bridge Structures – Outside		
Mainline I-4	10 ft.	FDOT PPM, Figure 2.0.1
Auxiliary Lanes	10 ft.	
One-Lane Ramp	6 ft.	
Two-Lane Ramp	10 ft.	
Border Width ⁴	94 ft.	FDOT PPM, Table 2.5.3
Notes:		
¹ Where V = design speed of the roadway.		
² Includes 6" allowance for resurfacing.		
³ Includes Rail Resurfacing (Track Raised): 12' for conventional railroads.		
⁴ Measured from outside edge of travel way to right-of-way.		

5.0 Alternatives Analysis

The original I-4 PD&E Study, I-4 (SR 400) from West of Memorial Boulevard to CR 532 (Polk/Osceola County Line), completed in 1998, was performed to address access, safety and capacity improvements. This reevaluation adheres to the project development process by examining the various concepts considered for this project. The alternatives analysis will focus primarily on the interchanges and pond sites. The mainline typical section will be consistent with the approved typical section that is being implemented from SR 435 (Kirkman Road) to SR 434 (“I-4 Ultimate”), the section of I-4 that began construction in early 2015. The alternatives for the interchanges include no modifications to the existing interchange geometry (No-Build), Transportation System Management and Operations (TSM&O), and Study (Build) Alternatives. The following sections describe each of the proposed alternatives in greater detail and the advantages and disadvantages of each.

5.1 No Project (No-Build) Alternative

The No-Build Alternative assumes no changes to the transportation facilities within the project corridor beyond currently planned and programmed projects already committed within Metro Plan Orlando’s *2040 Long Range Transportation Plan, the Fiscal Year 2014/15 to 2018/19 Orlando Urban Area Transportation Improvement Program* and Polk TPO’s *2035 Mobility Vision Plan (MVP)*. Although the Central Polk Parkway (CPP) is included in the Polk TPO *2035 MVP*, it was determined that for the purposes of this evaluation CPP would not be in place at the time that the I-4 improvements would move forward. The No-Build Alternative forms the basis of the comparative analysis for each of the viable Study Alternatives.

The benefits of the No-Build Alternative are the absence of construction-related and short-term operational impacts associated with the Build Alternatives. However, long-term benefits accrued from serving future traffic demands will not be realized with this alternative. Operating conditions are anticipated to worsen with time, while further increasing delays and congestion. Specifically, the No-Build Alternative will offer no benefits to the existing or future traffic congestion anticipated on I-4. Distinct advantages and disadvantages associated with this alternative are as follows.

Advantages:

- No impedance to traffic flow during construction,
- No expenditure of funds for ROW acquisition, engineering, design or construction,
- No impact to the adjacent natural, physical and human environments and
- No disruption to existing land uses due to construction-related activities.

Disadvantages:

- Increase in traffic congestion and road user costs, unacceptable level of service and an increase in accidents associated with increases in travel times (due to excessive delays) and traffic volumes,
- Increase in maintenance costs due to roadway and structure deterioration,
- Increase in carbon monoxide levels and other air pollutants caused by an increase in traffic congestion,
- Increase in emergency service response time in addition to an increase in evacuation time during weather emergencies as a result of heavy congestion,
- Increase in delays to evacuation procedures throughout the state and
- Increase in safety-related accidents due to heavy congestion

The No-Build Alternative shall remain a viable alternative through the public involvement process. The final selection of an alternative will not be made until all impacts are considered and responses to the public hearing comments have been evaluated.

5.2 Transportation System Management and Operations

Transportation System Management and Operations (TSMO) Alternatives are defined as low capital cost transportation improvements designed to maximize the utilization and efficiency of the existing transportation system through improved system management. The various forms of TSMO activities include:

- Traffic signal improvements,
- Intersection/interchange improvements,
- Widening of parallel arterials,
- Ridesharing programs,
- Reversible flow roadway systems,
- Transit,
- ITS and
- Ramp-to-ramp auxiliary lanes.

Although the implementation of TSMO strategies would certainly aid in localized operations of the existing roadway, the projected traffic volumes for the design year 2040 require I-4 to be widened to provide the additional capacity necessary to maintain or improve the existing levels of service. Therefore, the TSMO Alternative is not considered a viable alternative and no further evaluation of the TSMO Alternative will be conducted during this study.

5.3 Multi-Modal Alternatives

The project study area, including arterial streets crossing I-4, is served by different modes of travel, both motorized and non-motorized. Increased connectivity for bicycle, pedestrian, and transit users is an objective of the project. A 44-foot rail envelope has been preserved in the median of I-4 for the future Tampa to Orlando High Speed Rail project.

5.3.1 Transit

Transit opportunities available to the community near the I-4 Segment 5 corridor include one bus transit option provided by the LYNX bus service. Link 427 (US 27/Haines City) non-stop express service operates along the US 27 corridor between US 192 in Four Corners, approximately 7 miles north of I-4 and Hinson Avenue in Haines City, approximately 8.5 miles south of I-4. Transfer options are available to Link 55 (West US 192/Crosstown) at the north end of the route and to Link 416 (Poinciana/Haines City) at the south end of the route.

5.3.2 Bicycles and Pedestrians

Plans for future bicycle and pedestrian accommodations were evaluated by reviewing the Polk TPO’s 2035 MVP. Table 5.1 and Table 5.2 list the roadway segments within the Segment 5 area that are identified as sidewalk and bicycle facility needs, respectively, in the 2035 MVP. None of these segments are within the top 100 sidewalk or bicycle facility needs projects for 2035. According to the Polk TPO’s *Multi-Use Trail Network Map*, there are no planned multi-use trails (paved or unpaved) within the Segment 5 study area in Polk County.

Table 5.1 – 2035 MVP Sidewalk Needs

Roadway	From	To	Segment Length (miles)	Priority Ranking
US 27	I-4	CR 54 (Ronald Reagan Parkway)	1.6	119
US 27	CR 547	I-4	5.2	132
CR 54 (Ronald Reagan Parkway)	US 27	Champions Gate Boulevard	2.1	220
CR 54 (Ronald Reagan Parkway)	Champions Gate Boulevard	Lake Wilson Road	2.3	187

Table 5.2 – 2035 MVP Bicycle Facilities Priorities

Roadway	From	To	Segment Length (miles)	Priority Ranking
CR 54 (Ronald Reagan Parkway)	US 27	CR 532 Extension	2.0	275
CR 54 (Ronald Reagan Parkway)	CR 532 Extension	Lake Wilson Road	2.4	182

5.4 Build Alternatives

The build alternative for the I-4 mainline involves widening from the existing 6-lane to the proposed 10-lane section with four, tolled express lanes and a future rail corridor in the median. Access to and from the express lanes will be provided through direct access ramps at major interchanges or slip ramp connections between interchanges. Slip ramps provide access between the general use lanes and the express lanes, direct access ramps will provide access between the crossroads at the major interchanges and the express lanes and dual access ramps provide both access between GULs and ELs and major crossroads and ELs. The build alternative will provide one direct access ramp and one slip ramp along I-4 Segment 5, as shown in Figure 5.1. Detailed analysis on the development of express lanes access points and tolling concepts, is provided in the supplemental report, *Concept of Operations SR 400 (I-4) from West of SR 25/US 27 to East of SR 472 (August 2015)*, prepared for this project.



Figure 5.1 – Proposed Express Lane Access Points

As outlined previously, the project objective is to develop and evaluate viable interchange alternatives to enhance the ability of the roadways to meet anticipated traffic demands, improve safety and serve existing and future land uses along the I-4 corridor. The alternatives analysis will focus primarily on the interchanges and pond sites, since the mainline typical section (three general use lanes and two express

lanes in each direction) will generally be consistent with the approved typical section that is being implemented for the I-4 Ultimate section from SR 435 (Kirkman Road) to SR 434. Build alternatives were evaluated for the US 27/SR 25 interchange. Generally speaking, the typical section will be consistent throughout Segment 5 and will have six 12-foot general use travel lanes (3 in each direction with 12-foot inside and outside shoulders) and four 12-foot express lanes (2 lanes in each direction with 10-foot inside/median and 12-foot outside shoulders). The proposed mainline typical section was previously shown in Figure 1.2. The complete typical section package for the I-4 BtU project has been submitted under separate cover.

5.4.1 Design Speed

The design speed of I-4 (general use lanes and express lanes) is 70 mph. The design speeds of the cross roads were available from existing bridge plans and are summarized in Table 5.3.

Table 5.3 – Design and Posted Speed

Roadway Segment	Design Speed (MPH)
US 27/SR 25	50
CR 54	45

5.4.2 Interchange Alternatives

The existing I-4 and US 27 interchange is a full service partial cloverleaf with loop ramps in the northwest and southeast quadrants. Existing frontage roads are located in the northwest and southwest quadrants. The northwest quadrant frontage road is an access road that runs parallel to the I-4 westbound on ramp, providing access to parcels. The southwest quadrant frontage road runs parallel to eastbound I-4 and intersects with US 27 at two locations near the eastbound loop ramp. Seven alternative interchange concepts were evaluated for US 27. The concept plans provided in Appendix A include detail sheets of the interchange alternatives described in the following sections.

Alternative 1, shown in Sheets 17-22 of the Concept Plans in Appendix A, is a full service partial cloverleaf interchange that leaves the overall existing horizontal geometry as it is with loop ramps in the northwest and southeast quadrants. The eastbound exit ramp will remain a single lane loop ramp as it is today. The ramp will terminate at US 27 and allow for two lefts (southbound), one shared left/through (onto Frontage Road) and two rights (northbound). The existing eastbound 2-lane on ramp will remain from US 27 onto I-4 eastbound. The I-4 westbound exit ramp will be a dual lane loop ramp as it is today. The ramp will be slightly tighter than existing due to the addition of express lanes on I-4. It will terminate at US 27 and allow for one left (northbound), one through (commercial property access) and three rights (southbound). The existing westbound single lane on ramp will remain from US 27 onto I-4 westbound. Just west of US 27 will be the entry point and beginning of the I-4 eastbound express lanes. It will also be the terminus for the I-4 westbound express lanes. The US 27 bridge will

be replaced and the roadway will be widened to accommodate four lanes in each direction. A new intersection on the bridge will allow direct access to the eastbound and from the westbound express lanes by way of slip ramps tying in within the median side of I-4 express lanes. Minor modifications will have to be made to the US 27/westbound ramp and US 27/eastbound ramp intersections to accommodate the widening of US 27. Additional ROW in the northeast quadrant will need to be purchased to construct this alternative.

Alternative 2, shown in Sheets 23-28 of the Concept Plans in Appendix A, would keep the same geometry as Alternative 1 but the US 27 alignment will be shifted to the east over I-4. The roadway will curve to the left from the intersection of US 27 and Frontage Road to the intersection of US 27 and the westbound ramp terminal. This would allow for the southbound US 27 bridge to remain open during construction of the new US 27 bridge. This alternative has greater ROW impacts along US 27 in the northeast quadrant compared to Alternative 1 due to the curvature of the road.

Alternative 3, shown in Sheets 29-34 of the Concept Plans in Appendix A, is a full service partial cloverleaf interchange that leaves the overall existing horizontal geometry as it is with loop ramps in the northwest and southeast quadrants. The eastbound exit ramp will remain a single lane loop ramp as it is today. The ramp will terminate at US 27 and allow for two lefts (southbound), one shared left/through (onto Frontage Road or southbound US 27) and three rights (northbound). The existing eastbound 2-lane on ramp will remain from US 27 onto eastbound I-4. The westbound exit ramp will be a dual lane loop ramp as it is today. The ramp will be slightly tighter than existing due to the addition of express lanes on I-4. It will terminate at US 27 and allow for two lefts (northbound), one shared left/through (commercial property access or US 27 northbound) and two rights (southbound). The existing westbound on ramp will remain from US 27 onto westbound I-4. Just west of US 27 will be the entry point and beginning of the I-4 eastbound express lanes and the terminus of the I-4 westbound express lanes. The US 27 bridge will be replaced and the roadway will be widened to accommodate four lanes in each direction; the northbound direction will remain three lanes north of the express lane ramps. A new intersection on the bridge will allow direct access to the eastbound express lanes from northbound and southbound US 27 via a single lane ramp. The median on US 27 will be modified to allow right turns only from the westbound express lane exit ramp. Two northbound U-turn only lanes will be added to the south approach of the US 27 and westbound ramp terminal intersection that will provide for access to US 27 southbound for westbound express lane exiting traffic. Additional ROW in the northeast quadrant will need to be purchased to construct this alternative.

Alternative 4, shown in Sheets 35-40 of the Concept Plans in Appendix A, is similar to Alternative 3 but a Collector-Distributor (C-D) roadway system is added adjacent to the eastbound and westbound general use lanes. The eastbound C-D lanes will begin approximately 3,100 feet west of US 27. The eastbound exit to US 27 will occur off of the C-D system where a new dual lane loop ramp will tie into

US 27. There will be two lefts (southbound), one shared left/through (Frontage Road or southbound) and three rights (northbound) on to US 27. One lane of the eastbound C-D system will continue under the US 27 bridge and merge with the eastbound on ramp and continue to just west of CR 54. The westbound C-D system will begin just west of CR 54 and will carry two lanes up to US 27. The westbound exit will be a new dual lane loop ramp that is shifted slightly northeast of the existing location and that connects to US 27 with two lefts (northbound), one shared left/through (to commercial properties or northbound) and two rights (southbound). One lane of the westbound C-D system will continue under the US 27 bridge and merge with the westbound on ramp from US 27. The westbound C-D roadway will terminate into I-4 approximately $\frac{3}{4}$ of a mile west of US 27. Just west of US 27 will be the entry point and beginning of the I-4 eastbound express lanes. It will also be the terminus for the I-4 westbound express lanes. The US 27 bridge will be replaced and the roadway will be widened to accommodate four lanes in each direction; the northbound direction will remain three lanes north of the express lane ramps. A new intersection on the bridge will allow direct access to the eastbound express lanes from northbound and southbound US 27 via a single lane ramp. The westbound express lane exit ramp will be dual lanes and will only allow right turns onto northbound US 27. Two northbound U-turn only lanes will be added to the south approach of the US 27 and westbound ramp terminal intersection that will provide for access to US 27 southbound for westbound express lane exiting traffic. Additional ROW in the northeast quadrant of the interchange and along the north side of I-4 will need to be purchased to construct this alternative.

Alternative 5, shown in Sheets 41-46 of the Concept Plans in Appendix A, is a full service partial cloverleaf interchange with loop ramps in the northwest and southeast quadrants. Direct access to and from the express lanes is provided at the US 27 ramp terminals, rather than at the US 27 bridge as proposed in Alternatives 1 through 4. US 27 will be widened to four lanes in each direction between Posner Boulevard and the I-4 westbound ramp terminal. Direct connection in the eastbound direction is provided through a new 3-lane on ramp which diverges, with the right two lanes connecting to the GULs and the left lane bridging over the GULs to connect directly to the I-4 eastbound express lanes. Modifications to the I-4 eastbound/ Frontage Road and US 27 intersection include an additional through lane in each direction on US 27 and expansion of the existing three-lane east approach to five lanes to accommodate dual lefts, a shared left/through lane and dual rights. In the westbound direction, a new single lane off-ramp from the I-4 express lanes about 1.1 miles east of US 27 will bridge over the westbound GULs; the off-ramp will run parallel to the westbound GULs before merging with the two-lane off ramp from the GULs about 2,100 feet east of US 27. The I-4 westbound and US 27 intersection will maintain the same geometry as today with the exception of an additional southbound through lane on the north approach and modification of the eastbound through lane to a shared left/through.

Alternative 6, shown in Sheets 47-56 of the Concept Plans in Appendix A, is a full service partial cloverleaf interchange with loop ramps in the northwest and southeast quadrants. Nine new bridges, substantial modifications to the ramp terminal intersections and improvements to Posner Boulevard are associated with this alternative. Direct access to and from the express lanes is provided at the US 27 ramp terminals, rather than at the US 27 bridge as proposed in Alternatives 1 through 4. The following paragraphs provide descriptions of the improvements associated with Alternative 6.

Alternative 6 - US 27 Bridge Summary

In the northbound direction on US 27, three new bridges are proposed: over Posner Boulevard, I-4 eastbound ramps and all I-4 lanes. Similarly, in the southbound direction on US 27, new bridges are proposed over the I-4 westbound ramps, all I-4 lanes and Posner Boulevard.

Alternative 6 - I-4 Eastbound Ramp Terminal

At the I-4 eastbound ramp terminal, a new two-lane on ramp from US 27 northbound to I-4 eastbound will diverge as it approaches the loop ramp in the southeast quadrant. The left split will connect to the two-lane on ramp that bridges over the eastbound GULs and connects directly to I-4 eastbound ELs. The right split will continue as a two-lane on-ramp to the eastbound GULs. Traffic from US 27 southbound and the Frontage Road will use an on ramp that goes under the US 27 northbound lanes and continues onto a left and right split to access the eastbound ELs and GULs, respectively. The new southeast quadrant two-lane off ramp will diverge, with the right split curving around to merge with US 27 northbound and, the left split going to dual left lanes onto US 27 southbound at the Frontage Road. Direct access to the Frontage Road has been eliminated from I-4 eastbound at this location. A new U-turn loop ramp has been provided to allow northbound US 27 U-turns at the I-4 westbound ramp terminal and access to the Frontage Road.

Alternative 6 - I-4 Westbound Ramp Terminal

I-4 westbound GULs will be accessed by a new on ramp in the northwest quadrant. The exit loop ramp in the northwest corner will be modified to be tighter and will diverge, with the left split bridging over the on-ramp and under the US 27 southbound lanes before merging with US 27 northbound. The right split will curve around and connect with the U-turn loop ramp before merging with US 27 southbound. Access to the commercial parcels on the east side of US 27 from the existing exit loop ramp and from US 27 southbound has been eliminated with the proposed improvements in this alternative. To provide access to the commercial driveways on the east side of US 27 and north of the Interstate, a U-turn loop ramp is proposed at the Frontage Road intersection. The U-turn loop ramp will go under the US 27 northbound lanes and merge with the I-4 eastbound loop off ramp in the southeast quadrant before bridging over I-4 and merging with the US 27 northbound lanes.

Alternative 6 - US 27 and Posner Boulevard Intersection

Improvements to the US 27 and Posner Boulevard intersection include grade separation with US 27 going over Posner Boulevard. The east approach (Posner Boulevard) will be modified to triple lefts and two through lanes, with right turn movements eliminated. The triple lefts will provide access to US 27 southbound and to a two-lane frontage road which will carry traffic to the U-turn loop ramp for access to US 27 northbound. The west approach (Home Run Boulevard) has been modified to two through lanes and dual rights, with left turn movements eliminated. Right turn traffic has the option to utilize the same frontage road to U-turn loop ramp to access US 27 northbound or use a separate merge lane to travel to US 27 southbound.

Right-of-way acquisition will be necessary along both sides of US 27 near Posner Boulevard, in the northeast quadrant of the interchange and along the northwest side of I-4 in order to construct Alternative 6.

Alternative 7, shown in Sheets 57-66 of the Concept Plans in Appendix A, is a full service partial cloverleaf interchange with loop ramps in the northwest and southeast quadrants. Eleven new bridges, substantial modifications to the ramp terminal intersections and improvements to Posner Boulevard are associated with this alternative. Direct access to and from the express lanes is provided at the US 27 ramp terminals, rather than at the US 27 bridge. The following paragraphs provide descriptions of the improvements associated with Alternative 7.

Alternative 7 - US 27 Bridge Summary

In the northbound direction on US 27, two new bridges are proposed, one over Posner Boulevard and one over the I-4 eastbound ramps. The bridge over the Interstate (eastbound and westbound I-4) will be replaced. In the southbound direction on US 27, three new bridges are proposed: over the I-4 westbound ramps, one over Posner Boulevard and one U-turn ramp just north of Ernie Caldwell Boulevard.

Alternative 7 - I-4 Eastbound Ramp Terminal

At the I-4 eastbound ramp terminal, a new two-lane on ramp from US 27 northbound to I-4 eastbound will diverge as it approaches the loop ramp in the southeast quadrant. The left split will connect to the two-lane on ramp that bridges over the eastbound GULs and connects directly to I-4 eastbound ELs. The right split will continue as a two-lane on-ramp to the eastbound GULs. Traffic from US 27 southbound and the Frontage Road will use an on ramp that goes under the US 27 northbound lanes, over two other ramps in the southeast quadrant and onto a left and right split to access the eastbound ELs and GULs, respectively. The new southeast quadrant loop off ramp is three lanes which diverges to provide access via dual lefts to US 27 southbound, one through lane to align with Frontage Road and two lanes curving around to merge with US 27 northbound.

Alternative 7 - I-4 Westbound Ramp Terminal

At the westbound ramp terminal, I-4 westbound GULs will be accessed by a new two-lane on ramp in the northwest quadrant. The exit loop ramp in the northwest corner will be modified to be tighter and will diverge, with the left split going under two on-ramp bridges and under the US 27 southbound lanes before merging with US 27 northbound. The right split will curve around and diverge also, with one lane eastbound (commercial property access) and two lanes southbound (merging with US 27).

Alternative 7 - US 27 and Posner Boulevard Intersection

Improvements to the US 27 and Posner Boulevard intersection include grade separation with US 27 going over Posner Boulevard. The east approach (Posner Boulevard) will be modified to triple lefts and two through lanes, with right turn movements eliminated. The triple lefts will provide access to US 27 southbound and to a two-lane frontage road which will carry traffic to the new U-turn loop ramp for access to US 27 northbound. The west approach (Home Run Boulevard) has been modified to two through lanes and dual rights, with left turn movements eliminated. Right turn traffic has the option to utilize the frontage road to U-turn loop ramp for access to US 27 northbound or use a separate merge lane to travel to US 27 southbound.

Right-of-way acquisition will be necessary in the southeast quadrant of US 27 and Ernie Caldwell Boulevard, along both sides of US 27 and Home Run Boulevard, in the northeast quadrant of the interchange and along the northwest side of I-4 in order to construct Alternative 7. At the US 27 and Posner Boulevard intersection, ROW impacts along the west side of US 27 are reduced compared to Alternative 6, since only three southbound lanes are proposed on the north approach.

5.5 Design Traffic

Development of project traffic for I-4 and surrounding arterials within the study limits of Segment 5 was based on the procedures outlined in the *Methodology Letter of Understanding (MLOU) (October 2014 Update)* and are provided in the *I-4 SAMR Re-Evaluation – Traffic Volumes Development Report (June 2015)* prepared for this project. Both of these documents are included as an appendix to the *I-4 Beyond the Ultimate Systems Access Modification Report Re-evaluation, South Section- from West of US 27 to West of SR 435 (Kirkman Road) (March 2017)* prepared for this project.

5.5.1 Future Traffic Volumes

Travel demand modeling using the Central Florida Regional Planning Model (CFRPM version 5.01) was utilized to forecast Directional Design Hour Volumes (DDHV) for the I-4 Segment 5 project. The future traffic forecasts were determined for 2020 (opening year), 2030 (interim year) and 2040 (design year) for two build alternatives: Original Build and Modified Build. The Original Build alternative refers to the preferred interchange alternatives identified in the original I-4 SAMR dated April 2000 and

approved by FHWA in June 2000 with a subsequent update in 2003. The Modified Build alternative refers to the proposed interchange concepts developed as part of the current I-4 SAMR Reevaluation.

The traffic volume outputs generated by the model represent Peak Season Weekday Average Daily Traffic (PSWADT). A Model Output Conversion Factor (MOCF) was used to convert the PSWADT to Average Annual Daily Traffic (AADT). A MOCF of 0.95 for I-4 and 0.92 for arterials in Polk County was used for I-4 Segment 5.

5.5.2 Design Traffic Factors

Due to the unique nature of the South Section of the I-4 Beyond the Ultimate project area, characterized by heavy tourist and “shift employee” trips, and the corresponding multi-hour traffic peaking characteristics, a peak spreading methodology was developed to determine design traffic for the I-4 Segment 5 corridor. The use of peak spreading is needed in this section of the I-4 BtU corridor due to the high volume to capacity (v/c) ratios that result from using the FDOT standard “K” and “D” factor approach. This methodology is described in further detail in the *I-4 SAMR Re-Evaluation – Traffic Volumes Development Report (June 2015)*.

K Factor

The K factor is used to convert the 24-hour AADT estimate to an hourly volume (DHV-Design Hour Volume). It is the ratio of the AADT that occurs during the design hour for the design year. Standard K-factors have been adopted by FDOT based on area and facility type with consideration to typical peak periods of the day. However, for the I-4 Segment 5 project, the standard K factor was not utilized and DDHVs were determined based on the use of a peak spreading methodology as described in detail in the MLOU and the supplemental technical memorandum, *I-4 SAMR Re-Evaluation – Traffic Volumes Development Report (June 2015)* prepared for this project.

D-Factor

The Directional Distribution (D) is the percentage of total, two-way design traffic traveling in the peak direction. The D-factor used in the analysis for I-4 Segment 5 traffic, by facility type, is summarized in Table 5.4.

Table 5.4 - D Factor

Facility Type	D-Factor
Interstate 4	52.92
Arterials	53.66

T-Factor

The percentage of trucks (T) using a roadway is the most critical factor in pavement design. The T-factor used in traffic forecasting analysis for I-4 Segment 5 traffic was 5.4% for the AM peak hour and 3.0% for the PM peak hour.

5.5.3 Intersection/Interchange Traffic Volumes

The directional design hour volumes (DDHV) along I-4 and future turning movement volumes for the project intersections and interchanges were developed using the peak spreading methodology as described in the technical memorandum, *I-4 SAMR Re-Evaluation – Traffic Volumes Development Report (June 2015)*. Peak period volumes were developed for the South Section of the I-4 BtU corridor which includes I-4 Segment 5. Future 2040 peak hour volumes were divided by appropriate peak spreading factors to compute the five-hour peak period volumes. The resulting traffic volumes for the 2040 design year Build scenario are shown in Figure 5.2.

5.5.4 Intersection Operational Analysis

As part of the development of interchange alternatives for I-4 Segment 5, traffic operational analyses of the intersections within or near the proposed interchange improvements were completed for No Build and Build alternatives. Some alternatives were removed from further consideration due to roadway geometric design constraints, operational deficiencies, inter-agency coordination indicating other preferences and/or being cost-prohibitive and no further traffic analysis was completed. Peak hour operational analysis of intersections/interchanges was completed using VISSIM-version 5.4 microsimulation software.

US 27 Interchange

Seven interchange alternatives were developed for the US 27 interchange, as previously described in Section 5.4.2 of this report. Traffic operational analyses based on Directional Peak Period Traffic volumes developed for the *I-4 Systems Access Modification Report (SAMR)* update were considered for the No-Build and Build alternatives:

- No-Build - Maintain Existing Configuration
- Alternative 1 - Maintain Existing Configuration with EL access in the middle of the US 27 bridge.
- Alternative 2 - Maintain Existing Configuration with EL access in the middle of the US 27 bridge; US 27 off alignment.
- Alternative 3 - Maintain Existing Configuration with EL access in the middle of the US 27 bridge; U-turns at the north ramp terminal.
- Alternative 4 - Access from GUL to CD to US 27 ramps. EL access in the middle of the US 27 bridge. U-turns at the north ramp terminal.
- Alternative 5 - Maintain Existing Configuration with EL access to the US 27 ramps.
- Alternative 6 - Maintain Existing Configuration with U-turns at each ramp terminal; improvements at Posner Boulevard included.
- Alternative 7 - No U-turns at ramp terminals; improvements at Posner Boulevard and ramp terminal intersections included.

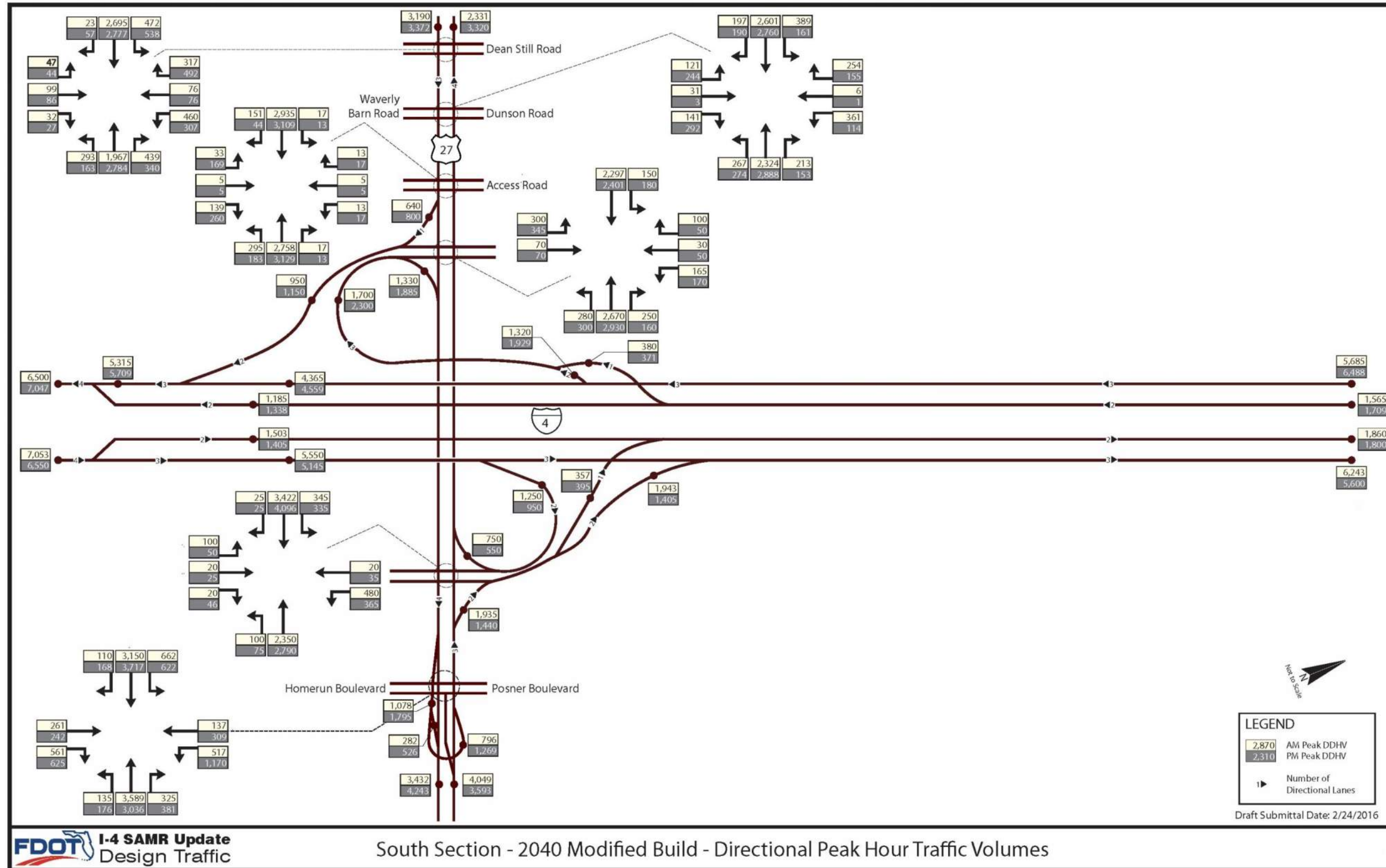


Figure 5.2 – 2040 Build Directional Peak Hour Traffic Volumes

During the alternatives development process, FDOT District Five coordinated extensively with FDOT District One, as US 27 is located within District One. During this process, FDOT District One expressed concerns with the alternatives that included U-turn movements at the ramp terminals (Alternatives 3, 4 and 6). Based on District preference and design considerations, these alternatives were not considered for further analysis.

AM and PM peak hour intersection analyses were completed using VISSIM for the No-Build condition. The results of the No-Build operational analyses indicated that eastbound ramp terminal operated deficiently, with eastbound off-ramp queues extending to the I-4 mainline. Since the eastbound ramp terminal intersection operated deficiently for the No-Build condition, Alternatives 1, 2 and 5 were dismissed from further evaluation since they do not include further improvements beyond the immediate interchange. With additional traffic and no further improvements, intersection and corridor operations are anticipated to be deficient for the remainder of the US 27 study area in Alternatives 1,2 and 5. Thus, the intersection and overall corridor operations were evaluated for the No-Build and Alternative 7 scenarios. Table 5.5 indicate that all intersections along the corridor improve in operations for Alternative 7 when compared to the No-Build Alternative.

Table 5.5 – I-4 and US 27 Node Evaluation Results

Intersection	2040 AM Peak				2040 PM Peak			
	No-Build		Alternative 7		No-Build		Alternative 7	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
US 27 and Deen Still Road	48.6	D	32.0	C	37.6	D	38.0	D
US 27 and Waverly Barn Road	56.7	E	37.5	D	34.2	C	28.1	C
US 27 and Access Road	18.2	B	16.0	B	21.9	C	24.2	C
US 27 and I-4 WB Ramp	35.8	D	26.9	C	42.2	D	29.6	C
US 27 and I-4 EB Ramp	53.6	D	21.7	C	57.9	E	20.0	B
US 27 and Posner Boulevard	71.2	E	27.0	C	92.3	F	24.7	C

Operational analyses were further evaluated using network-wide performance measures to compare the No-Build and Alternative 7 Build conditions. Results of the network-wide performance measures, as shown in Table 5.6, indicate that the corridor improves in operations for Alternative 7 when compared to the No-Build Alternative.

Table 5.6 – I-4 and US 27 Network Evaluation Results

Performance Measure	No-Build	Alternative 7	Alternative 7 Improvement
	AM Peak		
Total Travel Time (hr)	1,241	980	21%
Total Delay Time (hr)	668	262	61%
Average Delay Time (sec/veh)	167	50	70%
Latent Delay Time (hr)	303	0	100%

Table 5.6 – I-4 and US 27 Network Evaluation Results

Performance Measure	No-Build	Alternative 7	Alternative 7 Improvement
Number of Arrived Vehicles	13,205	17,819	35%
Latent Vehicles	626	1	100%
Total Delay + Latent Delay (hr)	971	262	73%
	PM Peak		
Total Travel Time (hr)	1,312	1,060	19%
Total Delay Time (hr)	715	299	58%
Average Delay Time (sec/veh)	172	55	68%
Latent Delay Time (hr)	693	0	100%
Number of Arrived Vehicles	13,696	18,632	36%
Latent Vehicles	1,272	1	100%
Total Delay + Latent Delay (hr)	1,408	299	79%

5.6 Environmental Impacts

5.6.1 Floodplains and Regulatory Floodways

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Polk County. According to FEMA Map Numbers 12105C0100F, 12105C0125F and 12105C0225F, portions of the roadway are located within Zone A of the 100-year floodplain. Based on the FEMA floodplain lines, the roadway widening will impact the floodplain on both sides of the roadway. There are no regulatory floodways within the project corridor.

There are two basins within the project limits that encroach upon the 100-year floodplain: Basins 505 and 506. Compensation is provided in proposed floodplain compensation ponds (FCP). The total project floodplain impacts equal 18.65 ac-ft and the total project floodplain compensation equals 19.13 ac-ft. The FEMA Flood Insurance Rate Map for the project is shown in Figure 5.3. Detailed floodplain impacts and compensation calculations are provided in the *Pond Siting Report, Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line)*, (November 2016).

5.6.2 Wetlands

A Wetlands Evaluation Report (WER) was prepared following guidelines presented in the FDOT PD&E Manual, Part 2, Chapter 18 (FDOT, 4/22/2013) to identify jurisdictional wetlands and other surface waters along the project corridor and to document potential project related impacts. The WER for this project reevaluates the jurisdictional limits of wetlands and other surface waters within the project corridor, assesses the potential for wetland and surface water involvement, proposes conceptual mitigation needs using the Uniform Mitigation Assessment Method (UMAM) (Chapter 62-345.100, Florida Administrative Code) and updates previous project commitments.

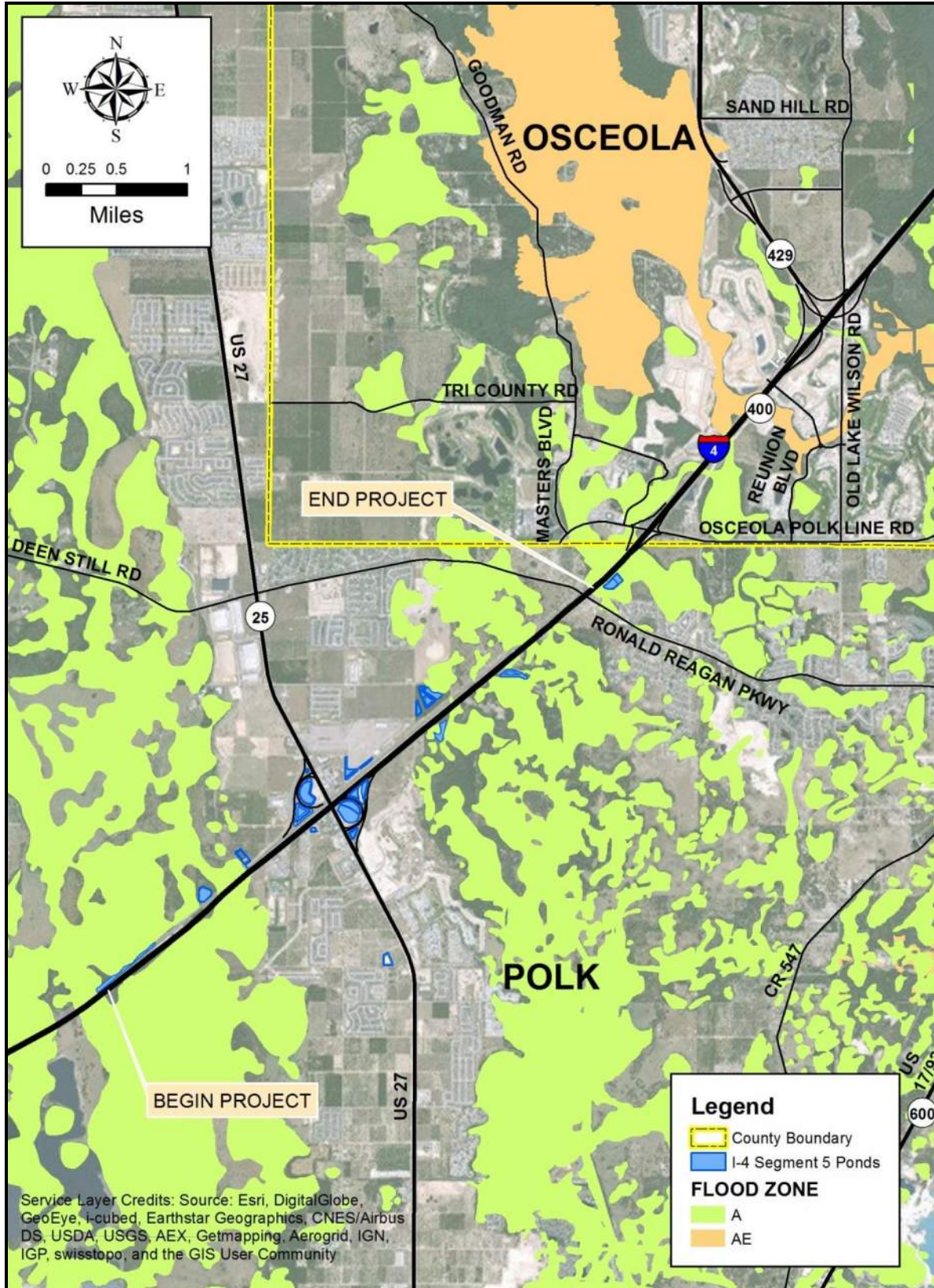


Figure 5.3 – FEMA Flood Insurance Map

The jurisdictional extent of onsite wetlands and other surface water systems within the project corridor were evaluated through the review of current and historic aerial photography of the study area and ground-truth activities. Current and historical information reviewed included infrared digitally orthorectified quadrangle (DOQ) maps, U.S. Geological Survey (USGS) topographic maps, National Wetlands Inventory (NWI) maps and soil survey maps. Jurisdictional limits were identified and limits established in general accordance with the *1987 Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1)*, the *November 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* and the *State of Florida's Delineation of the Landward Extent of Wetlands and Surface Waters (Chapter 62-340, Florida Administrative Code)*.

Wetlands and surface waters observed were classified using the FDOT's Florida Land Use, Cover and Forms Classification System (FLUCFCS) and the U.S. Fish and Wildlife Service's (FWS) classification system as described in their *Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al, 1979)*. For this study, jurisdictional systems were identified from west to east and were classified as either Wetland (WL-#) or Other Surface Water (SW-#) and included the direction of the travel lanes of I-4 (i.e., East (E) or West (W)) relative to the location of the system. The term surface water generally categorizes existing stormwater ponds with a permanent pool, ditches and swales associated with the existing drainage conditions of I-4. Preliminary estimates suggest that 19.01 acres of wetland communities and 1.82 acres of jurisdictional other surface waters will be impacted by the proposed I-4 Segment 5 improvements. These estimates are based on field assessment of jurisdictional limits and preliminary plan preparation for design. Impacts to jurisdictional areas will be refined as design details are finalized.

Impacts to surface waters and wetlands during construction will also be classified as temporary or permanent, depending on the proposed level of disturbance. The type and amount of mitigation for adverse impacts will be based on the final impact acreages, the nature of disturbance (temporary or permanent) and the overall quality of the systems. The existing wetlands and other surface waters and proposed impact areas are depicted in Figure 5.4 through Figure 5.10. The impact areas, quality of each system and likelihood of requiring mitigation for adverse impacts are summarized in Table 5.7.



Figure 5.4 – Surface Water and Wetland Impacts Map (Sheet 1 of 7)

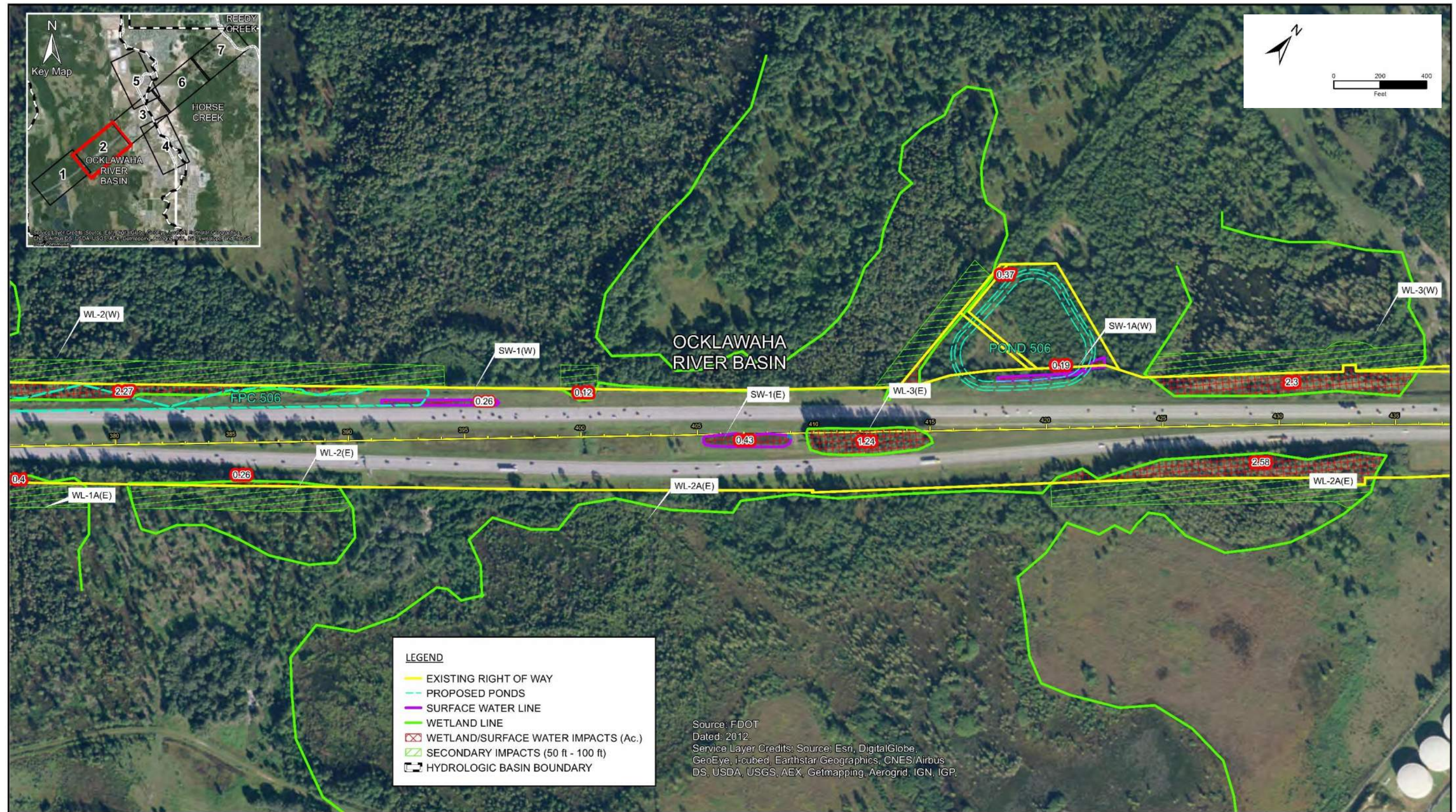


Figure 5.5 – Surface Water and Wetland Impacts Map (Sheet 2 of 7)

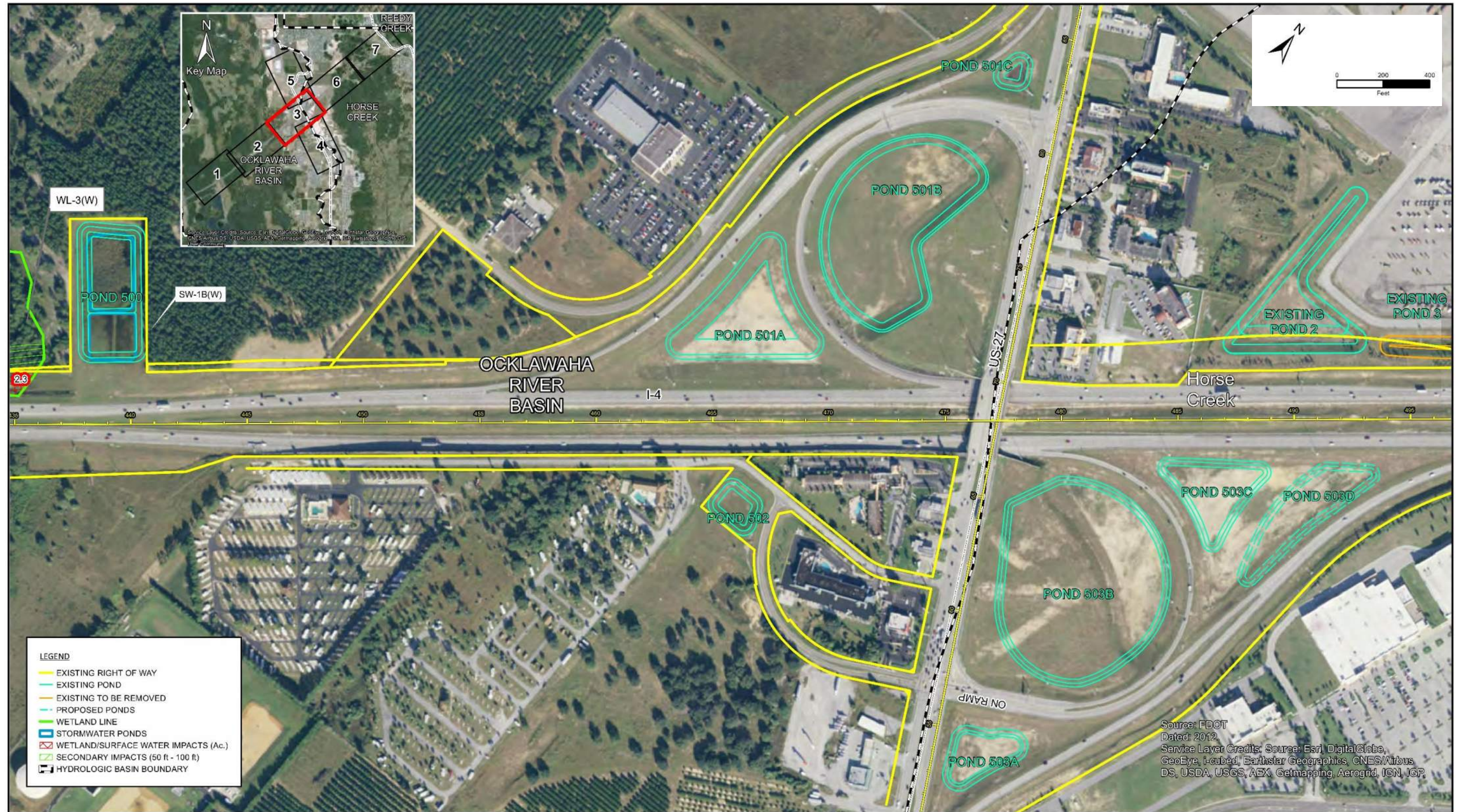


Figure 5.6 – Surface Water and Wetland Impacts Map (Sheet 3 of 7)

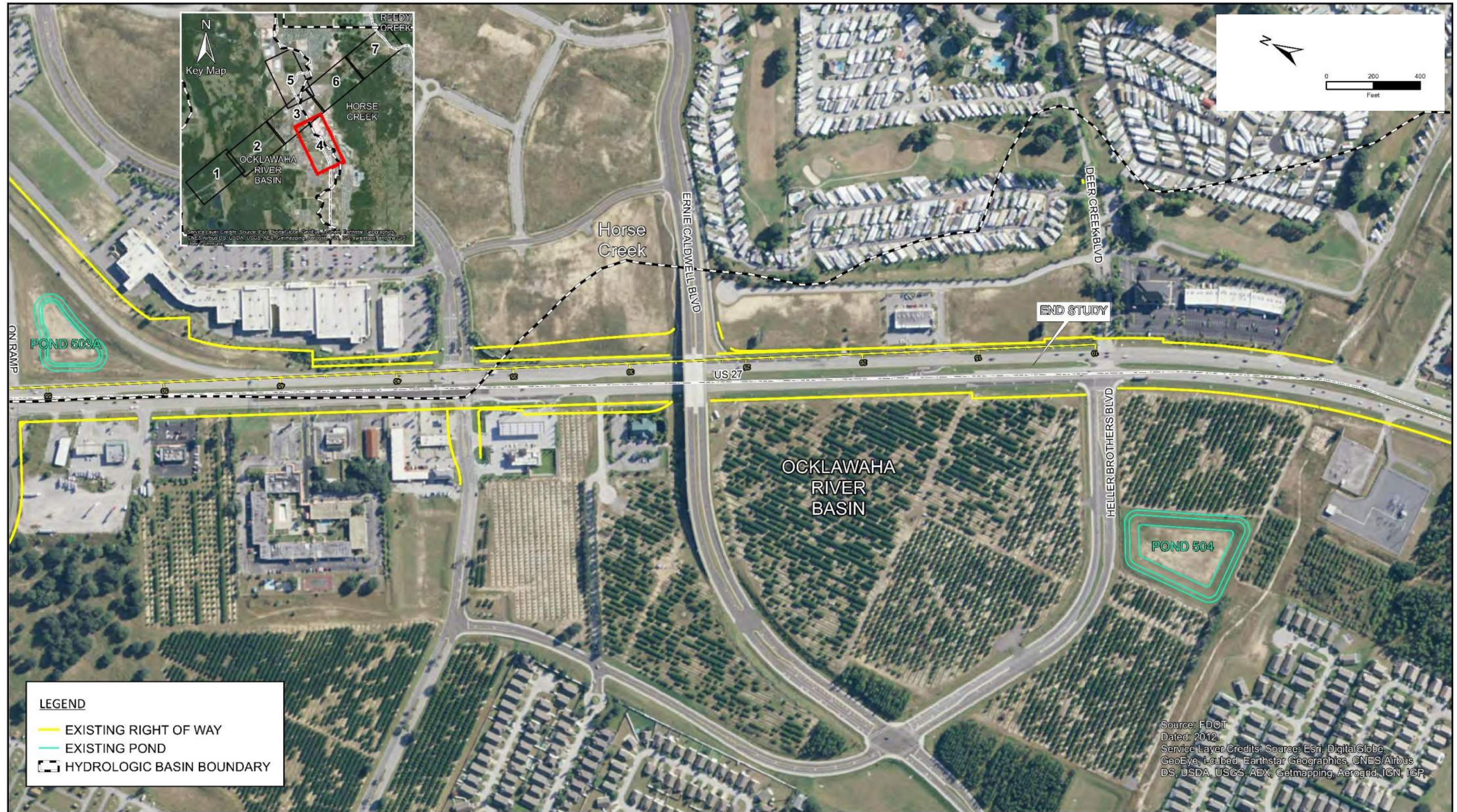


Figure 5.7 – Surface Water and Wetland Impacts Map (Sheet 4 of 7)



Figure 5.8 – Surface Water and Wetland Impacts Map (Sheet 5 of 7)

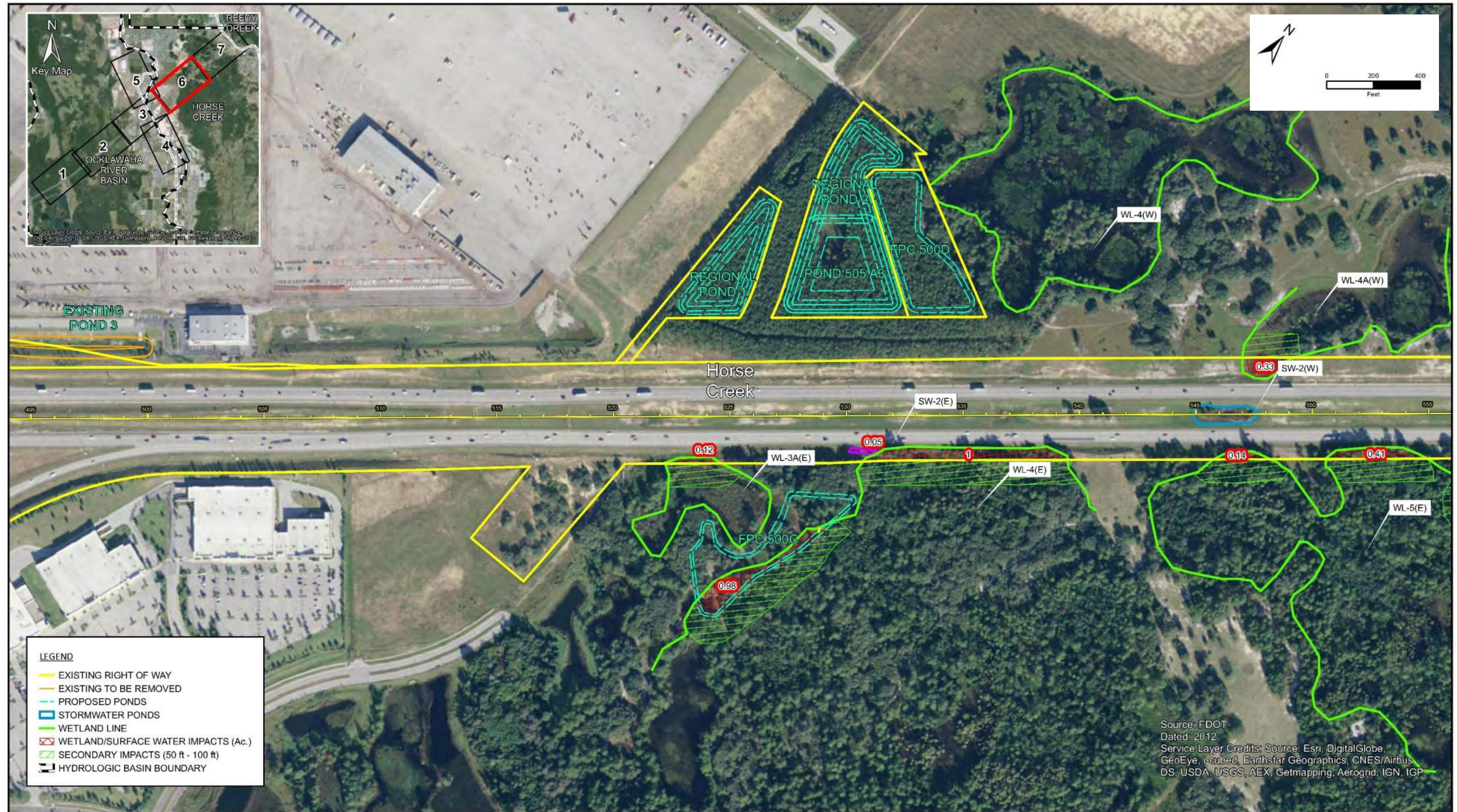


Figure 5.9 – Surface Water and Wetland Impacts Map (Sheet 6 of 7)

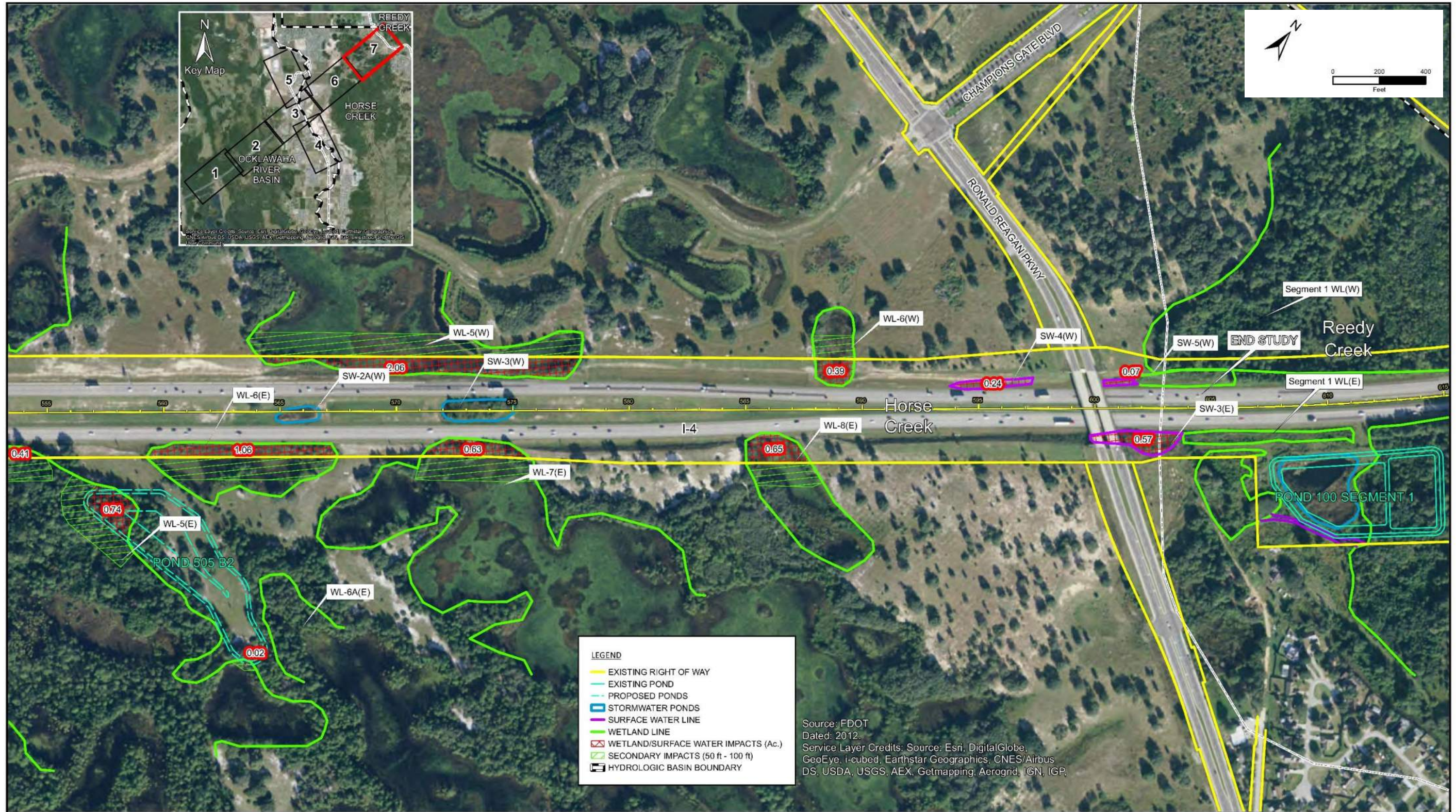


Figure 5.10 – Surface Water and Wetland Impacts Map (Sheet 7 of 7)

Table 5.7 – Summary of Proposed Impacts to Jurisdictional Wetlands/Other Surface Waters

ID	FLUCFCS Code	Total Area within ROW (acres)	Proposed Impacts (acres)	Quality (UMAM)*	Mitigation Requirements (Y, N)**
Wetlands					
WL-1(E)	6300	2.20	0.00	Moderate	N
WL-1A(E)	6300	0.40	0.40	Moderate	Y
WL-2(E)	6210	0.26	0.26	Moderate	Y
WL-2A(E)	6300	2.58	2.58	Moderate	Y
WL-3(E)	6210	1.24	1.24	Moderate	Y
WL-3A(E)	6410	0.12	0.12	Moderate	Y
WL-4(E)	6300	1.98	1.98	Moderate	Y
WL-5(E)	6300	1.31	1.31	Moderate	Y
WL-6(E)	6410	1.06	1.06	Moderate	Y
WL-6A(E)	6300	0.00	0.00	Moderate	N
WL-7(E)	6410	0.63	0.63	Moderate	Y
WL-8(E)	6410	0.65	0.65	Moderate	Y
WL-1(W)	6300	2.73	0.94	Moderate	Y
WL-2(W)	6300	2.76	2.76	Moderate	Y
WL-3(W)	6210	2.30	2.30	Moderate	Y
WL-4(W)	6410	0.00	0.00	Moderate	N
WL-4A(W)	6410	0.33	0.33	Moderate	Y
WL-5(W)	6410	2.06	2.06	Moderate	Y
WL-6(W)	6180	0.39	0.39	Low	Y
Subtotal Area		23.00			
Subtotal Impacts			19.01		
Other Surface Waters (Reservoirs and Swales)					
SW-1(E)	5130	0.43	0.43	Low	N
SW-2(E)	5130	0.05	0.05	Low	N
SW-3(E)	5340	0.57	0.57	Low	N
SW-1(W)	5130	0.26	0.26	Low	N
SW-1A(W)	5130	0.20	0.20	Low	N
SW-4(W)	5130	0.24	0.24	Low	N
SW-1(E)	5130	0.43	0.43	Low	N
Subtotal Area		1.82			
Subtotal Impacts			1.82		
Project Total		24.82	20.83		
<p>*Low= UMAM Score between 0 and 0.49 Moderate= UMAM Score between 0.50 and 0.79 High= UMAM Score of 0.80 or better. **Y = Jurisdictional/Mitigation Required N = Jurisdictional/No Mitigation Required</p>					

Mitigation requirements are based on a compilation of wetland parameters including quality, type, function and size. Impacts to wetlands and other surface waters will be avoided and minimized to the maximum extent possible while maintaining safe and sound engineering and construction practices. Primarily, avoidance and minimization efforts are related to the proposed stormwater management pond locations and the ROW of the I-4 Segment 5 corridor. A mitigation plan that adequately offsets adverse impacts will be developed and implemented during the permitting phase and prior to construction activities. Adverse wetland impacts that may result from the construction of this project will be mitigated, satisfying the requirements of Part IV, Chapter 373, F.S. and 33 U.S.C.s.1344. Compensatory mitigation for this project will be accomplished through the use of mitigation banks and/or other mitigation options that satisfy state and federal requirements. Detailed analysis and descriptions of existing wetlands and other surface waters, impact assessment and conceptual mitigation are provided in the supplemental *Wetland Evaluation Report (WER) Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (December 2016)* prepared for this project.

5.6.3 Wildlife and Habitat

Potential environmental impacts include identifying impacts to wildlife and natural habitat within the proposed corridor. A supplemental *Endangered Species Biological Assessment Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (April 2017)* was prepared following guidelines presented in the PD&E Manual, Part 2, Chapter 27 (FDOT, 10/1/91). The purpose of the report is to describe the potential occurrence of natural habitats and wildlife within the proposed I-4 Segment 5 project corridor, and the likelihood of potential impacts from the project to listed species and their habitats. The study area for the project corridor included all potential pond sites, the existing right-of-way of I-4 and a buffer of 500 feet beyond the boundary of the current right-of-way.

The methodology used to conduct the wildlife assessment included research of existing records and review of literature published by the Florida Natural Areas Inventory (FNAI), the Florida Committee on Rare and Endangered Plants and Animals (FCREPA), the Florida Fish and Wildlife Conservation Commission (FFWCC), the U.S. Fish and Wildlife Service (USFWS) and other relevant scientific publications. Based on these sources, 60 species of animals and 74 species of plants have been identified as potentially occurring in Polk County, though suitable habitat may not be available for all of the species along the project corridor. Of these species, 12 are federally listed animals, 20 are federally listed plants, 30 are state listed animals and 71 are state listed plants.

In order to ensure a thorough assessment of potential impacts to state and federal listed plant species, field surveys were conducted within all suitable habitat in the proposed project widening area and proposed stormwater pond sites. During the field investigation, individuals or evidence of at least 18 different mammal, bird and reptile species were identified along the project corridor, as shown in

Figure 5.11. For the purposes of this preliminary engineering report, species are identified by their common name; scientific names are included in the supplementary *Endangered Species Biological Assessment* report prepared for this project. Of those species, the following species appear on protected species lists developed by the USFWS, the FFWCC, FNAI or FCREPA: great egret, little blue heron, gopher tortoise, Sherman’s fox squirrel and sand skink. Additional wildlife species observed during the field investigations included: cattle egret, red shouldered hawk, green heron, six-lined racerunner, black vulture, catbird, loggerhead shrike, wild turkey, mockingbird, corn snake, Florida scrub lizard, thrasher and mourning dove.

Numerous other wildlife and plant species, many of which are protected, have the potential to occur in Polk County. Although evidence of the occurrence of those species was not observed during field inspections of the existing right-of-way or proposed pond sites, suitable habitat exists in those areas. Details of the field surveys including species identification, soils and land use types, habitat locations and potential impacts to federal or state-listed species and other sensitive species are included in the *Endangered Species Biological Assessment (April 2017)* prepared for this project.

During field investigations, wildlife and plant surveys were conducted in potential impact areas such as proposed pond site areas and the existing right-of-way that contain habitat for one or more listed species. The following sections describe those species with the potential to occur within the study limits and potentially be impacted by the project.

Federally Listed Species

Reptiles

Eastern Indigo Snake – The eastern indigo snake, listed by both the FFWCC and the USFWS as Threatened, is a habitat generalist, using a variety of habitats from mangrove swamps to xeric uplands. These snakes are cold-sensitive and require gopher tortoise burrows, other animal holes, or stumps for protection during winter months. These snakes require large tracts of natural, undisturbed habitat, and prefer to forage in and around wetlands for their preferred prey – other snakes. A number of gopher tortoise burrows (approximately 80) were located within the project area. However, the potential for indigo snakes is only moderate due to this being a primarily developed area and the nearest known recorded sighting according to data from USFWS Vero Beach is 6.7 miles north of the project. During the construction phase of the project, FDOT will implement the USFWS *Standard Protection Measures for the Eastern Indigo Snake*, which contain specific provisions requiring the construction contractor to develop and implement an education plan concerning avoidance of eastern indigo snakes, as well as conducting post-construction reporting.

An effects determination was made by utilizing the USFWS Programmatic Key for the Eastern Indigo Snake (January 2010, updated August 2013). In accordance with this key, the project will implement the *Standard Protection Measures for the Eastern Indigo Snake* (USFWS, 2013) and will have all

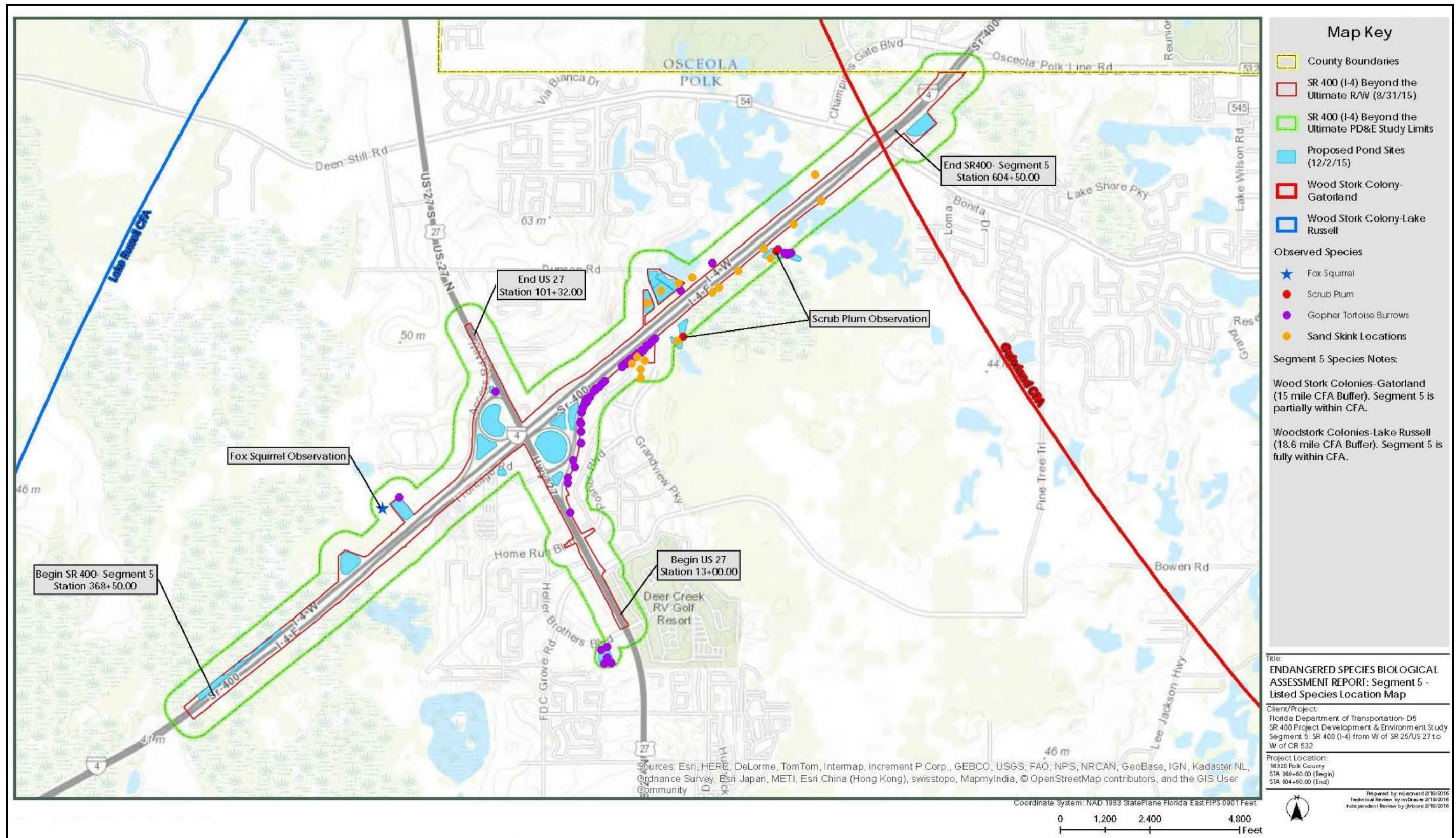


Figure 5.11 – Species Location Map

permits conditioned such that all active and inactive gopher tortoise burrows will be excavated prior to site manipulation in the vicinity of the burrow. Segment 5 will impact less than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) but more than 25 active and inactive gopher tortoise burrows. Therefore, the project would merit 'a may affect' determination under the key. The adjacent segments to the north, as well as the I-4 Ultimate project have been considered and afforded a determination of may affect, not likely to adversely affect. Considering this and that the project area is primarily within an urban corridor with large areas of development offering little contiguous habitat to support the indigo snake, it should qualify for a may affect but is not likely to adversely affect determination.

Sand Skink and Blue-Tailed Mole Skink – Both the sand skink and blue-tailed mole skink are listed as Threatened by the USFWS and FFWCC. The three most important factors in determining the presence of skinks are location, elevation, and suitable soils. Sand skinks occur on sandy ridges of interior Central Florida, including Polk County. They are found within these geographic areas typically at elevations of 82 feet above sea level and higher. They occur in excessively drained, well-drained, and moderately well-drained sandy soils, with suitable soil types including: Apopka, Arrendondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pomello, Satellite, St. Lucie, Tavares, and Zuber. These soil types typically support scrub, sandhill, or xeric hammock natural communities, though these may be degraded by impacts to overgrown scrub, pine plantation, citrus grove, old field, or pasture. Skinks have been documented to occur in all these degraded conditions where soil types are suitable regardless of vegetative cover. This makes habitat condition of secondary importance in determining if skinks are present. If a site has suitable soils at the appropriate elevation within the counties where skinks are known to occur, there is a likelihood of presence, and potential effects to skinks should be considered. As the project occurs within the USFWS consultation area for sand skink and blue-tailed mole skink, a coverboard survey was conducted in March and April of 2015 (the full survey report is included as an appendix to the *ESBA* report). The results of the survey were positive for the presence of sand skinks within the proposed right-of-way at a total of six locations. Subsequent to the survey, USFWS introduced a new designation for determining what areas will be considered occupied habitat after a survey. It states that "A radius of 188 feet (57.2 meters) will be drawn around any positive survey hit/track, and that area will be considered occupied. This distance is based on the distance that 2/3 (67 percent) of the skinks moved in Penney's study." Using this designation, the positive results from the survey were re-mapped and a total area of occupied habitat was calculated at 6.28 acres.

There is additional occupied habitat that was not surveyed in 2015 but with a positive survey result from a 2013 survey (0.23 acres). Also, an area which consists of 5.74 acres that was not surveyed due to access issues but is adjacent to areas within the ROW with positive results is also considered occupied. There are two additional pond sites that were added to the project after the completion of the sand skink survey. These ponds (FPC 500C, Regional Pond 1) occur either completely or partially

over mapped skink soils. Since neither area was subjected to a coverboard survey, it is presumed that the areas that occur over skink soils are occupied (7.57 acres). Additionally, areas included within the revised design footprints for pond site FPC 500D, Pond 505A3, and Regional Pond 2 were outside of the areas surveyed during the coverboard survey totaling 1.22 acres. Total occupied habitat within the project corridor is 21.04 acres. Due to the location of the existing roadway and the proposed design concept, direct impacts to both threatened skink species are possible. Mitigation in the form of bank credits from a Service-approved conservation bank that has credits available and services the impacted project area will be provided at a ratio of 2:1 to offset the proposed impacts. Therefore, the project may affect the sand skink and blue-tailed mole skink. The Biological Opinion issued by USFWS on February 21, 2017 provides the authorization for the impact to 21.04 acres of occupied sand skink habitat provided that 42.08 credits are provided at a Service Approved Conservation bank.

Birds

Florida Scrub-Jay – The Florida scrub-jay, listed as Threatened by both the FFWCC and USFWS, is an endemic species found in Florida scrub habitats. This gregarious jay is a habitat specialist and typically lives in scrub and scrubby flatwoods habitats. Field surveys during the original PD&E Study in 1994 and 1995 identified scrub-jays near to I-4 at CR 54 at the eastern end of the project. An exact location of the observation was not given in the report. Research on any other scrub-jay observations and known habitat was conducted for the project area. No observations were made within 5-miles of the project corridor (FFWCC and Wildlife Research Institute Wildlife Occurrence System Database 1988 – 2014), though some potential habitat was identified, primarily east of the I-4 corridor near CR 54 and CR 532 (Osceola Polk Line Road). Much of the habitat previously identified in the original PD&E Study has been developed adjacent to CR 54. Some stations along the I-4 eastbound right-of-way were surveyed in October 2013 using a call-back tape at locations with potential habitat. No scrub-jays responded to the playback tape calls. Field surveys for listed species in 2015 indicated additional areas of previous potential habitat are under current development. No scrub-jays have been observed within any proposed pond site areas or within the section of I-4 within this study; therefore, this project may affect but is not likely adversely affect this species.

Audubon's Crested caracara – Audubon's crested caracara is listed with both the USFWS and the FFWCC as threatened. This large raptor inhabits Florida's prairies and rangelands. They forage on many kinds of insects, fish, reptiles, birds, and mammals. They will feed on live captured prey, but also on roadkill. Nests are usually constructed within cabbage palms. Sensitivity to human disturbance varies in this species with many tolerating human activities, especially when human influence is already present within their home range. If a caracara nest is found to be within the project area, management practices outlined within the *Habitat Management Guidelines for Audubon's Crested Caracara in Central and Southern Florida* should be employed. The project occurs at the northernmost edge of the consultation area for this bird in Central Florida and no nesting or foraging habitat has been documented within the project corridor. No birds or nests have been observed or were documented

within the project corridor either during the current study or during the previous PD&E Study and no observations have been recorded by FFWCC (FFWCC and Wildlife Research Institute Wildlife Occurrence System Database 1988 – 2014). Therefore, the project may affect but is not likely to adversely affect this species.

Everglades Snail kite – The snail kite is listed as Endangered by both the USFWS and the FFWCC. This non-migratory, medium-sized raptor utilizes large open freshwater marsh habitats and lakes with shallow water. Nests are usually located in a low tree or shrub at the water’s edge. The main staple of their diet is the apple snail, lending to their name. The project does occur within the USFWS consultation area for the snail kite though no observations have been documented within or near the project corridor. Nesting snail kites have been documented well to the east of the project in Kissimmee at both Lake Tohopekiliga and East Lake Toho. No known adequate nesting or foraging habitat is located adjacent to the project area, either within the proposed right-of-way or pond site areas. Therefore, this project will have no effect on this species.

Red-Cockaded Woodpecker – This species is listed as Endangered by the USFWS and Threatened by the FFWCC. The colonial red-cockaded woodpecker (RCW) is a habitat specialist, requiring stands of over-mature pine that have contracted the red-heart disease. RCWs require diseased trees for cavity building, which they use for nest and roost cavities. Preferred pine stands need to have a fairly open canopy, with a sparse subcanopy to allow easy flight. RCWs must also have ample foraging habitat consisting of younger pines surrounding the cavity trees. No suitable nesting habitat was observed in the impact area within the project limits. The project occurs near an area previously designated by USFWS as an “Occurrence Area” located north and west of the corridor near Walt Disney World, though the previous PD&E Study indicated that no suitable habitat or any documented RCW sightings occurred within the proposed right-of-way or pond sites. During field surveys conducted in July, August and September 2014 and September 2015, no suitable habitat was observed within the project footprint. Therefore, this project will have no effect on the red-cockaded woodpecker.

Wood Stork – This species, now listed as Threatened by both the USFWS and the FFWCC, is the only true species of stork nesting in the United States. This reclassification does not change any conservation or protection measures for the wood stork under the Endangered Species Act (ESA), rather it recognizes the recovery and the positive impact that conservation efforts have had on breeding populations of storks. Feeding areas for wood storks include marshes, pools or ditches in which fish congregate. This species typically nests in mixed woodlands comprised of such overstory species as cypress, gum, and southern willow; pond apple and mangrove swamps may also be utilized for nesting. Utilizing the *Corps of Engineers and U. S. Fish and Wildlife Service Effect Determination Key for the Wood Stork in South Florida* (2010), the project is not within 0.47 miles of an active colony site, will likely impact Suitable Foraging Habitat (SFH) of greater than 0.5 acres, and is located within the CFA of 2 wood stork colonies (*Lake Russell, Gatorland*). Additionally, FDOT commits to provide SFH

compensation within the Service Area of a Service-approved wetland mitigation bank(s) within the CFA, and the Project is not contrary to the Service's *Habitat Management Guidelines for the Wood Stork in the Southeast Region* and in accordance with the Clean Water Act section 404(b)(1) guidelines. Proposed wetland impacts include approximately 13 acres of forested wetlands, 4.85 acres of herbaceous wetlands, and 2 acres of other surface waters. There are multiple (five) currently permitted mitigation banks that include the project corridor within the bank service area that have federal credits available to offset impacts to SFH. FDOT will coordinate with the permitting agencies during the permitting phase of the project on compensatory mitigation and minimization of impacts to suitable foraging habitat. These actions should result in no net loss of foraging habitat; therefore, the project may affect but is not likely to adversely affect the wood stork.

Florida Grasshopper Sparrow – This diminutive species of sparrow is listed as Endangered by both the USFWS and FFWCC. This bird prefers frequently burned and poorly drained prairie habitat with low vegetation typically less than 2 feet in height. Dominant vegetation is saw palmetto, with a sparse distribution of dwarf live oak, gopher apple, pawpaw, and St. John's wort. Grasses such as wiregrass, bluestems, and flat-topped goldenrod are common. It is believed that only seven localized populations exist in Florida; they occur in southern Osceola County, and portions of Polk, Highlands, Okeechobee, and Glades counties. Although the project does occur within the consultation zone for this bird, no observations have been made or confirmed in the vicinity of the project site according to a Florida Natural Areas Inventory Biodiversity Matrix inquiry. A field survey of the project site revealed that suitable habitat is not present within the vicinity of the project. Therefore, the project will have no effect on this bird.

Southern Bald Eagle – The southern bald eagle was delisted from both the US Endangered Species Act and FFWCC imperiled list, though it is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The USFWS issued the National Bald Eagle Management Guidelines in May 2007 while Florida adopted a Bald Eagle Management Plan (BEMP) in April 2008, written closely to follow the federal guidelines. The BEMP provides guidelines and recommendations to help people avoid violating state and federal eagle laws. The BEMP also outlines strategies to maintain the Florida population of bald eagles at or above current levels. The BEMP goal is to, "maintain a stable or increasing population of eagles in Florida in perpetuity." Bald eagles almost always nest in the tops of living or dead tall trees along or very near lakes and rivers; these water bodies provide fish, typically their preferred food. Bald eagles generally avoid areas with extensive human activity, so management guidelines must be considered before any construction can be initiated within 660 feet of an active southern bald eagle nest. No bald eagle nests have been identified within 1 mile of the corridor. The closest nests are OSC151, located west of Goodman Road to the northwest of the corridor and PO048, located south of I-4 and west of US 27. For this reason, the project will have no effect on the southern bald eagle.

Osprey – The osprey, also known as the fish hawk, are expert anglers that typically share the same habitat as bald eagles but are smaller in size. Ospreys build large stick nests located in the tops of large living or dead trees and on manmade structures such as utility poles, channel markers and nest platforms. They are listed as a Species of Special Concern by FFWCC only in Monroe County, but are also still protected under the Migratory Bird Treaty Act. Permits are required throughout the state to remove a nest for these raptors, and a replacement structure must be erected to mitigate the removal of the nest. Should any nests found along the corridor be subject to impacts, a nest removal permit will be applied for from FFWCC. No osprey nests currently exist in proximity to the project corridor. Therefore, this project may affect but not likely adversely affect the osprey.

Federally Listed Plant Species

Twenty federally listed species have been demonstrated to have the potential to occur within Polk County, though not all habitat types are represented within the project area. Information from the previous PD&E Study indicated that one listed plant was observed, Britton’s Beargrass, but no location for this observation was provided. A follow up protected plant field survey covering the area of proposed right-of-way widening and pond sites was conducted in September and October 2014 by project biologists. No Britton’s Beargrass was observed within the survey areas, so the project may affect but not likely adversely affect Britton’s Beargrass. However, the scrub plum was observed within proposed Pond Sites 500C and 505B2 on the eastbound side of I-4, as shown in Figure 5.11. No additional federally listed plant species were identified within the proposed widening impact area or pond sites during the field investigations. Additionally, during the sand skink cover board survey in March and April 2015, no listed plant species observations were noted. Listed plant species, specifically the scrub plum, is anticipated to be impacted by this project. Specific measures to address these plants will be undertaken during consultation with USFWS. The project will coordinate with conservation staff at Bok Tower Gardens prior to construction to collect and relocate the individual scrub plum plants and seeds (if possible) as part of the Rare Plant Conservation Program which helps prevent the loss of unique germplasm. Therefore, the project may affect federally listed plant species. The Biological Opinion issued on February 21, 2017 provides the authorization for impacts to the scrub plum provided the project adheres to the commitment to work with Bok Tower Gardens conservation staff to remove and relocate viable scrub plum plants prior to the commencement of construction.

State Listed Species

Mammals

Florida Mouse – This mouse, listed as a Species of Special Concern by the FFWCC, is one of the two mammal species that are endemic to Florida. It typically lives within gopher tortoise burrows in fire-maintained, xeric uplands. Sub-optimal habitat exists in the xeric uplands that contain gopher tortoise burrows, such as mesic flatwoods, sand pine scrub, and sand pine plantations. Gopher tortoise burrows were located within the project area, but no Florida mice were observed during field surveys. If gopher tortoise burrows are proposed to be impacted, then the relocation of gopher tortoises and their burrow

commensals will be conducted prior to construction; because of this, the project is not likely to adversely affect the Florida mouse.

Sherman's Fox Squirrel – The Sherman's fox squirrel, listed by the FFWCC as a Species of Special Concern, is the largest of the three fox squirrel subspecies that occur in Florida. They have large ranges that can span over 80 acres. Optimum habitat for this subspecies is predominantly longleaf pine-turkey oak sandhills, although they are also reported to occur in mesic forested areas, as well. Some potential habitat is present within the project area, and one Sherman's fox squirrel was observed south of US 27 west of the I-4 ROW during the site investigations for this project. The amount of potential habitat for this species impacted by the project will be minimal. Therefore, the proposed project is not likely to adversely affect the Sherman's fox squirrel.

Florida Black Bear – The Florida black bear is a very wide-ranging species formerly listed as Threatened by the FFWCC. Preferred habitat of the black bear includes dense forest, both upland and wetland, but the bear is often encountered in other areas during its seasonal movements. The bear was removed from the list in August 2012 after the approval of the Florida Black Bear Management Plan. The plan was implemented to set a strategy in place to address challenges in bear management, to manage for a sustainable bear population state-wide, and reduce human-bear conflicts. Going forward, FFWCC will continue to engage with landowners and regulating agencies to guide future land use to be compatible with the objectives of the Bear Management Plan. The plan divides the state into seven Bear Management Units (BMUs) which support the seven sub-populations of bear across the state. The project occurs within the South Central BMU, which includes Charlotte, De Soto, Glades, Hardee, Highlands, Hillsborough, Indian River, Manatee, Martin, Okeechobee, Osceola, Pinellas, Polk, Sarasota and St Lucie counties and contains the Highlands subpopulation. Black bears are not common in this part of Polk County, though as a migratory species could enter the project corridor. As no further fragmentation of bear habitat is proposed, the project is not likely to adversely affect the Florida black bear.

Reptiles

Florida Pine Snake – This snake, listed as a Species of Special Concern by the FFWCC, is another tortoise burrow commensal organism, utilizing both tortoise burrows and also the tunnels of pocket gophers for feeding and shelter. Preferred habitat of the pine snake is xeric uplands, and to a lesser extent, flatwoods and other mesic uplands. Some habitat is available within the project, especially where gopher tortoise burrows were observed, as shown in Figure 5.11. Both the pocket gophers and the pine snakes live nearly their whole lives underground and are very difficult to observe directly. Earth work in suitable habitat may impact subterranean pine snakes. With the relocation of commensal organisms from gopher tortoise burrows, the project is not likely to adversely affect this species.

Gopher Tortoise – The occurrence of this species, listed as Threatened by the FFWCC (and designated as a Candidate species for listing by the USFWS), is a key factor in the determination of habitat suitability for certain other listed species because of the large number of other animals that use tortoise burrows for one or more of their life requisites. While it is common to find gopher tortoise burrows in most types of upland communities, the preferred habitats include xeric uplands and disturbed, ruderal areas.

Gopher tortoise burrows and suitable habitat were observed in numerous locations along the project corridor. Approximately 80 gopher tortoise burrows were identified within the project study area. If impacts to these areas cannot be avoided, then relocation of the tortoises and their commensals will be necessary. During permitting, all potential gopher tortoise habitat that could be impacted by the project will be systematically surveyed according to the current guidelines published by the FFWCC. If gopher tortoise burrows are found, all practicable design measures will be employed to avoid impacts to the burrows (such as remaining outside of a 25-foot radius from each burrow). For burrows which cannot be avoided, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals, and relocation will be performed at a time as close as practicable to the start of construction activities at the site of the burrows. Therefore, the project is not likely to adversely affect the gopher tortoise.

Short-tailed snake – The short-tailed snake, listed as Threatened by the FFWCC, belongs to a monotypic genus that is endemic to Florida. Rarely seen due to its earth-burrowing tendencies, it is restricted to xeric uplands, primarily longleaf pine-turkey oak sandhills and sand pine scrub, for its habitat requirements. Short-tailed snakes may occur in a wider range of ecosystems than indicated in the scant literature on the species, and may be found where prey (small snakes) and loose soils occur in North-Central Florida. None of these snakes were observed during any field surveys. There is little proposed impact to xeric habitat, though with the commitment to relocate all potential impacted gopher tortoise burrows, it is anticipated that this project is not likely adversely affect the short-tailed snake.

Amphibians

Gopher Frog – The gopher frog, listed by the FFWCC as a Species of Special Concern, is a gopher tortoise burrow commensal organism, using tortoise burrows for shelter. Prime gopher frog habitat includes xeric uplands, especially longleaf pine-turkey oak associations with nearby (i.e. within one mile) seasonally flooded marshes or ponds. Field biological surveys have shown that gopher tortoise burrows were located within the corridor, though no gopher frogs were observed. If gopher tortoise burrows are impacted, then this species could be impacted as well, though the excavation of any potentially occupied burrows and the relocation of any gopher tortoises and their burrow commensals should offset any impacts to this species. Therefore, the project is not likely to adversely affect the gopher frog.

Birds

Florida Burrowing Owl – The Florida burrowing owl is listed as a Species of Special Concern by the FFWCC. The breeding range of the Florida burrowing owl includes Polk County. Preferred habitats are treeless areas on well-drained soil where herbaceous ground cover is fairly short, such as dry prairies and edges of depressional marshes during the dry season. Florida burrowing owls have also been observed along canal banks, pastures, golf courses, mowed residential lawns, and airports (Rodgers, 1996). No Florida burrowing owls or their burrows were observed during the field surveys and no direct or indirect impacts are anticipated for this species. Therefore, the project is not likely to adversely affect the Florida burrowing owl.

Florida Sandhill Crane – This non-migratory subspecies, listed as Threatened by the FFWCC, can often be seen foraging in improved pastures, open fields and along the roadside. Sandhill cranes nest in freshwater marshes and feed in adjacent fields and pastures. Some adequate nesting habitat is found within the freshwater marshes and vegetated shorelines of lakes located adjacent to the project corridor, and foraging habitat was found within the project limits. The proposed project is not likely to adversely affect the sandhill crane.

Southeastern American Kestrel – This resident subspecies of the kestrel, listed as Threatened by the FFWCC, can be distinguished from its cousin, *F. s. sparverius*, a winter migrant, by its smaller size. The Southeastern kestrel requires three components for optimal habitat: large, open fields for foraging, snags for nesting, and snags, fence lines or telephone poles as perching sites from which to hunt. No kestrels were observed along the project corridor, nor within any pond sites. Therefore, this project is not likely to adversely affect this species.

Wading Birds – Wading bird rookeries were not observed and are not known to occur within or adjacent to the study area. Potential foraging habitat for limpkin, little blue heron, roseate spoonbill, white ibis, reddish egret, tri-colored heron, and snowy egret, all classified as Species of Special Concern (SSC) by the FFWCC, occurs within the limits of the study area. Both little blue heron and great egret were observed during field surveys. No wetlands providing foraging or nesting habitat for these avian species will be impacted by the proposed project and indirect impacts to wading birds are not anticipated. Unavoidable impacts to wetlands will be mitigated for during project permitting with the appropriate regulatory agencies. Therefore, the proposed project is not likely to adversely affect the wading bird population in the region.

State Listed Plant Species

A review of available information revealed that 71 state listed plant species have the potential to occur within the habitats located within the project area in Polk County. Vegetation surveys conducted during the previous PD&E Study (EA/FONSI completed December 1998) identified *Garberia* and Leafless beak orchid as two state listed species observed, but did not provide a detailed location in the report. Surveys for state-listed plants were conducted during September and October 2014, and during

September 2015. Additionally, during the sand skink cover board survey in March and April 2015, no listed plant species observations were noted. It is unknown if the project will impact state listed species at this time, but all efforts will be made to avoid any impacts. Therefore, the proposed project is not likely to adversely affect state listed plant species.

5.6.4 Archaeological and Historical Resources

A Cultural Resource Assessment Survey (CRAS) in support of proposed improvements to I-4 from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line), in Polk County, Florida was conducted to comply with Section 106 of the National Historic Preservation Act (as amended) and its implementing regulation 36 CFR Part 800 (Protection of Historic Properties). All work was performed in accordance with Part 2, Chapter 12, of the Florida Department of Transportation (FDOT) PD&E Manual (revised January 1999) and the Cultural Resource Management Handbook (revised November 2004) and is consistent with the Florida Division of Historical Resources (FDHR) recommendations for such projects as stipulated in the FDHR's *Cultural Resource Management Standards & Operations Manual, Module Three: Guidelines for Use by Historic Preservation Professionals*. The CRAS study also complies with Chapter 267 of the Florida Statutes and Rule Chapter 1A-46, Florida Administrative Code.

The CRAS serves as an addendum to the report titled *Cultural Resource Assessment Survey Interstate 4 Project Development and Environment Study, Polk County, Florida* (Florida Master Site File [FMSF] Survey No. 4249) (ACI 1995). The regional prehistory and history of the current project area are consistent with those described in the previous report and are not repeated here. The project ROW, as defined in 1995, is unchanged (ACI 1995).

The purpose of this survey is to update the previous I-4 corridor studies, which involves locating, identifying and bounding archaeological resources within proposed pond locations and updating the inventory of historic structures and potential districts within the project Area of Potential Effect (APE). Previously undocumented resources identified in the APE were assessed for their potential for listing in the National Register of Historic Places (NRHP).

The APE is defined as the area within which the roadway improvements and subsequent maintenance may have physical, visual, audible, or atmospheric effects on historic properties. The APE as defined for this project includes the existing ROW along I-4 and was extended to the back or side property lines of parcels adjacent to the corridor, limited to a distance of no more than 100 meters (330 feet) from the ROW. The APE also includes the proposed pond footprints plus a 100-foot buffer. Archaeological survey was conducted within the proposed pond footprints, and the architectural study included the entire APE.

Field investigations consisted of pedestrian surface inspection and the excavation of 62 subsurface shovel tests within the footprint of the proposed ponds. Five prehistoric ceramic artifacts were

recovered from three shovel tests within FPC 500C, representing a newly identified archaeological site (8PO07986). It is unlikely that additional research of 8PO07986 would yield information important to the prehistory of central Florida. It is deemed that 8PO07986 is ineligible for the NRHP. One archaeological occurrence (AO) was also identified in FPC 500C. This AO does not meet the criteria for significance required for inclusion in the NRHP. No further archaeological survey is recommended for the proposed ponds. Table 5.8 provides a summary of the results of the field investigations.

Table 5.8 - Results of Phase I Archaeological Survey of Proposed Ponds for I-4 Segment 5 APE

Pond	Acreage	Shovel Tests	Comment/ Condition	Results
100	5.61	0	Existing/ Expanded	No archaeological sites or cultural material
500	3.93	0	Existing/ Regraded	No archaeological sites or cultural material
Regional Pond 1	2.20	3	New Pond: NW side of I-4	No archaeological sites or cultural material
Regional Pond 2	5.85	7	New Pond: NW side of I-4	No archaeological sites or cultural material
FPC 500C	3.12	20	New Pond: SE side of I-4	One archaeological site recorded (8PO07986); one archaeological occurrence identified
FPC 500D	3.08	5	New Pond: NW side of I-4	No archaeological sites or cultural material
501A	4.86	0	Existing/ Reduced and regraded	No archaeological sites or cultural material
501B	8.89	0	Existing/ Enlarged and regraded	No archaeological sites or cultural material
501C	0.48	0	Existing/ Regraded	No archaeological sites or cultural material
502	0.87	0	Existing/ No modification	No archaeological sites or cultural material
503A	1.56	0	Existing/Reduced and regraded	No archaeological sites or cultural material
503B	12.33	7	Existing pond on SE side of I-4 to be expanded/ regraded	No archaeological sites or cultural material
503C	2.46	0	Existing/ Split into two ponds	No archaeological sites or cultural material
503D	2.85	0	Existing/ Split into two ponds	No archaeological sites or cultural material
504	3.50	0	Existing/ No modification	No archaeological sites or cultural material

Table 5.8 - Results of Phase I Archaeological Survey of Proposed Ponds for I-4 Segment 5 APE

Pond	Acreage	Shovel Tests	Comment/ Condition	Results
505 A3	3.84	8	New Pond: NW side of I-4	No archaeological sites or cultural material
505 B2	4.86	6	New pond: SE side of I-4	No archaeological sites or cultural material
506	5.34	3	New pond: NW side of I-4	No archaeological sites or cultural material
FPC 506	5.95	3	New pond: NW side of I-4	No archaeological sites or cultural material
Total	79.12	62		

The architectural survey resulted in the identification of three historic structures constructed before 1971 and located within the I-4 Segment 5 APE as shown in Table 5.9 and Figure 5.12. The identified historic resources were evaluated to determine their significance and potential for listing in the NRHP. The historic resources within the I-4 Segment 5 APE lack the architectural distinction and significant historical associations necessary to be considered for listing in the NRHP and are recommended ineligible. No potential NRHP districts were identified due to the lack of concentration of historic structures.

In addition to the aforementioned historic resources constructed before 1971, the Polk County Property Appraiser’s records were reviewed, which indicated that 15 structures that date from 1971 to 1974 are located within the APE. Depending on the progression of the project (i.e., how much time elapses between the current study and the eventual design/construction of the project), it may become necessary to inventory and assess these resources. Detailed evaluation of the cultural resources within the study area, including survey methodology, previously recorded resources and FMSF documentation are provided in the supplementary report, *Technical Memorandum: Cultural Resource Assessment Survey of Proposed Improvements to Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) in Polk County, Florida (March 2016)* prepared for this project.

Table 5.9 - Historic Resources Recorded within the I-4 Segment 5 APE

FMSF No.	Original/ Update	Address	Architectural Style	Build Date	NRHP Status
8PO07962	Original	43804 US Highway 27	Masonry Vernacular	ca. 1967	Not eligible
8PO07963	Original	43750 US Highway 27	Masonry Vernacular	ca. 1964	Not eligible
8PO07989	Original	44079 US Highway 27	Masonry Vernacular	1970	Not eligible

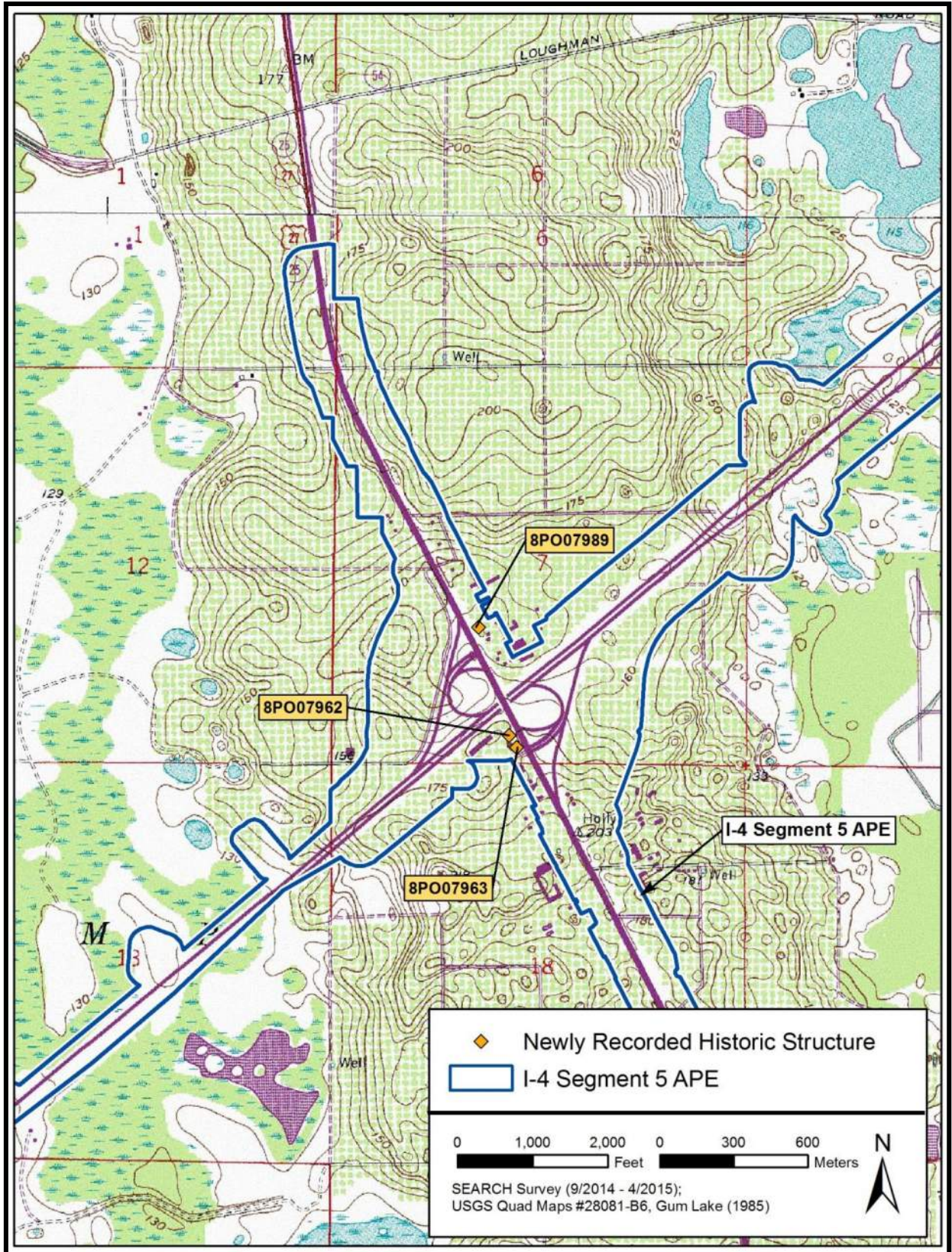


Figure 5.12 – Recorded Historic Resources within I-4 Segment 5 APE

5.6.5 Contamination

A Contamination Screening Evaluation Report (CSER) is used to determine the likelihood of petroleum or other hazardous substance impacts to the project. The CSER, completed in accordance with Part 2, Chapter 22 (January 17, 2008 revision) of the PD&E Manual contains results from a physical site investigation of the project corridor, a limited investigation of properties along the corridor adjacent to the ROW as viewed from areas of public access, a review of Florida Department of Environmental Protection (FDEP) files, Polk County records and available environmental databases.

As part of the CSER, a review of the FDEP Oculus Database was conducted to determine locations of contaminated sites followed by visual inspection of properties adjacent to the corridor and properties within ½ a mile of the roadway. Known contamination sites and properties with potential contamination were identified and assigned a risk rating based on the degree of concern for potential contamination problems. A total of 38 sites or properties within 1/2 mile of the current I-4 right-of-way and proposed pond sites were identified by searches in the FDEP contamination database or by field inspections. Of these sites, one had a high risk rating, 13 had a medium risk rating and the remaining 24 sites received a low risk rating. It is recommended that any excavation, demolition or dewatering activities within or adjacent to any of the identified high or medium risk sites should require soil and groundwater testing before construction. The 38 identified sites/properties within 1/2 mile of the existing I-4 ROW and the proposed pond sites and their corresponding risk rating are shown on Figure 5.13 through Figure 5.15.

Pond sites were inspected via pedestrian transects and rated for their potential to have contamination. Out of the nineteen pond sites (11 existing facilities and eight new/proposed sites), 14 pond sites were given a medium risk rating and the remaining five sites were given a low risk rating. Three sites were identified as groundwater contamination plumes of ethylene dibromide (EDB) and encompass 23 other listed contamination sites in addition to pond sites 500, 501A, 502, 503A, 503B, 503C, 503D, and 506. Pond Site 501B is located adjacent to a delineated groundwater contamination plume and Pond 504 is located near active and historic citrus groves. Pond Sites FPC 500D, Pond 505 A3/Regional Pond 2, and Regional Pond 1 have fallow citrus trees and were likely groves. All fourteen (14) pond sites that have the potential to have EDB contamination were given medium risk ratings. However, existing pond sites which are not proposed to be modified and were identified as having the potential to have groundwater contamination may not warrant additional testing based on depth to groundwater and/or not having proposed modifications. At a minimum, all pond sites selected for final design will be tested for metals. As such, Level II testing will be performed at those sites selected by the best available current data for contaminants of concern. Furthermore, additional testing may be required at these or other sites during the design phase based upon the construction plans. Additional details can be found in *the Contamination Screening Evaluation Report Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (April 2017)*.

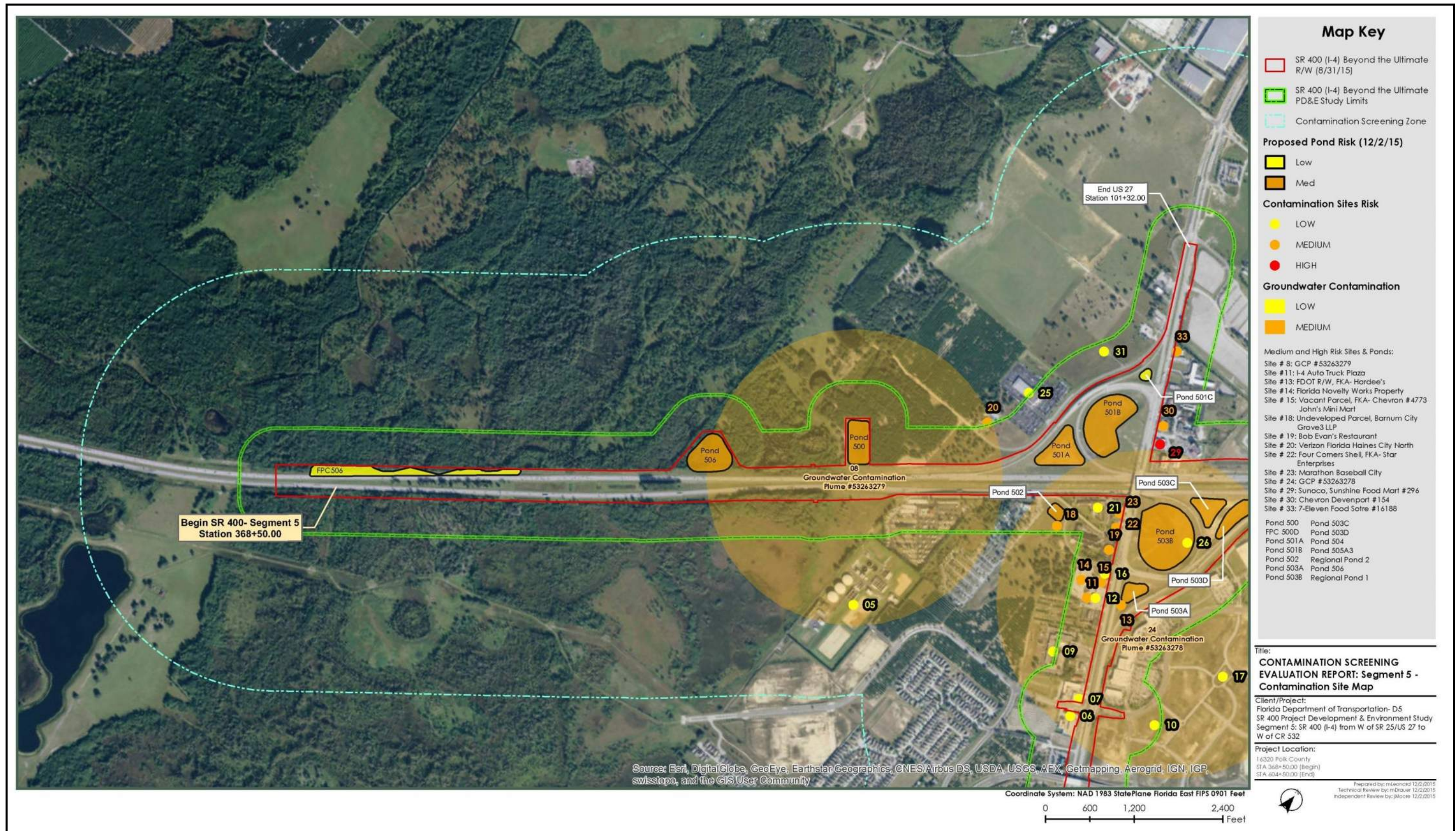


Figure 5.13 – Potential Contamination Sites (Sheet 1)

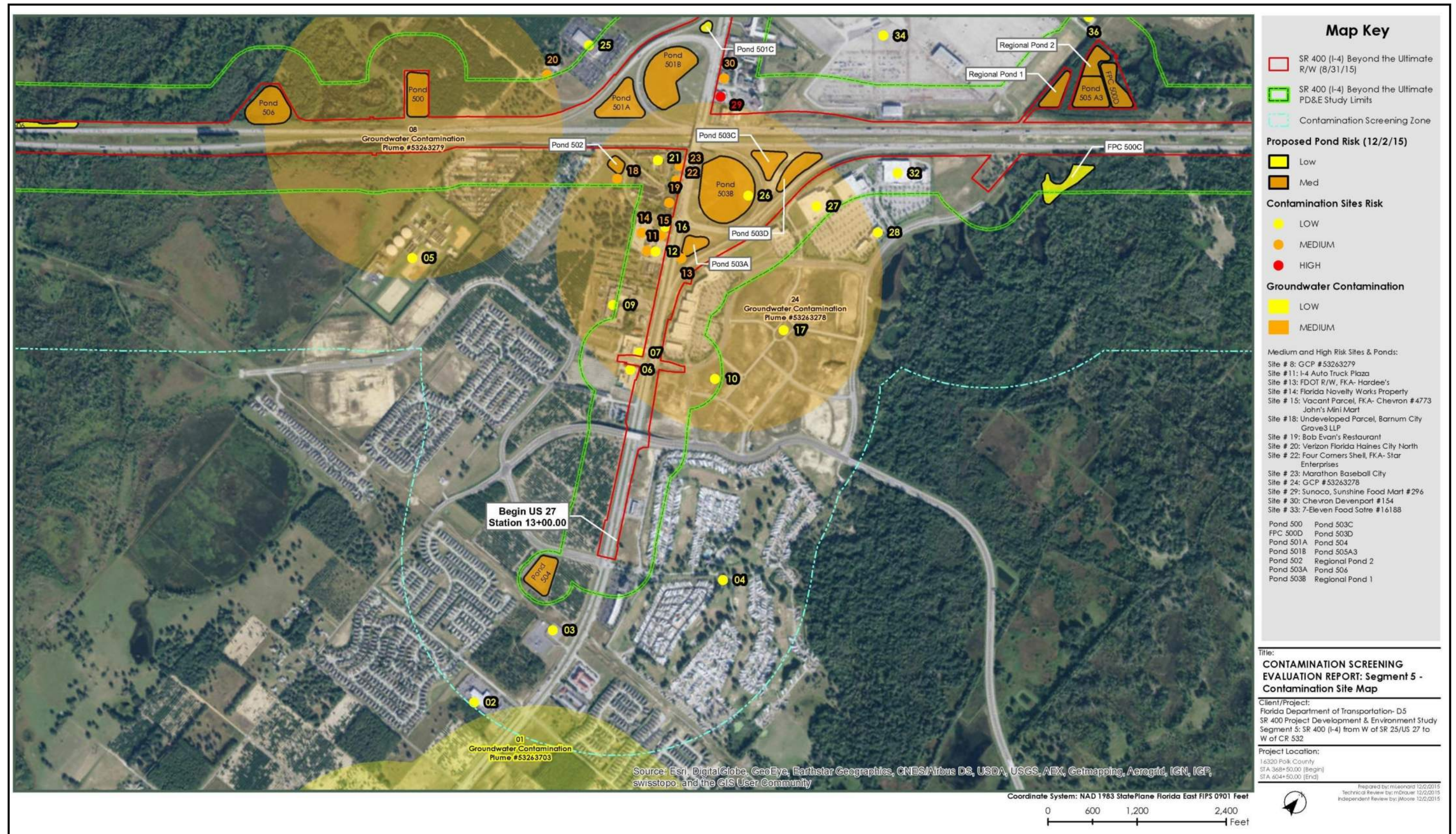


Figure 5.14 – Potential Contamination Sites (Sheet 2)

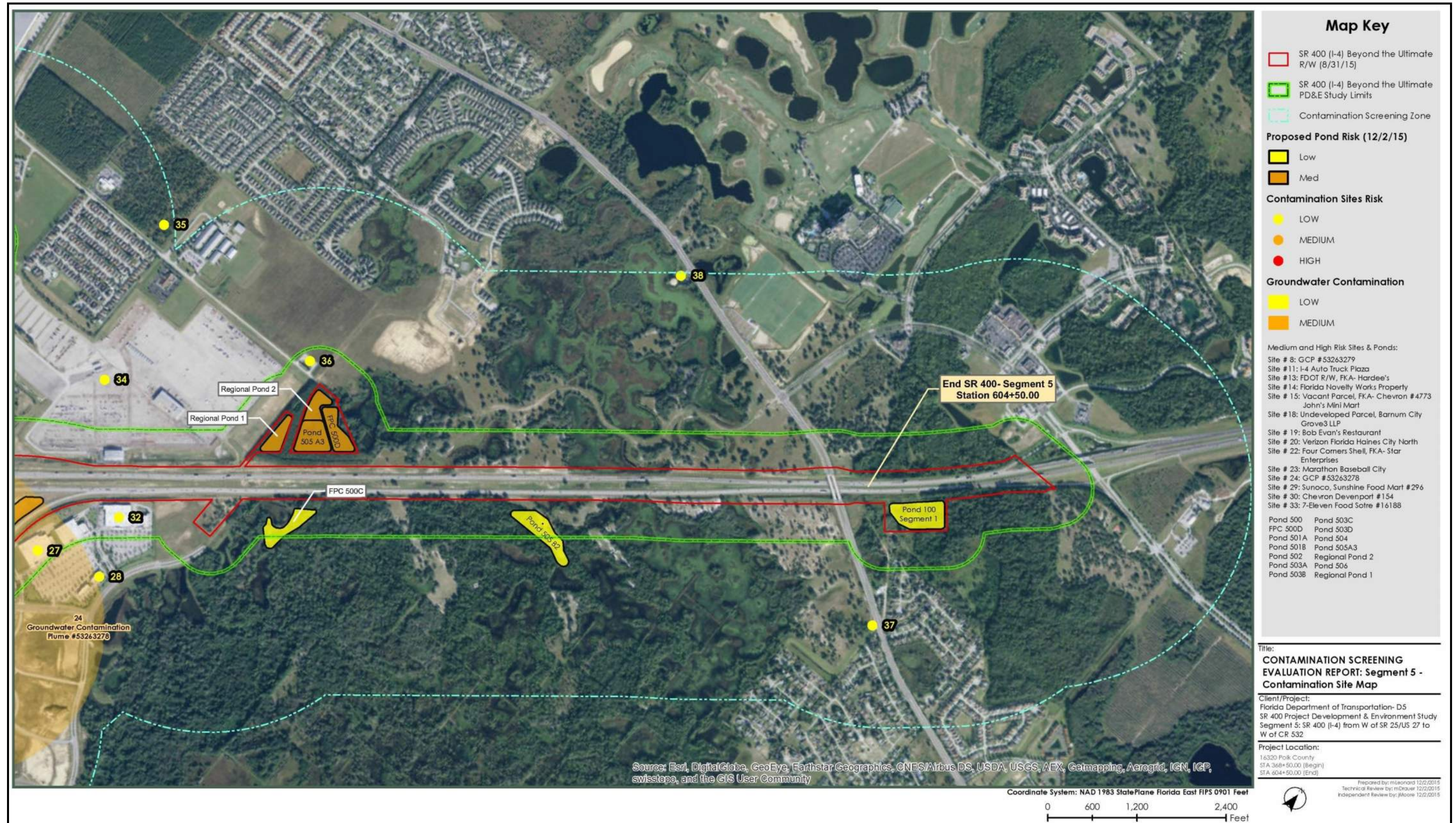


Figure 5.15 – Potential Contamination Sites (Sheet 3)

Based on historic aerials, land use in the area before the construction of I-4 consisted of rural citrus groves, pasture land, and natural lands. Potential contamination impacts from anthropogenic activities include additional EDB contamination and pesticide/herbicide/fertilizer contamination from the citrus groves and arsenic contamination from potential cattle dipping vats associated with the pastures. However, the existence, exact location and severity of these potential sources of contamination are unknown.

5.6.6 Noise

A *Noise Study Report (NSR)* based on procedures established in Part 2, Chapter 17 “Noise,” of the FDOT PD&E Manual was completed for I-4 Segment 5. The NSR was prepared to document predicted noise levels associated with the I-4 Segment 5 improvements and to determine if noise levels will be likely to increase, if noise-sensitive receivers are (or will be) within the project area and if noise impacts will occur. If noise levels reach or exceed 66 decibels (dB), or increase 15 dB over existing noise, noise abatement must be considered. The FHWA’s *Traffic Noise Modeling (TNM) Version 2.5* computer program was used to determine if noise abatement was warranted, and if so, considered reasonable and feasible for any noise-sensitive sites. The noise analysis was prepared using guidance based on regulatory material found in 23 Code of Federal Regulations (CFR), Part 772, and entitled “*Procedures for Abatement of Highway Traffic Noise and Construction Noise*” for FDOT noise assessments, regardless of funding. This regulation, pursuant to Rule Chapter 335.17, Florida Statutes (F.S.), is available from the FHWA and FDOT.

Three noise sensitive areas (NSA) that have the potential to be impacted by the project were identified within the study corridor, as shown in Figure 5.16. The potential noise-sensitive sites identified for this segment consist of single family residences, multi-family vacation residences, hotels and a campground. The TNM analysis of noise sensitive areas predicted that a total of 105 noise-sensitive sites may be impacted: 14 sites within NSA A, 1 site within NSA B and 90 sites within NSA C.

The results of the noise barrier analysis indicate that one noise barrier will provide the best noise abatement and meet the requirements as reasonable and feasible, and is recommended for further consideration during the design phase of this segment of the project. The recommended barrier for the Phase I Festival Orlando Resort within Noise Sensitive Area C include either:

- a 16-foot tall, 898-foot long ground mounted barrier (estimated cost \$430,862), or
- a 14-foot tall, 954-foot long shoulder mounted barrier (estimated cost \$400,523)

The recommended barrier for the Phase II Festival Orlando Resort within Noise Sensitive Area C include either:

- a 16-foot tall, 1,157-foot long ground mounted barrier (estimated cost \$555,597), or
- a 12-foot tall, 1,552-foot long shoulder mounted barrier (estimated cost \$558,711)



Figure 5.16 – Noise Sensitive Areas Map

The barrier analysis also indicated that no reasonable or feasible measures are achievable for the impacted sites within NSA A. Noise barriers were not modeled for NSA B, as this area was predicted to have only a single impacted receiver. Details on noise abatement criteria, noise-sensitive areas, traffic noise modeling and noise abatement measures are provided in the supplemental report, *Noise Study Report Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (April 2017)* prepared for this project.

5.6.7 Air Quality

The proposed project was reviewed for air quality impacts consistent with the guidance provided by the FHWA. Polk County is currently an area that is designated as being in *attainment* for the following air pollutants: *ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10 microns in size), sulfur dioxide, carbon monoxide and lead.*

The project was subjected to a carbon monoxide (CO) screening model that makes various conservative worst-case assumptions related to site conditions, meteorology and traffic. The FDOT's screening model, CO Florida 2012 (released March 12, 2012) uses the latest United States Environmental Protection Agency (USEPA) – approved software (MOVES 2010a and CAL3QHC2) to produce estimates of one-hour and eight-hour CO at default air quality receptor locations. The one-hour and eight-hour estimates can be directly compared to the one-hour and eight-hour *National Ambient Air Quality Standards (NAAQS)* for CO that are 35 parts per million (ppm) and 9 parts per million (ppm), respectively.

The roadway intersection forecast to have the highest total approach traffic volume (for both the Build and No-Build scenarios) is the intersection of US 27 and Homerun Boulevard/Posner Boulevard. None of the intersections reviewed in this segment are located in close proximity to dense developments or areas of regular outdoor use. The Build and No-Build scenarios for the opening year (2020) and the design year (2040) were evaluated (for design hour volumes). Estimates of CO were predicted for the default receptors which are located 10 feet to 150 feet from the edge of the roadway. Vehicle speeds were based on posted speed limits or if not posted, by driving in traffic and recording average speeds. Based on the results from the screening model, the highest project-related CO one-hour and eight-hour levels are not predicted to meet or exceed the one-hour or eight-hour *NAAQS* for this pollutant with either the Build or No-Build alternatives. As such, the project “passes” the screening model.

The project is located in an area which is designated as in attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project. Detailed data and analysis are provided in the supplemental report, *Air Quality Analysis Technical Memorandum Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (April 2017).*

5.7 Public Involvement Program

A comprehensive Public Involvement Program (PIP) was initiated as part of this PD&E Study. This program is in compliance with Part 1, Chapter 11 of the FDOT PD&E Manual which details various federal, state and local regulations including Section 339.155, Florida Statutes; Council of Environmental Quality (CEQ) Regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) and 23 Code of Federal Regulations (CFR) 771.

The public involvement program for I-4 Segment 5 included the publication of newsletters, meetings with government agencies, community outreach meetings and an Alternatives Public Workshop. A project website, www.i4express.com, was also developed to disseminate updated information about the project and allow the public to communicate with the project team and/or provide comments.

Alternatives Public Workshop

The Alternatives Public Workshop was held on Thursday, November 20, 2014, from 5:30 p.m. to 7:30 p.m. at the Church of Jesus Christ of Latter-day Saints (Citrus Ridge Ward) located at 1001 Dunson Road, Davenport, FL 33896. An invitational letter was mailed to property owners located within at least 300 feet on either side of the current project corridor and to public officials, organizations and other individuals interested in the project. An advertisement was placed in the Orlando Sentinel (full circulation) and a press release was distributed by FDOT to local media outlets. The Alternatives Public Workshop was held in an open house format with project display boards and an automated presentation which gave an overview of the proposed project, including a summary of the engineering and environmental considerations in development of the proposed alternatives. Fourteen citizens and 23 project team members signed in at the public meeting. Project team attendees included the FDOT Project Manager, staff from FDOT Right-of-way and Environmental Management Offices and the project consultants. FDOT District 1 staff and their consultants also attended and are included as project team members. Public comment forms were made available to attendees and one written comment was received during the meeting. Verbal comments/questions received during the public meeting consisted of general project and schedule questions. No opposition against the project was received during the meeting. The written comment suggested that the express lanes be toll-free and that the noise barriers should be feasible and not impede traffic patterns along I-4. No comments were received during the 10-day comment period following the meeting. Verbal comments/questions received during the public meeting consisted of general project and schedule questions. No opposition against the project was received during the meeting.

Several additional meetings were held to discuss the proposed project improvements and PD&E study, as follows:

- Presentation to the North Ridge Community Redevelopment Agency Advisory Committee (01/29/15)

- Meeting with Polk County Planning and Polk County TPO staff (09/10/15)
- Presentation to the Polk County TPO TAC (09/24/15)

Public Hearing

A formal Public Hearing was conducted on May 9, 2017 to seek input on the Recommended Alternative. The hearing provided an overview of the Recommended Alternative and impacts, the study schedule, and summary of the remaining steps in the study process. The hearing was held at The Church of Jesus Christ of Latter-day Saints (Citrus Ridge Ward), located at 1001 Dunson Rd, Davenport, FL 33896. The draft environmental and engineering reports were available for public review from April 18, 2017 through May 19, 2017 on the project website (www.i4express.com) and at the Cagan Crossings Community Library, located at 16729 Cagan Oaks, Clermont, FL 34714.

A formal Public Hearing was conducted on May 9, 2017 to seek input on the Recommended Alternative. The hearing provided an overview of the Recommended Alternative and impacts, the study schedule, and summary of the remaining steps in the study process. The hearing was held at the Church of Jesus Christ of Latter-Day Saints (Citrus Ridge Ward), 1001 Dunson Road, Davenport, FL 33896. The draft environmental and engineering reports were available for public review from April 18, 2017 through May 19, 2017 on the project website (www.i4express.com) and at the Cagan Crossings Community Library, located at 16729 Cagan Oaks, Clermont, FL 34714

A 30-minute open house preceded the formal portion of the hearing. The public was given the opportunity to ask questions and provide comments to the FDOT representatives in a one-on-one setting. A court reporter was present to receive oral comments from the public, and written comments were also accepted. The Recommended Alternative for the overall I-4 corridor and each interchange was displayed on aerial photography of the study area. A matrix with potential environmental impacts and cost estimates was presented. An audio-visual presentation describing the engineering and environmental components of the Recommended Alternative was given. After the presentation, the public was given an opportunity to offer oral comments to the hearing moderator.

In accordance with Chapter 11 of the PD&E Manual, all property owners within at least 300 feet of either side of the centerline of the Recommended Alternative were notified of the hearing by newsletter. Nine (9) citizens and twelve (12) project team members signed in at the public hearing. Project team attendees included the FDOT PD&E and Design Project Managers and staff from FDOT Public Information, Right-of-way and Environmental Management Offices. One written public comment form was received at the hearing and one verbal public comment was provided during the oral comment period of the hearing. No additional comments were received during the 10-day comment period following the hearing. The public comments from the hearing are summarized as follows.

Written Comment(s)

- Statement that the express lanes are needed on I-4 from US 27 into Orlando.

Oral Comment(s)

- Statement regarding support of the Reedy Creek wildlife underpass (outside of Segment 5) and question regarding mitigation banks for sand skinks.

Post Public Hearing Coordination

Oral and written comments from the public were either directly addressed by project team members during the public hearing or through follow-up letter/email responses provided by the FDOT Project Manager. The public involvement documentation for I-4 Segment 5, including official public hearing transcripts and public input comments with responses, are provided in Appendix B of this report.

5.8 Value Engineering (VE)

Value Engineering (VE) for the proposed improvements was conducted after the alternatives public workshop meeting held in 2014. The VE study workshop was held December 8 – December 12, 2014; the VE team consisted of representatives from the FDOT D5 office in the PD&E, Traffic Operations, Roadway Design, Right-of-way, Construction, Structures, Geotechnical, Maintenance, Project Management, Drainage and other departments, various representatives from FDOT D1 departments as well as the project consultant. The VE team reviewed the preliminary concept plans and developed alternatives and design suggestions that would result in cost savings or added value to the project. The detailed recommendations are provided in the *Value Engineering Workshop Report for Florida Department of Transportation, I-4 from West of US 27 to Polk/Osceola County Line, FPN #201210-3 (December 31, 2014)*. The VE recommendations and corresponding dispositions from *Interstate 4 from West of US 27 to the Polk/Osceola County Line Value Engineering Study Recommendation Dispositions (April 10, 2015)* are summarized as follows.

1. Recommendation BR-1: The alternate is to provide an at-grade intersection with a partial Continuous Flow Intersection to accommodate US 27 SB left turn at Frontage Road. The alternate is to provide an at-grade intersection which relocates the SB US 27 left turn lane east of NB US 27 lanes. This partial continuous flow intersection will require a crossover signal to allow for the left turn lanes to crossover the NB US 27 lanes. The U-turn lane for SB US 27 to NB US 27 will be eliminated. The I- 4 EB exit ramp to NB US 27 connection will be relocated to approximate crossover signal location. The structure for NB US 27, the structure for EB I-4 On Ramp and the EB I-4 to SB US 27 movement are all eliminated. A 780-foot lane will be added for the WB approach to the signal and a receiving lane will be added to accommodate the SB US 27 left turn. *(Not Accepted. The crossover intersection appears to operate well but the main*

- intersection with US 27 and the EB off-ramp is failing during the PM peak. An at-grade, partial CFI intersection is not recommended at the US 27 and EB Ramps intersection.)*
2. Recommendation BR-02: The alternate is to provide an at-grade intersection which relocates the NB US 27 left turn lanes west of SB US 27 lanes. This partial continuous flow intersection will require a crossover signal to allow for the left turn lanes to crossover the SB US 27 lanes. The U-turn lanes and turn out pavement for NB US 27 will be eliminated. The relocation of the NB left turn lanes will require the WB I-4 ramp to SB US 27 to be extended. *(Not Accepted. The crossover intersection appears to operate well but the NB crossover will require 2 NB left-turn lanes crossing 4 SB thru lanes. Four thru lanes are needed SB at the EB ramps and it is most practical to start this 4th lane upstream at the WB ramp intersection. The WB off-ramp will also require a triple bypass right turn. The main intersection with US 27 and the WB off-ramp operates at an LOS C during both peak hours, but requires a triple left turn from the off-ramp.) From a traffic operations perspective, the proposed at-grade, partial CFI intersection at the WB Ramps is plausible but would need further evaluation of the required roadway geometry. Given that the CFI is not a viable alternative at the EB Ramps, another alternative is needed, one that will probably require a U-turn at the WB Ramps. Building a CFI at the WB Ramps, however, precludes a U-turn movement, limiting your options at the EB Ramps.*
 3. Recommendation BR-04: The alternate design proposes building two single span bridges over Westbound I-4 to North US 27 Ramp and over Burger King access and to connect/plug the bridges with MSE walls. *(Accepted.)*
 4. Recommendation BR-05: The alternate design is to shift the alignment of westbound I-4 ramp to US 27 North towards the Burger King access and reduce the bridge length. *(Accepted. Bridge length can be reduced some, but sight distance and clear zone needs to be maintained.)*
 5. Recommendation BR-07: The alternate would utilize US 27- Alternative 4 that uses signalized intersections at the US 27 ramp tie ins. The difference to Alt. 4 is that the direct connect express lanes are relocated into the existing ramp entrances and entrances at the south intersection, mitigating the original concern with alternative 4 with the ramp tie ins on the bridge. *(Accepted. The express lane tie ins can be moved to the ramps, and the additional intersection previously shown in the middle of US 27 will be eliminated.)*
 6. Recommendation BR-10: The alternate proposes a SPDI at the interchange without loops and an option with or without free flow right turn ramps from US 27 to I-4. *(Not Accepted. There are multiple movements that are failing along with v/c ratios over 1.0.)*

7. Recommendation RD-06: The alternate provides a 4' inside shoulder upon construction of the high speed rail within the center median. In the interim the inside shoulder will be 10' with an inside guard rail. Standard index 400 sheet 15 Detail K states that shoulders 10' or wider 12' is required between edge of travel and the guard rail. *(Not accepted. D1 has requested that the full 10-foot paved shoulder be implemented.)*

8. Recommendation RD-07: Provide typical section to match that of District 1 I-4 Master Plan for consistency throughout corridor. *(Accepted.)*

9. Recommendation RD-09: The alternative suggests considering mitigating techniques to ensure proper direction of travel at the interchange. *(Accepted.)*

10. Recommendation RD-10: The alternative suggest considering reducing the border width as shown for the rest of the project to be consistent and reduce impacts. *(Accepted. CPP is uncertain at this time. I-4 will be designed to accommodate the CPP ramps should they occur in the future; however, additional real estate is not being purchased to accommodate CPP as part of the I-4 PD&E project. Border width will remain consistent with the other parts of the I-4 Beyond the Ultimate project.)*

11. Recommendation RD-16: In PPM chapter 2.13.1 it states the National Cooperative Highway Research Program (NCHRP) Report 672, Roundabouts: An Informational Guide, is adopted by FHWA and establishes criteria and procedures for the justification, operational and safety analysis of modern roundabouts in the United States. In addition, the Florida Intersection Design Guide contains Florida centric guidelines and requirements for evaluation and design of roundabouts in Florida. Roundabouts shall be evaluated on new construction, reconstruction and safety improvement projects, as well as any time there are proposed changes in intersection control that will be more restrictive than the existing conditions. Therefore, consider providing roundabouts on US 27 at Sta. 57 and Sta. 82. *(Not Accepted. Roundabouts will not work at these locations. Given the relative lack of roundabouts, particularly large ones, in the US, we assumed that the maximum number of circulatory lanes would be three. A brief summary table is provided below.)*

US 27 and I-4 EB Ramps					
LOS	US 27 NB	EB Off-Ramp	US 27 SB	Frontage Road	Intersection
AM	B	C	F	D	F
PM	A	A	F	D	F
US 27 and I-4 WB Ramps					
LOS	US 27 NB	Burger King	US 27 SB	WB Off-Ramp	Intersection
AM	F	D	C	B	F
PM	F	D	B	C	F

12. Recommendation RD-17: The alternative suggests reconciling the cost estimate to better define the alternative. *(Accepted. During PD&E ponds sites are identified only. The conveyance system is not designed, therefore the only way to determine drainage cost is to use a percentage of the roadway construction cost. Likewise, the offsite drainage system / conveyance is not designed as part of the PD&E, therefore a percentage of the roadway cost is used. For PD&E level, a square foot bridge cost is applied regardless of whether the bridge is 1-lane, 2-lane or 6-lane. Percentages were also applied to lighting, utility relocations, ITS, etc. since these are not designed during PD&E.)*

13. Recommendation DR-01: The alternative suggests maximizing the existing ponds within the I-4/US 27 Interchange for treatment and attenuation. It appears there is more than adequate room within the existing loop ramps, Pond 501B and Pond 503B, to provide additional storage. *(Accepted. The existing ponds will be expanded and re-graded as needed once the final roadway interchange alternate is chosen.)*

14. Recommendation DR-02: This alternative includes providing additional pond storage on the Heller Brothers Packing Corporation parcel east of the Ritchie Brothers parcel to offset the impacts to the stormwater ponds on the Ritchie Brothers property. *(Accepted. Coordination with the property owner for these ponds is ongoing.)*

15. Recommendation DR-03: The alternative is to utilize this existing parcel for stormwater treatment and attenuation. *(Accepted.)*

16. Recommendation DR-04: The alternative proposes to utilize the existing wetland and floodplain areas on the south side of the mainline for floodplain compensation, thereby enhancing the natural communities. *(Accepted.)*

17. Recommendation DR-05: The alternative proposes to construct treatment ponds outside of the proposed residential development and avoid relocation when the CPP Interchange is constructed. *(Accepted. Pond alternates 505-A1 and 505-A2 have been relocated further west and outside of the proposed development.)*

18. Recommendation DR-06: The alternate concept for I-4, CPP, and Grandview Parkway is to consider a regional drainage concept. All three (3) projects will require right-of-way for roadway, drainage, wetland mitigation, and other transportation related improvements. (utilities, landscaping etc.). *(Accepted. Further coordination with FDOT District 5, FDOT District 1 and Polk County is needed to determine the feasibility of a regional pond to accommodate all parties.)*

19. Recommendation DR-07: The alternative suggests evaluating other Value Engineering options for Basin 100, which extends between CR 54 and CR 532. It appears roadway improvements and Pond 100 are located within the 100-year floodplain and it is unclear if floodplain compensation is provided for Basin 100. This basin overlaps with Segment 1. *(Accepted. 6.1.1 Basin 100 The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Polk, Osceola and Orange Counties. A portion of Basin 100 is located within Zone A of the 100-year floodplain. The floodplain elevation is estimated at 115.00 ft. NAVD using five foot contours and the seasonal high water elevation is 113.80 ft. NAVD (per SWFWMD Permit # 43011896.027). The existing ground elevation within the floodplain impact area is approximately 114.0 ft. NAVD. Basin 100 accounts for 2.96 ac-ft of floodplain impacts. The limits of the impacts are from Sta. 602+50 to Sta. 627+00 on both sides of the roadway with a total width of 290 ft. Compensation is being provided in Treatment Pond 100 (existing Pond 7-7) located at Sta. 610+00, RT. The pond provides 5.90 ac-ft. of compensation volume, resulting in a net compensation volume surplus of 2.94 ac-ft.)*
20. Recommendation DR-08: The alternative suggests that in lieu of the 100-year floodplain lines, the 120 ft NAVD contour be used for floodplain impact and compensation calculations. *(Accepted. Floodplain impact and compensation calculations will be updated based on elevation 120 ft. NAVD contour line due to inconsistencies with the FEMA floodplain lines.)*

The VE study recommendations and dispositions are an integral part of the engineering design process. As the project proceeds through various phases of preliminary design, the design concepts are modified to reflect all aspects of engineering and environmental analyses. As such, some of the dispositions previously stated may have been modified during design and development of the concept plans.

5.9 Comparative Evaluation/Recommended Alternative

The proposed improvements follow the existing alignment of I-4 and the typical section for the I-4 BtU corridor will be consistent with the I-4 Ultimate mainline typical section (three general use lanes and two express lanes in each direction). Thus, the alternatives analysis focused on the interchange design.

5.9.1 Evaluation Criteria

Each of the viable alternatives was evaluated based on several criteria, including: right-of-way impacts, natural and physical environment, social impacts, traffic operations, engineering design considerations and estimated project construction costs. The recommended alternatives were based on the results of the engineering and environmental analysis and input from the public involvement program. The following provides a description of the evaluation criteria.

Community Impacts/Relocations

Community impacts anticipated from the proposed improvements may include adverse effects on neighborhoods and community cohesion. Potential relocations of residences and businesses that will be directly impacted are identified and quantified.

Environmental Impacts

Environmental impacts include identifying and quantifying, through literature research, field surveys and investigations, the archeological, historical and contamination sites impacted, as well as endangered species impacts. A cultural resources survey was conducted to identify historic sites in the study corridor and archaeological resources within proposed pond locations. The architectural study further assesses historic sites for their potential for listing in the NRHP. The contamination screening evaluation was completed to identify the number, location and risk potential of known or potential hazardous waste sites along the corridor. The endangered species biological assessment was completed to document the potential occurrence of natural habitats and wildlife within the proposed project corridor and recommend actions to avoid and/or minimize impacts to the greatest practicable extent.

Additional environmental impacts include identifying noise sensitive areas, air quality, wetlands and floodplain impacts along the project corridor. The noise study report evaluates future design traffic to determine if noise-sensitive receivers are within the project area, if noise levels are likely to increase and if noise impacts are anticipated to occur. Noise abatement measures are evaluated based on the analysis. Air pollutant quantities are estimated and compared to nationally-established air quality standards to determine impacts from traffic for the project design year. Encroachment into existing wetlands or floodplains may result from the proposed improvements. The wetlands evaluation report identifies existing wetlands and surface water communities based on the USFWS Classification and functionality. Impacts due to the proposed construction and improvements are addressed by the use of mitigation banks and/or other mitigation options that satisfy state and federal requirements. Impacts to the 100-year floodplain from the proposed improvements will be mitigated by floodplain compensation ponds.

Project Costs

Project costs include construction and right-of-way costs. Construction cost estimates include roadway, structures, retaining walls, utility relocation, drainage improvements, maintenance of traffic and engineering design cost. Construction engineering and inspection is assumed to be 12% of total construction cost. Additionally, the project costs include right-of-way costs (to be provided by FDOT) for additional right-of-way necessary for each alternative to accommodate roadway and interchange improvements and stormwater management. Right-of-way costs also include residential and business relocations.

Public Involvement

A comprehensive public involvement program (PIP), as described in Section 5.7 of this report, including a series of meetings, workshops and other outreach activities was initiated as part of the I-4 BtU PD&E Reevaluation Study. As part of the PIP, an Alternatives Public Workshop was held on January 30, 2014 to present project information, to property owners, public officials, organizations and individuals interested in the project. The workshop was intended to provide details on the proposed design concepts and receive input from the public.

5.9.2 Evaluation Matrix

A summary of the estimated impacts resulting from the comparative evaluation of the build alternatives considered is provided in Table 5.10. The table illustrates impacts from the proposed improvements to the I-4 mainline for the build alternative and comparatively shows any additional impacts from the various interchange alternative options.

5.9.3 Recommended Alternative

The FDOT Districts 1 and 5 have selected the recommended alternative based on analyses of potential environmental impacts, projected traffic operations, right-of-way acquisitions, estimated project costs, value engineering study and other engineering considerations. Of the seven alternatives developed for the US 27 interchange, Alternatives 1-4 provided direct connect to the express lanes via the US 27 bridge over I-4, while Alternatives 5-7 provided express lane access via the US 27 ramp terminals. Additionally, Alternatives 6 and 7 extended the US 27 improvements approximately 1/2 mile further south and included additional improvements at the Ernie Caldwell Boulevard and Posner Boulevard/Home Run Boulevard intersections with US 27. Although Alternative 7 has the highest estimated construction costs, other factors such as traffic operations, right-of-way impacts and preference by District 1 in Polk County led to the following alternatives being selected as the recommended alternative to be presented at the Public Hearing:

- I-4 Mainline Build Alternative (Roadway reconstruction to include four express lanes)
- US 27 Alternative 7 (Partial Cloverleaf with ramp modifications & Posner Boulevard improvements)

Table 5.10 – Alternatives Evaluation Matrix

Summary of Impacts [†]	I-4 Mainline*	US 27 Alternatives						
		1	2	3	4	5	6	7*
		Partial Cloverleaf w/direct access to/from EL at US 27 bridge	Partial Cloverleaf w/US 27 off-alignment & direct access to/from EL at US 27 bridge	Partial Cloverleaf w/direct access to/from EL at US 27 bridge & U-turns at I-4 WB ramp terminal	Partial Cloverleaf w/access between GUL and CD Roads, direct access to/from EL at US 27 bridge & U-turns at I-4 WB ramp terminal	Partial Cloverleaf w/direct access to/from EL at US 27 ramps	Partial Cloverleaf w/direct access to/from EL at US 27 ramp terminals & Posner Blvd. improvements	Partial Cloverleaf w/ramp modifications & Posner Blvd. improvements*
Roadway ROW Area to be acquired (Acres)	1.08	1.32	1.85	1.48	5.61	3.24	9.61	9.56
Pond or Floodplain Compensation ROW Area to be acquired (Acres)	Ponds[^]: 16.86	0	0	0	0	0	0	0
	FPC: 4.24	0	0	0	0	0	0	0
Floodplain Impacts (Acre-Feet)	18.65	0	0	0	0	0	0	0
Impacted Noise Sensitive Sites	90	15	15	15	15	15	15	15
Wetland Impacts (Acres)	19.01 (13.77 Forested Wetlands & 5.24 Herbaceous Wetlands)	0	0	0	0	0	0	0
	1.82 (Other Surface Waters)							
Section 4(f)	No Section 4(f) properties impacted.	None	None	None	None	None	None	None
Potential Historic Sites	Three historic structures constructed before 1971 within APE[‡]; none are NRHP eligible.	0	0	0	0	0	0	0
	15 structures constructed between 1971 and 1974	0	0	0	0	0	0	0
Potential Contamination Sites	Sites within 300' study area: 4 low risk, 1 med. risk and 1 high risk	9 low risk 10 med. risk 1 high risk	9 low risk 10 med. risk 1 high risk	9 low risk 10 med. risk 1 high risk	9 low risk 10 med. risk 1 high risk	9 low risk 10 med. risk 1 high risk	9 low risk 10 med. risk 1 high risk	9 low risk 10 med. risk 1 high risk
	Proposed pond sites: 1 Low Risk: FPC 506 10 Medium Risk: 500, FPC 500C, FPC 500D, 504, 505A3, 505B2, 506, Regional Pond 1, Regional Pond 2, Pond 100 (Segment 1)	Ponds: 1 Low Risk: 501C 7 Med. Risk: 501A, 501B, 502, 503A, 503B, 503C, 503D	Ponds: 1 Low Risk: 501C 7 Med. Risk: 501A, 501B, 502, 503A, 503B, 503C, 503D	Ponds: 1 Low Risk: 501C 7 Med. Risk: 501A, 501B, 502, 503A, 503B, 503C, 503D	Ponds: 1 Low Risk: 501C 7 Med. Risk: 501A, 501B, 502, 503A, 503B, 503C, 503D	Ponds: 1 Low Risk: 501C 7 Med. Risk: 501A, 501B, 502, 503A, 503B, 503C, 503D	Ponds: 1 Low Risk: 501C 7 Med. Risk: 501A, 501B, 502, 503A, 503B, 503C, 503D	Ponds: 1 Low Risk: 501C 7 Med. Risk: 501A, 501B, 502, 503A, 503B, 503C, 503D

Table 5.10 – Alternatives Evaluation Matrix

Summary of Impacts [†]	I-4 Mainline*	US 27 Alternatives						
		1	2	3	4	5	6	7*
		Partial Cloverleaf w/direct access to/from EL at US 27 bridge	Partial Cloverleaf w/US 27 off-alignment & direct access to/from EL at US 27 bridge	Partial Cloverleaf w/direct access to/from EL at US 27 bridge & U-turns at I-4 WB ramp terminal	Partial Cloverleaf w/access between GUL and CD Roads, direct access to/from EL at US 27 bridge & U-turns at I-4 WB ramp terminal	Partial Cloverleaf w/direct access to/from EL at US 27 ramps	Partial Cloverleaf w/direct access to/from EL at US 27 ramp terminals & Posner Blvd. improvements	Partial Cloverleaf w/ramp modifications & Posner Blvd. improvements*
Potential to Improve Traffic Operations	High	Low	Low	-	-	Low	-	High
Area of Bridges (SQ FT)	0	83,848	79,283	82,256	87,833	136,060	365,101	355,114
Parcels Impacted	4	4	7	4	4	4	25	25
Potential Relocations	0	1	3	1	1	1	5	5
Constructability	High	High	High	High	High	High	High	High
Construction Cost**	102,168,705	40,681,102	40,799,770	41,211,824	46,116,646	60,853,020	152,117,115	172,164,444

Notes:
[†]This table illustrates impacts from the proposed improvements to I-4 for the build alternative and comparatively shows any additional impacts from the various interchange alternative options.
***Recommended alternative.** ^Recommended pond sites as determined in *Pond Siting Report (November 2016)*. [†]APE – Area of Potential Effect includes 330' from proposed ROW and pond footprints plus 100' buffer.
 **Construction costs are preliminary; based on Engineer's Estimate provided in Appendix D.
 –Traffic operations not evaluated due to District 1 design preferences.

6.0 Design Details of Recommended Alternative

Based on the results of the preceding engineering and environmental analysis and the public involvement program process, a recommended alternative was chosen to be presented at the public hearing:

- I-4 Mainline Build Alternative (Roadway reconstruction to include four express lanes)
- US 27 Alternative 7 (Partial Cloverleaf with ramp modifications & Posner Boulevard improvements)

This section of the report includes the design details for the recommended build alternative. As the project proceeds, this section may be further refined to include additional data and analysis specific to the preferred alternative.

6.1 Typical Section

The proposed typical section for Segment 5 includes six general use lanes and four express lanes (6+4 Alternative) and was previously shown in Figure 1.2. The typical sections for I-4 provide a design speed of 70 mph; other common features of the typical sections include:

- 12-foot paved outside shoulders (general use lanes and express lanes),
- 12-foot paved inside shoulders for the general use lanes,
- 10-foot paved inside (median) shoulders for express lanes (where applicable) and
- A 2-foot-wide barrier wall between the general use and express lanes.

The proposed typical section for US 27 includes four 11-foot lanes and a 7-foot buffered bike lane in each direction. The design speed for this typical section is 45 mph with Type F curb and gutter on each side of the roadway and Type E curb and gutter adjacent to the inside travel lane.

A typical section package for the entire I-4 BtU corridor including all five segments has been submitted to FDOT under separate cover.

6.2 Alignment

Horizontal Alignment: There are no horizontal curves within Segment 5. The preliminary concept plans and baseline data submitted with this report illustrate in detail the proposed horizontal alignment and can be found in Appendix A.

Vertical Alignment: The proposed improvements require vertical alignment modifications to meet established criteria for the vertical alignment as outlined in Section 4.0 of this report. A listing of the known vertical curves and their design speeds can be found in Section 2.6.

6.3 Design Exceptions and Variations

From time to time, it may be necessary to deviate from the standard criteria used in the design process. If deemed necessary, two specific deviations may occur: (1) Design Exception or (2) Design Variation. A Design Exception is required when the design criteria applied falls below the minimums established by AASHTO. A Design Variation is required when design criteria applied falls below FDOT established criteria and the deviation is not covered by the Design Exception. Table 6.1 summarizes the 13 design elements and specifies whether AASHTO or FDOT design criteria are satisfied, or if a design exception/variation is required for the specific design element for the proposed improvements. No design exceptions are anticipated for the proposed Segment 5 improvements.

Table 6.1 - Design Exceptions and Variations

Design Element	Design Exception < AASHTO	Design Variation < FDOT and > AASHTO
1. Design Speed	Satisfied	Satisfied
2. Lane Width	Satisfied	Satisfied
3. Shoulder Width	Satisfied	Satisfied
4. Bridge Width	Satisfied	Satisfied
5. Structural Capacity	Satisfied	Satisfied
6. Vertical Clearance	Satisfied	Satisfied
7. Grade	Satisfied	Satisfied
8. Cross Slope	Satisfied	Satisfied
9. Superelevation	Satisfied	Satisfied
10. Horizontal Alignment	Satisfied	Satisfied
11. Vertical Alignment	Satisfied	Satisfied
12. Stopping Sight Distance	Satisfied	Satisfied
13. Horizontal Clearance	Satisfied	Satisfied

Table 6.2 lists additional design elements that are not addressed by AASHTO but require a design variation by FDOT if the standards are not met.

Table 6.2 - Additional Design Elements

Design Element	Design Variation
Border Width	Required
Median Width	Satisfied
Length of Horizontal Curve	Satisfied
Length of Vertical Curve	Satisfied

A border width of 94 feet for freeways and interchange ramps is required by FDOT. In order to minimize impacts to adjacent properties and reduce right-of-way acquisition costs, a 15-foot border width has been used throughout the project limits. When necessary, standard concrete barrier wall will be placed at the edges of the outside shoulders. This will provide protection for motorists from objects that do

not meet clear zone requirements and maintain the appropriate border width. The barrier wall will also be placed on top of any necessary retaining walls to provide protection from any drop offs.

6.4 Drainage

This project will make many improvements to the water quality along the roadway corridor. The stormwater runoff from both the new and existing impervious areas will be treated in existing and proposed stormwater facilities. The stormwater runoff will be collected by storm sewer systems and roadside ditches. The water quality treatment and attenuation will be achieved through the expansion and construction of both infield ponds and offsite ponds, some of which will require acquisition of additional right-of-way. The stormwater will be routed to existing and proposed dry retention and wet detention stormwater ponds. There is a total of nine (9) basins within the project limits. In areas with poor soils and high water table, only wet detention ponds were considered. The ponds were sized based on the assumption that most of the offsite runoff would be drained through separate systems. For a majority of the ponds, the location of where the proposed basins begin and end is the same as the existing condition. The location of the outfall in the proposed condition is the same as the existing. None of the basins discharge to an Outstanding Florida Water (OFW).

Detailed information including analysis and calculations relating to the drainage along the project corridor are provided in the supplemental reports: *Location Hydraulic Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (November 2016)* and *Pond Siting Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (November 2016)*. The following sections provide a summary of the findings in the drainage reports prepared for I-4 Segment 5.

6.4.1 Proposed Drainage Patterns

The project lies within two (2) primary basins: Ocklawaha River Basin and Kissimmee River Basin. One existing pond site and one proposed pond site will provide water quality treatment and peak discharge attenuation from the beginning of the project to west of the I-4 and SR 25/US 27 Interchange. The basins are open and treatment will be provided in the form of wet detention ponds that ultimately discharge to the Ocklawaha River Basin. Two basins within the project discharge to Horse Creek, which ultimately discharge to the Kissimmee River Basin. A combination of five existing and proposed pond sites (two regional ponds and three infield ponds) will provide water quality treatment and peak discharge attenuation from the I-4 and SR 25/US 27 Interchange to west of CR 54. There is one basin within the project that discharges to the Davenport Creek, which ultimately discharges to the Kissimmee River Basin. One existing pond site will provide water quality treatment and peak discharge attenuation from just west of CR 54 to the end of the project. The basin is open and treatment will be provided in a wet detention pond.

This section of I-4 includes the SR 25/US 27 interchange; all of the existing interchange ponds will be expanded and/or regraded as necessary. The interchange ponds consist of two closed basins and one open basin. There will be floodplain impacts from the proposed improvements. Floodplain and wetland impact acreages, respectively, were previously summarized in Sections 5.6.1 and 5.6.2 of this report; detailed analysis and calculations are provided in the *Pond Siting Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (November 2016)* and *Location Hydraulic Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (November 2016)*. Table 6.3 lists the recommended pond alternatives based on the alternatives evaluated in the *Pond Siting Report* prepared for this project. The overall drainage maps for the project are shown in Figure 6.1 and Figure 6.2.

Table 6.3 - Summary of Recommended Pond Sites

Basin Designation	Recommended Alternative	Total Pond Cost*
500	Pond 500	\$79,792
501	Ponds 501A, 501B & 501C	\$339,542
502	Pond 502	\$0.00
503A	Pond 503A	\$87,161
503B	Ponds 503B, 503C & 503D	\$1,124,688
504	Pond 504	\$0.00
505	Regional Pond 1 & 2	\$1,980,019
506	Pond 506	\$684,568
100	Pond 100 (Segment 1)	\$784,919
505	FPC 500D	\$291,447
506	FPC 506	\$382,560
Total =		\$5,754,696
<small>*Total pond cost, as determined in the Pond Siting Report Segment 5 (November 2016), includes stormwater management facility construction costs, costs associated with surface water and wetland impacts and the mitigation of endangered species. Right-of-way costs are not included in total pond construction cost. When there are no proposed changes, the pond cost is \$0.</small>		

6.4.2 Cross Drains

Through hydraulic analysis, it was determined that all cross drains need to be upsized. All cross drains were analyzed using HY8 (Version 7.3) software; Table 6.4 depicts the results of the hydraulic analysis. All cross drains will require a change in slope to function adequately. Additional information including detailed analysis and calculations is presented in the supplemental *Location Hydraulic Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (November 2016)* prepared for this project.

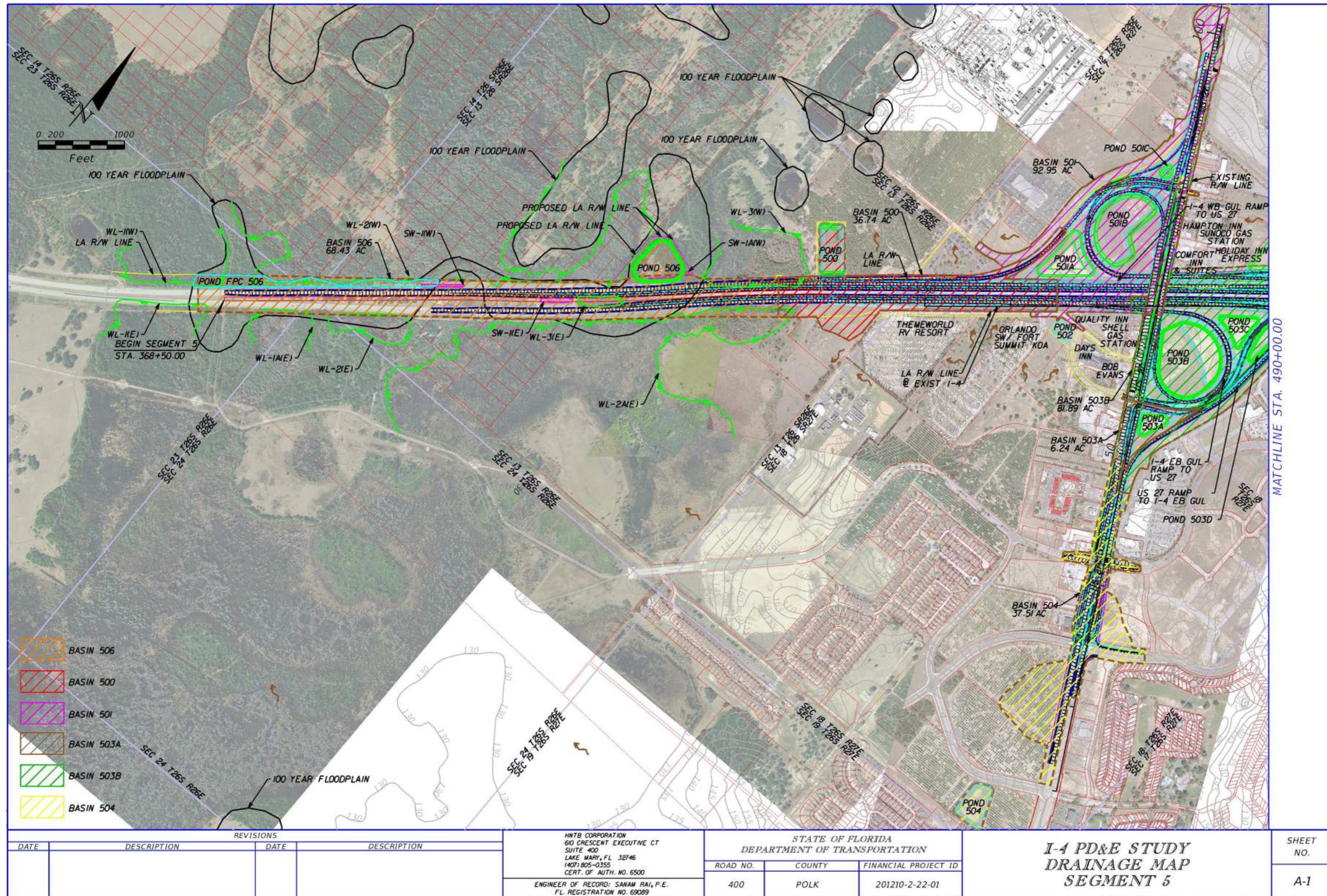


Figure 6.1 – Overall Drainage Map (Sheet 1)

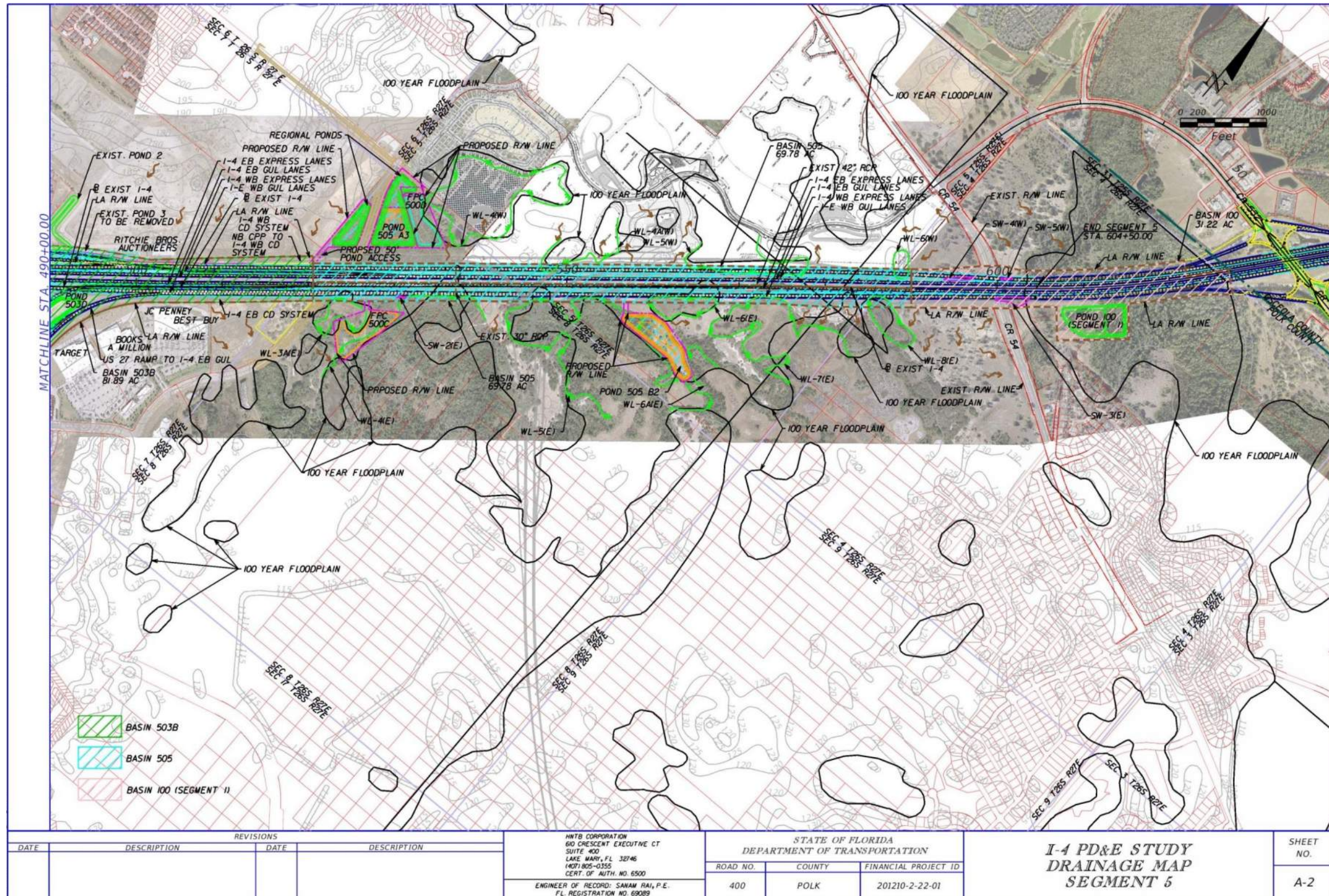


Figure 6.2 – Overall Drainage Map (Sheet 2)

Table 6.4 – Proposed Cross Drains

CD No.	Station	Count	Span (in)	Rise (in)	Type	Length (Ft)	Invert Elevation (Ft NAVD)	
							Upstream	Downstream
CD-1	400+25	3	30	30	RCP	350	126.90	126.20
CD-2	431+19	2	24	24	RCP	328	125.50	125.00
CD-3	537+10	1	36	36	RCP	406	116.94	116.24
CD-4	572+15	2	48	48	RCP	392	113.60	113.20

Abbreviations: RCP – Reinforced Concrete Pipe

6.5 Intersection Improvements

The concept plans for the proposed intersection concepts can be found in Appendix A; the following provides a description of the proposed improvements. Intersection improvement recommendations may be further refined once the traffic analysis report is completed.

I-4 Eastbound Ramp Terminal

In the vicinity of this intersection, US 27 has three northbound through lanes and six southbound through lanes. The southbound lanes will diverge south of this intersection, with four lanes continuing through and bridging over the next intersection to the south (Posner Boulevard), while two lanes will approach the next intersection at-grade. A new two-lane on ramp from US 27 northbound to I-4 eastbound will diverge as it approaches the loop ramp in the southeast quadrant. The left split will connect to the two-lane on ramp that bridges over the eastbound GULs and connects directly to I-4 eastbound ELs. The right split will continue as a two-lane on-ramp to the eastbound GULs. Traffic from US 27 southbound and the Frontage Road will use an on ramp that goes under the US 27 northbound lanes, over two other ramps in the southeast quadrant and onto a left and right split to access the eastbound ELs and GULs, respectively. The new southeast quadrant loop off ramp is three lanes which diverges to provide access via dual lefts to US 27 southbound, one through lane to align with Frontage Road and two lanes curving around to merge with US 27 northbound.

I-4 Westbound Ramp Terminal

In the vicinity of this intersection, US 27 has four northbound through lanes and three southbound through lanes. The southbound lanes will bridge over the I-4 westbound loop off-ramp left spur, over three ramps. From US 27 southbound, a new right turn single lane ramp and from US 27 northbound, a dual left lane on ramp will provide access to the I-4 westbound GULs. The I-4 westbound exit loop ramp will be modified to be tighter and will diverge, with the left split going under two on-ramp bridges and under the US 27 southbound lanes before merging with US 27 northbound. The right split will curve around and diverge also, with one lane eastbound (commercial property access) and two lanes southbound (merging with US 27). The north approach of the intersection will be modified to two lanes

exiting from the commercial properties on the east side of US 27. US 27 and Posner Boulevard/Home Run Boulevard.

Improvements to the US 27 and Posner Boulevard intersection include grade separation with US 27 going over Posner Boulevard. The east approach (Posner Boulevard) will be modified to triple lefts and two through lanes, with right turn movements eliminated. The triple lefts will provide access to US 27 southbound and to a two-lane frontage road which will carry traffic to the new U-turn loop ramp for access to US 27 northbound. The west approach (Home Run Boulevard) has been modified to two through lanes and dual rights, with left turn movements eliminated. Right turn traffic has the option to utilize the frontage road to U-turn loop ramp for access to US 27 northbound or use a separate merge lane to travel to US 27 southbound.

6.6 Right-of-way Requirements

The proposed improvements to I-4 Segment 5 will follow the existing alignment and will require acquisition of right-of-way for the roadway mainline and interchange improvements, stormwater management facilities and floodplain compensation sites. The total anticipated right-of-way impacts for the recommended alternative involve full or partial acquisition of 29 parcels for a total of approximately 32 acres (11 acres for roadway and 21 acres for stormwater/FPC). One of these parcels in the project study area may be impacted by both roadway and stormwater acquisitions. The parcels impacted and the corresponding right-of-way required for the proposed roadway improvements associated with the recommended alternative are summarized in Table 6.5 and shown on the Concept Plans included in Appendix A.

Table 6.5 - Right-of-way Acquisition for Roadway Improvements

Parcel ID Number	Location	Total Area Acquired (Acres)
27-26-07-7012-6100-0030	Mainline	1.069
27-26-07-7012-6100-0040	Mainline	1.683
27-26-07-7012-6100-0050	Mainline	0.151
27-26-07-0000-0001-2030	Mainline	3.860
27-26-07-7012-6100-0010	Mainline	0.040
27-26-18-0000-0003-3020	Mainline	0.303
-	Mainline	0.025
26-26-13-4885-0001-0050	Mainline	0.717
26-26-13-4885-0001-0010	Mainline	0.037
27-26-18-7044-5700-0070	US 27	0.037
27-26-18-7044-5500-0011	US 27	0.772
27-26-18-7044-5500-0010	US 27	0.705
27-26-18-7044-5500-0021	US 27	0.202
27-26-18-7044-5800-0010	US 27	0.215

Table 6.5 - Right-of-way Acquisition for Roadway Improvements

Parcel ID Number	Location	Total Area Acquired (Acres)
27-26-18-0000-0002-1030	US 27	0.003
27-26-18-0000-0002-1040	US 27	0.030
27-26-18-7044-5000-0012	US 27	0.178
-	US 27	0.060
27-26-18-0000-0001-4080	US 27	0.126
27-26-18-0000-0001-4130	US 27	0.118
27-26-18-0000-0001-4110	US 27	0.131
27-26-18-0000-0001-4090	US 27	0.025
27-26-18-0000-0001-4050	US 27	0.139
27-26-18-0000-0003-1110	US 27	0.005
27-26-18-0000-0003-1010	US 27	0.003
27-26-18-7044-5700-0060	US 27	0.011
Total Right-of-way Required:		10.645

The right-of-way impacts due to stormwater management facilities, including floodplain compensation sites were determined in the *Pond Siting Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) (November 2016)*. The parcels impacted and the corresponding right-of-way required for the proposed stormwater management facilities associated with the recommended alternative are summarized in Table 6.6 and shown on the Concept Plans included in Appendix A.

Table 6.6 - Right-of-way Acquisition for Stormwater Facilities

Pond	Location	Parcel ID Number	Pond Area Including Access (Acres)
Regional Ponds 1 & 2	Station 522+00 to 532+50	27-26-08-000000-033000	10.79
506	Station 416+00 to 422+00	26-26-1300-00000-23010	1.70
		Unknown	0.37
		26-26-1348-85000-10010	4.00
Subtotal Right-of-way Required for Ponds:			16.86
Floodplain Compensation Ponds			
500D	Station 532+50 to	27-26-08-000000-033000	4.24
Subtotal Right-of-way Required for FPC:			4.24
Total Right-of-way Required for Stormwater Management:			21.10

6.7 Relocations

Right-of-way acquisition for the proposed improvements associated with I-4 Segment 5 involves partial or complete purchase of parcels within the project study area which may result in displacement of residential and non-residential land uses. In order to minimize the unavoidable effects of right-of-way acquisition and displacement of people, FDOT will carry out a Right-of-way and Relocation Program in accordance with state statutes and federal regulations. This includes advance notification to property owners of impending acquisitions, fair market value payment for property rights and financial assistance to relocated individuals or businesses.

The recommended alternatives for the I-4 Segment 5 project may result in right-of-way impacts to 29 parcels totaling approximately 32 acres. Of these 29 parcels, 15 are improved with existing developments and two parcels are being utilized as existing roadways or access drives. The potentially impacted existing developments consist of commercial uses such as shopping/retail, gas stations, hotels and restaurants. Other impacted parcels are either vacant, agricultural use, or existing ponds/surface waters or municipal/utility facilities. The majority of right-of-way impacts to parcels are related to stormwater management (4 parcels, approximately 21 acres) and the remaining impacts are related to roadway improvements (26 parcels, approximately 11 acres). One parcel in the project study area is impacted by both roadway and stormwater management acquisitions. Of the 29 unique parcel IDs, five parcels are developed/occupied and may require partial or full acquisitions involving potential relocation of or business damages to existing commercial properties. No residential relocations are anticipated within I-4 Segment 5. To minimize the unavoidable effects of right-of-way acquisition and displacement of people, FDOT will carry out a relocation assistance program in accordance with The Uniform Relocation assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended, for Federal and Federally Assisted Programs (23 CFR and 49 CFR, Part 24, Sections 334.048, 339.09 and 421.55, Florida Statutes Rule 14-66, Florida Administrative Code). The recommended alternative for I-4 Segment 5 is not anticipated to result in any residential displacements, however a review of real estate listings using internet search engines shows there is an ample number of sites available for potential displacees to relocate to within the project study area. Additional information pertaining to the potentially displaced properties, including resources available to facilitate relocation and socio-economic impacts to the surrounding neighborhoods are identified in the *Conceptual Stage Relocation Plan (November 2015)* prepared for this project.

6.8 Section 4(f) Lands

In accordance with Section 4(f) of the Department of Transportation (DOT) Act of 1966 [Title 49, USC, Section 1653(f)] amended and codified in Title 49, USC, Section 303, the project was evaluated for potential Section 4(f) resources. Section 4(f) resources consist of publicly owned parks, recreation areas, wildlife refuges and public and private historic and archaeological sites.

The corridor was reviewed and two potential Section 4(f) property adjacent to the project were identified. The two properties include: Old Tampa Highway Trail to Deen Still Road Connector (Ronald Reagan Parkway Trail/Florida Trail Connector) and the Appleton and Gurov Parcel owned by the SWFWMD. The latter property is a managed conservation land (*Florida Managed Areas, FGDL, June 2015*). This parcel is located about 1/2-mile northwest of the Interstate and the Trail connector crosses I-4 near CR 54. No property acquisition is associated with these potential Section 4(f) resources and no changes in access, visual impacts, noise, or other impacts are anticipated to occur. Additionally, three historic structures constructed before 1971, all of which are NRHP ineligible are within the project study area and were previously discussed in Section 5.6.4 of this report.

6.9 Bridge Analysis

An analysis of the existing bridge conditions and proposed improvements for each bridge structure was conducted as part of this PD&E study. There are three existing bridge structures along the I-4 Segment 5 mainline. As part of this study, each bridge was evaluated to determine if widening or replacement of the bridges is required, or if the bridge may remain in place. Where practical, widening or retrofitting the existing structure is recommended. However, due to the proposed roadway geometrics and alignment, there are several structures which will require replacement. In addition, with improvements to the US-27/I-4 interchange, several new bridges are being proposed. Based on the bridge analysis, ten new bridge structures are recommended. The proposed bridge improvements for I-4 Segment 5 are summarized in Table 6.7. Vertical clearance requirements for facilities crossing the mainline are based on minimum vertical clearance to the rail of a future high speed rail corridor. An additional bridge is currently being proposed to extend Grandview Parkway over I-4, just east of the I-4 and US 27 interchange. This bridge project is being proposed by the developer of the land adjacent to the I-4 westbound lanes. The County is awaiting finalization of the I-4 BtU PD&E before establishing the bridge design details for the Grandview Parkway overpass.

6.10 Utilities

Numerous utility companies have utilities located within the project corridor, as previously identified in Section 2.16 of this report. Utility impacts were carefully evaluated when considering the proposed roadway improvements and stormwater pond locations. The location of overhead utilities, existing power poles and access issues were also evaluated to minimize impacts. However, smaller gas lines and other buried utilities may involve relocation.

Most utility companies have the capability to adjust their services without causing major inconveniences to the customers. As a result, mitigation measures, to the maximum extent feasible, will include the following:

- Maintaining utility connections in temporary locations;

Table 6.7 - Proposed Bridge Improvements

Facility	Bridge No.	Project FPID	Proposed Improvement	Proposed Bridge Length (ft.)	Proposed Bridge Width (ft.)	Proposed Minimum Vertical Clearance (ft.)	Depth of Structure (ft.)	Super-structure Type	No. Spans	Max Span Length (feet)	Comments
US-27 (SR-25) Loop Ramp Over US-27 (SR-25)	New Bridge	201210-3	New Bridge	320.2	46.0	16.5	7	Steel I-Girder	2	195.0	Highly Curved Geometry
US-27 (SR-25) SB over Posner Blvd	New Bridge	201210-3	New Bridge	421.1	69.7	16.5	6	Prestressed Concrete Beams	4	127.3	
US-27 (SR-25) NB over Posner Blvd	New Bridge	201210-3	New Bridge	234.0	72.0	16.5	6.5	Prestressed Concrete Beams	3	135.0	
US-27 (SR-25) NB Over Frontage Rd	New Bridge	201210-3	New Bridge	185.9	60.5	16.5	5	Steel I-Girder	1	185.9	
I-4 EB On-Ramp over I-4 EB Off-Ramp	New Bridge	201210-3	New Bridge	406.0	31.0	16.5	6.5	Steel I-Girder	3	135.3	
I-4 WB GUL On-Ramp A Over I-4 WB GUL Off-Ramp	New Bridge	201210-3	New Bridge	458.5	31.0	16.5	6	Steel I-Girder	3	152.8	
I-4 WB GUL On-Ramp B Over I-4 WB GUL Off-Ramp	New Bridge	201210-3	New Bridge	433.0	48.0	16.5	6	Steel I-Girder	3	144.3	
US-27 (SR-25) SB Over I-4 WB Off-Ramp Interchange	New Bridge	201210-3	New Bridge	237.0	60.0	16.5	8	Steel I-Girder	1	237.0	
US-27 (SR-25) over I-4 (SR-400)	160320	201210-3	Replace	502.4	208.8	22.0	8.0	Steel I-Girders	4.0	244.2	Existing substructures conflict with proposed Ultimate I-4 section.
I-4 EB on ramp Over I-4 EB GUL to EB EL	New Bridge	201210-3	New Bridge	1144.2	49.4	16.5	8	Steel I-Girders	7	250.0	
I-4 WB EL Ramp Over I-4 WB CD Road	New Bridge	201210-3	New Bridge	1127.8	39	16.5	8	Steel I-Girders	6	250.0	
CR-54 SB Ronald Regan Pkwy. over I-4	160332	201210-3	Remain	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CR-54 NB Ronald Regan Pkwy. over I-4	160331	201210-3	Remain	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 6.8 - Summary of Utility Impacts

Type of Utility	Utility Owner	Type of Facility	Limits	Offset/Side	Relocation Required
Communications	Level 3 Communication	1.9" Underground Fiber Optic	Crossing of I-4 Corridor, at US 27, I-4 overpass	East side of overpass	Yes, adjust for bridge improvements
Communications	Verizon	Underground Fiber Optic	From 190-ft to 640-ft west of intersection of Frontage Rd & US 27 on US 27	South side of road	Yes, adjust to be parallel to proposed road
Communications	Verizon	Underground Fiber Optic	From 190-ft to 450-ft west of intersection of Frontage Rd & US 27 on US 27	North side of road	Yes, adjust to be parallel to proposed road
Communications	Verizon	Underground Fiber Optic	Crossing of US 27, 440-ft west of intersection of Frontage Rd & US 27	N/A	Yes, extend across proposed roadway
Communications	Verizon	Underground Fiber Optic	Crossing at intersection of Frontage Rd & US 27	East side of intersection	Yes, extend across proposed roadway
Electric	Duke Energy Distribution	13 KV Aerial Electric	From 90-ft west of Ernie Caldwell Blvd, US 27 overpass west to end of US 27	South side of road	Yes, adjust for bridge improvements
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Westbound side of I-4 from beginning of segment limits on I-4 to end of segment limits on I-4	West side of the road	Yes, adjust to be parallel to proposed road
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Crossing of the westbound I-4 lanes, 2770-ft west of US 27, I-4 overpass	N/A	Yes, extend across proposed roadway
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two Crossings of the westbound I-4 lanes, 320-ft west of US 27, I-4 overpass	N/A	Yes, extend across proposed roadway
Intelligent Transportation Systems	Florida Department of Transportation	Intelligent Transportation System Cable	Two Crossings of the westbound I-4 lanes, 170-ft east of the CR 54, I-4 overpass	N/A	Yes, extend across proposed roadway
Natural Gas	Central Florida Gas	4" Natural Gas Main	From intersection of Frontage Rd & US 27 west on US 27 to 510-ft east of intersection of I-4 westbound ramp to US 27 & US 27	South side of road	Yes, adjust for bridge improvements
Natural Gas	Central Florida Gas	4" Natural Gas Main	Crossing of I-4 Corridor, 140-ft east of CR 54, US 27 overpass	N/A	Yes, adjust for bridge improvements
Water	Polk County Utilities	20" Water Main	From 610-ft west of intersection of I-4 westbound ramp to US 27 & US 27 west to 240-ft east of intersection of Dunson Rd. & US 27	North side of road	Yes, adjust to be parallel to proposed road
Water	Polk County Utilities	8" Water Main	From 780-ft to 700-ft west of intersection of I-4 westbound ramp to US 27 & US 27	North side of road	Yes, adjust to be parallel to proposed road

- Minimizing the time without service;
- Installing alternative or new service before disconnecting the existing service; and
- Allowing service disruption only during periods of non-usage or minimum usage.

A *Utility Impact Assessment (September 2015)* report has been prepared concurrently with this effort and submitted under separate cover. Table 6.8 provides a summary of potential utility impacts associated with the proposed improvements in the I-4 Segment 5 corridor for the recommended alternative. Exact locations of existing utilities will be determined in the final design of the proposed improvements. Coordination with the known utility companies during the final design phase will assist in minimizing relocation adjustments and disruptions of service to the public.

6.11 Conceptual Signing Plan

A conceptual signing plan for the preferred alternatives was developed for the I-4 BtU improvements. A critical aspect in development of the signing concepts is distinguishing between the general use and special use (express) lanes. This is achieved by employing the designated sign panel colors to distinguish between the two-lane facility types. The conceptual signing plan includes static and dynamic message signs (DMS) which show entry access points from general use to express lanes, as well as vehicle eligibility restrictions and toll pricing amounts. The conceptual signing plan for Segment 5 is provided in Appendix B.

6.12 Lighting

Based on the lighting warrant criteria specified in AASHTO's *Roadway Lighting Design Guide* (October, 2005) and as determined in the *SR 400 (I-4) Lighting Justification – West Section (US 27 to Kirkman Road) Memorandum (December 12, 2013)*, continuous freeway lighting is recommended along all of Segment 5.

6.13 Access Management

Access management is the practice of controlling vehicular access to a roadway in order to increase roadway efficiency and improve travel safety by reducing the number of traffic conflicts encountered by roadway users. The State Highway System Access Management Act (F.S. 335.18) mandates the implementation of access management standards based on the Access Management Classification System developed in Administrative Rule 14-97. I-4 has been identified as Access Management Class 1 under this system. Access Class 1 consists of limited access facilities (roadways which do not provide direct property connections). The proposed improvements will not modify the existing interchange spacing. US 27 is currently categorized as a Class 3 roadway north and south of I-4 according to FDOT's Access Management classification. The proposed improvements in Segment 5 do not affect the access class of US 27. Much of the access will remain as it is today with the signalized intersections being used

to cross from one side of US 27 to the other. Access to the Raceway, 7-11, Way Out Western Outfitters, Verizon Wireless, The Shamrock and the Tropicana Resort Hotel will be from a Frontage Road on the west side of US 27 that is accessed from US 27 southbound. Due to the required geometry for the elevated U-turn just north of Ernie Caldwell Boulevard, access to the Central Florida Visitor Center will be eliminated from US 27.

6.14 Project Cost Estimates

The estimated cost of construction including Maintenance of Traffic (MOT) and contingency is \$286.7 Million. Estimated Engineering Design/Build costs are expected to be an additional 17% of the total construction cost. The complete Long Range Estimates (LRE) for Segment 5 are included in Appendix D. The total estimated cost for Segment 5 is \$336 Million; Table 6.9 shows the breakdown of estimated project costs for I-4 Segment 5.

Item	Cost
LRE	\$206,035,114.00
MOT (15%)	\$30,905,267.00
Mobilization (10%)	\$23,694,038.00
Project Unknowns (10%)	\$26,063,442.00
Design/Build (17%)	\$48,738,636.00
Project Non-Bid Subtotal	\$150,000.00
Total	\$335,586,497.00

6.15 Production Schedule

The PD&E re-evaluation for Segment 5 is scheduled to be completed in Summer of 2017. The preliminary design began September 2015. At this time, this segment is currently not funded for right-of-way acquisition or construction.

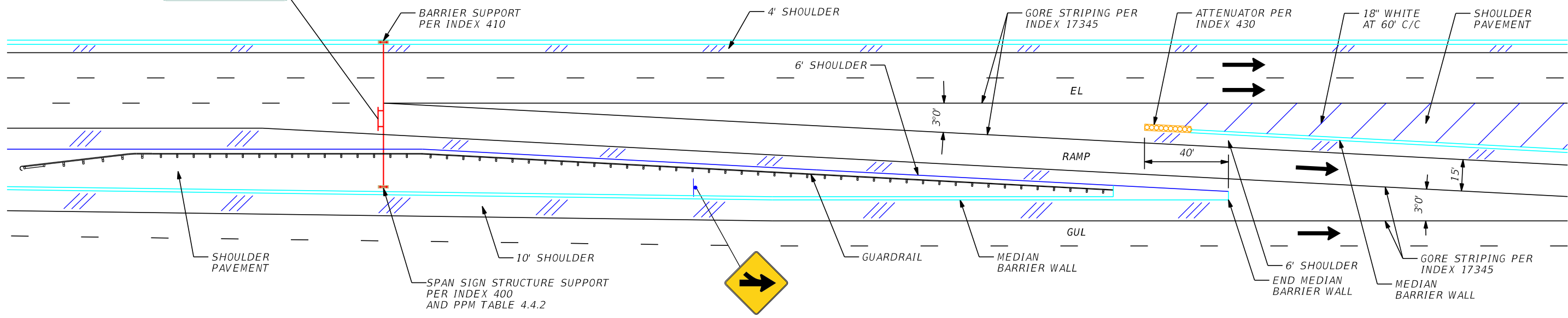
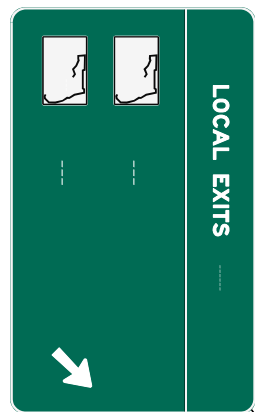
7.0 Supplemental Technical Reports

A series of supporting documents including Technical Reports and Memorandums were prepared as part of the PD&E study for this project. Information from these reports was used to evaluate and develop the alternatives and design recommendations in this PER. These documents are listed here for reference.

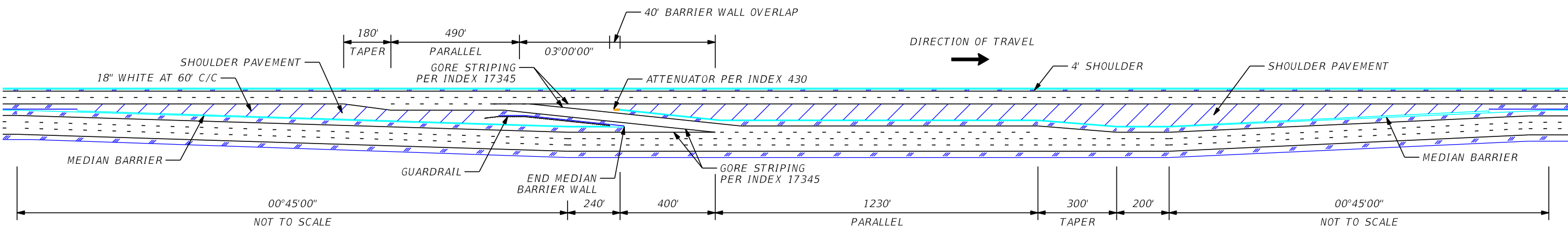
1. *Air Quality Analysis Technical Memorandum Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [April 2017]*
2. *Concept of Operations - SR 400 (I-4) from West of SR 25/US 27 to East of SR 472 [June 2016]*
3. *Conceptual Stage Relocation Plan Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [November 2015]*
4. *Contamination Screening Evaluation Report Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [April 2017]*
5. *Endangered Species Biological Assessment Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [April 2017]*
6. *I-4 Systems Access Modification Report Re-evaluation, South Section – from West of US 27 to West of SR 435 (Kirkman Road) [March 2017]*
7. *Location Hydraulic Report Segment 5: West of SR 25/US 27 to West of CR 532 Polk/Osceola County Line) [November 2016]*
8. *Noise Study Report Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [April 2017]*
9. *Pavement Type Selection Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [February 2016]*
10. *Pond Siting Report Segment 5: West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [November 2016]*
11. *Report of Preliminary Geotechnical Engineering Investigation for Ponds - Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [March 2016]*
12. *Re-evaluation of EA/FONSI for State Road 400 (I-4) from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line) (201210-3-32-01) [May 2017]*

13. *Technical Memorandum: Cultural Resource Assessment Survey of Proposed Improvements to Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [March 2016]*
14. *Technical Memorandum: SR 400 (I-4) Lighting Justification – West Section (US 27 to Kirkman Road), FPID: 432100-1-22-01 [December 2013]*
15. *Utility Impact Report – Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [April 2016]*
16. *Wetland Evaluation Report (WER) Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) [December 2016]*

Appendix A - **Concept Plans**



SLIP RAMP DETAIL EGRESS FROM EXPRESS LANES



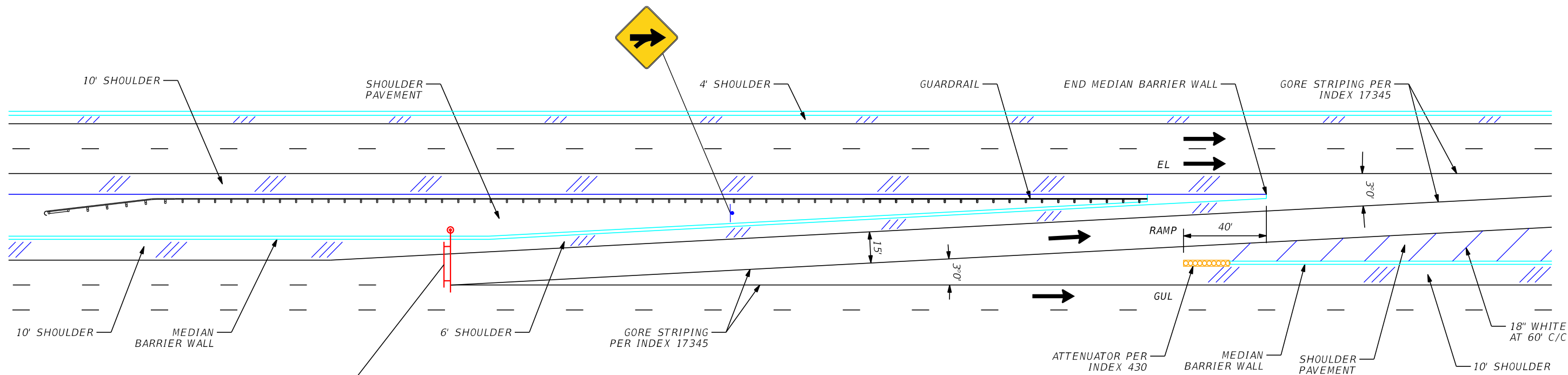
SLIP RAMP DETAIL EGRESS FROM EXPRESS LANES

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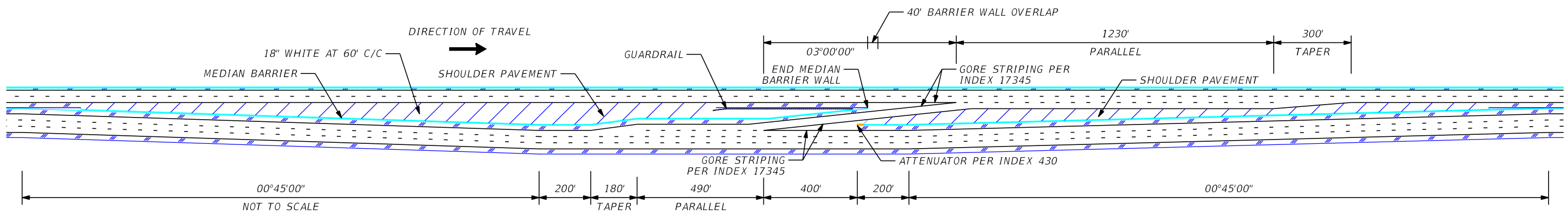
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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I-4 PD&E STUDY
SEGMENT 5

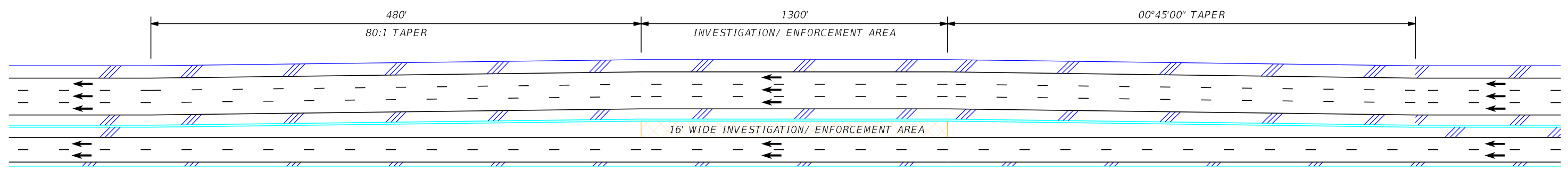
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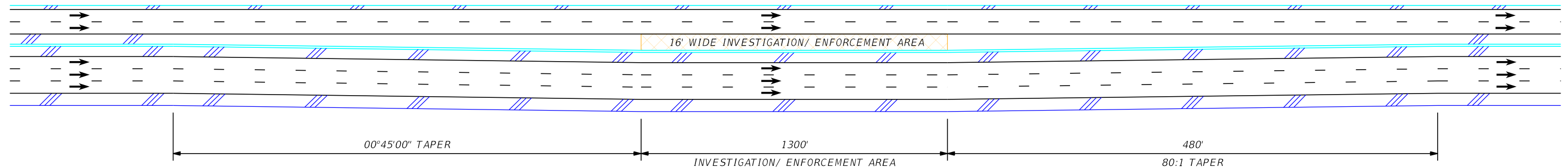
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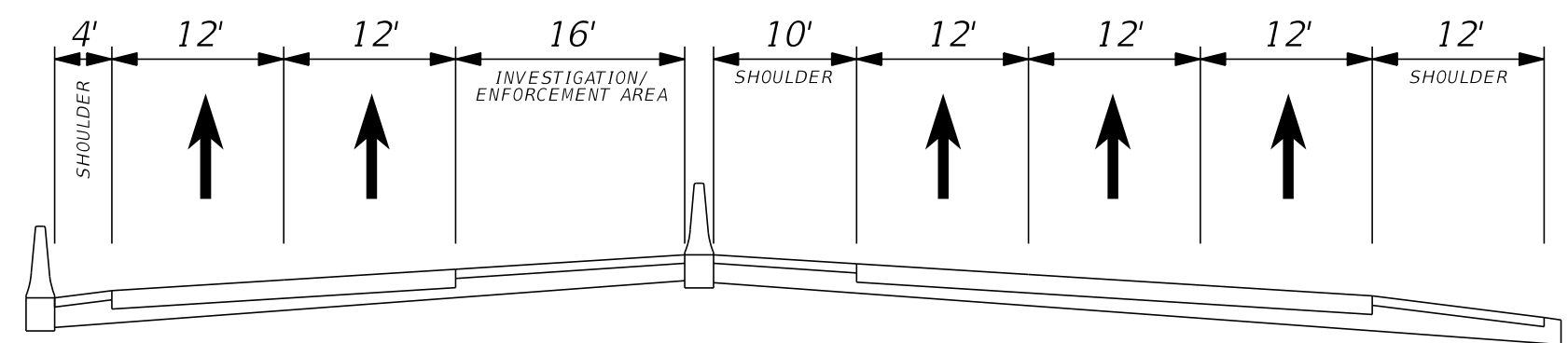
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WESTBOUND INVESTIGATION/ ENFORCEMENT AREA DETAILS

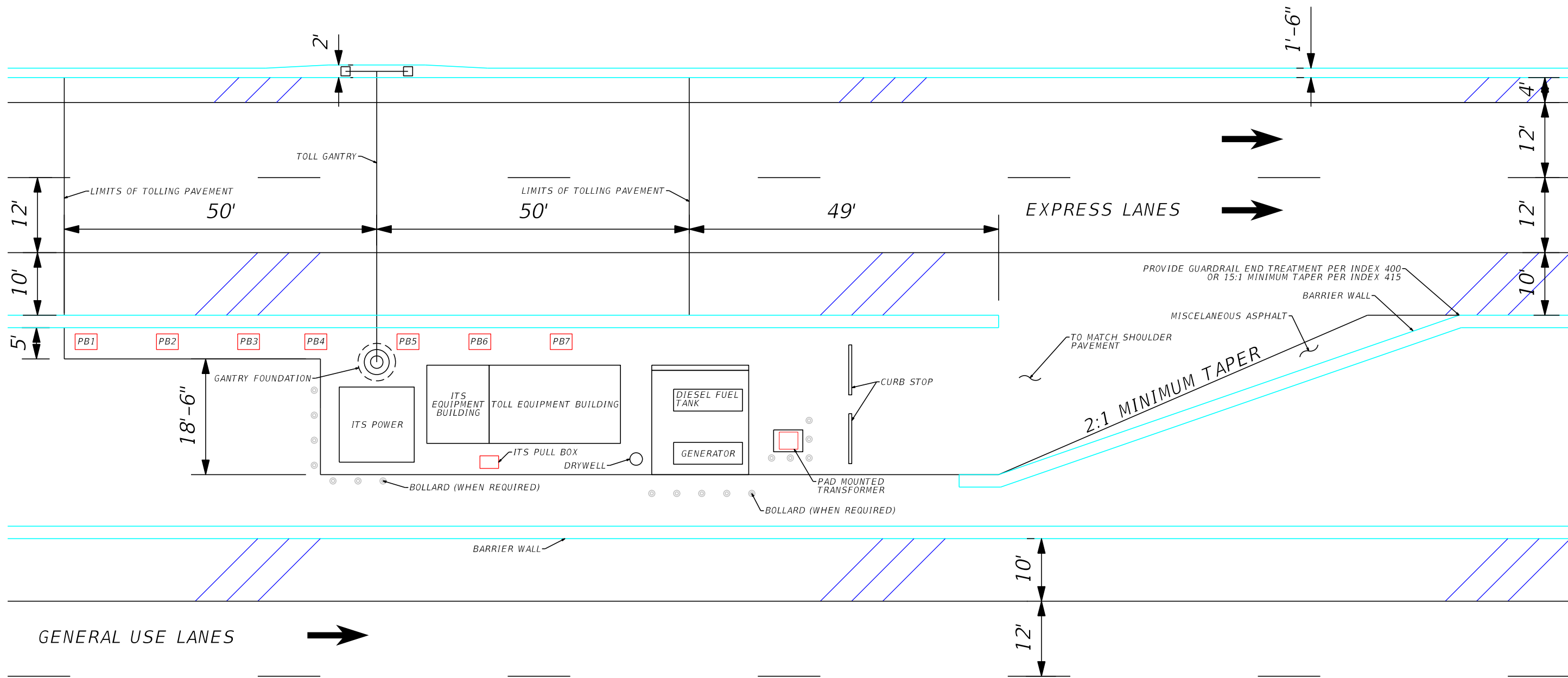


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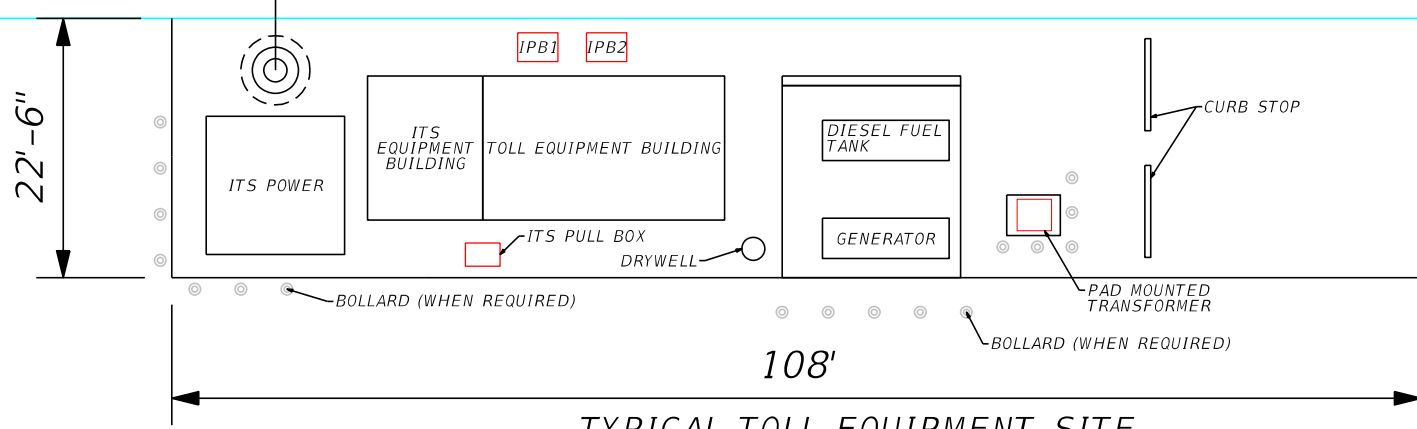
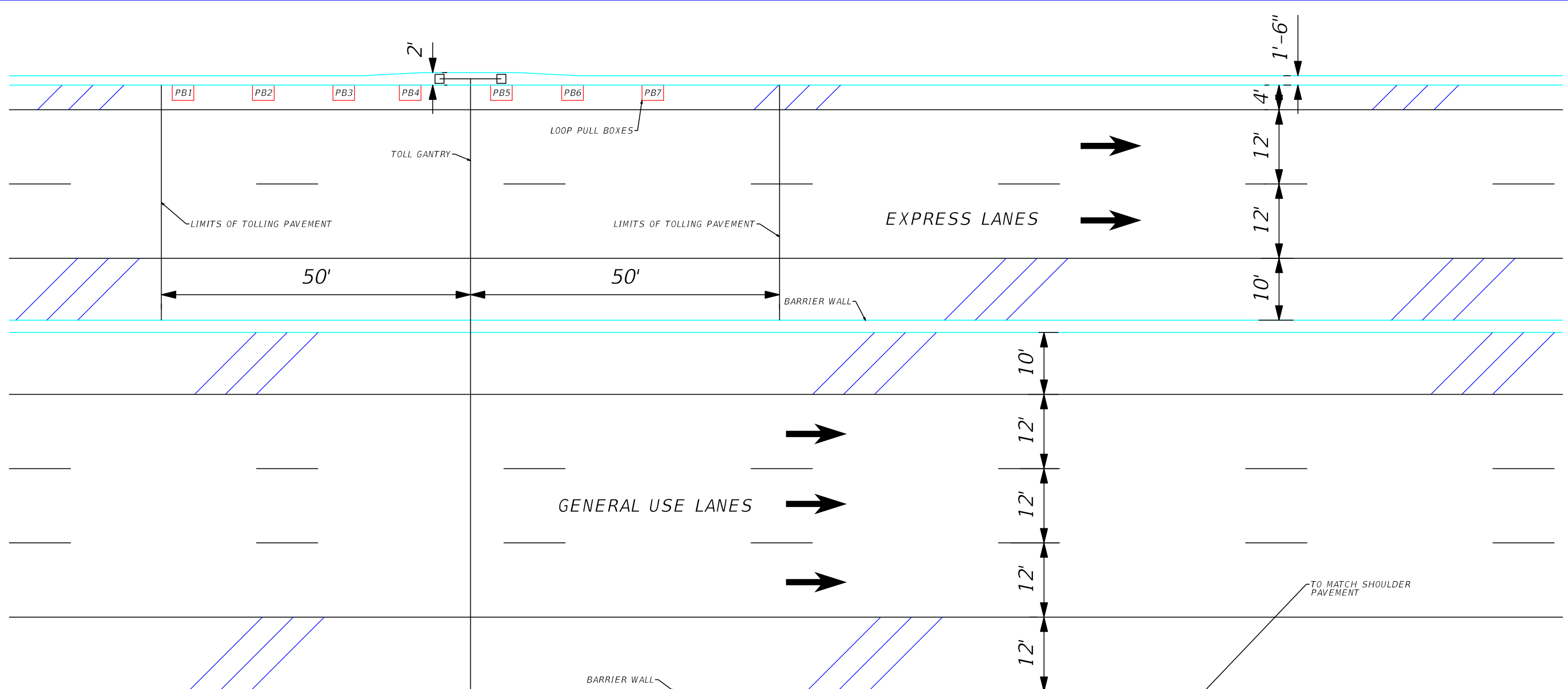
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	ROAD NO.	COUNTY	FINANCIAL PROJECT ID			
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TYPICAL TOLL EQUIPMENT SITE
 BETWEEN ROADWAYS

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	ROAD NO.	COUNTY		
	400	POLK	201210-2-22-01	



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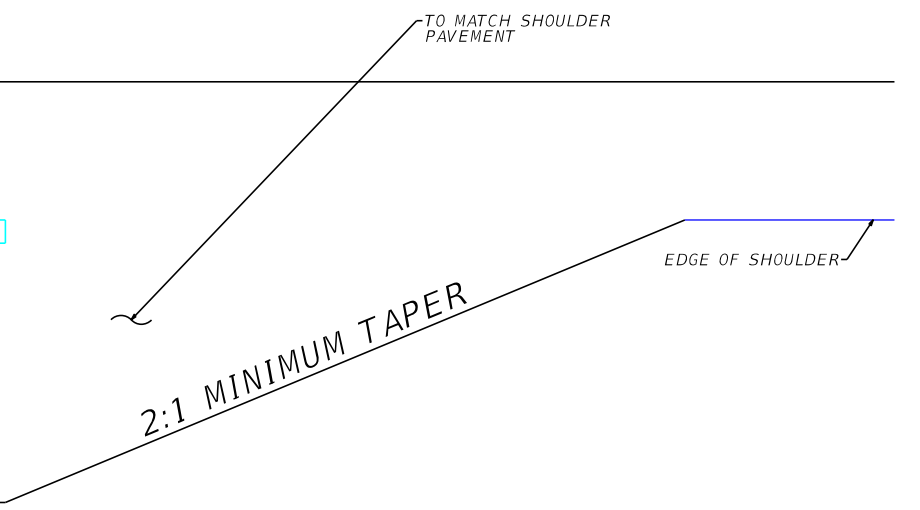
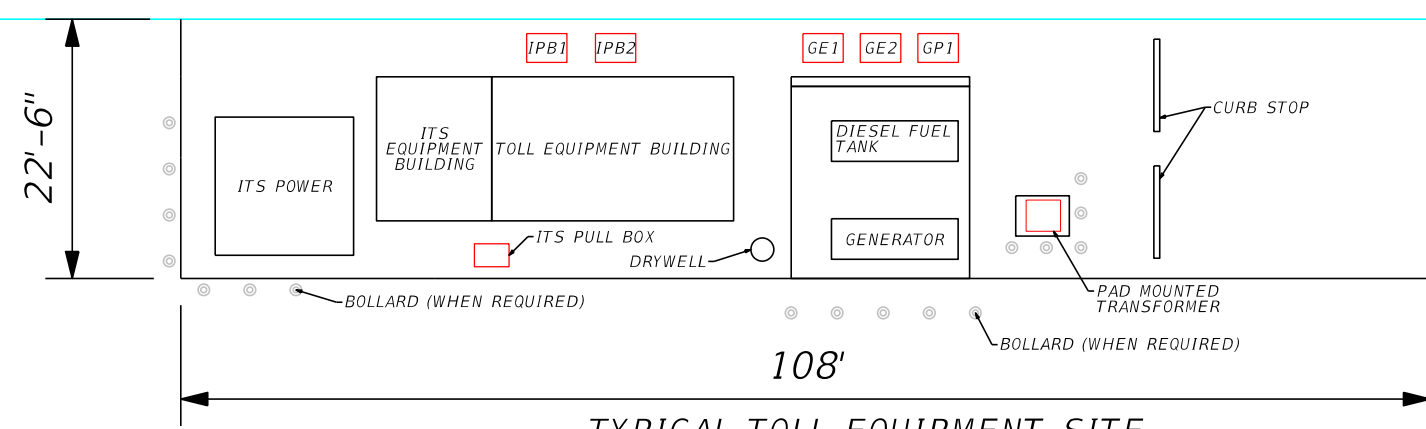
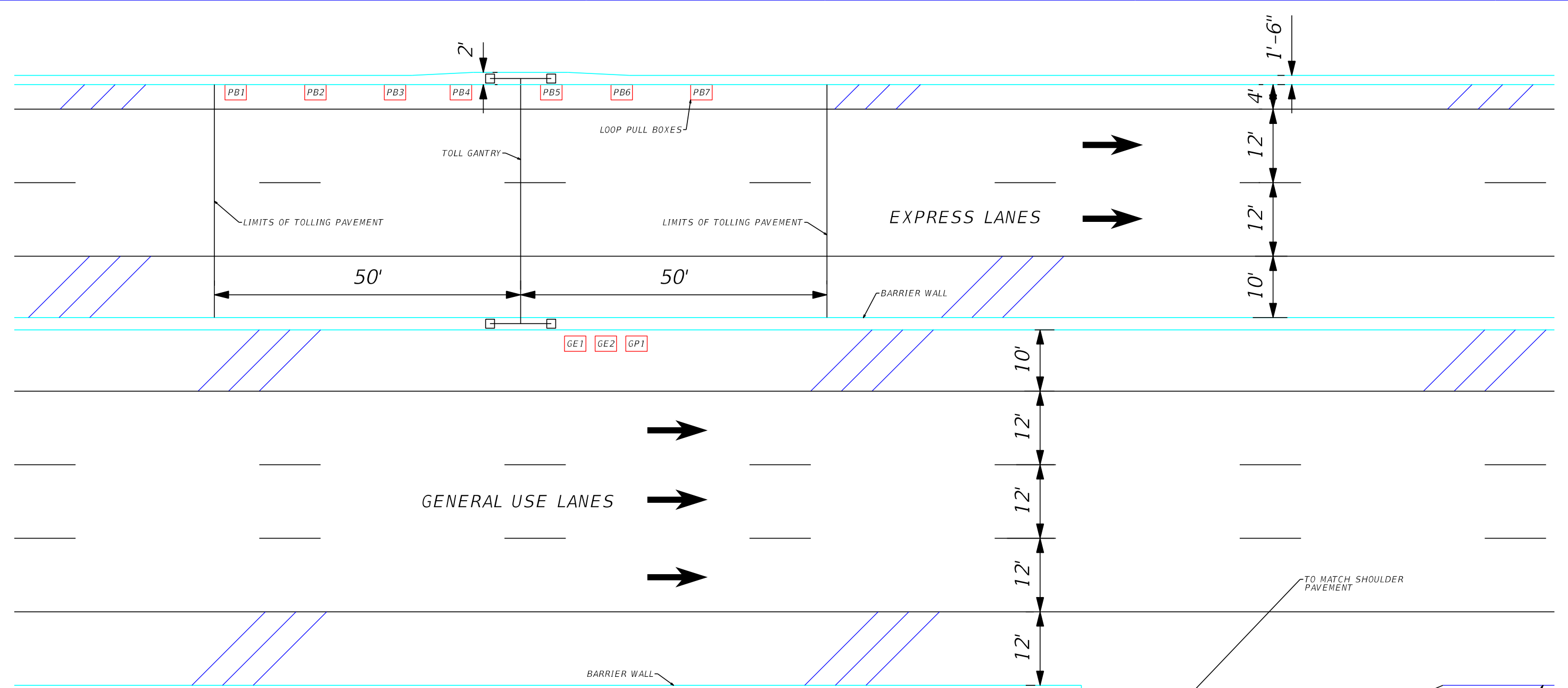
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EDGE OF SHOULDER

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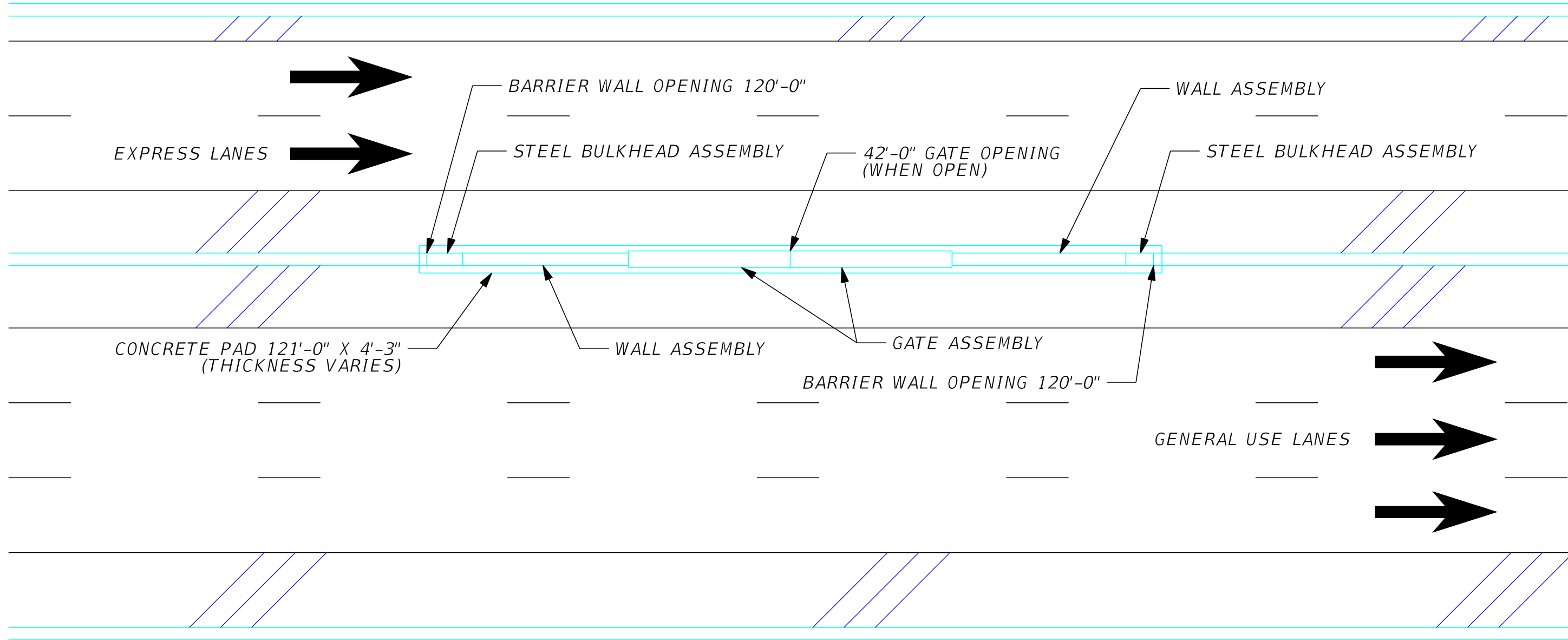
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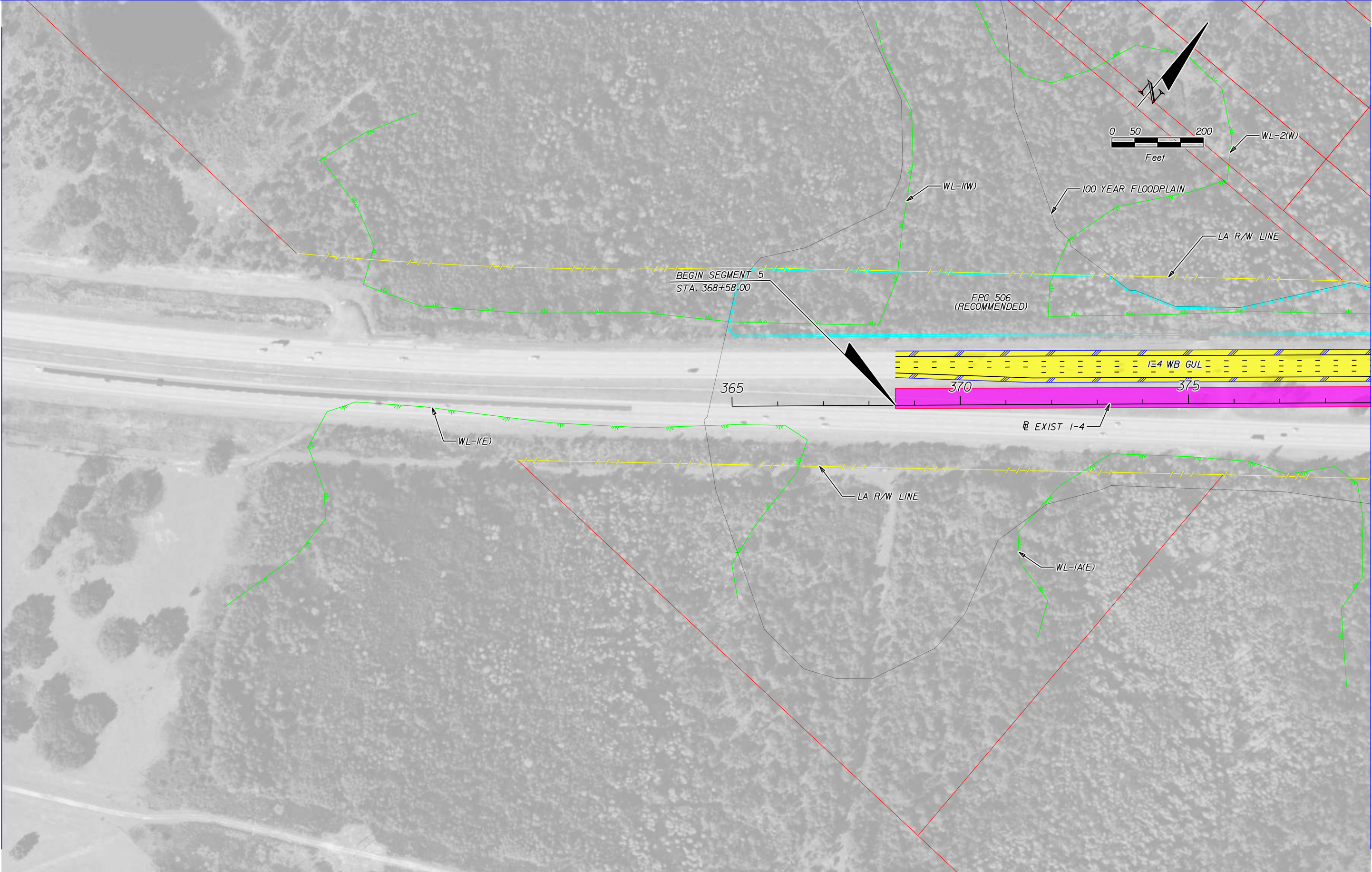
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TYPICAL EMERGENCY ACCESS GATE DETAILS

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	400	POLK		201210-2-22-01



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	PROPOSED LA R/W		EXISTING BRIDGE
	PROPOSED FDOT R/W		PROPOSED BRIDGE
	EXISTING R/W		RAIL CORRIDOR
	PARCEL LINES		BARRIER WALL
	BARRIER WALL		FUTURE EXISTING CONDITION

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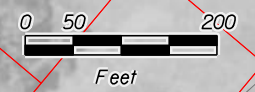
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**I-4 PD&E STUDY
 I-4 MAINLINE
 (RECOMMENDED ALTERNATIVE)
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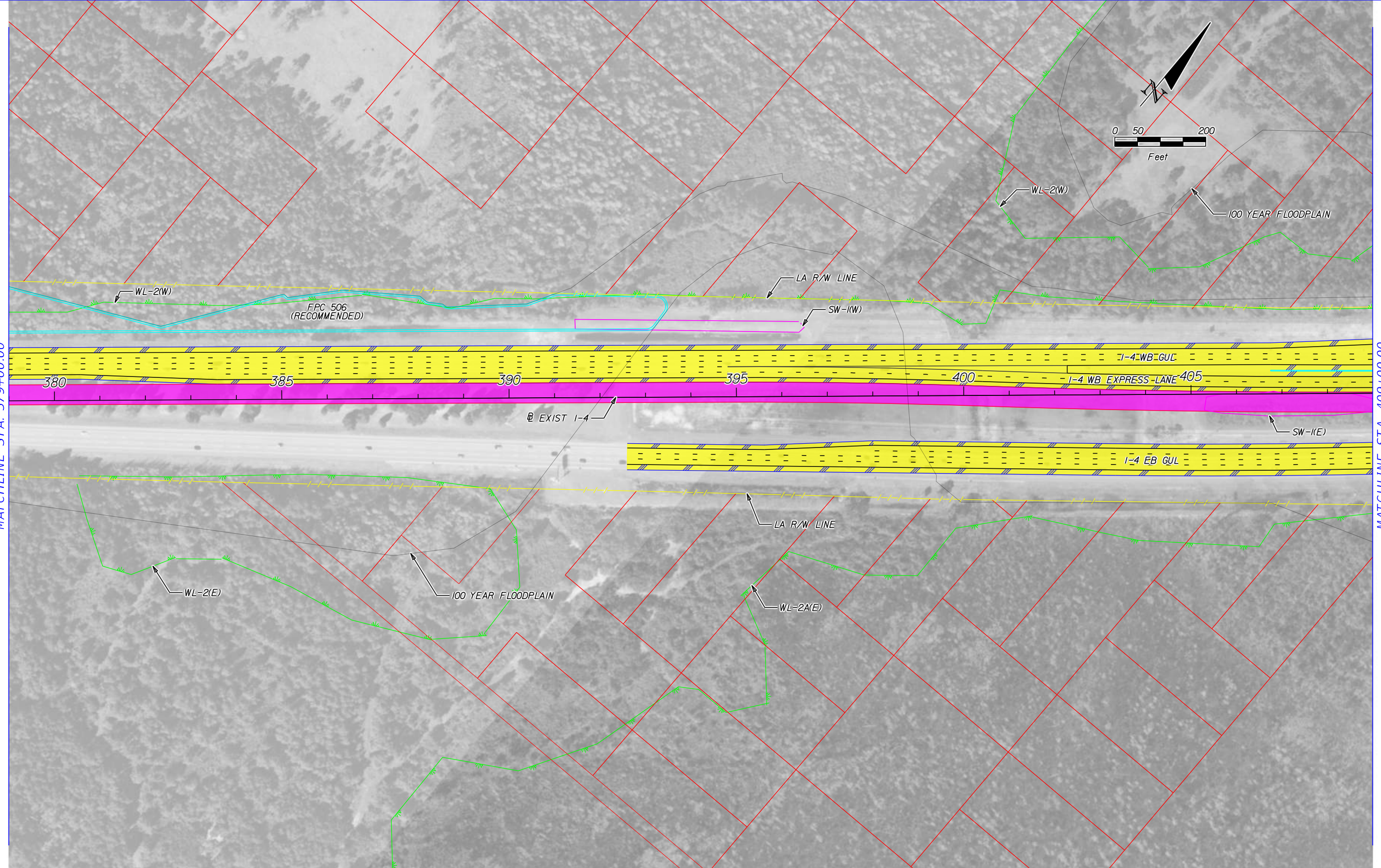
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	PROPOSED FDOT R/W		EXISTING BRIDGE
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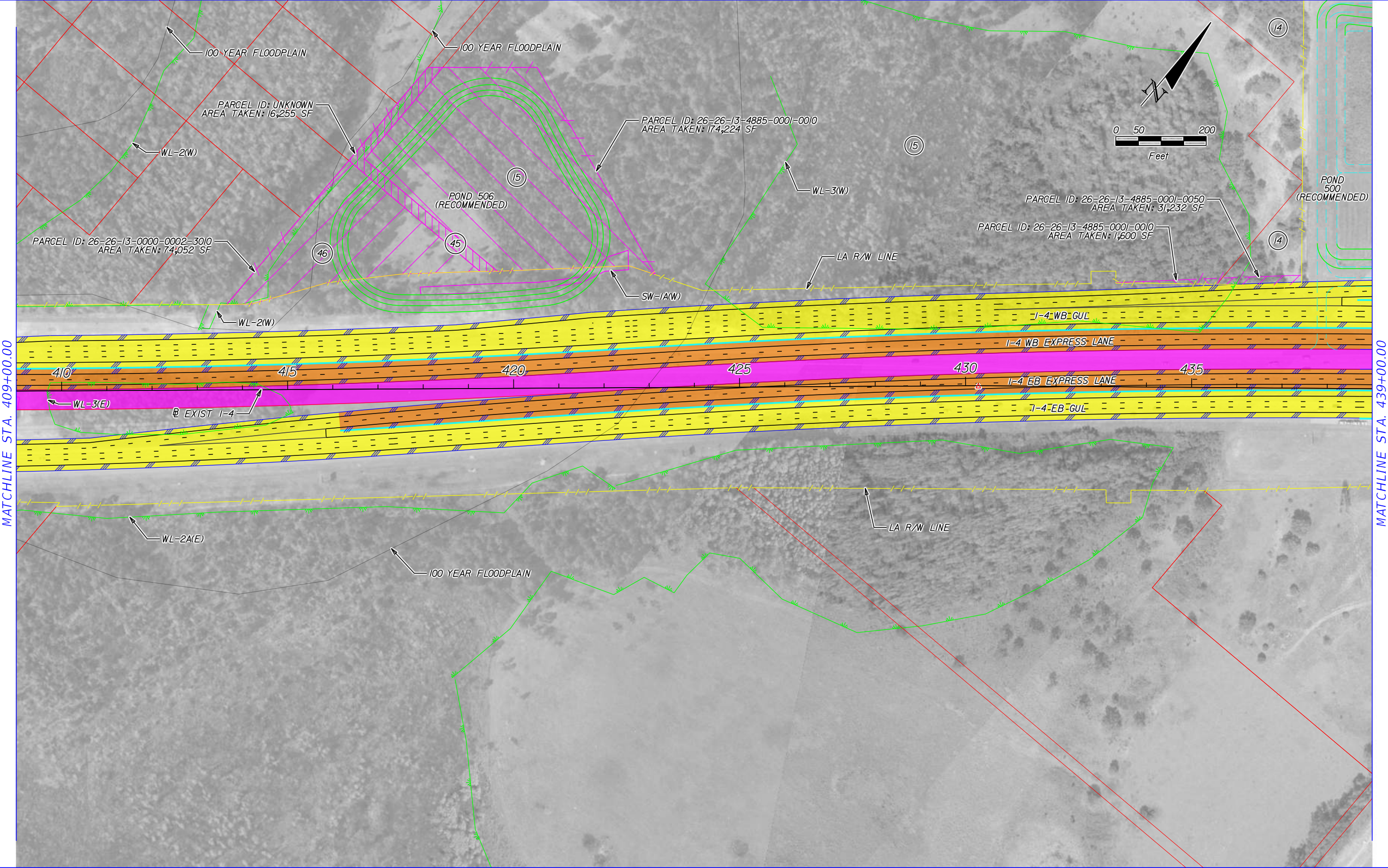
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I-4 PD&E STUDY
I-4 MAINLINE
(RECOMMENDED ALTERNATIVE)
SEGMENT 5

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	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

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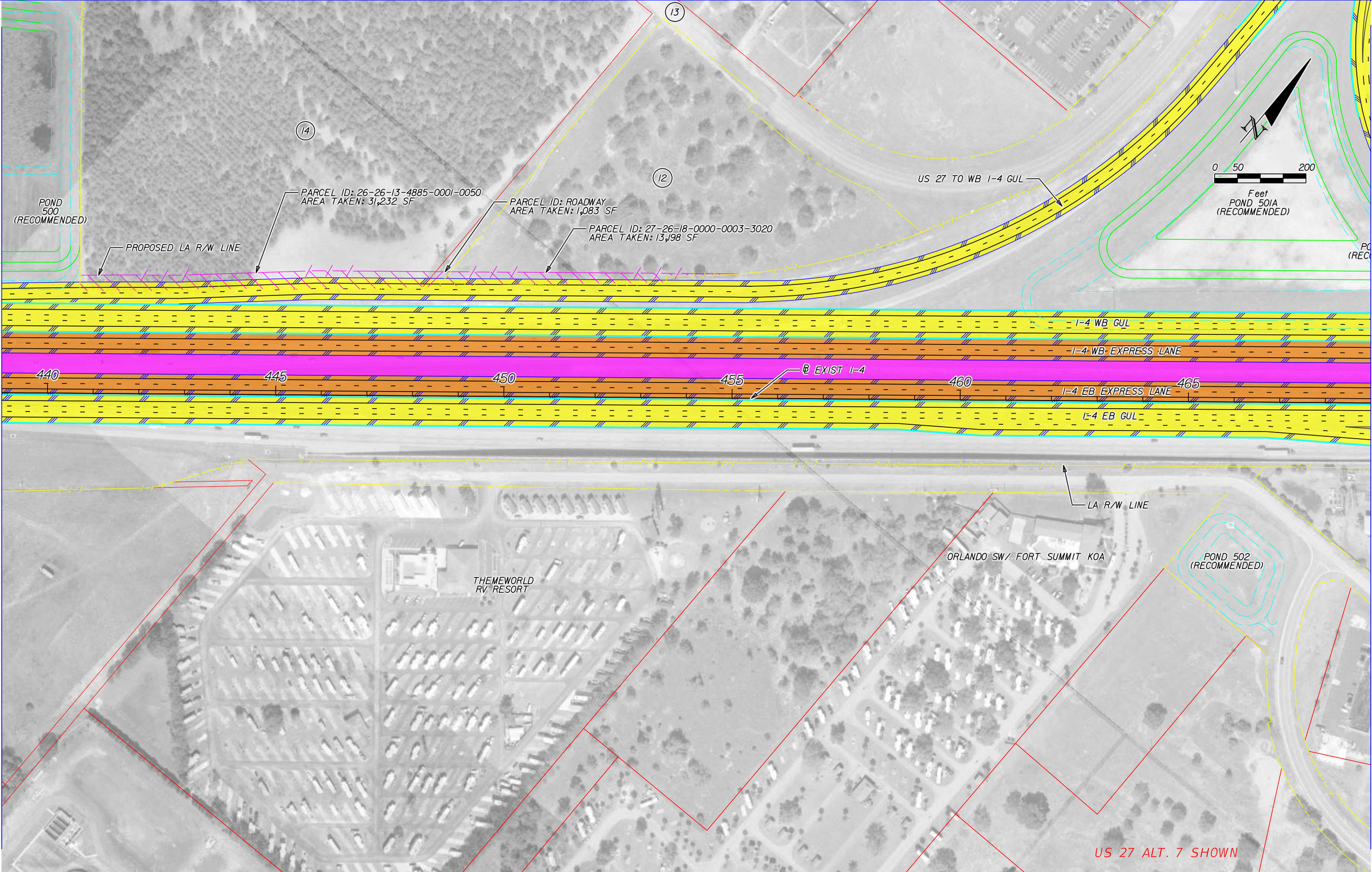
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I-4 MAINLINE
(RECOMMENDED ALTERNATIVE)
SEGMENT 5

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MATCHLINE STA. 469+00.00



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	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

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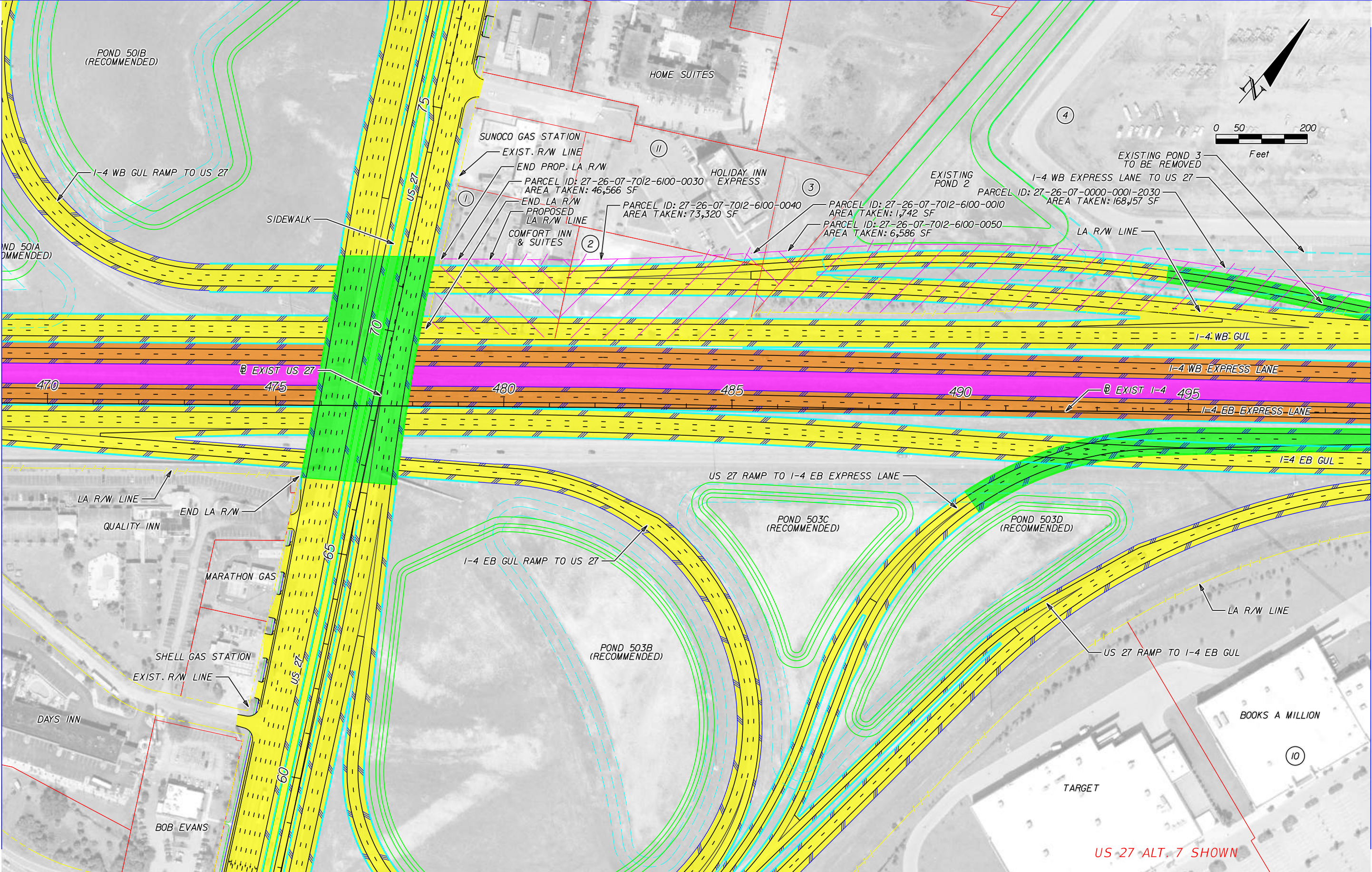
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SEGMENT 5

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MATCHLINE STA. 499+00.00



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	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

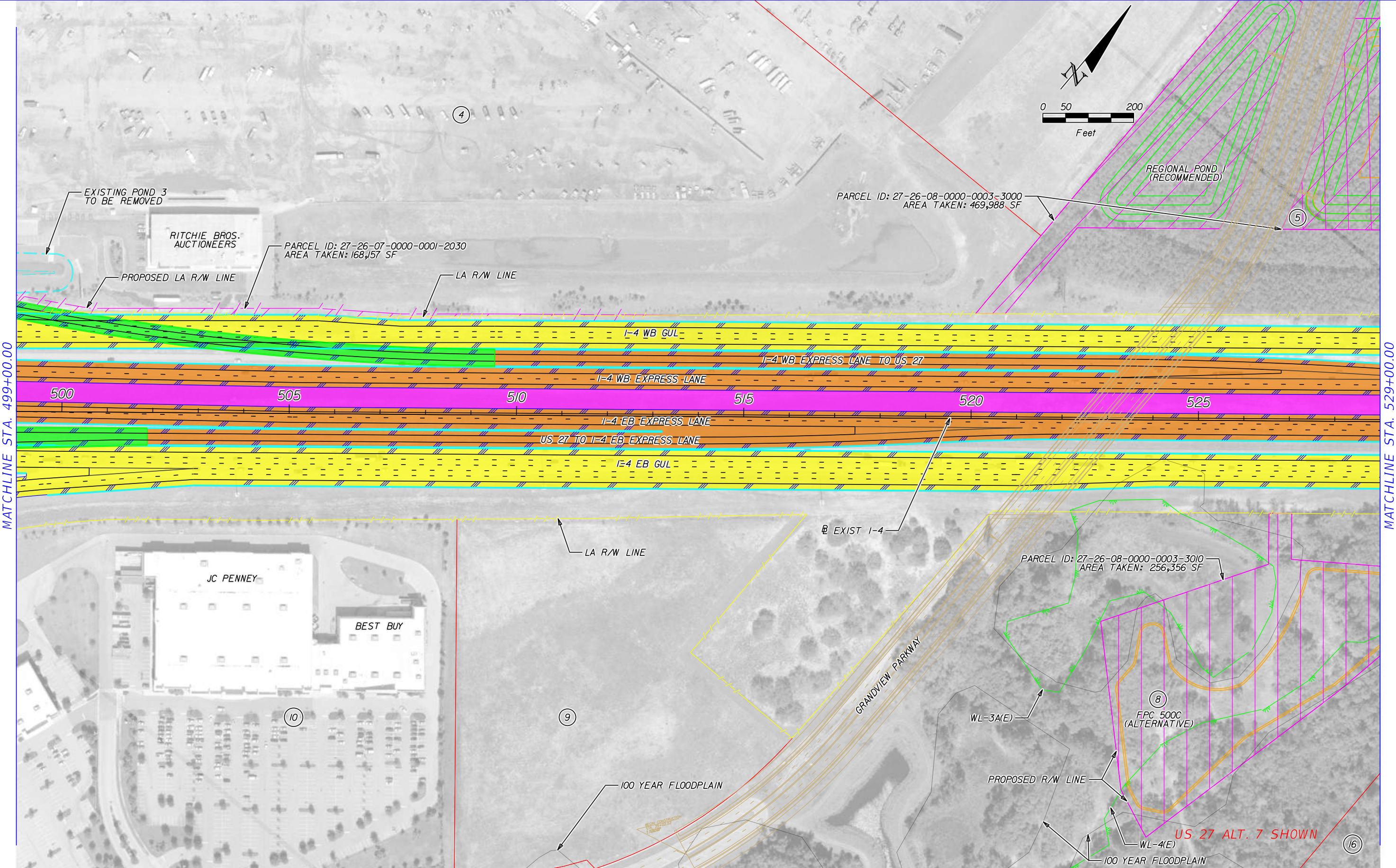
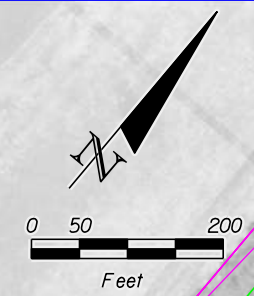
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I-4 PD&E STUDY
I-4 MAINLINE
(RECOMMENDED ALTERNATIVE)
SEGMENT 5

SHEET NO.
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MATCHLINE STA. 529+00.00

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	PARCEL LINES		RAIL CORRIDOR
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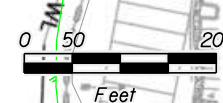
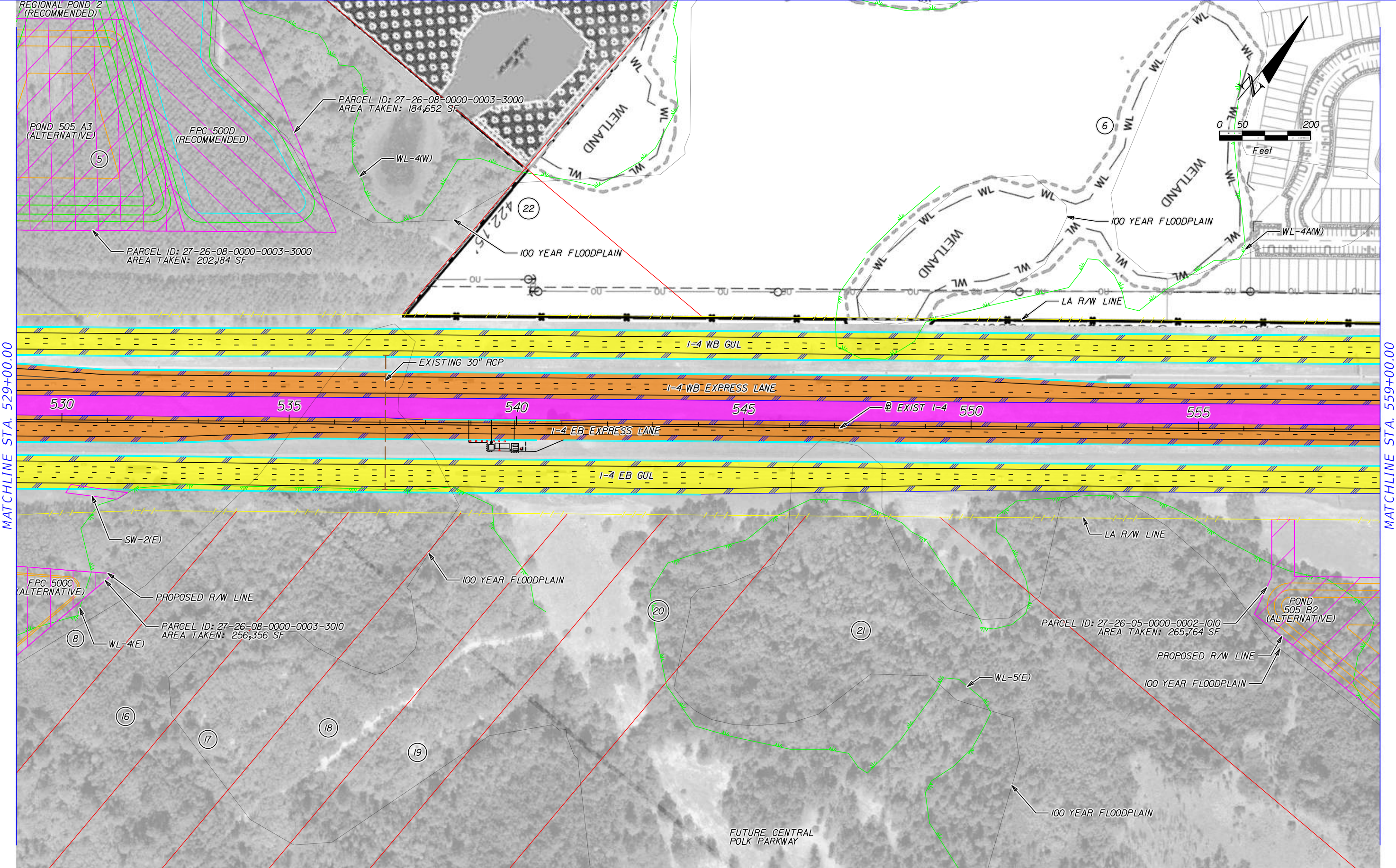
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ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

I-4 PD&E STUDY
I-4 MAINLINE
(RECOMMENDED ALTERNATIVE)
SEGMENT 5

SHEET NO.
13



MATCHLINE STA. 529+00.00

MATCHLINE STA. 559+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

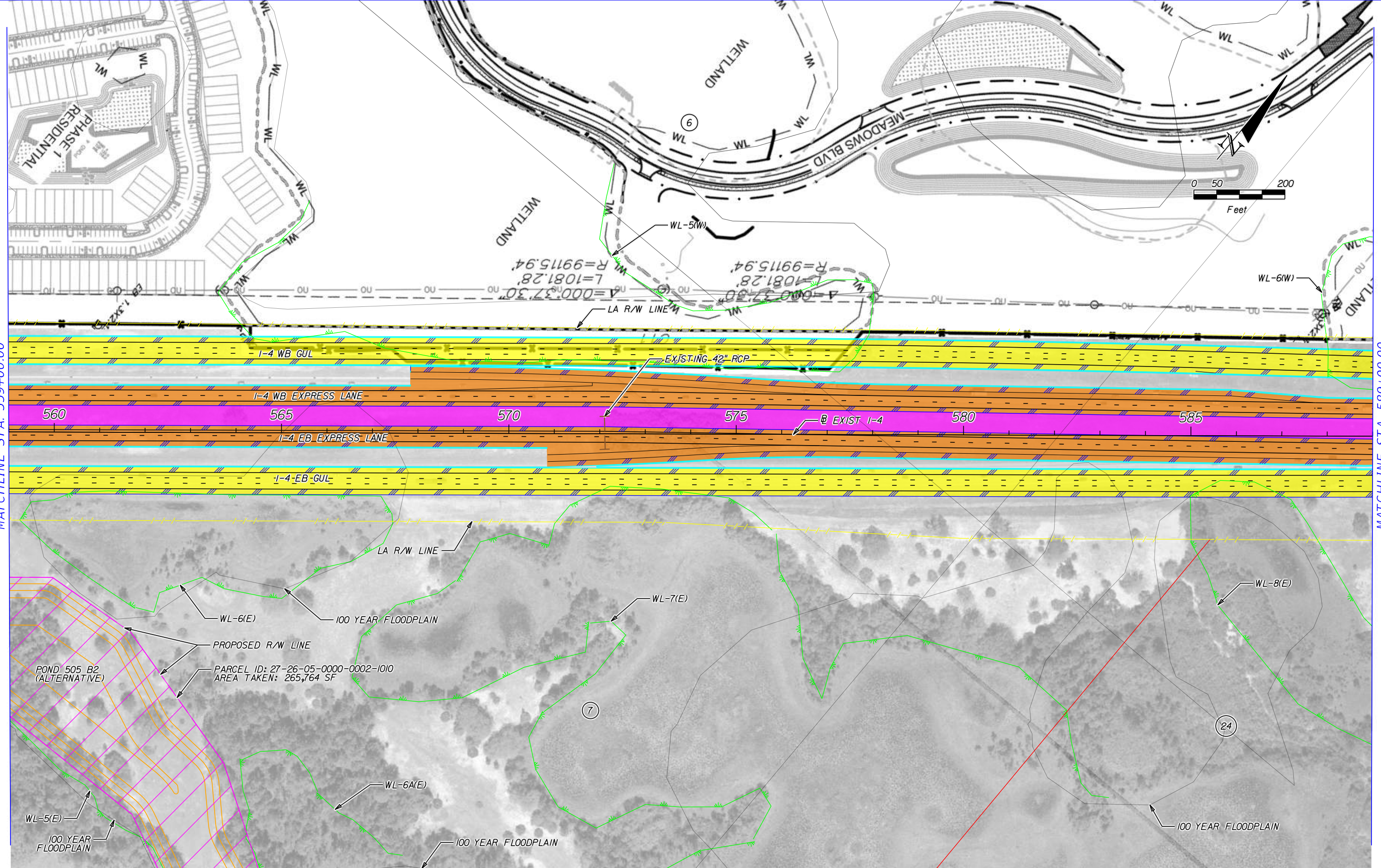
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

I-4 PD&E STUDY
I-4 MAINLINE
(RECOMMENDED ALTERNATIVE)
SEGMENT 5

SHEET NO.
14

MATCHLINE STA. 559+00.00

MATCHLINE STA. 589+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

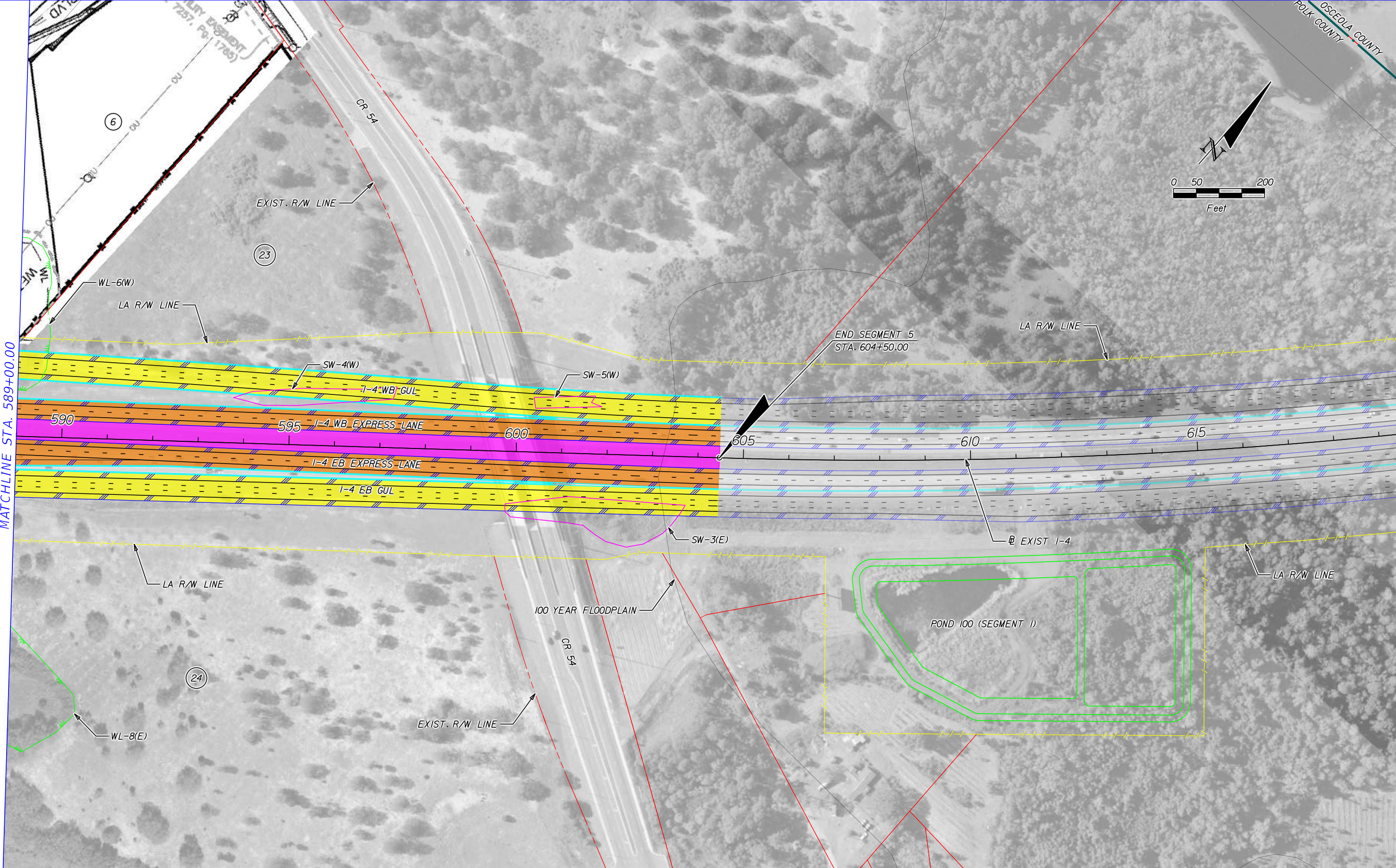
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

I-4 PD&E STUDY
I-4 MAINLINE
(RECOMMENDED ALTERNATIVE)
SEGMENT 5

SHEET NO.
15



MATCHLINE STA. 589+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

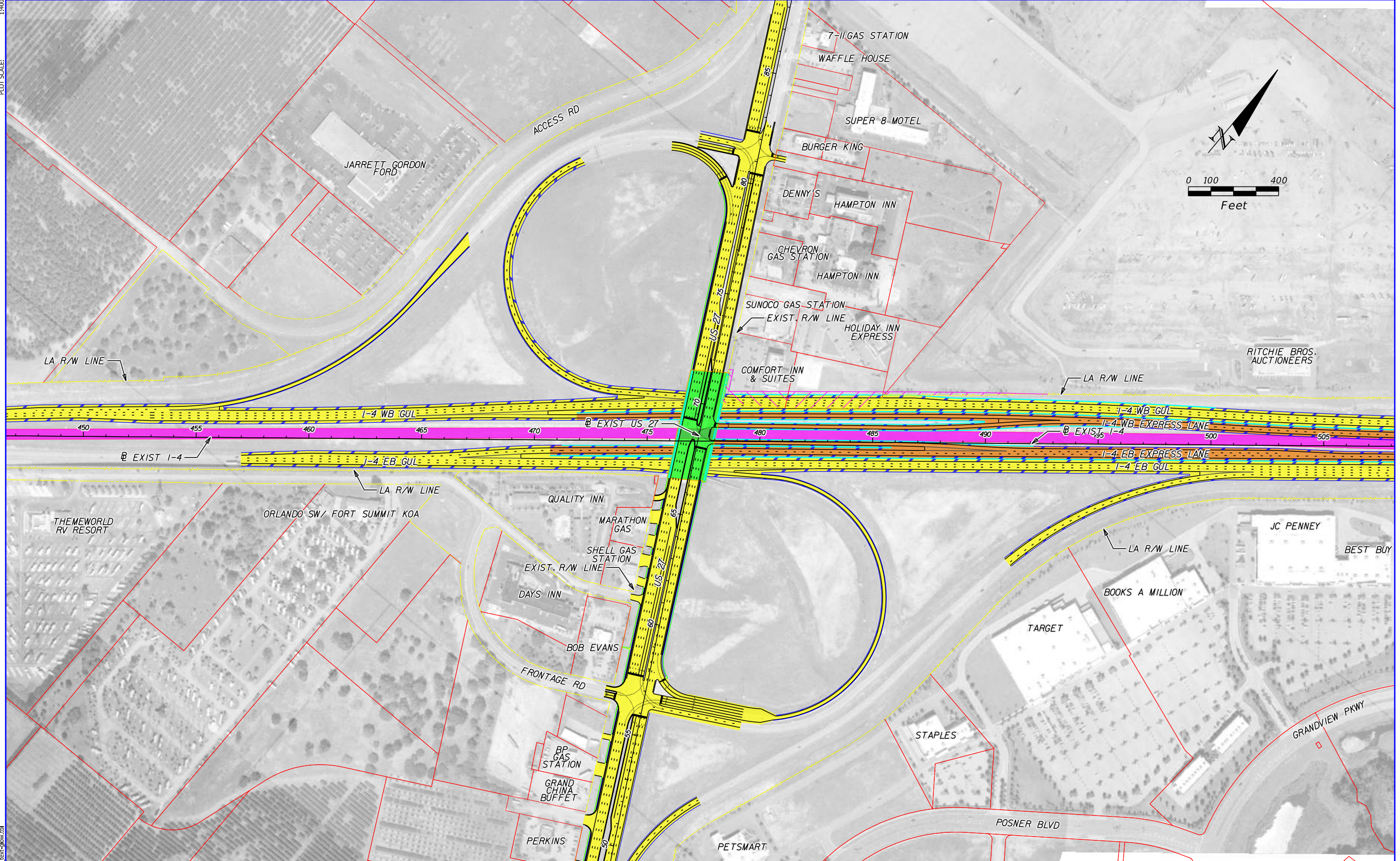
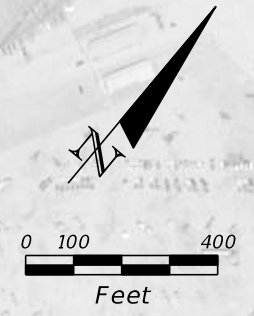
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

I-4 PD&E STUDY
I-4 MAINLINE
(RECOMMENDED ALTERNATIVE)
SEGMENT 5

SHEET NO.
16



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

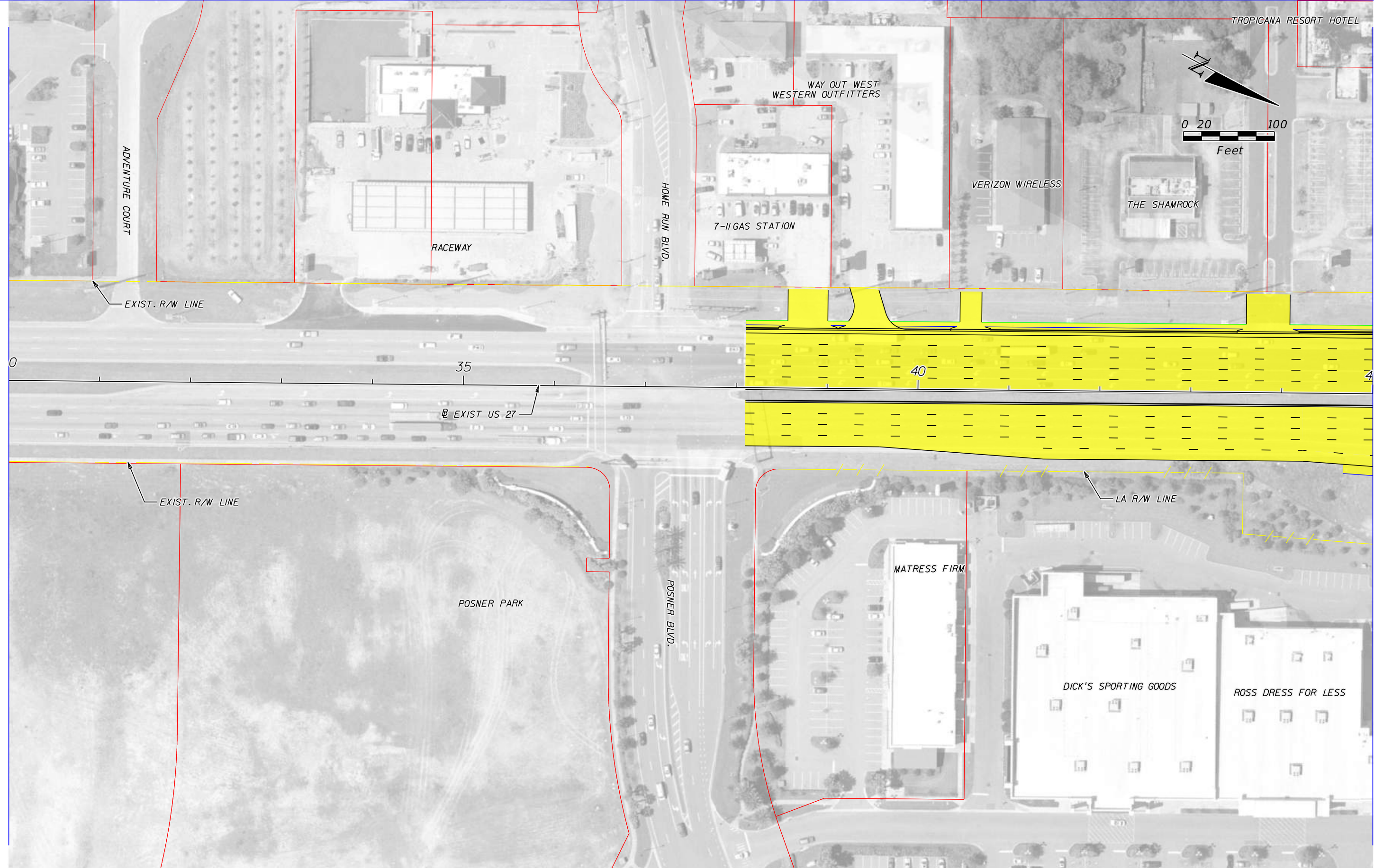
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
US 27 ALTERNATE 1
SEGMENT 5**

SHEET NO.
17



MATCHLINE STA. 45+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

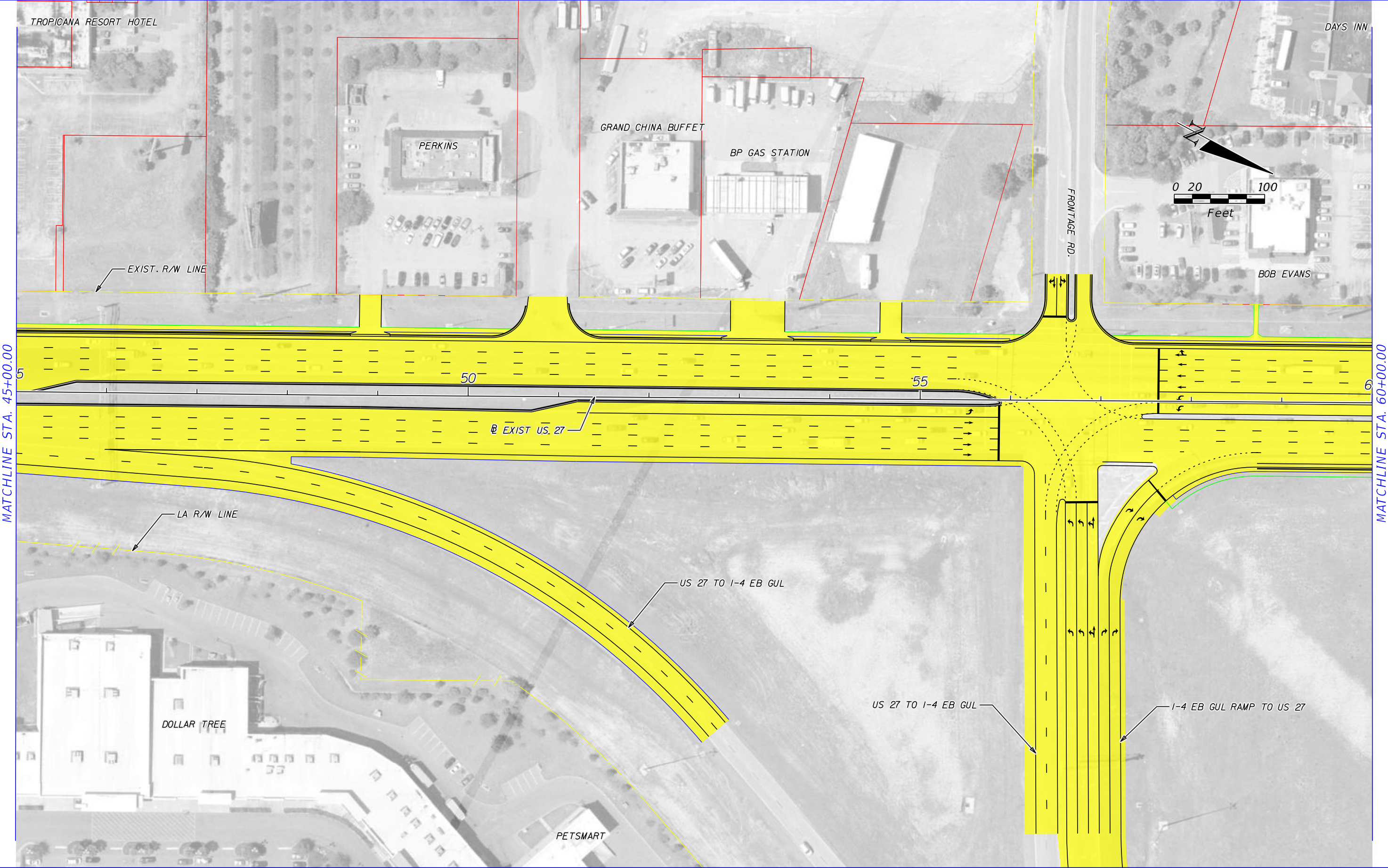
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 1 (1 OF 5)
 SEGMENT 5**

SHEET NO.
18



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

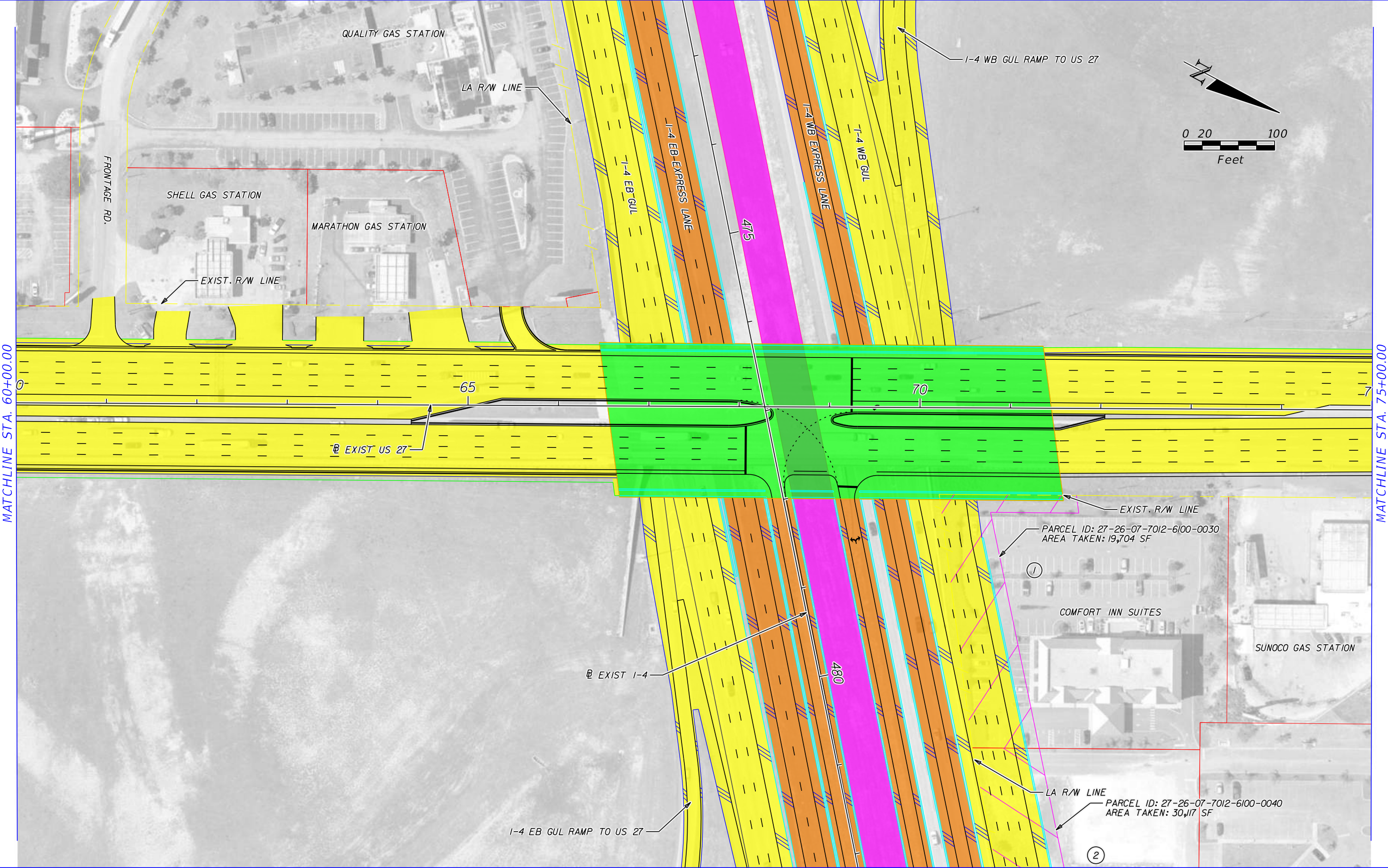
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 1 (2 OF 5)
 SEGMENT 5**

SHEET NO.
19



MATCHLINE STA. 60+00.00

MATCHLINE STA. 75+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

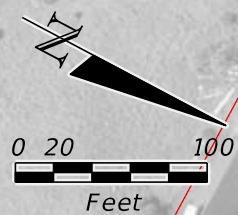
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

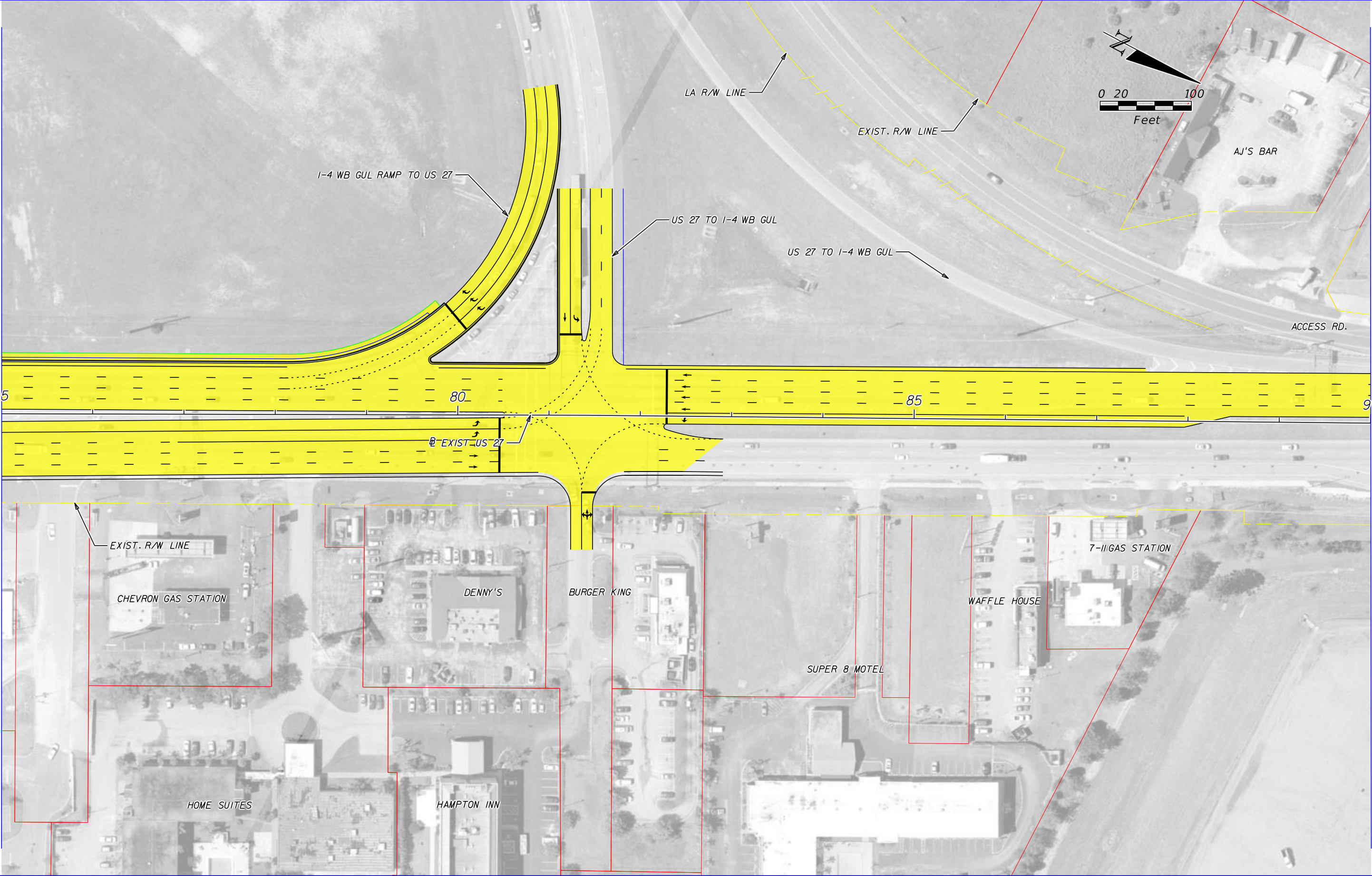
**I-4 PD&E STUDY
 US 27 ALT 1 (3 OF 5)
 SEGMENT 5**

SHEET NO.
20



MATCHLINE STA. 75+00.00

MATCHLINE STA. 90+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

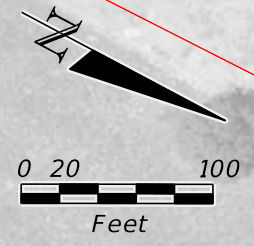
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

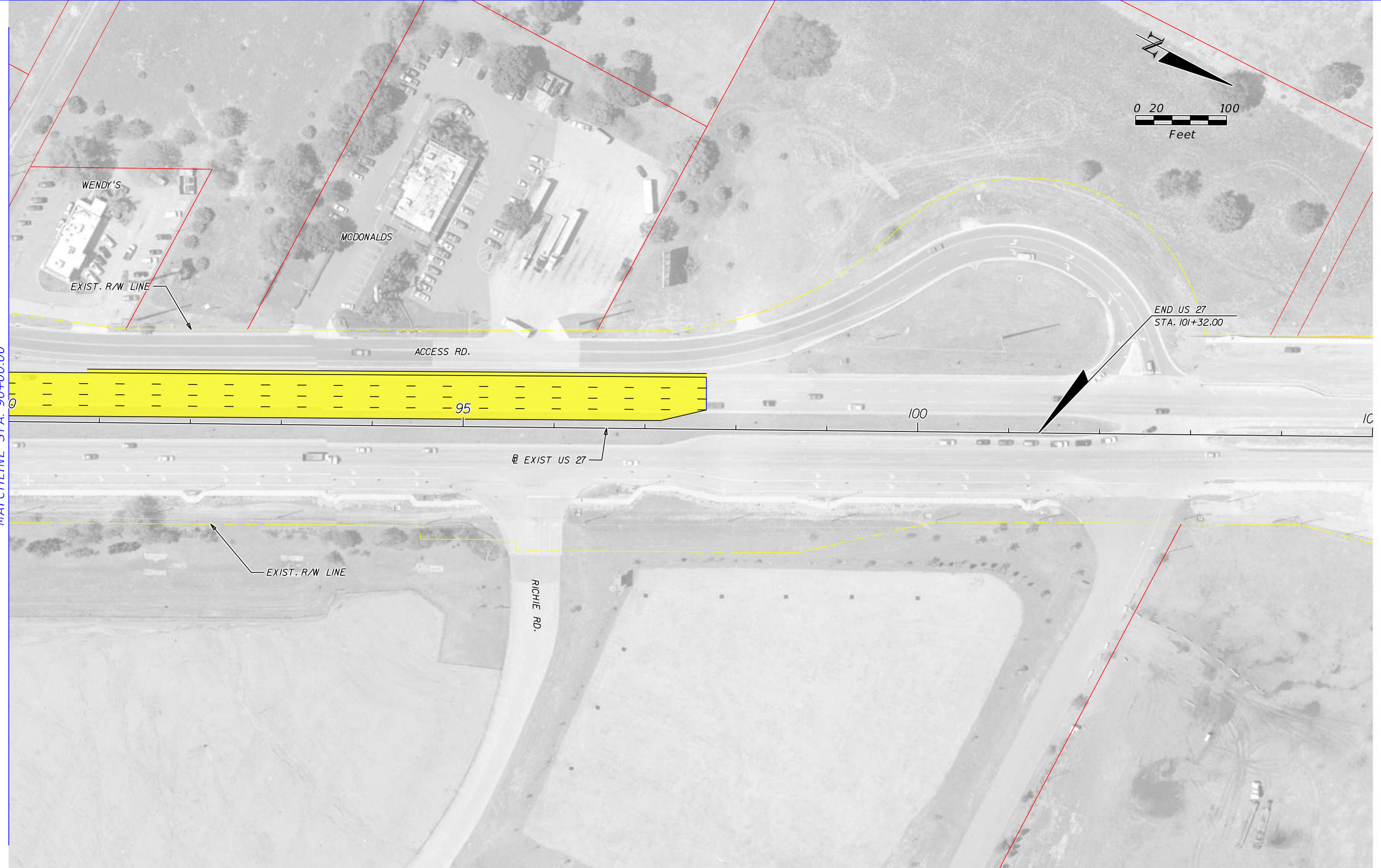
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 1 (4 OF 5)
 SEGMENT 5**

SHEET NO.
21



MATCHLINE STA. 90+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

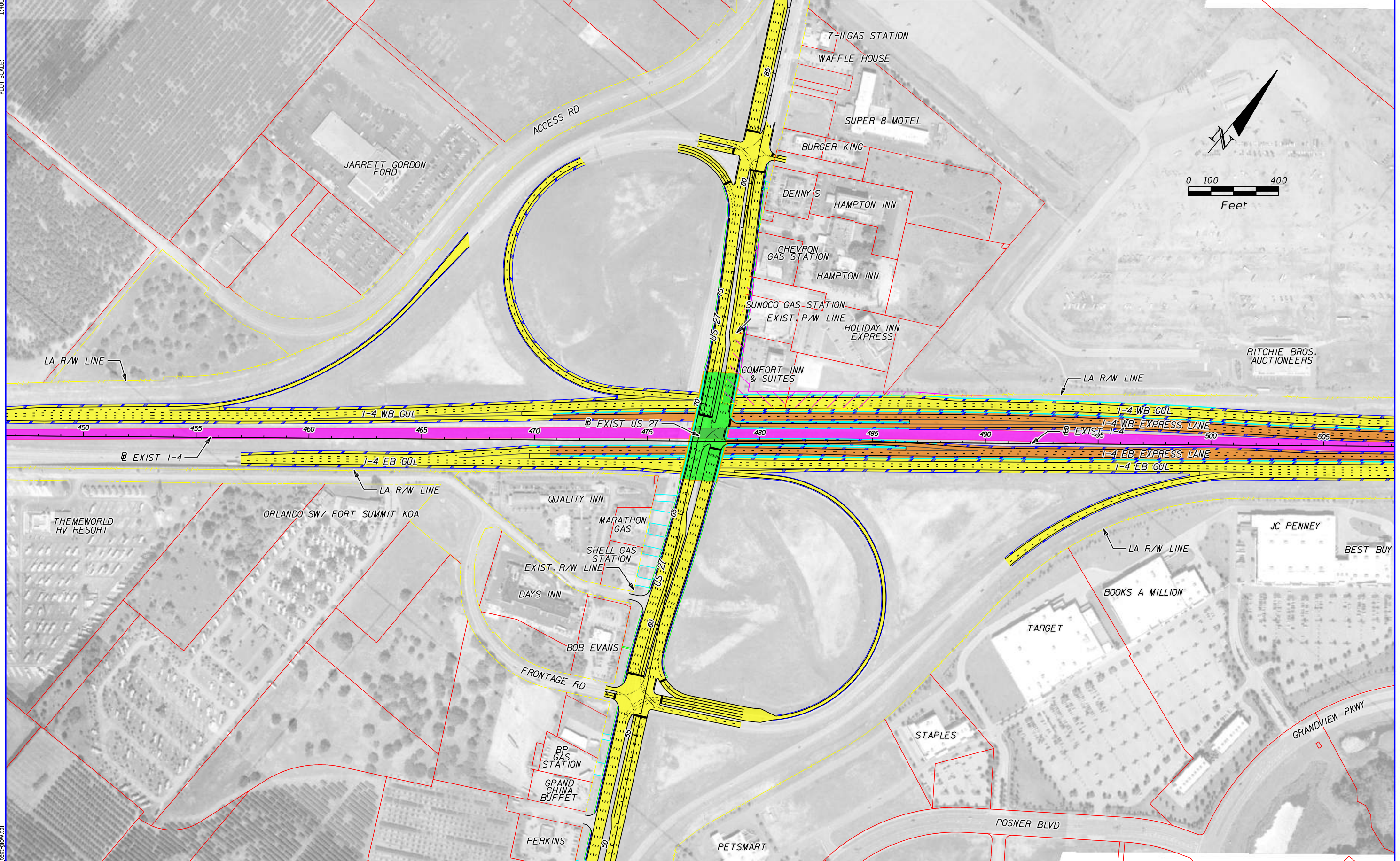
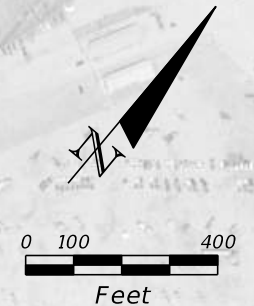
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 1 (5 OF 5)
 SEGMENT 5**

SHEET NO.
22

OVERVIEW
 MODEL: 16.5x10.0 (ft.)
 SHEET SIZE: 1:400
 PLOT SCALE:



PRINT DRIVER: Color_FDOTPDF.plt
 PEN TABLE: FDOT_text.plt

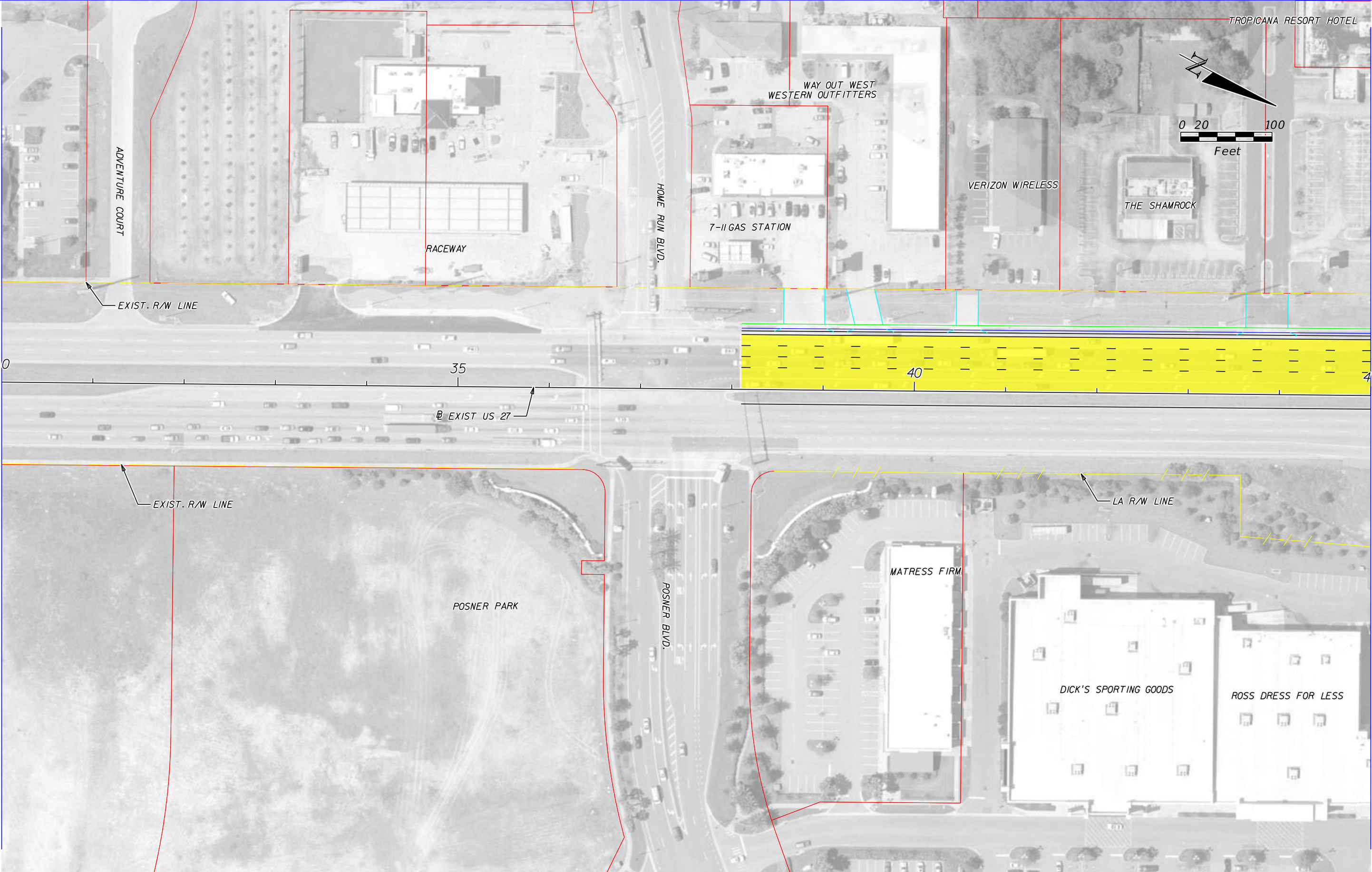
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	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALTERNATE 2
 SEGMENT 5**

SHEET NO.
23



MATCHLINE STA. 45+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

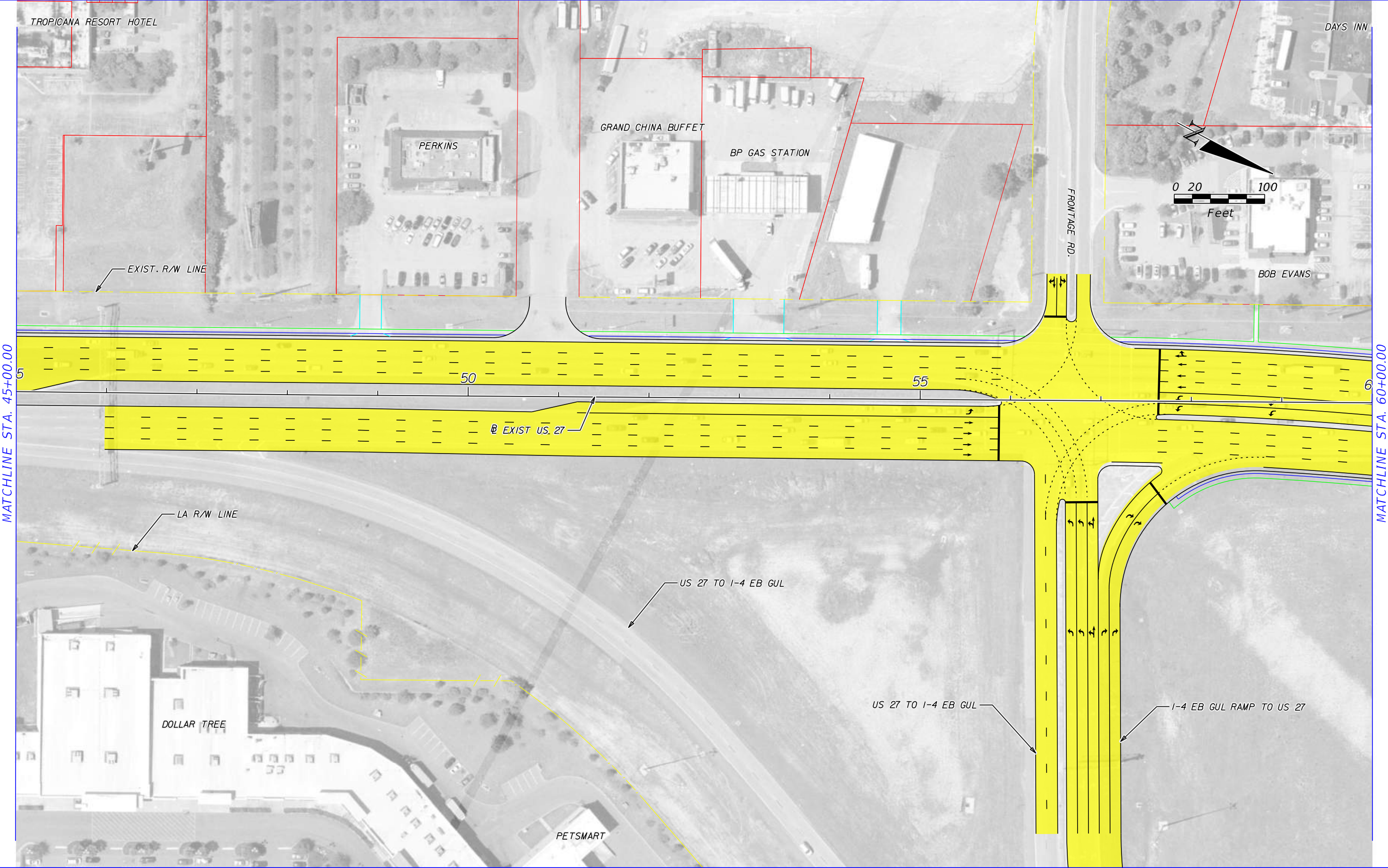
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 2 (1 OF 5)
 SEGMENT 5**

SHEET NO.
24

US27-02
 MODEL: 16.5x10.6 (R)
 SHEET SIZE: 11:10
 PLOT SCALE:



MATCHLINE STA. 45+00.00

MATCHLINE STA. 60+00.00

PRINT DRIVER:
 PEN TABLE:
 Color: FDOTPDF.plt
 FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

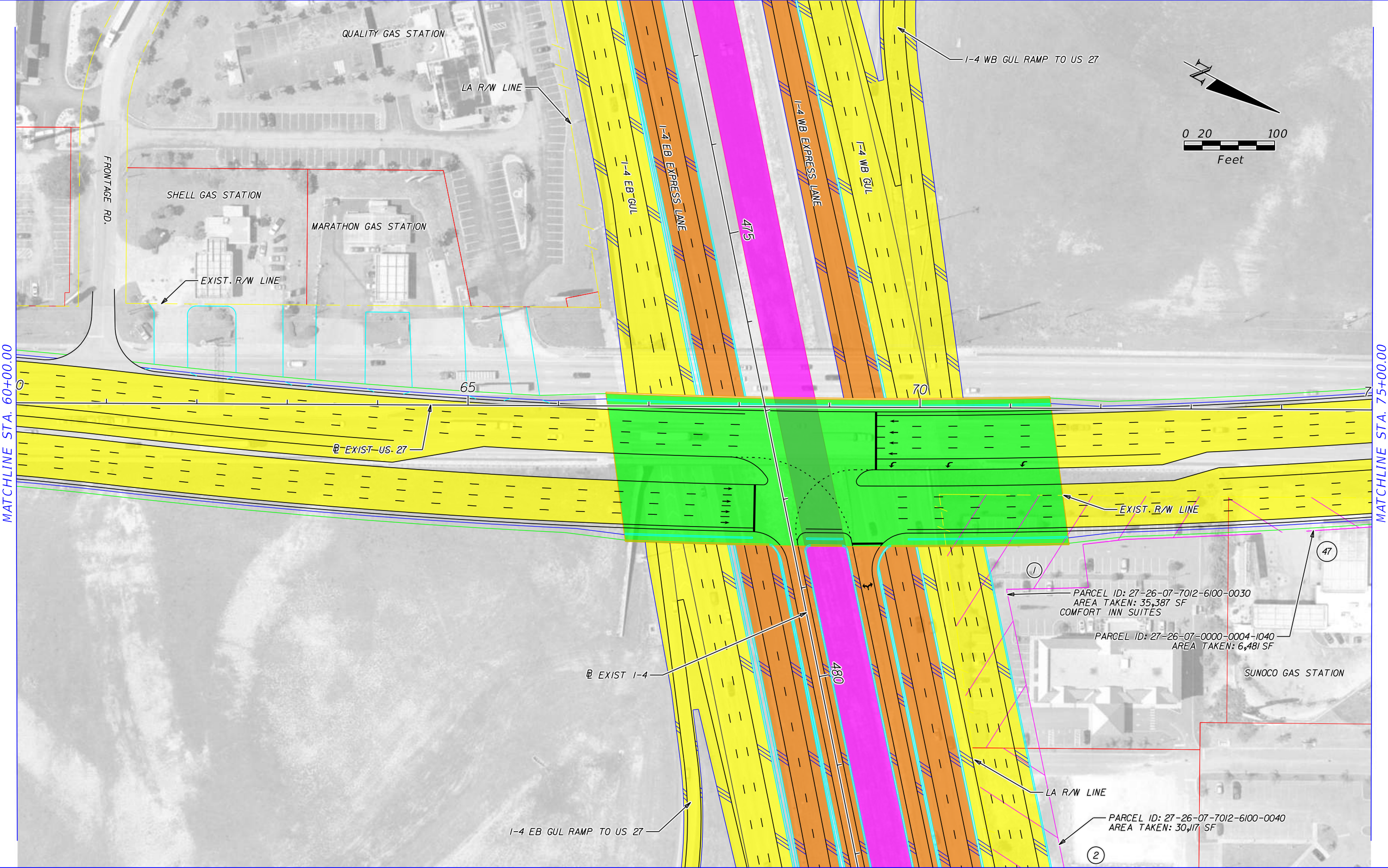
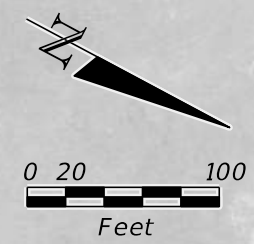
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 2 (2 OF 5)
 SEGMENT 5**

SHEET NO.
25



MATCHLINE STA. 60+00.00

MATCHLINE STA. 75+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

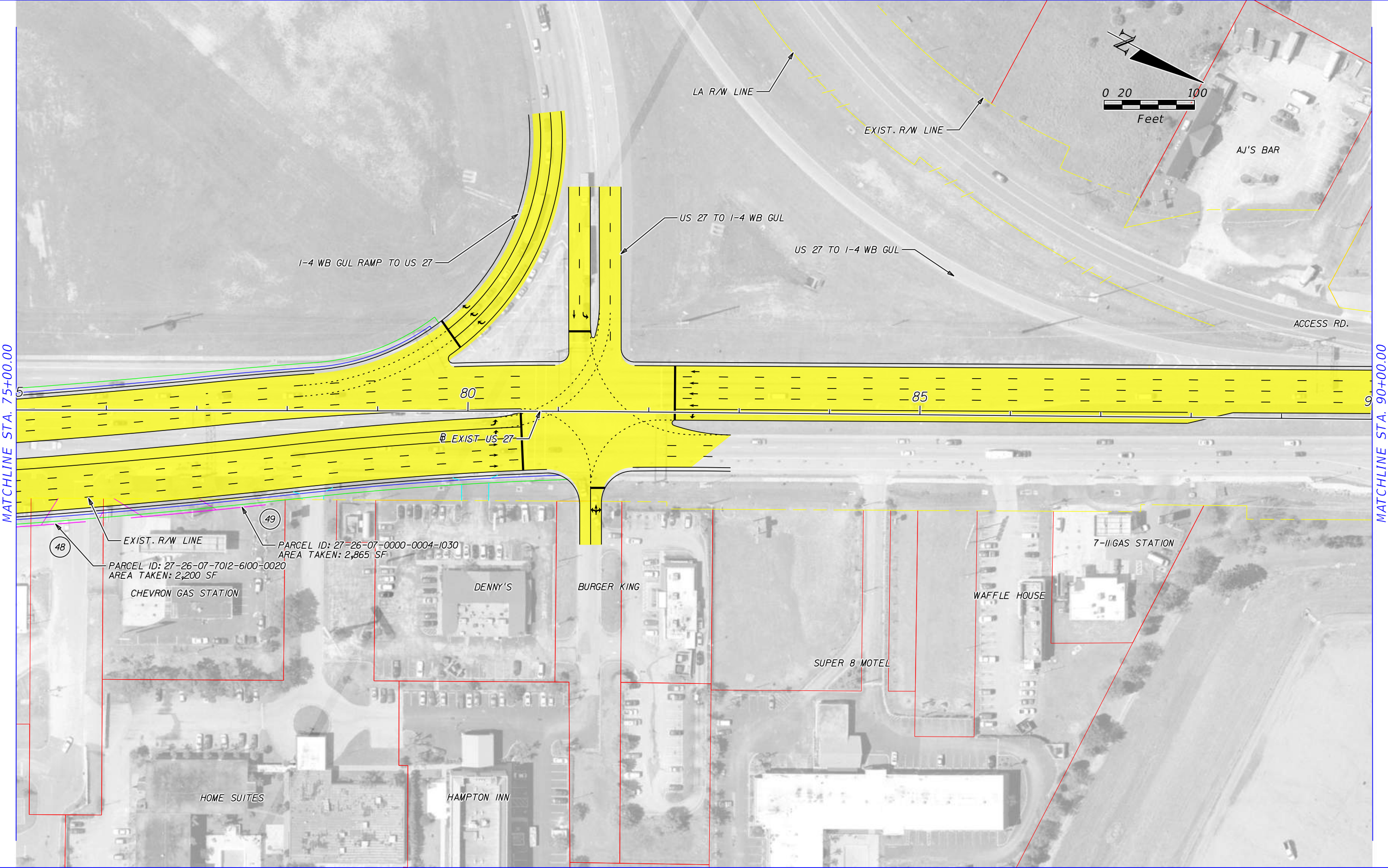
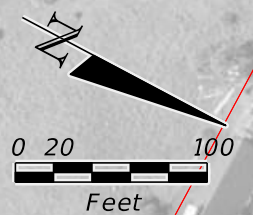
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 2 (3 OF 5)
 SEGMENT 5**

SHEET NO.
26



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

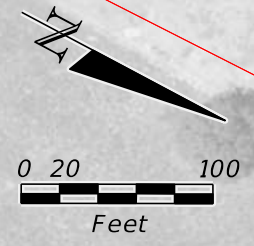
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

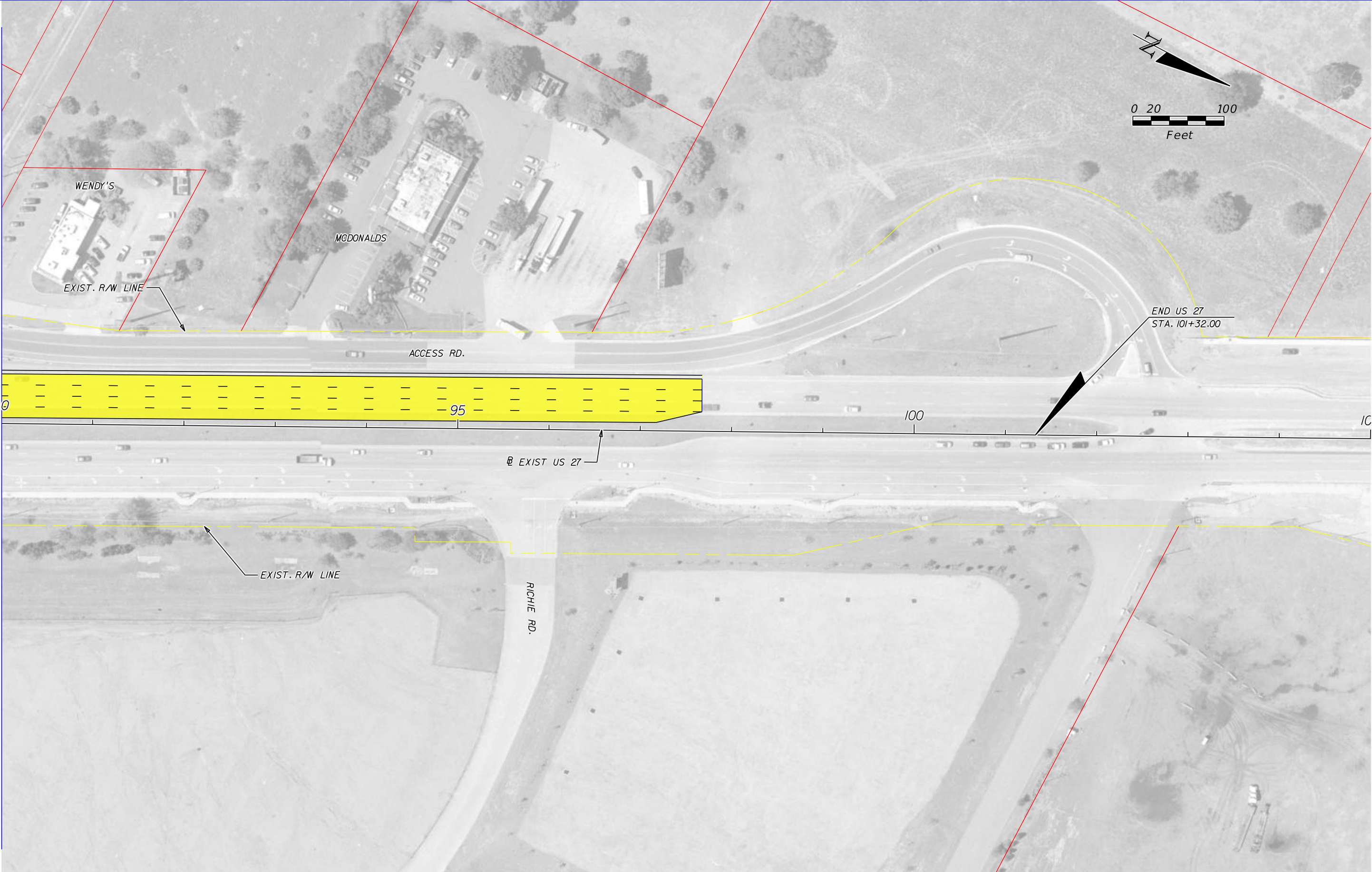
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 2 (4 OF 5)
 SEGMENT 5**

SHEET NO.
27



MATCHLINE STA. 90+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

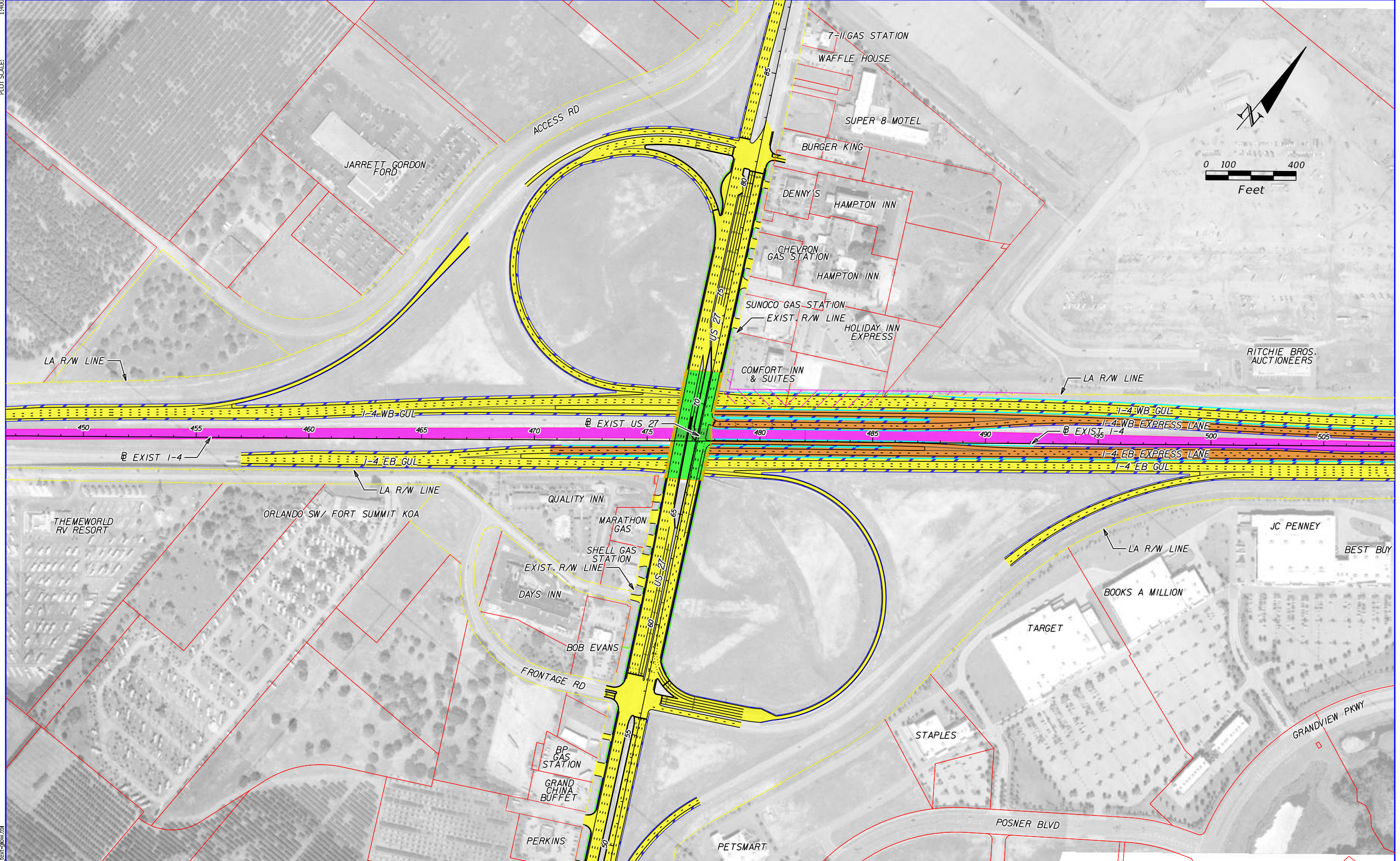
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 2 (5 OF 5)
 SEGMENT 5**

SHEET NO.
28

OVERVIEW
 MODEL: 16.5x10.0 (ft.)
 SHEET SIZE: 1:400
 PLOT SCALE:



PRINT DRIVER:
 PEN TABLE:
 Color_FDOTPDF.plt
 FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

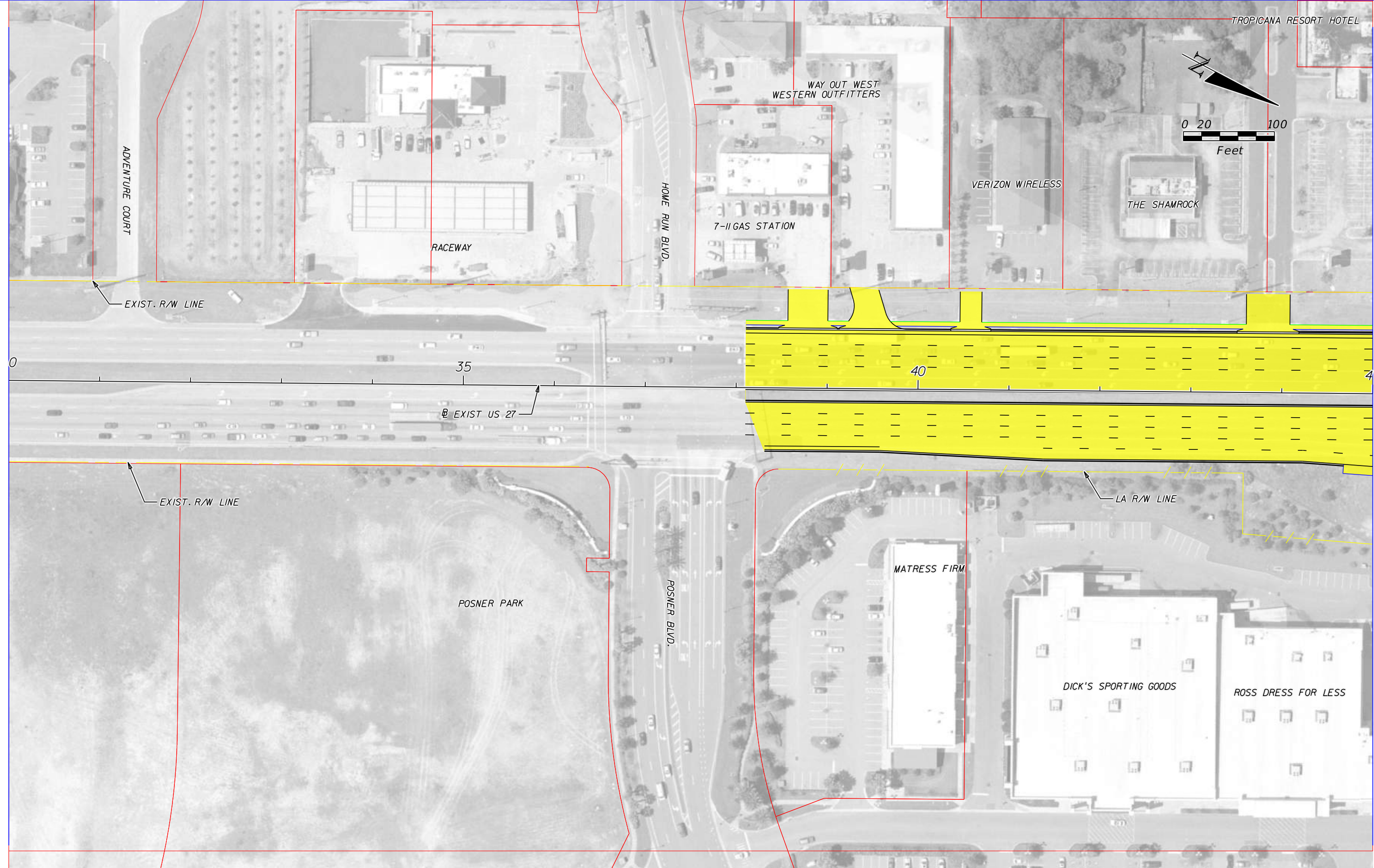
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALTERNATE 3
 SEGMENT 5**

SHEET NO.
29



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

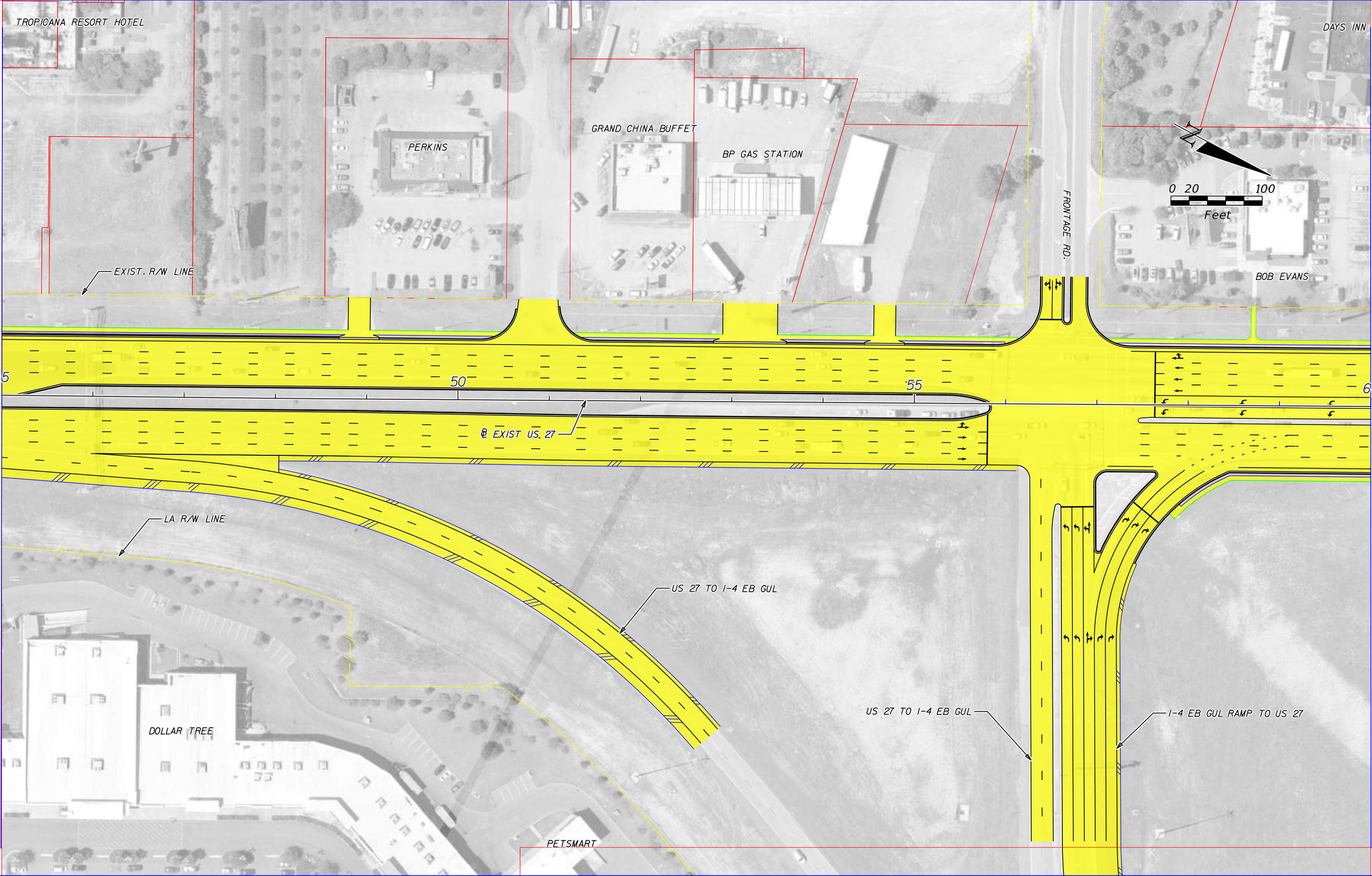
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 3 (1 OF 5)
 SEGMENT 5**

SHEET NO.
30

MATCHLINE STA. 45+00.00

US27-02
 MODEL: 16.5x10.6 (R)
 SHEET SIZE: 11:10
 PLOT SCALE:



MATCHLINE STA. 45+00.00

MATCHLINE STA. 60+00.00

PRINT DRIVER: Color_FDOTPDF.plt
 PEN TABLE: FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

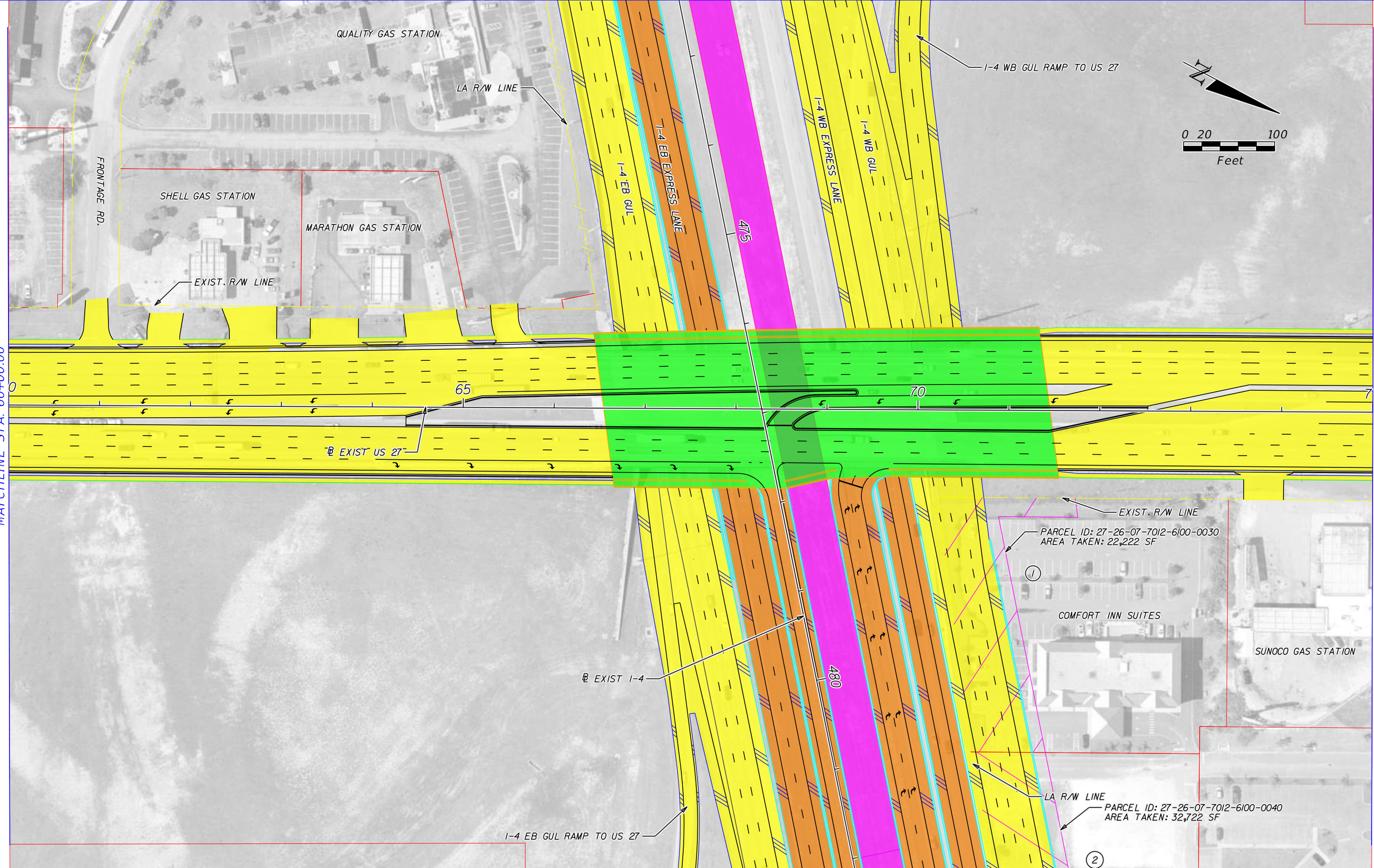
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 3 (2 OF 5)
 SEGMENT 5**

SHEET NO.
31

US27-03
MODEL:
SHEET SIZE:
PLOT SCALE:
1:100

PRINT DRIVER:
PEN TABLE:
Color_FDOTPDF.plt
FDOT_text.plt



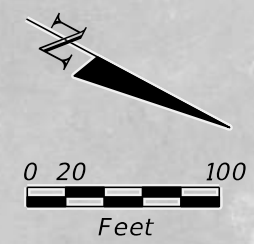
MATCHLINE STA. 60+00.00

MATCHLINE STA. 75+00.00

SHELL GAS STATION
MARATHON GAS STATION
EXIST. R/W LINE

QUALITY GAS STATION
LA R/W LINE

1-4 WB GUL RAMP TO US 27



EXIST US 27

EXIST. R/W LINE
PARCEL ID: 27-26-07-7012-6100-0030
AREA TAKEN: 22,222 SF

COMFORT INN SUITES

SUNOCO GAS STATION

EXIST I-4

480

LA R/W LINE
PARCEL ID: 27-26-07-7012-6100-0040
AREA TAKEN: 32,722 SF

1-4 EB GUL RAMP TO US 27

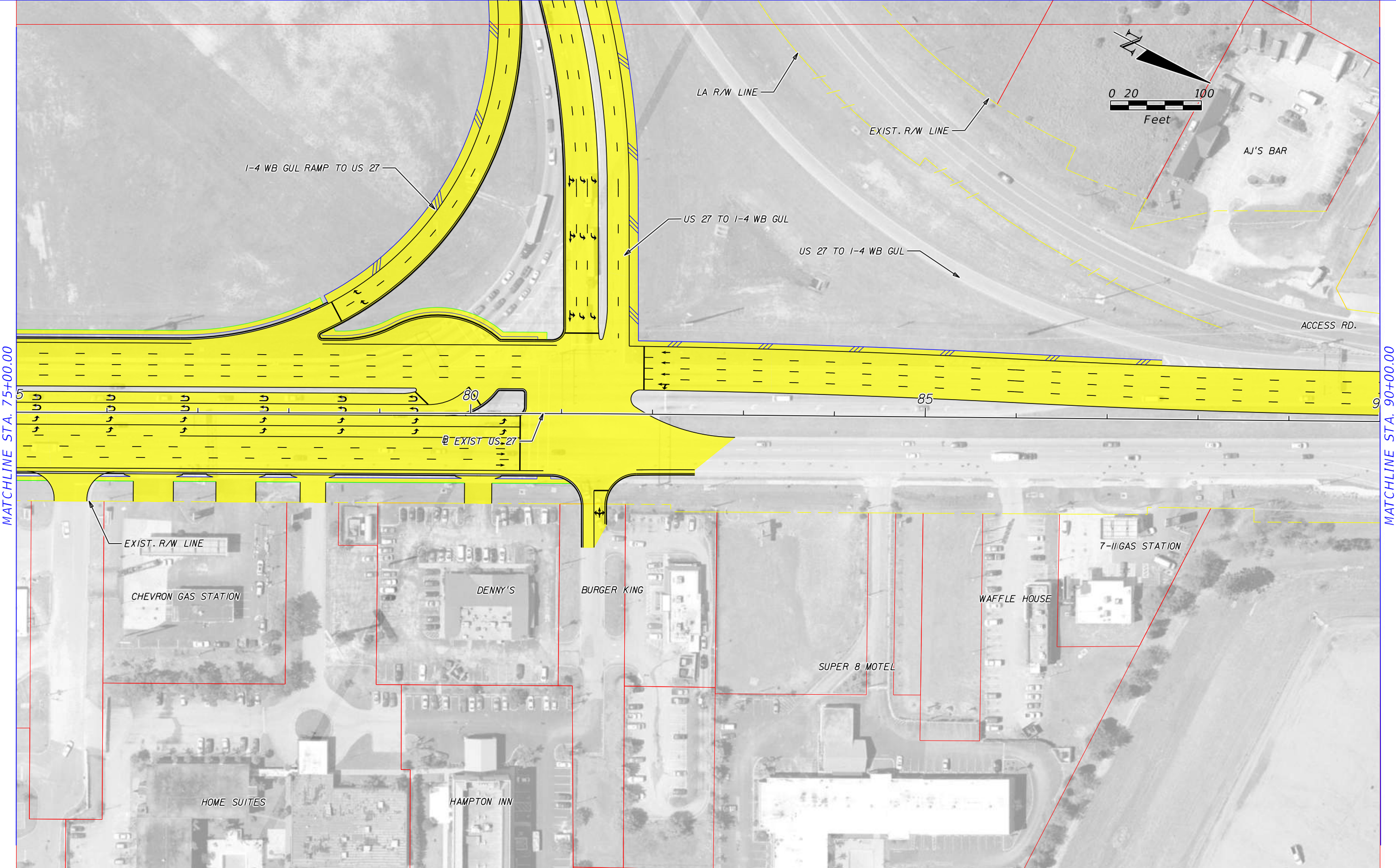
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	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

I-4 PD&E STUDY
US 27 ALT 3 (3 OF 5)
SEGMENT 5

SHEET NO.
32



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

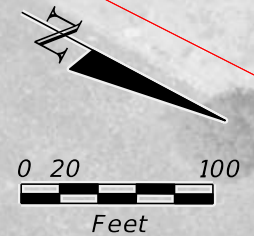
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

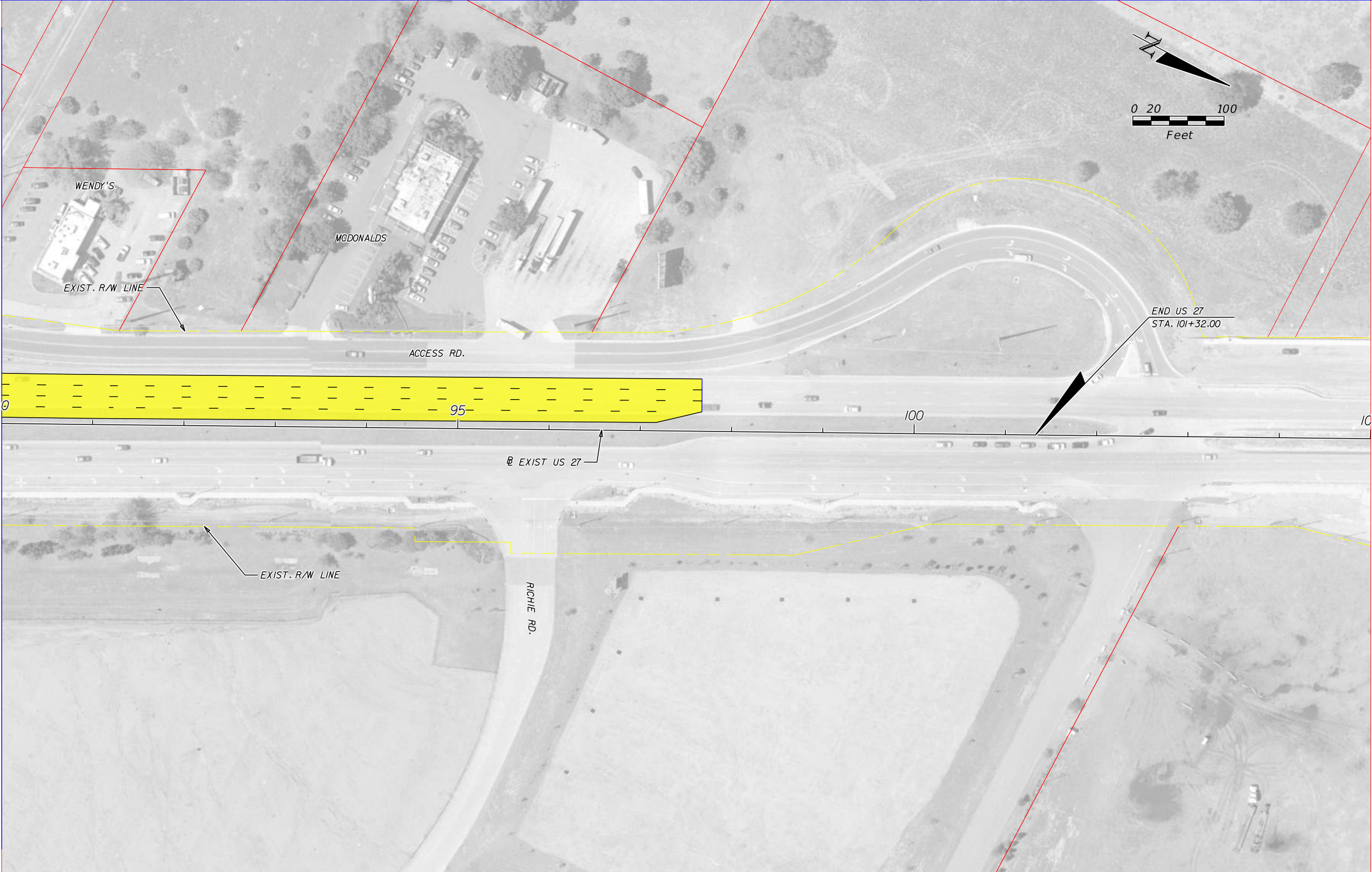
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 3 (4 OF 5)
 SEGMENT 5**

SHEET NO.
33



MATCHLINE STA. 90+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

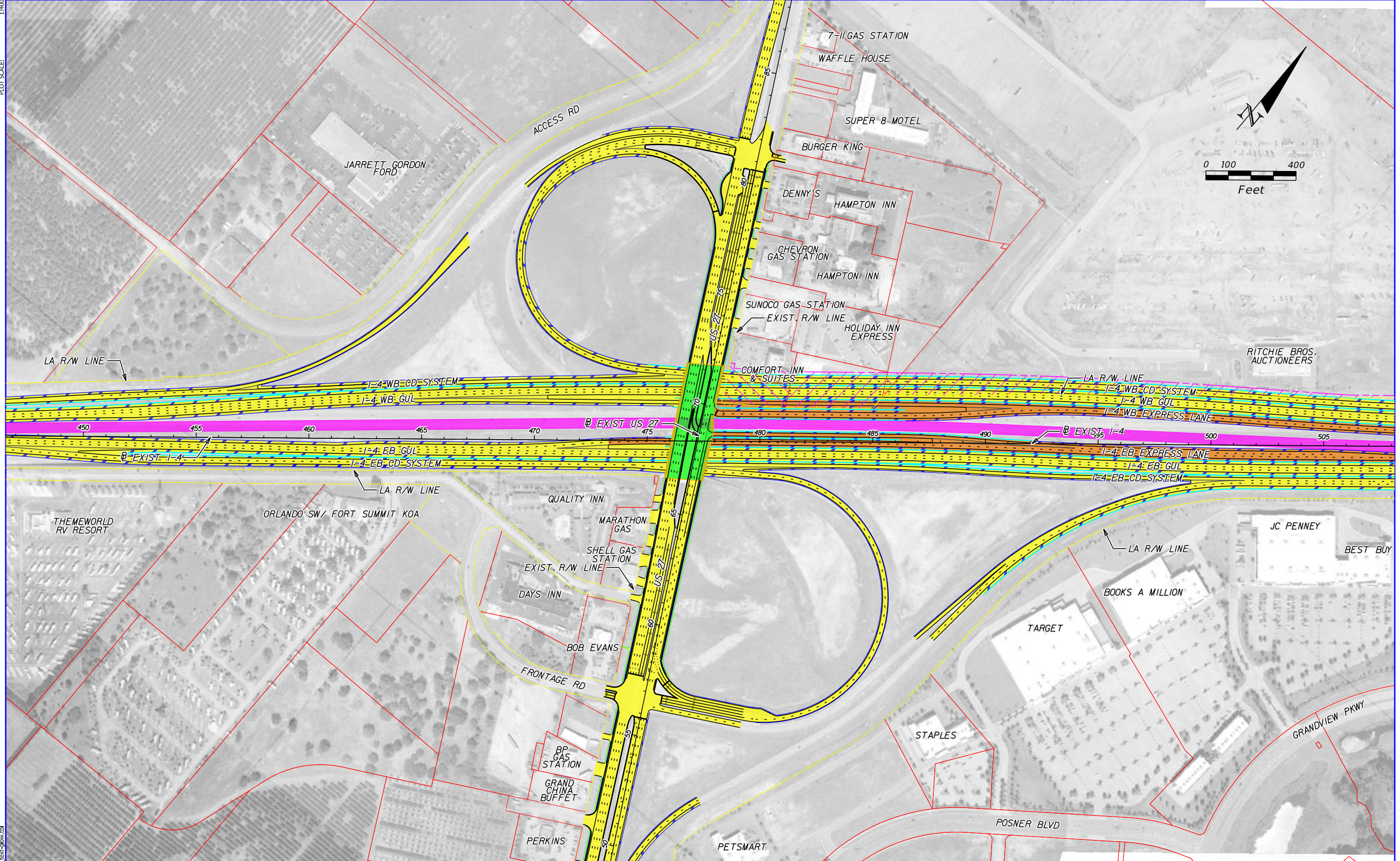
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 3 (5 OF 5)
 SEGMENT 5**

SHEET NO.
34



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

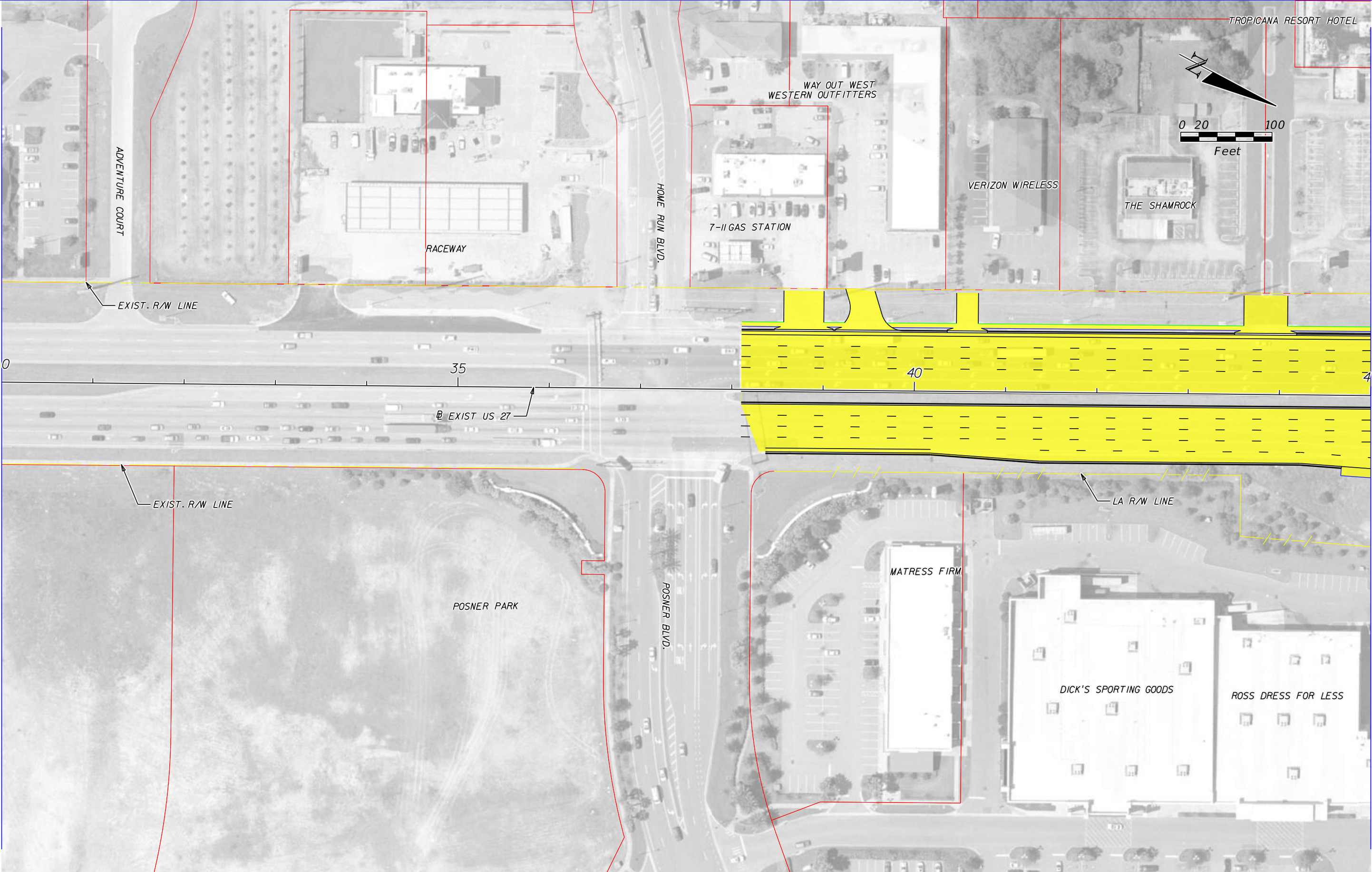
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALTERNATE 4
 SEGMENT 5**

SHEET NO.
35



MATCHLINE STA. 45+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXISTING BRIDGE
	PROPOSED FDOT R/W		PROPOSED BRIDGE
	EXISTING R/W		RAIL CORRIDOR
	PARCEL LINES		BARRIER WALL
	BARRIER WALL		FUTURE EXISTING CONDITION

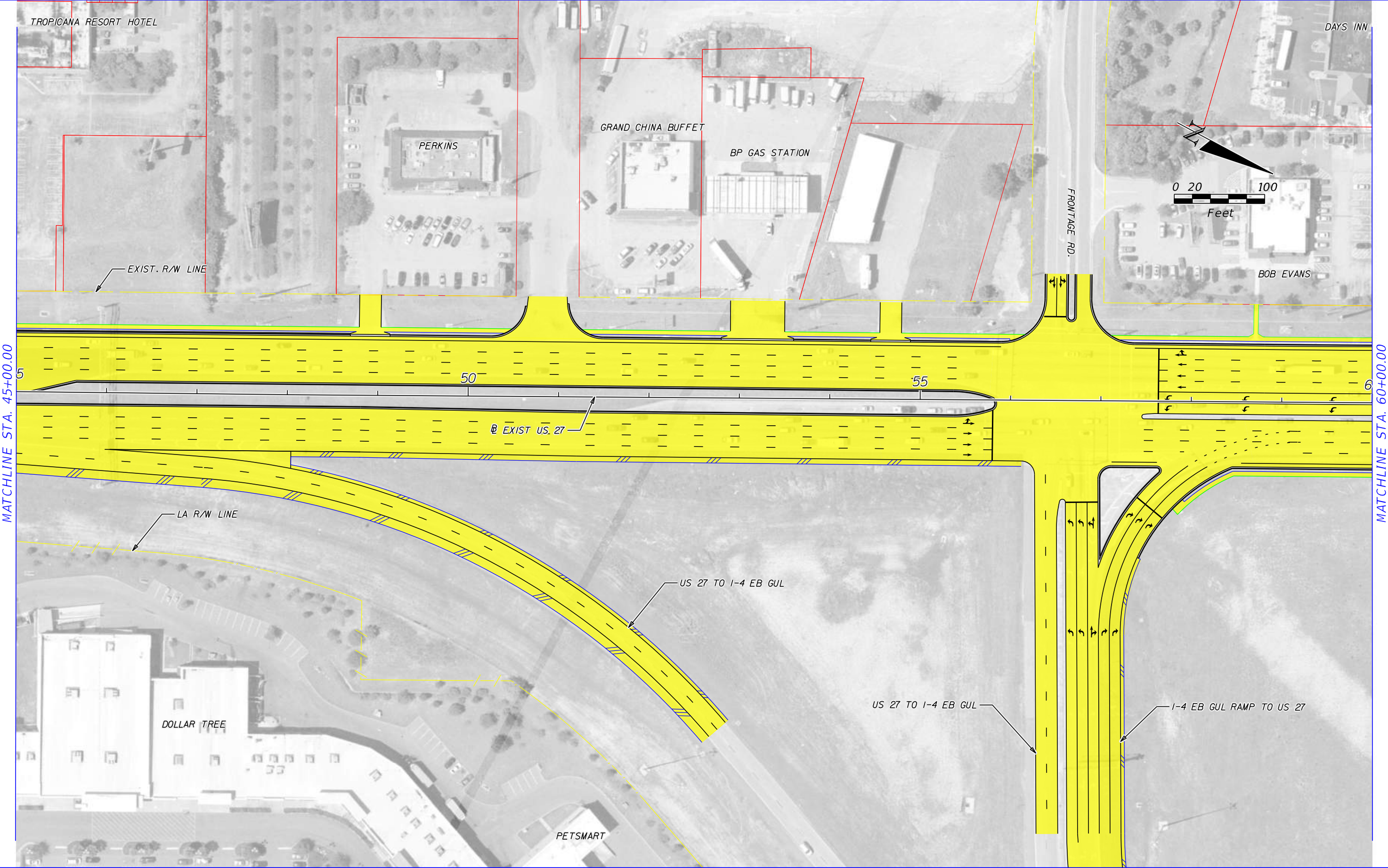
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 4 (1 OF 5)
 SEGMENT 5**

SHEET NO.
36



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

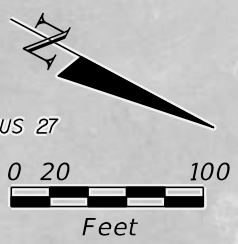
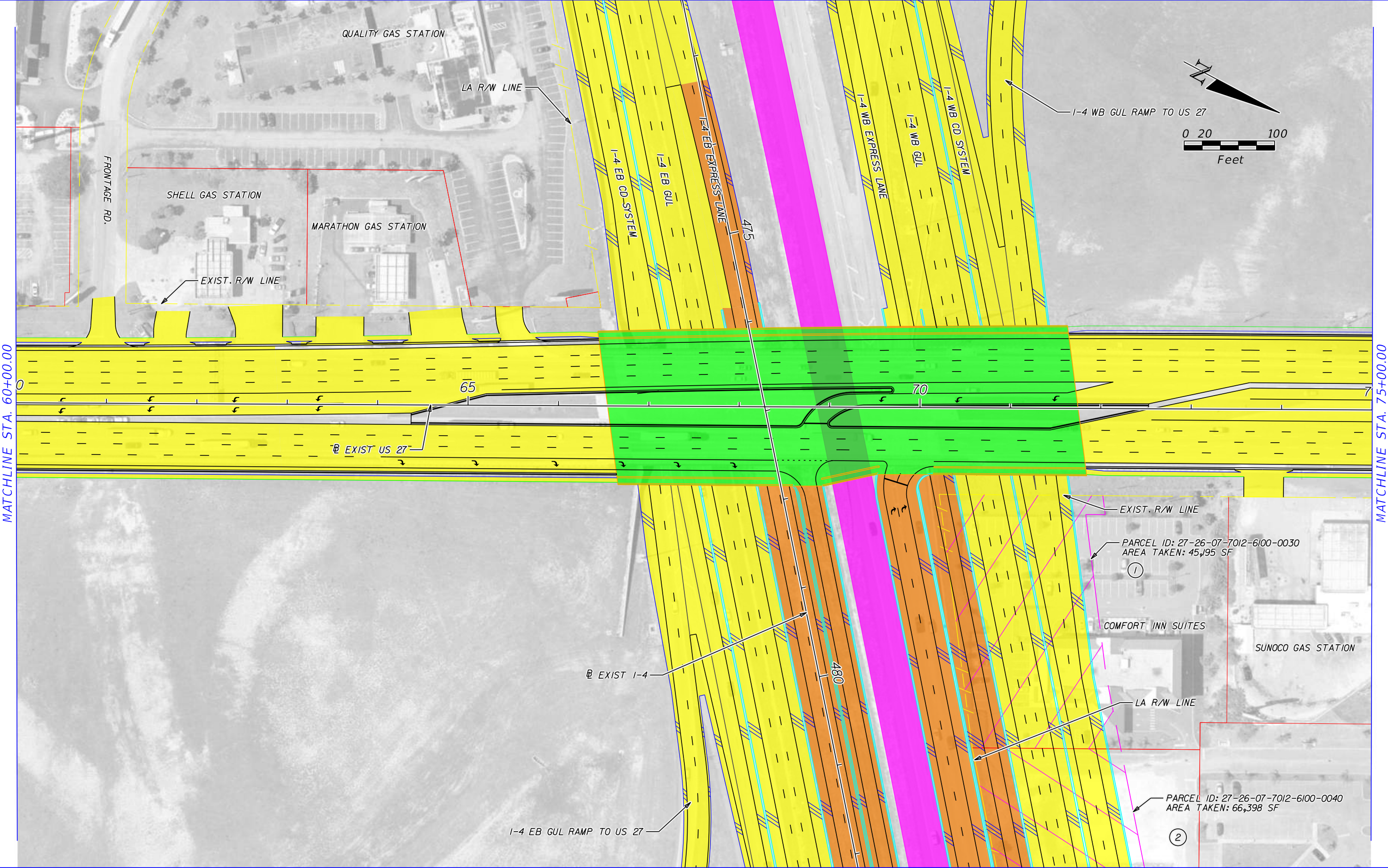
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 4 (2 OF 5)
 SEGMENT 5**

SHEET NO.
37



MATCHLINE STA. 60+00.00

MATCHLINE STA. 75+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

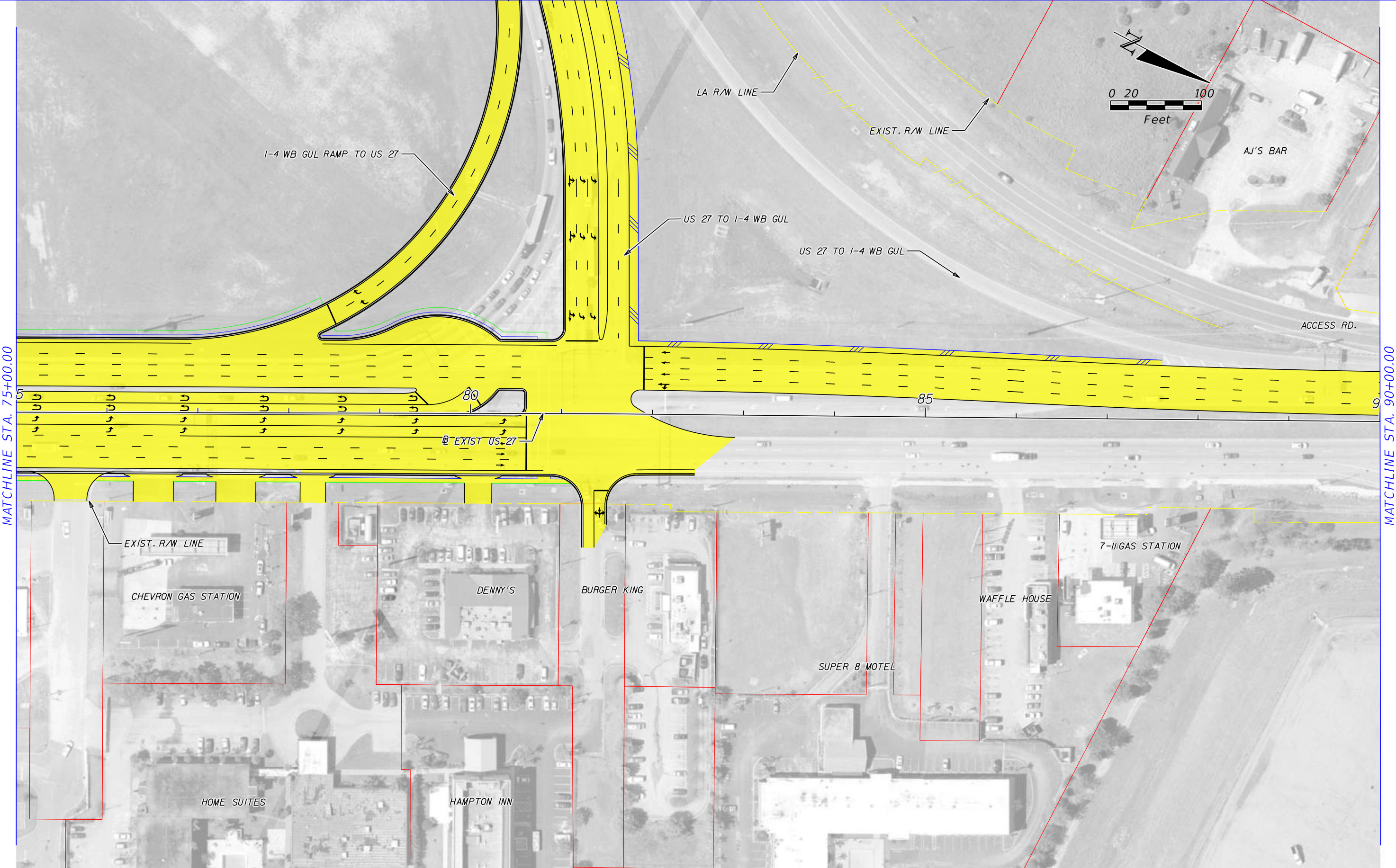
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 4 (3 OF 5)
 SEGMENT 5**

SHEET NO.
38



MATCHLINE STA. 75+00.00

MATCHLINE STA. 90+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

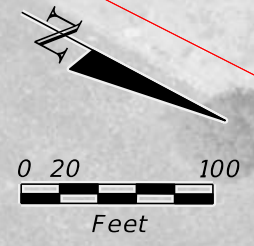
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

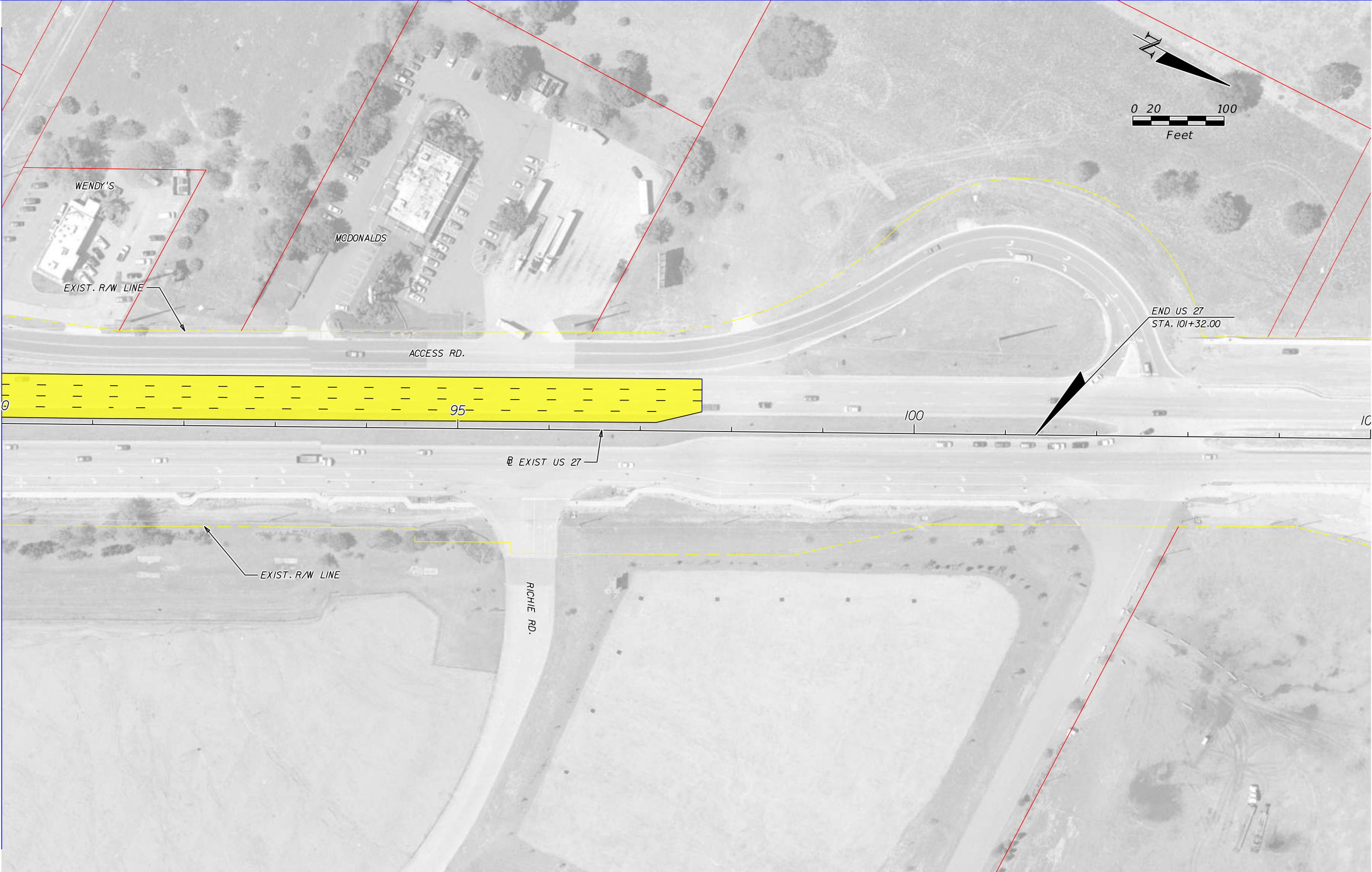
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 4 (4 OF 5)
 SEGMENT 5**

SHEET NO.
39



MATCHLINE STA. 90+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

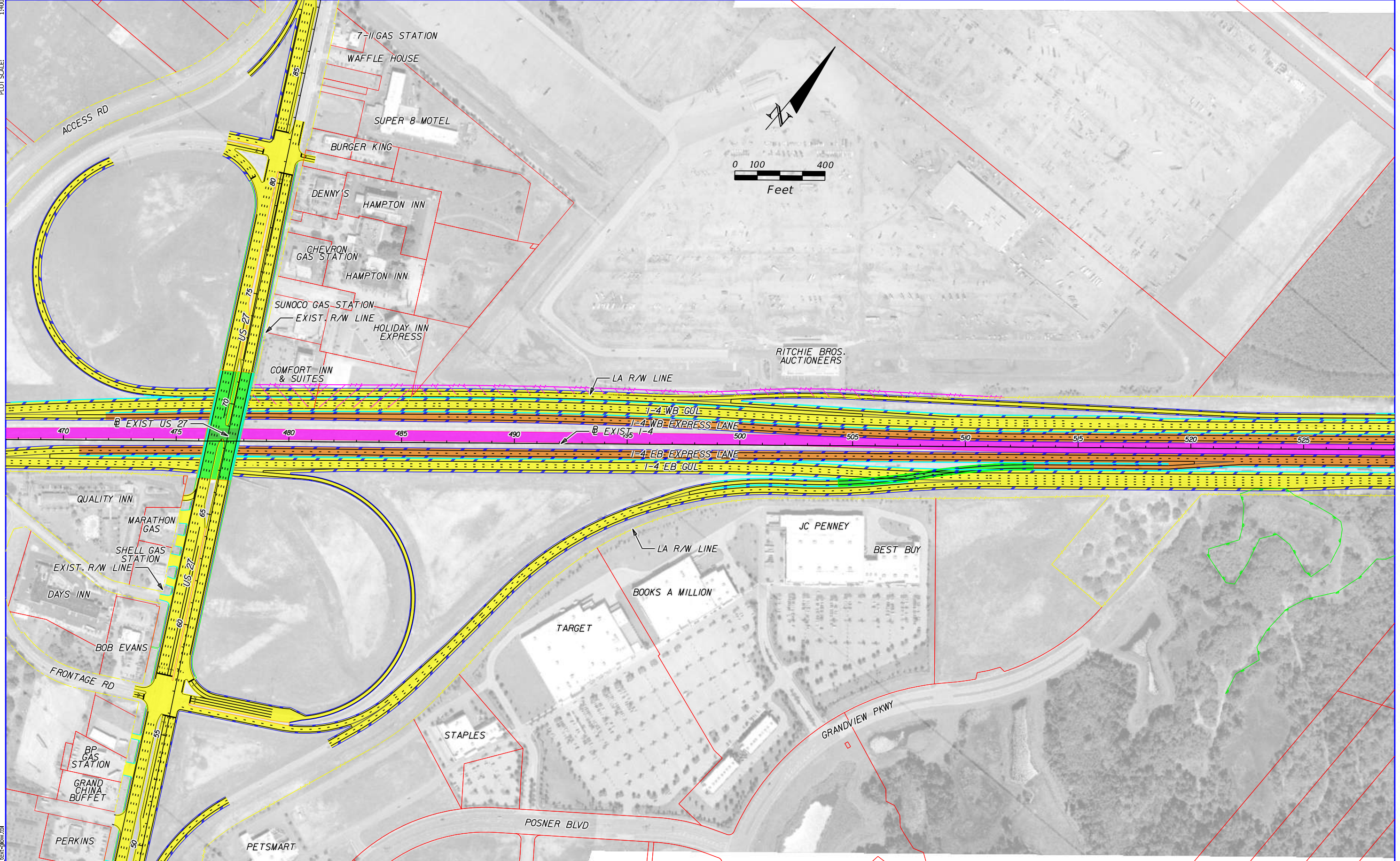
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 4 (5 OF 5)
 SEGMENT 5**

SHEET NO.
40

OVERVIEW
 MODEL: 16.5x10.0 (ft.)
 SHEET SIZE: 1:400
 PLOT SCALE:



PRINT DRIVER:
 PEN TABLE:
 Color: FDOTPDF.alkf9g
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	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALTERNATE 5
 SEGMENT 5**

SHEET NO.
41



MATCHLINE STA. 45+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

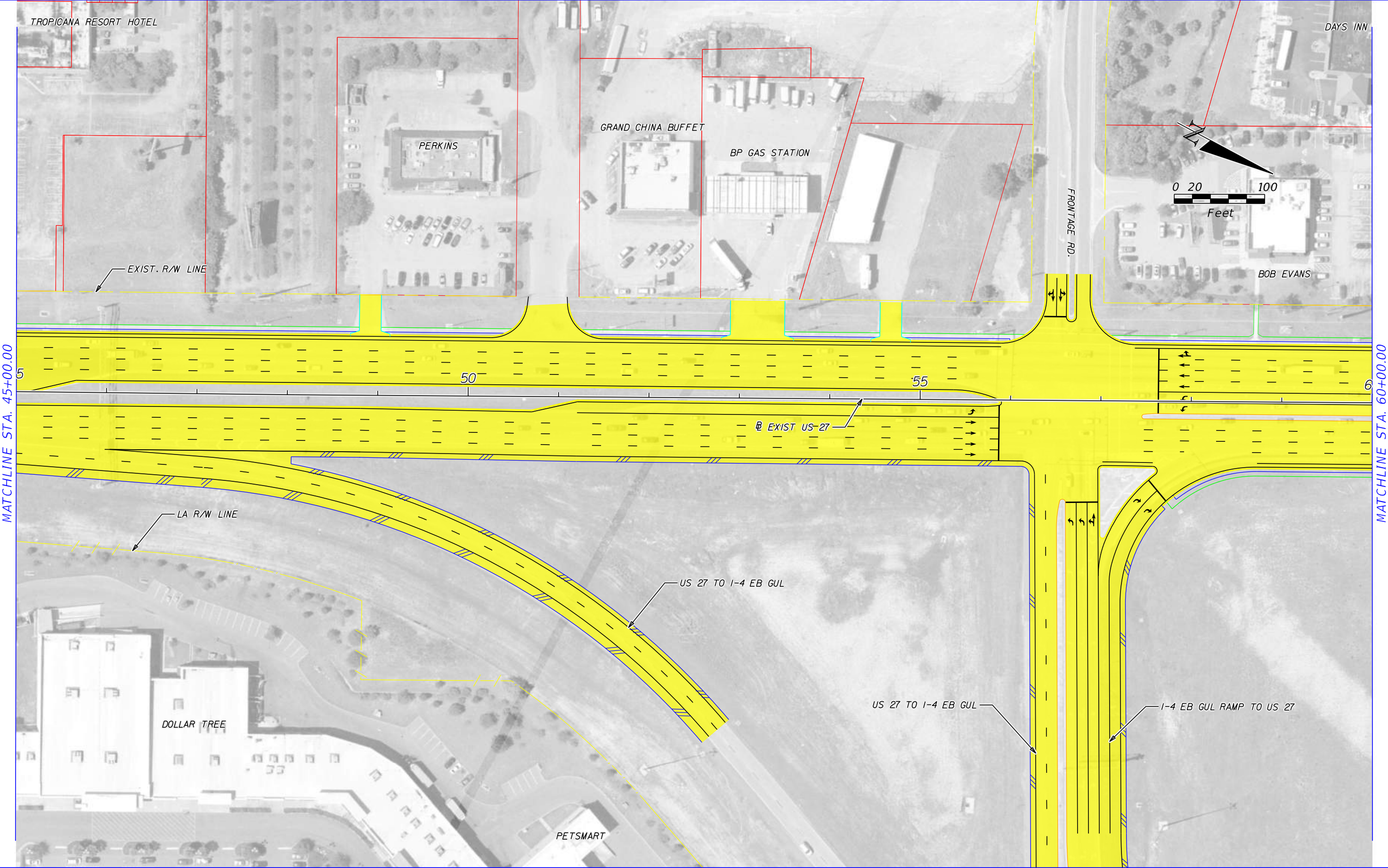
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 5 (1 OF 5)
 SEGMENT 5**

SHEET NO.
42



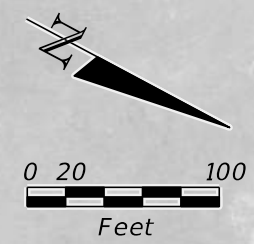
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	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

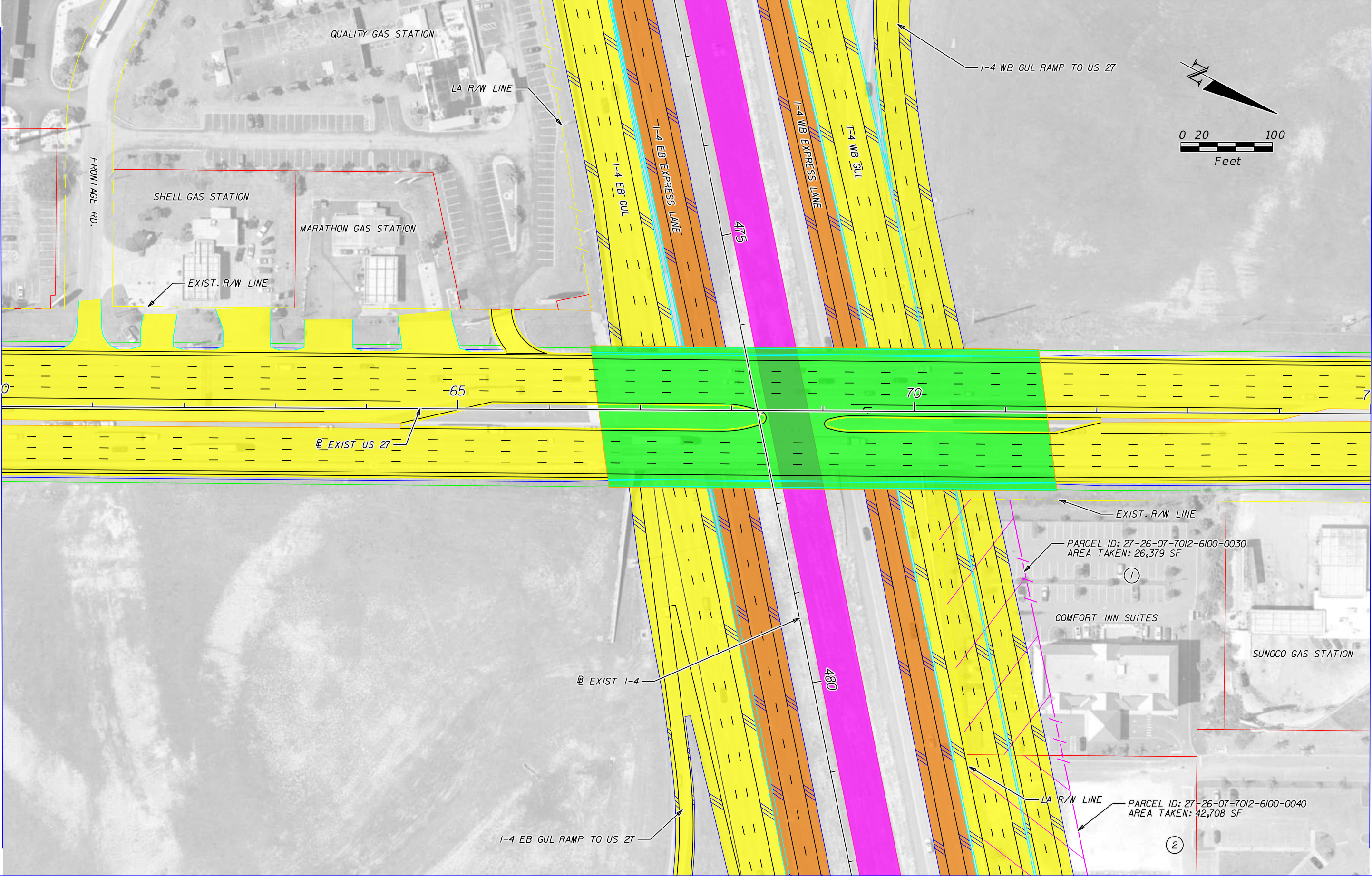
**I-4 PD&E STUDY
 US 27 ALT 5 (2 OF 5)
 SEGMENT 5**

SHEET NO.
43



MATCHLINE STA. 60+00.00

MATCHLINE STA. 75+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

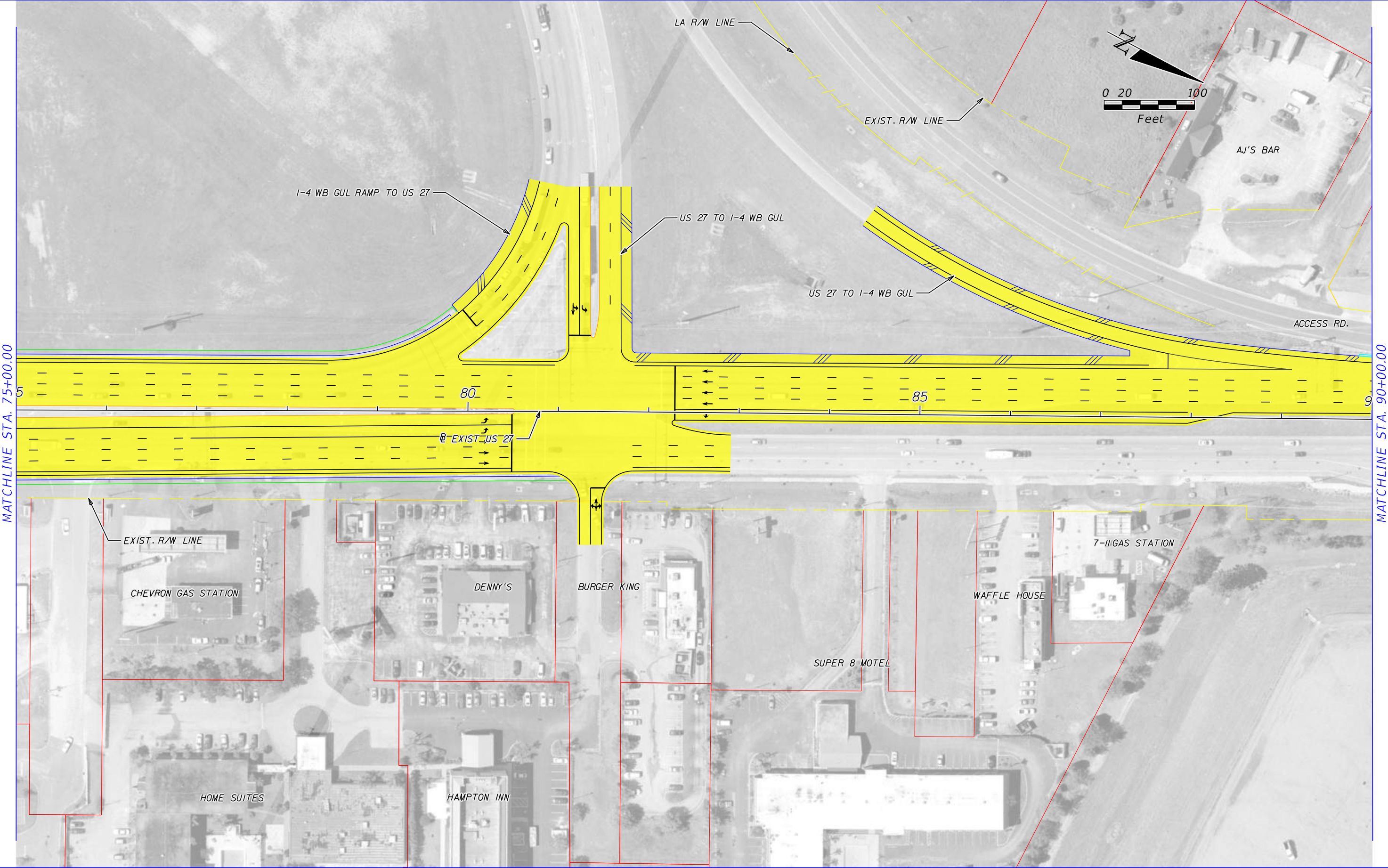
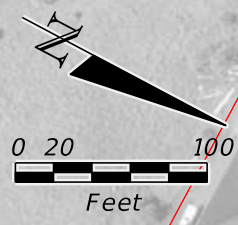
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 5 (3 OF 5)
 SEGMENT 5**

SHEET NO.
44



MATCHLINE STA. 75+00.00

MATCHLINE STA. 90+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

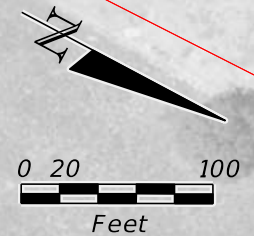
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
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 LAKE MARY, FL 32746
 (407) 805-0355
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ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

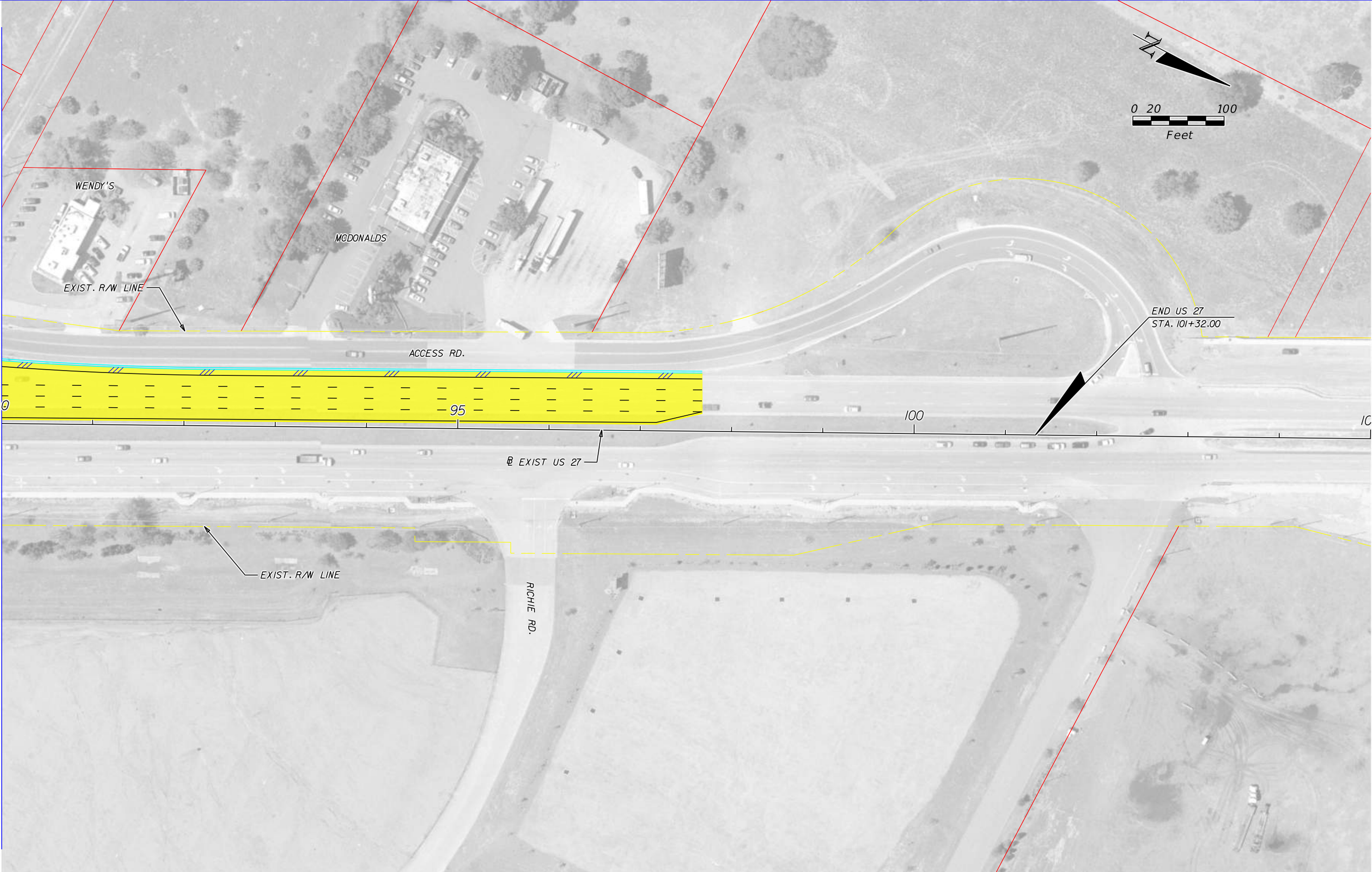
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 5 (4 OF 5)
 SEGMENT 5**

SHEET NO.
45



MATCHLINE STA. 90+00.00



PRINT DRIVER: Color_FOOTPRINT.dwg
 PEN TABLE: FOOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

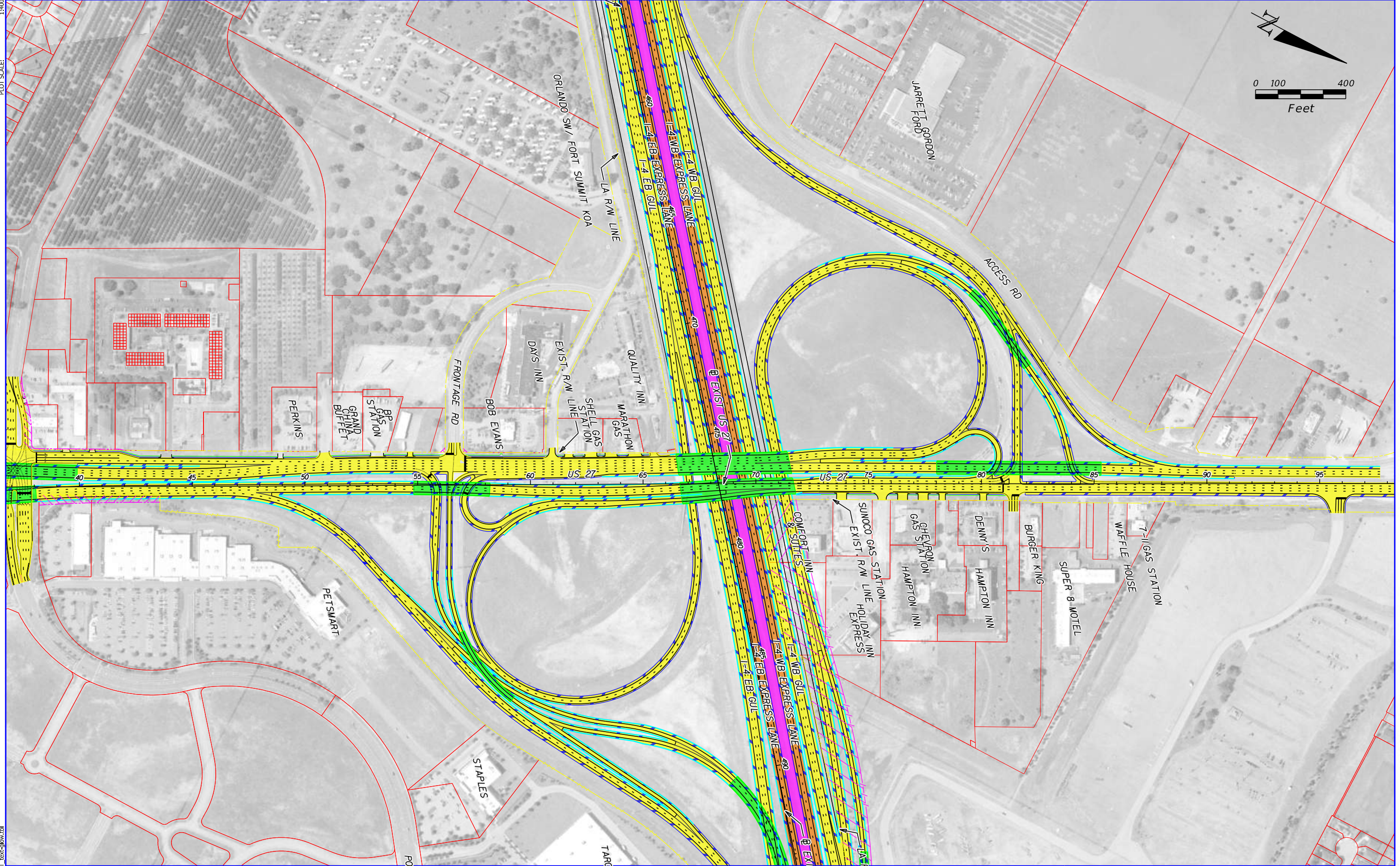
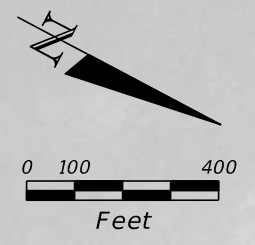
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 5 (5 OF 5)
 SEGMENT 5**

SHEET NO.
46



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

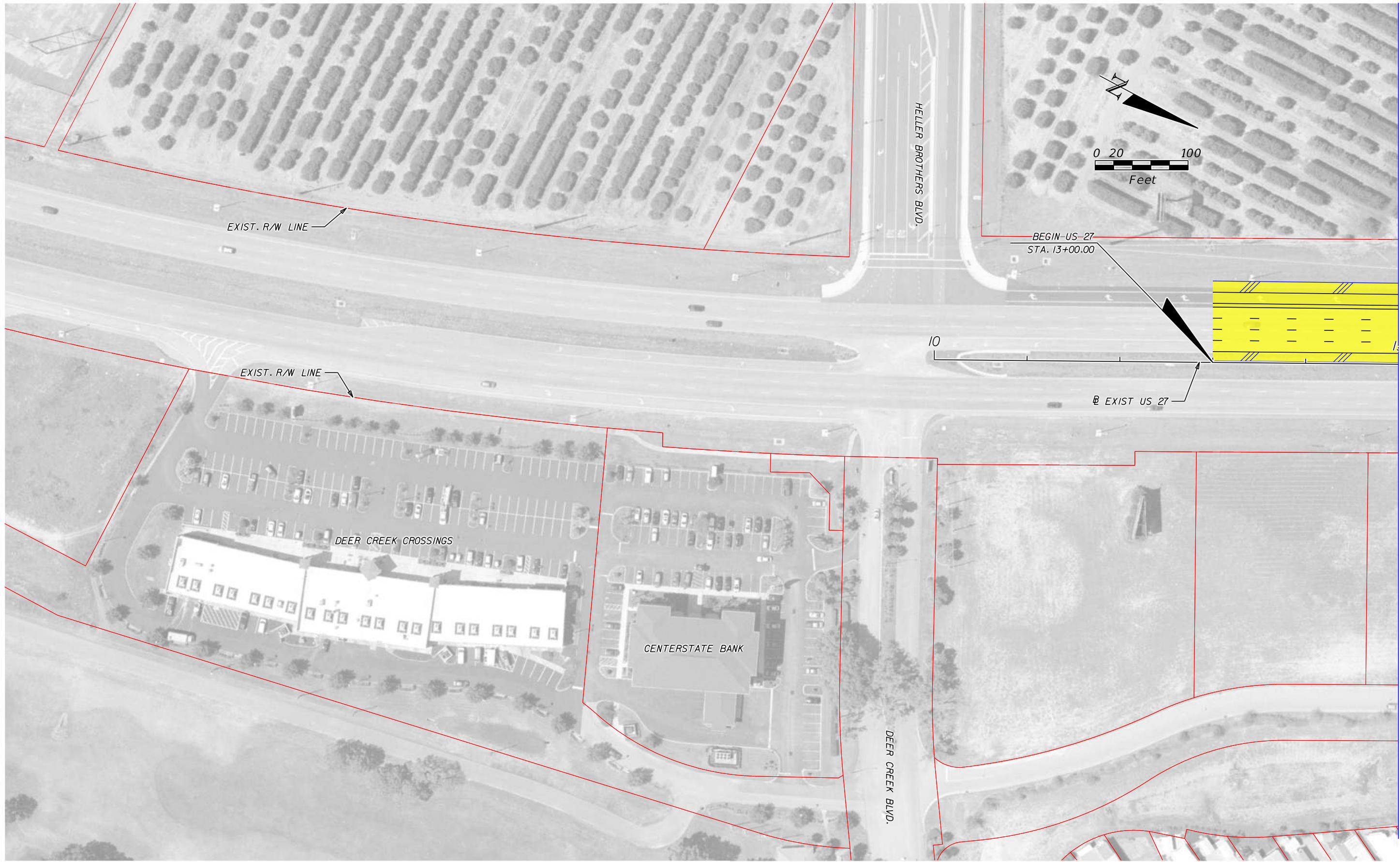
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALTERNATE 6
 SEGMENT 5**

SHEET NO.
47



MATCHLINE STA. 15+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
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 (407) 805-0355
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ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

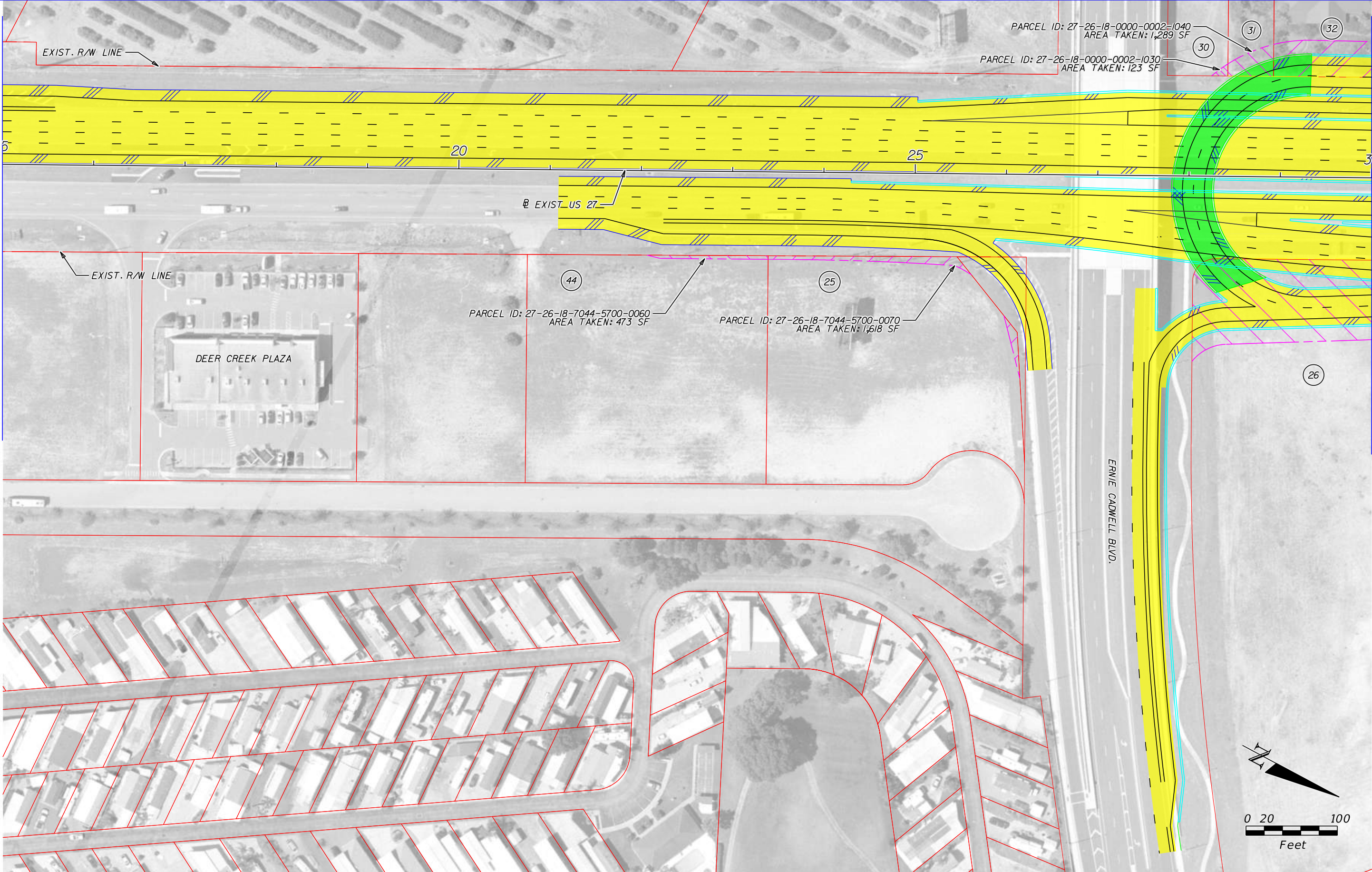
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 6 (1 OF 9)
 SEGMENT 5**

SHEET NO.
48

MATCHLINE STA. 15+00.00

MATCHLINE STA. 30+00.00



EXIST. R/W LINE

EXIST. R/W LINE

DEER CREEK PLAZA

EXIST. US 27

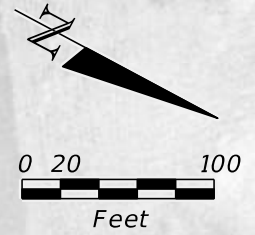
ERNE CADWELL BLVD.

PARCEL ID: 27-26-18-0000-0002-1040
 AREA TAKEN: 1,289 SF

PARCEL ID: 27-26-18-0000-0002-1030
 AREA TAKEN: 123 SF

PARCEL ID: 27-26-18-7044-5700-0060
 AREA TAKEN: 473 SF

PARCEL ID: 27-26-18-7044-5700-0070
 AREA TAKEN: 1,618 SF



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

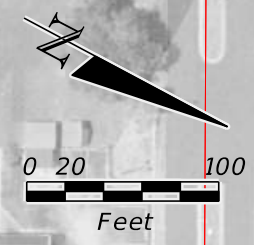
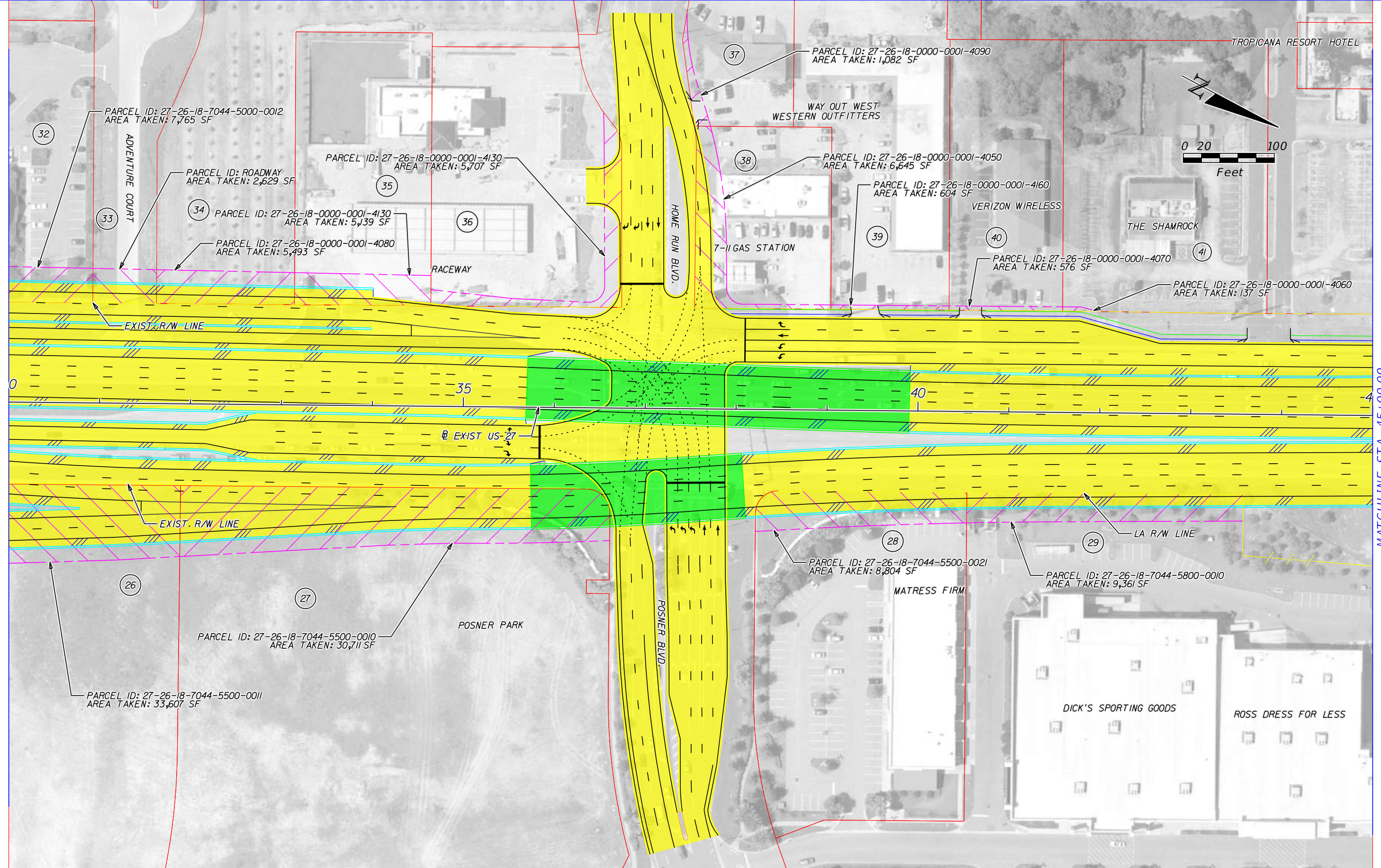
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 6 (2 OF 9)
 SEGMENT 5**

SHEET NO.
49



MATCHLINE STA. 45+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

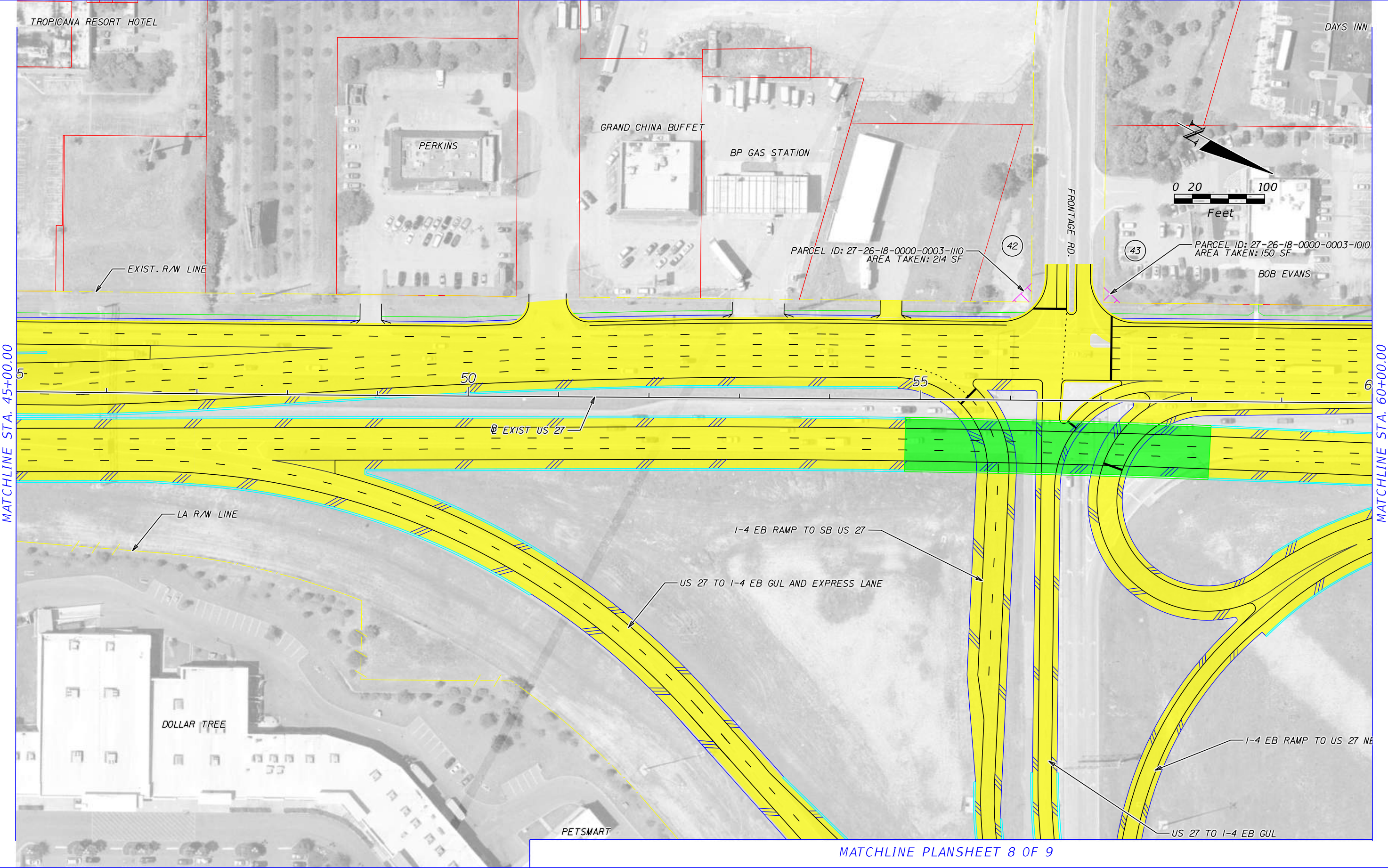
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 6 (3 OF 9)
 SEGMENT 5**

SHEET NO.
50



MATCHLINE STA. 45+00.00

MATCHLINE STA. 60+00.00

MATCHLINE PLANSHEET 8 OF 9

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

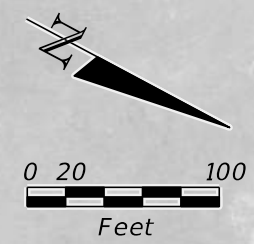
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

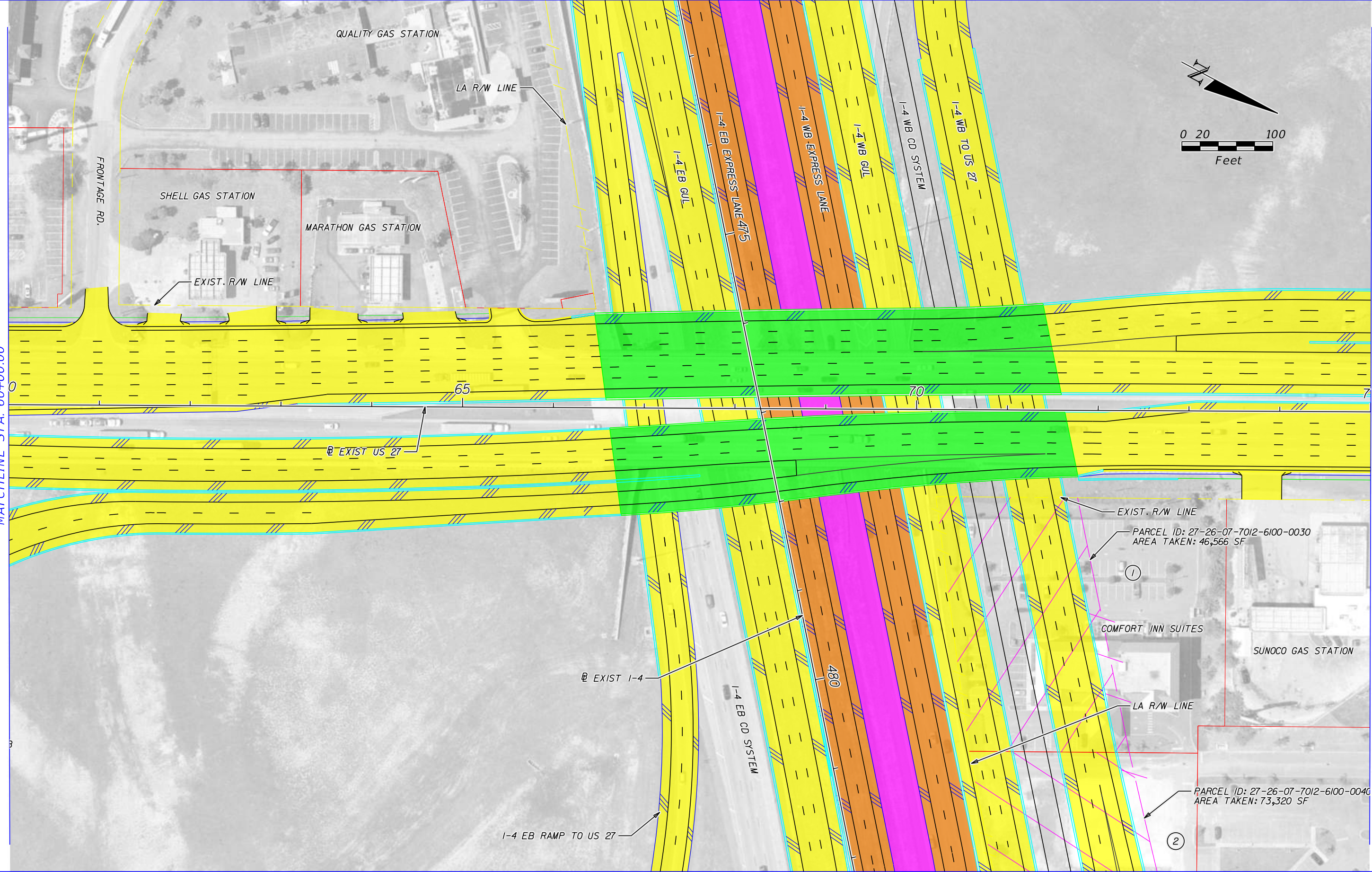
**I-4 PD&E STUDY
 US 27 ALT 6 (4 OF 9)
 SEGMENT 5**

SHEET NO.
51



MATCHLINE STA. 60+00.00

MATCHLINE STA. 75+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

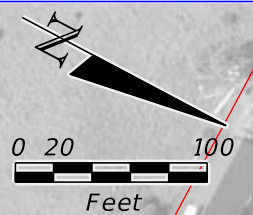
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 6 (5 OF 9)
 SEGMENT 5**

SHEET NO.
52

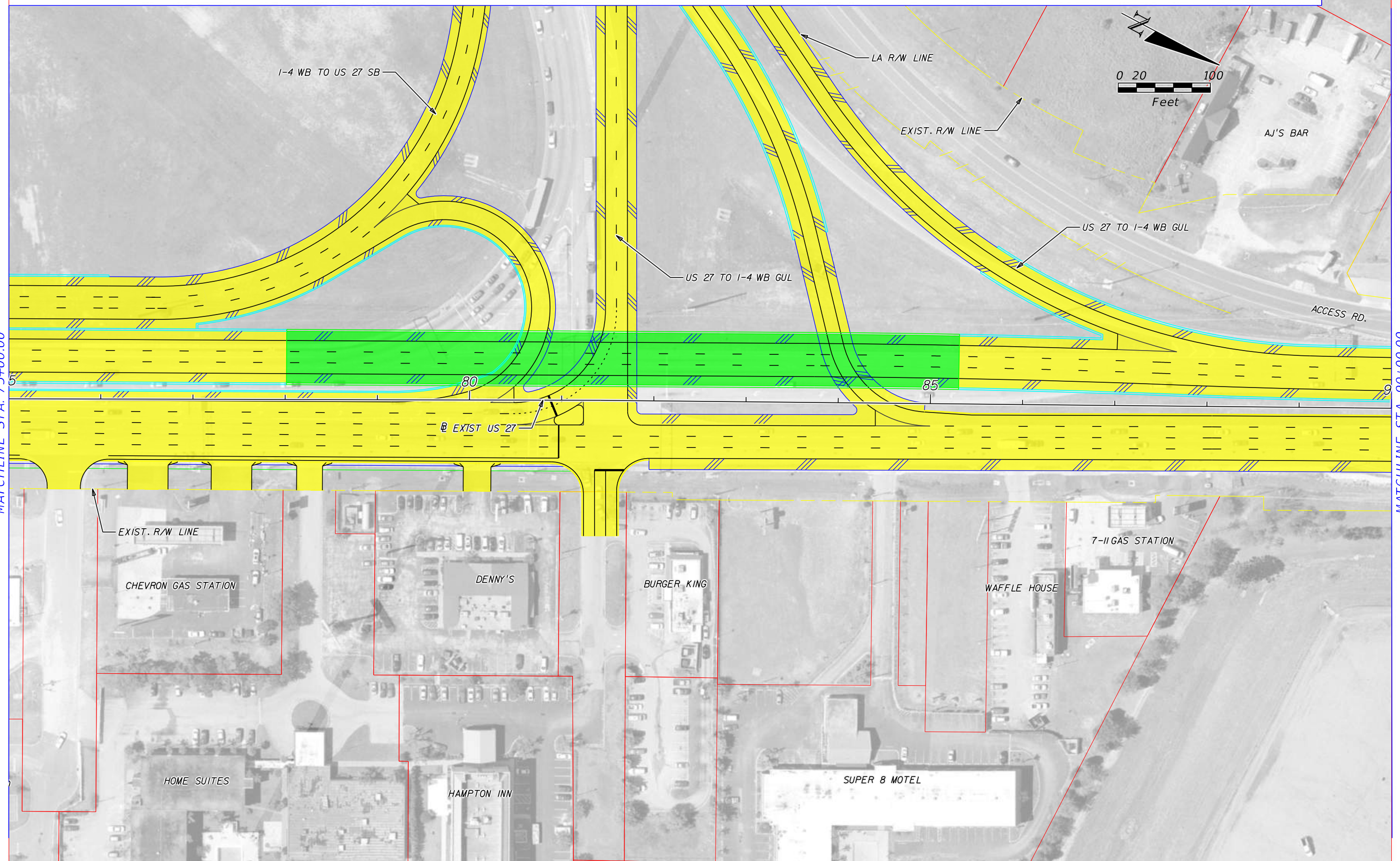
US27-06
 MODEL:
 SHEET SIZE:
 PLOT SCALE:
 1:100

MATCHLINE PLANSHEET 9 OF 9



MATCHLINE STA. 75+00.00

MATCHLINE STA. 90+00.00



PRINT DRIVER:
 PEN TABLE:
 Color_FDOTPDF.plt
 FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

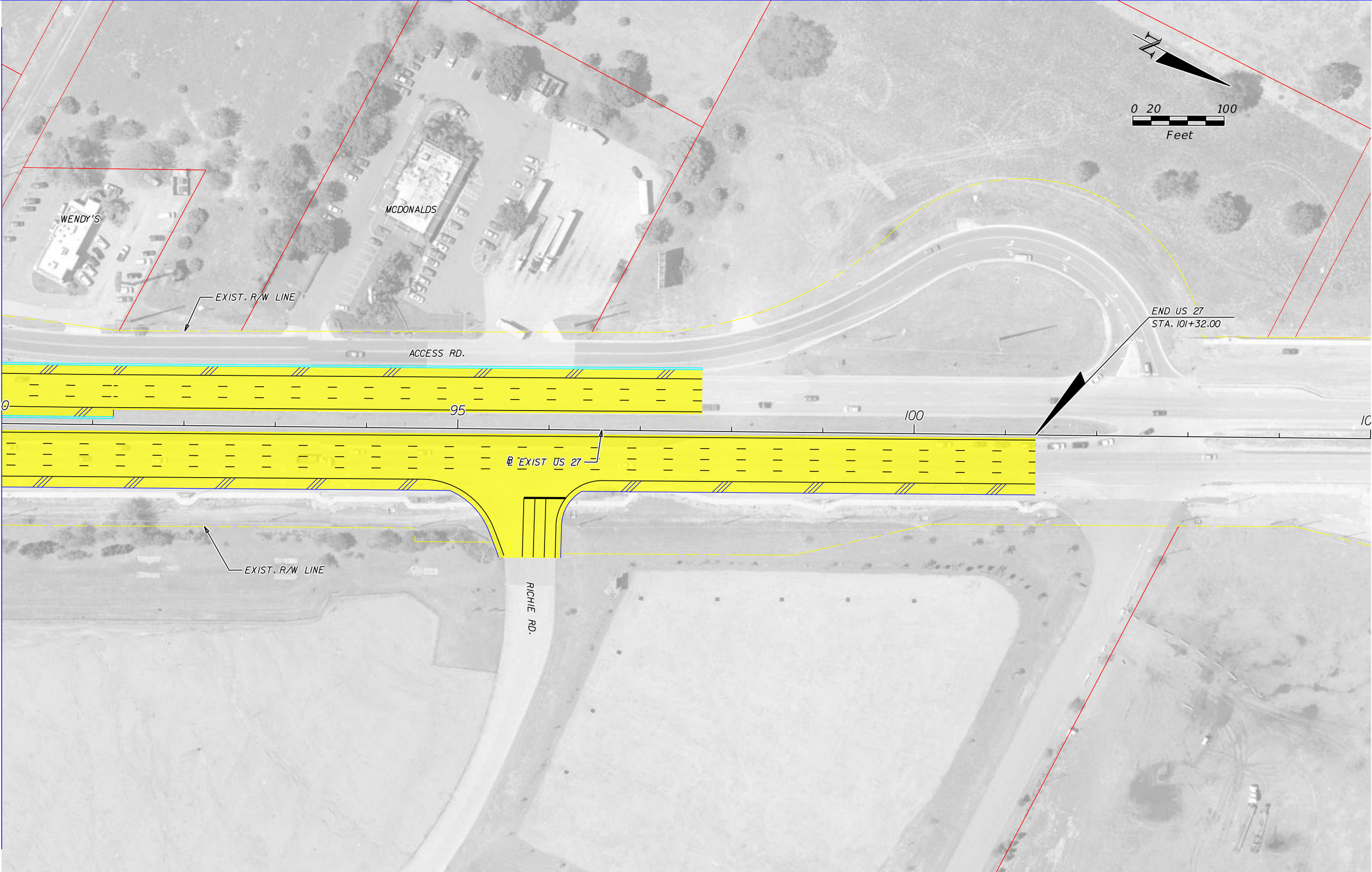
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 6 (6 OF 9)
 SEGMENT 5**

SHEET NO.
53

MATCHLINE STA. 90+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

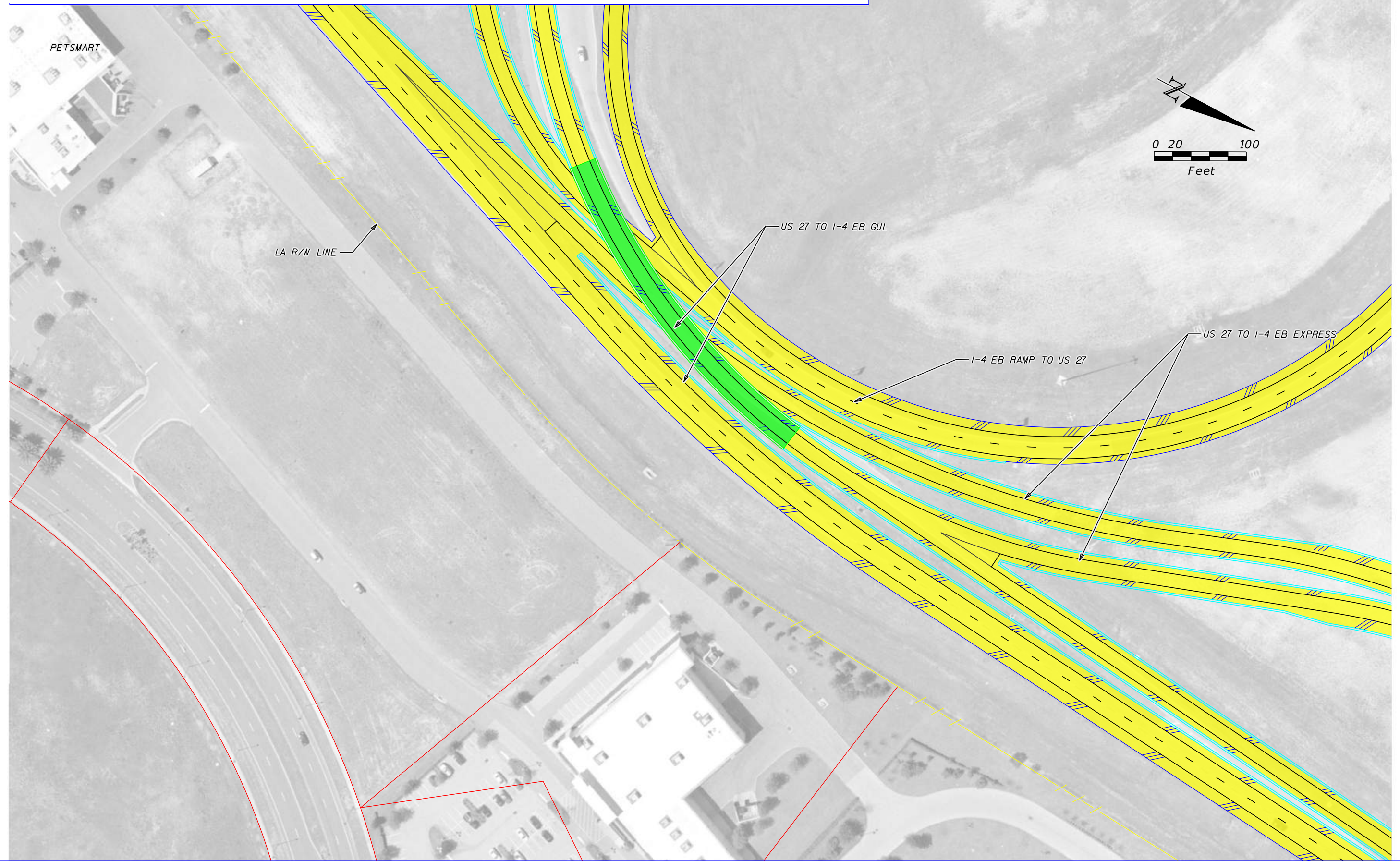
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 6 (7 OF 9)
 SEGMENT 5**

SHEET NO.
54

US27-08
 MODEL:
 SHEET SIZE:
 PLOT SCALE:
 1:100

MATCHLINE PLANSHEET 4 OF 9



PRINT DRIVER:
 PEN TABLE:
 Color_FDOTPDF.plt
 FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

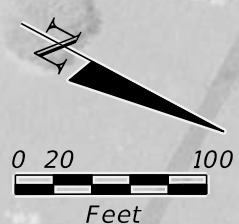
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 6 (8 OF 9)
 SEGMENT 5**

SHEET NO.
55

US27-09
MODEL:
SHEET SIZE:
PLOT SCALE:

PRINT DRIVER:
PEN TABLE:



MATCHLINE PLANSHEET 6 OF 9

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

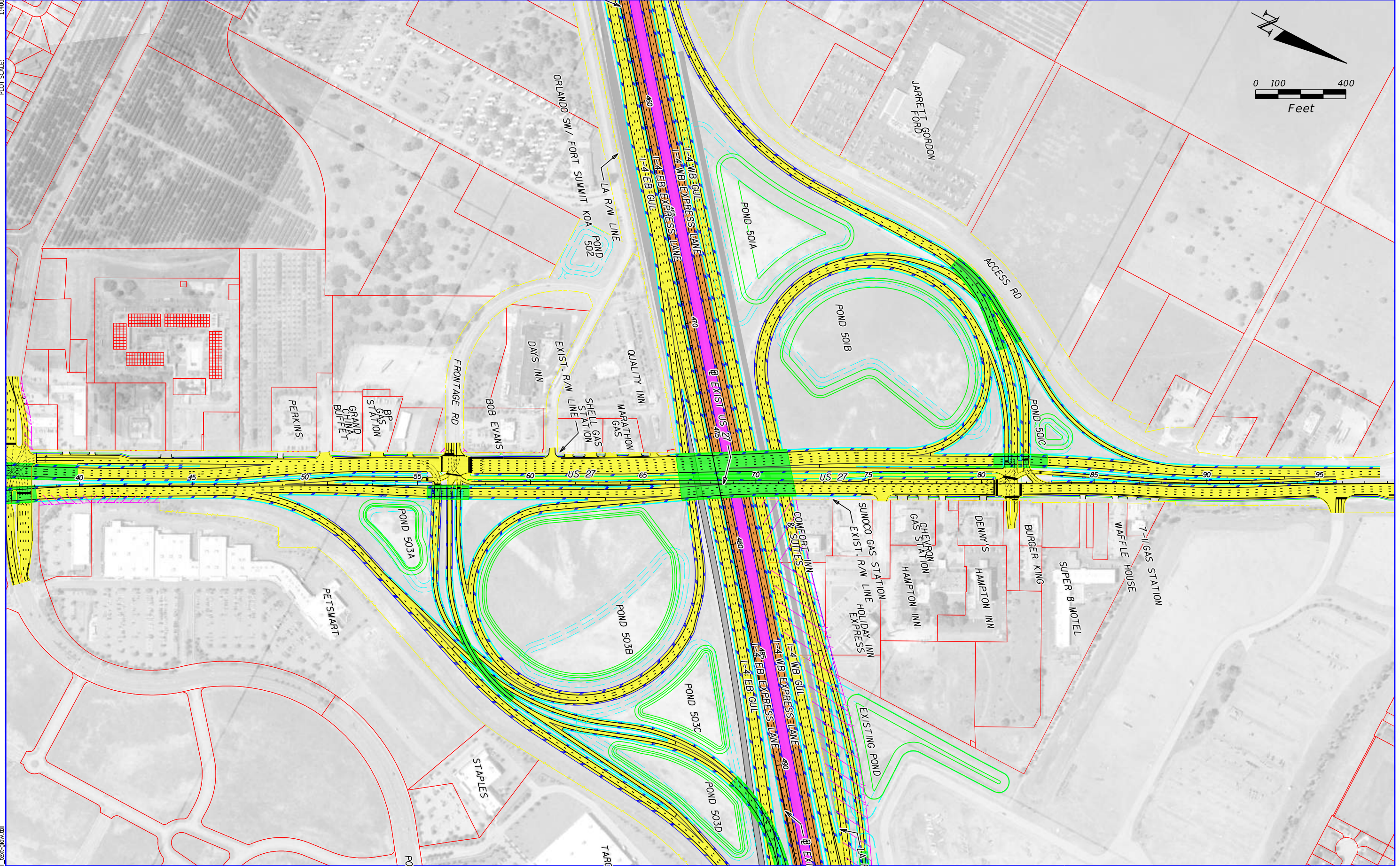
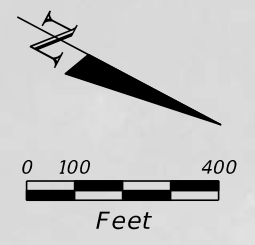
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
US 27 ALT 6 (9 OF 9)
SEGMENT 5**

SHEET NO.
56



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

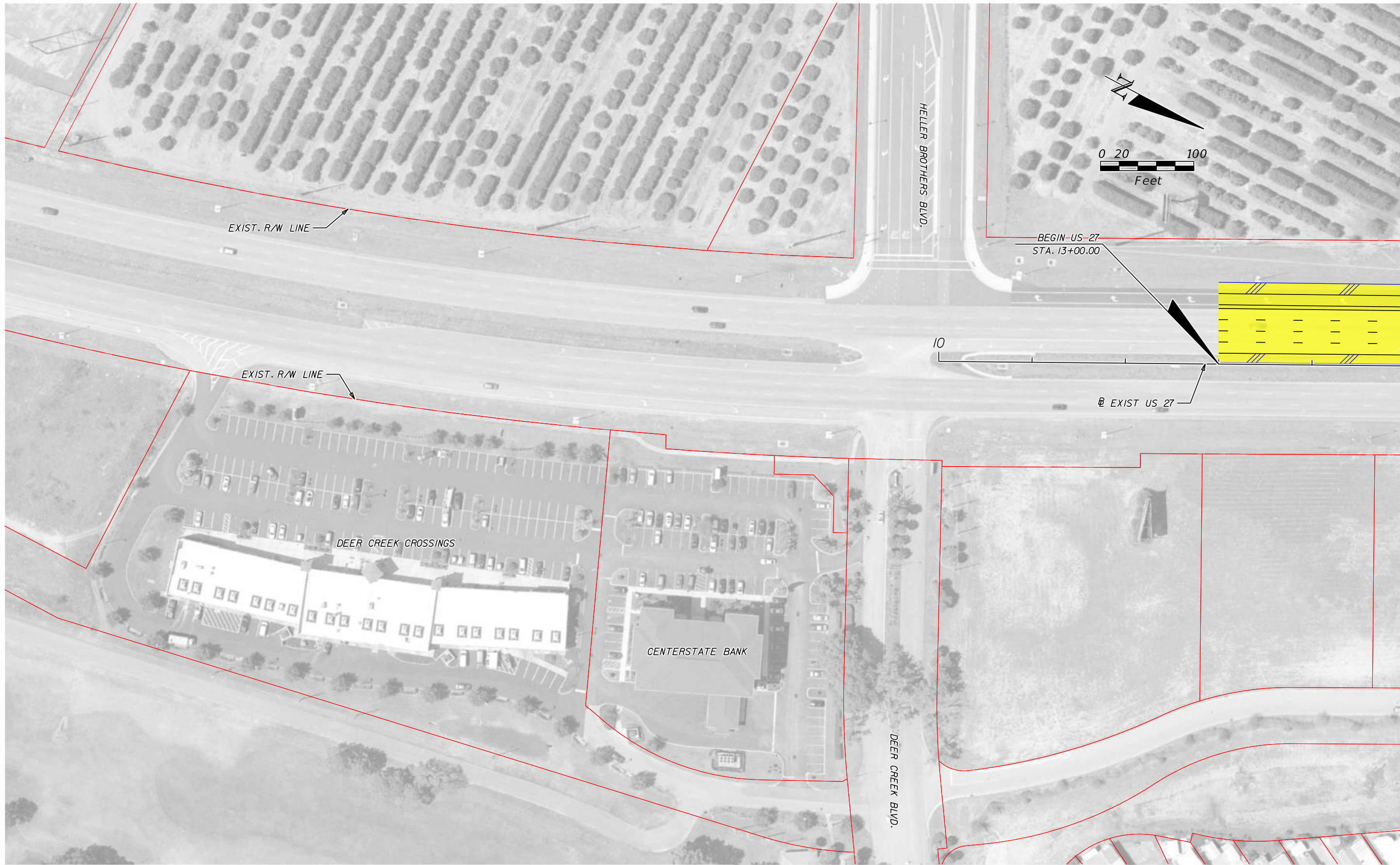
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALTERNATIVE 7
 (RECOMMENDED)
 SEGMENT 5**

SHEET NO.
57



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 7 (1 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

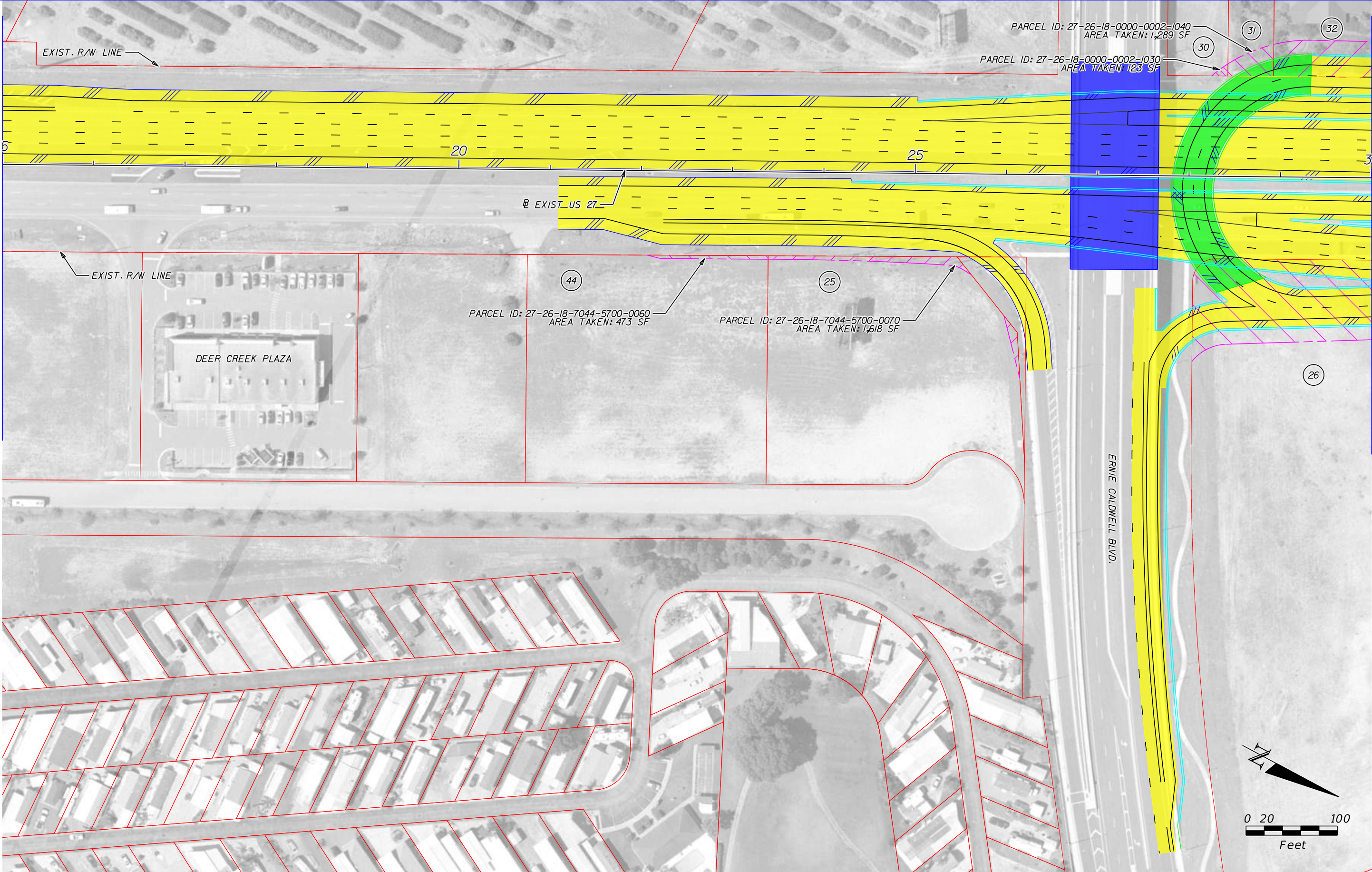
SHEET NO.
58

MATCHLINE STA. 15+00.00

US27-02
 MODEL: 16.5x10.6 (R)
 SHEET SIZE: 1:100
 PLOT SCALE:

MATCHLINE STA. 15+00.00

MATCHLINE STA. 30+00.00



EXIST. R/W LINE

EXIST. R/W LINE

DEER CREEK PLAZA

EXIST. US 27

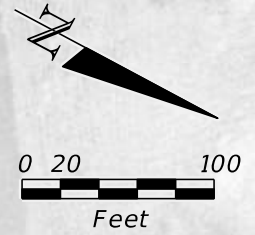
ERNIE CALDWELL BLVD.

PARCEL ID: 27-26-18-0000-0002-1040
 AREA TAKEN: 1,289 SF

PARCEL ID: 27-26-18-0000-0002-1030
 AREA TAKEN: 123 SF

PARCEL ID: 27-26-18-7044-5700-0060
 AREA TAKEN: 473 SF

PARCEL ID: 27-26-18-7044-5700-0070
 AREA TAKEN: 1,618 SF



PRINT DRIVER: Color_FDOTPDF.plt
 PEN TABLE: FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

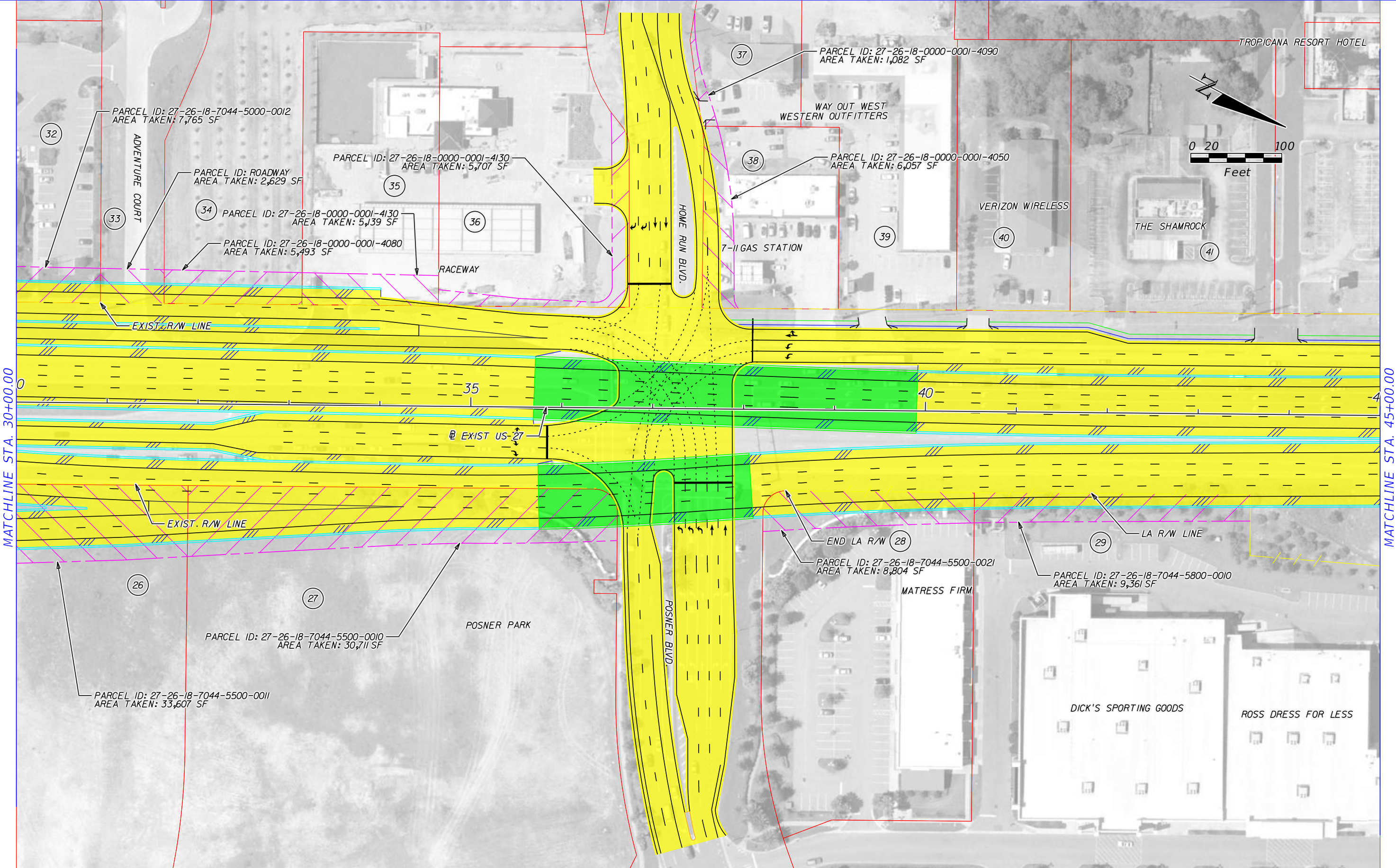
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 7 (2 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

SHEET NO.
59



MATCHLINE STA. 30+00.00

MATCHLINE STA. 45+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

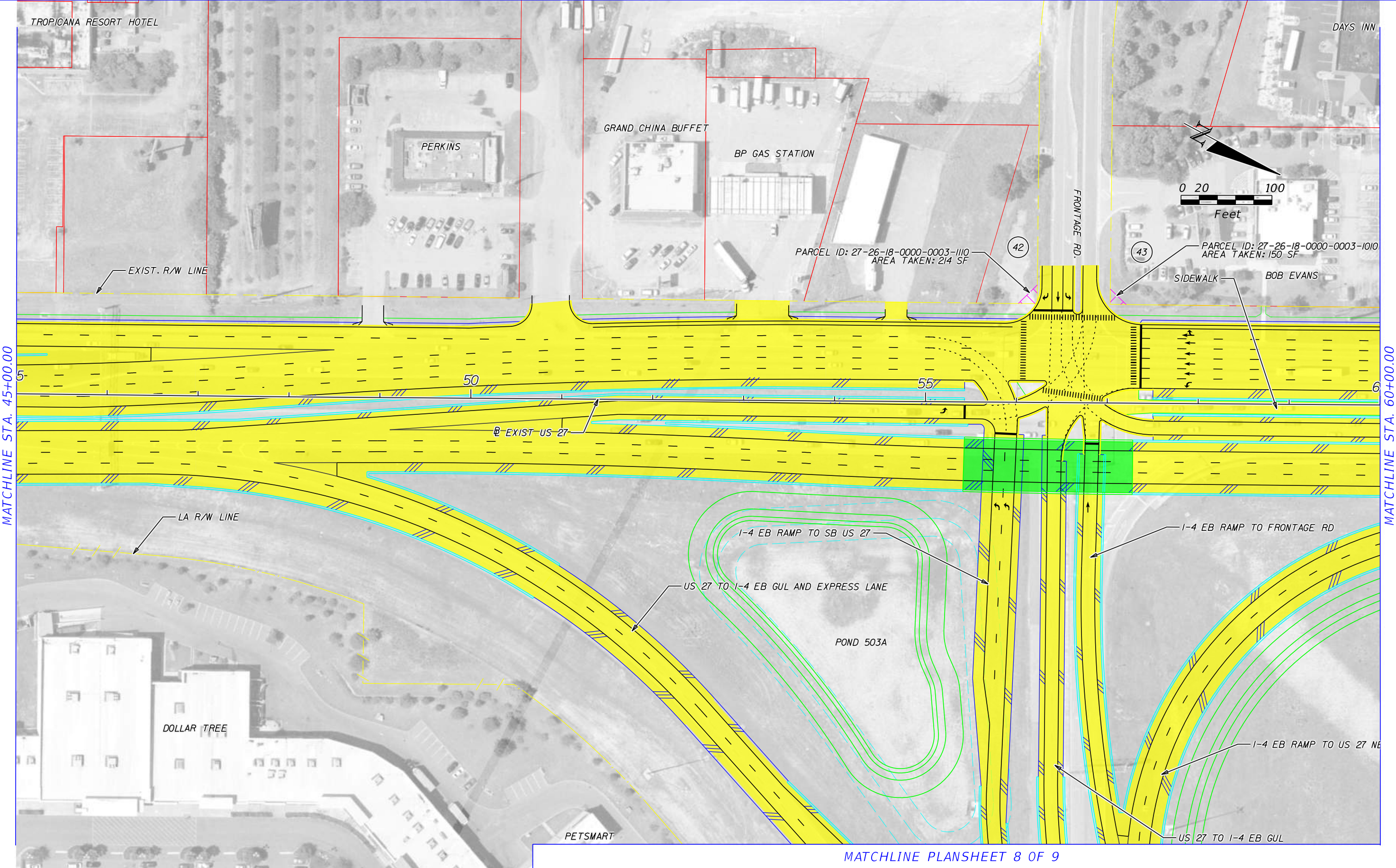
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 7 (3 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

SHEET NO.
60



MATCHLINE STA. 45+00.00

MATCHLINE STA. 60+00.00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

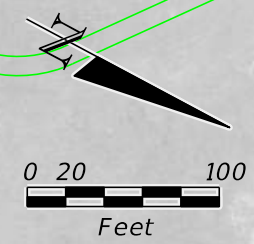
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

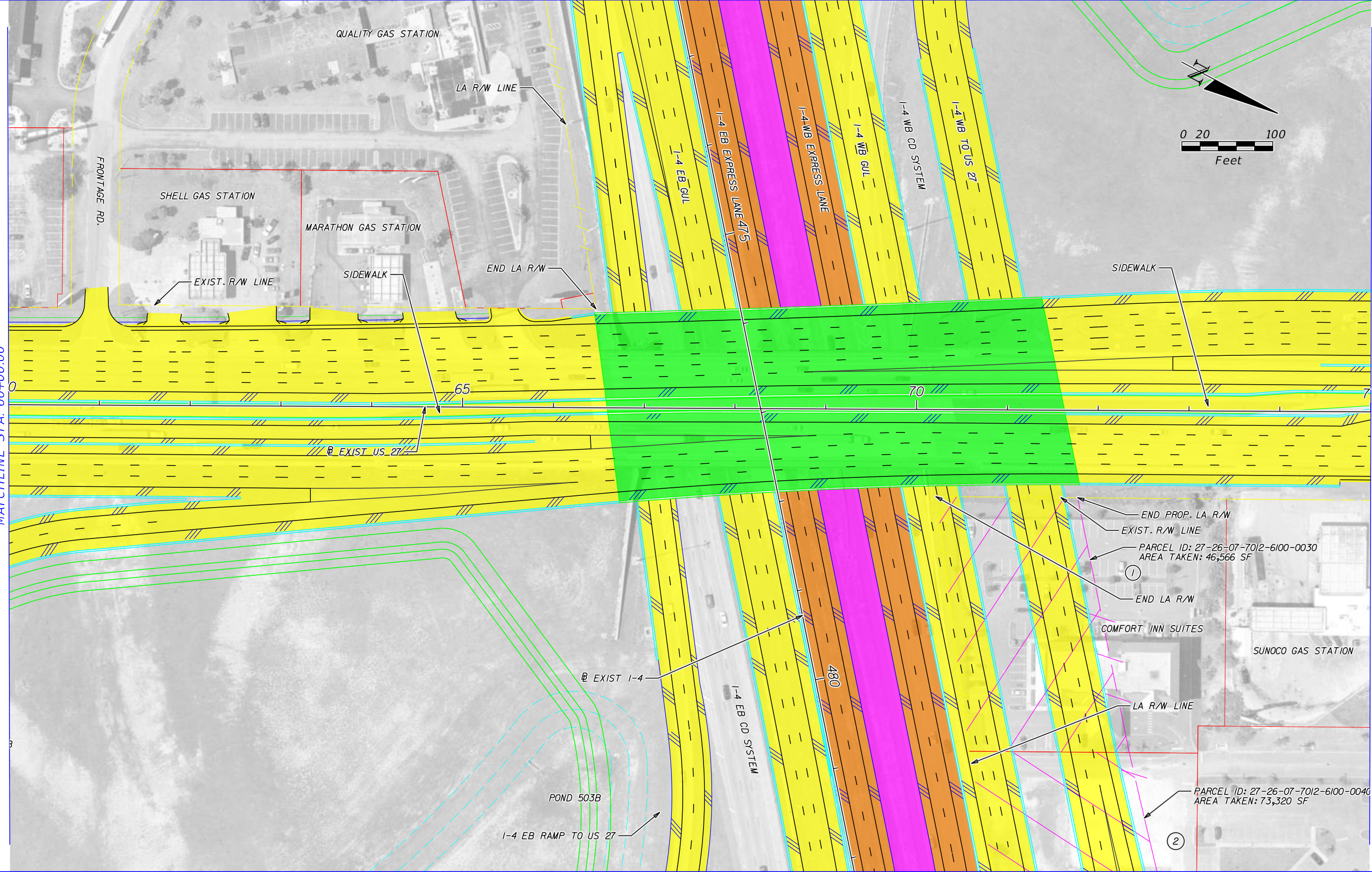
**I-4 PD&E STUDY
 US 27 ALT 7 (4 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

SHEET NO.
61



MATCHLINE STA. 60+00.00

MATCHLINE STA. 75+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 7 (5 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

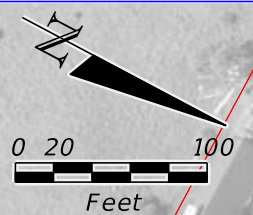
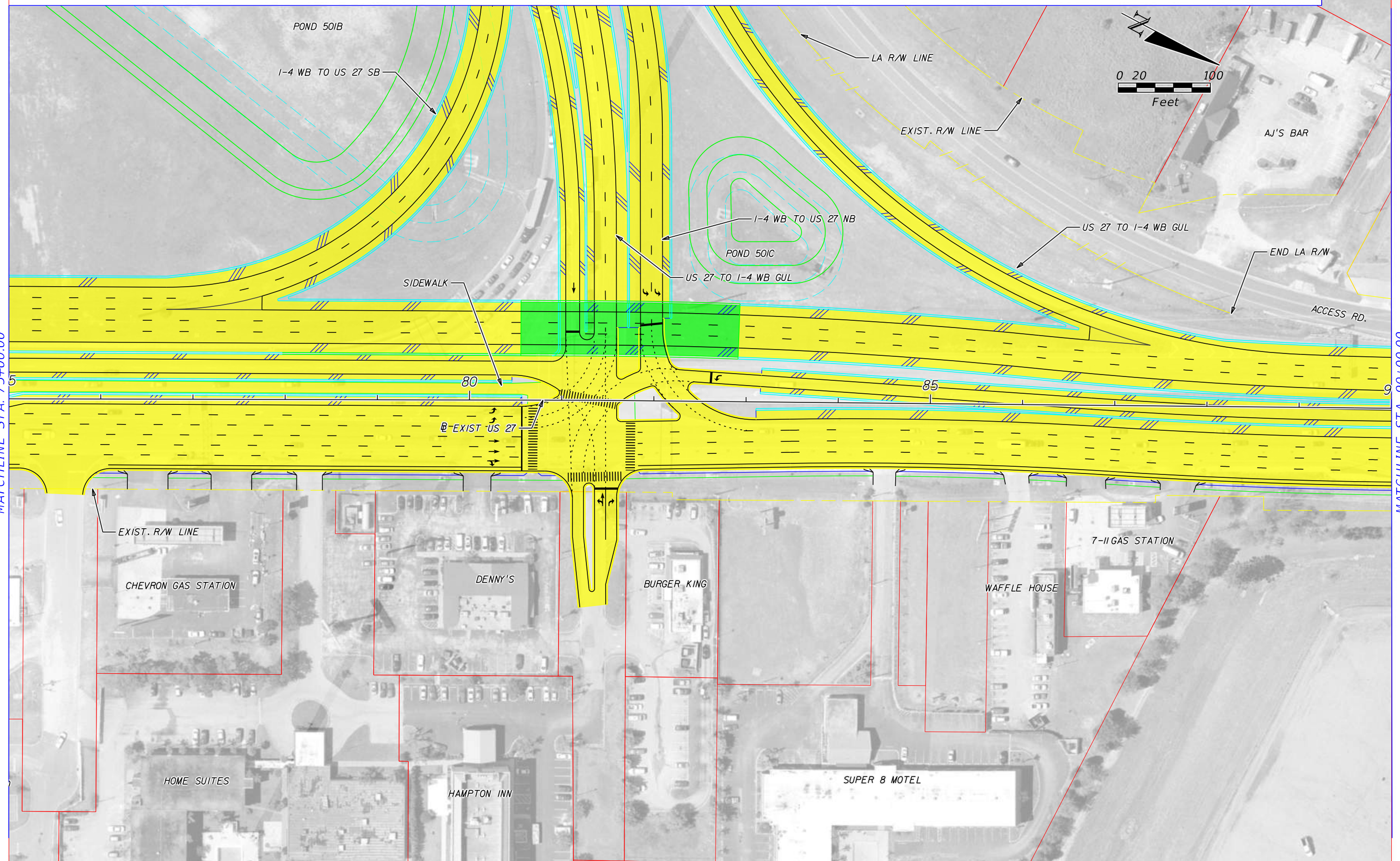
SHEET NO.
62

US27-06
 MODEL:
 SHEET SIZE:
 PLOT SCALE:
 1:100

MATCHLINE PLANSHEET 9 OF 9

MATCHLINE STA. 75+00.00

MATCHLINE STA. 90+00.00



PRINT DRIVER:
 PEN TABLE:
 Color_FDOTPDF.plt
 FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

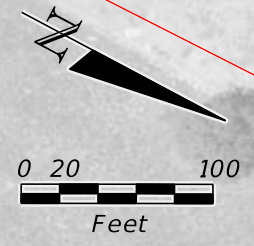
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

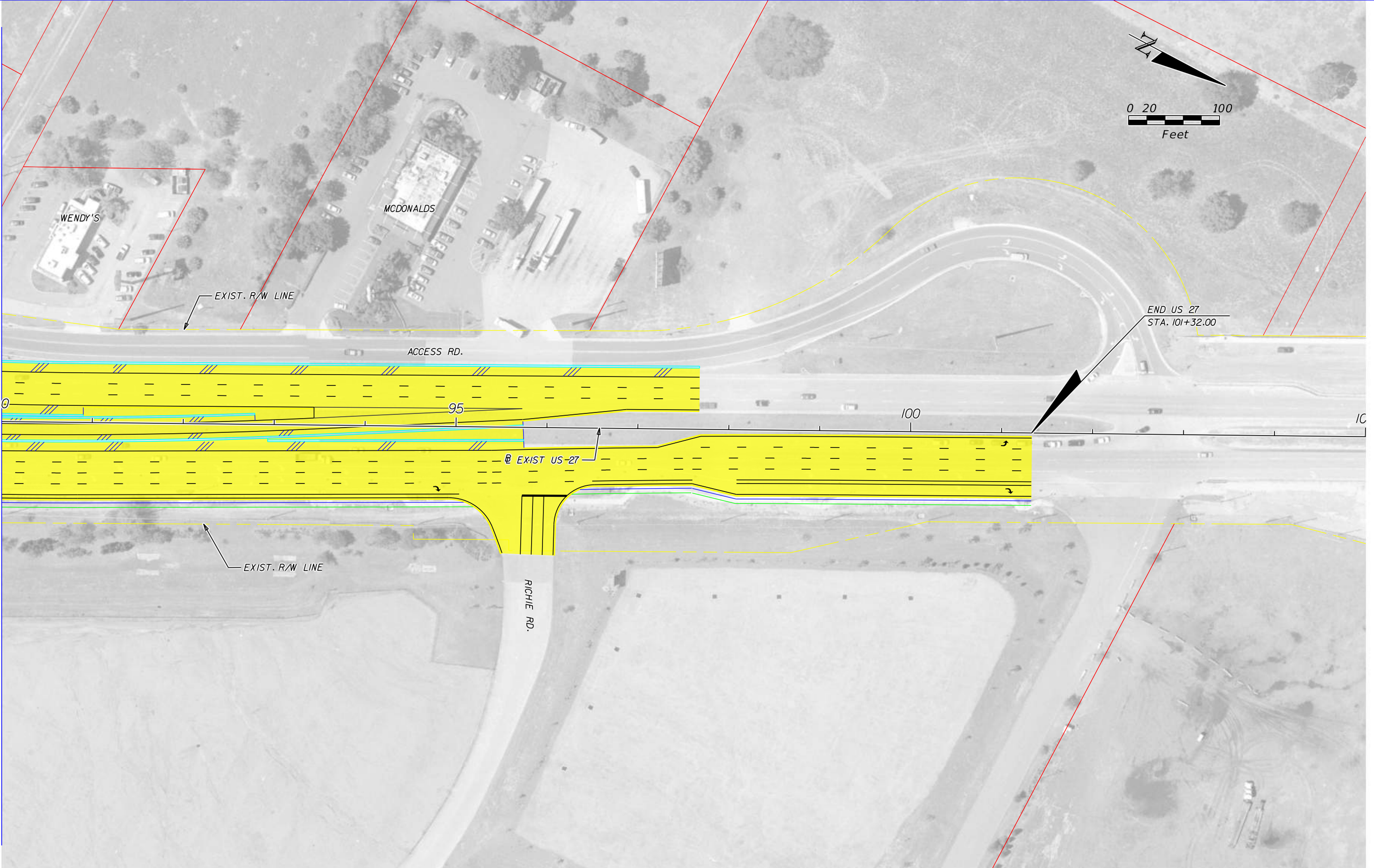
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 7 (6 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

SHEET NO.
63



MATCHLINE STA. 90+00.00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

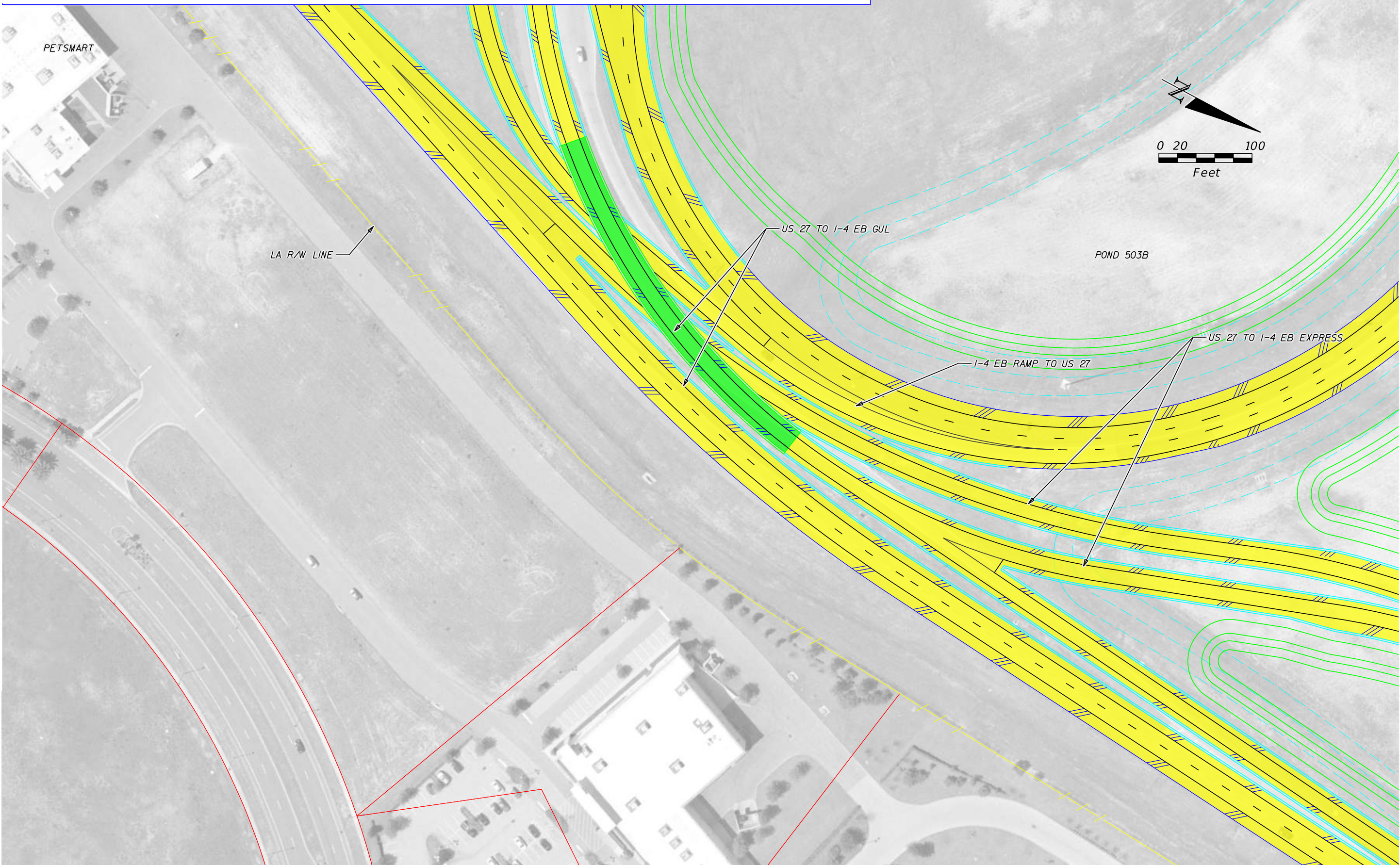
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 7 (7 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

SHEET NO.
64

US27-08
 MODEL:
 SHEET SIZE:
 PLOT SCALE:
 16.5x10.6 (in)
 1:100



PRINT DRIVER:
 PEN TABLE:
 Color_FDOTPDF.plt
 FDOT_text.plt

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

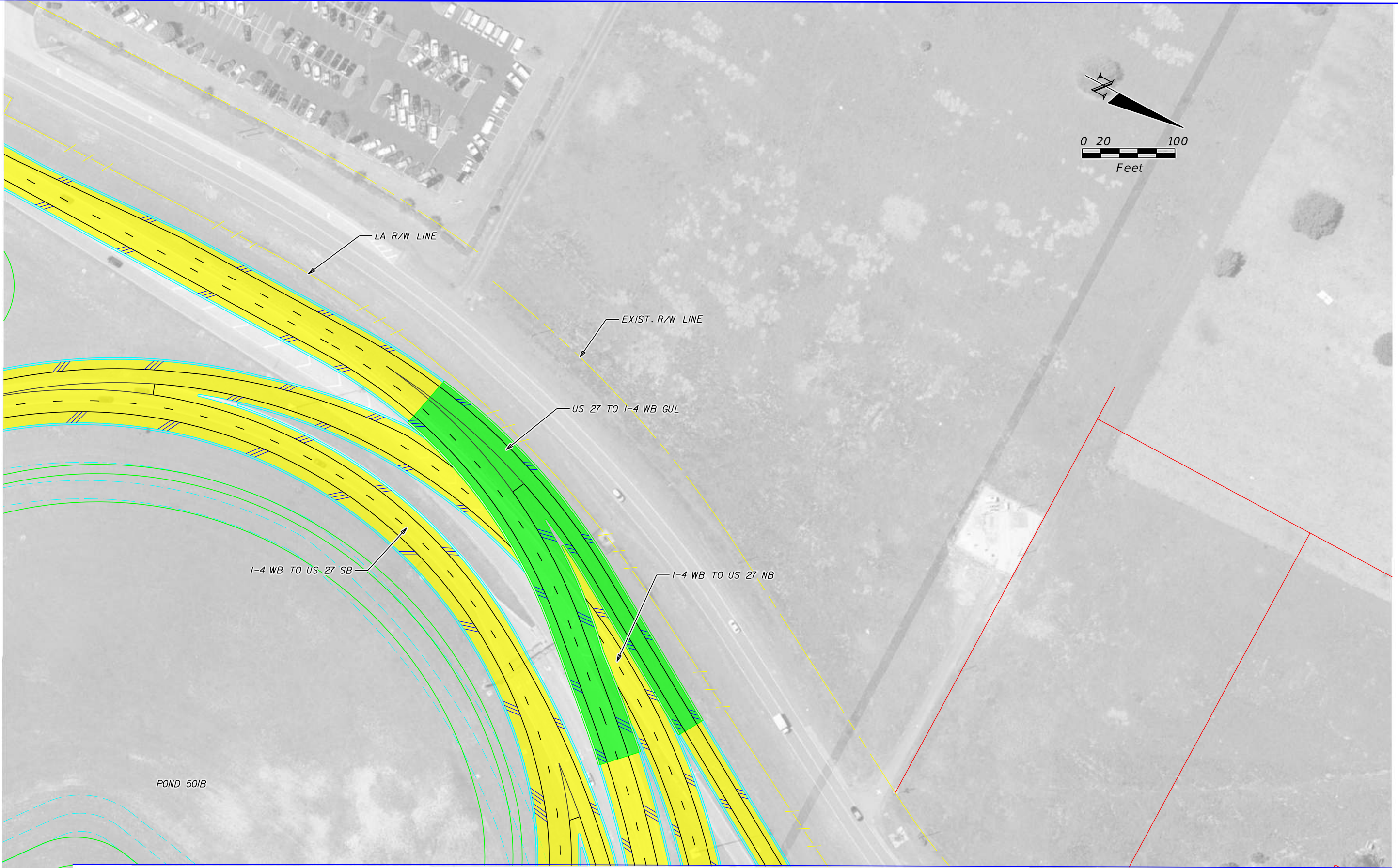
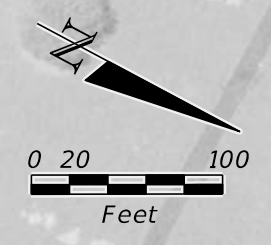
ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

**I-4 PD&E STUDY
 US 27 ALT 7 (8 OF 9)
 (RECOMMENDED)
 SEGMENT 5**

SHEET NO.
65

US27-09
 MODEL: 16.5x10.6 (in)
 SHEET SIZE: 1:100.403
 PLOT SCALE:



MATCHLINE PLANSHEET 6 OF 9

PRINT DRIVER: C:\p1\DOTDPS-plotter\DOT_text-plotter.tbl
 PLOT TABLE:

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	201210-2-22-01

I-4 PD&E STUDY
US 27 ALT 7 (9 OF 9)
(RECOMMENDED)
SEGMENT 5

SHEET NO.
66

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Appendix B - **Public Involvement Documentation**



Florida Department of Transportation

RICK SCOTT
GOVERNOR

719 S. Woodland Boulevard
DeLand, FL 32720-6834

JIM BOXOLD
SECRETARY

April 14, 2017

Subject: "I-4 Beyond the Ultimate" Project Development and Environment (PD&E) Reevaluation Study
From west of S.R. 25/U.S. 27 to west of C.R. 532 (Polk /Osceola County Line)
Polk County
Financial Project ID Number: 201210-2-22-01
Design Project ID Number: 201210-3-32-01
Federal Aid Project Number: 0041-227-I

Dear Stakeholder,

On behalf of the Florida Department of Transportation (FDOT), I invite you to attend a public hearing for the "I-4 Beyond the Ultimate" PD&E Study. This study focuses on the concept of adding express lanes on Interstate 4 (I-4), from west of U.S. 27 to west of Kirkman Road/State Road (S.R.) 435 to the west, and from east of S.R. 434 to east of S.R. 472 to the east; a distance of approximately 40 miles. At this meeting we will present the recommended design alternative for adding express lanes on the segment of I-4 from **west of S.R. 25/U.S. 27 to west of County Road 532 (Polk/Osceola County Line)** in Polk County. This hearing is being conducted to give interested persons an opportunity to express their views concerning the location, conceptual design, and social, economic, and environmental effects of the proposed improvements.

The hearing will be Tuesday, May 9, 2017, from 5:30 p.m. to 7:30 p.m. at The Church of Jesus Christ of Latter-day Saints (Citrus Ridge Ward), located at 1001 Dunson Rd, Davenport, FL 33896. It will begin as an open house at 5:30 p.m. with a formal presentation at 6:00 p.m., followed by a public comment period.

Persons wishing to submit written statements, in place of or in addition to oral statements, may do so at the hearing or by sending them to Beata Stys-Palasz, P.E. at 719 South Woodland Boulevard, DeLand, Florida 32720, by phone 386-943-5418, or by email to beata.stys-palasz@dot.state.fl.us. All statements postmarked no later than May 19, 2017 will become a part of the public hearing record.

The draft environmental and engineering reports developed by the Department will be available for public review from April 18, 2017 through May 19, 2017 at the following locations:

1. The Cagan Crossings Community Library, located at 16729 Cagan Oaks, Clermont, FL 34714
2. The study website - www.i4express.com

Persons with disabilities who require accommodations under the Americans with Disabilities Act or persons who require translation services (free of charge) should contact Beata Stys-Palasz,

P.E., Project Manager, by phone at 386-943-5418, or via email at beata.stys-palasz@dot.state.fl.us at least seven (7) days prior to the hearing. If you are hearing or speech impaired, please contact us by using the Florida Relay Service, 1-800-955-8771 (TDD) or 1-800-955-8770 (Voice).

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. Persons wishing to express their concerns relative to FDOT compliance with Title VI may do so by contacting Jennifer Smith, FDOT District Five Title VI Coordinator by phone at 386-943-5367, or via email at jennifer.smith2@dot.state.fl.us.

For information pertaining to this project, please contact Beata Stys-Palasz, P.E., FDOT Project Manager, by phone at 386-943-5418, or via email at beata.stys-palasz@dot.state.fl.us.

Sincerely,

A handwritten signature in blue ink that reads "Beata Stys-Palasz". The signature is written in a cursive style and is contained within a rectangular box.

Beata Stys-Palasz, P.E.
FDOT Project Manager

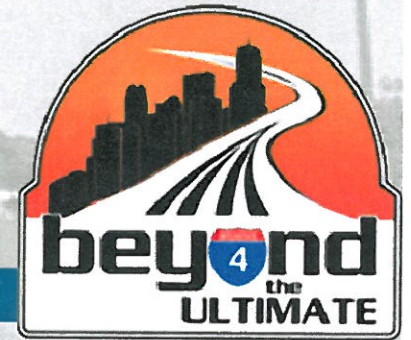


"BEYOND I-4 ULTIMATE" PD&E REEVALUATION STUDY

FROM WEST OF US 27 TO WEST OF CR 532

Tuesday, May 9, 2017

Open House - 5:30 p.m. Formal Presentation - 6:00 p.m.



PROJECT TEAM MEMBERS

FPID: 201210-2-22-01

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Mailing Address (PLEASE PRINT)

E-mail or Phone Number

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"BEYOND I-4 ULTIMATE" PD&E REEVALUATION STUDY

FROM WEST OF US 27 TO WEST OF CR 532

Tuesday, May 9, 2017

Open House - 5:30 p.m. Formal Presentation - 6:00 p.m.



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"BEYOND I-4 ULTIMATE" PD&E REEVALUATION STUDY

FROM WEST OF US 27 TO WEST OF CR 532

Tuesday, May 9, 2017

Open House - 5:30 p.m. Formal Presentation - 6:00 p.m.

FPID: 201210-2-22-01



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1 SR-400 (I-4) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
2 SEGMENT 5, WEST OF US 27/SR 25 TO WEST OF CR 532
3 OSCEOLA/POLK COUNTY LINE

CONDENSED

4 _____ /

5 **PUBLIC HEARING**

6

7 DATE: MAY 9, 2017

8 REPORTER: VICTORIA GOMEZ

9 PLACE: CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS
10 1001 DUNSON ROAD
11 DAVENPORT, FLORIDA 32746

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25

<p style="text-align: right;">2</p> <p>1 APPEARANCES 2 COLLEEN T. JARRELL HNTB CORPORATION 3 ASSISTANT DEPARTMENT MANAGER 4 PROJECT MANAGERS: CAMILA AMAYA 5 ROBERT DENNEY LUIS DIAZ 6 MIKE DRAUER CHRISTY DYNN 7 HEATHER JOHNSON BERNIE MASING 8 JOHN MOORE SANAM REI 9 BEATA STYS-PALASZ 10 PUBLIC: MARION RYAN 11 SIERRA CLUB P.O. BOX 773 12 WINTER HAVEN, FLORIDA 33882 13 MIKE NOLEN, JR. 122 LAKE MARIAN WAY 14 WINTER HAVEN, FLORIDA 33881 15 MIKE NOLEN, SR. P.O. BOX 1439 16 WINTER HAVEN, FLORIDA 33882 17 STEVE NAPPINGE 315 EAST ROBINSON STREET 18 ORLANDO, FLORIDA 32801 19 CHRIS NOLEN 530 SOUTH MAIN STREET 20 WINTER GARDEN, FLORIDA 21 22 23 24 25</p>	<p style="text-align: right;">4</p> <p>1 there any official who would like to be recognized? 2 Right now, I would like to start the presentation. 3 Thank you. 4 AUDIO PRESENTATION: The State of Florida 5 Department of Transportation, also known as FDOT, 6 would like to welcome you to the Public Hearing for 7 the Interstate 4, Beyond the Ultimate Project 8 Development and Environment Study. This public 9 hearing is being held relative to FDOT Financial 10 Project ID Number 201210-2-22-01 and Federal Aid 11 Project Number 0041-227-I. This public hearing was 12 advertised consistent with federal and state 13 requirements and is being conducted consistent with 14 the Americans with Disabilities Act of 1990. 15 Advertisements for this public hearing included 16 letters to elected and agency officials, letters to 17 property owners, newspaper ads, notifying local 18 media, and advertising in the Florida Administrative 19 Register. The Florida Department of Transportation 20 is required to comply with various nondiscrimination 21 laws and regulations, including Title VI of the 22 Civil Rights Act of 1964. This hearing is being 23 held to give all interested persons the right to 24 understand the project and comment on their concerns 25 to the Department. Public Participation at this</p>
<p style="text-align: right;">3</p> <p>1 PROCEEDINGS 2 MS. STYS-PALASZ: Okay. Good evening. The 3 Florida Department of Transportation would like to 4 welcome you to the open hearing for the Interstate 5 4, Beyond the Ultimate Project. This is development 6 and environment study. My name is Beata Stys- 7 Palasz. I am the project manager for the Florida 8 Department of Transportation for the PD&E design. 9 This public hearing is related to financial project 10 management number 201210-2-22-01 and federal aid 11 project number 0041-227-I. The proposed 12 improvements involve widening Interstate 4 to ten 13 lanes, with six general use lanes in both directions 14 and four into express lanes for to go back and forth 15 in both directions from west of US 27 to west of 16 County Road 532 in Polk County. This hearing being 17 held to provide you with the opportunity to comment 18 on this project. Here with me is Colleen Jarrell, 19 who is the consultant project manager. We also have 20 Heather Johnson, who is the design project manager 21 for this section. At this time -- and of course, 22 all the team with -- all the DOT persons to help you 23 understand this project. At this time, we would 24 like to recognize any federal, state, county, or 25 city official who may be present at this time. Are</p>	<p style="text-align: right;">5</p> <p>1 hearing is solicited without regard to race, color, 2 national origin, age, sex, religion, disability or 3 family status. Persons wishing to express their 4 concerns about Title VI may do so by contacting the 5 individuals listed on this slide which is also 6 provided in the project newsletter and on a board 7 displayed at this hearing. The proposed improvement 8 involves adding express lanes on I-4, from US 27 to 9 Kirkman Road to the west and from SR 434 to SR 472 10 to the east. The purpose of this Public Hearing is 11 to share information with the general public about 12 the alternatives under consideration, the proposed 13 improvements, and their potential environmental 14 impacts. This public hearing also serves as an 15 official forum providing an opportunity to the 16 public to express their opinions and concerns 17 regarding the location, conceptual design and 18 potential social, economic and environmental effects 19 of the proposed improvement on the community. There 20 is a court reporter present at this hearing and 21 tonight's proceedings are being recorded. An 22 official transcript of the hearing will be produced. 23 Following this presentation, the floor will be open 24 for public comments. All written material received 25 at this public hearing and at the Florida Department</p>



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6	<p>1 of Transportation office, postmarked no later than 2 May 19, 2017 or through the project website will 3 become a part of the public record for this hearing. 4 The Project Development and Environment Study or 5 PD&E is the second step of the Project Development 6 process that the Florida Department of 7 Transportation follows to evaluate social, cultural, 8 economic and environmental impacts associated with a 9 planned transportation improvement project. The 10 PD&E process was established by the FDOT as the 11 state's procedure for complying with the National 12 Environmental Policy Act or NEPA of 1969 and Florida 13 Statutes. NEPA is a United States environmental law 14 that requires federal agencies to assess the 15 environmental effects of their proposed actions 16 prior to making decisions. This phase involves the 17 preparation of all preliminary engineering and 18 environmental documentation required for study 19 approval and subsequent funding. During a PD&E 20 Study, several alternatives are developed to meet 21 the purpose and need for the project. These 22 alternatives are developed with input from the 23 public, local government and environmental agencies 24 throughout the study process. Keeping the public 25 involved and informed throughout the study is</p>	8
7	<p>1 paramount to the success of a PD&E study. This 2 study is a reevaluation of PD&E studies that were 3 previously done 14 to 17 years ago. The section 4 from State Road 435, Kirkman Road, to State Road 434 5 in Orange and Seminole Counties received approval 6 from the Federal Highway Administration and is 7 currently under construction to include the addition 8 of express lanes. The study limits are along 9 Interstate 4, from West of State Road 25/US 27 to 10 West of County Road 532. This study proposes to 11 widen Interstate 4 to ten lanes. This includes six 12 general use lanes and four express lanes. The study 13 corridor is approximately four-and-a-half miles in 14 length and is located in Polk County. The Polk 15 Transportation Planning Organization, TPO, works 16 with the Florida Department of Transportation and 17 local governments to fund and implement projects 18 identified through various plans developed by the 19 TPO. The I-4 BtU project's Segment 5 is identified 20 on the Polk TPO Long Range Transportation Plan, 21 Momentum 2040. The project is consistent with the 22 State Transportation Improvement Program. The 23 purpose of this study is to accommodate future 24 traffic needs based on anticipated population and 25 employment growth, and enhance safety and mobility</p>	9



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10	<p>1 recommended 'Build' Alternative which proposes to 2 widen Interstate 4 to ten lanes with five lanes in 3 each direction: three general use lanes and two 4 express lanes. An evaluation matrix comparing the 5 'No-Build' alternative with the recommended roadway 6 'Build' alternative is on display here tonight. The 7 proposed I-4 typical section consists of two 12-foot 8 wide express lanes with 12-foot inside and outside 9 shoulders and three 12-foot wide general use lanes 10 with 12-foot inside and outside shoulders, in each 11 direction. A 2-foot wide barrier wall separates the 12 general use from the express lanes. A 44-foot rail 13 corridor is reserved in the median of I-4. The 14 minimum right of way width required to accommodate 15 this typical section is 300 feet. The proposed 16 horizontal alignment of I-4 Segment 5 closely 17 follows the existing I-4 alignment. Right-of-way 18 will be required for the roadway mainline 19 improvements, storm water management facilities and 20 floodplain compensation sites. The total 21 anticipated right-of-way impacts involve full or 22 partial acquisition of 29 parcels for a total of 23 approximately 32 acres. The recommended alternative 24 for the SR 25/US 27 Interchange proposes a full 25 service partial cloverleaf interchange with loop</p>	12
11	<p>1 ramps in the northwest and southeast quadrants. 2 Eleven new bridges, substantial modifications to the 3 ramp terminal intersections and improvements to 4 Posner Boulevard are associated with this 5 alternative. Direct access to and from the express 6 lanes only to the east and from the east is provided 7 at the US 27 ramp terminals, rather than at the US 8 27 bridge. The existing drainage systems will be 9 enhanced to accommodate storm water runoff from the 10 proposed roadway improvements. The storm water 11 management systems, proposed by this study, have 12 been designed to meet the current requirements of 13 the Southwest Florida Water Management District and 14 the Florida Department of Transportation. Storm 15 water treatment will be provided in wet detention 16 and dry retention ponds, located on- or off-site. 17 The treatment facilities and locations are on 18 exhibit here this evening, as well as in the 19 documents on display. In accordance with current 20 FDOT standards for road and bridge construction, all 21 best management practices for erosion control and 22 water quality considerations will be adhered to 23 during the construction phase of the project. Pond 24 siting evaluation criteria were developed to screen 25 the various potential pond sites. Each of the</p>	13



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<p style="text-align: right;">14</p> <p>1 water facilities will be designed to meet the 2 current requirements of the Southwest Florida Water 3 Management District. Storm water treatment will be 4 provided by a combination of wet detention or dry 5 retention ponds, located on- or off-site. The pond 6 locations are on exhibit here this evening as well 7 as in the documents on display. In accordance with 8 Executive Order 11988 entitled "Floodplain 9 Management" a floodplain analysis was performed. It 10 was determined that approximately 18.65 acre-feet of 11 floodplain impacts are anticipated. Highway traffic 12 noise impacts were evaluated in accordance with the 13 Code of Federal Regulation, Part 772. Based on the 14 results of the noise analysis, a noise barrier 15 appears to be a reasonable and cost feasible noise 16 abatement method for two locations within Segment 5: 17 in two areas within the Festival Orlando Resort 18 adjacent to the I-4 westbound lanes, west of CR 54. 19 Potentially contaminated sites in the vicinity of 20 the project corridor were identified and evaluated 21 to determine if impacts would occur as a result of 22 the proposed improvements. 38 potential 23 contamination sites have been identified. One is 24 ranked as high risk, thirteen as medium risk, and 24 25 as low risk of potential contamination. An Air</p>	<p style="text-align: right;">16</p> <p>1 Property Acquisition Policies Act of 1970, commonly 2 known as the Uniform Act. If you are required to 3 make any type of move as a result of a Department of 4 Transportation project, you can expect to be treated 5 in a fair and helpful manner and in compliance with 6 the Uniform Relocation Assistance Act. If a move is 7 required, you will be contacted by an appraiser who 8 will inspect your property. We encourage you to be 9 present during the inspection and provide 10 information about the value of your property. You 11 may also be eligible for relocation advisory 12 services and payment benefits. If you are being 13 moved and you are unsatisfied with the Department's 14 determination of your eligibility for payment or the 15 amount of that payment, you may appeal that 16 determination. You will be promptly furnished 17 necessary forms and notified of the procedures to be 18 followed in making that appeal. A special word of 19 caution - if you move before you receive 20 notification of the relocation benefits that you 21 might be entitled to, your benefits may be 22 jeopardized. The relocation specialists who are 23 supervising this program are here tonight. They 24 will be happy to answer your questions and will also 25 furnish you with copies of relocation assistance</p>
<p style="text-align: right;">15</p> <p>1 Quality Analysis was performed on the project. The 2 analysis was conducted using the established FDOT 3 Air Quality Screening Model. Air quality impacts 4 are not expected to occur as a result of this 5 project. Right-of-way acquisition is anticipated 6 for the recommended alternative for roadway and 7 drainage improvements. Approximately eleven acres 8 of additional right-of-way is anticipated for 9 roadway improvements and approximately 21 acres of 10 additional right-of-way is anticipated for off-site 11 ponds. In addition, there is a potential for five 12 business/commercial relocations; no residential 13 relocations are anticipated within Segment 5. These 14 anticipated relocations are displayed on the aerials 15 available at tonight's hearing. All right-of-way 16 acquisition will be conducted in accordance with the 17 Federal Uniform Relocation Assistance and Real 18 Property Acquisition Act of 1970 and FDOT Real 19 Estate Acquisition Process. Right-of-way 20 requirements for the project are on display here 21 tonight. One of the unavoidable consequences on a 22 project such as this is the necessary relocation of 23 families or businesses. All right-of-way 24 acquisition will be conducted in accordance with the 25 federal Uniform Relocation Assistance and Real</p>	<p style="text-align: right;">17</p> <p>1 brochures. The estimated total cost for the 2 recommended alternative will be approximately 387 3 million dollars. This includes 290 million dollars 4 for construction and utility relocations, 48 million 5 dollars for right-of-way acquisition for roadway and 6 pond improvements, and 46 million dollars for final 7 design and construction engineering and inspection. 8 Over the next several months, FDOT will continue to 9 finalize the analysis and will seek to approve the 10 documents and improvements presented here at 11 tonight's public hearing. Following approval, FDOT 12 will continue with the design phase. Currently, 13 there is no funding available for the right-of-way 14 or construction phases. The study is anticipated to 15 be completed in May 2017. Design is fully funded 16 for this segment of I-4. Draft Documents for this 17 public hearing were available for review starting 18 April 18, 2016 and will remain on display until May 19 19, 2017 at the Cagan Crossing Community Library, 20 and also on the study website www.i4express.com. 21 These documents are also on display here tonight. 22 No final decisions will be made until after we 23 review your comments. You may provide your comments 24 in several ways. You may provide an oral statement 25 to the court reporter present here tonight. Complete</p>



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18

1 a speaker card and make an oral statement at the
 2 microphone during the public comment period.
 3 Complete a comment form and drop it in the comment
 4 box provided here at the hearing or mail your
 5 comments to the FDOT project manager at the address
 6 shown on the comment form. You may email your
 7 comments to the FDOT at the address shown on the
 8 comment form or visit the project website and submit
 9 comments electronically. There is a dedicated page
 10 on the website for comments. All written material
 11 received at this public hearing and at the Florida
 12 Department of Transportation office, postmarked no
 13 later than ten days following the date of this
 14 public hearing, or through the project website will
 15 become a part of the public record for this hearing.
 16 This concludes our presentation. Thank you.
 17 **MS. JARRELL:** At this time, the presentation is
 18 over. I do want to make one correction. It said
 19 that the documents were available on April 18, 2016
 20 and, obviously, that was 2017, not '16. If you've
 21 got a public comment or you want to make a statement
 22 for the record, there's -- as the presentation said,
 23 you've got a couple options. We've got a speaker
 24 card that I'll ask you to fill out, and you can come
 25 up and present your comment or you can talk directly

19

1 with the court reporter here tonight. So does
 2 anybody want a speaker card?
 3 **MARION RYAN:** I filled one out.
 4 **MS. JARRELL:** You did? Awesome. Would you
 5 like to go ahead and come up and speak now?
 6 **MARION RYAN:** Oh, sure. Why not?
 7 **MS. JARRELL:** Thank you.
 8 **MARION RYAN:** Hi, I'm Marion Ryan. I'm the
 9 Conservation Chair for the Ancient Islands Group for
 10 the Sierra Club. This is outside of our district,
 11 but I've been in consultation with the Sierra Club
 12 group that is in this area, which is the Central
 13 Florida group, and I just wanted to say that we
 14 wholeheartedly endorse the Reedy Creek wildlife
 15 underpass that's going to be a part of this project
 16 because, I mean, we've been fighting for 20 to 25
 17 years to get wildlife underpasses under that hard
 18 barrier known as I4, so we really appreciate work
 19 along those lines. And I was just wondering: Do
 20 you have any idea what mitigation banks you're going
 21 to be using for sandscapes? Thank you.
 22 **MS. JARRELL:** Any more public comments? Seeing
 23 none, I'll close the hearing, but again, you're
 24 welcome to look around at the boards and we've got
 25 plenty of project team members. If you do have

20

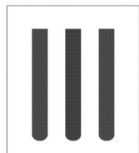
1 comments that you want to let the court reporter
 2 know, feel free to come up and talk to her or you
 3 can fill out a comment form here and leave it in the
 4 box with us. All right. Thank you.
 5 (PUBLIC HEARING CONCLUDED AT 6:30 P.M.)
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1 CERTIFICATE
 2
 3 STATE OF FLORIDA)
 4 COUNTY OF ORANGE)
 5
 6 I, VICTORIA GOMEZ, Court Reporter and Notary Public
 7 for the State of Florida at Large, do hereby certify
 8 that I was authorized to and did report the foregoing
 9 proceeding, and that said transcript is a true record of
 10 the testimony given by the witness.
 11
 12 I FURTHER CERTIFY that I am not of counsel for,
 13 related to, or employed by any of the parties or
 14 attorneys involved herein, nor am I financially
 15 interested in said action.
 16
 17 Submitted on: May 19, 2017.
 18
 19
 20
 21
 22
 23 _____
 24 VICTORIA GOMEZ
 25 Court Reporter, Notary Public



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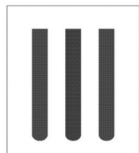
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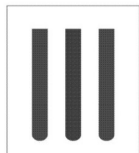
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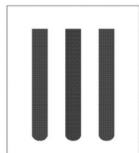
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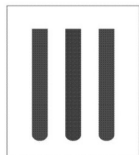
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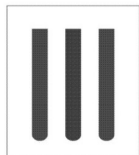
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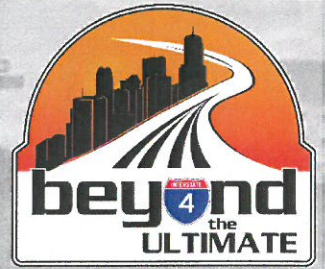
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B-22



**"BEYOND I-4 ULTIMATE" PD&E
REEVALUATION STUDY
FROM WEST OF US 27 TO WEST OF CR 532**

FPID: 201210-1-22-01





Please provide your comments below. If more space is needed, please use an additional sheet of paper. You may place your comments in the "Comment Box" provided at the meeting, or send to the address below. Comments are also acceptable through the project website. Written comments, exhibits and/or statements must be postmarked or e-mailed no later than **May 19, 2017**.

*Express Lane on I-4 from US 27 east on needed to keep traffic flow
towards Orlando*

PLEASE RETURN COMMENTS TO:

**Beata Styś-Pałasz, P.E., Project Manager
Florida Department of Transportation – District Five**

 Florida Department of Transportation
719 S. Woodland Boulevard
DeLand, Florida 32720

 (386) 943-5418
Toll Free: 1-800-780-7102

 Beata.Stys-Palasz@dot.state.fl.us

 www.i4express.com

Name Irving A Spokony

Address 1155 S Nekoma Ave
Lake Alfred, FL 33850

Phone Number 863-207-4675

Email IrvingSpokony@gmail.com



SPEAKER REQUEST CARD
To be completed prior to making a recorded statement



PUBLIC HEARING – MAY 9, 2017
I-4 BEYOND THE ULTIMATE PD&E STUDY
WEST OF US 27 TO WEST OF CR 532

FPID NO.: 201210-2-22-01



PLEASE PRINT

Name: MARIAN RYAN

Address: P.O. BOX 773

WINTER HAVEN FL 33882

City State Zip

Affiliation: SIERRA CLUB

Note: In order to allow all persons the opportunity to speak, please limit your comments to 3 minutes. Public Participation is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. All verbal or written comments provided become part of the study's project file. This information may be provided to other individuals who make a public records request.

Deepika Fields

From: Colleen Jarrell
Sent: Tuesday, May 23, 2017 6:51 AM
To: Deepika Fields
Subject: FW: FPID:201210-1-22-01
Attachments: WildlifeCrossingGuidelines_05.03.6_FINAL TO SHARE.pdf

Consider this to be the official response to comments.

Thanks,
Colleen

Colleen T. Jarrell, P.E.

Department Manager
Transportation Planning/Traffic

cjarrell@hntb.com

Tel (407) 547-3028 Cell (407) 474-8991

From: Stys-Palasz, Beata [mailto:Beata.Stys-Palasz@dot.state.fl.us]
Sent: Sunday, May 21, 2017 5:14 PM
To: Marjorie Holt <marjorieholt@earthlink.net>; 'Marian Ryan' <marianryan@gmail.com>; Johnstone, Heather <Heather.Johnstone@dot.state.fl.us>
Cc: 'Bruce Kistler' <brucewkistler@gmail.com>; Colleen Jarrell <cjarrell@HNTB.com>; Drauer, Mike <mike.drauer@stantec.com>; Steve Noppinger - AECOM (steve.noppinger@aecom.com) <steve.noppinger@aecom.com>; Owen, Catherine <Catherine.Owen@dot.state.fl.us>
Subject: RE: FPID:201210-1-22-01

Thank you for your email. I would like to concur that we are adding commitment to provide animal friendly slop protection at the Reedy Creek Bridge. I am also attaching the recommendation for animal crossings we need to meet for your future use. Please note that this will be address in design project number: 431456-1.

Thank you.



Beata Stys-Palasz, P.E.

Senior Project Manager

State of Florida Department of Transportation
719 South Woodland Boulevard
Mail Station 542
Deland, Florida 32720

Phone (386) 943-5418

Fax: (386) 736-5153

Email: beata.stys-palasz@dot.state.fl.us

Your source for information on roadway projects in Central Florida: CFLRoads.com , iAexpress.com , i4ultimate.com

From: Marjorie Holt [mailto:marjorieholt@earthlink.net]
Sent: Wednesday, May 17, 2017 11:39 AM
To: 'Marian Ryan'; Stys-Palasz, Beata

Cc: 'Bruce Kistler'

Subject: RE: FPID:201210-1-22-01

Marian, great letter. Thank you.

From: Marian Ryan [<mailto:marianryan@gmail.com>]

Sent: Tuesday, May 16, 2017 8:38 PM

To: Beata.Stys-Palasz@dot.state.fl.us

Cc: 'Marjorie Holt' <marjorieholt@earthlink.net>; Bruce Kistler <brucewkistler@gmail.com>

Subject: FPID:201210-1-22-01

Dear Ms. Stys-Palasz,

I am writing on behalf of the Sierra Club Florida Ancient Islands Group to comment on the "Beyond I-4 Ultimate" PD&E Re-evaluation Study from West of US 27 to West of CR 532.

Our group has long advocated for the installation of wildlife underpasses across that impenetrable barrier known as Interstate 4. The impacts that I-4 has had on wildlife cannot be overstated. The highway severed peninsular Florida and its native ecosystems of sand ridges and rivers which occur longitudinally.

The significance of habitat fragmentation on wildlife, especially wide-ranging species, was recognized in the 1980's by scientists and by the Florida Fish and Wildlife Conservation Commission. Since that time, FDOT has worked to include wildlife crossings, where appropriate, in new roads or when the ability to retrofit existing roads presents itself as it has in a number of areas across Florida.

FPID:201210-1-22-01 presents the opportunity to greatly enhance the Reedy Creek bridge to facilitate wildlife movement across Interstate 4. Our understanding from the public hearing held in Davenport on May 9th, is that FDOT will be adding a commitment to install animal friendly sloping, shelves and/or other needed enhancements to facilitate wildlife movement in the Reedy Creek area. We wholeheartedly endorse this commitment and look forward to seeing project plans and the finished product!

Your efforts to remedy habitat fragmentation via installation of new and retrofitted wildlife crossings on Florida roadways is greatly appreciated.

Regards,



Marian Ryan, Conservation Chair

Sierra Club Florida

Ancient Islands Group

863-207-5206

marianryan@gmail.com

Website: www.ancientislands.org

Facebook: www.facebook.com/AncientIslandSierraClub/

**Florida Department of Transportation
Wildlife Crossing Guidelines
2016**

A wildlife crossing is a road-related structure that provides wildlife an option to cross under roadways. These crossings have the potential to reduce motor vehicle collisions with wildlife, consequently reducing the likelihood of injuries and mortalities to humans and wildlife as well as reducing the potential for damage to motor vehicles. These guidelines have been developed for use by the Florida Department of Transportation (FDOT) to evaluate the **appropriateness** of including wildlife crossings (upland or wetland) and associated features (herein referred to collectively as “wildlife crossing features”) for proposed projects on the State Highway System (SHS) or as possible stand-alone retrofit projects on the SHS when warranted. These guidelines have been developed in coordination with the United States Fish and Wildlife Service (USFWS) and Florida Fish and Wildlife Conservation Commission (FWC), which agencies have regulatory authority and are the recognized experts for wildlife species nationwide and within the State of Florida, respectively.

For these guidelines the term “wildlife crossing feature(s)” may include, but is not limited to new or modified structures, such as bridges, bridges with shelves, specially designed culverts, enlarged culverts or drainage culverts and/or exclusionary devices such as fencing, walls or other barriers, or some combination of these features. Further, as used in these guidelines, the term “wildlife” refers to listed, protected or otherwise regulated species that the USFWS and/or FWC have jurisdiction over.

In cases where a FDOT District has an off-SHS project, the District will coordinate with the State Environmental Management Office regarding possible inclusion of any wildlife crossing features. Wildlife crossing feature locations should be identified as early as possible in the project planning and development processes, and prior to project design. These guidelines also establish **criteria** that must be considered during design of wildlife crossing features.

In developing projects, the FDOT District Offices, in coordination with USFWS and/or FWC, will determine if a wildlife crossing feature is appropriate. As part of the planning and project development processes, the FDOT also considers input from other stakeholders, including local governments, non-governmental organizations and the public. Although opportunities for input exist throughout the process, the FDOT has two prescribed phases where early coordination and input are solicited during project planning and development. These two phases are:

- 1) Efficient Transportation Decision Making (ETDM) is the process where projects are screened and wildlife agency and other stakeholder input is solicited to provide early scoping information regarding potential effects and resources of concern in the project area. During the screening event(s), wildlife agencies and stakeholders have the opportunity to propose wildlife crossing features as well as opportunities for wildlife impact minimization and, if necessary, potential mitigation strategies.
- 2) Project Development and Environment (PD&E) is the process by which the FDOT develops the project alternative(s) and analyzes project impacts. It is important for wildlife agencies and stakeholders to be involved during this phase since this is when preliminary

design, constructability issues and financial and wildlife agency/stakeholder considerations are balanced to develop the preferred alternative and conceptual design. It is also the phase where commitments are initially considered.

In evaluating a project for a potential wildlife crossing feature, the following guidelines should be observed:

For a proposed FDOT project on the SHS: Wildlife crossing features typically will only be considered when the project is a new alignment, capacity improvement, roadway reconstruction or bridge replacement. However, if a FDOT District finds that a wildlife crossing feature may be beneficial on a different type of project than listed above, or if the project is not on the SHS, the FDOT District can review the project/site specific circumstances with the State Environmental Management Office to consider inclusion of such feature in the project.

For a requested retrofit project on the SHS, FDOT Districts should require entities requesting a wildlife crossing feature to provide scientifically based documentation or studies to substantiate their requests. Funding for acceptable, substantiated requests could result from financial partnerships with requesting entities. In support of these efforts, requesting entities can work with other stakeholders to facilitate funding, to meet coordination requirements with property owners /other stakeholders, and identify right of way and maintenance requirements. Retrofit projects may require the requesting entity to agree to maintain and/or fund the maintenance of the wildlife crossing feature. It is important to advise the requesting entity that appropriate agreements (i.e., Local Funds Agreements/Maintenance Agreements) would need to be executed consistent with FDOT requirements and related Work Program approvals would be needed in order to design and construct a retrofit project.

The following list should be used as a guide in evaluating whether a wildlife crossing feature is appropriate. The list below is not exhaustive and should not be considered a checklist, but simply a guide for coordination, consultation and decision making:

- Has a FDOT District received a documented, science-based need for a wildlife crossing feature that is supported by USFWS and/or FWC and regulatory agencies, as applicable?
- Are there wildlife species documented within the project area and is the project area used by these species?
- Are there documented road kills of wildlife species with high conservation value (as determined by the USFWS/FWC) or within a known area where traversing the roadway creates a potential hazard to motorists and/or wildlife species?
- Is the project within the documented range of the Florida panther and/or Florida black bear?
- Does the project cross or fragment designated critical habitat or a documented landscape level habitat linkage, ecological greenway, or Florida Forever project area where there is science-based evidence that the location is used by wildlife species? This may be especially important when a median barrier is proposed that could create entrapment of the species within the roadway.

- Are public conservation lands or lands under a perpetual conservation or agricultural easement needed to achieve successful use of a wildlife crossing feature? If so, are public conservation lands or lands under a perpetual conservation or agricultural easement present in sufficient amounts on both sides of the road (adjoining and contiguous), where a wildlife crossing feature may be located, including the ability to provide adequate fencing (where appropriate) to guide wildlife species for a sufficient distance to achieve successful use of the feature? Generally, these conditions would apply to large, new or retrofit wildlife crossing features that target wildlife with a large home range as compared to smaller wildlife crossing features where a shelf is being added to an existing structure. These conditions should be discussed and agreed upon with USFWS or FWC during the planning phase. If one of these conditions is required to achieve successful use and does not exist during the planning phase, but is reasonably certain to exist no later than the **beginning** of the 60% project design phase, the wildlife crossing feature can be considered up to that point in project development. Should the conditions agreed upon in the planning phase by the FDOT and agencies not exist at the beginning of the 60% design phase, the FDOT will not move forward with the inclusion of the wildlife crossing feature in the project. In cases where a project achieves 60% design but is not funded for right of way acquisition or construction and is put on “hold”, the FDOT may consider moving forward with the inclusion of the wildlife crossing feature if the conditions have been satisfied at the time the project design is resumed if the schedule and budget allow.
- Are the future land use and development patterns compatible with wildlife species needs or ecosystem viability?
- Does the project involve locations of critical conservation need as determined by USFWS or FWC?

Science-based data collected or provided to address the above items should serve as a guide to determine whether a wildlife crossing feature is appropriate.

In addition, this data should support the selection of an appropriate wildlife crossing feature design that would promote wildlife species movement or ecosystem viability. The District should consult with USFWS or FWC when alternative measures and technology are considered.

In cases where science-based data does not exist to adequately support a proposed crossing, it may be necessary to perform studies or additional research to obtain the data. Generally, the party requesting the wildlife crossing feature is expected to perform the study or conduct the research needed. The USFWS and/or FWC should have an active role in the review and development of relevant studies and in the evaluation of the results, including meeting with the appropriate FDOT District with regard to the final recommendations. This effort needs to be done in a timely manner so as not to slow the progress of the project development process.

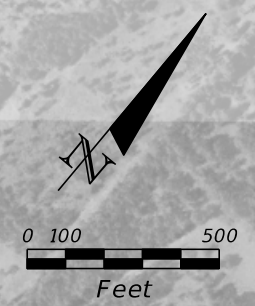
The specific design (type, size, and location) of the wildlife crossing feature should be determined by the FDOT District through coordination with the USFWS and/or FWC and other regulatory agencies as appropriate. The FDOT Districts may also consider input from other interested stakeholders.

A wildlife crossing feature design must take the following points into consideration:

- The wildlife crossing feature cannot compromise any state or federal highway safety criteria.
- The wildlife crossing feature cannot compromise FDOT design requirements. Should roadway or bridge design variations or exceptions be needed for the proposed wildlife crossing feature, proper and timely review by the FDOT Districts and Central Office (as applicable) would be required. If not approved, the wildlife crossing feature would require redesign and further coordination with the agencies to determine whether it is feasible to provide the feature.
- The wildlife crossing feature cannot restrict legal access to adjacent property owners without written approval from said property owners.
- The wildlife crossing feature cannot negatively impact adjacent properties (e.g., provide access for people and/or wildlife species to private properties where none presently exist).
- The wildlife crossing feature cannot negatively impact existing drainage patterns or flood off-site properties.
- The placement of wildlife crossing features is usually associated with wildlife mortality hotspots; however, the ultimate placement may be based on the most cost efficient and biologically effective design that meets the needs identified by USFWS and/or FWC and regulatory agencies as appropriate.
- Upland and wetland habitat impacts should be avoided and minimized to the extent practicable by proper design.
- The lighting at wildlife crossing features should be minimized to the greatest extent practical.
- The wildlife crossing feature must be accessible for proper maintenance to ensure the feature remains viable.
- When various types of wildlife crossing features could be applied to a location, a cost-benefit analysis of the feature should be considered. The costs of each wildlife crossing feature should be compared to the anticipated benefit of reduced risks of collisions for both motorists and wildlife species. Costs for the wildlife crossing feature(s) should include design, permitting, right-of-way, construction and long term maintenance (i.e., fencing, gates and maintaining wildlife access to the wildlife crossing feature when applicable). Costs for collision reductions should be coordinated with the Traffic Operations Office and be based on the anticipated number of reduced collisions using the data supporting the need for the wildlife crossing feature.
- Should post-construction monitoring be requested by a regulatory agency, USFWS and/or FWC should have an active role in the review and development of the monitoring plan. Any post-construction monitoring should be for data collection and information only and will only be conducted for a limited period of time.

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Appendix C - **Conceptual Signing Plan**



MATCHLINE SHEET 1

MATCHLINE STATION 432+00

BEGIN SEGMENT 5
 STA. 368+50.00



OPTIONAL 2 MILE

EXPRESS LANES ENTRANCE 2 MILE

EXPRESS LANES ENTRANCE 1 MILE

EXPRESS LANES ONLY
 TO Osceola Pkwy/ 530
 \$25 PLUS TOLL FOR TOLL VIOLATION

EXPRESS LANES ENTRANCE 1/2 MILE

EXPRESS LANES ONLY
 TO Osceola Pkwy/ 530
 \$25 PLUS TOLL FOR TOLL VIOLATION

EXPRESS LANES ENTRANCE

Haines City
 Exit 55
 1 MILE

Toll Info
 Exit 55

FULL COLOR FULL MATRIX INCIDENT MGMT DMS

EXPRESS LANES TRUCKS ONLY BUSES ALLOWED

FDOT FULL COLOR FULL MATRIX INCIDENT MGMT DMS

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

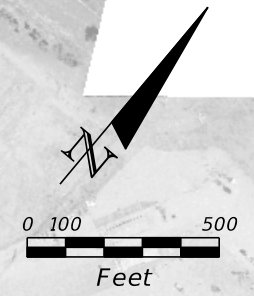
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	432100-1-22-01

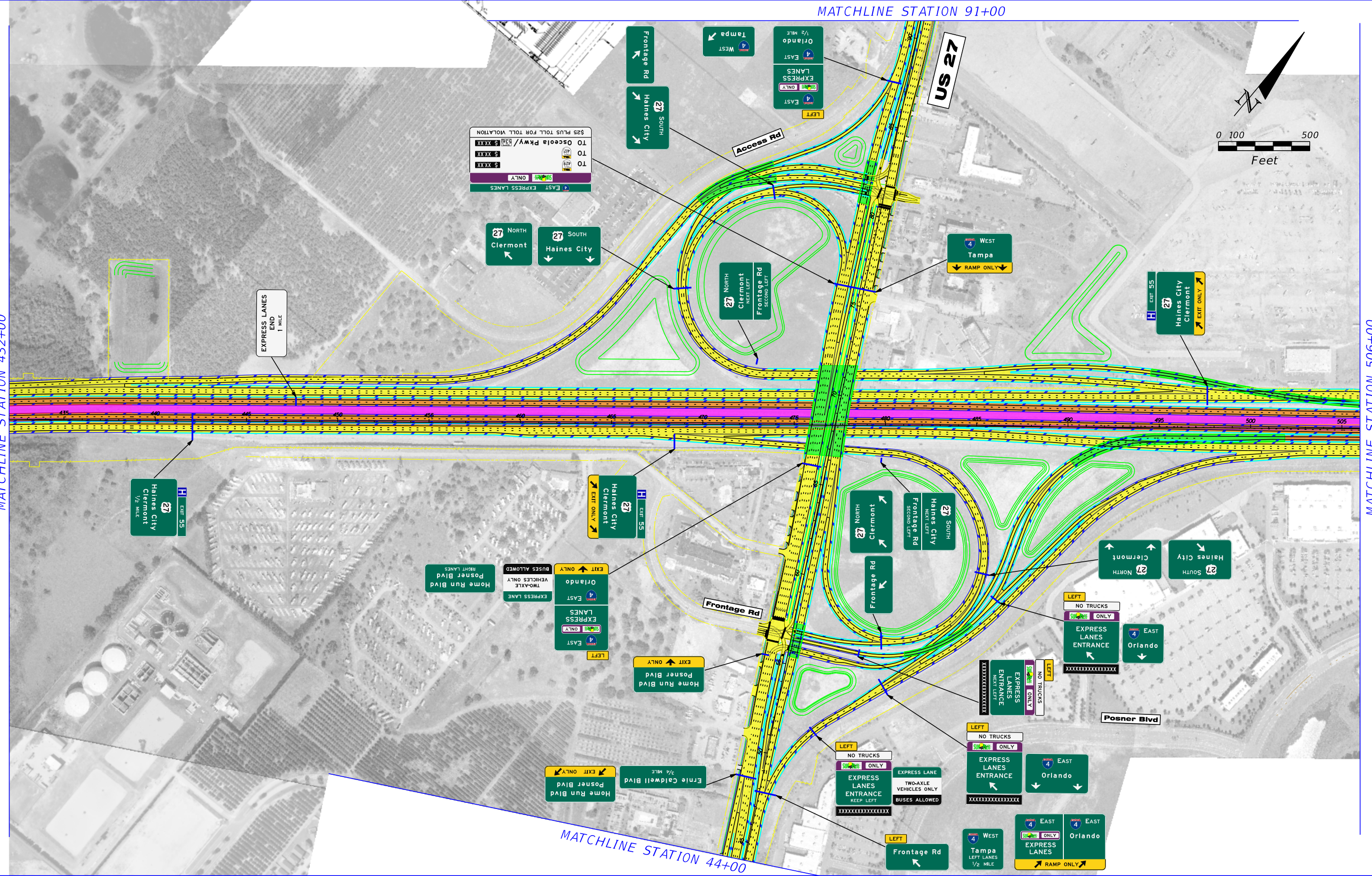
I-4 PD&E STUDY
 CONCEPTUAL SIGNING PLAN
 SEGMENT 5

SHEET NO.



MATCHLINE STATION 432+00

MATCHLINE STATION 506+00



EXPRESS LANES
END
1 MILE

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
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FL. REGISTRATION NO. 58593

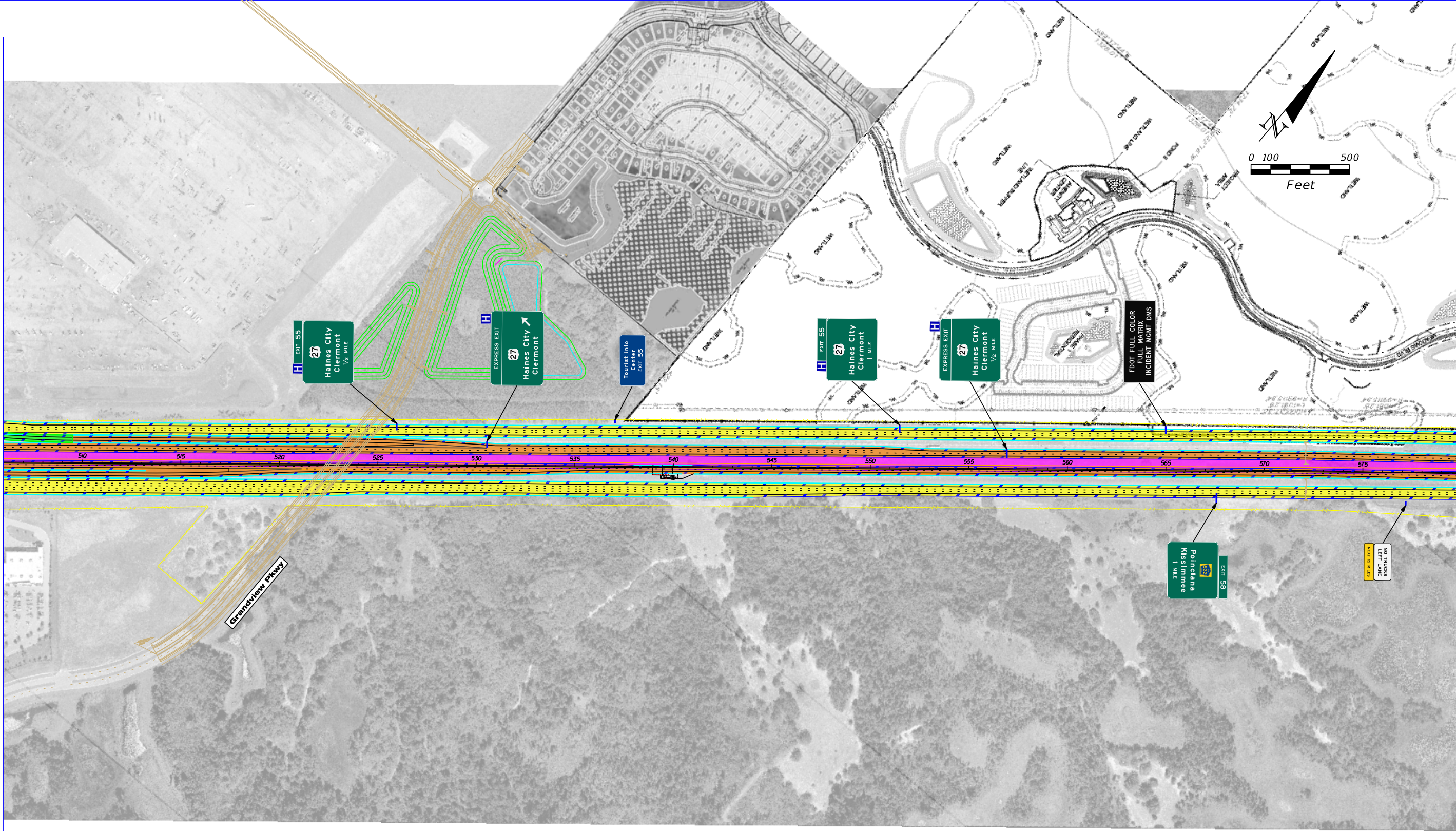
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	432100-1-22-01

**I-4 PD&E STUDY
CONCEPTUAL SIGNING PLAN
SEGMENT 5**

SHEET NO.

MATCHLINE STATION 506+00

MATCHLINE STATION 580+00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

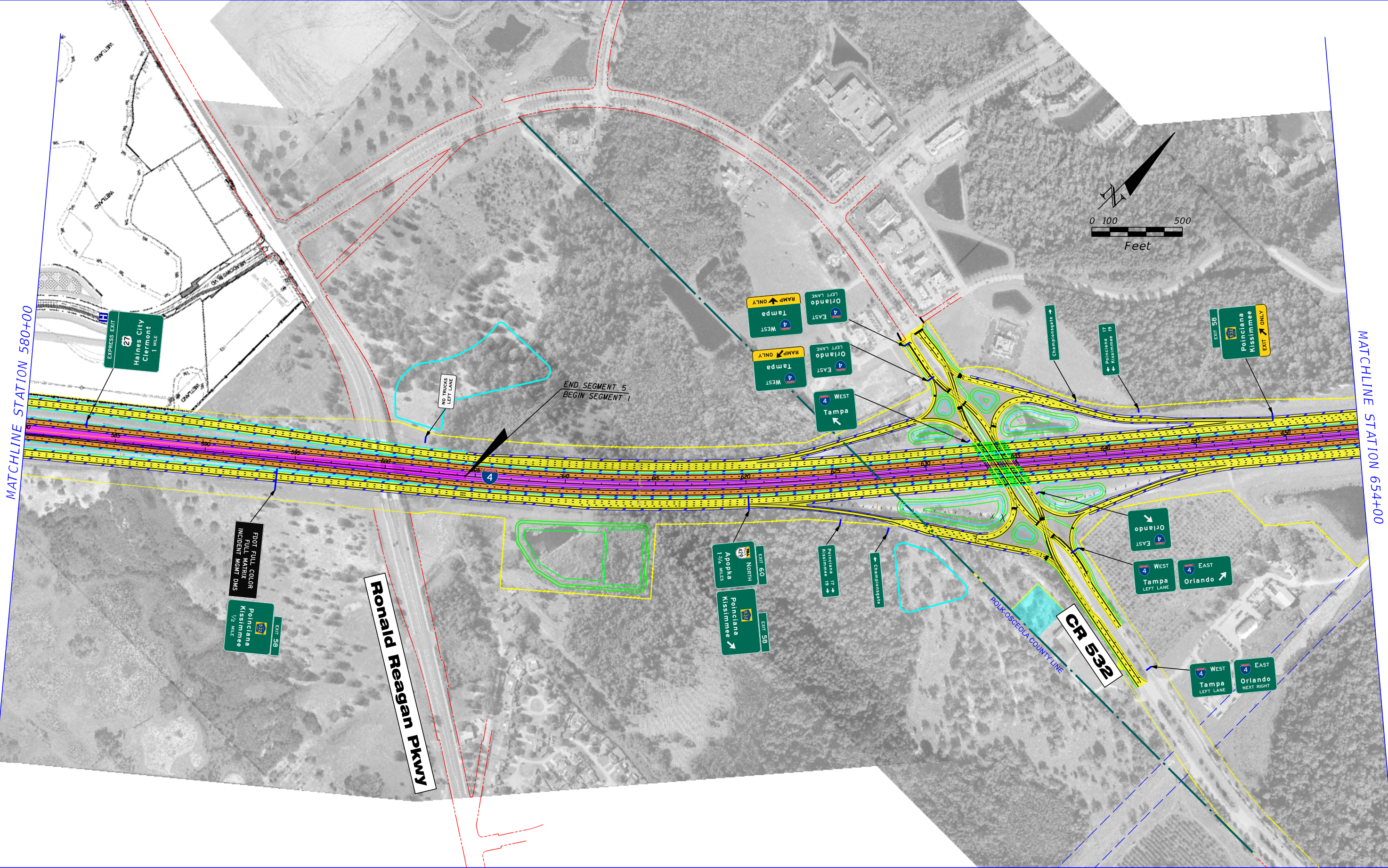
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FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	432100-1-22-01

**I-4 PD&E STUDY
CONCEPTUAL SIGNING PLAN
SEGMENT 5**

SHEET NO.



MATCHLINE STATION 580+00

MATCHLINE STATION 654+00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

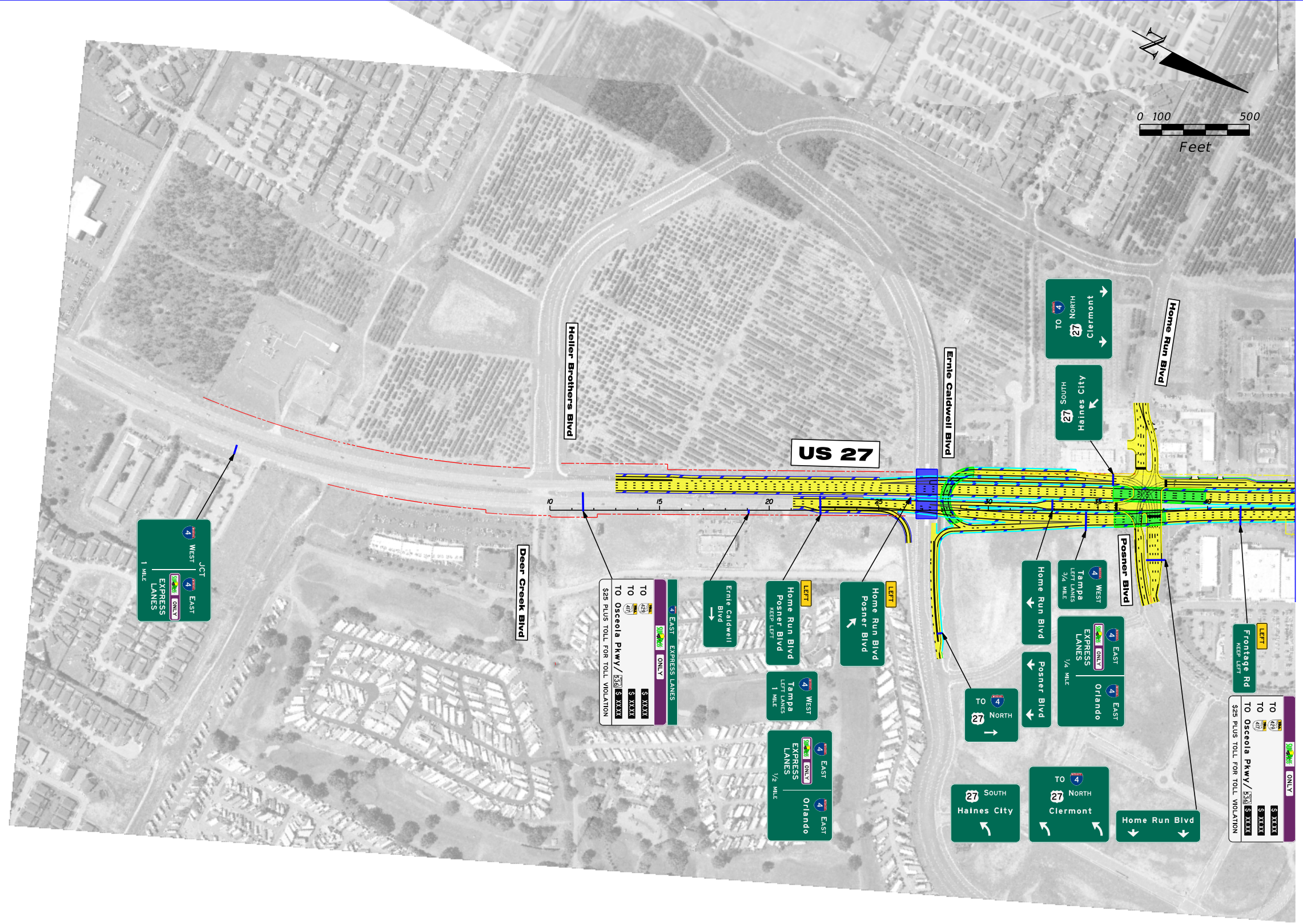
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
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LAKE MARY, FL 32746
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ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	432100-1-22-01

**I-4 PD&E STUDY
CONCEPTUAL SIGNING PLAN
SEGMENT 5**

SHEET NO.



MATCHLINE STATION 44+00

	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

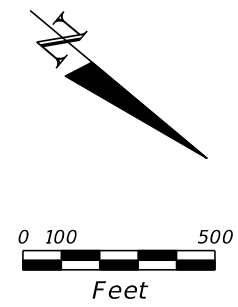
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ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	432100-1-22-01

**I-4 PD&E STUDY
CONCEPTUAL SIGNING PLAN
SEGMENT 5**

SHEET NO.



MATCHLINE STATION 91+00



	EXISTING LA R/W		GENERAL USE LANES
	PROPOSED LA R/W		EXPRESS LANES
	PROPOSED FDOT R/W		EXISTING BRIDGE
	EXISTING R/W		PROPOSED BRIDGE
	PARCEL LINES		RAIL CORRIDOR
	BARRIER WALL		FUTURE EXISTING CONDITION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: ROBERT M. DENNEY, P.E.
 FL. REGISTRATION NO. 58593

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	432100-1-22-01

**I-4 PD&E STUDY
 CONCEPTUAL SIGNING PLAN
 SEGMENT 5**

SHEET NO.

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Appendix D - Long Range Estimates (LRE)

Date: 12/16/2016 10:09:16 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 201210-3-32-01

Letting Date: 01/2099

Description: SR400 (I-4) W. OF US 27 (SR 25) E. OF CR 532

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 9 **Lump Sum Project:** N **Design/Build:** Y **Project Length:** 4.022 MI

Project Manager: CES-NEM-NEM

Version 5 Project Grand Total **\$335,586,496.91**

Description: Markups per PM for the I-4 BtU LRE concrete and asphalt areas and no landscaping from Version 4 - 12/16/16

Sequence: 1 NDR - New Construction, Divided, Rural

Net Length: 4.470 MI
23,600 LF

Description: 6 GUL lanes SR 400 (I-4) from W. of US 27 (SR 25) to E. of CR 532. STA 368+50 to 604+50

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	215.00 / 215.00
Incidental Clearing and Grubbing Area	27.00
Alignment Number	1
Distance	4.470
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	2.00 % / 2.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	232.98 AC	\$21,025.36	\$4,898,488.37
110-1-1	CLEARING & GRUBBING	27.00 AC	\$21,025.36	\$567,684.72
120-6	EMBANKMENT	161,067.81 CY	\$16.22	\$2,612,519.88
Earthwork Component Total				\$8,078,692.97

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	36.00 / 36.00
Structural Spread Rate	770
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	314,666.88	SY	\$5.32	\$1,674,027.80
285-712	OPTIONAL BASE,BASE GROUP 12	192,261.46	SY	\$23.62	\$4,541,215.69
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	72,688.05	TN	\$94.24	\$6,850,121.83
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	7,552.01	TN	\$136.80	\$1,033,114.97

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
102-71-14	BARRIER WALL,TEMP,F&I,TYPE K	47,204.00	LF	\$28.56	\$1,348,146.24
102-71-24	BARRIER WALL,TEMP,REL,TYPE K	23,602.00	LF	\$10.48	\$247,348.96

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	3,017.00	EA	\$3.85	\$11,615.45
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	17.88	NM	\$999.15	\$17,864.80
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	17.88	GM	\$388.29	\$6,942.63
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	17.88	NM	\$4,122.81	\$73,715.84
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	17.88	GM	\$1,402.87	\$25,083.32

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	786.57	TN	\$226.40	\$178,079.45
521-1	MEDIAN CONC BARRIER WALL	95,300.00	LF	\$143.81	\$13,705,093.00
536-1-3	GUARDRAIL- ROADWAY, DOUBLE FACE	23,597.00	LF	\$25.69	\$606,206.93
544-75-1	CRASH CUSHION	2.00	EA	\$14,460.71	\$28,921.42
550-10-110	FENCING, TYPE A, 0.0-5.0', STANDARD	47,200.00	LF	\$6.68	\$315,296.00

Roadway Component Total

\$30,662,794.33

SHOULDER COMPONENT**User Input Data**

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	12.00 / 12.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	0
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	64,664.04	SY	\$18.94	\$1,224,736.92
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	8,653.34	TN	\$91.55	\$792,213.28
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	138.45	TN	\$136.80	\$18,939.96
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	8.94	PM	\$8,995.17	\$80,416.82

Erosion Control**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	61,360.04	LF	\$1.07	\$65,655.24
104-11	FLOATING TURBIDITY BARRIER	1,117.42	LF	\$9.18	\$10,257.92
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	1,117.42	LF	\$3.57	\$3,989.19
104-15	SOIL TRACKING PREVENTION DEVICE	5.00	EA	\$2,555.77	\$12,778.85
104-18	INLET PROTECTION SYSTEM	27.00	EA	\$96.68	\$2,610.36
107-1	LITTER REMOVAL	108.35	AC	\$43.18	\$4,678.55
107-2	MOWING	108.35	AC	\$66.68	\$7,224.78

Shoulder Component Total**\$2,223,501.87****MEDIAN COMPONENT****User Input Data**

Description	Value
Total Median Width	24.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	12.00 / 12.00
Paved Median Shoulder Width L/R	12.00 / 12.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	0
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	64,664.04	SY	\$18.94	\$1,224,736.92
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	8,653.34	TN	\$91.55	\$792,213.28
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	138.45	TN	\$136.80	\$18,939.96

521-1-1	MEDIAN BARRIER WALL CONC, PRECAST	29,500.00 LF	\$90.84	\$2,679,780.00
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	9.00 PM	\$8,995.17	\$80,956.53
Median Component Total				\$4,796,626.69

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	80.45 CY	\$1,285.00	\$103,378.25
425-1-551	INLETS, DT BOT, TYPE E, <10'	27.00 EA	\$4,472.64	\$120,761.28
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	3,576.00 LF	\$77.07	\$275,602.32
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,544.00 LF	\$90.77	\$140,148.88
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	1,328.00 LF	\$114.94	\$152,640.32
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	179.00 EA	\$1,853.87	\$331,842.73
524-1-1	CONCRETE DITCH PAVT, NR, 3"	8,939.40 SY	\$57.57	\$514,641.26
570-1-1	PERFORMANCE TURF	3,146.67 SY	\$0.78	\$2,454.40

Retention Basin 1

Description	Value
Size	2.5 AC
Multiplier	5
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	12.50 AC	\$21,025.36	\$262,817.00
120-1	REGULAR EXCAVATION	121,000.00 CY	\$12.08	\$1,461,680.00
400-2-2	CONC CLASS II, ENDWALLS	90.00 CY	\$1,285.00	\$115,650.00
425-1-361	INLETS, CURB, TYPE P-6, <10'	5.00 EA	\$5,211.59	\$26,057.95
425-2-71	MANHOLES, J-7, <10'	5.00 EA	\$5,670.24	\$28,351.20
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	280.00 LF	\$137.19	\$38,413.20
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	1,000.00 LF	\$272.01	\$272,010.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	6,675.00 LF	\$10.13	\$67,617.75
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	5.00 EA	\$2,079.33	\$10,396.65
570-1-1	PERFORMANCE TURF	60,500.00 SY	\$0.78	\$47,190.00

Retention Basin 2

Description	Value
Size	2.5 AC
Multiplier	5
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
----------	-------------	---------------	------------	-----------------

110-1-1	CLEARING & GRUBBING	12.50 AC	\$21,025.36	\$262,817.00
120-1	REGULAR EXCAVATION	121,000.00 CY	\$12.08	\$1,461,680.00
400-2-2	CONC CLASS II, ENDWALLS	90.00 CY	\$1,285.00	\$115,650.00
425-1-361	INLETS, CURB, TYPE P-6, <10'	5.00 EA	\$5,211.59	\$26,057.95
425-2-71	MANHOLES, J-7, <10'	5.00 EA	\$5,670.24	\$28,351.20
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	280.00 LF	\$137.19	\$38,413.20
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	1,000.00 LF	\$272.01	\$272,010.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	6,675.00 LF	\$10.13	\$67,617.75
550-60-234	FENCE GATE, TYP B, SLIDE/CANT, 18.1-20' OPEN	5.00 EA	\$2,079.33	\$10,396.65
570-1-1	PERFORMANCE TURF	60,500.00 SY	\$0.78	\$47,190.00
Drainage Component Total				\$6,301,836.94

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	9.00 AS	\$245.55	\$2,209.95
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	108.00 AS	\$1,012.21	\$109,318.68
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	9.00 AS	\$3,982.66	\$35,843.94
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	27.00 AS	\$5,118.39	\$138,196.53
Signing Component Total				\$285,569.10

INTELLIGENT TRAFFIC SYSTEM (ITS) COMPONENT

Description of Work

EX-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
999-A	ITS Comment: ITS for Seg 5	2.80 MI	\$750,000.00	\$2,100,000.00
Intelligent Traffic System (ITS) Component Total				\$2,100,000.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value			
Multiplier (Number of Poles)	20			
Pay Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	4,000.00 LF	\$6.71	\$26,840.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	20.00 EA	\$568.75	\$11,375.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	12,000.00 LF	\$2.24	\$26,880.00
715-4-122	LIGHT POLE COMP, F&I, WS130, 45'	20.00 EA	\$5,365.98	\$107,319.60

715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	20.00 EA	\$578.32	\$11,566.40
	Subcomponent Total			\$183,981.00

High Mast Lighting Subcomponent

Description			Value	
Multiplier (Number of Poles)			20	
Pay Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	10,000.00 LF	\$6.71	\$67,100.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	40.00 EA	\$568.75	\$22,750.00
715-1-12	LIGHTING CONDUCTORS, F&I, INSUL,NO.8-6	10,000.00 LF	\$1.71	\$17,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	30,000.00 LF	\$2.24	\$67,200.00
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00 EA	\$11,282.45	\$11,282.45
715-19-113	HIGH MAST LIGHT POLE,F&I,WS-150,120'	20.00 EA	\$63,817.65	\$1,276,353.00
715-500-2	POLE CABLE DISTRIBUTION SYS, HIGH MAST	20.00 EA	\$550.38	\$11,007.60
	Subcomponent Total			\$1,472,793.05
Lighting Component Total				\$1,656,774.05

BRIDGES COMPONENT

Bridge B-8

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	594.00
Width (LF)	207.00
Type	High Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	122,958.00
Default Cost per SF	\$140.00
Factored Cost per SF	\$175.00
Final Cost per SF	\$176.93
Basic Bridge Cost	\$21,517,650.00
Description	US 27 BRIDGE OVER I-4

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	122,958.00 SF	\$34.02	\$4,183,031.16
400-2-10	CONC CLASS II, APPROACH SLABS	460.00 CY	\$357.85	\$164,611.00
415-1-9	REINF STEEL- APPROACH SLABS	80,500.00 LB	\$0.91	\$73,255.00
Bridge B-8 Total				\$25,938,547.16
Bridges Component Total				\$25,938,547.16

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-8-1	CONC TRAF RAIL BAR, JCT SLAB,32"F SHAPE Comment: WB and EB I-4	29,494.00 LF	\$254.06	\$7,493,245.64

Retaining Wall 2

Description	Value
Length	250.00
Begin height	24.00
End Height	1.00
Multiplier	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	6,250.00 SF	\$31.83	\$198,937.50

Retaining Wall 5

Description	Value
Length	29,494.00
Begin height	3.00
End Height	3.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	88,482.00 SF	\$31.83	\$2,816,382.06

Retaining Walls Component Total \$10,508,565.20

Sequence 1 Total \$92,552,908.31

Sequence: 2 NDR - New Construction, Divided, Rural **Net Length:** 2.907 MI
15,350 LF
4 Express lanes SR400 (I-4) from W of US27 (SR25) to E of CR 532. 2-Lanes EB STA 416+00 to
Description: 502+00 and STA 535+00 to 604+50; 2-Lanes WB STA 409+00 to 509+00 and STA 553+00 to
604+50 (Use STA averages)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	100.00 / 100.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	2.907
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	3.00 % / 3.00 %

Roadway Cross Slope L/R

2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	134,081.69 CY	\$16.22	\$2,174,805.01
Earthwork Component Total				\$2,174,805.01

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	770
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	163,733.50 SY	\$5.32	\$871,062.22
285-712	OPTIONAL BASE,BASE GROUP 12	84,118.09 SY	\$23.62	\$1,986,869.29
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	31,518.70 TN	\$94.24	\$2,970,322.29
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	3,274.67 TN	\$136.80	\$447,974.86

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	1,177.00 EA	\$3.85	\$4,531.45
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	23.26 NM	\$999.15	\$23,240.23
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	11.63 GM	\$388.29	\$4,515.81

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
544-75-1	CRASH CUSHION	2.00 EA	\$14,460.71	\$28,921.42

Roadway Component Total

\$6,337,437.57

SHOULDER COMPONENT**User Input Data**

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	12.00 / 12.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	42,059.04 SY	\$18.94	\$796,598.22
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	5,628.34 TN	\$91.55	\$515,274.53
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	90.05 TN	\$136.80	\$12,318.84
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	5.81 PM	\$8,995.17	\$52,261.94

Erosion Control**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	39,910.04 LF	\$1.07	\$42,703.74
104-11	FLOATING TURBIDITY BARRIER	726.80 LF	\$9.18	\$6,672.02
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	726.80 LF	\$3.57	\$2,594.68
104-15	SOIL TRACKING PREVENTION DEVICE	3.00 EA	\$2,555.77	\$7,667.31
104-18	INLET PROTECTION SYSTEM	18.00 EA	\$96.68	\$1,740.24
107-1	LITTER REMOVAL	70.47 AC	\$43.18	\$3,042.89
107-2	MOWING	70.47 AC	\$66.68	\$4,698.94

Shoulder Component Total

\$1,445,573.35

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	60.00
Performance Turf Width	40.00
Total Median Shoulder Width L/R	12.00 / 12.00
Paved Median Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-708	OPTIONAL BASE,BASE GROUP 08	35,236.81 SY	\$22.85	\$805,161.11
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	4,690.28 TN	\$91.55	\$429,395.13

337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	90.05 TN	\$136.80	\$12,318.84
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	6.00 PM	\$8,995.17	\$53,971.02
570-1-1	PERFORMANCE TURF	68,222.29 SY	\$0.78	\$53,213.39
Median Component Total				\$1,354,059.49

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	52.33 CY	\$1,285.00	\$67,244.05
425-1-551	INLETS, DT BOT, TYPE E, <10'	18.00 EA	\$4,472.64	\$80,507.52
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	2,328.00 LF	\$77.07	\$179,418.96
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,008.00 LF	\$90.77	\$91,496.16
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	864.00 LF	\$114.94	\$99,308.16
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	117.00 EA	\$1,853.87	\$216,902.79
524-1-1	CONCRETE DITCH PAVT, NR, 3"	5,814.40 SY	\$57.57	\$334,735.01
570-1-1	PERFORMANCE TURF	2,046.67 SY	\$0.78	\$1,596.40
Drainage Component Total				\$1,071,209.05

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	6.00 AS	\$245.55	\$1,473.30
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	70.00 AS	\$1,012.21	\$70,854.70
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	6.00 AS	\$3,982.66	\$23,895.96
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	18.00 AS	\$5,118.39	\$92,131.02
Signing Component Total				\$188,354.98

ARCHITECTURAL COMPONENT

EX-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
999-B	TOLL GANTRY Comment: Two 40' Span Gantrys	2.00 EA	\$820,000.00	\$1,640,000.00
Architectural Component Total				\$1,640,000.00

Sequence 2 Total **\$14,211,439.45**

Sequence: 3 NDR - New Construction, Divided, Rural

Net Length: 0.729 MI
3,850 LF

Description: 6 Express lanes SR 400 (I-4) from W. of US27 (SR25) to E. of CR 532. 3-Lanes EB STA 502+00 to 535+00; 3-Lanes WB STA 509+00 to 553+00 (Use STA averages)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	100.00 / 100.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.729
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	3.00 % / 3.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	35,979.29 CY	\$16.22	\$583,584.08
Earthwork Component Total				\$583,584.08

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	36.00 / 36.00
Structural Spread Rate	770
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	51,335.68 SY	\$5.32	\$273,105.82
285-712	OPTIONAL BASE,BASE GROUP 12	31,366.10 SY	\$23.62	\$740,867.28
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	11,858.54 TN	\$94.24	\$1,117,548.81
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	1,232.06 TN	\$136.80	\$168,545.81

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	492.00	EA	\$3.85	\$1,894.20
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	5.83	NM	\$999.15	\$5,825.04
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	5.83	GM	\$388.29	\$2,263.73

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total \$2,310,050.69

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	12.00 / 12.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	0
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	10,549.48	SY	\$18.94	\$199,807.15
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	564.69	TN	\$91.55	\$51,697.37
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	22.59	TN	\$136.80	\$3,090.31
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	1.46	PM	\$8,995.17	\$13,132.95

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	10,010.46	LF	\$1.07	\$10,711.19
104-11	FLOATING TURBIDITY BARRIER	182.30	LF	\$9.18	\$1,673.51
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	182.30	LF	\$3.57	\$650.81
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$2,555.77	\$2,555.77
104-18	INLET PROTECTION SYSTEM	5.00	EA	\$96.68	\$483.40
107-1	LITTER REMOVAL	17.68	AC	\$43.18	\$763.42
107-2	MOWING	17.68	AC	\$66.68	\$1,178.90

Shoulder Component Total \$285,744.78

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	60.00
Performance Turf Width	40.00
Total Median Shoulder Width L/R	12.00 / 12.00
Paved Median Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	0
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-708	OPTIONAL BASE,BASE GROUP 08	8,838.29	SY	\$22.85	\$201,954.93
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	1,176.44	TN	\$91.55	\$107,703.08
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	22.59	TN	\$136.80	\$3,090.31
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	1.00	PM	\$8,995.17	\$8,995.17
570-1-1	PERFORMANCE TURF	17,111.89	SY	\$0.78	\$13,347.27
Median Component Total					\$335,090.76

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	13.13	CY	\$1,285.00	\$16,872.05
425-1-551	INLETS, DT BOT, TYPE E, <10'	5.00	EA	\$4,472.64	\$22,363.20
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	584.00	LF	\$77.07	\$45,008.88
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	256.00	LF	\$90.77	\$23,237.12
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	216.00	LF	\$114.94	\$24,827.04
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	30.00	EA	\$1,853.87	\$55,616.10
524-1-1	CONCRETE DITCH PAVT, NR, 3"	1,458.40	SY	\$57.57	\$83,960.09
570-1-1	PERFORMANCE TURF	513.36	SY	\$0.78	\$400.42
Drainage Component Total					\$272,284.90

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	\$245.55	\$491.10
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	18.00	AS	\$1,012.21	\$18,219.78
	MULTI- POST SIGN, F&I GM, 31-50				

700-2-14	SF	2.00 AS	\$3,982.66	\$7,965.32
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	5.00 AS	\$5,118.39	\$25,591.95
Signing Component Total				\$52,268.15

Sequence 3 Total \$3,839,023.36

Sequence: 4 NDR - New Construction, Divided, Rural **Net Length:** 7.000 MI
Description: SR 400 (I-4) Gul Aux Lanes 36,960 LF

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	100.00 / 100.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	8.000
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	2.00 % / 2.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	287,232.00 CY	\$16.22	\$4,658,903.04
Earthwork Component Total				\$4,658,903.04

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	6.00 / 6.00
Structural Spread Rate	770
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	197,120.00 SY	\$5.32	\$1,048,678.40
285-712	OPTIONAL BASE,BASE GROUP 12	54,700.80 SY	\$23.62	\$1,292,032.90
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	18,972.80 TN	\$94.24	\$1,787,996.67
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	1,971.20 TN	\$136.80	\$269,660.16

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	28.00 NM	\$999.15	\$27,976.20
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	28.00 NM	\$4,122.81	\$115,438.68
Roadway Component Total				\$4,541,783.01

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	0
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	43,777.07 SY	\$13.14	\$575,230.70
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	5,646.67 TN	\$101.48	\$573,024.07
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	216.83 TN	\$136.80	\$29,662.34
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	14.00 PM	\$8,995.17	\$125,932.38
570-1-1	PERFORMANCE TURF	21,929.60 SY	\$0.78	\$17,105.09

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	96,096.00 LF	\$1.07	\$102,822.72
104-11	FLOATING TURBIDITY BARRIER	1,750.00 LF	\$9.18	\$16,065.00
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	1,750.00 LF	\$3.57	\$6,247.50
104-15	SOIL TRACKING PREVENTION DEVICE	7.00 EA	\$2,555.77	\$17,890.39
104-18	INLET PROTECTION SYSTEM	42.00 EA	\$96.68	\$4,060.56
107-1	LITTER REMOVAL	169.68 AC	\$43.18	\$7,326.78
107-2	MOWING	169.68 AC	\$66.68	\$11,314.26

Shoulder Component Total

\$1,486,681.79

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	126.00 CY	\$1,285.00	\$161,910.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	42.00 EA	\$4,472.64	\$187,850.88
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	5,600.00 LF	\$77.07	\$431,592.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	2,408.00 LF	\$90.77	\$218,574.16
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	2,072.00 LF	\$114.94	\$238,155.68
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	280.00 EA	\$1,853.87	\$519,083.60
524-1-1	CONCRETE DITCH PAVT, NR, 3"	14,000.00 SY	\$57.57	\$805,980.00
570-1-1	PERFORMANCE TURF	4,928.00 SY	\$0.78	\$3,843.84
Drainage Component Total				\$2,566,990.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	14.00 AS	\$245.55	\$3,437.70
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	168.00 AS	\$1,012.21	\$170,051.28
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	14.00 AS	\$3,982.66	\$55,757.24
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	42.00 AS	\$5,118.39	\$214,972.38
Signing Component Total				\$444,218.60

Sequence 4 Total

\$13,698,576.60

Sequence: 5 NDR - New Construction, Divided, Rural

Net Length: 0.312 MI
1,645 LF

Description: EB I-4 Express Lane transition STA 399+55.46 to 416+00

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.500
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00

Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	6,308.62 CY	\$16.22	\$102,325.82
Earthwork Component Total				\$102,325.82

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	0.00 / 24.00
Structural Spread Rate	770
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,043.43 SY	\$5.32	\$42,791.05
285-712	OPTIONAL BASE,BASE GROUP 12	4,507.98 SY	\$23.62	\$106,478.49
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	1,689.12 TN	\$94.24	\$159,182.67
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	175.49 TN	\$136.80	\$24,007.03

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	42.00 EA	\$3.85	\$161.70
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.49 NM	\$999.15	\$2,487.88
Roadway Component Total				\$335,108.82

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	0.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00

Paved Outside Shoulder Width L/R	0.00 / 10.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	1,888.38 SY	\$18.94	\$35,765.92
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	251.36 TN	\$91.55	\$23,012.01
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	4.83 TN	\$136.80	\$660.74
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	0.62 PM	\$8,995.17	\$5,577.01
Shoulder Component Total				\$65,015.68

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	10.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	0.00 / 10.00
Paved Median Shoulder Width L/R	0.00 / 10.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	1,888.38 SY	\$18.94	\$35,765.92
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	251.36 TN	\$91.55	\$23,012.01
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	4.83 TN	\$136.80	\$660.74
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	1.00 PM	\$8,995.17	\$8,995.17
570-1-2	PERFORMANCE TURF, SOD	976.18 SY	\$2.86	\$2,791.87
Median Component Total				\$71,225.71

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
446-1-1	EDGEDRAIN DRAINCRETE, STANDARD	1,645.00 LF	\$29.79	\$49,004.55
446-71-1	EDGEDRAIN OUTLET PIPE, 4"	33.00 LF	\$34.30	\$1,131.90
Drainage Component Total				\$50,136.45

Sequence 5 Total \$623,812.48

Sequence: 6 NDR - New Construction, Divided, Rural

Net Length: 0.192 MI
1,016 LF

Description: WB I-4 Express lane Transition STA 398+84.4 to 409+00

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.500
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	5,984.00 CY	\$16.22	\$97,060.48
Earthwork Component Total				\$97,060.48

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	770
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,079.36 SY	\$5.32	\$27,022.20
285-712	OPTIONAL BASE,BASE GROUP 12	1,767.62 SY	\$23.62	\$41,751.18
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	651.85 TN	\$94.24	\$61,430.34
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	67.72 TN	\$136.80	\$9,264.10

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4

Skip Stripe No. of Paint Applications 2
 Skip Stripe No. of Stripes 0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.54 NM	\$999.15	\$1,538.69
Roadway Component Total				\$141,006.51

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	275
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	1,203.24 SY	\$18.94	\$22,789.37
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	155.20 TN	\$91.55	\$14,208.56
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	5.96 TN	\$136.80	\$815.33
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	0.19 PM	\$8,995.17	\$1,709.08

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,641.27 LF	\$1.07	\$2,826.16
104-11	FLOATING TURBIDITY BARRIER	48.10 LF	\$9.18	\$441.56
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	48.10 LF	\$3.57	\$171.72
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$2,555.77	\$2,555.77
104-18	INLET PROTECTION SYSTEM	2.00 EA	\$96.68	\$193.36
107-1	LITTER REMOVAL	4.66 AC	\$43.18	\$201.22
107-2	MOWING	4.66 AC	\$66.68	\$310.73
Shoulder Component Total				\$46,222.86

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	10.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	10.00 / 0.00

Paved Median Shoulder Width L/R	10.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-708	OPTIONAL BASE,BASE GROUP 08	1,166.00 SY	\$22.85	\$26,643.10
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	62.08 TN	\$91.55	\$5,683.42
Median Component Total				\$32,326.52

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.46 CY	\$1,285.00	\$4,446.10
425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00 EA	\$4,472.64	\$8,945.28
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	160.00 LF	\$77.07	\$12,331.20
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	72.00 LF	\$90.77	\$6,535.44
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	56.00 LF	\$114.94	\$6,436.64
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	8.00 EA	\$1,853.87	\$14,830.96
524-1-1	CONCRETE DITCH PAVT, NR, 3"	384.80 SY	\$57.57	\$22,152.94
570-1-1	PERFORMANCE TURF	135.45 SY	\$0.78	\$105.65
Drainage Component Total				\$75,784.21

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$245.55	\$245.55
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00 AS	\$1,012.21	\$5,061.05
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$3,982.66	\$3,982.66
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00 AS	\$5,118.39	\$10,236.78
Signing Component Total				\$19,526.04

Sequence 6 Total **\$411,926.62**

Sequence: 7 NDR - New Construction, Divided, Rural
Description: Single Lane Ramp from EB I-4 to US 27

Net Length: 0.121 MI
640 LF

EARTHWORK COMPONENT**User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.121
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	1,418.31 CY	\$16.22	\$23,004.99
Earthwork Component Total				\$23,004.99

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	0.00 / 15.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,919.81 SY	\$5.32	\$10,213.39
285-712	OPTIONAL BASE,BASE GROUP 12	1,113.49 SY	\$23.62	\$26,300.63
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	175.98 TN	\$94.24	\$16,584.36
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	42.66 TN	\$136.80	\$5,835.89

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
	PAINTED PAVT			

710-11-111	MARK,STD,WHITE,SOLID,6"	0.48 NM	\$999.15	\$479.59
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.48 NM	\$4,122.81	\$1,978.95
Roadway Component Total				\$61,392.81

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	0.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 2.00
Paved Outside Shoulder Width L/R	0.00 / 4.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	307.88 SY	\$18.94	\$5,831.25
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	31.29 TN	\$91.55	\$2,864.60
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	1.88 TN	\$136.80	\$257.18
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	0.12 PM	\$8,995.17	\$1,079.42
570-1-2	PERFORMANCE TURF, SOD	142.21 SY	\$2.86	\$406.72

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,663.83 LF	\$1.07	\$1,780.30
104-11	FLOATING TURBIDITY BARRIER	30.30 LF	\$9.18	\$278.15
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	30.30 LF	\$3.57	\$108.17
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$2,555.77	\$2,555.77
104-18	INLET PROTECTION SYSTEM	1.00 EA	\$96.68	\$96.68
107-1	LITTER REMOVAL	2.94 AC	\$43.18	\$126.95
107-2	MOWING	2.94 AC	\$66.68	\$196.04

Shoulder Component Total **\$15,581.23**

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	6.00
Performance Turf Width	2.67
Total Median Shoulder Width L/R	0.00 / 6.00
Paved Median Shoulder Width L/R	0.00 / 6.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O

Rumble Strips No. of Sides

1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	450.09 SY	\$18.94	\$8,524.70
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	46.93 TN	\$91.55	\$4,296.44
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	1.88 TN	\$136.80	\$257.18
570-1-2	PERFORMANCE TURF, SOD	189.85 SY	\$2.86	\$542.97
Median Component Total				\$13,621.29

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	48.00 LF	\$77.07	\$3,699.36
570-1-1	PERFORMANCE TURF	85.32 SY	\$0.78	\$66.55
Drainage Component Total				\$3,765.91

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$245.55	\$245.55
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,012.21	\$1,012.21
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$3,982.66	\$3,982.66
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00 AS	\$5,118.39	\$5,118.39
Signing Component Total				\$10,358.81

Sequence 7 Total **\$127,725.04**

Sequence: 8 NDR - New Construction, Divided, Rural **Net Length:** 0.256 MI
1,350 LF
Description: Two Lane Ramps: US 27 to EB I-4 and WB I-4 to US 27.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.255
Top of Structural Course For Begin Section	105.00

Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	9,546.47 CY	\$16.22	\$154,843.74
Earthwork Component Total				\$154,843.74

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	0.00 / 24.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,600.47 SY	\$5.32	\$35,114.50
285-709	OPTIONAL BASE,BASE GROUP 09	3,699.26 SY	\$18.94	\$70,063.98
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	594.04 TN	\$94.24	\$55,982.33
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	144.01 TN	\$136.80	\$19,700.57

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	35.00 EA	\$3.85	\$134.75
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.02 NM	\$999.15	\$1,019.13
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	1.02 NM	\$4,122.81	\$4,205.27
Roadway Component Total				\$186,220.53

SHOULDER COMPONENT**User Input Data**

Description	Value
Total Outside Shoulder Width L/R	0.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 2.00
Paved Outside Shoulder Width L/R	0.00 / 10.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	1,549.61	SY	\$18.94	\$29,349.61
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	165.01	TN	\$91.55	\$15,106.67
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	3.96	TN	\$136.80	\$541.73
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	0.26	PM	\$8,995.17	\$2,338.74
570-1-2	PERFORMANCE TURF, SOD	300.02	SY	\$2.86	\$858.06

Erosion Control**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,510.25	LF	\$1.07	\$3,755.97
104-11	FLOATING TURBIDITY BARRIER	63.92	LF	\$9.18	\$586.79
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	63.92	LF	\$3.57	\$228.19
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$2,555.77	\$2,555.77
104-18	INLET PROTECTION SYSTEM	2.00	EA	\$96.68	\$193.36
107-1	LITTER REMOVAL	6.20	AC	\$43.18	\$267.72
107-2	MOWING	6.20	AC	\$66.68	\$413.42
Shoulder Component Total					\$56,196.03

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	8.00
Performance Turf Width	2.67
Total Median Shoulder Width L/R	0.00 / 8.00
Paved Median Shoulder Width L/R	0.00 / 4.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	649.55	SY	\$18.94	\$12,302.48
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	66.00	TN	\$91.55	\$6,042.30

337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	3.96 TN	\$136.80	\$541.73
570-1-2	PERFORMANCE TURF, SOD	400.53 SY	\$2.86	\$1,145.52
Median Component Total				\$20,032.03

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	136.00 LF	\$77.07	\$10,481.52
570-1-1	PERFORMANCE TURF	279.98 SY	\$0.78	\$218.38
Drainage Component Total				\$10,699.90

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$245.55	\$245.55
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,012.21	\$1,012.21
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$3,982.66	\$3,982.66
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	3.00 AS	\$5,118.39	\$15,355.17
Signing Component Total				\$20,595.59

Sequence 8 Total **\$448,587.82**

Sequence: 9 NDR - New Construction, Divided, Rural **Net Length:** 0.398 MI

Description: Two Lane Ramps and Bridges 2,100 LF

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	2.000
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	74,874.31 CY	\$16.22	\$1,214,461.31
Earthwork Component Total				\$1,214,461.31

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	0.00 / 24.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	10,265.96 SY	\$5.32	\$54,614.91
285-709	OPTIONAL BASE,BASE GROUP 09	5,753.61 SY	\$18.94	\$108,973.37
334-1-25	SUPERPAVE ASPH CONC, TRAF E, PG76-22,PMA	923.94 TN	\$94.24	\$87,072.11
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	223.98 TN	\$136.80	\$30,640.46

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	54.00 EA	\$3.85	\$207.90
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.59 NM	\$999.15	\$1,588.65
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	1.59 NM	\$4,122.81	\$6,555.27

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	30.00 TN	\$226.40	\$6,792.00
521-1	MEDIAN CONC BARRIER WALL	58,906.00 LF	\$143.81	\$8,471,271.86

536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	900.00 LF	\$18.62	\$16,758.00
544-75-1	CRASH CUSHION	16.00 EA	\$14,460.71	\$231,371.36
Roadway Component Total				\$9,015,845.89

SHOULDER COMPONENT**User Input Data**

Description	Value
Total Outside Shoulder Width L/R	0.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 2.00
Paved Outside Shoulder Width L/R	0.00 / 10.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	2,410.17	SY	\$18.94	\$45,648.62
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	256.65	TN	\$91.55	\$23,496.31
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	6.16	TN	\$136.80	\$842.69
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	0.40	PM	\$8,995.17	\$3,598.07
570-1-2	PERFORMANCE TURF, SOD	466.63	SY	\$2.86	\$1,334.56

Erosion Control**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	5,459.63	LF	\$1.07	\$5,841.80
104-11	FLOATING TURBIDITY BARRIER	99.42	LF	\$9.18	\$912.68
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	99.42	LF	\$3.57	\$354.93
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$2,555.77	\$2,555.77
104-18	INLET PROTECTION SYSTEM	3.00	EA	\$96.68	\$290.04
107-1	LITTER REMOVAL	9.64	AC	\$43.18	\$416.26
107-2	MOWING	9.64	AC	\$66.68	\$642.80

Shoulder Component Total**\$85,934.53****MEDIAN COMPONENT****User Input Data**

Description	Value
Total Median Width	8.00
Performance Turf Width	2.67
Total Median Shoulder Width L/R	0.00 / 8.00
Paved Median Shoulder Width L/R	0.00 / 4.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	O
Rumble Strips No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	1,010.26	SY	\$18.94	\$19,134.32
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	102.66	TN	\$91.55	\$9,398.52
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	6.16	TN	\$136.80	\$842.69
570-1-2	PERFORMANCE TURF, SOD	622.96	SY	\$2.86	\$1,781.67
Median Component Total					\$31,157.20

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	136.00	LF	\$90.77	\$12,344.72
570-1-1	PERFORMANCE TURF	279.98	SY	\$0.78	\$218.38
Drainage Component Total					\$12,563.10

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	\$245.55	\$245.55
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,012.21	\$1,012.21
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	\$3,982.66	\$3,982.66
700-2-15	MULTI- POST SIGN, F&I GM, 51- 100 SF	3.00	AS	\$5,118.39	\$15,355.17
Signing Component Total					\$20,595.59

BRIDGES COMPONENT

Bridge B-1

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	325.00
Width (LF)	42.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	48,400.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$156.04
Basic Bridge Cost	\$2,081,625.00
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
	REMOVAL OF EXISTING				

110-3	STRUCTURES/BRIDGES	48,400.00 SF	\$34.02	\$1,646,568.00
400-2-10	CONC CLASS II, APPROACH SLABS	93.33 CY	\$357.85	\$33,398.14
415-1-9	REINF STEEL- APPROACH SLABS	16,332.75 LB	\$0.91	\$14,862.80
Bridge B-1 Total				\$3,776,453.94

Bridge B-2

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	425.00
Width (LF)	65.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$155.20
Basic Bridge Cost	\$4,212,812.50
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	144.44	CY	\$357.85	\$51,687.85
415-1-9	REINF STEEL- APPROACH SLABS	25,277.00	LB	\$0.91	\$23,002.07
Bridge B-2 Total					\$4,287,502.42

Bridge B-3

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	240.00
Width (LF)	68.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$157.29
Basic Bridge Cost	\$2,488,800.00
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	151.11	CY	\$357.85	\$54,074.71
415-1-9	REINF STEEL- APPROACH SLABS	26,444.25	LB	\$0.91	\$24,064.27
Bridge B-3 Total					\$2,566,938.98

Bridge B-4

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	190.00
Width (LF)	56.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$158.55
Basic Bridge Cost	\$1,622,600.00
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	124.44	CY	\$357.85	\$44,530.85
415-1-9	REINF STEEL- APPROACH SLABS	21,777.00	LB	\$0.91	\$19,817.07
Bridge B-4 Total					\$1,686,947.92

Bridge B-5

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	410.00
Width (LF)	27.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$155.30
Basic Bridge Cost	\$1,688,175.00
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	60.00	CY	\$357.85	\$21,471.00
415-1-9	REINF STEEL- APPROACH SLABS	10,500.00	LB	\$0.91	\$9,555.00
Bridge B-5 Total					\$1,719,201.00

Bridge B-6

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	1,100.00
Width (LF)	52.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00

Factored Cost per SF \$152.50
Final Cost per SF \$153.54
Basic Bridge Cost \$8,723,000.00
 Description

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	115.56 CY	\$357.85	\$41,353.15
415-1-9	REINF STEEL- APPROACH SLABS	20,223.00 LB	\$0.91	\$18,402.93
Bridge B-6 Total				\$8,782,756.08

Bridge B-7

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	1,515.00
Width (LF)	35.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$153.26
Basic Bridge Cost	\$8,086,312.50

Description

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	77.78 CY	\$357.85	\$27,833.57
415-1-9	REINF STEEL- APPROACH SLABS	13,611.50 LB	\$0.91	\$12,386.46
Bridge B-7 Total				\$8,126,532.54

Bridge B-9

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	240.00
Width (LF)	56.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$157.29
Basic Bridge Cost	\$2,049,600.00

Description

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	124.44 CY	\$357.85	\$44,530.85

415-1-9 REINF STEEL- APPROACH SLABS 21,777.00 LB \$0.91 \$19,817.07

Bridge B-9 Total \$2,113,947.92

Bridge B-10

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	550.00
Width (LF)	56.00
Type	Medium Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	\$122.00
Factored Cost per SF	\$152.50
Final Cost per SF	\$154.59
Basic Bridge Cost	\$4,697,000.00
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	124.44	CY	\$357.85	\$44,530.85
415-1-9	REINF STEEL- APPROACH SLABS	21,777.00	LB	\$0.91	\$19,817.07

Bridge B-10 Total \$4,761,347.92

Bridges Component Total \$37,821,628.72

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	103,339.00
Begin height	4.00
End Height	4.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	413,356.00	SF	\$31.83	\$13,157,121.48

Retaining Walls Component Total \$13,157,121.48

Sequence 9 Total \$61,359,307.82

Sequence: 10 NDR - New Construction, Divided, Rural **Net Length:** 1.174 MI
6,200 LF

Description: US 27 Roadway - Concrete Pavement

Special Conditions: Base Group 9 is black base for concrete pavement

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	100.00 / 100.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.174
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	28.46	AC	\$21,025.36	\$598,381.75
120-6	EMBANKMENT	67,561.46	CY	\$16.22	\$1,095,846.88
Earthwork Component Total					\$1,694,228.63

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	53.00 / 53.00
Structural Spread Rate	0
Friction Course Spread Rate	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	97,818.69	SY	\$5.32	\$520,395.43
285-709	OPTIONAL BASE,BASE GROUP 09	73,928.88	SY	\$35.08	\$2,593,425.11
350-3-11	PLAIN CEMENT CONC PAVT, 11"	73,019.58	SY	\$81.15	\$5,925,538.92

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
102-71-14	BARRIER WALL,TEMP,F&I,TYPE K	12,400.00	LF	\$28.56	\$354,144.00
102-71-24	BARRIER WALL,TEMP,REL,TYPE K	6,200.00	LF	\$10.48	\$64,976.00
352-70	GRINDING CONCRETE PAVT	73,019.58	SY	\$4.88	\$356,335.55

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Concrete
Solid Stripe No. of Paint Applications	0
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	0
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	476.00 EA	\$3.85	\$1,832.60
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	4.70 NM	\$4,122.81	\$19,377.21
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	2.35 GM	\$1,402.87	\$3,296.74
Roadway Component Total				\$9,839,321.56

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE, BASE GROUP 09	7,343.29 SY	\$35.08	\$257,602.61
570-1-2	PERFORMANCE TURF, SOD	3,678.53 SY	\$2.86	\$10,520.60

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	16,119.42 LF	\$1.07	\$17,247.78
104-11	FLOATING TURBIDITY BARRIER	293.55 LF	\$9.18	\$2,694.79
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	293.55 LF	\$3.57	\$1,047.97
104-15	SOIL TRACKING PREVENTION DEVICE	2.00 EA	\$2,555.77	\$5,111.54
104-18	INLET PROTECTION SYSTEM	8.00 EA	\$96.68	\$773.44
107-1	LITTER REMOVAL	28.46 AC	\$43.18	\$1,228.90
107-2	MOWING	28.46 AC	\$66.68	\$1,897.71

Shoulder Component Total

\$298,125.34

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	40.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	8.00 / 8.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-2	PERFORMANCE TURF, SOD	3,678.53 SY	\$2.86	\$10,520.60
Median Component Total				\$10,520.60

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	21.14 CY	\$1,285.00	\$27,164.90
425-1-551	INLETS, DT BOT, TYPE E, <10'	8.00 EA	\$4,472.64	\$35,781.12
430-174-124	PIPE CULV, OPT MATL, ROUND, 24"SD	944.00 LF	\$77.07	\$72,754.08
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	408.00 LF	\$90.77	\$37,034.16
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	352.00 LF	\$114.94	\$40,458.88
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	47.00 EA	\$1,853.87	\$87,131.89
524-1-1	CONCRETE DITCH PAVT, NR, 3"	2,348.40 SY	\$57.57	\$135,197.39
570-1-1	PERFORMANCE TURF	826.64 SY	\$0.78	\$644.78
Drainage Component Total				\$436,167.20

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00 AS	\$245.55	\$736.65
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	29.00 AS	\$1,012.21	\$29,354.09
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	3.00 AS	\$3,982.66	\$11,947.98
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	8.00 AS	\$5,118.39	\$40,947.12
Signing Component Total				\$82,985.84

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	2
Description	

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,400.00 LF	\$6.71	\$9,394.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	600.00 LF	\$20.29	\$12,174.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00 PI	\$5,144.36	\$10,288.72
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	44.00 EA	\$568.75	\$25,025.00
639-1-112	ELECTRICAL POWER SRV, F&I, OH, M, PUR BY CON	2.00 AS	\$1,735.02	\$3,470.04

639-2-1	ELECTRICAL SERVICE WIRE, F&I	120.00 LF	\$4.70	\$564.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	2.00 EA	\$988.59	\$1,977.18
649-1-10	STEEL STRAIN POLE, F&I, PEDESTAL	2.00 EA	\$1,505.77	\$3,011.54
649-31-105	M/ARM,F&I, WS-150,SINGLE ARM,W/O LUM-78	8.00 EA	\$40,419.05	\$323,352.40
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	40.00 AS	\$940.37	\$37,614.80
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	16.00 AS	\$585.68	\$9,370.88
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	40.00 EA	\$176.18	\$7,047.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	40.00 AS	\$886.58	\$35,463.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00 EA	\$233.56	\$3,736.96
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	2.00 AS	\$25,727.76	\$51,455.52
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00 EA	\$202.65	\$1,621.20

Signalization 2

Description

Type
Multiplier
Description

Value

2 Lane Mast Arm
2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,600.00 LF	\$6.71	\$10,736.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	400.00 LF	\$20.29	\$8,116.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00 PI	\$5,144.36	\$10,288.72
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	24.00 EA	\$568.75	\$13,650.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	2.00 AS	\$1,735.02	\$3,470.04
639-2-1	ELECTRICAL SERVICE WIRE, F&I	120.00 LF	\$4.70	\$564.00
649-31-111	M/ARM,F&I, WS-150,DBL ARM,W/O LU 36-46	8.00 EA	\$34,882.72	\$279,061.76
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	16.00 AS	\$940.37	\$15,045.92
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	16.00 AS	\$585.68	\$9,370.88
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	16.00 EA	\$176.18	\$2,818.88
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	16.00 AS	\$886.58	\$14,185.28
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00 EA	\$233.56	\$3,736.96
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	2.00 AS	\$25,727.76	\$51,455.52
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00 EA	\$202.65	\$1,621.20
Signalizations Component Total				\$959,687.80

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description

Value

Multiplier (Number of Poles)				2	
Pay Items					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	400.00	LF	\$6.71	\$2,684.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	\$568.75	\$1,137.50
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,200.00	LF	\$2.24	\$2,688.00
715-4-122	LIGHT POLE COMP, F&I, WS130, 45'	2.00	EA	\$5,365.98	\$10,731.96
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	\$578.32	\$1,156.64
Subcomponent Total					\$18,398.10

X-Items					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-122	LIGHT POLE COMP, F&I, WS130, 45'	2.00	EA	\$5,365.98	\$10,731.96
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	\$578.32	\$1,156.64
Lighting Component Total					\$30,286.70

Sequence 10 Total \$13,351,323.67

Sequence: 11 NDR - New Construction, Divided, Rural **Net Length:** 0.777 MI
4,100 LF
Description: US 27 Roadway - Asphalt Pavement

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	100.00 / 100.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.776
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	18.81	AC	\$21,025.36	\$395,487.02
120-6	EMBANKMENT	38,468.91	CY	\$16.22	\$623,965.72
Earthwork Component Total					\$1,019,452.74

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	53.00 / 53.00
Structural Spread Rate	450
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	64,687.63	SY	\$5.32	\$344,138.19
285-709	OPTIONAL BASE,BASE GROUP 09	48,889.27	SY	\$18.94	\$925,962.77
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	10,864.79	TN	\$101.48	\$1,102,558.89
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	1,931.52	TN	\$136.80	\$264,231.94

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
102-71-14	BARRIER WALL,TEMP,F&I,TYPE K	8,200.00	LF	\$28.56	\$234,192.00
102-71-24	BARRIER WALL,TEMP,REL,TYPE K	4,100.00	LF	\$10.48	\$42,968.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	314.00	EA	\$3.85	\$1,208.90
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	3.11	NM	\$999.15	\$3,107.36
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.55	GM	\$388.29	\$601.85
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	3.11	NM	\$4,122.81	\$12,821.94
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	1.55	GM	\$1,402.87	\$2,174.45

Roadway Component Total \$2,933,966.29

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-709	OPTIONAL BASE,BASE GROUP 09	4,856.13	SY	\$18.94	\$91,975.10
570-1-2	PERFORMANCE TURF, SOD	2,432.62	SY	\$2.86	\$6,957.29

Erosion Control**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	10,659.79	LF	\$1.07	\$11,405.98
104-11	FLOATING TURBIDITY BARRIER	194.12	LF	\$9.18	\$1,782.02
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	194.12	LF	\$3.57	\$693.01
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$2,555.77	\$2,555.77
104-18	INLET PROTECTION SYSTEM	5.00	EA	\$96.68	\$483.40
107-1	LITTER REMOVAL	18.82	AC	\$43.18	\$812.65
107-2	MOWING	18.82	AC	\$66.68	\$1,254.92
Shoulder Component Total					\$117,920.14

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	40.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	8.00 / 8.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-2	PERFORMANCE TURF, SOD	2,432.62	SY	\$2.86	\$6,957.29
Median Component Total					\$6,957.29

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	13.98	CY	\$1,285.00	\$17,964.30
425-1-551	INLETS, DT BOT, TYPE E, <10'	5.00	EA	\$4,472.64	\$22,363.20
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	624.00	LF	\$77.07	\$48,091.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	272.00	LF	\$90.77	\$24,689.44
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	232.00	LF	\$114.94	\$26,666.08
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	32.00	EA	\$1,853.87	\$59,323.84
524-1-1	CONCRETE DITCH PAVT, NR, 3"	1,553.00	SY	\$57.57	\$89,406.21
570-1-1	PERFORMANCE TURF	546.66	SY	\$0.78	\$426.39
Drainage Component Total					\$288,931.14

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	\$245.55	\$491.10
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	19.00	AS	\$1,012.21	\$19,231.99
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	2.00	AS	\$3,982.66	\$7,965.32
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	5.00	AS	\$5,118.39	\$25,591.95
Signing Component Total					\$53,280.36

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	2
Description	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,400.00	LF	\$6.71	\$9,394.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	600.00	LF	\$20.29	\$12,174.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	\$5,144.36	\$10,288.72
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	44.00	EA	\$568.75	\$25,025.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	2.00	AS	\$1,735.02	\$3,470.04
639-2-1	ELECTRICAL SERVICE WIRE, F&I	120.00	LF	\$4.70	\$564.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	2.00	EA	\$988.59	\$1,977.18
649-1-10	STEEL STRAIN POLE, F&I, PEDESTAL	2.00	EA	\$1,505.77	\$3,011.54
649-31-105	M/ARM,F&I, WS-150,SINGLE ARM,W/O LUM-78	8.00	EA	\$40,419.05	\$323,352.40
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	40.00	AS	\$940.37	\$37,614.80
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	16.00	AS	\$585.68	\$9,370.88
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	40.00	EA	\$176.18	\$7,047.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	40.00	AS	\$886.58	\$35,463.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00	EA	\$233.56	\$3,736.96
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	2.00	AS	\$25,727.76	\$51,455.52
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	\$202.65	\$1,621.20

Signalization 2

Description	Value
Type	2 Lane Mast Arm
Multiplier	2

Description

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,600.00	LF	\$6.71	\$10,736.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	400.00	LF	\$20.29	\$8,116.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	\$5,144.36	\$10,288.72
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	24.00	EA	\$568.75	\$13,650.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	2.00	AS	\$1,735.02	\$3,470.04
639-2-1	ELECTRICAL SERVICE WIRE, F&I	120.00	LF	\$4.70	\$564.00
649-31-111	M/ARM,F&I, WS-150,DBL ARM,W/O LU 36-46	8.00	EA	\$34,882.72	\$279,061.76
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	16.00	AS	\$940.37	\$15,045.92
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	16.00	AS	\$585.68	\$9,370.88
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	16.00	EA	\$176.18	\$2,818.88
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	16.00	AS	\$886.58	\$14,185.28
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00	EA	\$233.56	\$3,736.96
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	2.00	AS	\$25,727.76	\$51,455.52
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	\$202.65	\$1,621.20
Signalizations Component Total					\$959,687.80

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value				
Multiplier (Number of Poles)	2				
Pay Items					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	400.00	LF	\$6.71	\$2,684.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	\$568.75	\$1,137.50
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,200.00	LF	\$2.24	\$2,688.00
715-4-122	LIGHT POLE COMP, F&I, WS130, 45'	2.00	EA	\$5,365.98	\$10,731.96
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	\$578.32	\$1,156.64
Subcomponent Total					\$18,398.10

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-122	LIGHT POLE COMP, F&I, WS130, 45'	2.00	EA	\$5,365.98	\$10,731.96
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	\$578.32	\$1,156.64
Lighting Component Total					\$30,286.70

Sequence 11 Total

\$5,410,482.46

Date: 12/16/2016 10:09:20 AM

FDOT Long Range Estimating System - Production R3: Project Details by Sequence Report

Project: 201210-3-32-01

Letting Date: 01/2099

Description: SR400 (I-4) W. OF US 27 (SR 25) E. OF CR 532

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 9 **Lump Sum Project:** N **Design/Build:** Y **Project Length:** 4.022 MI

Project Manager: CES-NEM-NEM

Version 5 Project Grand Total **\$335,586,496.91**

Description: Markups per PM for the I-4 BtU LRE concrete and asphalt areas and no landscaping from
Version 4 - 12/16/16

Project Sequences Subtotal **\$206,035,113.63**

102-1	Maintenance of Traffic	15.00 %	\$30,905,267.04
101-1	Mobilization	10.00 %	\$23,694,038.07

Project Sequences Total **\$260,634,418.74**

Project Unknowns 10.00 % \$26,063,441.87

Justification for high %: Design Build % includes 7% for Design and 10% for CEI

Design/Build 17.00 % \$48,738,636.30

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	\$150,000.00	\$150,000.00

Project Non-Bid Subtotal **\$150,000.00**

Version 5 Project Grand Total **\$335,586,496.91**

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Engineer's Estimate

SEGMENT 5 MAINLINE WITH FULL SHOULDER DIRECTIONAL

(Mainline I-4) STA 368+50 TO 604+47.49

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	244	\$ 1,882,836	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	0	\$ -	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	441,551	\$ 1,280,499	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	164,392	\$ 2,250,528	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	277,159	\$ 3,885,774	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	18,083	\$ 1,578,296	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	45,731	\$ 3,988,226	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	30,488	\$ 2,732,902	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	11,433	\$ 1,339,927	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	208,029	\$ 11,441,595	Express lanes only
521 1	Barrier Wall	LF	\$ 113	95,300	\$ 10,768,844	
536 1 1	Guardrail - Roadway	LF	\$ 16	23,597	\$ 374,248.42	
	Thermoplastic, White, Striping	NM	\$ 3,178	76	\$ 241,173	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	2	\$ 36,655	At gores
	Fencing	LF	\$ 10.00	470,779	\$ 4,707,787	LA R/W fence
	Embankment	CY	\$ 5.94	649,580	\$ 3,858,508	Assume 3' over entire roadway area
	MSE wall	SF	\$ 34.00	141,582	\$ 4,813,788	Roadway raised 3' x length of section x 2 sides
	Bridges	SF	\$ 160.00	0	\$ -	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 55,181,585	
	Compensable Utility Relocation	LS			\$ 2,759,079	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 5,518,159	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 5,518,159	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 2,759,079	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 2,759,079	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 11,036,317	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 2,759,079	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 551,816	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 88,842,352	
	Contingency	LS			\$ 13,326,353	Assume 15% of Construction Subtotal Cost
	Grand Total				\$ 102,168,705	

US 27 ALT. 1 - TEE
(US 27) STA 38+10.73 TO 97+67

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	197	\$ 1,522,019	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	48,400	\$ 1,140,304	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	95,747	\$ 277,667	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	10,024	\$ 137,233	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	85,723	\$ 1,201,833	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	1,103	\$ 96,242	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	14,144	\$ 1,233,521	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	9,430	\$ 845,261	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	3,536	\$ 414,427	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	4,709	\$ 258,989	Express lanes only
520 1 10	Concrete Curb and Gutter, Type F	LF	\$ 19.65	12,932		
522 2 40	Concrete Sidewalk and Driveways, 6" thick	SY	\$ 46.00	2,675	\$ 123,060	
521 1	Barrier Wall	LF	\$ 113	1,258	\$ 142,116	
536 1 1	Guardrail - Roadway	LF	\$ 16	1,000	\$ 15,860.00	
	Thermoplastic, White, Striping	NM	\$ 3,178	14	\$ 45,796	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	2	\$ 36,655	At gores
	Fencing	LF	\$ 10.00	0	\$ -	LA R/W fence
	Embankment	CY	\$ 5.94	28,233	\$ 167,706	
	MSE wall	SF	\$ 34.00	26,400	\$ 897,600	
	Bridges	SF	\$ 160.00	83,848	\$ 13,415,680	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 21,971,970	
	Compensable Utility Relocation	LS			\$ 1,098,598	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 2,197,197	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 2,197,197	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 1,098,598	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 1,098,598	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 4,394,394	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 1,098,598	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 219,720	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 35,374,871	
	Contingency	LS			\$ 5,306,231	Assume 15% of Construction Subtotal Cost
	Grand Total				\$ 40,681,102	

US 27 ALT. 2 - Curved
(US 27) STA 38+10.73 TO 97+67

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	197	\$ 1,522,019	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	48,400	\$ 1,140,304	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	95,747	\$ 277,667	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	10,024	\$ 137,233	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	85,723	\$ 1,201,833	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	1,103	\$ 96,242	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	14,144	\$ 1,233,521	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	9,430	\$ 845,261	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	3,536	\$ 414,427	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	5,921	\$ 325,637	Express lanes only
520 1 10	Concrete Curb and Gutter, Type F	LF	\$ 19.65	12,932	\$ 254,104	
522 2 40	Concrete Sidewalk and Driveways, 6" thick	SY	\$ 46.00	2,675	\$ 123,060	
521 1	Barrier Wall	LF	\$ 113	3,350	\$ 378,550	
536 1 1	Guardrail - Roadway	LF	\$ 16	1,000	\$ 15,860.00	
	Thermoplastic, White, Striping	NM	\$ 3,178	14	\$ 44,492	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	2	\$ 36,655	At gores
	Fencing	LF	\$ 10.00	0	\$ -	LA R/W fence
	Embankment	CY	\$ 5.94	68,404	\$ 406,318	
	MSE wall	SF	\$ 34.00	26,400	\$ 897,600	
	Bridges	SF	\$ 160.00	79,283	\$ 12,685,280	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 22,036,063	
	Compensable Utility Relocation	LS			\$ 1,101,803	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 2,203,606	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 2,203,606	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 1,101,803	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 1,101,803	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 4,407,213	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 1,101,803	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 220,361	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 35,478,061	
	Contingency	LS			\$ 5,321,709	Assume 15% of Construction Subtotal
	Grand Total				\$ 40,799,770	

US 27 ALT. 3 - NO CD
(US 27) STA 38+10.73 TO 97+67

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	197	\$ 1,522,019	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	48,400	\$ 1,140,304	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	103,190	\$ 299,252	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	10,456	\$ 143,141	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	92,735	\$ 1,300,138	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	1,150	\$ 100,385	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	15,301	\$ 1,334,418	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	10,201	\$ 914,400	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	3,825	\$ 448,325	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	5,863	\$ 322,459	Express lanes only
520 1 10	Concrete Curb and Gutter, Type F	LF	\$ 19.65	12,932		
522 2 40	Concrete Sidewalk and Driveways, 6" thick	SY	\$ 46.00	2,675	\$ 123,060	
521 1	Barrier Wall	LF	\$ 113	1,808	\$ 204,304	
536 1 1	Guardrail - Roadway	LF	\$ 16	1,000	\$ 15,860.00	
	Thermoplastic, White, Striping	NM	\$ 3,178	14	\$ 44,492	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	0	\$ -	At gores
	Fencing	LF	\$ 10.00	0	\$ -	LA R/W fence
	Embankment	CY	\$ 5.94	48,400	\$ 287,496	
	MSE wall	SF	\$ 34.00	26,400	\$ 897,600	
	Bridges	SF	\$ 160.00	82,256	\$ 13,160,960	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 22,258,614	
	Compensable Utility Relocation	LS			\$ 1,112,931	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 2,225,861	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 2,225,861	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 1,112,931	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 1,112,931	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 4,451,723	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 1,112,931	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 222,586	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 35,836,369	
	Contingency	LS			\$ 5,375,455	Assume 15% of Construction Subtotal
	Grand Total				\$ 41,211,824	

US 27 ALT. 4 - CD
(US 27) STA 38+10.73 TO 97+67

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	197	\$ 1,522,019	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	48,400	\$ 1,140,304	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	107,535	\$ 311,852	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	88,222	\$ 1,207,759	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	97,733	\$ 1,370,212	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	1,078	\$ 94,111	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	16,126	\$ 1,406,339	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	10,751	\$ 963,683	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	4,031	\$ 472,489	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	6,568	\$ 361,222	Express lanes only
520 1 10	Concrete Curb and Gutter, Type F	LF	\$ 19.65	12,932	\$ 254,104	
522 2 40	Concrete Sidewalk and Driveways, 6" thick	SY	\$ 46.00	2,675	\$ 123,060	
521 1	Barrier Wall	LF	\$ 113	3,798	\$ 429,174	
536 1 1	Guardrail - Roadway	LF	\$ 16	1,000	\$ 15,860.00	
	Thermoplastic, White, Striping	NM	\$ 3,178	14	\$ 44,492	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	0	\$ -	At gores
	Fencing	LF	\$ 10.00	0	\$ -	LA R/W fence
	Embankment	CY	\$ 5.94	40,431	\$ 240,161	
	MSE wall	SF	\$ 34.00	26,400	\$ 897,600	
	Bridges	SF	\$ 160.00	87,833	\$ 14,053,280	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 24,907,721	
	Compensable Utility Relocation	LS			\$ 1,245,386	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 2,490,772	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 2,490,772	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 1,245,386	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 1,245,386	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 4,981,544	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 1,245,386	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 249,077	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 40,101,431	
	Contingency	LS			\$ 6,015,215	Assume 15% of Construction Subtotal
	Grand Total				\$ 46,116,646	

US 27 ALT. 5 - EXPRESS CONNECTIONS TO RAMPS
(US 27) STA 38+10.73 TO 97+67

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	27	\$ 211,232	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	48,400	\$ 1,140,304	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	129,577	\$ 375,773	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	26,051	\$ 356,643	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	103,526	\$ 1,451,430	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	2,866	\$ 250,114	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	17,082	\$ 1,489,698	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	11,388	\$ 1,020,804	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	4,270	\$ 500,495	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	3,602	\$ 198,122	Express lanes only
520 1 10	Concrete Curb and Gutter, Type F	LF	\$ 19.65	13,333	\$ 261,993	
522 2 40	Concrete Sidewalk and Driveways, 6" thick	SY	\$ 46.00	5,051	\$ 232,336	
521 1	Barrier Wall	LF	\$ 113	9,948	\$ 1,124,068	
536 1 1	Guardrail - Roadway	LF	\$ 16	1,300	\$ 20,618.00	
0520 70	Traffic Separator	SY	\$ 53	1,967	\$ 104,453.60	
	Thermoplastic, White, Striping	NM	\$ 3,178	23	\$ 73,997	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	3	\$ 54,983	At gores
	Fencing	LF	\$ 10.00	0	\$ -	LA R/W fence
	Embankment	CY	\$ 5.94	69,714	\$ 414,102	
	MSE wall	SF	\$ 34.00	53,415	\$ 1,816,110	
	Bridges	SF	\$ 160.00	136,060	\$ 21,769,600	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 32,866,876	
	Compensable Utility Relocation	LS			\$ 1,643,344	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 3,286,688	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 3,286,688	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 1,643,344	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 1,643,344	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 6,573,375	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 1,643,344	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 328,669	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 52,915,670	
	Contingency	LS			\$ 7,937,350	Assume 15% of Construction Subtotal
	Grand Total				\$ 60,853,020	

US 27 ALT. 6 - GRADE SEPARATED INTERSECTIONS W/ U-TURNS
(US 27) STA 38+10.73 TO 97+67

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	41	\$ 313,232	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	48,400	\$ 1,140,304	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	82,202	\$ 238,385	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	71,665	\$ 981,094	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	10,537	\$ 147,723	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	7,883	\$ 688,041	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	1,739	\$ 151,617	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	1,159	\$ 103,895	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	435	\$ 50,939	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	9,737	\$ 535,511	Express lanes only
520 1 10	Concrete Curb and Gutter, Type F	LF	\$ 19.65	10,034	\$ 197,168	
522 2 40	Concrete Sidewalk and Driveways, 6" thick	SY	\$ 46.00	2,937	\$ 135,107	
521 1	Barrier Wall	LF	\$ 113	44,231	\$ 4,998,103	Concrete, Double face
536 1 1	Guardrail - Roadway	LF	\$ 16	2,352	\$ 37,302.72	
0520 70	Traffic Separator	SY	\$ 53	18	\$ 955.80	
	Thermoplastic, White, Striping	NM	\$ 3,178	36	\$ 114,280	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	12	\$ 219,932	At gores
	Fencing	LF	\$ 10.00	0	\$ -	LA R/W fence
	Embankment	CY	\$ 5.94	346,000	\$ 2,055,239	
	MSE wall	SF	\$ 34.00	342,173	\$ 11,633,865	
	Bridges	SF	\$ 160.00	365,101	\$ 58,416,160	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 82,158,852	
	Compensable Utility Relocation	LS			\$ 4,107,943	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 8,215,885	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 8,215,885	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 4,107,943	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 4,107,943	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 16,431,770	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 4,107,943	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 821,589	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 132,275,752	
	Contingency	LS			\$ 19,841,363	Assume 15% of Construction Subtotal
	Grand Total				\$ 152,117,115	

US 27 ALT. 7 - GRADE SEPARATED INTERCHANGES W/O U-TURNS
(US 27) STA 38+10.73 TO 101+32.73

Item	Description	Unit	Unit Cost	Quantity	Total Cost	Remarks
0110 1 1	Clearing & Grubbing	AC	\$ 7,724	41	\$ 313,232	Total Area of section - R/W to R/W
0110 3	Removal of Existing Structure	SF	\$ 24	48,400	\$ 1,140,304	Area of existing bridges
160 4	Stabilization Type B LBR 40	SY	\$ 2.90	259,740	\$ 753,245	Total Area of section
285 706	Base optional (base group 6) ML	SY	\$ 13.69	75,285	\$ 1,030,653	Total Shldr area
285 712	Base optional (base group 12) ML	SY	\$ 14.02	184,455	\$ 2,586,054	Total Roadway area
334 1 12	Superpave asphaltic concrete (Traff B)	TN	\$ 87.28	8,281	\$ 722,797	Used 110 lb /sy*inch lift (2" thk) - Shoulder
334 1 14	Superpave asphaltic concrete (Traff D)	TN	\$ 87.21	30,435	\$ 2,654,238	Used 110 lb /sy*inch lift (3" thk) - Roadway
334 1 24	Superpave asphaltic concrete (Traff D-PG 76-22)	TN	\$ 89.64	20,290	\$ 1,818,797	Used 110 lb /sy*inch lift (2" thk) - Roadway
337 7 22	Asphaltic Conc friction course (FC-5) (PG 76-22)	TN	\$ 117.20	7,609	\$ 891,746	Used 110 lb /sy*inch lift (0.75" thk) - Roadway
350 1 3	Plain Cement Conc Pavt, 8"	SY	\$ 55.00	9,737	\$ 535,511	Express lanes only
520 1 10	Concrete Curb and Gutter, Type F	LF	\$ 19.65	12,015	\$ 236,085	
522 2 40	Concrete Sidewalk and Driveways, 6" thick	SY	\$ 46.00	8,337	\$ 383,522	
521 1	Barrier Wall	LF	\$ 113	58,906	\$ 6,656,378	
536 1 1	Guardrail - Roadway	LF	\$ 16	900	\$ 14,274.00	
0520 70	Traffic Separator	SY	\$ 53	18	\$ 955.80	
	Thermoplastic, White, Striping	NM	\$ 3,178	40	\$ 128,701	EOP and lane lines
	Vehicle Impact Attenuator	EA	\$ 18,327.63	16	\$ 293,242	At gores
	Fencing	LF	\$ 10.00	0	\$ -	LA R/W fence
	Embankment	CY	\$ 5.94	384,186	\$ 2,282,063	
	MSE wall	SF	\$ 34.00	403,719	\$ 13,726,429	
	Bridges	SF	\$ 160.00	355,114	\$ 56,818,240	Concrete
	Wetland Mitigation	AC	\$ 108,000.00	0	\$ -	
	Subtotal Cost	LS			\$ 92,986,467	
	Compensable Utility Relocation	LS			\$ 4,649,323	Assume 5% of Construction Subtotal Cost
	Mobilization	LS			\$ 9,298,647	Assume 10% of Construction Subtotal Cost
	Maintenance of Traffic (MOT)	LS			\$ 9,298,647	Assume 10% of Construction Subtotal Cost
	Lighting	LS			\$ 4,649,323	Assume 5% of Construction Subtotal Cost
	Signage	LS			\$ 4,649,323	Assume 5% of Construction Subtotal Cost
	Drainage	LS			\$ 18,597,293	Assume 20% of Construction Subtotal Cost
	ITS	LS			\$ 4,649,323	Assume 5% of Construction Subtotal Cost
	Erosion Control	LS			\$ 929,865	Assume 1% of Construction Subtotal Cost
	Construction Subtotal	LS			\$ 149,708,212	
	Contingency	LS			\$ 22,456,232	Assume 15% of Construction Subtotal
	Grand Total				\$ 172,164,444	

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