Project Development & Environment Study

SR 60 PD&E Study
From Valrico Road to the Polk County Line

Final
Pond Sizing Report

WPI Segment No.: 430055-1
Hillsborough County

Prepared for the

Florida Department of Transportation
District Seven



April 2015

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FDOT Project Manager

Project Development & Environment Study

FINAL POND SIZING REPORT

State Road (SR) 60
From Valrico Road to the Polk County Line
Project Development and Environment (PD&E) Study
Hillsborough County, Florida

FDOT District 7
FPN: 430055-1-22-01

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) District Seven conducted a Project Development and Environment (PD&E) Study to evaluate improvement alternatives for State Road 60 (SR 60) from Valrico Road to the Polk County Line in Hillsborough County, Florida. These improvements consist of widening the existing 4 lane roadway to a 6 lane roadway for a project length of approximately 12.3 miles.

SR 60 is a major east-west arterial roadway which has both urban and rural sections. The existing typical section for Segments 1, 2A, 2C and 3 include (4) 12-foot travel lanes,4' outside paved shoulders, 40-foot median, 5.5-foot sidewalk on both sides at the beginning of the project and on one side for small segments. Segment 2B also includes (4) 12-foot travel lanes but the median is 36-foot and there is no sidewalk. The proposed typical sections do not include any additional Right of Way along the project. All of the proposed five segments will have six (6) 12-foot lane high speed roadway. Bicycle lane and shoulder has been proposed to be 6.5 ft in width (except Segment 2C & 3), a median width of 30 ft (except Segment 3), and a sidewalk width of 5.5 ft (Segment 1 & 2A New Construction), 6 ft (Segment 2B) and 5 ft (Segment 2C & 3). The first three segments (up to the west of Marge Owens Road) will have Curb and Gutter; whereas, the last two segments will have Onsite Conveyance Ditches.

The project is located within the Alafia River Watershed (Turkey Creek, Medard Park Run, Unnamed Branch, and English Creek sub-basins) and the Hillsborough River Watershed (Selfer Canal sub-basin) in the Southwest Florida Water Management District (SWFWMD). The project site is within Township 29 South, Range 21 East and Township 29 South, Range 22 East.

Pond right-of-way areas have been calculated for each of the proposed roadway drainage basins along the project limits. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. Please note that the recommendations were based on pond sizes determined from preliminary data calculations, reasonable engineering judgment, and assumptions. Pond sizes and configurations may change during final design as more detailed information on SHWT, wetland hydrologic information, and final roadway profile become available. Please refer to **Table 1** for a summary of the Stormwater Pond Areas.

Table 1 – Summary of Stormwater Pond Areas

Pond Name	Pond Right-of-Way Area (ac) (Including Access Easement)
Pond 1	1.02
Pond 2	0.89
Pond 3	1.93
Pond 4	2.37
Pond 5	1.93
Pond 6	2.40
Pond 7	2.07
Pond 8	3.09

Pond Name	Pond Right-of-Way Area (ac) (Including Access Easement)
Pond 9	4.63
Pond 10	1.38
Pond 11	1.10
Pond 12	13.11
Pond 13	2.56
Pond 14	0.55
Pond 15	1.45
Pond 16	2.73
Pond 17	1.38
Pond 18	1.45
Pond 19	0.73
Pond 20	0.62
Pond 21	1.52

SECTION 1 INTRODUCTION

A Project Development and Environment (PD&E) Study was conducted in accordance with the Florida Department of Transportation requirements for State Road 60 from Valrico Road to the Polk County Line in Hillsborough County, Florida. These improvements consist of widening the existing 4-lane roadway to 6-lanes for a project length of approximately 12.3 miles.

SR 60 is a major east-west arterial roadway and is part of the Florida Intrastate Highway System (FIHS). Within the project limits, SR 60 currently has a 4-lane divided urban typical section from Valrico Road to Dover Road and from Sydney Washer Road to Horton Road. It also has a 4-lane rural typical section from Dover Road to Sydney Washer Road and from Horton Road to the Polk County Line. The existing roadway generally has four 12-foot travel lanes, 4-foot paved outside shoulders, and a 40-foot grassed median. The posted speed varies from 50 mph to 65 mph. The existing right of way is typically 182 feet.

Expected improvements include widening to six lanes as well as intersection improvements and construction of stormwater management facilities and bicycle and pedestrian facilities. A "No-Build" Alternative will also be considered. **The Project Location Map** is shown in **Exhibit 1, Appendix 1**.

The project is located within both Alafia River Watershed (Turkey Creek, Medard Park Run, Unnamed Branch, and English Creek sub-basins) and Hillsborough River Watershed (Selfer Canal sub-basin). The project site is within Sections 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30 of Township 29 South, Range 21 East; Sections 19, 20, 21, 22, 25, 26, 27, 28, 29 and 30 Township 29 South, Range 22 East. Please refer to **Exhibit 2** for the **Drainage Basin Map**. A reproduction of the **United States Geological Survey (USGS) Quadrangle Maps** for the project vicinity is shown in **Exhibit 3**.

The purpose of this Pond Sizing Report is to discuss, analyze, and identify the stormwater management plan for the proposed roadway alignment based on environmental, hydrology and hydraulics, and economic factors. Stormwater management for water quality treatment and runoff attenuation will be provided using wet detention and dry retention stormwater management facilities. The design of the drainage and stormwater facilities will comply with the standards set forth by the FDOT Drainage Manual and the SWFWMD Environmental Resource Permit (ERP) manual. All exhibits for this report are included in **Appendix 1**. For the ease of review, **Drainage Maps** and **Pond Design Calculations** are included in **Appendices 2 and 3**. Please note that the datum used for this project is NAVD 88, unless otherwise specified.

SECTION 2 PROJECT DESCRIPTION

FDOT proposes a roadway widening for SR 60 from Valrico Road to the Polk County Line in Hillsborough County, Florida. The project extends for approximately 12.3 miles traversing twenty one (21) cross drains (including two bridge culverts and one bridge). The limits of the project are shown on the **Project Location Map** as shown in **Exhibit 1, Appendix 1**.

The existing typical section for SR 60 within the project limits is a four-lane roadway constructed within a right-of-way that is 182 feet in width. It includes four 12-foot lanes with 4-foot paved shoulders and a 40-foot grassed median. Stormwater runoff is collected in roadside swales or sheet flows to adjacent wetlands. The posted speed varies from 50 mph to 65 mph. The existing roadway sections are provided in **Exhibits 7**, **Appendix 1**.

The proposed roadway is divided into five (5) segments. Typical sections have been proposed with no additional Right of Way. Segment 1 is from Valrico Rd. to Dover Rd., Segment 2A is from Dover Rd. to West of Sydney Washer Rd., Segment 2B is from West of Sydney Washer Rd. to West of Marge Owens Rd., Segment 2C is from West of Marge Owens Rd. to Turkey Creek Rd., and Segment 3 is from Turkey Creek Rd. to The Polk County Line.

For Segments 1, 2A and 2B bicycle lanes and shoulders on each direction have been proposed to be 6.5 ft wide, a median width of 30 ft, and a sidewalk width of 5.5 ft to 6 ft. For Segments 2C and 3 sidewalk will be 5 ft with bicycle lane of 6.5 ft and 5 ft respectively. The first three segments (up to the west of Marge Owens Road) will have Curb and Gutter system; whereas, the last two segments will have Onsite Conveyance Ditches. Segment-wise detailed typical section dimensions are shown in **Table 2**. Moreover, all the proposed typical sections have been shown in **Appendix 1 (Exhibits 8-1 to 8-9).**

No formal water quality treatment is currently provided for SR 60, although the current existing ditches do provide some form of treatment. Review of existing permits indicates that SR 60 has been recently milled and resurfaced as well as additional storm drainage systems installed.

Table 2 – Proposed Typical Sections

Segments	Extent	From Station	To Station	Length (ft)	Proposed R/W Width (ft)	Travel Lane Width (ft)	Bicycle Lane & Shoulder Width (ft)	Inside Shoulder Width (ft)	Median Width (ft)	Sidewalk Width (ft)	Curb and Gutter (Type E)	Onsite Conveyance Ditch
1	From Valrico Rd. To Dover Rd.	399+03	506+17	10714	182	(6) 12	(2) 6.5	(2) 6.5	30	(2) 5.5	Yes	No
2A	From Dover Rd. To West of Sydney Washer Rd.	506+17	538+90	3273	182	(6) 12	(2) 6.5	(2) 6.5	30	(2) 5.5	Yes	No
2B	From West of Sydney Washer Rd. To West of Marge Owens Rd.	538+90	600+00	6110	135	(6) 12	(2) 6.5	(2) 6.5	30	(2) 6.0	Yes	No
2C	From West of Marge Owens Rd. To Turkey Creek Rd.	600+00	664+85	6485	182	(6) 12	(2) 5.0	(2) 6.5	30	(2) 5.0	No	Yes
3	From Turkey Creek Rd. To The Polk County Line	664+85	1048+55	38370	182	(6) 12	(2) 5.0	N/A	40	(2) 5.0	No	Yes

Note: Parentheses Indicate Total Number

SECTION 3 DESIGN CRITERIA

The design of the stormwater management facilities for the project is governed by the rules set forth by the SWFWMD and FDOT. Water treatment and attenuation requirements will comply with the guidelines as defined in Chapter 40D-4 of the Florida Administration Code (F.A.C) and the SWFWMD ERP manual.

Wet detention and dry retention ponds will provide for water quality improvements as well as water quantity attenuation for the project runoff. The stormwater ponds are designed and sized for the most conservative typical section for each segment. Please refer to the summary below for the water quality, water quantity, and detention pond facilities configuration criterion used for the project:

- **Water Quality** – Treatment will be provided for one inch (1") over the Directly Connected Impervious Areas (DCIA) or 0.5" over DCIA for wet detention pond and dry retention pond, respectively. An outfall control structure shall be designed to drawdown a maximum of one-half inch (0.5") of the detention volume in 24 hours. The project traverses six (6) WBIDs (1547: Seffner Canal, 1578B: Turkey Creek Over Little Alafia River, 1592B: Little Alafia River Above Medard Reservoir, 1592A: Medard Reservoir, 1592C: Mustang Ranch Creek and 1552: English Creek), which are located in the Alafia River Basin and the Hillsborough River Basin. Both Turkey Creek (WBID 1578B) and Mustang Ranch Creek (WBID 1592C) are verified as impaired for Nutrients on the current FDEP 303(d) list. Therefore, a pre versus post pollutant loading analysis has been performed for this study that complies with FDEP's March 2010 draft Stormwater Quality Applicant's Handbook (SQAH), or any subsequent updates or revisions.
- **Detention Pond Facilities Configuration** – The proposed pond shall have a minimum area of 0.5 acre and 100 feet minimum width for linear areas in excess of 200 feet length (measured at the control elevation). The pond will include a 20-foot minimum maintenance berm width, minimum 1:4 (Vertical:Horizontal) for pond side slopes and tie up/down slopes to existing ground, and a minimum 1-foot freeboard from the inside maintenance berm to the Design High Water (DHW) stage.

SECTION 4 DATA COLLECTION

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

- FDOT Drainage Manual, July 2013
- FDOT Drainage Handbook – Hydrology, February 2012
- FDOT Drainage Handbook – Culvert Design, January 2004
- FDOT PD&E Manual
- SR 60 – Plans of Proposed State Highway, F.A. Project No. F-033-1 (21), 1961
- SR 60 – Final As-Built Plans, FPID 413395-1-52-01, M.P. 11.456 to M.P. 16.491, 2005
- SR 60 – Final As-Built Plans, FPID 423053-1-52-01, M.P. 16.491 to M.P. 20.284, 2011

- SR 60 – Final As-Built Plans, FPID 413405-1-52-01, M.P. 20.284 to M.P. 23.740, 2008
- Federal Emergency Management Agency (FEMA), Panel Nos. 12057C0405H, 12057C0410H, 12057C0430H, 12057C0415H, 12057C0420H, 12057C0440H and 12057C0445H for Hillsborough County, Florida dated August 28, 2008
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Hillsborough County, Florida, 1989
- USDA NRCS Soil Survey Geographic (SSURGO) Database from SWFWMD, 2010
- Land Boundary Information System (LABINS) Quadrangle Maps
- 5-foot contours from Hillsborough County, 2010
- Hillsborough County Property Appraiser's Website (GIS parcel lines), 2013
- FDOT Straight Line Diagrams (SLD's) of Road Inventory for SR 60
- Field Reconnaissance (November 2012)

SECTION 5 EXISTING DRAINAGE CONDITIONS

5.1 Topography & Hydrologic Features

The topography of the project area is steep and elevations range from a high of 120 feet to a low of 40 feet NAVD 88. Please refer to **USGS Quadrangle Map**, **Exhibit 3** in **Appendix 1**. There are eighteen (18) existing cross drains, one (1) existing bridge, and two (2) existing bridge culverts within the project limits allowing for conveyance of offsite and onsite runoff to the Alafia and Hillsborough rivers. The size and geometry of all cross drains and bridges have been verified from the FDOT SLD's, 1-foot LiDAR contours, SR 60 plans, as well as during field reconnaissance. Please refer to **Table 3** for a Summary of Existing Cross Drains and Bridges.

Table 2 – Summary of Existing Cross Drains and Bridges

Structure Number	FDOT Milepost*	Stations	Description
CD-01	11.868	421+03	Single 24" RCP
CD-02	12.246	441+28	Single 30" RCP
CD-03	14.485	559+02	Single 36" RCP
CD-04 (#100058)	15.058 - 15.064	589+11	31.7' Bridge Culvert Triple 10'X10' Concrete
CD-05	15.434	609+10	Single 4'X3' CBC
CD-06	15.936	635+66	Single 36" RCP
CD-07	16.895	686+49	Single 7'X3' CBC
CD-08	17.106	697+50	Single 8'X5' CBC
CD-09 (#100059)	17.341 - 17.347	709+74	31.7' Bridge Culvert Triple 10'X10' Concrete
CD-10	18.171	754+74	Single 24" RCP
CD-11	18.769	786+01	Single 24" RCP
CD-12	19.005	798+27	Single 24" RCP

CD-13	19.546	826+36	Double 7'X5' CBC
CD-14	20.117	856+80	Double 36" RCP
CD-15	20.292	865+80	Single 24" RCP
CD-16	20.992	902+99	Double 30" RCP
CD-17	21.41	925+31	Double 30" RCP
CD-18	21.840	948+00	Single 36" RCP
CD-19	21.849	960+00	Single 30" RCP
CD-20	22.061	970+00	Single 30" RCP
CD-21 (#100583 & #100584)	23.131 - 23.163	1016+25	165.7' Bridge Over English Creek

5.2 Existing Bridge Study

Both bridge culverts for the Turkey Creek and the Little Alafia River were constructed in 1946. Then they were reconstructed in 1962. The bridge over English Creek was constructed in 1992 (Westbound) and 1993 (Eastbound). Please refer to the Location Hydraulic Report for more detailed information.

5.3 Soils Data and Geotechnical Investigations

The Soil Survey of Hillsborough County, Florida, published by the USDA NRCS (dated 1989) has been reviewed for the project vicinity. USDA SSURGO was also obtained from SWFWMD to create soils map in the project area using GIS ArcMap. SSURGO data was compared to Soil Survey by USDA NRCS and found no deviation. The soil survey map for the project vicinity is illustrated in **Exhibit 4** of **Appendix 1.**

The soils encountered along the project limits are mostly Hydrological Soil Group (HSG) A, C and D. Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sand or gravel and have a high rate of water transmission. Group C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. Group D soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission. According to the Soil Survey, there are twenty (20) different soil types located along the project limits. **Table 4 – USDA NRCS Soil Survey Information** summarizes and lists the soil types and relevant information. The ground water depth varies from 0 – 1' to greater than 6' along the project.

Table 3 – USDA NRCS Soil Survey Information

Soil No.	Hillsborough County	Seasonal High Ground Water		HSG	Soil Classification		
	USDA Soil Name	Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
3	Archbold fine sand	3.5-6.0	Jun-Nov	A	0-4	SP	A-3
					4-80	SP, SP-SM	A-3
4	Arents	2.3	---	B	>6.6	SP	A-3
5	Basinger	+2.0-1.0	Jun-Feb	D	0-7	SP	A-3
					7-28	SP, SP-SM	A-3, A-2-4
					28-42	SP, SP-SM	A-3, A-2-4
					42-80	SP, SP-SM	A-3, A-2-4
5	Holopaw	+2.0-1.0	Jun-Apr	D	0-6	SP, SP-SM	A-3
					6-52	SP, SP-SM	A-3
					52-80	SM, SM-SC	A-2-4
5	Samsula	+2.0-1.0	Jan-Dec	D	0-34	PT	A-3
					34-80	SP-SM, SM, SP	A-3, A-2-4
7	Candler fine sand	> 6.0	---	A	0-6	SP, SP-SM	A-3
					6-72	SP, SP-SM	A-3
					74-80	SP-SM	A-3, A-2-4
9	Candler-Urban land complex	> 6.0	---	A	0-6	SP, SP-SM	A-3
					6-76	SP, SP-SM	A-3
					76-80	SP-SM	A-3, A-2-4
14	Eaton mucky sand	+2.0-1.0	Jun-Feb	D	0-8	SP-SM	A-3, A-2-4
					8-22	SM, SP-SM	A-2-4, A-3
					22-80	SC, CL, CH	A-7
16	Felda fine sand	0-1.0	Jul-Mar	B/D	0-22	SP, SP-SM	A-3
					22-38	SM, SM-SC, SC	A-2-4, A-2-6
					38-80	SP, SP-SM	A-3. A-2-4
18	Fort Meade loamy fine sand	> 6.0	---	A	0-26	SM	A-2-4
					26-80	SM	A-2-4
25	Lake fine sand	> 6.0	---	A	60-80	SP-SM	A-3, A-2-4
29	Myakka fine sand	0-1.0	Jun-Nov	B/D	0-20	SP, SP-SM	A-3
					20-30	SM, SP-SM	A-3, A-2-4
					30-80	SP, SP-SM	A-3
30	Myakka	0-1.5	---	D	0-22	SP, SP-SM	A-3
					22-40	SP-SM, SM	A-3, A-2-4
					40-80	SP, SP-SM	A-3
33	Ona fine sand	0-1.0	Jun-Nov	B/D	0-4	SP-SM, SP	A-3
					4-22	SP-SM, SM	A-3, A-2-4
					22-80	SP-SM, SP	A-3
35	Orlando fine sand	> 6.0	---	A	0-20	SP, SP-SM	A-3, A-2-4
					20-80	SP, SP-SM	A-3, A-2-4
43	Quartzipsaments	> 6.6	---	A	>6.6	SP	A-3
46	St. Johns fine	0-1.0	Jun-Apr	B/D	0-12	SP, SP-SM	A-3

Soil No.	Hillsborough County	Seasonal High Ground Water		HSG	Soil Classification		
	USDA Soil Name	Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
	sand				12-29	SP, SP-SM	A-3
					29-46	SP-SM, SM	A-3, A-2-4
					46-80	SP, SP-SM	A-3
47	Seffner fine sand	1.5-3.5	Jun-Nov	C	0-13	SP-SM, SP	A-3, A-2-4
					13-21	SP-SM, SP	A-3, A-2-4
					21-80	SP-SM, SP	A-3, A-2-4
51	Haplaquents	0	---	D	>6.6	CH	A-7
52	Smyrna fine sand	0-1.0	Jul-Oct	B/D	0-12	SP, SP-SM	A-3, A-2-4
					12-20	SM, SP-SM	A-3, A-2-4
					20-80	SP, SP-SM	A-3
53	Tavares	3.5-6.0	Jun-Dec	A	0-6	SP, SP-SM	A-3
					6-80	SP, SP-SM	A-3
53	Millhopper	3.5-6.0	Aug-Feb	A	0-57	SP-SM, SM	A-3, A-2-4
					57-80	SM, SM-SC, SC	A-2-4. A-4
61	Zolfo fine sand	2.0-3.5	Jun-Nov	C	0-3	SP-SM	A-3, A-2-4
					3-60	SP-SM, SM	A-3, A-2-4
					60-80	SP-SM, SM	A-3, A-2-4

*Seasonal High Groundwater Table: Depth is referenced below existing grade, except where indicated as "+".

5.4 Environmental Characteristics

5.4.1 Land Use Data

The project corridor is a mixture of residential, commercial, reclaimed land and agricultural land uses. Land use on the western end of the project primarily consists of commercial and residential developments, while land use along the central and eastern portions of the alignment consists of agricultural developments and rural residential developments. Please see **Exhibit 5** for **Existing Land Use Map** in **Appendix 1.**

The widening of SR 60 from Valrico Road to the County Line does not alter the existing or future land uses in the area. Future land uses adjacent to the project limits will include residential, agricultural and rural lands.

5.4.2 Cultural Features

A separate Cultural Resource Assessment Survey (CRAS) has been prepared in conjunction with the undertaking of the PD&E study. Information regarding cultural features can be found within the CRAS.

5.4.3 Natural and Biological Features

A separate Wetland Evaluation/Biological Assessment Report (WEBAR) has been prepared in conjunction with the undertaking of the PD&E study. Information regarding natural and biological features can be found within the WEBAR.

5.5 Floodplains/Floodways

According to The Federal Emergency Management Agency (FEMA) the relevant FIRM panel numbers are 12057C0405H, 12057C0410H, 12057C0430H, 12057C0415H, 12057C0420H, 12057C0440H and 12057C0445H for Hillsborough County, Florida dated August 28, 2008. The majority of the project is designated Zone 'X' which means those areas have a 0.2% probability of flooding every year (500-year floodplain). Some parts (mostly streams and waterbodies crossing) are in the zone 'A' which have a 1% probability of flooding every year (100-year floodplain), and where predicted flood water elevations have not been established. Please refer to **Exhibit 6, Appendix 1** for the **FEMA Flood Insurance Rate Maps**. For additional information regarding floodplains, please refer to the Location Hydraulic Report.

5.5.1 Flooding History and Maintenance Concern

FDOT District 7 Maintenance office was contacted to discuss any flooding history and maintenance concerns. One concern they have is with drainage connections from adjoining properties and their effects from a maintenance standpoint. The recent construction project (FPN 42305315201) addressed some of the ditch areas between Turkey Creek and SR 39 but also brought some underlying draining issues to the surface, particularly, between Mud Lake Rd. and Wallace Rd. on the north side of SR 60. Maintenance was called upon to regrade a backslope at 2902 E. SR 60 due to concern of future runoff from the driveway going into their yard instead of the newly constructed ditch. However, with the small amount of rain so far this year they have not seen any issues at this location and will continue to monitor it during the rainy season.

The other location is approximately 900' west of Mud Lake Rd. An approved mitered end was constructed under FPN 42305315201 to connect an adjoining agricultural field to the drainage system. Since the completion of the project 6 months ago, FDOT maintenance have had to clean sediment/silt out of this ditch because of what has come out of the adjoining property's mitered end. It is enough sediment/silt to block the 18" CMP driveway pipe by 75% that runs east to west and hold 12"-16" of water to the east of the driveway.

SECTION 6 PROPOSED DRAINAGE CONDITIONS

The stormwater runoff from the project limits will be collected and conveyed in roadside ditches or closed drainage systems to the proposed offsite wet detention and dry retention ponds. The ponds will discharge at or near the same cross drains that carry the roadway runoff in the existing condition. The water quality treatment and water quantity attenuation will be achieved through the construction of offsite wet detention and dry retention ponds, which will require the acquisition of additional right-of-way.

6.1 Proposed Ponds

The stormwater runoff will be routed to proposed stormwater ponds for water quality treatment and attenuation purposes. The ponds were sized to accommodate the road widening with the assumption that runoff from offsite areas would be drained separately from the onsite roadway runoff. There are a total of twenty one (21) roadway drainage basins within the project limits. One (1) pond alternative for each basin has been analyzed. Please refer to **Drainage Maps** in **Appendix 2** for the roadway drainage basin limits and the offsite drainage basin areas.

The ponds have been properly sized to accommodate the increased attenuation volume due to the proposed basin size increases. **Table 5 – Summary of Proposed Drainage Basins** provides a summary of the proposed basin limits.

Table 4 – Summary of Proposed Drainage Basins

Basin Name	From Station	To Station
1	399+00	422+00
2	422+00	440+90
3	440+90	501+14
4	501+14	559+13
5	559+13	589+12
6	589+12	609+23
7	609+23	635+64
8	635+64	664+85
9	664+85	686+53
10	686+53	697+64
11	697+64	709+89
12	709+89	753+92
13	753+92	798+47
14	798+47	824+38
15	824+38	866+04
16	866+04	903+20
17	903+20	925+38
18	925+38	960+03
19	960+03	984+97
20	984+97	1016+44
21	1016+44	1049+00

6.2 Methodology of Pond Determination

The pond sizing analysis assumes that all ponds will be designed using the wet detention and dry retention pond design criteria. In addition, the Department has directed that a required pond size per roadway drainage basin should be estimated with no pond site locations shown. A 20% upsize in the required pond right of way area has been applied for all the ponds to account for preliminary parameters such as the estimated seasonal high water elevations and

ground elevations. The following parameters were considered in the sizing of potential pond sites:

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

6.3 Stormwater Pond Evaluation

6.3.1 Pond 1

Basin 1 is located between Station 399+00 and 422+00 within the Selfer Canal watershed. Basin 1 is considered a closed basin because surrounding water drains toward the cross drain (CD-01) and there is no outfall. Pond 1 will serve as the treatment and attenuation pond for Basin 1. The pond has been sized based on an existing ground elevation at approximately 35 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Fort Meade loamy fine sand) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 1 is 1.02 acres. This basin is located within the WBID 1547 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.2 Pond 2

Basin 2 is located between Station 422+00 and 440+90 within the Selfer Canal watershed. Basin 2 is considered a closed basin because surrounding water drains toward the cross drain (CD-02) and there is no outfall. Pond 2 will serve as the treatment and attenuation pond for Basin 2. The pond has been sized based on an existing ground elevation at approximately 36 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Fort Meade loamy fine sand) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 2 is 0.89 acres. This basin is located within the WBID 1547 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.3 Pond 3

Basin 3 is located between Station 440+90 and 501+14 within the Selfer Canal watershed. Basin 3 is considered a closed basin because surrounding water drains toward the cross drain (CD-02) and there is no outfall. Pond 3 will serve as the treatment and attenuation pond for Basin 3. The pond has been sized based on an existing ground elevation at approximately 36 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Fort Meade loamy fine sand) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 3 is 1.93 acres. This basin is located within the WBID 1547 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.4 Pond 4

Basin 4 is located between Station 501+14 and 559+13 within the Turkey Creek watershed. Basin 4 is considered an open basin. Pond 4 will serve as the treatment and attenuation pond for Basin 4. The pond has been sized based on an existing ground elevation at approximately 60 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Quartzipsaments) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 4 is 2.37 acres. This basin is located within the WBID 1578B which is impaired for nutrients; therefore, pollutant loading analysis has been included.

6.3.5 Pond 5

Basin 5 is located between Station 559+13 and 589+12 within the Turkey Creek watershed. Basin 5 is considered an open basin. Pond 5 will serve as the treatment and attenuation pond for Basin 5. The pond has been sized based on an existing ground elevation at approximately 55 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Quartzipsaments) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 5 is 1.93 acres. This basin is located within the WBID 1578B which is impaired for nutrients; therefore, pollutant loading analysis has been included.

6.3.6 Pond 6

Basin 6 is located between Station 589+12 and 609+23 within the Turkey Creek watershed. Basin 6 is considered an open basin. Pond 6 will serve as the treatment and attenuation pond for Basin 6. The pond has been sized based on an existing ground elevation at approximately 56 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Myakka fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 6 is 2.40 acres. This basin is located within the WBID 1578B which is impaired for nutrients; therefore, pollutant loading analysis has been included.

6.3.7 Pond 7

Basin 7 is located between Station 609+23 and 635+64 within the Turkey Creek watershed. Basin 7 is considered an open basin. Pond 7 will serve as the treatment and attenuation pond for Basin 7. The pond has been sized based on an existing ground elevation at approximately 63 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Felda fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 7 is 2.07 acres. This basin is located within the WBID 1578B which is impaired for nutrients; therefore, pollutant loading analysis has been included.

6.3.8 Pond 8

Basin 8 is located between Station 635+64 and 664+85 within the Turkey Creek watershed. Basin 8 is considered an open basin. Pond 8 will serve as the treatment and attenuation pond for Basin 8. The pond has been sized based on an existing ground elevation at approximately 85 ft NAVD (1-ft contours). The pond is situated on HSG Type C soil (Zolfo fine sand) with an estimated SHWT depth of 3 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 8 is 3.09 acres. This basin is located within the WBID 1578B which is impaired for nutrients; therefore, pollutant loading analysis has been included.

6.3.9 Pond 9

Basin 9 is located between Station 664+85 and 686+53 within the Medard Park Run watershed. Basin 9 is considered an open basin. Pond 9 will serve as the treatment and attenuation pond for Basin 9. The pond has been sized based on an existing ground elevation at approximately 70 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (St. Johns fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 9 is 4.63 acres. This basin is located within the WBID 1592B which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.10 Pond 10

Basin 10 is located between Station 686+53 and 697+64 within the Medard Park Run watershed. Basin 10 is considered an open basin. Pond 10 will serve as the treatment and attenuation pond for Basin 10. The pond has been sized based on an existing ground elevation at approximately 63 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Myakka fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 10 is 1.38 acres. This basin is located within the WBID 1592B which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.11 Pond 11

Basin 11 is located between Station 697+64 and 709+89 within the Medard Park Run watershed. Basin 11 is considered an open basin. Pond 11 will serve as the treatment and

attenuation pond for Basin 11. The pond has been sized based on an existing ground elevation at approximately 62 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Myakka fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 11 is 1.10 acres. This basin is located within the 1592B which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.12 Pond 12

Basin 12 is located between Station 709+89 and 753+92 within the Medard Park Run watershed. Basin 12 is considered an open basin. Pond 12 will serve as the treatment and attenuation pond for Basin 12. The pond has been sized based on an existing ground elevation at approximately 67 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Myakka fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 12 is 13.11 acres. This basin is located within the 1592A which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.13 Pond 13

Basin 13 is located between Station 753+92 and 798+47 within the Medard Park Run watershed. Basin 13 is considered an open basin. Pond 13 will serve as the treatment and attenuation pond for Basin 13. The pond has been sized based on an existing ground elevation at approximately 84 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (St. Johns fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 13 is 2.56 acres. This basin is located within the 1592A which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.14 Pond 14

Basin 14 is located between Station 798+47 and 824+38 within the Medard Park Run watershed. Basin 14 is considered an open basin. Pond 14 will serve as the treatment and attenuation pond for Basin 14. The pond has been sized based on an existing ground elevation at approximately 106 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Orlando fine sand) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 14 is 0.55 acres. This basin is located within the WBID 1592C which is impaired for nutrients; therefore, pollutant loading analysis has been included.

6.3.15 Pond 15

Basin 15 is located between Station 824+38 and 866+04 within the Medard Park Run watershed. Basin 15 is considered an open basin. Pond 15 will serve as the treatment and attenuation pond for Basin 15. The pond has been sized based on an existing ground elevation at approximately 100 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Ona fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as

a wet detention pond. The total required pond right-of-way area for Pond 15 is 1.45 acres. This basin is located within the WBID 1592C which is impaired for nutrients; therefore, pollutant loading analysis has been included.

6.3.16 Pond 16

Basin 16 is located between Station 866+04 and 903+20 which is an Open basin. Pond 16 will serve as the treatment and attenuation pond for Basin 16. The pond has been sized based on an existing ground elevation at approximately 113 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Ona fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 16 is 2.73 acres. This basin is located within the WBID 1552 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.17 Pond 17

Basin 17 is located between Station 903+20 and 925+38 within the English Creek watershed. Basin 17 is considered an open basin. Pond 17 will serve as the treatment and attenuation pond for Basin 17. The pond has been sized based on an existing ground elevation at approximately 110 ft NAVD (1-ft contours). The pond is situated on HSG Type B/D soil (Myakka fine sand) with an estimated SHWT depth of 1 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 17 is 1.38 acres. This basin is located within the WBID 1552 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.18 Pond 18

Basin 18 is located between Station 925+38 and 960+03 within the English Creek watershed. Basin 18 is considered an open basin. Pond 18 will serve as the treatment and attenuation pond for Basin 18. The pond has been sized based on an existing ground elevation at approximately 97 ft NAVD (1-ft contours). The pond is situated on HSG Type C soil (Zolfo fine sand) with an estimated SHWT depth of 3 ft below ground. Therefore, it is designed as a wet detention pond. The total required pond right-of-way area for Pond 18 is 1.45 acres. This basin is located within the WBID 1552 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.19 Pond 19

Basin 19 is located between Station 960+03 and 984+97 within the English Creek watershed. Basin 19 is considered an open basin. Pond 19 will serve as the treatment and attenuation pond for Basin 19. The pond has been sized based on an existing ground elevation at approximately 97 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Fort Meade loamy fine sand) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 19 is 0.73 acres. This basin is located within the WBID 1552 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.20 Pond 20

Basin 20 is located between Station 984+97 and 1016+44 within the English Creek watershed. Basin 20 is considered an open basin. Pond 20 will serve as the treatment and attenuation pond for Basin 20. The pond has been sized based on an existing ground elevation at approximately 87 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Fort Meade loamy fine sand) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 20 is 0.62 acres. This basin is located within the WBID 1552 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

6.3.21 Pond 21

Basin 21 is located between Station 1016+44 and 1049+00 within the English Creek watershed. Basin 21 is considered an open basin. Pond 21 will serve as the treatment and attenuation pond for Basin 21. The pond has been sized based on an existing ground elevation at approximately 82 ft NAVD (1-ft contours). The pond is situated on HSG Type A soil (Candler fine sand) with an estimated SHWT depth of 6 ft below ground. Therefore, it is designed as a dry retention pond. The total required pond right-of-way area for Pond 21 is 1.52 acres. This basin is located within the WBID 1552 which is not impaired for nutrients; therefore, pollutant loading analysis is not required.

SECTION 7 RIGHT OF WAY COST ESTIMATE

The right-of-way cost estimate found in this report is a budget tool used by the Department to estimate total acquisition costs associated with each pond site and to budget the appropriate funds for acquisition. Right-of-way cost estimates are not real estate appraisals and do not reflect market value. In addition, FDOT uses appraisals that comply with the Uniform Standards of Professional Appraisal Practice (USPAP) for acquisition purposes.

Two right of way cost estimates have been prepared by the Department (**Appendix 3**) - one for only the ponds and another one including the mainline plus the ponds. The total estimate for stormwater ponds and FPC ponds (please refer to the **Technical Memo** for FPC ponds) is $17,744,200. The total estimate for all parcels (mainline, stormwater ponds and FPC ponds) is $22,587,400.

The FDOT's right of way department has provided suggestions with respect to a few of the pond sites. These suggestions are described below:

- Pond 1 was recommended to move to west to allow contiguous development of remainder to east.
- For Pond 2, taking from corner brings in higher outparcel value.
- Location and configuration of FPC 4 takes access to residentially improved property under different ownership and could create more takings or an inverse claim.

- Significant impact is caused by Pond 13 location in front of residence.
- Pond 20 is located close to mobile home on research facility, it could be reshaped (flattened) and moved to west or the entire pond could be moved to east of facility.

At the appropriate time, it would be advisable to consider reconfiguring or moving the aforementioned ponds to reduce potential severance damages.

SECTION 8 CONCLUSIONS AND RECOMMENDATIONS

Potential ponds have been sized along the project limits for this PD&E Study. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. Pond sizing calculations are included in **Technical Memo** of this Pond Sizing Report. Please note that the recommendations were based on pond sizes determined from preliminary data calculations, reasonable engineering judgment, and assumptions. Pond sizes and configurations may change during final design as more detailed information on SHWT, wetland normal pool elevation, final roadway profile design, etc. become available. Please refer to **Table 6** for recommended stormwater ponds.

Table 6 – Recommended Stormwater Pond Sizess

Basin / Pond Name	Limits	Type (Dry / Wet)	Segment	Req. Treatment + Attenuation (ac-ft)	Provided Treatment + Attenuation (ac-ft)	Pond Right-of-Way Area (ac)
1	399+00 to 422+00	Dry	1	1.30	1.34	1.02
2	422+00 to 440+90	Dry	1	1.06	1.08	0.89
3	440+90 to 501+14	Dry	1	3.75	3.78	1.93
4	501+14 to 559+13	Dry	1, 2A, 2B	4.96	5.06	2.37
5	559+13 to 589+12	Dry	2B	3.27	3.41	1.93
6	589+12 to 609+23	Wet	2B, 2C	1.17	1.18	2.40
7	609+23 to 635+64	Wet	2C	1.30	1.32	2.07
8	635+64 to 664+85	Wet	2C	1.35	1.40	3.09
9	664+85 to 686+53	Wet	3	1.35	1.36	4.63
10	686+53 to 697+64	Wet	3	0.54	0.55	1.38
11	697+64 to 709+89	Wet	3	0.47	0.51	1.10
12	709+89 to 753+92	Wet	3	4.40	4.47	13.11
13	753+92 to 798+47	Wet	3	2.28	2.32	2.56
14	798+47 to 824+38	Dry	3	0.34	0.35	0.55
15	824+38 to 866+04	Wet	3	0.98	1.02	1.45
16	866+04 to 903+20	Wet	3	1.91	1.93	2.73
17	903+20 to 925+38	Wet	3	0.90	0.94	1.38
18	925+38 to 960+03	Wet	3	1.26	1.26	1.45
19	960+03 to 984+97	Dry	3	0.73	0.76	0.73
20	984+97 to 1016+44	Dry	3	0.42	0.57	0.62
21	1016+44 to 1049+00	Dry	3	1.93	1.97	1.52
					Total	**48.91**

Appendix 1

Exhibits

Exhibit 1 – Project Location Map
Exhibit 2 – Drainage Basin Map
Exhibit 3 – USGS Quadrangle Map
Exhibit 4 – Soils Map
Exhibit 5 – Existing Land Use Map
Exhibit 6– FEMA FIRM Map
Exhibit 7-1 & 7-2 – Existing Typical Sections
Exhibits 8-1 to 8-9 – Proposed Typical Sections
Exhibits 9 – Straight Line Diagrams

MARTIN LUTHER KING BLVD

E ALEXANDER ST

S FORBES RD

CSX RAILROAD

JAMES L REDMAN PKWY

N VALRICO RD

Valrico Lake

Howell Branch Creek

Little Alafia River

SEGMENT 1

SEGMENT 2A

SEGMENT 2B

SEGMENT 2C

SEGMENT 3

STATE ROAD 60

BEGIN PROJECT

END PROJECT

LITHIA PINECREST RD

CSX RAILROAD

Turkey Creek

TURKEY CREEK RD

Lake Medard

S COUNTY ROAD 39

COUNTY LINE RD

English Creek

HILLSBOROUGH COUNTY

POLK COUNTY

Legend

- Project Limits
- Major Roads
- Streets
- Railroad
- Streams
- Lakes

North

0 2,250 4,500 Feet

0 0.5 1 Miles

DATA SOURCE:
HILLSBOROUGH COUNTY & POLK COUNTY

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
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Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROJECT LOCATION MAP

EXHIBIT
1

MARTIN LUTHER KING BLVD

SELFER CANAL

Valrico Lake

N VALRICO RD

S FORBES RD

SPARKMAN BRANCH

E ALEXANDER ST

JAMES L REDMAN PKWY

HOWELL BRANCH

HILLSBOROUGH COUNTY

POLK COUNTY

ENGLISH CREEK

COUNTY LINE RD

North

0 2,250 4,500 Feet

0 0.5 1 Miles

TURKEY CREEK

Little Alafia River

STATE ROAD 60

BRIDGE NO. 100058

BRIDGE NO. 100059

CD-01 CD-02 CD-03 CD-05 CD-06 CD-07 CD-08 CD-09 CD-10 CD-11 CD-12 CD-13 CD-14 CD-15 CD-16 CD-17 CD-18 CD-19 CD-20

BEGIN PROJECT

DELANEY CREEK

Turkey Creek

TURKEY CREEK RD

MEDARD PARK RUN

S COUNTY ROAD 39

BRIDGE NO. 100583 & 100584

UNNAMED BRANCH

END PROJECT

Lake Medard

CSX RAILROAD

English Creek

CSX RAILROAD

LITHIA PINECREST RD

BUCKHORN CREEK

NORTH PRONG ALAFIA RIVE

THIRTYMILE CREEK

SLOMAN BRANCH

Legend

- Bridge
- Cross Drain
- Flow Arrows
- Drainage Basins

DATA SOURCE:
DRAINAGE BASIN SHAPEFILE: SWFWMD

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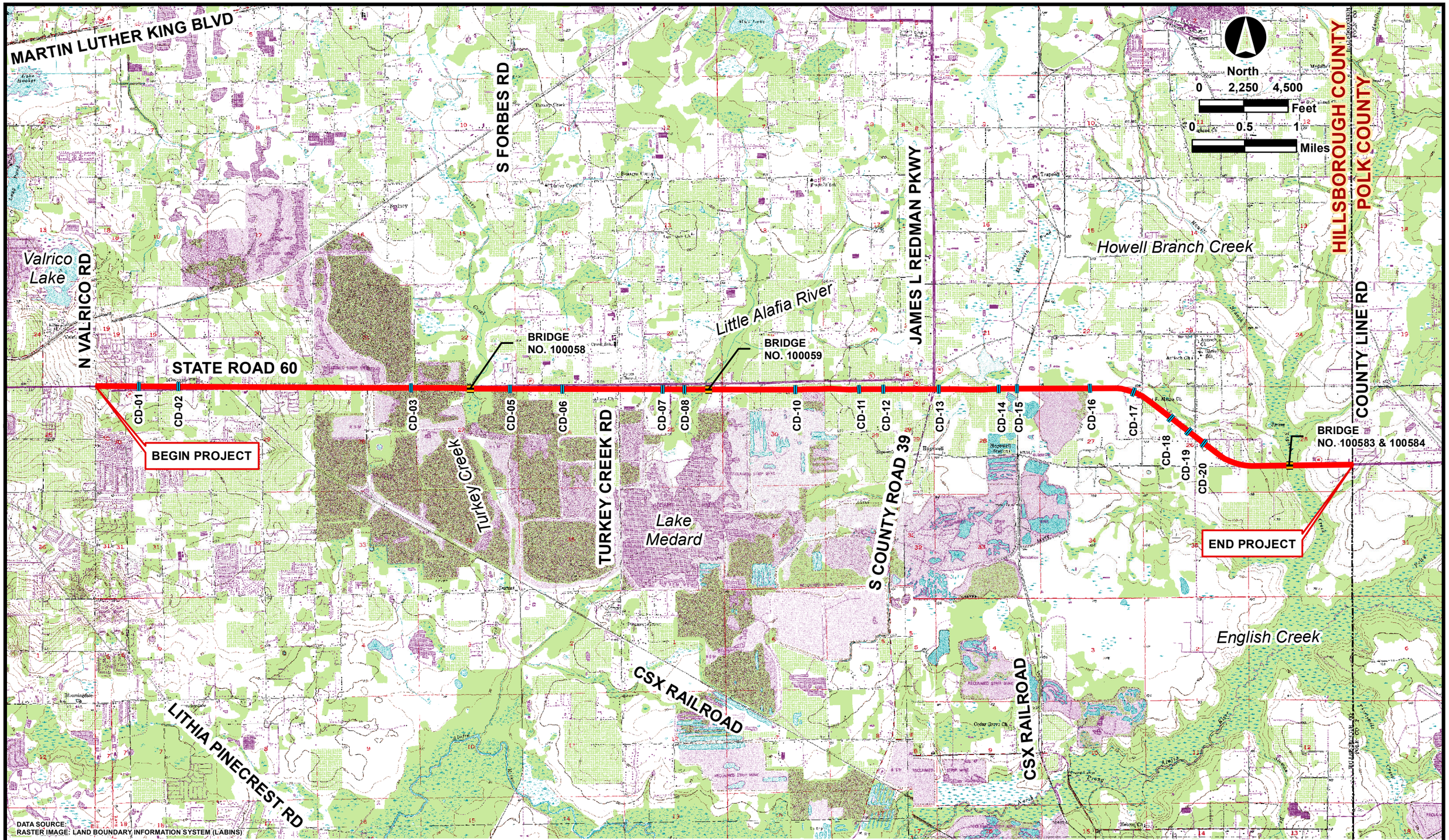
DRAINAGE BASIN MAP

EXHIBIT
2



DATA SOURCE:
RASTER IMAGE: LAND BOUNDARY INFORMATION SYSTEM (LABINS)

FLORIDA DEPARTMENT OF TRANSPORTATION
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USGS QUADRANGLE MAP

EXHIBIT
3

MARTIN LUTHER KING BLVD

S FORBES RD

JAMES L REDMAN PKWY

Valrico Lake

N VALRICO RD

Howell Branch Creek

Little Alafia River

STATE ROAD 60

BEGIN PROJECT

Turkey Creek

TURKEY CREEK RD

Lake Medard

S COUNTY ROAD 39

END PROJECT

COUNTY LINE RD

English Creek

CSX RAILROAD

CSX RAILROAD

HILLSBOROUGH COUNTY

POLK COUNTY

LITHIA PINECREST RD

North

0 2,250 4,500 Feet

0 0.5 1 Miles

Legend

Soil Ratings

- Water
- A
- A/D
- B
- B/D
- C
- D

DATA SOURCE:
SOILS SHAPEFILE - SWFWMD SSURGO DATA

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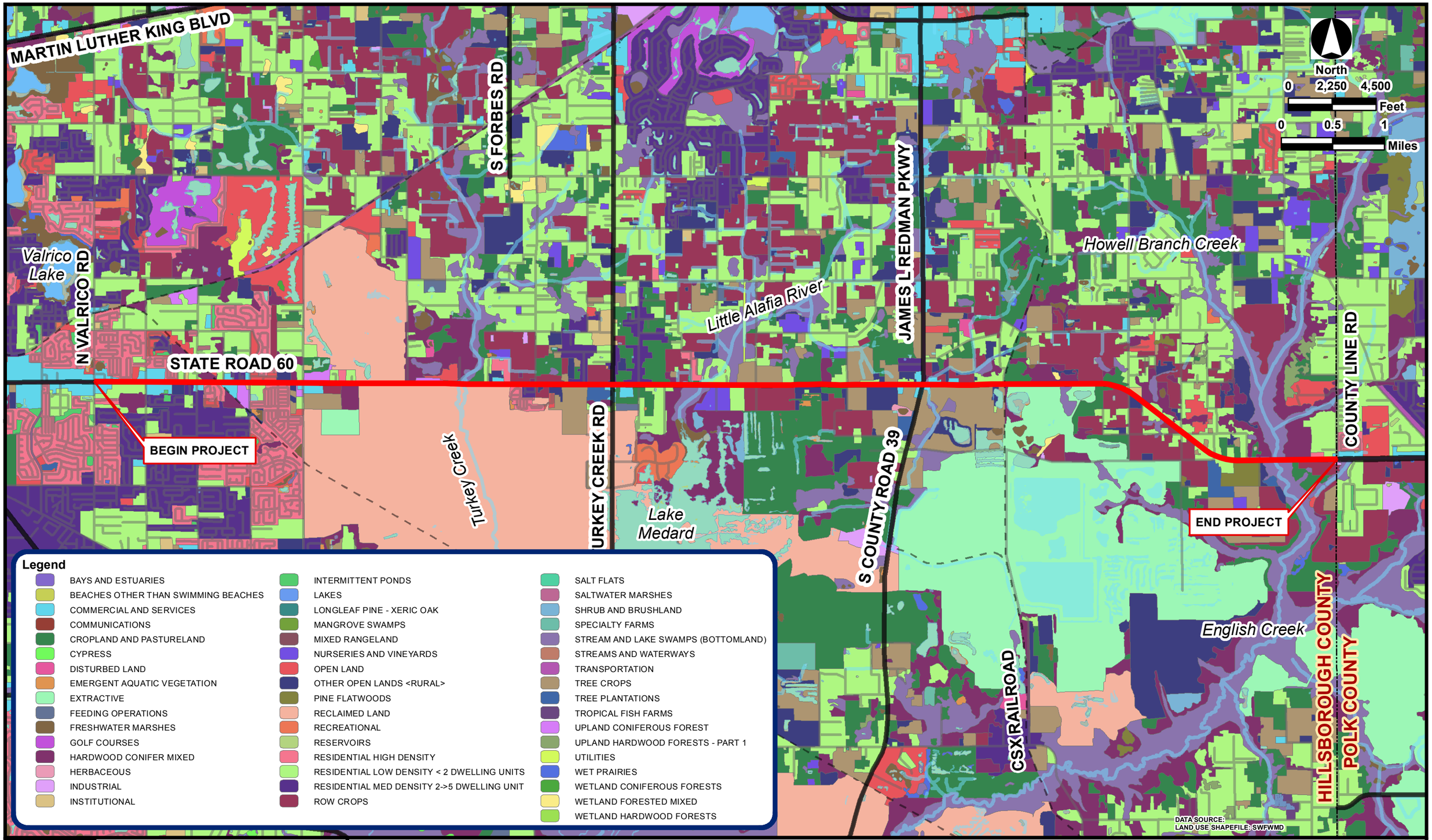
SOILS MAP

EXHIBIT
4



Legend

- BAYS AND ESTUARIES
- BEACHES OTHER THAN SWIMMING BEACHES
- COMMERCIAL AND SERVICES
- COMMUNICATIONS
- CROPLAND AND PASTURELAND
- CYPRESS
- DISTURBED LAND
- EMERGENT AQUATIC VEGETATION
- EXTRACTIVE
- FEEDING OPERATIONS
- FRESHWATER MARSHES
- GOLF COURSES
- HARDWOOD CONIFER MIXED
- HERBACEOUS
- INDUSTRIAL
- INSTITUTIONAL
- INTERMITTENT PONDS
- LAKES
- LONGLEAF PINE - XERIC OAK
- MANGROVE SWAMPS
- MIXED RANGELAND
- NURSERIES AND VINEYARDS
- OPEN LAND
- OTHER OPEN LANDS <RURAL>
- PINE FLATWOODS
- RECLAIMED LAND
- RECREATIONAL
- RESERVOIRS
- RESIDENTIAL HIGH DENSITY
- RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS
- RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT
- ROW CROPS
- SALT FLATS
- SALTWATER MARSHES
- SHRUB AND BRUSHLAND
- SPECIALTY FARMS
- STREAM AND LAKE SWAMPS (BOTTOMLAND)
- STREAMS AND WATERWAYS
- TRANSPORTATION
- TREE CROPS
- TREE PLANTATIONS
- TROPICAL FISH FARMS
- UPLAND CONIFEROUS FOREST
- UPLAND HARDWOOD FORESTS - PART 1
- UTILITIES
- WET PRAIRIES
- WETLAND CONIFEROUS FORESTS
- WETLAND FORESTED MIXED
- WETLAND HARDWOOD FORESTS

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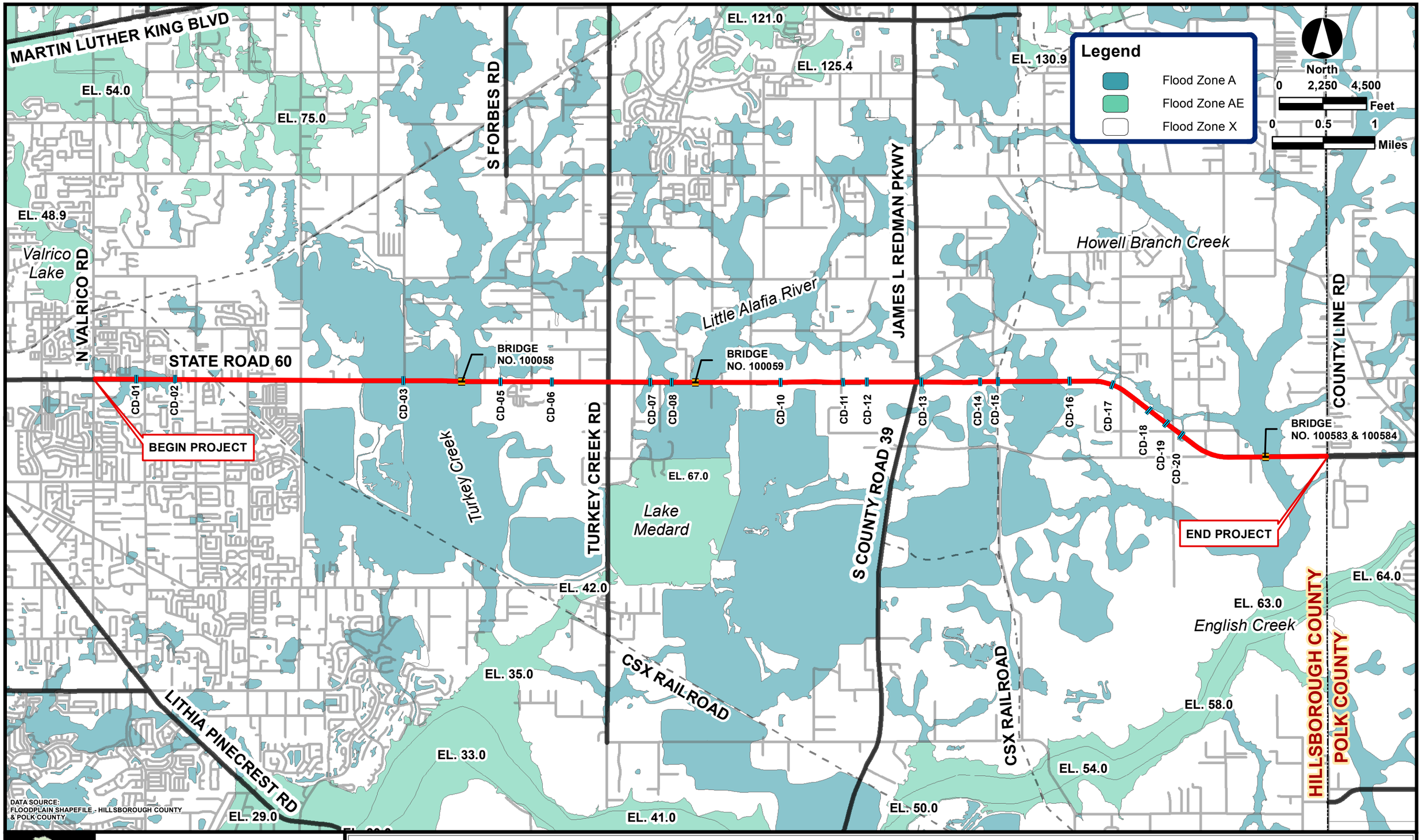
EXISTING LAND USE MAP

EXHIBIT
5



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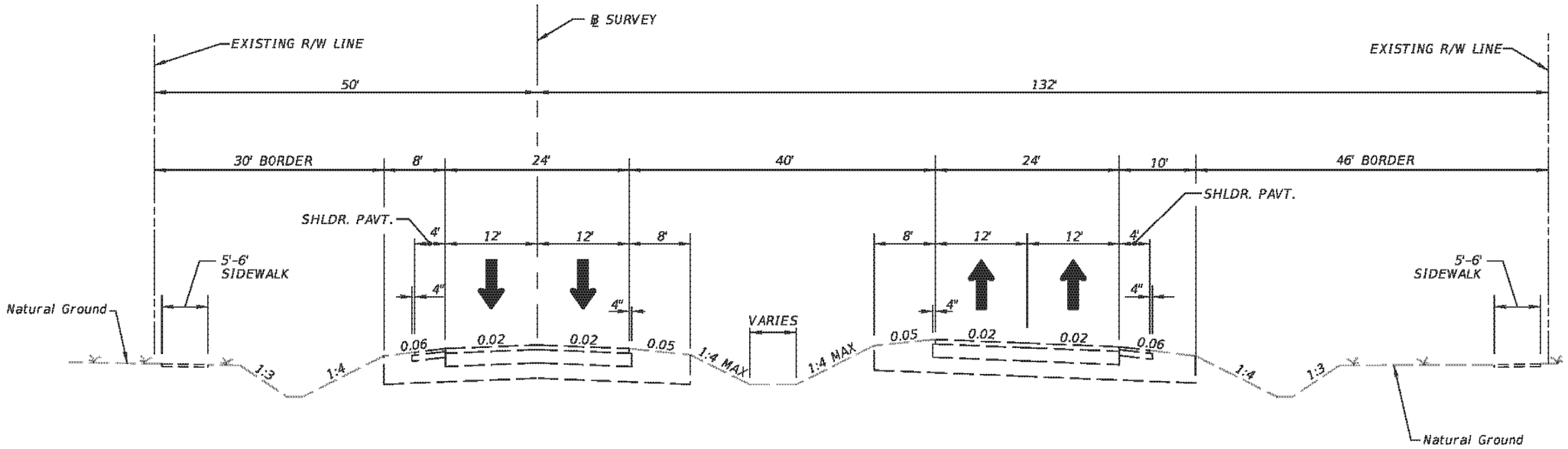
FEMA FIRM MAP

EXHIBIT
6



EXISTING TYPICAL SECTION
SR 60 (HOPEWELL ROAD)
FROM VALRICO ROAD TO THE POLK COUNTY LINE
DESIGN SPEED = 65 MPH
POSTED SPEED = 50-65 MPH

NOTES:

1. 5-6 FT SIDEWALK ON BOTH SIDES AT THE BEGINNING OF THE PROJECT. INTERMITTENT SIDEWALK ON ONE SIDE FOR SMALL SEGMENTS. RESURFACING AND NEW SIDEWALK CONSTRUCTION FROM TURKEY CREEK TO SR 39.

2. EXISTING SIGNALS AT VALRICO RD, MILLER RD, ST CLOUD AVE, MULRENNAN RD, DOVER RD, TURKEY CREEK RD, JAMES L. REDMAN PKWY, AND COUNTY LINE RD.

3. TWO EXISTING RAILROAD CROSSINGS.



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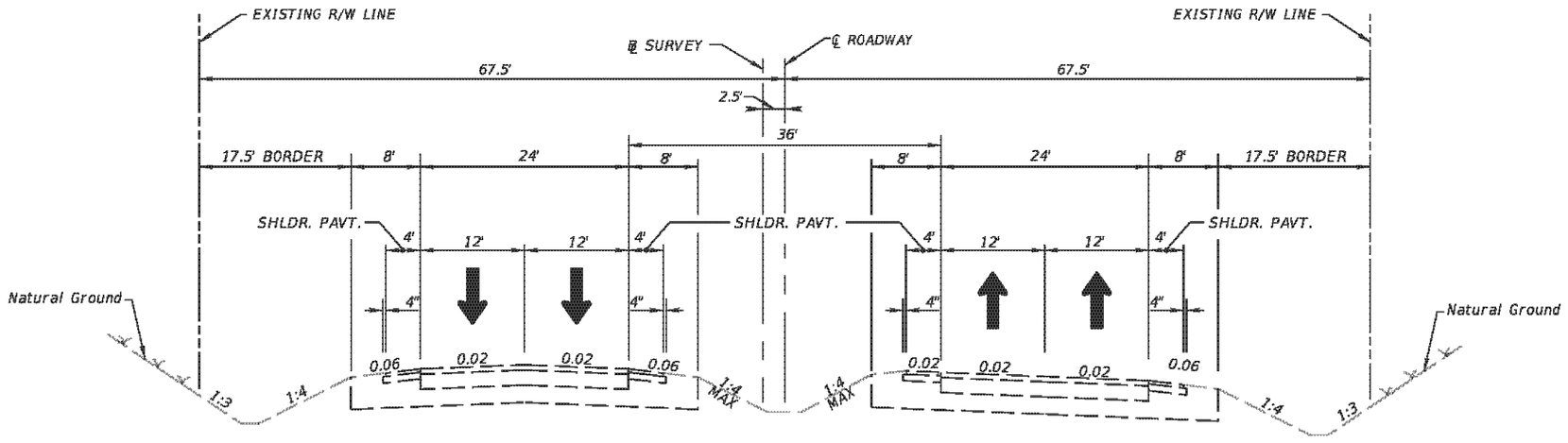
EXISTING TYPICAL SECTION (SEGMENT 1, 2A, 2C & 3)

EXHIBIT 7-1



EXISTING TYPICAL SECTION – SEGMENT 2B
SR 60 (HOPEWELL ROAD)
FROM WEST OF SYDNEY WASHER ROAD TO WEST OF MARGE OWENS ROAD
DESIGN SPEED = 65 MPH
POSTED SPEED = 60 MPH

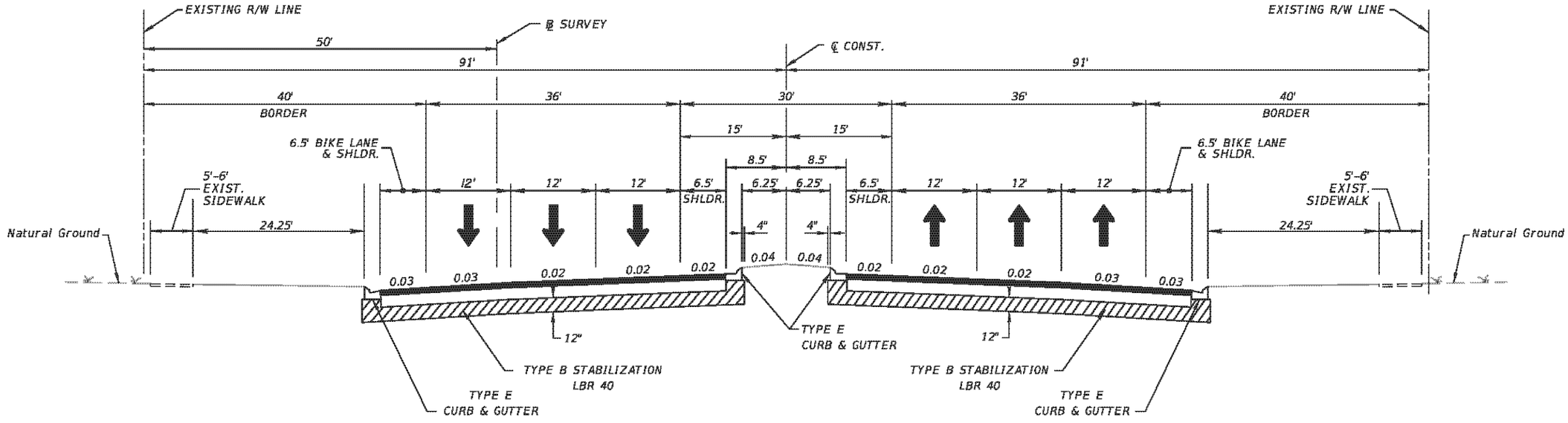


FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

EXISTING TYPICAL SECTION (SEGMENT 2B)

EXHIBIT 7-2



PROPOSED TYPICAL SECTION - SEGMENT 1
HIGH SPEED URBAN - NEW CONSTRUCTION
SR 60 (HOPEWELL ROAD)
FROM VALRICO ROAD TO DOVER ROAD
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH

NOTES:

1. ACCESS CLASS 3 - OPERATES AS CLASS 5.
2. MEETS CURRENT DESIGN CRITERIA.
3. NO RIGHT OF WAY IMPACTS.
4. CLOSED DRAINAGE SYSTEM.
5. EXISTING SIDEWALK SAVED.
6. APPROXIMATE CONSTRUCTION COST: $7.6M PER MILE

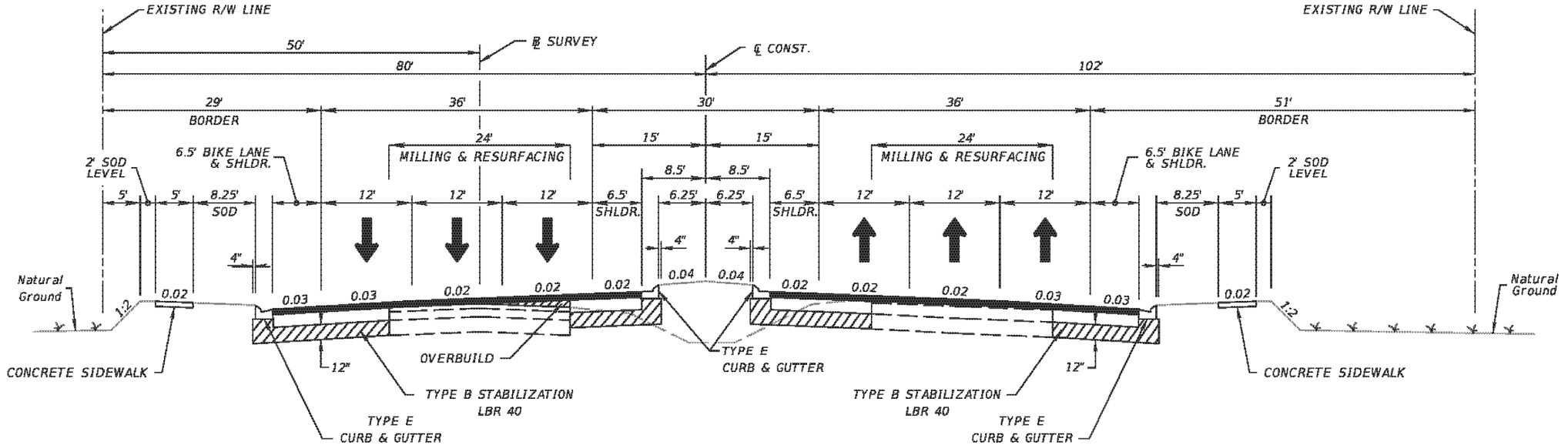


FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 1- NEW CONSTRUCTION)

EXHIBIT 8-1



PROPOSED TYPICAL SECTION - SEGMENT 1
HIGH SPEED URBAN - PAVEMENT SAVING
SR 60 (HOPEWELL ROAD)
FROM VALRICO ROAD TO DOVER ROAD
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH

NOTES:

1. ACCESS CLASS 3
2. MEETS CURRENT DESIGN CRITERIA.
3. NO RIGHT OF WAY IMPACTS.
4. CURB AND SIDEWALK RELOCATED.
5. REDUCED UTILITY IMPACTS AND CONSTRUCTION TIME.
6. BASE CLEARANCE ISSUE.
7. APPROXIMATE CONSTRUCTION COST: $5.7M PER MILE

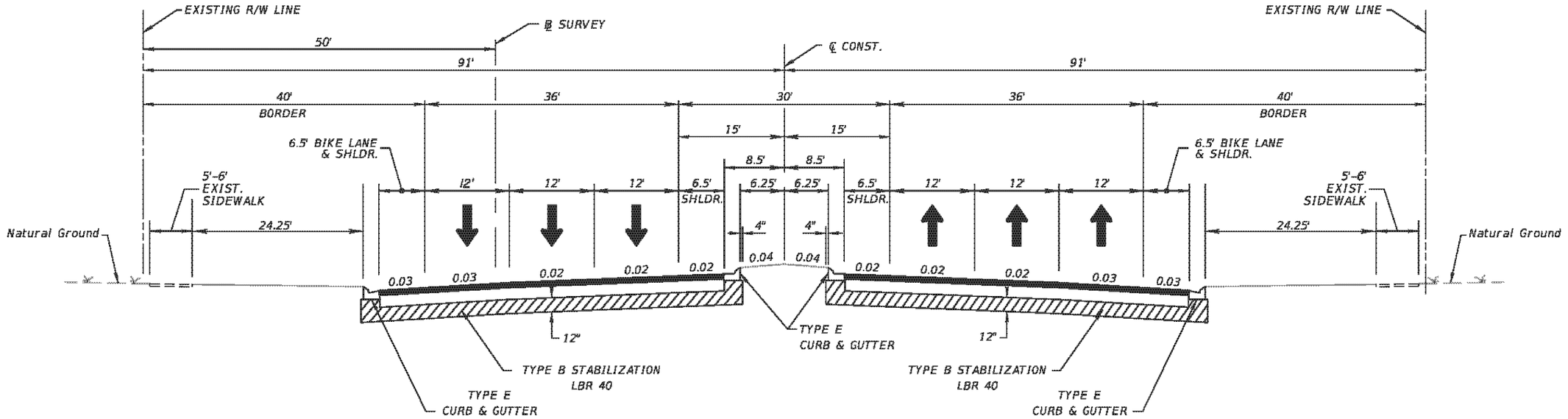


FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 1- PAVEMENT SAVING)

EXHIBIT 8-2



PROPOSED TYPICAL SECTION – SEGMENT 2A
HIGH SPEED URBAN – NEW CONSTRUCTION
SR 60 (HOPEWELL ROAD)
FROM DOVER ROAD TO WEST OF SYDNEY WASHER ROAD
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH

NOTES:

1. ACCESS CLASS 3 – OPERATES AS CLASS 5.
2. MEETS CURRENT DESIGN CRITERIA.
3. NO RIGHT OF WAY IMPACTS.
4. CLOSED DRAINAGE SYSTEM.
5. EXISTING SIDEWALK SAVED.
6. APPROXIMATE CONSTRUCTION COST: $7.6M PER MILE

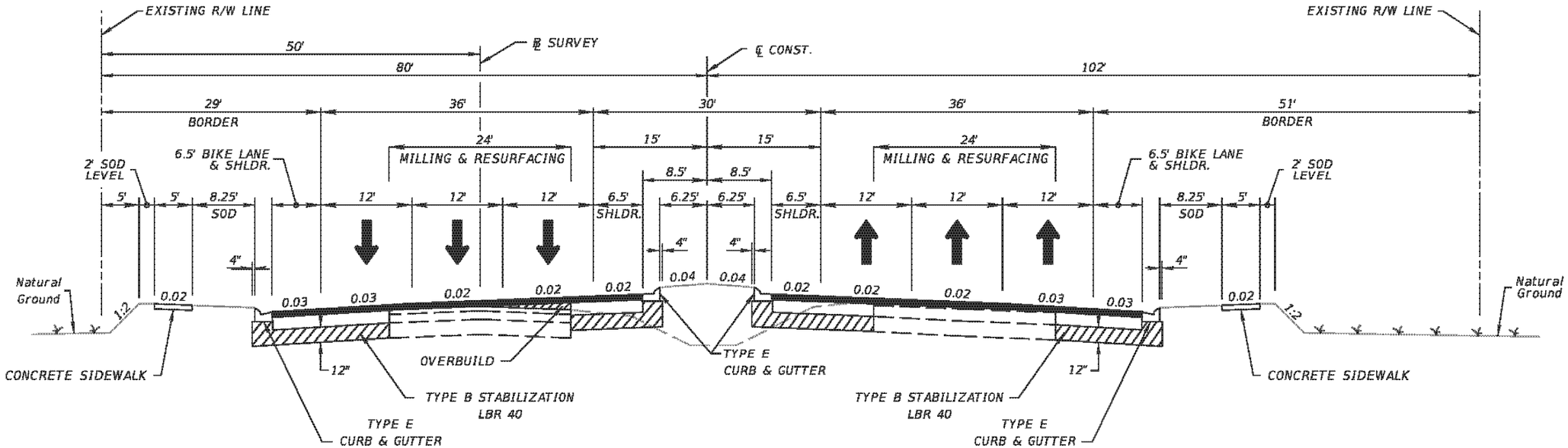


FDOT
FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 2A - NEW CONSTRUCTION)

EXHIBIT 8-3



PROPOSED TYPICAL SECTION - SEGMENT 2A
HIGH SPEED URBAN - PAVEMENT SAVING
SR 60 (HOPEWELL ROAD)
FROM DOVER ROAD TO WEST OF SYDNEY WASHER ROAD
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH

NOTES:

1. ACCESS CLASS 3
2. MEETS CURRENT DESIGN CRITERIA.
3. NO RIGHT OF WAY IMPACTS.
4. CURB AND SIDEWALK RELOCATED.
5. REDUCED UTILITY IMPACTS AND CONSTRUCTION TIME.
6. BASE CLEARANCE ISSUE.
7. APPROXIMATE CONSTRUCTION COST: $5.7M PER MILE

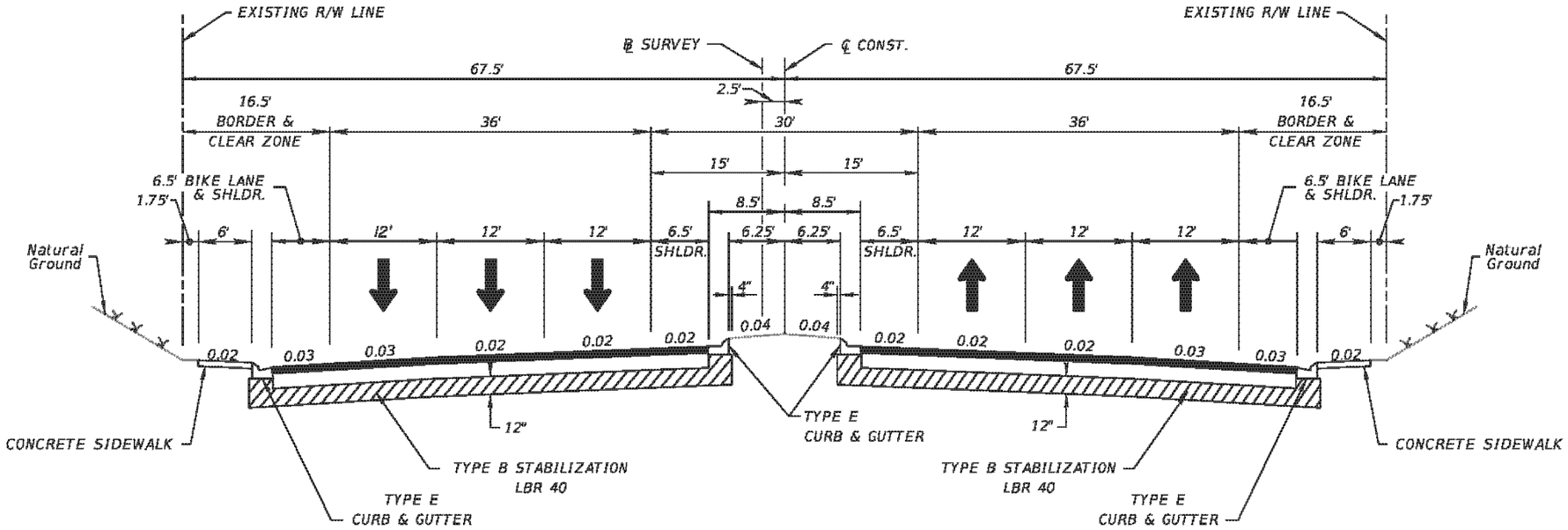


FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 2A - PAVEMENT SAVING)

EXHIBIT 8-4



PROPOSED TYPICAL SECTION – SEGMENT 2B
HIGH SPEED URBAN – NEW CONSTRUCTION
SR 60 (HOPEWELL ROAD)
FROM WEST OF SYDNEY WASHER ROAD TO WEST OF MARGE OWENS ROAD
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH

NOTES:

1. ACCESS CLASS 3
2. BORDER WIDTH AND CLEAR ZONE VARIATIONS REQUIRED.
3. NO RIGHT OF WAY IMPACTS.
4. CLOSED DRAINAGE SYSTEM.
5. REDUCED POSTED SPEED

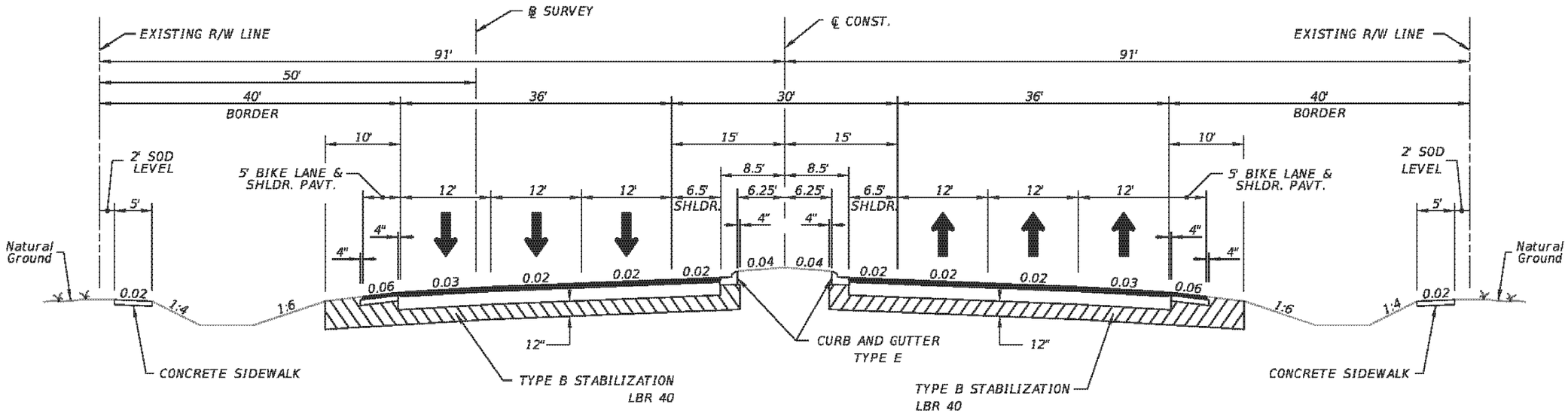


FDOT
FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 2B - NEW CONSTRUCTION)

EXHIBIT 8-5



PROPOSED TYPICAL SECTION – SEGMENT 2C
HIGH SPEED SUBURBAN – NEW CONSTRUCTION
SR 60 (HOPEWELL ROAD)
FROM WEST OF MARGE OWENS ROAD TO TURKEY CREEK ROAD
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH

NOTES:

1. ACCESS CLASS 3
2. MEETS CURRENT DESIGN CRITERIA.
3. NO RIGHT OF WAY IMPACTS.
4. CONVEYANCE DITCHES TO OFFSITE PONDS
5. APPROXIMATE CONSTRUCTION COST: $8.2M PER MILE

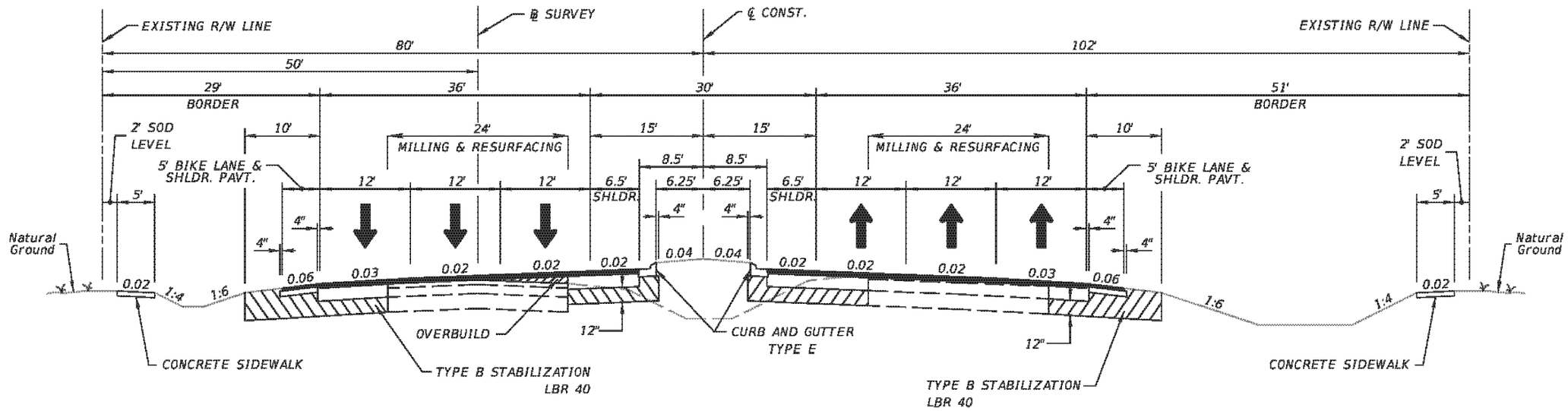


FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 2C - NEW CONSTRUCTION)

EXHIBIT 8-6



PROPOSED TYPICAL SECTION - SEGMENT 2C
HIGH SPEED SUBURBAN - PAVEMENT SAVING
SR 60 (HOPEWELL ROAD)
FROM WEST OF MARGE OWENS ROAD TO TURKEY CREEK ROAD
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH

NOTES:

1. ACCESS CLASS 3
2. MEETS CURRENT DESIGN CRITERIA.
3. NO RIGHT OF WAY IMPACTS.
4. CONVEYANCE DITCHES TO OFFSITE PONDS
5. APPROXIMATE CONSTRUCTION COST: $6.7M PER MILE

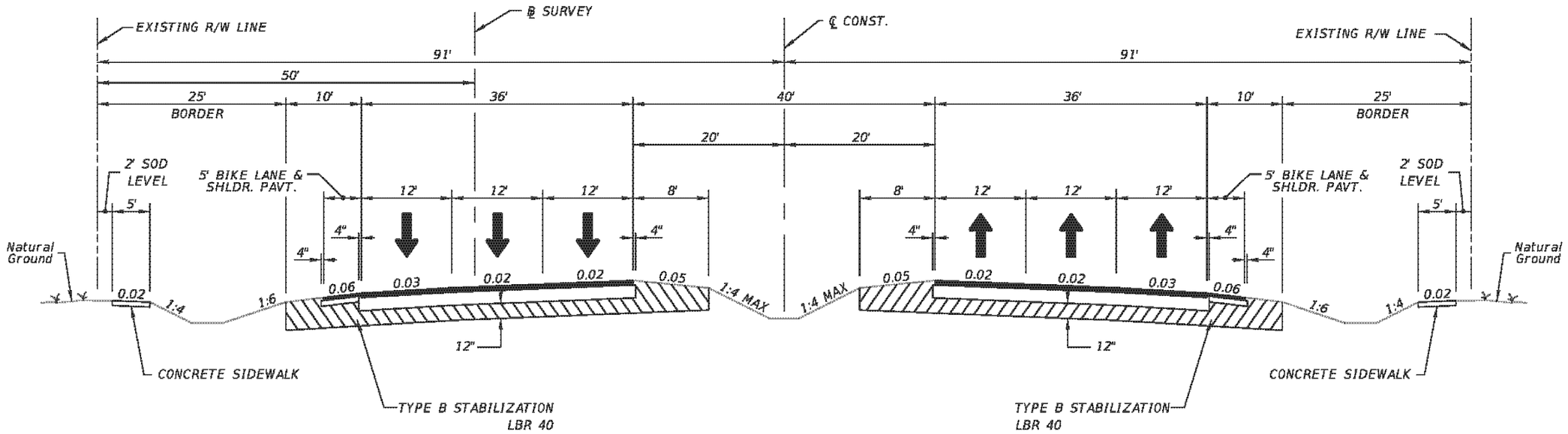


FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 2C - PAVEMENT SAVING)

EXHIBIT
8-7



PROPOSED TYPICAL SECTION - SEGMENT 3
RURAL - NEW CONSTRUCTION
SR 60 (HOPEWELL ROAD)
FROM TURKEY CREEK ROAD TO THE POLK COUNTY LINE
DESIGN SPEED = 70 MPH
POSTED SPEED = 65 MPH

NOTES:

1. ACCESS CLASS 3
2. CENTERED WITHIN EXISTING ROW.
3. BORDER WIDTH VARIATION REQUIRED.
4. CONVEYANCE DITCHES TO OFFSITE PONDS
5. APPROXIMATE CONSTRUCTION COST: $10.6M PER MILE

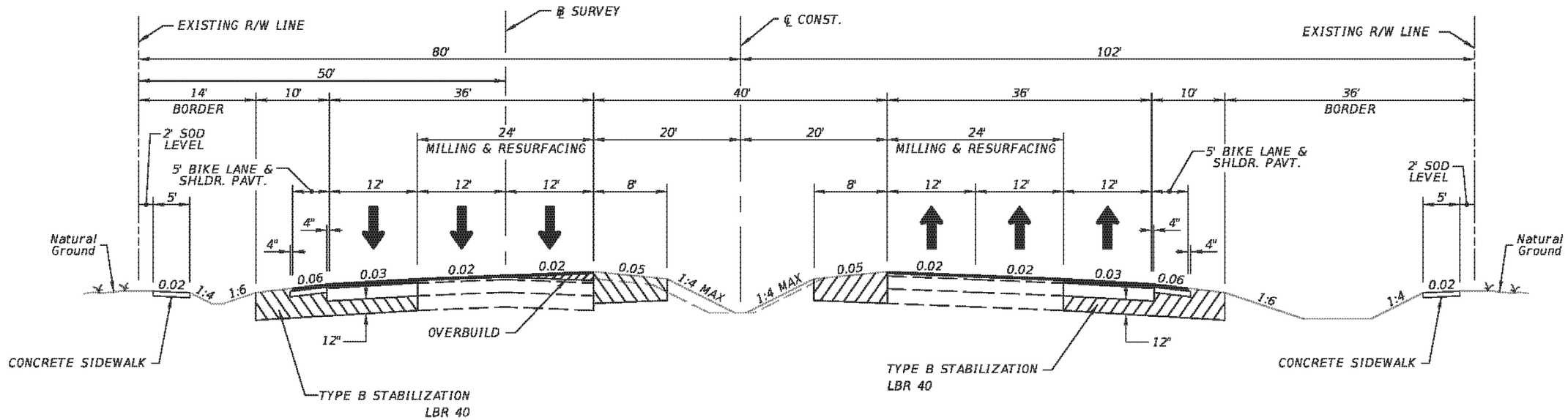


FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 3 - NEW CONSTRUCTION)

EXHIBIT 8-8



PROPOSED TYPICAL SECTION – SEGMENT 3
RURAL – PAVEMENT SAVING
SR 60 (HOPEWELL ROAD)
FROM TURKEY CREEK ROAD TO THE POLK COUNTY LINE
DESIGN SPEED = 70 MPH
POSTED SPEED = 65 MPH

NOTES:

1. ACCESS CLASS 3

2. NO MAINLINE ROW REQUIRED. BORDER WIDTH VARIATION REQUIRED.

3. WIDEN TO THE OUTSIDE.

4. CONVEYANCE DITCHES TO OFFSITE PONDS

5. APPROXIMATE CONSTRUCTION COST: $8.2M PER MILE



FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 7

SR 60 PD&E Study
from Valrico Road to the Polk County Line
Hillsborough County, Florida
Work Program Item Segment No.: 430055-1

PROPOSED TYPICAL SECTION (SEGMENT 3 - PAVEMENT SAVING)

EXHIBIT 8-9

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

FLORIDA DEPARTMENT OF TRANSPORTATION

	5 YR INV	SLD REV
DATE	1/27/2010	3/22/2010
BY	MEI/JM-KA	MEI/KA

INTERIM REVISIONS

BMP	EMP	INV	SLD REV
9.772	11.456	11/16/2010	12/06/2010
CONSTRUCTION		MEI/JM-MCS	MEI/KA
ACCEPTANCE			

INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	SECTION	SHEET NO. / OF.
	SR 60	HILLSBOROUGH	7	10 110 000	3 / 4

10 11 12

ROADWAY FEATURES

E BRANDON BLVD · E BRANDON BLVD ›‹ E SR 60 · E SR 60

RIDGEWOOD AVE A 10.064 · OAKWOOD AVE A 10.191 · WESTCHESTER OAKS LN A 10.418 · GRACE BIBLE CHURCH A 10.477 ENTR · WALMART A 10.708 ENTR · HOME DEPOT A 10.864 ENTR · N MT CARMEL RD A 10.947 · PIERCE CHRISTIE DR A 10.998 · HUNTER RD A 11.097 · BRANDON BLVD SHOPPES A 11.291 ENTR · 5349 · 11.300 · N VALRICO RD A 11.456 · JELANE DR A 11.557 · ROLLING HILLS BLVD A 11.631 · N MILLER RD A 11.957 · OAKHIL VILLAGE CIR A 12.180 · OAKHIL VILLAGE CIR A 12.246 · CHURCH ST A 12.322 · N ST CLOUD AVE A 12.456

60

10.064 ENTR A NATIVITY CATHOLIC SCHOOL · 10.191 S OAKWOOD AVE A · 10.342 GLENDALE RD A · 10.477 E BEVERLY BLVD A · 10.852 ENTR A LOWE'S · 10.947 S MT CARMEL RD A · 11.128 MORNINGSIDE DR A · 11.291 ENTR A VALRICO SQUARE · 11.456 S VALRICO RD A · 11.957 S MILLER RD A · 12.093 A SWEETBAY · 12.180 ENTR A THE SHOPPES AT BRANDON FARMS · 12.381 TEN OAK PL A · 12.456 S ST CLOUD AVE A

LANE WIDTHS ARE AVERAGED

INVENTORY DIRECTION E

10.008 10.064: 133.0'-92.0' 8-11.5' RDWY 29.0' CX6 MED 2•4.0' PVD SHLD1 2•2.0' C&G SHLD2 | 10.064 10.191: 121.0'-81.0' 3-11.0' RDWY - LT 4-12.0' RDWY - RT 28.0' CB<6/LWN MED 2•2.0' C&G INSHLD1 2•4.0' PVD SHLD1 2•2.0' C&G SHLD2

10.248 10.342: 133.0'-92.0' 8-11.5' RDWY 29.0' CB<6/LWN MED 2•2.0' C&G INSHLD1 2•4.0' PVD SHLD1 2•2.0' C&G SHLD2

10.411 10.477: 133.0'-92.0' 8-11.5' RDWY 29.0' CX6 MED 2•4.0' PVD SHLD1 2•2.0' C&G SHLD2

10.708 10.947: 133.0'-92.0' 8-11.5' RDWY 29.0' CB<6/LWN MED 2•2.0' C&G INSHLD1 2•4.0' PVD SHLD1 2•2.0' C&G SHLD2

11.291 11.456: 116.0'-84.0' 4-11.5' RDWY - LT 3-12.0' RDWY - RT 29.0' CB<6/LWN MED 2•2.0' C&G INSHLD1 2•4.0' PVD SHLD1 2•2.0' C&G SHLD2

11.456 11.820: 122.0'-60.0' 3-12.0' RDWY - LT 2-12.0' RDWY - RT 28.0' CB<6/LWN MED 2•2.0' C&G INSHLD1 2•5.0' PVD SHLD1 2•12.0' LWN SHLD2

11.820 12.093: 120.0'-48.0' 4-12.0' RDWY 40.0' CB<6/LWN MED 2.0' CRG INSHLD1 - RT 2•4.0' PVD SHLD1 2•12.0' LWN SHLD2

12.093 12.180: 106.0'-48.0' 4-12.0' RDWY 41.0' CB<6/LWN MED 2•2.0' C&G INSHLD1 4.0' PVD SHLD1 - LT 5.0' PVD SHLD1 - RT 2•4.0' LWN SHLD2

12.180 12.334: 118.0'-48.0' 4-12.0' RDWY 40.0' CB<6/LWN MED 2•2.0' C&G INSHLD1 2•4.0' PVD SHLD1 10.0' LWN SHLD2 - LT 12.0' LWN SHLD2 - RT

12.334 12.456: 117.0'-48.0' 4-12.0' RDWY 39.0' DC MED 2•4.0' PVD SHLD1 10.0' LWN SHLD2 - LT 12.0' LWN SHLD2 - RT

11.687 11.957: 120.0'-48.0' 4-12.0' RDWY 40.0' LWN MED 2•4.0' PVD SHLD1 2•12.0' LWN SHLD2

11.957 12.180: 114.0'-48.0' 4-12.0' RDWY 41.0' LWN MED 4.0' PVD SHLD1 - LT 5.0' PVD SHLD1 - RT 4.0' LWN SHLD2 - LT 12.0' LWN SHLD2 - RT

ROADWAY COMPOSITION

10.000 10.020: 28/FC-3 · 28/FC-3 · 28/FC-3 · 28/FC-3

11.456 11.956: 28/FC-3 · 28/FC-3

HORIZONTAL ALIGNMENT

Δ-2° 27'00" PI-10.091 B-S89° 33'45"E

Δ-0° 11'04" D-0° 05' PC-10.294 PI-10.315 PT-10.336 Δ-0° 10'00" PI-10.333 B-N89° 16'55"E

B-S89° 27'59"E

Δ-0° 50'54" D-0° 02' PC-11.152 PI-11.363 PT-11.634 Δ-0° 51'00" PI-11.392 B-S89° 41'07"E

B-N83° 11'25"E

STRUCTURE DESCRIPTION

11.773 CC 54 X 1-18" · 11.868 CC 126 X 1-24" · 11.972 CC 96 X 1-18" · 12.246 CC 126 X 1-36" · 12.321 CC 63 X 1-18" · 12.496 CC 63 X 1-18"

DISTRICT USE

11.344: FM*255702-15201 (MP 11.344-MP 16.317) · 2000-FEDERAL AID RESURFACE/ REPAVE

11.332: FM*413395-15201 (MP 11.332-MP 16.551) · 2007-RESURFACING

SIS: SIS HIGHWAY FACILITY

FUN CLASS: URBAN OTHER PRINCIPAL ARTERIAL

13 14 15

ROADWAY FEATURES

N MULRENNAN RD A 12.967 · HARDCASTLE PL A 13.098 · X OUTSIDE CITY & URBAN · S DOVER RD A 13.487 · VALRICO HILLS MHP A 13.829 ENTR · ORCHIDGROVE LN A 13.956 · E SR 60 · SYDNEY WASHER RD A 14.500 · X INSIDE URBAN, OUTSIDE CITY · X TAMPA · MARGE OWENS RD A 15.284 · STARLITE MHP A 15.453 ENTR

5607 13.063 · 0012 13.709 · 60 · TURKEY CREEK 15.061 · •058

12.456 12.967: 117.0'-48.0' 4-12.0' RDWY 40.0' DC MED 2•4.0' PVD SHLD1 10.0' LWN SHLD2 - LT 12.0' LWN SHLD2 - RT

KNOTTY OAK LN A 12.580 · VALRICO STATION RD A 12.651

LANE WIDTHS ARE AVERAGED

INVENTORY DIRECTION E

12.967 13.063: 115.0'-48.0' 4-12.0' RDWY 37.0' DC MED 2•4.0' PVD INSHLD1 2•4.0' PVD SHLD1 10.0' LWN SHLD2 - LT 12.0' LWN SHLD2 - RT

14.198 15.196: 118.0'-48.0' 4-12.0' RDWY 40.0' DC MED 2•4.0' PVD SHLD1 10.0' LWN SHLD2 - LT 12.0' LWN SHLD2 - RT

ROADWAY COMPOSITION

12.500: 28/FC-3 · 28/FC-3

HORIZONTAL ALIGNMENT

B-N83° 11'25"E

Δ-0° 07'00" PI-13.314 B-N83° 18'25"E

Δ-2° 46'54" PI-14.189 Δ-2° 46'54" PI-14.200 B-N80° 31'31"E

B-N83° 18'25"E

Δ-2° 45'00" PI-14.940 B-N86° 03'25"E

STRUCTURE DESCRIPTION

12.986 CC 63 X 1-18" · 13.151 CC 63 X 1-18" · 13.485 CC 63 X 1-18" · 13.649 CC 63 X 1-18" · 13.988 CC 63 X 1-18" · 14.140 CC 63 X 1-18" · 14.387 CC 63 X 1-18" · 14.485 CC 109 X 1-36" · 15.058 CC 54 X 1-18" · 15.064 CC 54 X 1-18" · •058 · 15.238 CC 74 X 1-18" · 15.434 CC 147 X 1-36"

DISTRICT USE

12.629: FM*255563-15201 (MP 12.629-MP 12.669) · 1993-RAILROAD CROSSING

12.700: FM*255477-15201 (MP 12.500-MP 12.700) 1997-RAILROAD CROSSING

13.377: FM*255771-15201 (MP 13.377-MP 13.577) · 1998-TRAFFIC SIGNALS

SIS: SIS HIGHWAY FACILITY

FUN CLASS: URBAN OTHER PRINCIPAL ARTERIAL · 13.947 RURAL PRINCIPAL ARTERIAL -- OTHER · 14.502 URBAN OTHER PRINCIPAL ARTERIAL

EXHIBIT 9 (PART 1)

	5 YR INV	SLD REV
DATE	1/27/2010	3/22/2010
BY	MEI/JM-KA	MEI/KA

INTERIM REVISIONS

BMP	EMP	INV	SLD REV
19.793	21.471	04/2V2011	06/09/2011
QAR REVISION		QAR TEAM	MEI/KA

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

FLORIDA DEPARTMENT OF TRANSPORTATION

INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO. / OF.
	SR 60	HILLSBOROUGH	7	10 110 000	4 / 4 19

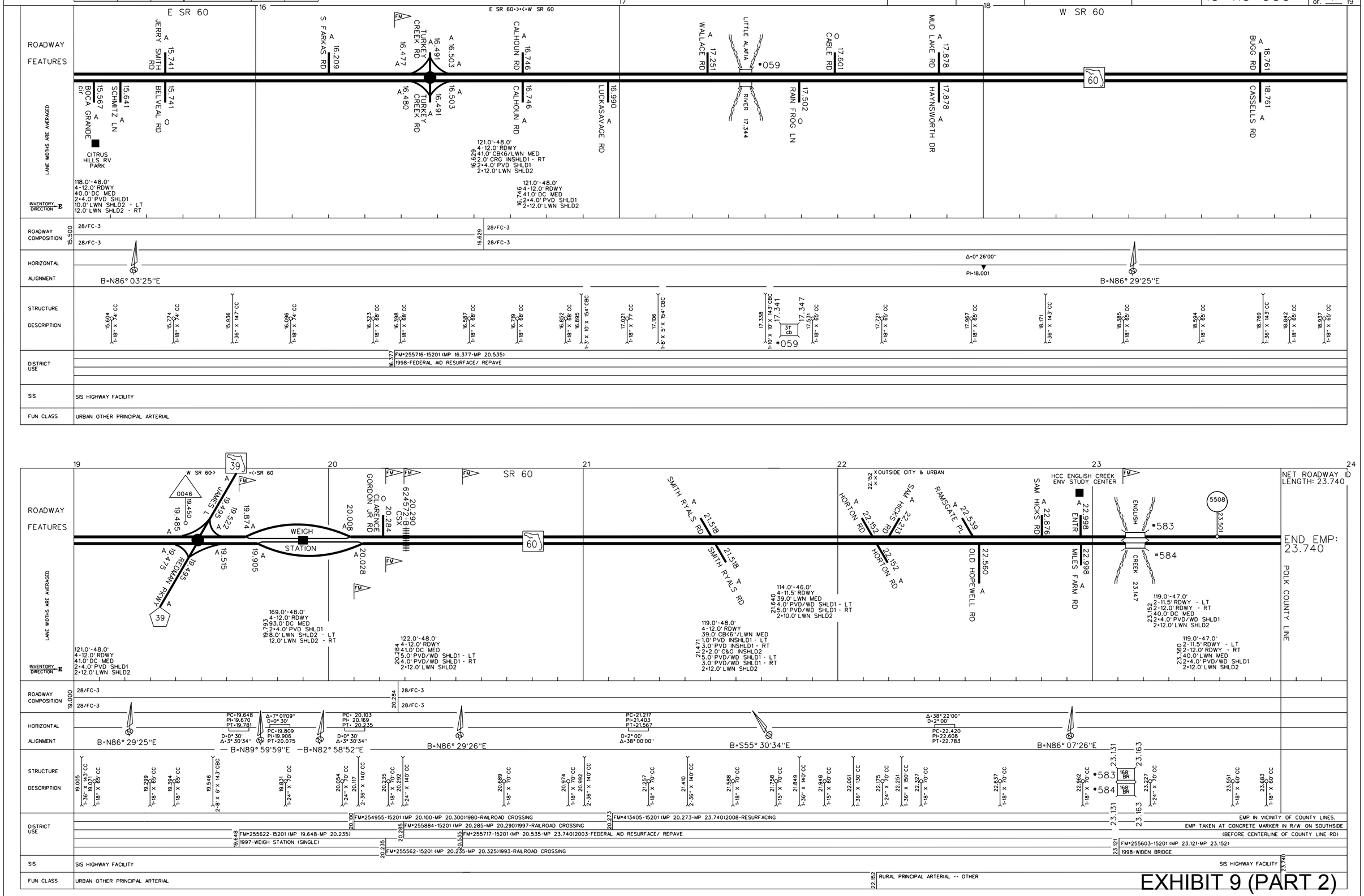
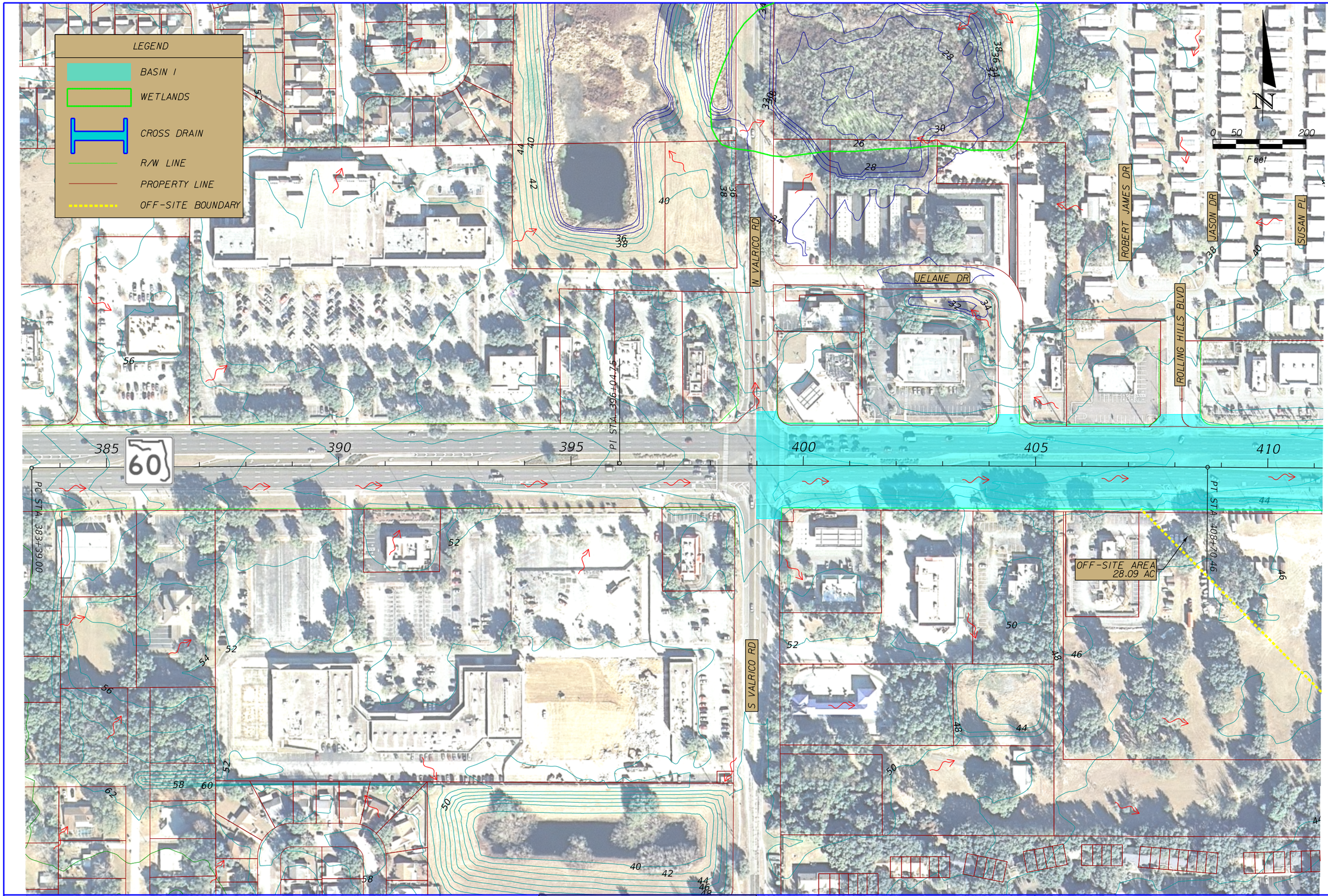


EXHIBIT 9 (PART 2)

Appendix 2

Drainage Maps



NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 1

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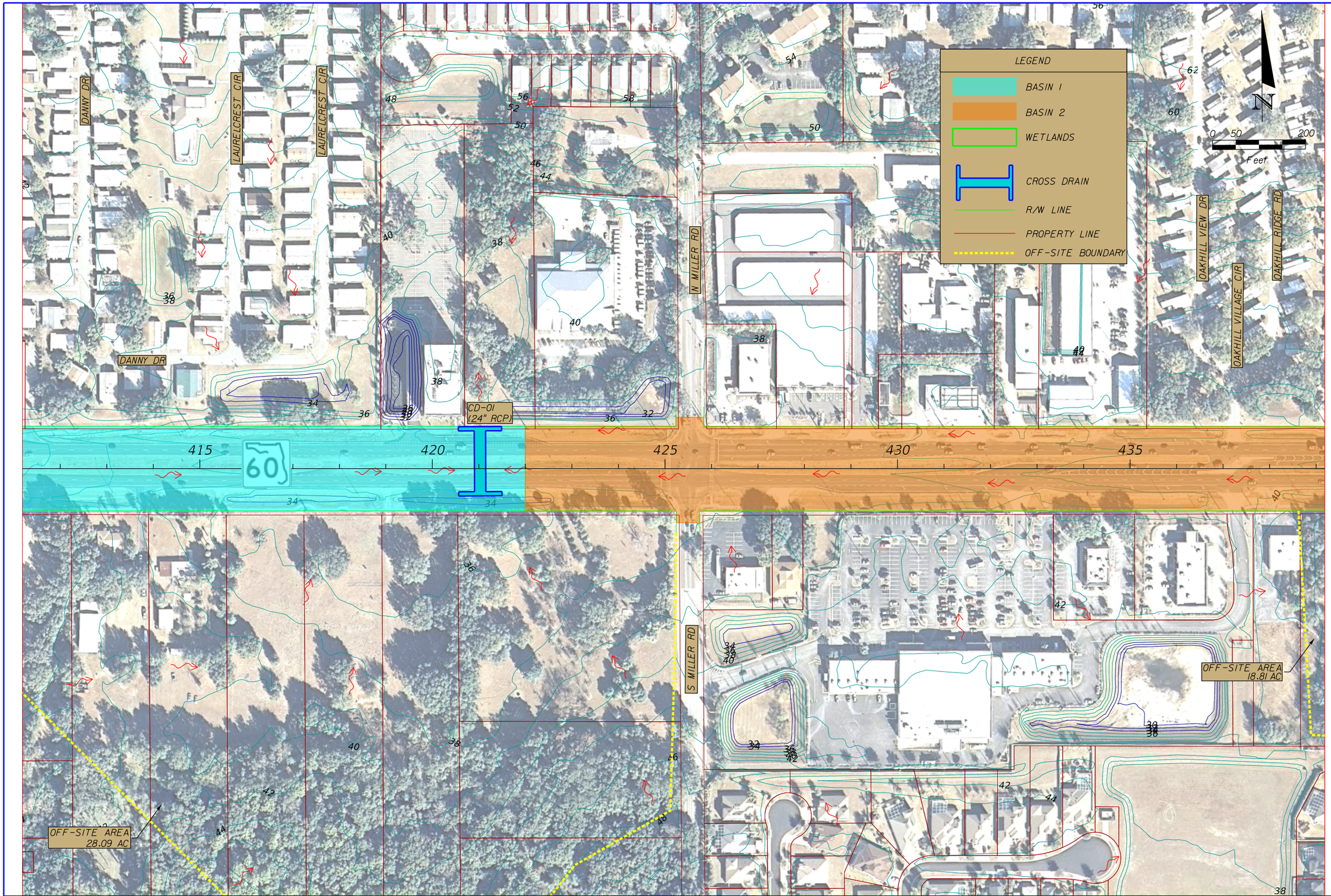

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PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 2

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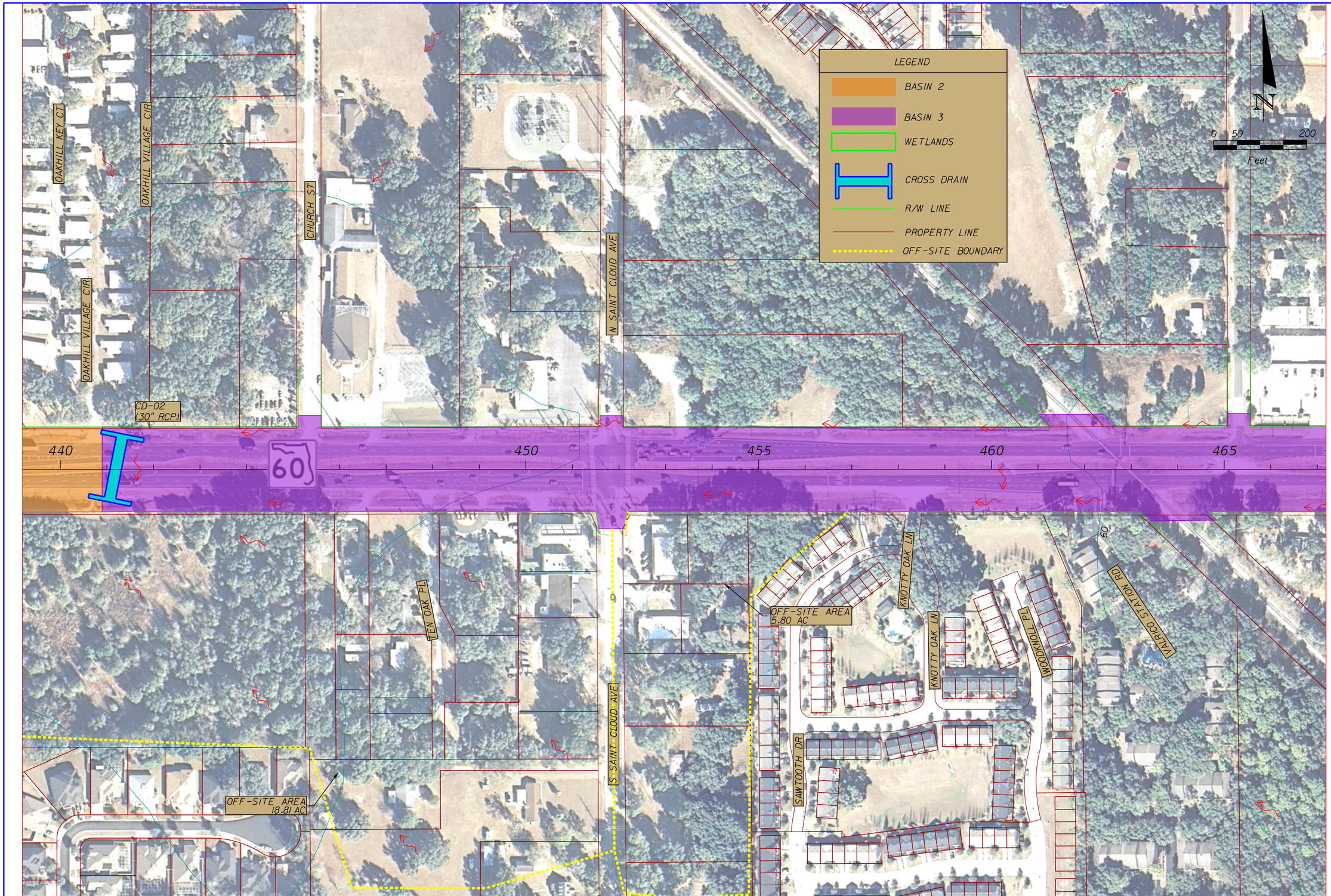

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

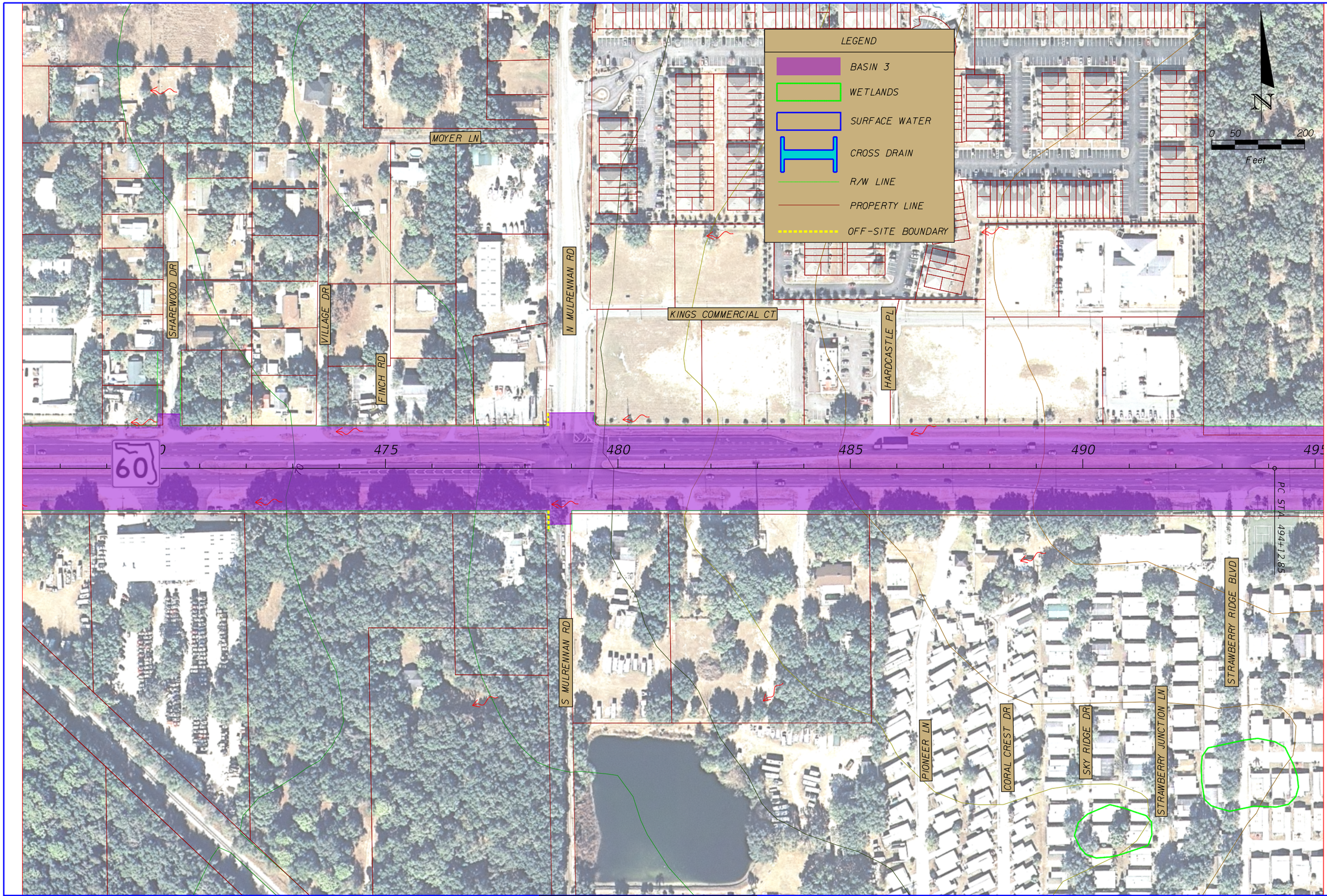
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 3

kislam 1/6/2014 2:35:01 PM F:\Projects\RKK-002-01\drainage\DRMPRD03.dgn



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P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 4

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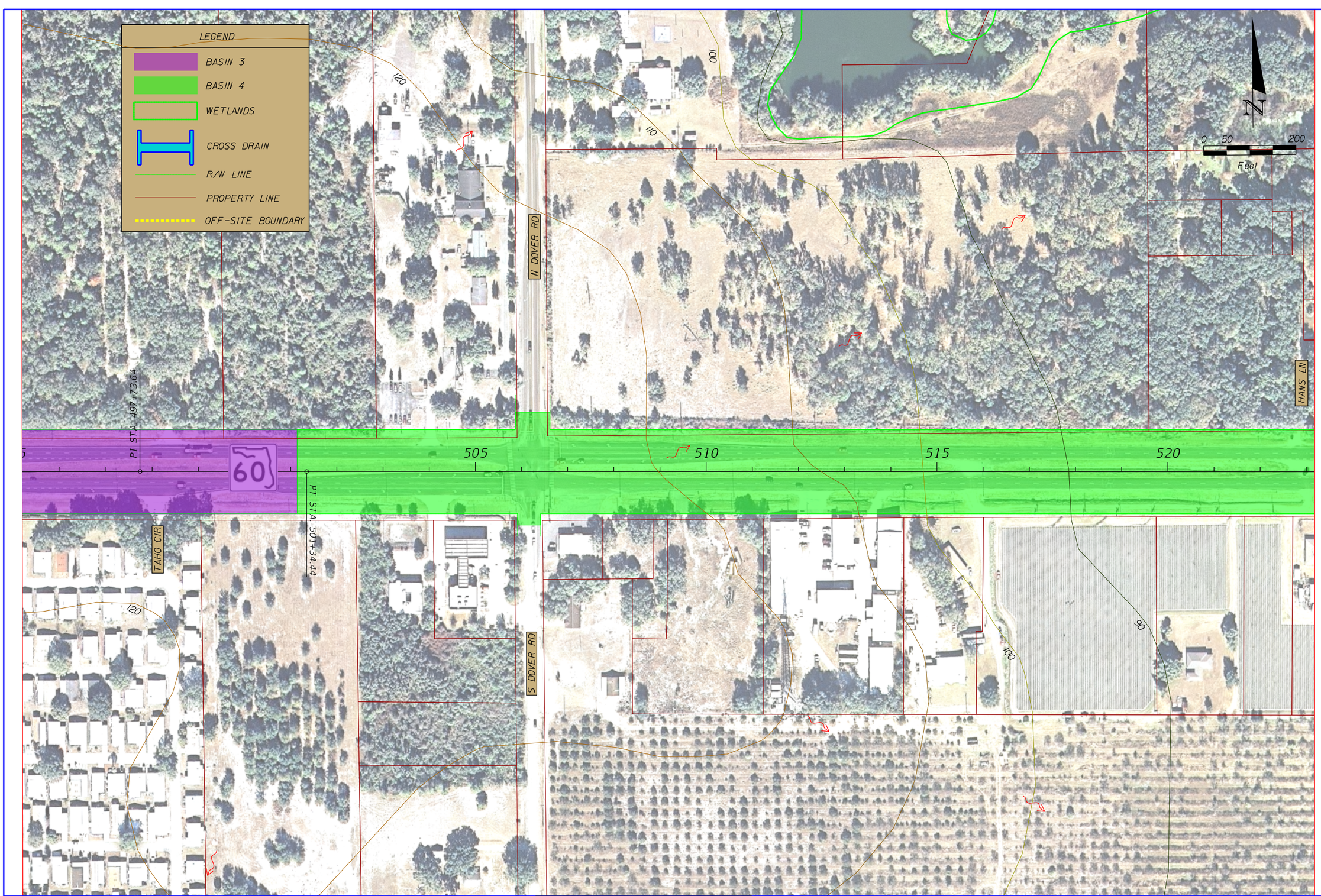

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 5

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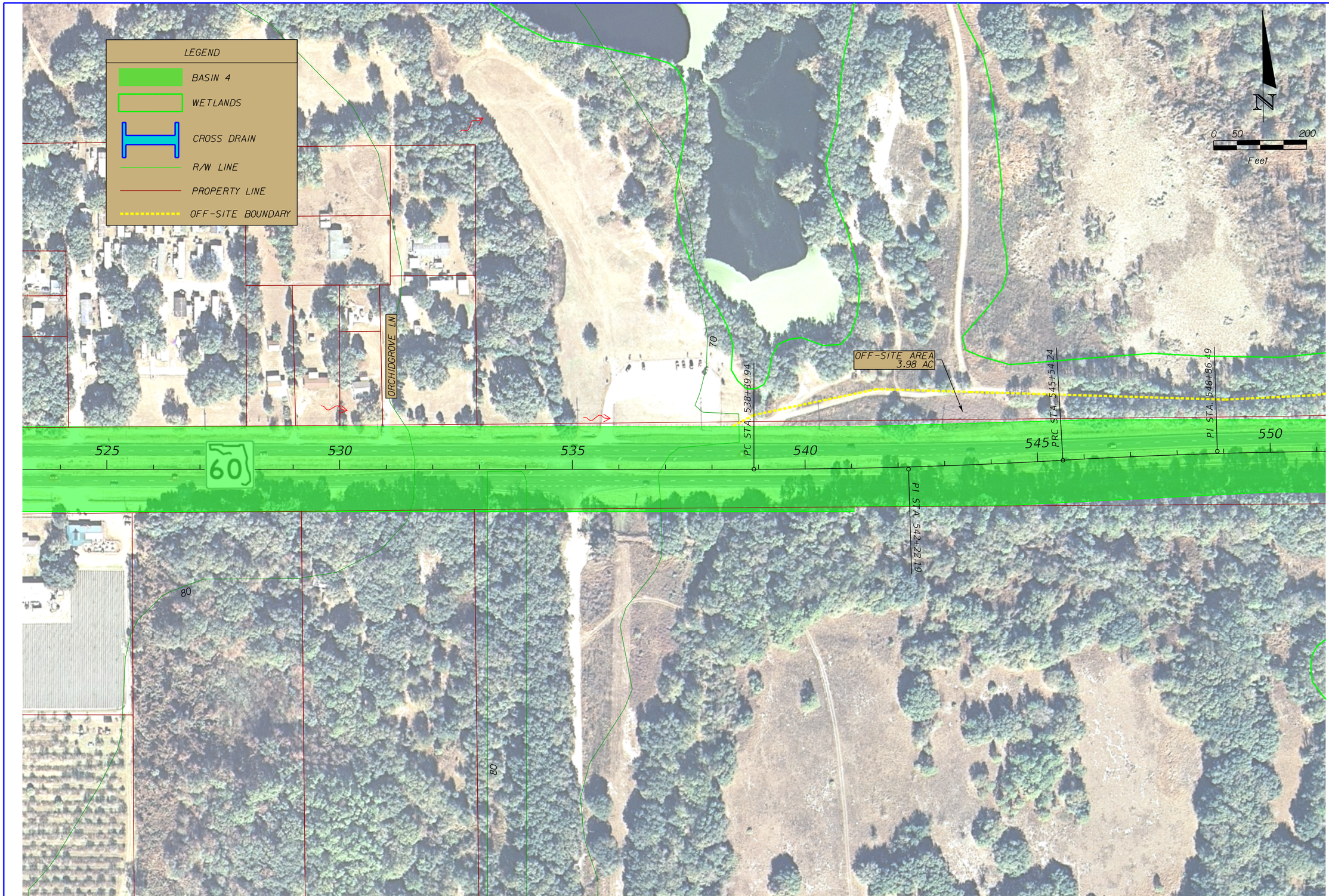

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 6

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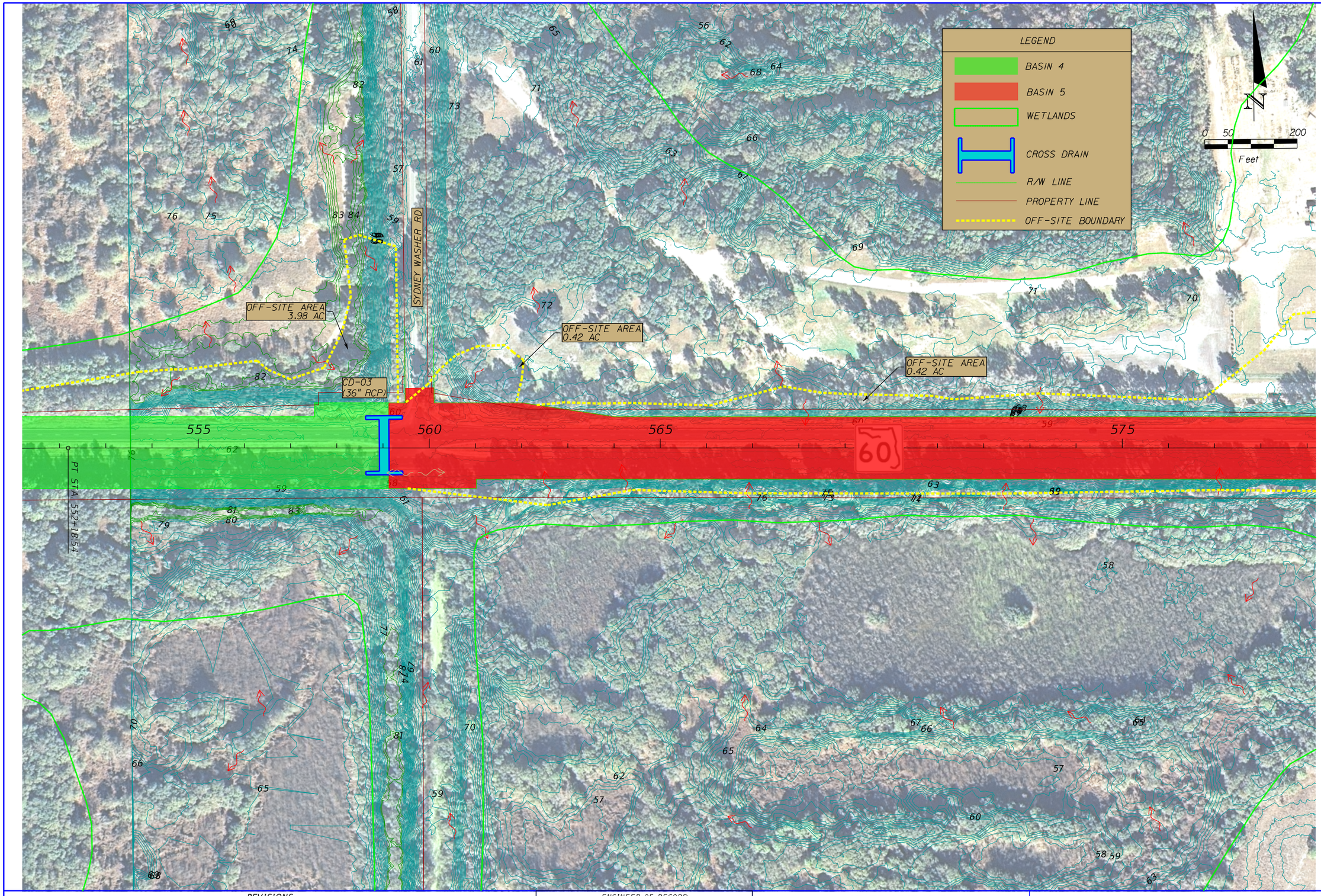

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 7

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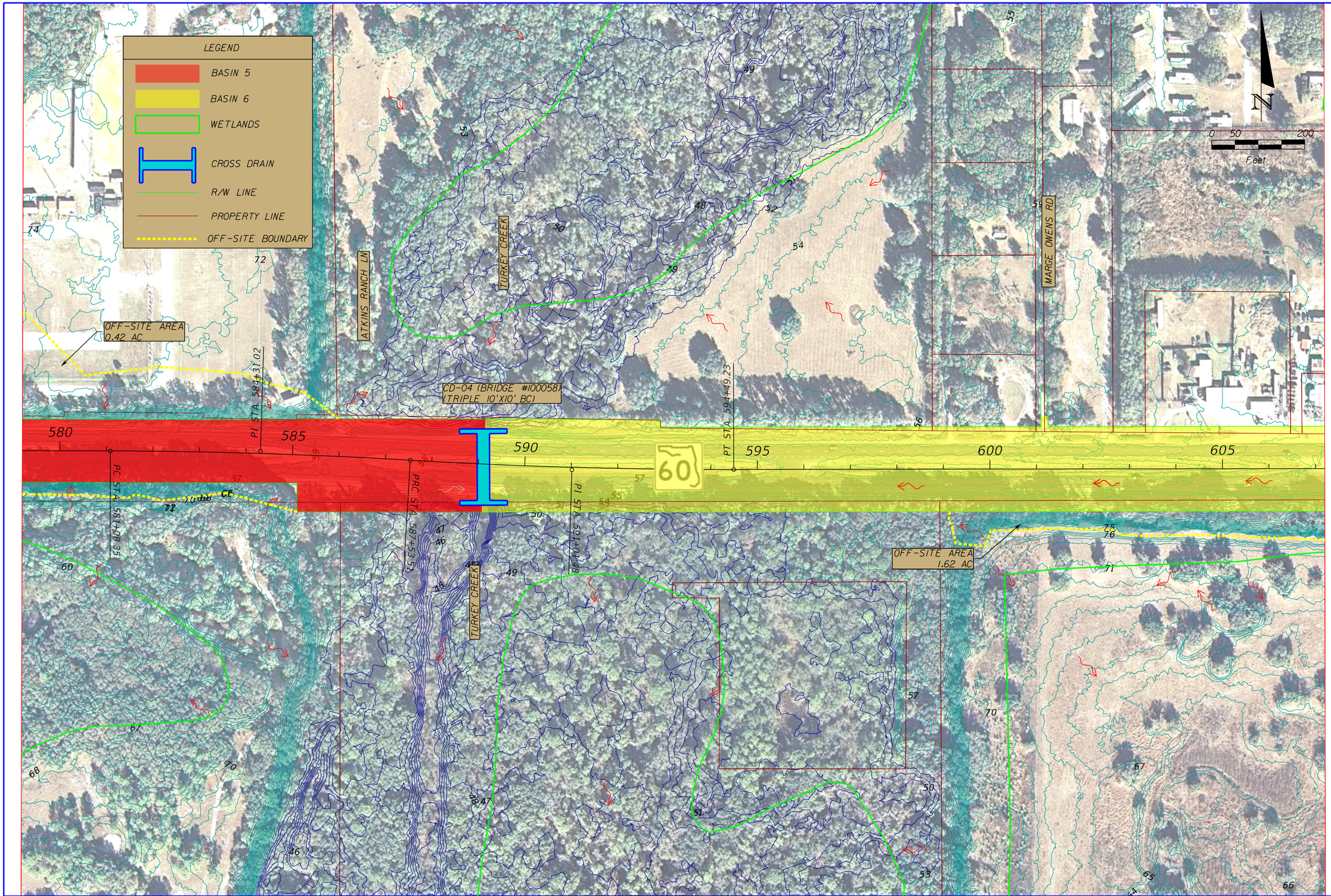

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 8

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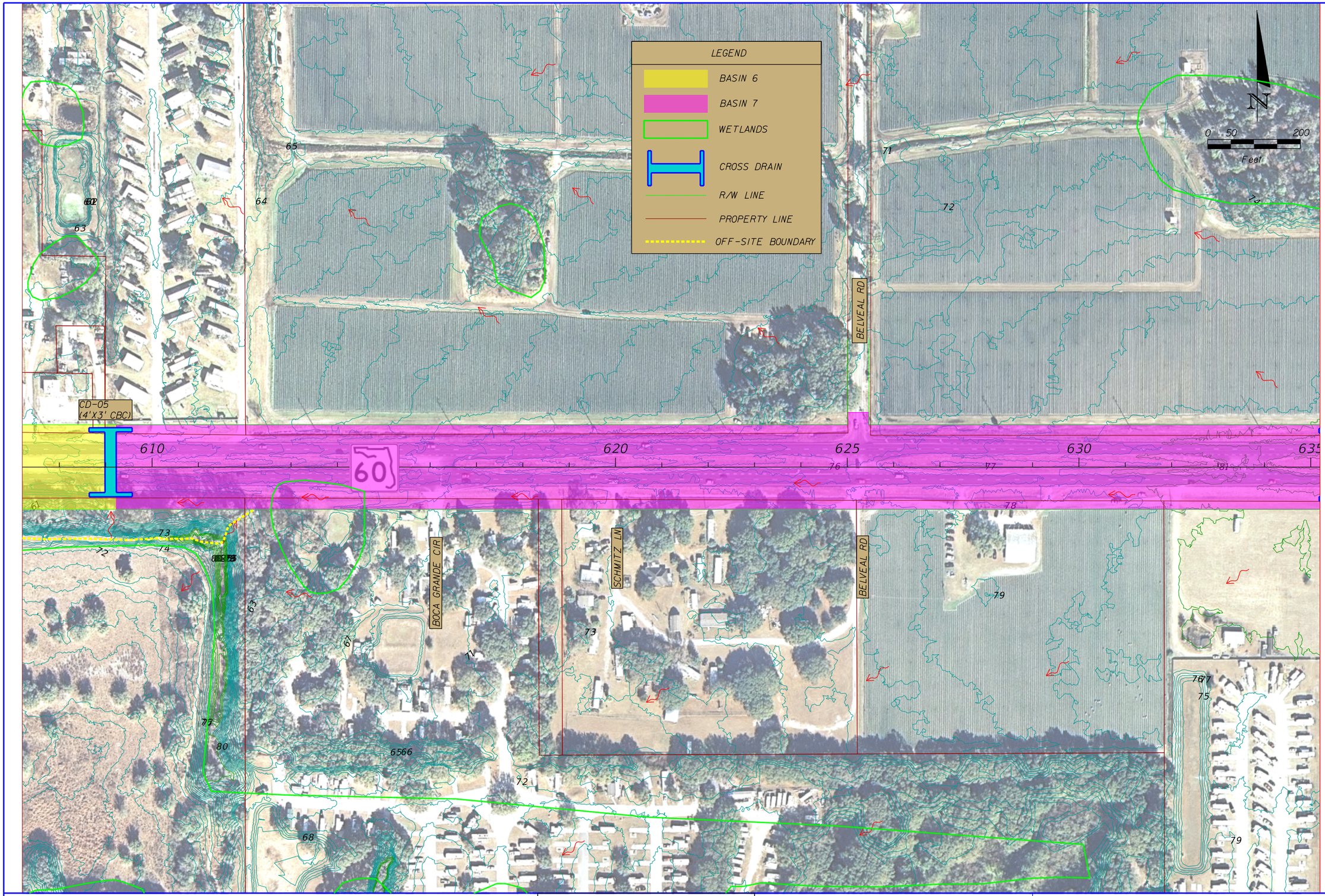

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
40	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 9

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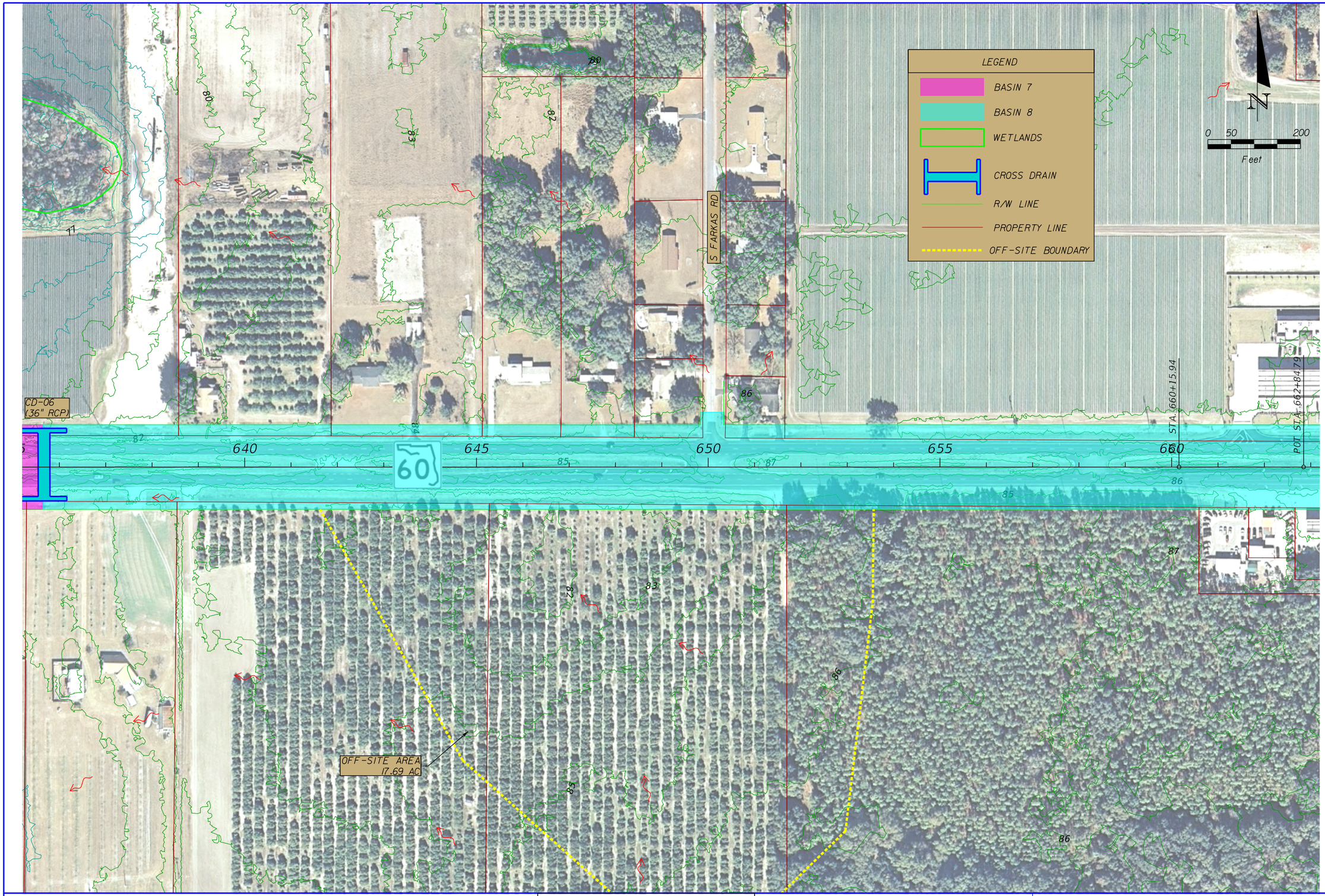

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 10

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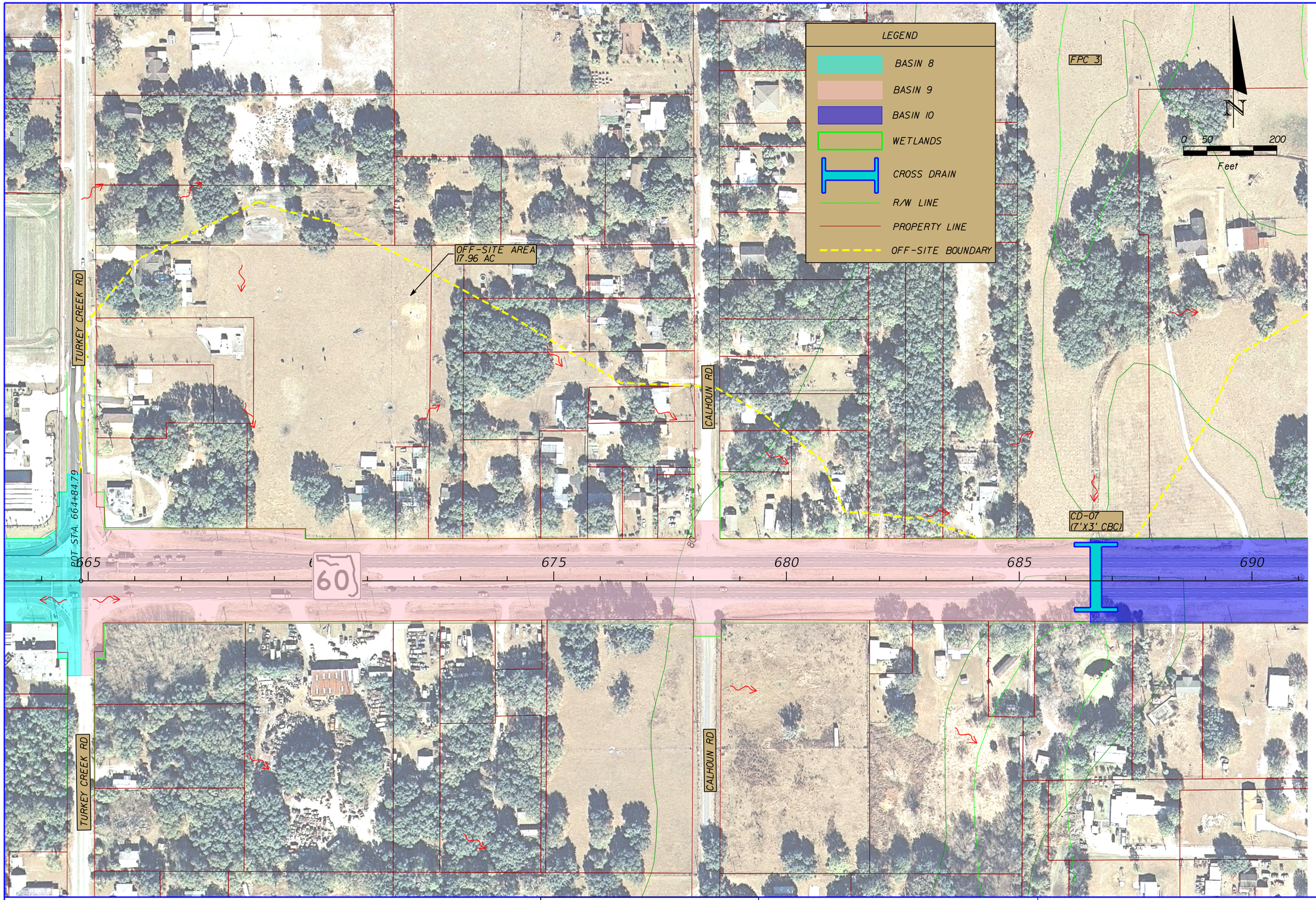

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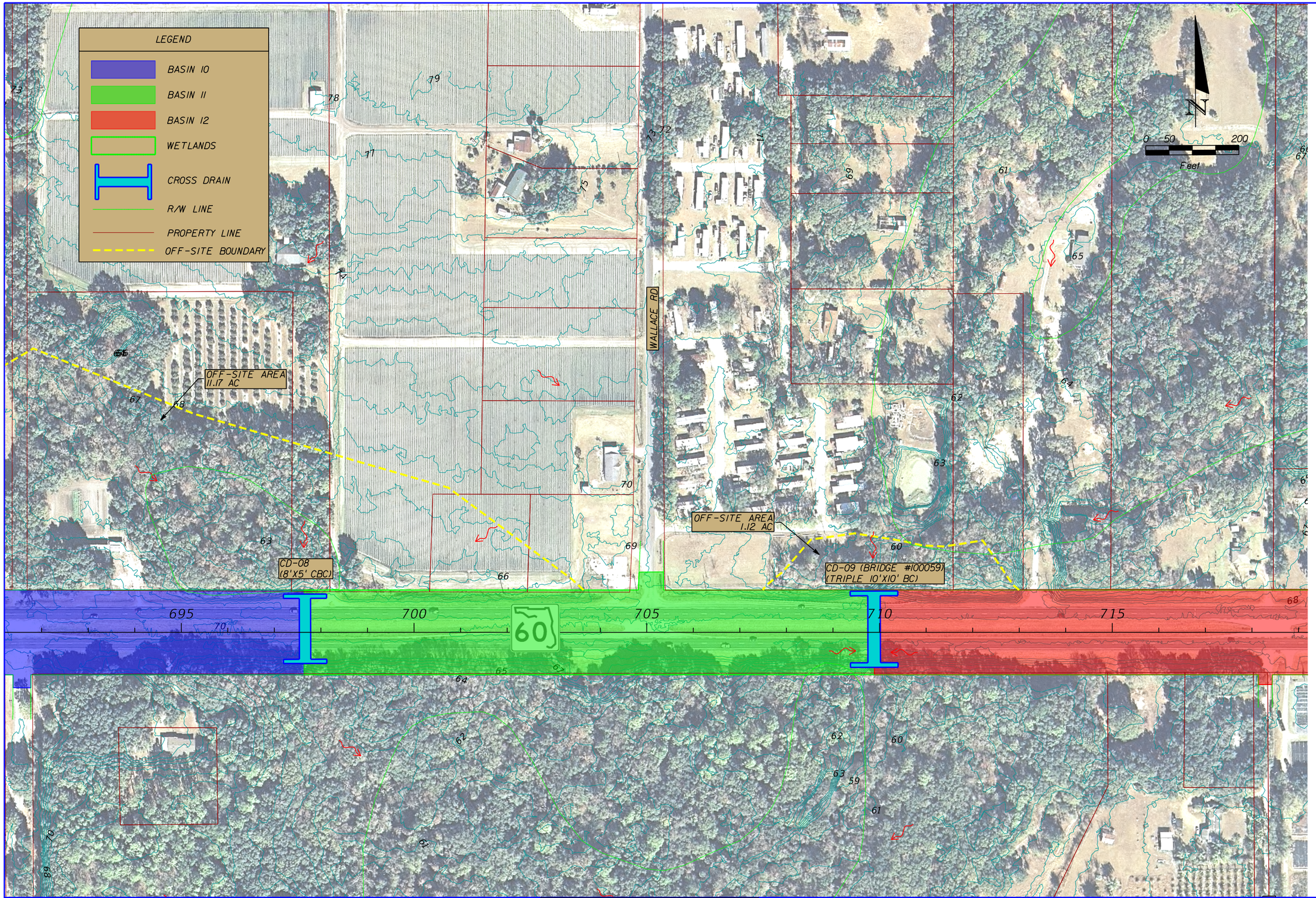
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 11



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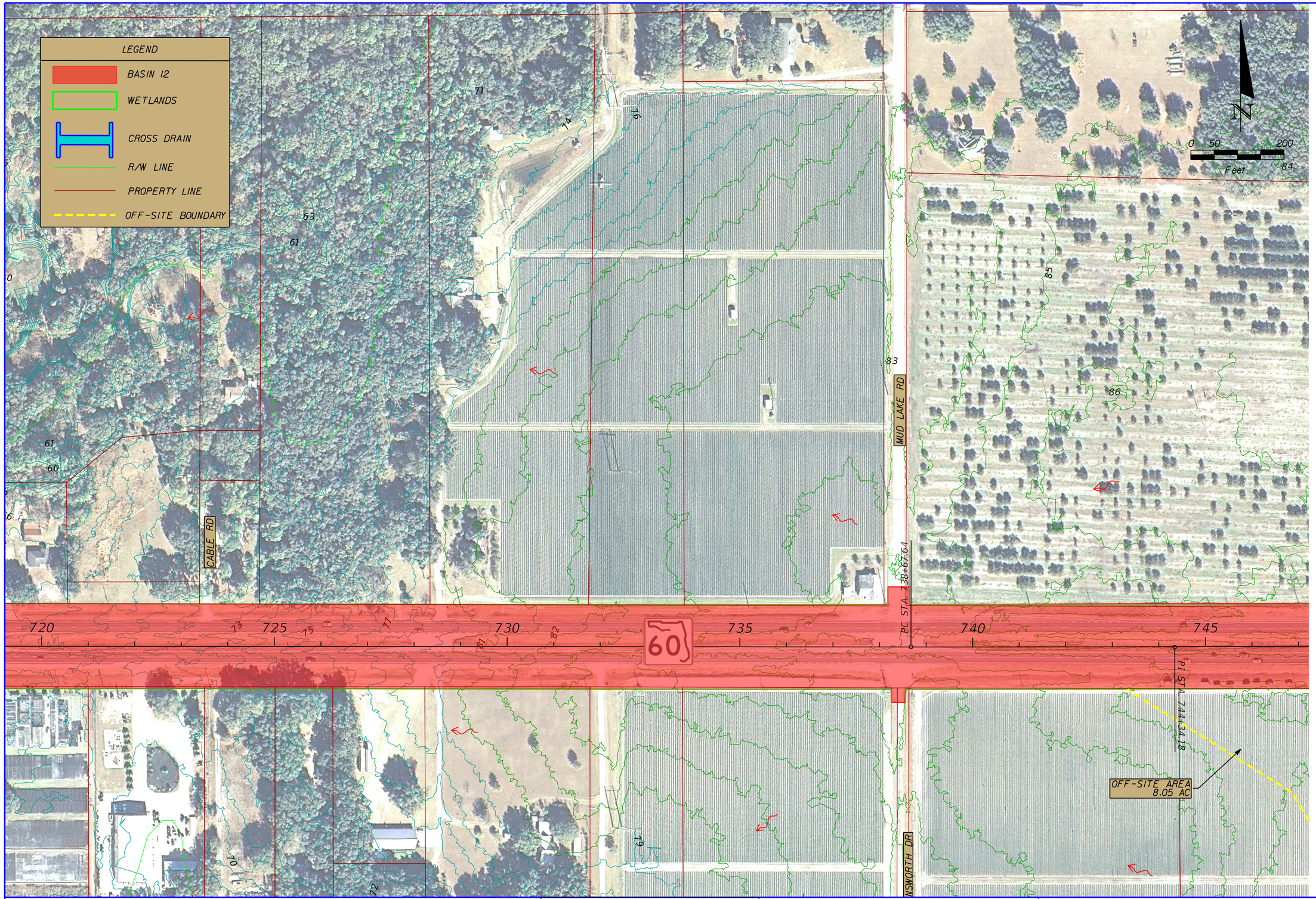
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 12



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DRAINAGE MAP

SHEET NO. 13

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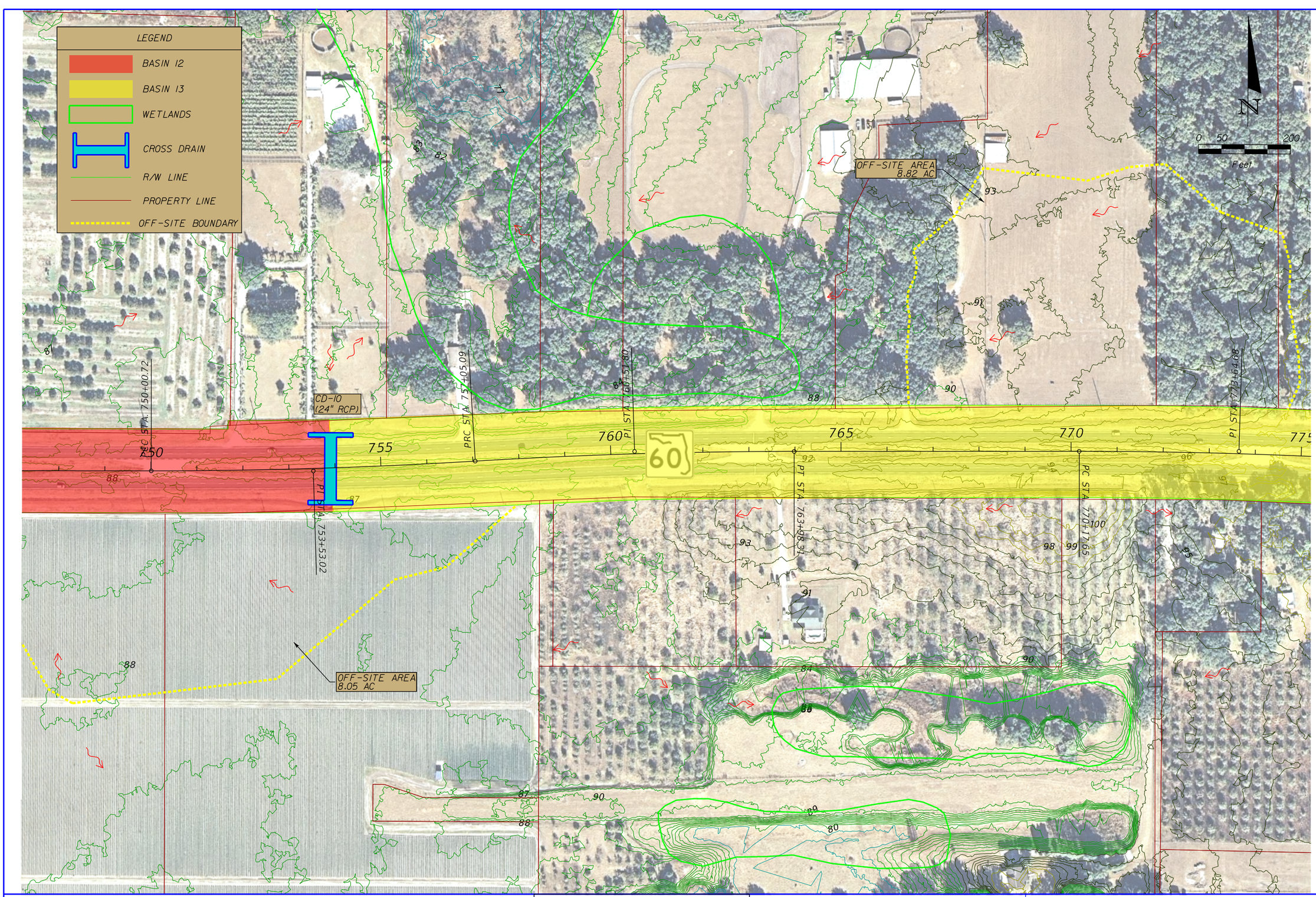

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 14

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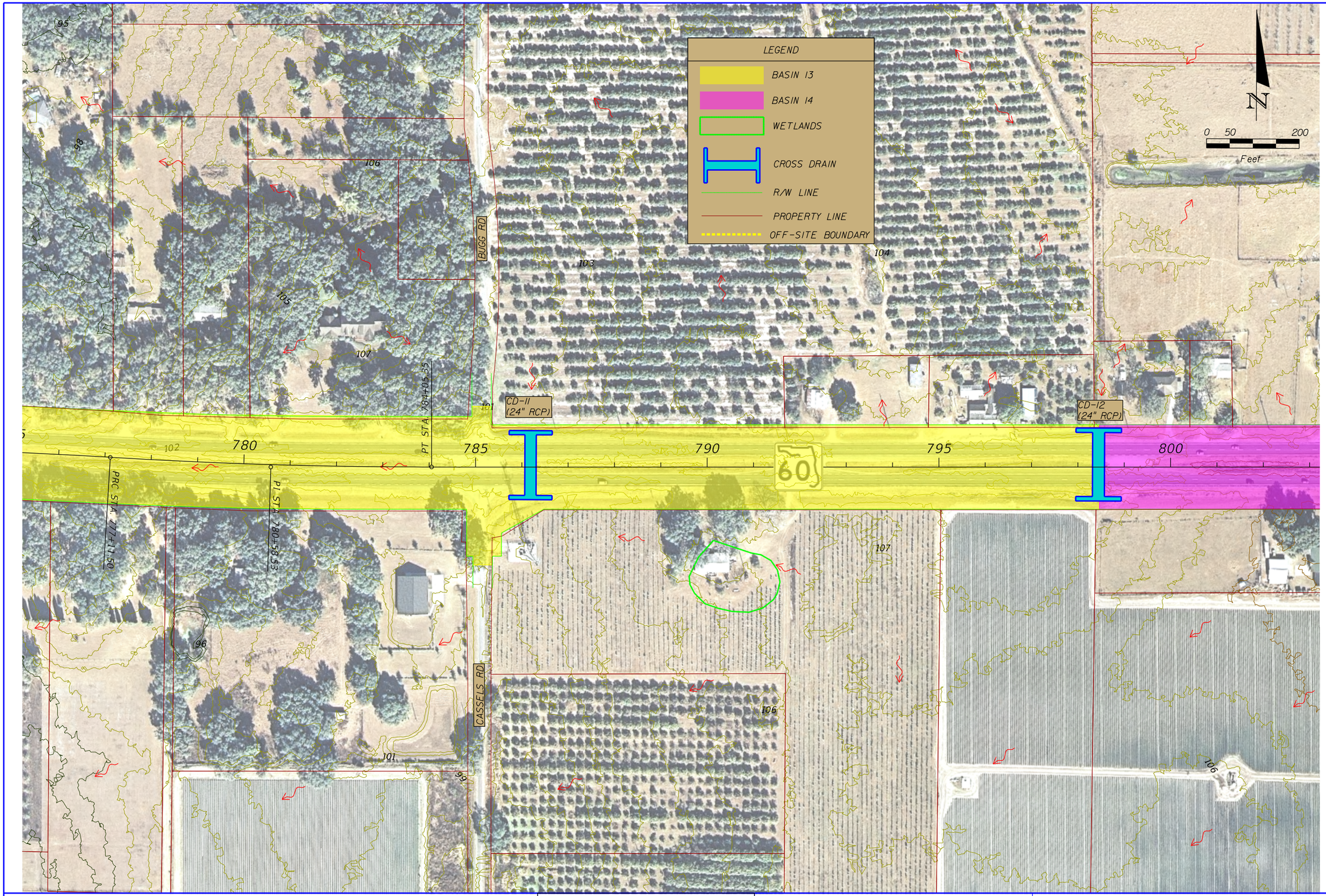

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 15

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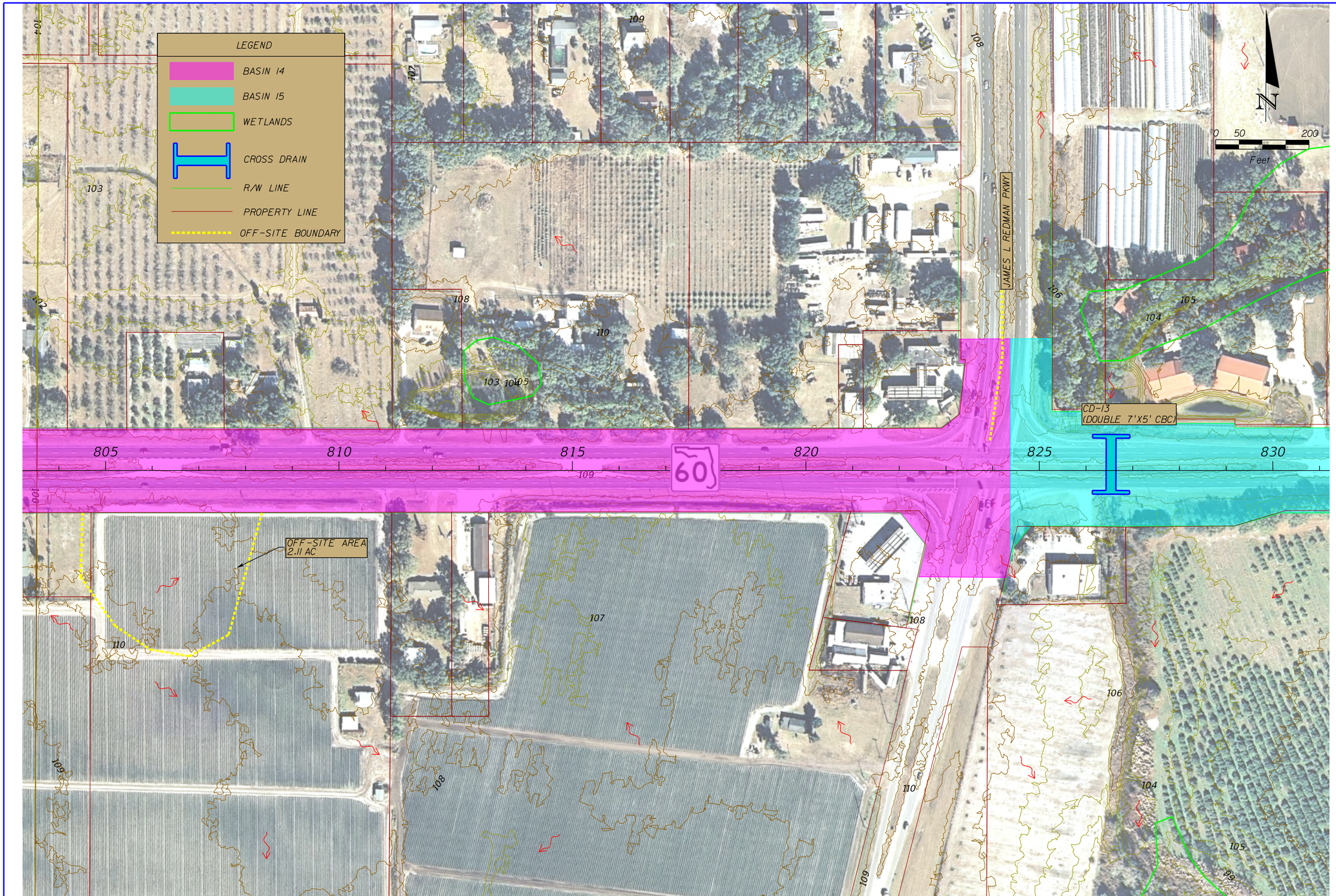

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 16

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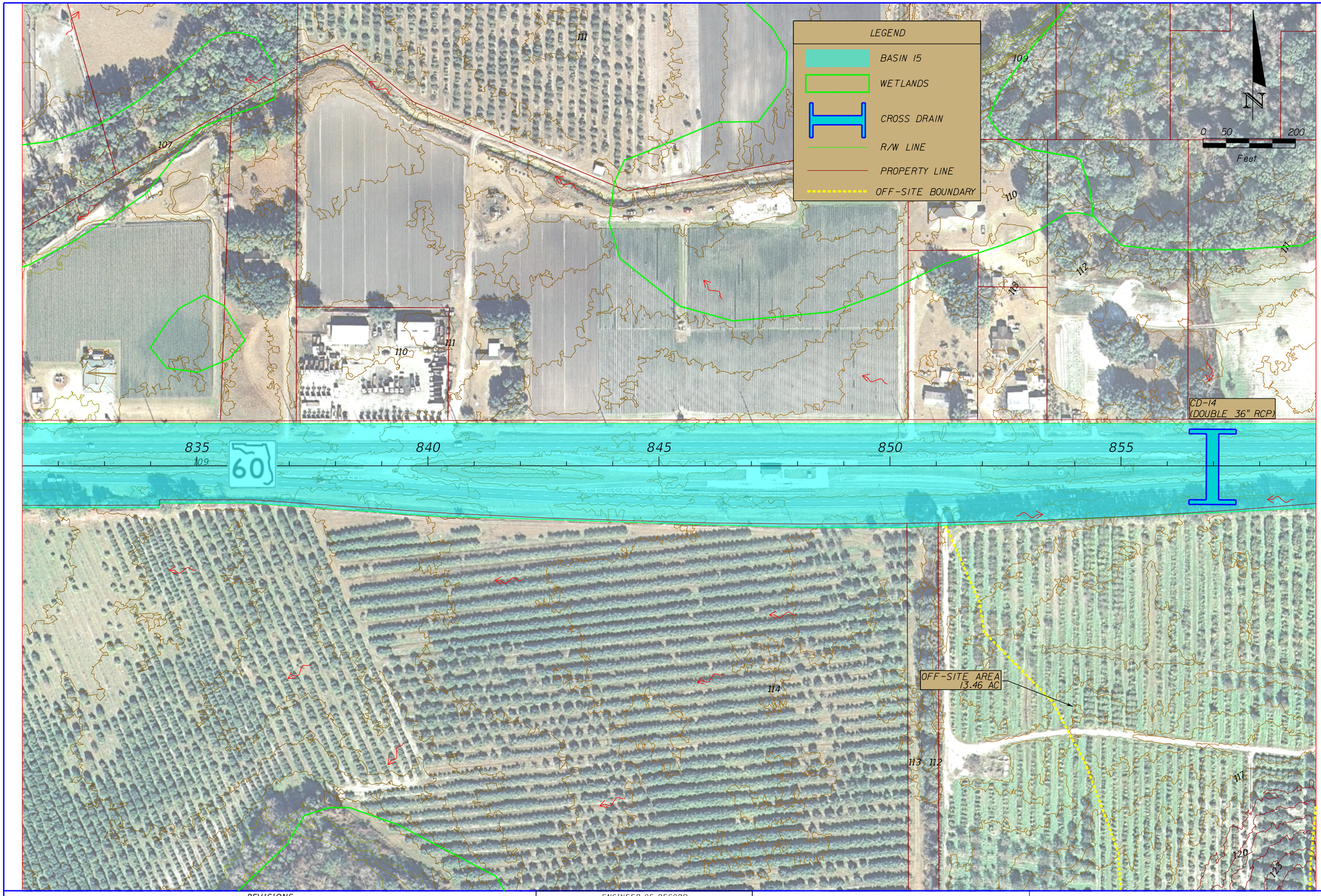

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60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 17

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 18

kislam 1/6/2014 2:40:57 PM F:\Projects\RKK-002-01\drainage\DRMPRD018.dgn

LEGEND

BASIN 16

BASIN 17

WETLANDS

CROSS DRAIN

R/W LINE

PROPERTY LINE

OFF-SITE BOUNDARY

N

0 50 200

Feet

CD-16
(DOUBLE 30" RCP)

OFF-SITE AREA
2.20 AC

OFF-SITE AREA
1.48 AC

60

890 895 900 905 910 915

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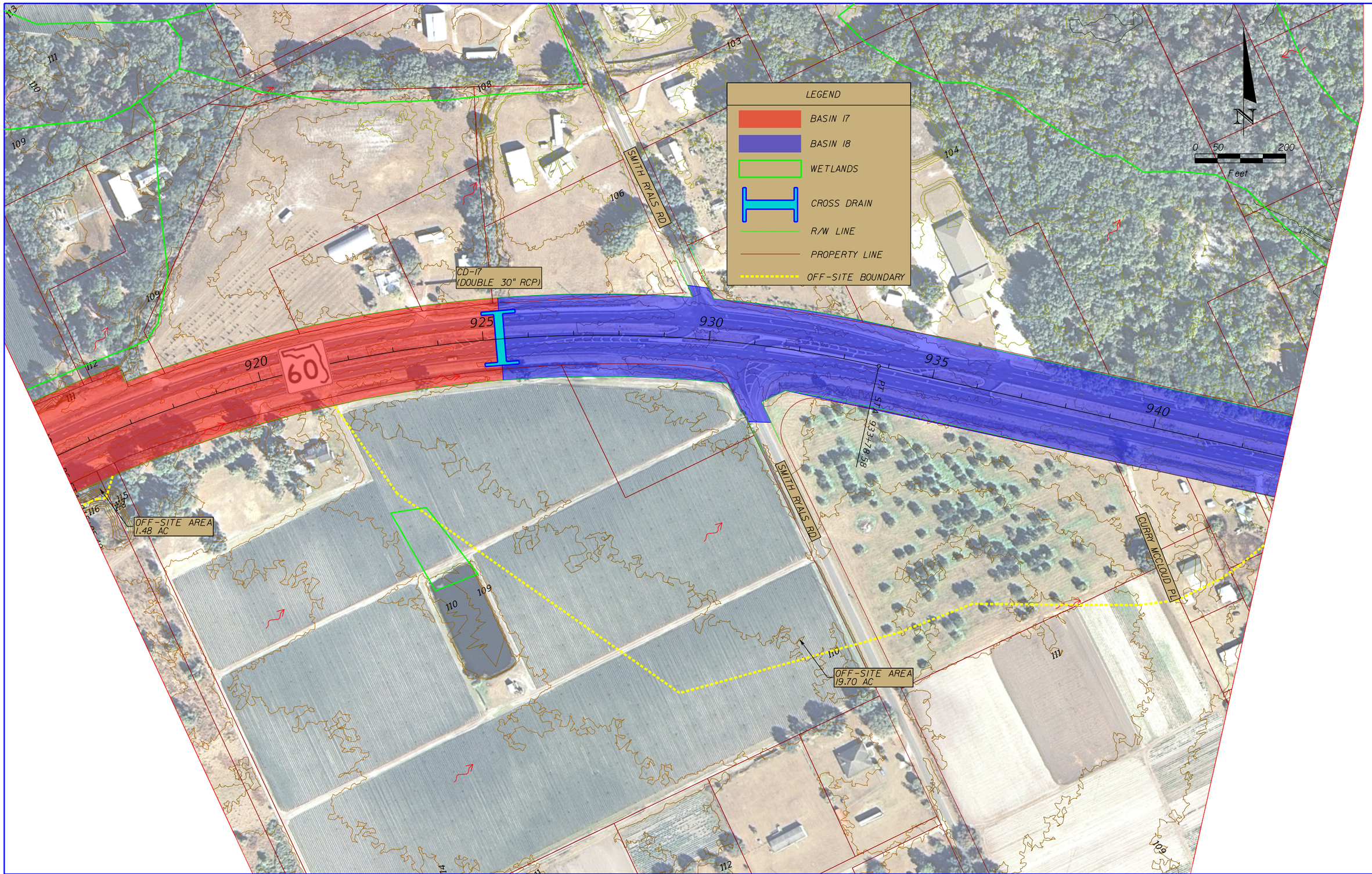
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 19



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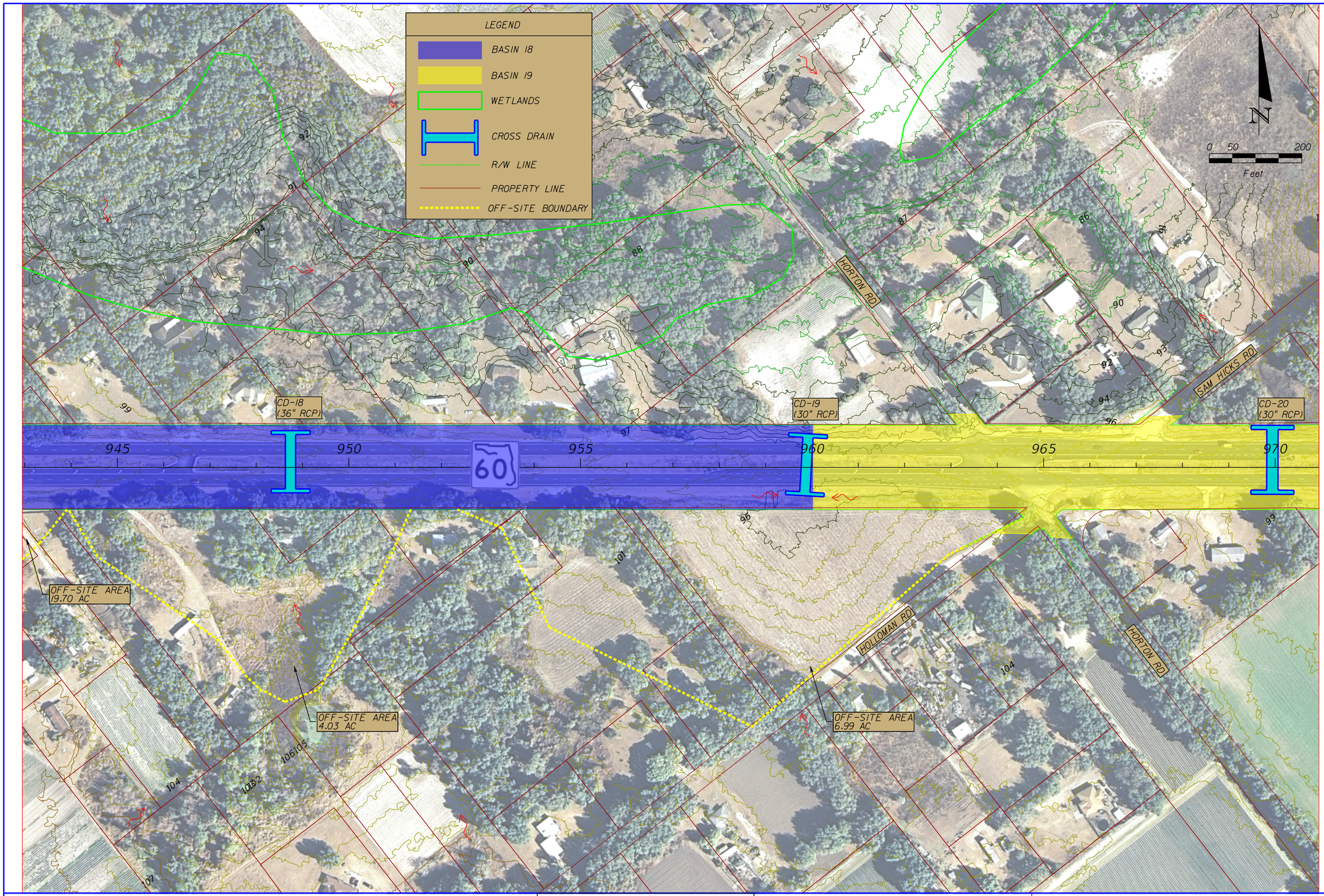
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 20

kislam 1/6/2014 2:42:15 PM F:\Projects\RKK-002-01\drainage\DRMPRD020.dgn



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60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 21

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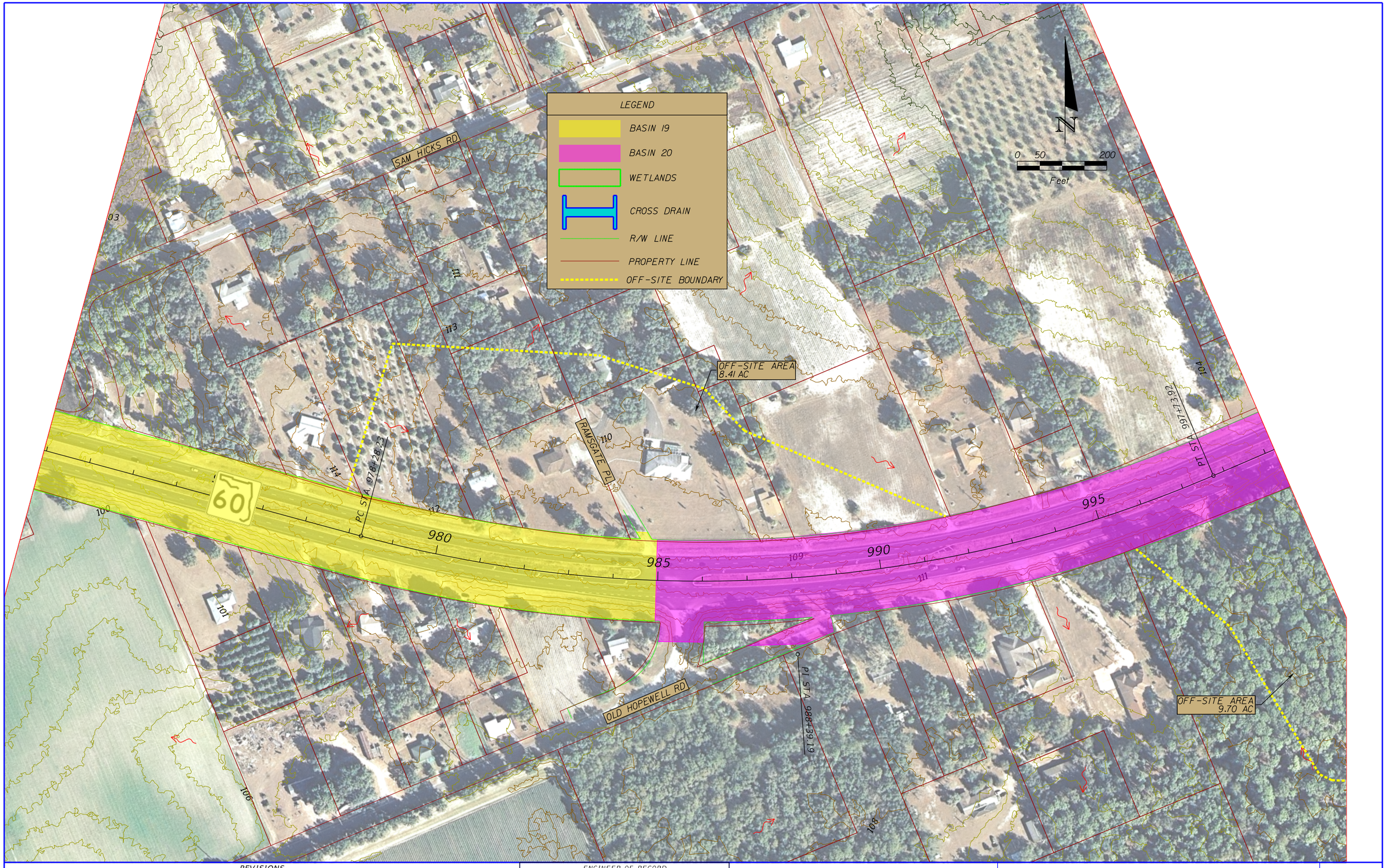

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	430055-1-22-01

DRAINAGE MAP

SHEET NO. 22

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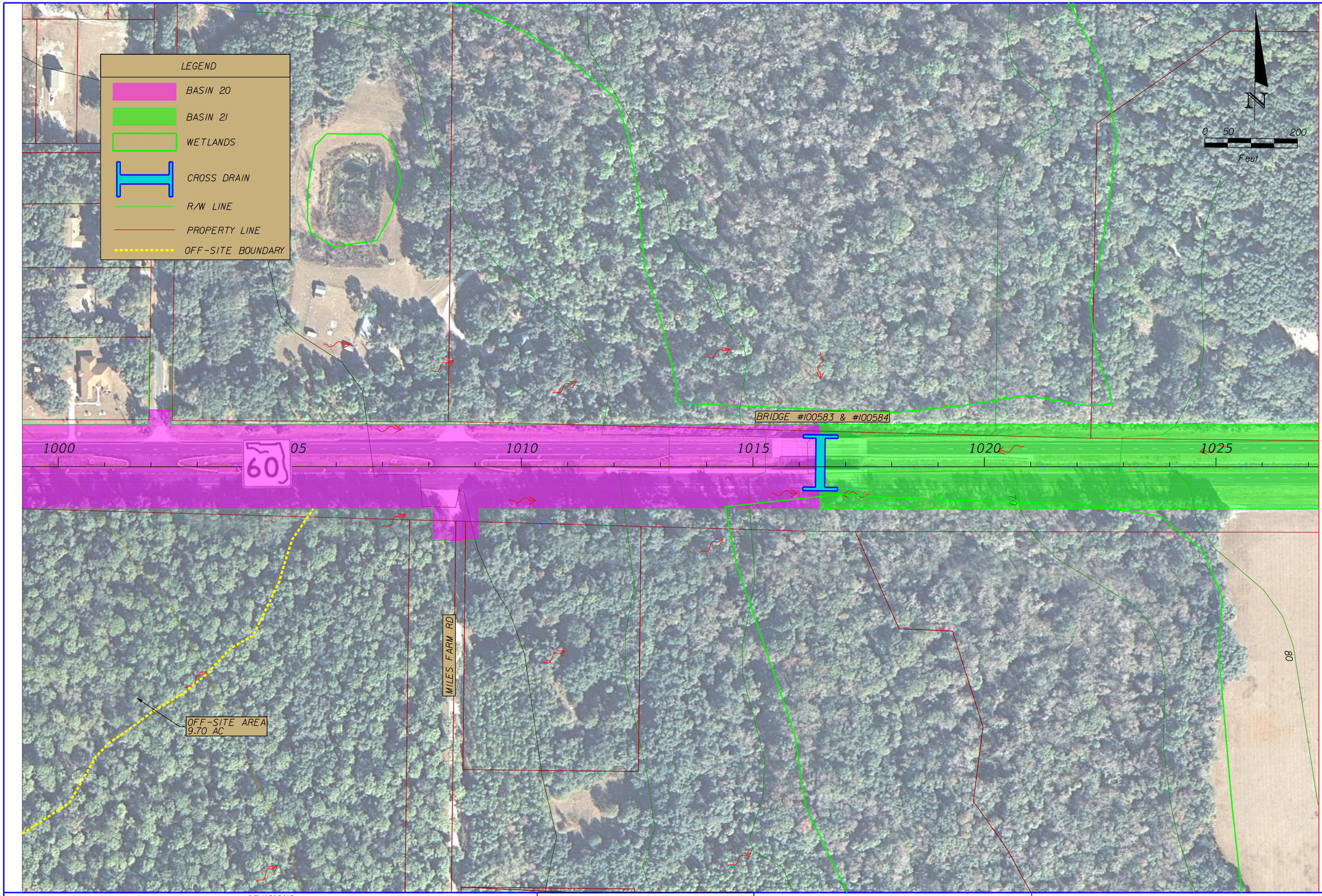

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DRAINAGE MAP

SHEET NO. 23

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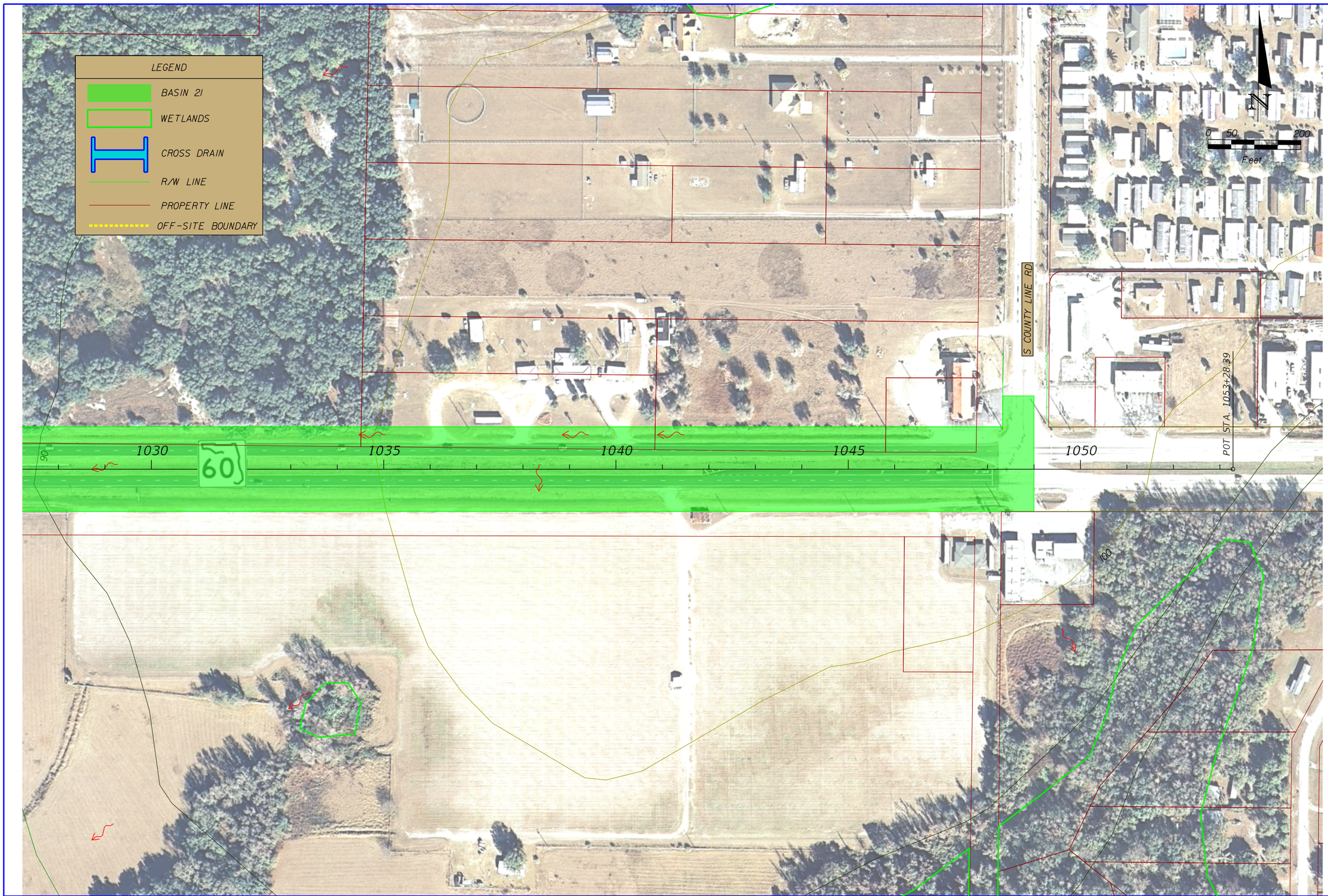

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DRAINAGE MAP

SHEET NO. 24

kislam 1/6/2014 2:43:53 PM F:\Projects\RKK-002-01\drainage\DRMPRD024.dgn

Appendix 3

Right of Way Cost Estimate

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 215760-23

FM#:	430055-1	Alternate:	Mainline & Ponds	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	7-Nov-13
State Rd.:	60	FAP#:	N/A	C.E. Sequence#	N/A
Project Des.	SR 60 from Valrico Rd. to Polk County Line				

Parcels	Gross	Net
Commercial	16	16
Residential	22	22
Unimproved	21	21
Total Parcels	59	59

Estimated Relocatees:	
Business	0
Residential	6
Signs	6
Special	4
Total Relocatees	16

R/W SUPPORT COSTS (PHASE 41)

								Amount
1. Direct Labor Cost	(Parcels	59	x	20,000	=	Rate)		1,180,000
2. Indirect Overhead	(Parcels	59	x	0	=	Rate)		0
3.							TOTAL PHASE 41	$1,180,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					59	Parcels	x	30,000 =	1,770,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	75%	x	59	=	44	Parcels	x	500 =	22,000
7. Expert Witness	75%	x	59	=	44	Parcels	x	30,000 =	1,320,000
8. Mediators	50%	x	59	=	30	Parcels	x	2,400 =	72,000
9. Demolition, Asb. Abate., Survey, etc.					9	Imprvmet	x	15,000 =	135,000
10. Miscellaneous Contracts					1	Per Project	x	15,000 =	15,000
11. Appraisal Fee Review					21	Parcels	x	5,000 =	105,000
12.								TOTAL PHASE 4B	$3,439,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	611,940	x	125%	* *Design plan stage*	=	764,900	
14. Water Retention & Mit. (21 Ponds and 7 FPC)	7,294,597	x	125%	(0 Parcels w/o R/W Acq)		9,118,200	
15. SUBTOTAL (2,914,235 SF)				(Lines 13 &14)			9,883,100
16. Admin. Settlements (Factor	20%	x	60%	of Line 15)	=	1,186,000	
17. Litigation Awards (Factor	85%	x	40%	of Line 15)	=	3,360,300	
18. Business Damages (Claims	0	x	$0)		=	0	
19. Bus. Damages Incrs. (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	59	x	$15,000)		=	885,000	
21. Owner CPA Fees (Claims	0	x	$15,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 &19)	4,546,300	x	40%)		=	1,818,500	
23. Owner Expert Witnes (Comm.+Unimp.)	16	÷	21) x	18,000	=	666,000	
24. Other Condemn. Costs	59	x	$500		=	29,500	
25. SUBTOTAL				(Lines 16 thru 24)	=		7,945,300
26.						TOTAL PHASE 43	$17,828,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 125% (2) 30% plans - 120% (3) 60% plans - 115% (4) 90% plans -110% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	29	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$20,000	x	4	=	80,000
29. Tenant	$20,000	x	2	=	40,000
Move Costs					
30. Residential	$2,000	x	6	=	12,000
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	4	=	8,000
33. (Lines 28 thru 32)					TOTAL PHASE 45 $140,000
34. Relocation Services Cost			$14,000	(Not in Phase Total)	

35.		
36.		
37.	(All Phases)	TOTAL ESTIMATE $22,587,400

Real Estate:	Daniel Trosper	Signed:		Date: 11/07/13
Bus. Dam. :		Signed:		Date:
Relocation:	Daniel Trosper	Signed:		Date: 11/07/13
Overall Review:	Alfred Thompson	Signed:		Date: 11/07/13

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: This version of the cost estimate includes only pondtakings. At the appropriate time, it would be advisable to consider reconfiguring or moving Ponds 1 & 2, FPC 4, Pond 13, and Pond 20 to reduce potential severance damages.
Pond 1 - Move to west to allow contiguous devleopment of remainder to east.
Pond 2 - Taking from corner brings in higher outparcel value.
FPC 4 - Pond location & configuration takes access to residentially improved property under different ownership, could create more takings or an inverse claim.
Pond 13 - Signficant impact is caused by pond location in front of residence.
Pond 20 - Pond is located close to mobile home on research facility, the pond could be reshaped (flattened) and moved to west or the entire pond could be moved to east of facility.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: X Gaming 1: Special Purpose: Docs to RW:
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 215760-23

FM#:	430055-1	Alternate:	Ponds	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	7-Nov-13
State Rd.:	60	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	SR 60 from Valrico Road to Polk County Line				

Parcels	Gross	Net
Commercial	1	1
Residential	10	10
Unimproved	12	12
Total Parcels	23	23

Estimated Relocatees:	
Business	0
Residential	5
Signs	0
Special	3
Total Relocatees	8

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	23	x	20,000	=	Rate)		460,000	
2. Indirect Overhead	(Parcels	23	x	0	=	Rate)		0	
3.							TOTAL PHASE 41		$460,000

R/W OPS (PHASE 4B)

									Amount	
4. Appraisal Fees Through Trial					23	Parcels	x	30,000 =	690,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0	
6. Court Reporter & Process Servers	75%	x	23	=	17	Parcels	x	500 =	8,500	
7. Expert Witness	75%	x	23	=	17	Parcels	x	30,000 =	510,000	
8. Mediators	50%	x	23	=	12	Parcels	x	2,400 =	28,800	
9. Demolition, Asb. Abate., Survey, etc.					5	Imprvmet	x	15,000 =	75,000	
10. Miscellaneous Contracts					1	Per Project	x	15,000 =	15,000	
11. Appraisal Fee Review					8	Parcels	x	5,000 =	40,000	
12.								TOTAL PHASE 4B		$1,367,300

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	125%	* *Design plan stage*	=	0		
14. Water Retention & Mit. (21 Ponds & 7 FPC)	7,294,597	x	125%	(0 Parcels w/o R/W Acq)	=	9,118,200		
15. SUBTOTAL (2,831,401 SF)				(Lines 13 &14)			9,118,200	
16. Admin. Settlements (Factor	20%	x	60%	of Line 15)	=	1,094,200		
17. Litigation Awards (Factor	85%	x	40%	of Line 15)	=	3,100,200		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	23	x	$15,000	)	=	345,000		
21. Owner CPA Fees (Claims	0	x	$15,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	4,194,400	x	40%	)	=	1,677,800		
23. Owner Expert Witn (Comm.+Unimp.)	1	+	12	) x 18,000	=	234,000		
24. Other Condemn. Costs	23	x	$500		=	11,500		
25. SUBTOTAL				(Lines 16 thru 24)	=		6,462,700	
26.							TOTAL PHASE 43	$15,580,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 125% (2) 30% plans - 120% (3) 60% plans - 115% (4) 90% plans -110% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	11	TOTAL PHASE 42	$220,000

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount	
28. Owner	$20,000	x	4	=	80,000		
29. Tenant	$20,000	x	1	=	20,000		
	Move Costs						
30. Residential	$2,000	x	5	=	10,000		
31. Business/Farm	$20,000	x	0	=	0		
32. Personal Property	$2,000	x	3	=	6,000		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$116,000
34. Relocation Services Cost			$11,600	(Not in Phase Total)			

35.			
36.			
37.	(All Phases)	TOTAL ESTIMATE	$17,744,200

Real Estate:	Daniel Trosper	Signed:	D. Trosper	Date:	11/07/13
Bus. Dam. :		Signed:		Date:	
Relocation:	Daniel Trosper	Signed:	D. Trosper	Date:	11/07/13
Overall Review:	Alfred Thompson	Signed:	A. J. Thompson	Date:	11/07/13

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: This version of the cost estimate includes mainline takings as well as ponds. At the appropriate time, it would be advisable to consider reconfiguring or moving Ponds 1 & 2, FPC 4, Pond 13, and Pond 20 to reduce potential severance damages.
Pond 1 - Move to west to allow contiguous devleopment of remainder to east.
Pond 2 - Taking from corner brings in higher outparcel value.
FPC 4 - Pond location & configuration takes access to residentially improved property under different ownership, could create more takings or an inverse claim.
Pond 13 - Signficant impact is caused by pond location in front of residence.
Pond 20 - Pond is located close to mobile home on research facility, the pond could be reshaped (flattened) and moved to west or the entire pond could be moved to east of facility.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: X Gaming 1: Special Purpose: Docs to RW:
Comments:

Appendix 4

Correspondence

Kamrul Islam

From: Mirta Laos
Sent: Wednesday, May 29, 2013 12:13 PM
To: Kamrul Islam
Cc: Renato Chuw
Subject: FW: SR 60 PD&E Study; FPID 430055-1-22-01; from Valrico Road to County Line Road

Follow Up Flag: Follow up
Flag Status: Flagged

FYI…

From: Greene, Robert [mailto:Robert.Greene@dot.state.fl.us]
Sent: Wednesday, May 29, 2013 10:58 AM
To: Leipski, Andrew J; Frick, Chad; Fulghum, Timmie; Gibson, Ronald C.; Hernandez, Charles
Cc: Mirta Laos; Hunt, Harvey
Subject: RE: SR 60 PD&E Study; FPID 430055-1-22-01; from Valrico Road to County Line Road

Andrew,
Here are a few areas of concern:

1) Eastbound just east of Dover road is a concrete ditch pavement that is spring fed during the summer rainy season. Also have farm runoff into drainage ditch in this area.
2) East and west bound at St. Cloud standing water during rain storms. No drainage at intersection.
3) East bound at Smith Ryals road farm field runoff.
4) West bound just east of Turkey Creek storm drain dumping onto private property at pasture field.

Thank you,

Robert Greene
Supervisor II
Tampa Maintenance
(813) 744-6038 #244

From: Leipski, Andrew J
Sent: Tuesday, May 28, 2013 7:09 AM
To: Frick, Chad; Fulghum, Timmie; Gibson, Ronald C.; Greene, Robert; Hernandez, Charles
Cc: Hunt, Harvey
Subject: FW: SR 60 PD&E Study; FPID 430055-1-22-01; from Valrico Road to County Line Road
Importance: High

Does anyone have any flooding concerns or issues. Please respond to Mr. Laos. ASAP. And please copy me in.

Andrew

From: Mirta Laos [mailto:mlaos@inwoodinc.com]
Sent: Friday, May 24, 2013 11:08 AM
To: Hunt, Harvey
Cc: Montjoy, Anita W; Leipski, Andrew J
Subject: SR 60 PD&E Study; FPID 430055-1-22-01; from Valrico Road to County Line Road

Good morning Mr. Hunt,

I am working on the SR 60 PD&E Study from Valrico Road to County Line Road, and wanted to discuss with you if there was any history of flooding or any other information available regarding maintenance concerns.

Please let me know when it would be a good time to contact you to discuss. I appreciate your help with this matter.

Thank you,

Mirta Laos, P.E.
PROJECT ENGINEER

INWOOD CONSULTING ENGINEERS
3000 Dovera Dr., Suite 200, Oviedo, FL 32765
P: 407-971-8850
inwoodinc.com

Kamrul Islam

From: Mirta Laos
Sent: Tuesday, May 28, 2013 5:02 PM
To: Kamrul Islam
Cc: Renato Chuw
Subject: FW: SR 60 PD&E Study; FPID 430055-1-22-01; from Valrico Road to County Line Road

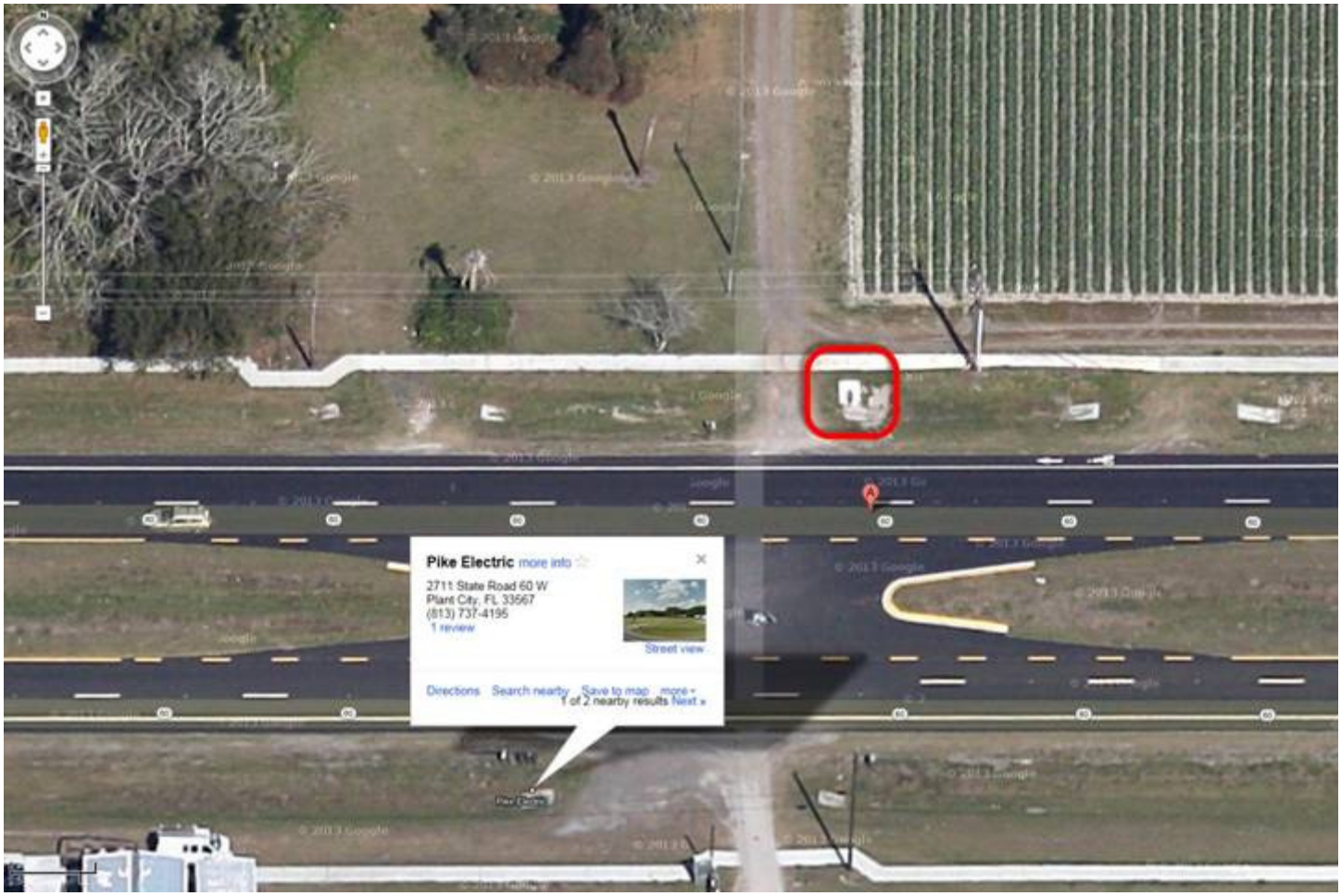
Follow Up Flag: Follow up
Flag Status: Flagged

FYI…

From: Gibson, Ronald C. [mailto:Ronald.Gibson2@dot.state.fl.us]
Sent: Tuesday, May 28, 2013 4:57 PM
To: Mirta Laos
Cc: Hunt, Harvey; Leipski, Andrew J; Frick, Chad; Fulghum, Timmie; Greene, Robert; Hernandez, Charles
Subject: SR 60 PD&E Study; FPID 430055-1-22-01; from Valrico Road to County Line Road

Good Afternoon,

One concern we have is with drainage connections from adjoining properties and their affects from a maintenance standpoint. The recent construction project (42305315201) addressed some of the ditch areas between Turkey Creek and SR 39 but also brought some underlying draining issues to the surface. Particularly between Mud Lake Rd. and Wallace Rd. on the north side of SR 60. Maintenance was called upon to regrade a backslope @ 2902 E. SR 60 due to concern of future runoff from the driveway going into their yard instead of the newly constructed ditch. We did and with the small amount of rain so far this year we haven't seen any issues at this address. The homeowner was appreciative of the response from maintenance and we will continue to monitor this area as we enter the rainy season. The other location is approximately 1000' east of this address across from 2711 SR 60 (pictured below). Today there exists and EOR approved mitered end that was constructed under FPN 42305315201 that connects an adjoining agricultural field to our drainage system. Since the completion of the project 6 months ago, maintenance forces have had to clean sediment/silt out the this ditch because of what has come out of the adjoining properties mitered end. It is enough sediment/silt to block the 18" CMP driveway pipe that runs east to west 75% and hold 12"-16" of water to the east of the driveway. Feel free to contact with any questions or particulars.



Ron Gibson III
(813)-323-1162 - Cell
(813)-744-6038 ext 224 - Office
(813)-740-3541 - Fax
Traffic Services Supervisor II

**Confidentiality Notice: This e-mail communication and any attachments may contain confidential and privileged information for the use of the designated recipients named above. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply email and delete the original message and destroy all copies.

From: Mirta Laos [mailto:mlaos@inwoodinc.com]
Sent: Friday, May 24, 2013 11:08 AM
To: Hunt, Harvey
Cc: Montjoy, Anita W; Leipski, Andrew J
Subject: SR 60 PD&E Study; FPID 430055-1-22-01; from Valrico Road to County Line Road

Good morning Mr. Hunt,

I am working on the SR 60 PD&E Study from Valrico Road to County Line Road, and wanted to discuss with you if there was any history of flooding or any other information available regarding maintenance concerns.

Please let me know when it would be a good time to contact you to discuss. I appreciate your help with this matter.

MEMORANDUM

101 West Main Street
Suite 240
Lakeland, FL 33815
Phone 863.682.4081
Fax 863.802.3907
www.rkk.com

Date: February 15th, 2013
To: Manny Santos, FDOT PM
Rick Adair, ISD GEC Support
From: Chris Piazza, PE
CC: File
Re: SR 60 from Valrico Road to County Line Road. PD&E Study (FPID: 430055-1-22-01)
Typical Section Memo

Segment 1 (from Valrico Road to Dover Road)

Existing Typical Section (See attached typical)

The existing typical section for this segment is a four lane divided rural section with 2-12' lanes, 4' paved outside shoulders, and 8' inside shoulders in each direction. There exists a 5'-6' sidewalk on both sides at the beginning of the project up to St Cloud Ave, with intermittent sidewalk up t0 Turkey Creek Road. New sidewalk is constructed from Turkey Creek to SR 39. There is no sidewalk on either side of the road from SR 39 to County Line Road. There is an existing open drainage system. There are existing light poles on both sides of the road from Valrico Road to just past Dover Road, from Turkey Creek Road to Calhoun Road and from James L Redman Pkwy to the median truck weigh station. The existing right-of-way width is typically 182'. There are eight existing signalized intersections: Valrico Rd, Miller Rd, St Cloud Ave, Mulrennan Rd, Dover Rd, Turkey Creek Rd, James L. Redman Pkwy, and County Line Rd. There are two existing bridges on this segment that cross English Creek. The existing design speed is 65 mph and the existing posted speed varies from 50-65 mph.

Proposed Typical Section - High Speed Urban - New Construction (See attached typical)

The proposed typical section alternative for this segment is a six lane divided high speed urban section and will consist of a complete reconstruction with the roadway centerline being centered within the existing 182' right-of-way. This section will consist of 3-12' lanes, a 6.5' paved outside shoulder and bike lane, and a 6.5' paved inside shoulder in each direction. A 5' sidewalk will be located on both sides of the roadway along with a 30' median. This section meets current design criteria and does not involve any right-of-way impacts. It is a closed drainage system with Type E curb and gutter provided at the inside and outside shoulders in each direction. The design and posted speed for this section is 50 mph. The approximate construction cost for this typical section is $7.6M per mile.

Proposed Typical Section - High Speed Urban - Pavement Saving (See attached typical)

The proposed typical section alternative for this segment is a six lane divided high speed urban section and will consist of milling and resurfacing the existing roadway, constructing overbuild and widening as needed, and using the existing centerline of the roadway for new construction. The roadway centerline will not be centered within the existing 182' right-of-way. This section will consist of 3-12' lanes, a 6.5' paved outside shoulder and bike lane, and a 6.5' paved inside shoulder in each direction. A 5' sidewalk will be located on both sides of the roadway along with a 30' median. This section meets current design criteria and does not involve any right-of-way impacts. It is a closed drainage system with Type E curb and gutter provided at the inside and outside shoulders in each direction. The design and posted speed for this section is 50 mph. The approximate construction cost for this typical section is $5.7M per mile.

Segment 2 (from Dover Road to Horton Road)

Existing Typical Section (See attached typical)

See Segment 1 description.

Proposed Typical Section - High Speed Suburban - New Construction (See attached typical)

The proposed typical section alternative for this segment is a six lane divided high speed suburban section and will consist of a complete reconstruction with the roadway centerline being centered within the existing 182' right-of-way. This section will consist of 3-12' lanes, a 5' paved outside shoulder and bike lane, and a 6.5' paved inside shoulder in each direction. A 5' sidewalk will be located on both sides of the roadway along with a 30' median. This section meets current design criteria and does not involve any right-of-way impacts. It is an open drainage system with conveyance ditches to offsite ponds. Type E curb and gutter is provided at the inside shoulders in each direction. The design and posted speed for this section is 50 mph. The approximate construction cost for this typical section is $8.2M per mile.

Proposed Typical Section - High Speed Suburban - Pavement Saving (See attached typical)

The proposed typical section alternative for this segment is a six lane divided high speed suburban section and will consist of milling and resurfacing the existing roadway, constructing overbuild and widening as needed, and using the existing centerline of the roadway for new construction. The roadway centerline will not be centered within the existing 182' right-of-way. This section will consist of 3-12' lanes, a 5' paved outside shoulder and bike lane, and a 6.5' paved inside shoulder in each direction. A 5' sidewalk will be located on both sides of the roadway along with a 30' median. This section meets current design criteria and does not involve any right-of-way impacts. It is an open drainage system with conveyance ditches to offsite ponds. Type E curb and gutter is provided at the inside shoulders in each direction. The design and posted speed for this section is 50 mph. The approximate construction cost for this typical section is $6.7M per mile.

Segment 3 (from Horton Road to County Line Road)

Existing Typical Section (See attached typical)

See Segment 1 description.

Proposed Typical Section - Rural - New Construction Alt 1 (See attached typical)

The proposed typical section alternative for this segment is a six lane divided rural section and will consist of a complete reconstruction with the roadway centerline being centered within the proposed 212' right-of-way. This section will consist of 3-12' lanes, a 5' paved outside shoulder and bike lane, and a 8' inside shoulder in each direction. A 5' sidewalk will be located on both sides of the roadway along with a 40' median. This section meets current design criteria but does required 30' additional right-of-way to meet a 40' border requirement on each side. It is an open drainage system with conveyance ditches to offsite ponds. The design speed for this section is 70 mph and the posted speed is 65 mph. The approximate construction cost for this typical section is $10.3M per mile.

Proposed Typical Section - Rural - New Construction Alt 2 (See attached typical)

The proposed typical section alternative for this segment is a six lane divided rural section and will consist of a complete reconstruction with the roadway centerline being centered within the existing 182' right-of-way. This section will consist of 3-12' lanes, a 5' paved outside shoulder and bike lane, and a 8' inside shoulder in each direction. A 5' sidewalk will be located on both sides of the roadway along with a 40' median. This section does not involve any right-of-way impacts but also does not meet current design criteria. A variation to the 40' border width requirement would be needed. It is an open drainage system with conveyance ditches to offsite ponds. The design speed for this section is 70 mph and the posted speed is 65 mph. The approximate construction cost for this typical section is $10.6M per mile.

Proposed Typical Section - Rural - Pavement Saving (See attached typical)

The proposed typical section alternative for this segment is a six lane divided rural section and will consist of milling and resurfacing the existing roadway, constructing overbuild and widening as needed, and using the existing centerline of the roadway for new construction. The roadway centerline will not be centered within the existing 182' right-of-way. This section will consist of 3-12' lanes, a 5' paved outside shoulder and bike lane, and a 8' inside shoulder in each direction. A 5' sidewalk will be located on both sides of the roadway along with a 40' median. This section does not involve any right-of-way impacts but also does not meet current design criteria. A variation to the 40' border width requirement would be needed. It is an open drainage system with conveyance ditches to offsite ponds. The design speed for this section is 70 mph and the posted speed is 65 mph. The approximate construction cost for this typical section is $8.2M per mile.

Team Coordination Meeting # 4

October 17, 2012, 9:30am

Teleconference (888-394-8197: Passcode 564719#)

AGENDA

(bold/italics = completed activities AND normal/regular = ongoing activities)

A. Program Management & Administration

- ✓ ***Notice to Proceed: June 18, 2012***
- ✓ ***Received all Subs Agreement***
- ✓ ***Received signed QA/QC forms or plans from all Subs***
- ✓ ***Updated detail Team Schedule (Attached with data date:10/01/12)***
- ✓ **Draft Work Plan (on ftp site-work in progress)**
- ✓ **Invoicing Procedure Established**

  Invoices for September, 2012. RK&K cutoff dates for 2012 are:

  - September 28th
  - October 26th
  - November 30th
  - December 28th

B. Public Involvement

Public Involvement Plan

- ✓ ***Submitted to FDOT on 07/16/12***
- ✓ ***PIP Signed***

Kick-Off Newsletter

- ✓ ***Submitted 1st Draft to FDOT on 07/26/12***
- ✓ ***Addressed and resubmitted on 08/21/12***
- ✓ ***Rec'd direction from FDOT on 10/08/12 to change date to "October 2102" & name to "Project Newsletter No. 1" instead of "Kick-Off Newsletter"***
- ✓ ***Received further comments on 10/17/12. Revised & resubmitted***

  Awaiting FDOT approval to distribute.

  Alternatives Public Meeting on 04/30/13.

C. Engineering Data Collection / Reports

Survey/ Aerial Photography

- ✓ ***Completed***

Traffic

- ✓ ***Traffic counts completed & submitted to American (Akram Hussein)***

  RK&K Traffic Team met with FDOT on 09/12/12 to discuss traffic forecasting methodology

  American started existing traffic volumes analysis.

  TrafOData held forecasting methodology meeting with FDOT. Started on what they are able to do pending existing traffic volume analysis.

  First Draft Traffic Technical Memo is now due 12/04/12 (originally 10/30/12).

Other Data Collection

- ✓ ***Crash Data – collected prior to Presentation.*** Requested update from FDOT

Transportation Plans - collected some prior to Presentation – Status?
Drainage – Status?
Utilities & Railroads & Weigh Station- Status?
Existing Roadway Characteristics - Status?
Existing Structures Characteristics – American started. 80% complete in pulling together available information. Will be summarizing in spreadsheet. Analysis will follow after.
Geotech - Status?

- ✓ Base Maps **- *Completed***

D. Environmental Data Collection/Reports

Cultural Resources – Received Draft Research Design & Survey Methodology on 08/15/12. FDOT forwarded to FHWA / SHPO
Wetlands/ T&E – Status?
Wildlife & Habitat – Status?
Farmlands – Status?
Physical Impacts

- Air & Noise – Status?
- Contamination – Status?

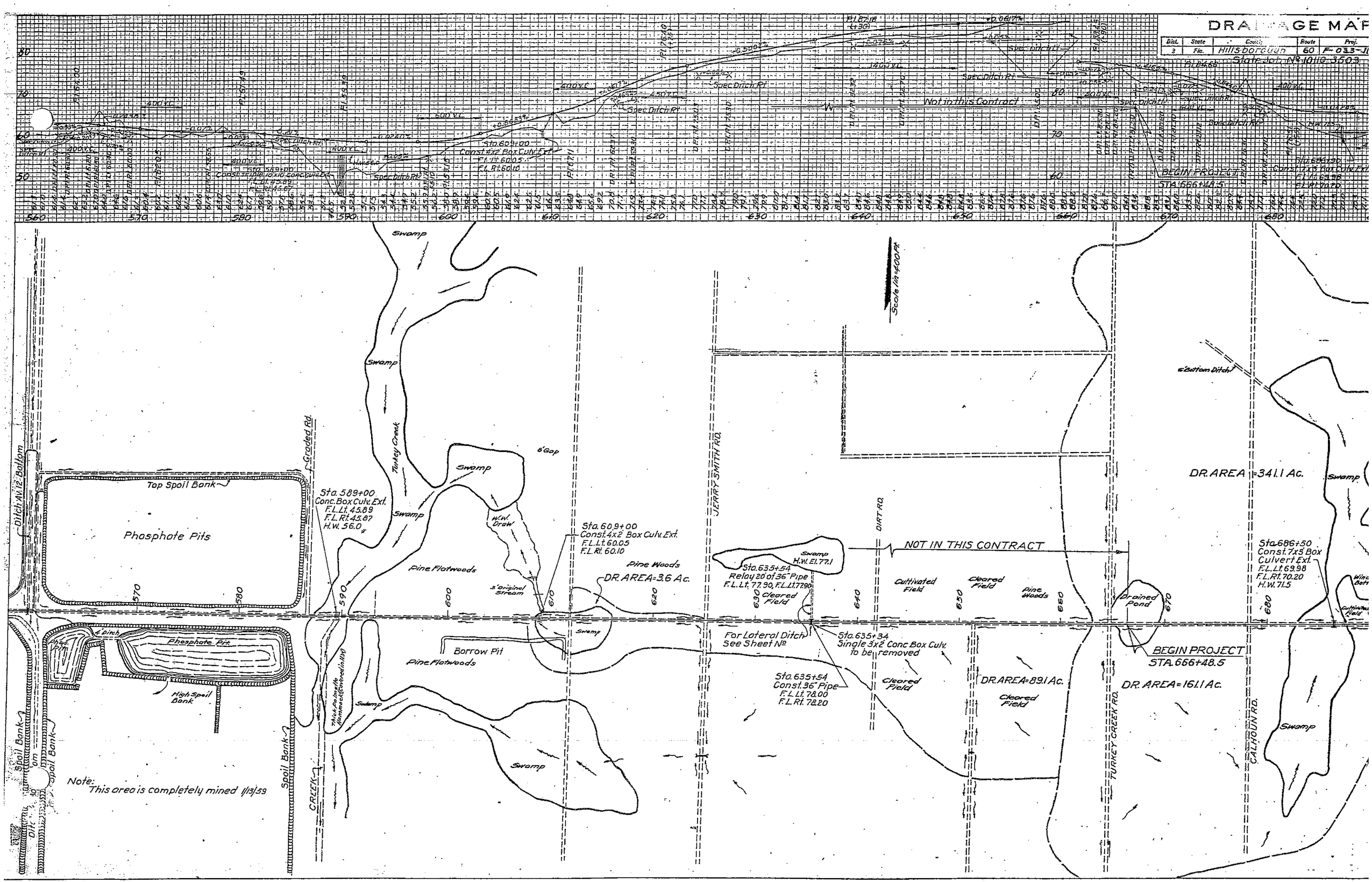
E. Schedule/Project Milestones

Milestones	Due Date	Submittal Date
PIP	***07/16/12***	***07/16/12 (Resubmitted 09/07/12)***
Kick-Off Newsletter	***08/07/12***	***07/26/12 (Resubmitted thrice)***
Draft Traffic Tech Memo	**10/30/12**	12/04/12 (Tentative Date)

F. Other

Appendix 5

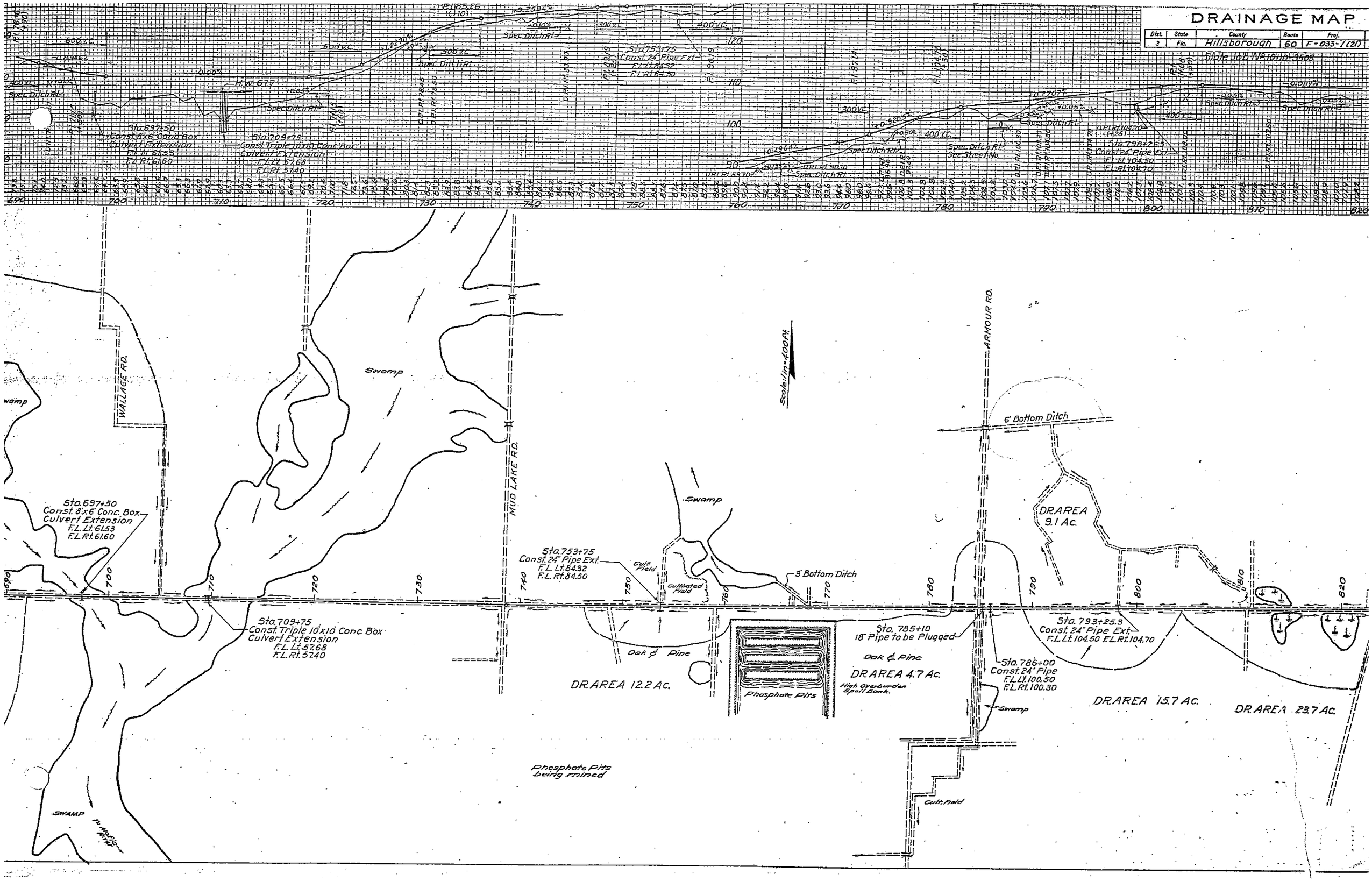
Existing Permits


DRAINAGE MAP
Dist. 3
State Fla.
County Hillsborough
Route 60
Proj. F-033-1
State Job No 10110-3503
Not in this Contract
Spec Ditch Rt
Sta. 609+00
Const 4x2 Box Culv. Ext.
F.L. Lt. 60.05
F.L. Rt. 60.10
BEGIN PROJECT
STA. 666+48.5
Swamp
Turkey Creek
Graded Rd.
Top Spoil Bank
Phosphate Pits
Ditch Av. 12' Bottom
Sta. 589+00
Conc. Box Culv. Ext.
F.L. Lt. 45.89
F.L. Rt. 45.87
H.W. 56.0
Pine Flatwoods
W.W. Draw
3' Original Stream
Sta. 60.9+00
Const. 4x2 Box Culv. Ext.
F.L. Lt. 60.05
F.L. Rt. 60.10
Pine Woods
DR. AREA=3.6 Ac.
JERRY SMITH RD.
DIRT RD.
Swamp
H.W. El. 77.1
Sta. 635+54
Relay 20' of 36" Pipe
F.L. Lt. 77.90, F.L. Lt. 77.90
Cleared Field
NOT IN THIS CONTRACT
Cultivated Field
Cleared Field
Pine Woods
Drained Pond
DR. AREA=341.1 Ac.
Sta. 686+50
Const. 7x5 Box Culvert Ext.
F.L. Lt. 69.98
F.L. Rt. 70.20
H.W. 71.5
Phosphate Pit
High Spoil Bank
Borrow Pit
Pine Flatwoods
For Lateral Ditch See Sheet No
Sta. 635+34
Single 3x2 Conc Box Culv. to be removed
Sta. 635+54
Const. 36" Pipe
F.L. Lt. 78.00
F.L. Rt. 78.20
Cleared Field
DR. AREA=89.1 Ac.
Cleared Field
DR. AREA=161.1 Ac.
BEGIN PROJECT
STA. 666+48.5
TURKEY CREEK RD.
CALHOUN RD.
Spoil Bank
Note: This area is completely mined 1/13/59
CREEK
Scale 1in=400 Ft.

DRAINAGE MAP

Dist.	State	County	Route	Proj.
3	Fla.	Hillsborough	60	F-033-1(21)

State Job No. 10110-3505



DRAINAGE MAP

Dist.	State	County	Route	Proj.
3	Fla.	Hillsborough	60	F-033-1(21)

State Job No. 10110-8502

Sta. 826+34
Const. 7'x5' Conc. Box Culv.
Culv. Extension
F.L. Lt. 102.57
F.L. Rt. 102.40

Sta. 856+81
Const. Dbl. 30" Pipe
F.L. Lt. 110.00
F.L. Rt. 110.10

Sta. 865+79.50
Const. 24" Pipe Ext.
F.L. Lt. 115.43
F.L. Rt. 114.40

Sta. 865+37
Const. M.H. Type "A"
F.L. 111.40

Sta. 903+00
Const. Dbl. 30" Pipe Ext.
F.L. Lt. 110.34
F.L. Rt. 110.40

Sta. 925+34.9
Const. Dbl. 30" Pipe Extension
F.L. Lt. 105.98
F.L. Rt. 106.00

Sta. 865+00
Const. Endwall
F.L. 111.40

Sta. 865+895
Const. M.H. Type "A"
F.L. 111.53

Graded Road

AREA 1240 Ac.

Swamp

H.W. 114.0

Cultivated

DR. AREA 23.69 Ac.

Bearing Grove

Grove

Swamp

Thick Oak & Pine

Pine Woods

Dirt Road

Pump House for Irrigation

Swamp

Dam

Bearing Grove

Pine Woods

Present Road 75' Asph.

Open Phosphate Pit

High Phos. Spoil Dumps

DR. AREA 142.08 Ac.

Cultivated

Open Pit

Open Phos. Pit

Spoil Dump

Low Bulbosa woods

Spoil Dumps

High Spoil Dumps

DR. AREA 74.09 Ac.

Ditch

Swamp

Dirt Road

W.W. Pond

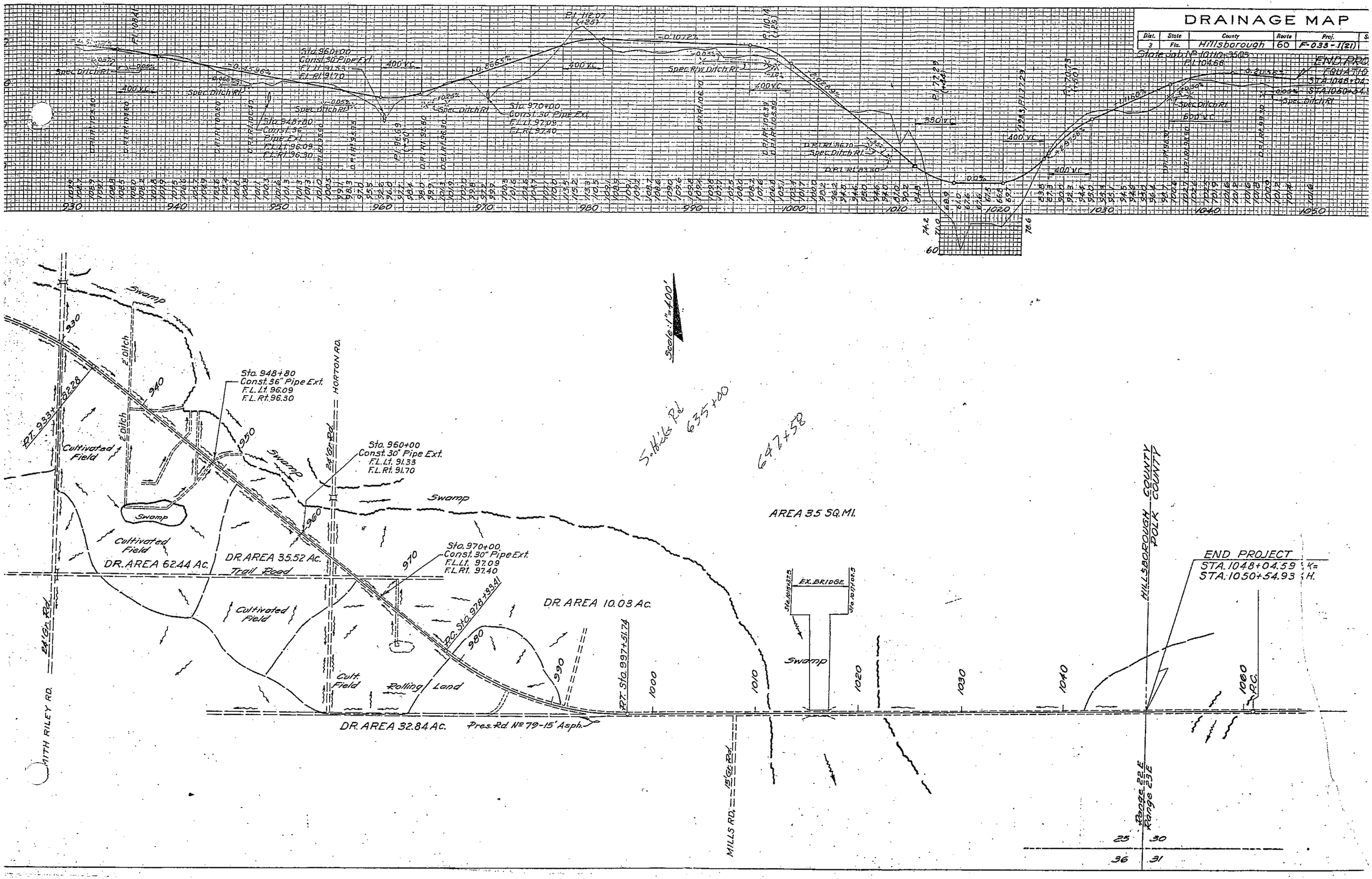
Cultivated Fields & Pine Woods

DR. AREA 79.78 Ac.

Cultivated

SMITH RILEY RD.

Scale: 1" = 400'


DRAINAGE MAP
Dist. 3
State Fla.
County Hillsborough
Route 60
Proj. F-033-1(21)
State Job No. 10110-3503
P.I. 104.68
END PROJECT
EQUATION
STA. 1048+04.59
STA. 1050+54.93
Spec. Ditch Rt.
Sta. 960+00
Const. 30" Pipe Ext.
F.L. Lt. 91.33
F.L. Rt. 91.70
Sta. 948+80
Const. 36" Pipe Ext.
F.L. Lt. 96.09
F.L. Rt. 96.30
Sta. 970+00
Const. 30" Pipe Ext.
F.L. Lt. 97.09
F.L. Rt. 97.40
Spec. R/W Ditch Rt.
400' V.C.
380' V.C.
600' V.C.
Scale: 1" = 400'
Swamp
2' Ditch
Cultivated Field
DR. AREA 62.44 Ac.
DR. AREA 35.52 Ac.
Trail Road
DR. AREA 10.03 Ac.
DR. AREA 32.84 Ac.
Pres. Rd. No. 79-15' Asph.
Rolling Land
Cult. Field
P.C. Sta. 978+93.41
P.T. Sta. 997+51.74
HORTON RD.
24' Gr. Rd.
MITH RILEY RD.
MILLS RD.
15' Gr. Rd.
S. Hicks Rd.
635+00
647+58
AREA 35 SQ. MI.
EX. BRIDGE
HILLSBOROUGH COUNTY
POLK COUNTY
Range 22 E
Range 23 E
25
30
36
31

FED. ROAD DIVN. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	FLA.	F-033-1(21)	'60 14	

STATE JOB Nº 10110-3503

680 685 690 695 700 705

45' Exist. R/W

Exist. R/W

1 Sty. Frm. Res.

1¼" WATER PIPE

SCATTERED PINES

30" Conc. Pipe

1 STY. BLK. RES. & BLK. REST RM.

30" CONC. PIPES

R/W Line

30" C.M.P.

8" HWL

DUE EAST

GARDEN

1¼" Water Pipe

1 STY. C.B. RES.

Prop. Esement.

60'

Exist. R/W

Exist. R/W

Sta. 678+15 Rt.
3.85' of 24" S.D. RCP

Exist. R/W

4 STR. BARB W.

DITCH

Exist. R/W

7'X3' CONC. BOX CULVERT w/ 12" CONC. HWLS.

3/4" WATER PIPE

18" C.M. PIPE. Extend To be Removed

1 STY. FRM. RES.

1¼" WELL

3" CHICKEN WIRE

1 STY. FRM. RES.

3/4" WATER PIPE

18" CONC. P.

18" CONC. P.

18" CONC. P.

GARDEN

LOW AREA

SCATTERED PINES

POND

STA. 685+00
Const. Crossover
See Sheet Nº 7 & 41

ELEC. 2 STR. BARB W.
36" STOCK FENCE

1 STY. FRM. RES & GARAGE

Sta. 683+30 Rt.
24.40' of 24" S.D. RCP

Sta. 692+00 Lt.
24.60' of 18" S.D. RCP

Sta. 694+60 Rt.
21.35' of 18" S.D. RCP

SCATTERED OAKS, PALMETTO & BAY TREES

Exist. R/W

60'

8'x6' CONC. BOX CULVERT

R/W Line

STA. 695+00
Const. Crossover & Conc. Spillway Type I
See Sheet Nº 7 & 42

Exist. R/W

Exist. R/W

60'

CLEARED FIELD

9725 6613 119.68

2"x2" W.D. HUBS

58°-10'

REFERENCE PT.
P.O.T. STA. 704+94.15
B B SPIKE

66°-11'

106.84

2"x2" W.D. HUBS

NAIL & CAP IN BASE 12" PINE

80.13

0.33 Ac.

Wallace Rd. (Exist. Graded Dirt Rd.)

50'

Exist. R/W

24" C.M.P.

50'

DUE EAST

132'

STA. 704+94.15
Const. Intersection
See Sheet Nº 43

SCATTERED OAKS & PINES

Exist. R/W

60'

Exist. R/W

SCATTERED PINES & PALMETTOS

B. M. No. 57
130' Lt. Sta. 683+31
R.R. Spike in base 15" Aus. Pine
El. 73.10

B.M. No. 58
147' Lt. Sta. 693+83
R.R. Spike in base 18" Gum
El. = 70.73

B.M. No. 59
138' Rt. Sta 703+93
R.R. Spike in Base 8" Pine
El. = 65.38

M.D.P.T. 79.1

-0.8446%

-0.30 % Spec. Ditch Rt.

400' V.C.

12.20 (-6.65) 11.91 11.55 11.24 16.98 16.91 16.77 16.60 16.49 16.43 16.33 (+6.5)

P.I. (6.65) El. 76.51

Sta. 684+00
Const. Inlet Type "C"
FL. 71.90
Const. 18" Pipe
FL. Lt. 71.90, Rt. 71.70

Med. Ditch 2.42' below Prof. Grade

-0.0424%

-1.203%

Spec. Med. Ditch

Med. D.P.T. 75.30 (2.41)

Med. D.P.T. 72.89 (4.50)

+0.05%

Sta. 686+50
Const. Inlet Type "C"
on Top of 7'x3' Conc. Box Culvt. Extension
FL. El. 70.13 Lt.
FL. El. 70.20 Rt.

P.I. (6.90) 76.16

-0.8946%

-0.252%

Spec. Med. Ditch

(6.90) 76.24 76.18 76.01 75.91 75.73 75.69 75.41 75.09 74.71 74.31 (6.40)

400' V.C.

Med. D.P.T. 74.01

12.83 (4.50) 73.41 73.01 72.66 72.34 72.07 71.82 71.62 71.45 71.32 71.22 71.17 71.15 (7.50)

+0.40%

-0.10%

Spec. Ditch (Rt.)

Med. D.P.T. 69.30 (4.50)

Sta. 693+00
Const. Inlet Type "C"
FL. 69.50
Const. 18" Pipe
FL. Lt. 69.50, Rt. 69.30

Med. D.P.T. 70.85 (2.41)

P.I. (1.50) El. 71.15

-0.0241%

Spec. Med. Ditch

+0.05%

0.00%

Med. D.P.T. 68.80 (4.50)

Sta. 697+50
Const. Inlet Type "C"
on Top of 8'x6' Conc. Box Culvt. Extension
FL. El. 61.65 Lt.
FL. El. 61.60 Rt.

Med. D.P.T. 68.98

80 70

Type "C"

D.P.T. Rt. 76.30

D.P.T. Rt. 75.70

Rt. 76.30

9.1

2.42'

Inlet

80.89 80.11 79.49 78.47 77.60 77.08 76.62 76.42 76.24 76.10 76.16 76.07 76.03 75.78 75.37 74.77 74.01 73.09 72.28 71.84 71.21 70.84 70.78 70.82 70.88 70.88 71.02 71.00 70.95 70.85

680 685 690 695 700 705

FED. ROAD DIV. NO.	STATE	FED. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	FLA.	F-033-1(21)	'60	20	

STATE JOB Nº 10110-3503

5' FOR LATERAL DITCH PROFILES SEE INSERT Nº 1

P.I. Sta. 3+40 Δ - 9°00' Rt.

P.I. Sta. 1+75 Δ - 9°30' Lt.

Exist. R/W

DITCH

Exist. R/W

15 YR. ORANGE GROVE

2-30" CONC. PIPES

18" CONC. P.

N 85°34' E

12" CONC. HWLS

STA. 865+62.38
~~CONST.~~ R.R. CROSSING, TYPE A
SEE SHEET Nº 55

STA. 861+00
~~Const.~~ Crossover & Conc. Spillway Type I
See Sheet Nº 7 & 54

18" CONC. PIPE

33.20

8' ROAD SIDE DITCH

~~CONST.~~ EASEMENT

OLD PHOSPHATE PIT

STA. 859+90 Lt. to STA. 862+00 Lt.
~~CONST.~~ DYKE ON RT
SEE SHEET Nº 7 & CROSS SECTIONS

Sta. 859+65 Rt.
36.37' of 24" S.D. RCP

Sta. 859+30 Rt.
36.00' of 18" S.D. RCP

S.A.L. R.R.

36" CONC. PIPES

CULTIVATED AREA

FRM. SHACK

24" CONC. PIPE W/ CONC. HWLS

SCATTERED PINES

18" C.M.P.

CULTIVATED AREA

SCATTERED PINE & PALMETTO

R/W Line

D i t c h

N 85°34' E

18" CONC. P.

STA. 870+00
~~Const.~~ Crossover & Conc. Spillway Type T
See Sheet Nº 7 & 56

R/W Line

LOW AREA

PINE & PALMETTO PASTURE

CULTIVATED AREA

OLD ABANDONED & LEVELLED OFF PIT BANKS

Sta. 876+75 Rt.
36.36' of 18" S.D. RCP

860 865 870 875 880 885

Survey

Clearing & Grubbing 20' Wide Ditch Exc. = 120 C.Y.

-0.05 %

8' B.W. 2 1½:1 Side Slopes.
50' R/W Exist.

Clearing & Grubbing = 0.21 Ac.
Ditch Exc. = 120 C.Y.

110.10

110.00

Sta. 856+81
~~Const~~ Dbl 30" Pipe.
Fl. El. 110.00 Lt.
Fl. El. 110.10 Rt.

4	3	2	1	0
110.5	110.6	110.7	110.7	110.9
			(+50)	(+2.5)
			110.9	111.0
			(+75)	(+50)
			111.0	111.00
			(+27)	(+50)
			114.94	116.68
			(+50)	(+13)
			116.85	

Lateral Ditch Lt. Sta. 856+81
INSERT Nº 1

B.M. No. 4
225' Rt. Sta. 866+25
R.R. Spike in base 18" Pine
El. = 120.61

B.M. No. 5
215' Lt. Sta. 882+00
R.R. Spike in base 6" Pine
El. = 118.17

P.I. = 118.67

P.I. 119.14

+0.3012 %

+0.0671 %

-0.0868 %

-0.20%

-4.00%

+0.0332 %

Spec. Med. Ditch

Spec. R/W Ditch Rt. 2

Spec. Med. Ditch

SPEC. DITCH RT. 2

+1.216%

DPI RT. 111.40

DPI RT. 113.50 (+89.5)

Sta. 863+00
~~Const.~~ Inlet Type "C"
Fl. El. 111.60
~~Const.~~ 15" Pipe
Fl. El. 111.60 Lt.
Fl. El. 111.40 Rt.

Sta. 865+79.5
~~Const.~~ Inlet Type "C"
Fl. El. 114.60
~~Const.~~ 24" Pipe
Fl. El. 114.40 Rt.

400' V.C.

400' V.C.

Med. Ditch 2.42' below Prof. Grade

Med. Ditch 2.42' below Prof. Grade

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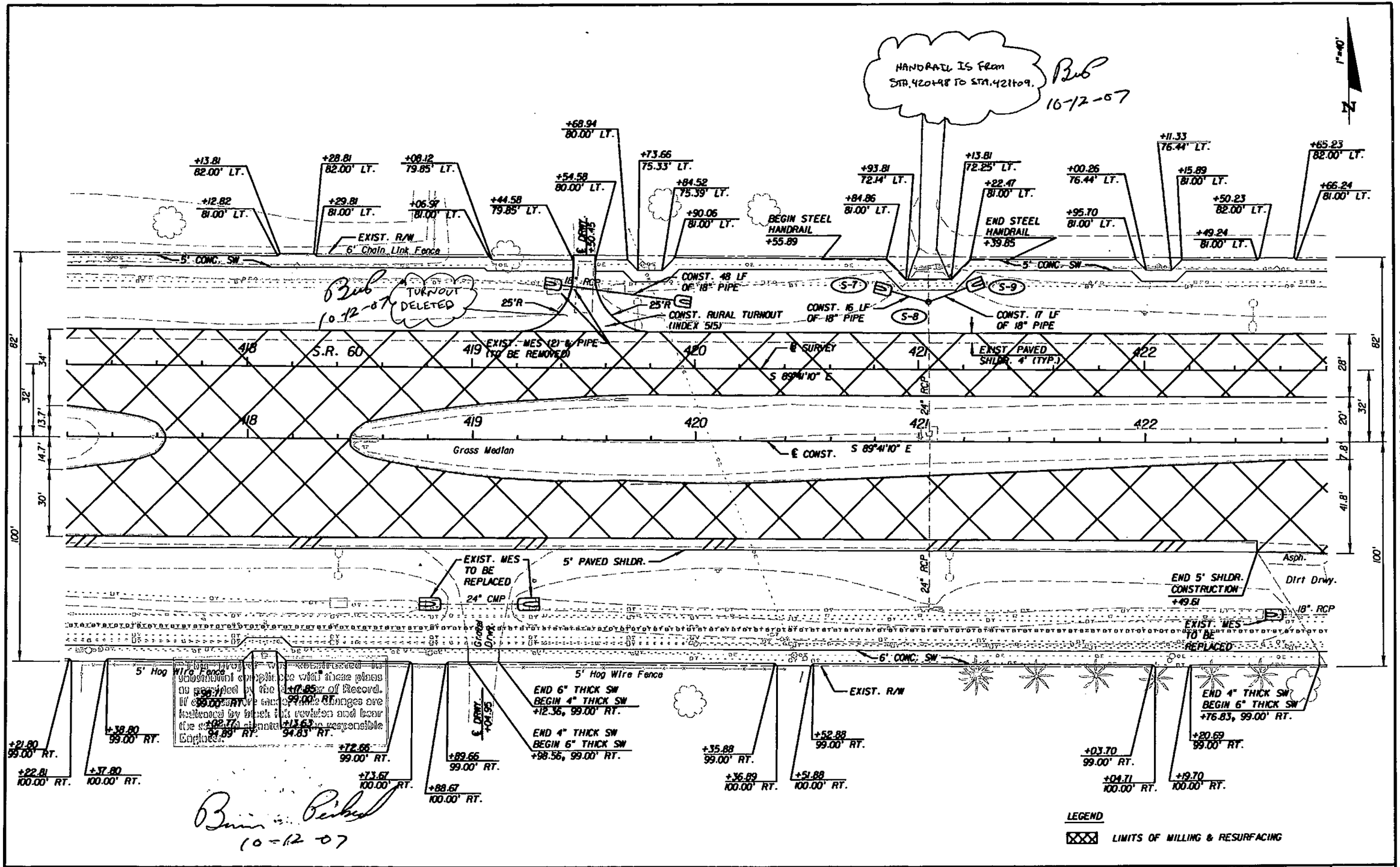

Jacobs project # was constructed in substantial compliance with these plans as marked by the Engineer of Record. If changes are made, the changes are indicated by black ink revision and bear the signature of the responsible Engineer.

BJB 10-12-07

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Jacobs Civil Inc.
18302 Highwoods Preserve Parkway
Highwoods Plaza, Suite 200
Tampa, FL. 33647
Tel. (813) 977-3434
CERTIFICATE OF AUTHORIZATION NO. 6512
ENGINEER OF RECORD:
DAVID A. RAST P.E. No. 51486

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413395-1-52-01

PLAN SHEET (9)
STA 417+20 TO STA 422+80

SHEET NO. 31

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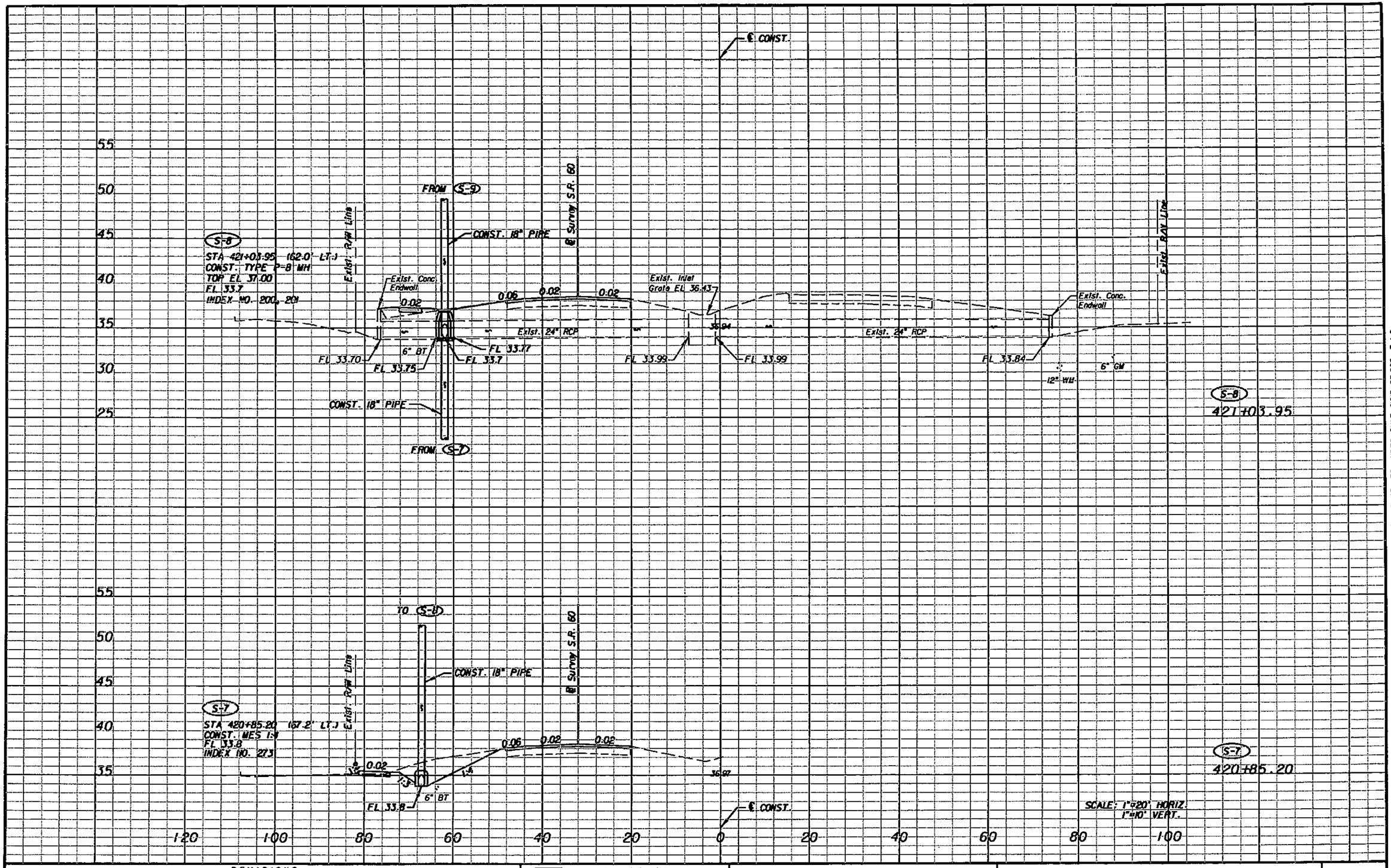

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Jacobs Civil Inc.
18302 Highwoods Preserve Parkway
Highwoods Plaza, Suite 200
Tampa, FL. 33647
Tel.(813)977-3434
CERTIFICATE OF AUTHORIZATION No. 6572
ENGINEER OF RECORD:
DAWN MARIE RATICAN, P.E. No. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413395-1-52-01

DRAINAGE STRUCTURES
SR 60 (4)

SHEET NO. 83

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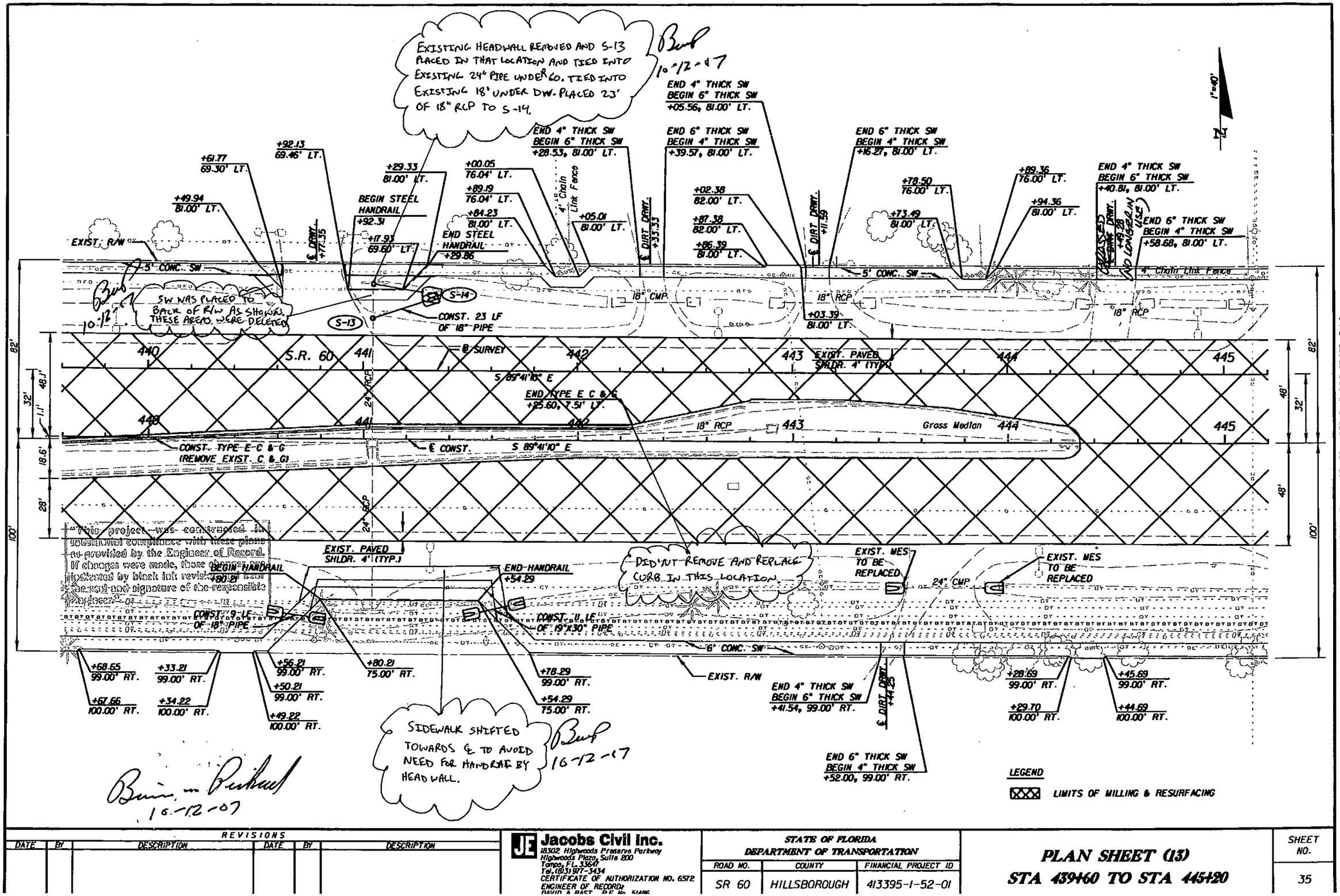

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Jacobs Civil Inc.
18302 Highwoods Preserve Parkway
Highwoods Plaza, Suite 200
Tampa, FL. 33647
Tel. (813) 977-3434
CERTIFICATE OF AUTHORIZATION NO. 6572
ENGINEER OF RECORD: DAVID A. PAST, P.E. No. 51485

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413395-1-52-01

PLAN SHEET (13)
STA 439+60 TO STA 445+20

SHEET NO. 35

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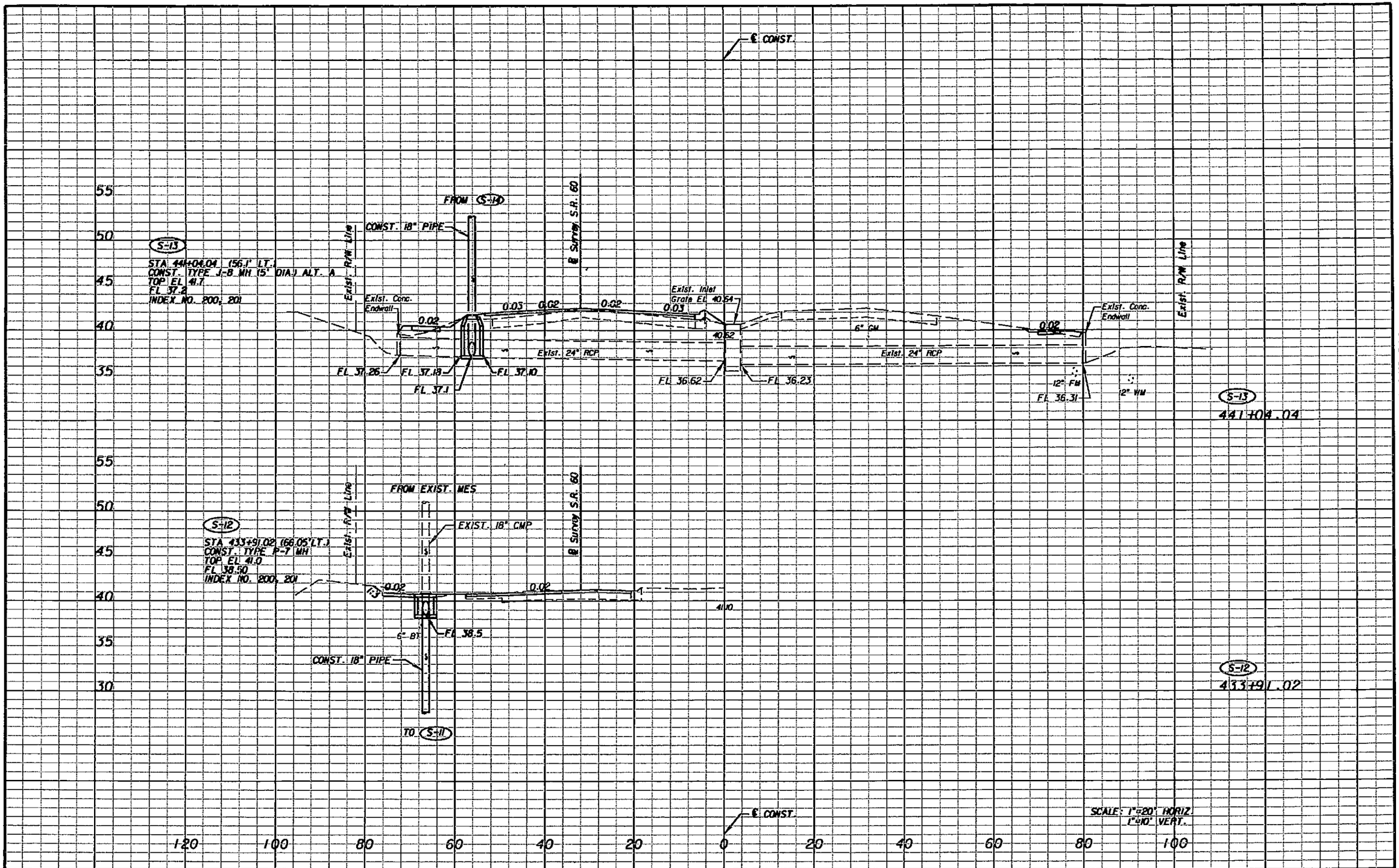

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Jacobs Civil Inc.
18302 Highwoods Preserve Parkway
Highwoods Plaza, Suite 200
Tampa, FL. 33647
Tel. (813) 377-3434
CERTIFICATE OF AUTHORIZATION No. 6572
ENGINEER OF RECORD:
DAWN MARIE RATICAN, P.E. No. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413395-1-52-01

DRAINAGE STRUCTURES
SR 60 (7)

SHEET NO. 86

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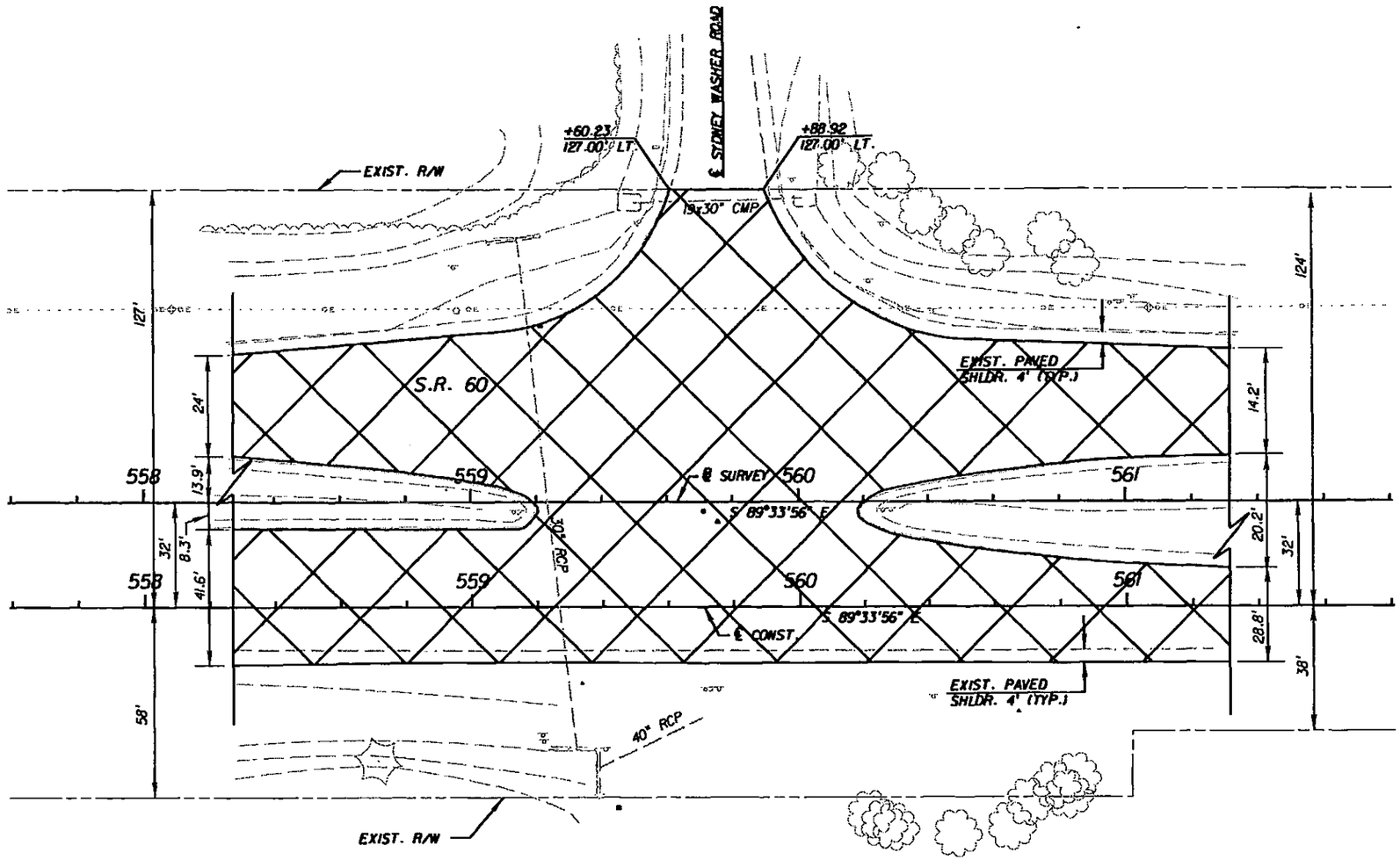
BM NO. 60-13
CONC. MONUMENT
45.73' RT.
STA. 569+33.47 ℄ CONST.
ELEV. 62.848'

1"=40'



NOTE:
TRIM EXISTING TREES WITHIN RIGHT OF WAY FROM STA. 560+00.00 TO STA. 567+00.00 LEFT TO PROVIDE CLEAR LINE OF SIGHT.

LEGEND

LIMITS OF MILLING & RESURFACING

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Jacobs Civil Inc.
18302 Highwoods Preserve Parkway
Highwoods Plaza, Suite 200
Tampa, FL 33647
Tel.(813) 977-3434
CERTIFICATE OF AUTHORIZATION NO. 6512
ENGINEER OF RECORD

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413395-1-52-01

INTERSECTION DETAIL (7)
STA 558+27 TO STA 561+31

SHEET NO. 62

S.R. 60

1" = 50'

N

LITTLE ALAFIA RIVER

5' CONC. SW

END PAVED SHOULDER
+43.15, 26.00' Lt.

END GUARDRAIL
END ANCHORAGE
TYPE PARALLEL
STA. 710+88.00

END GRAVITY
WALL WITH RAILING
+82.50, 37.50' Lt.

+82.50
37.50' Lt.

+90.00
30.00' Lt.

R/W Line

5' PVC FENCE

TECO Distribution

EXISTING 4' PAVED SHOULDER

50.00'

26'

708 709 710 711 712 713 714 715

2' PAVED SHOULDER

SAW CUT

SAW CUT

REMOVE EXISTING GUARDRAIL

END WIDENING
+43.15, 11.12' Lt.

S 89° 48' 45" E

℄ Survey S.R. 60

LIMITS OF MILLING & RESURFACING

132.00'

LIMITS OF MILLING & RESURFACING

EXISTING 4' PAVED SHOULDER

5' CONC. SW

REMOVE EXISTING GUARDRAIL

R/W Line

STA. 709+75.00 Rt. BEGIN SW BACK SLOPE
TRANSITION FROM 1:4 TO 1:3

RIVER BOTTOM

WIDENING

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

WADETRIM
8745 Henderson Road, Suite 220, Tampa FL 33634
Engineer of Record: David O. Theung, PE No. 44786
Certificate of Authorization No. 3952

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	423053-1-52-01

PLAN

SHEET NO. 38

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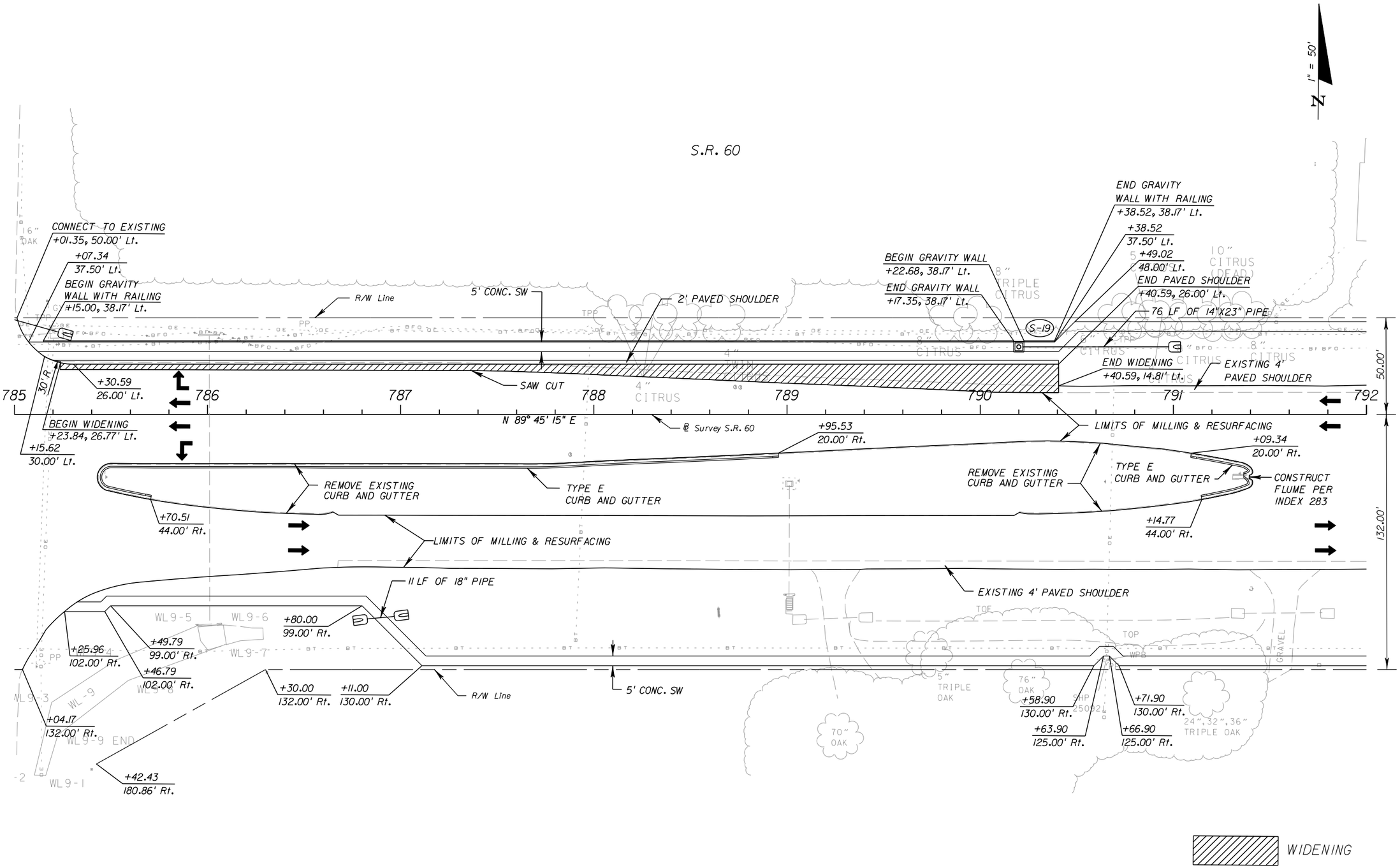

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	48		

WADETRIM
8745 Henderson Road, Suite 220, Tampa FL 33634
Engineer of Record: David O. Theung, PE No. 44786
Certificate of Authorization No. 3952

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	423053-1-52-01

PLAN

SHEET NO. 49

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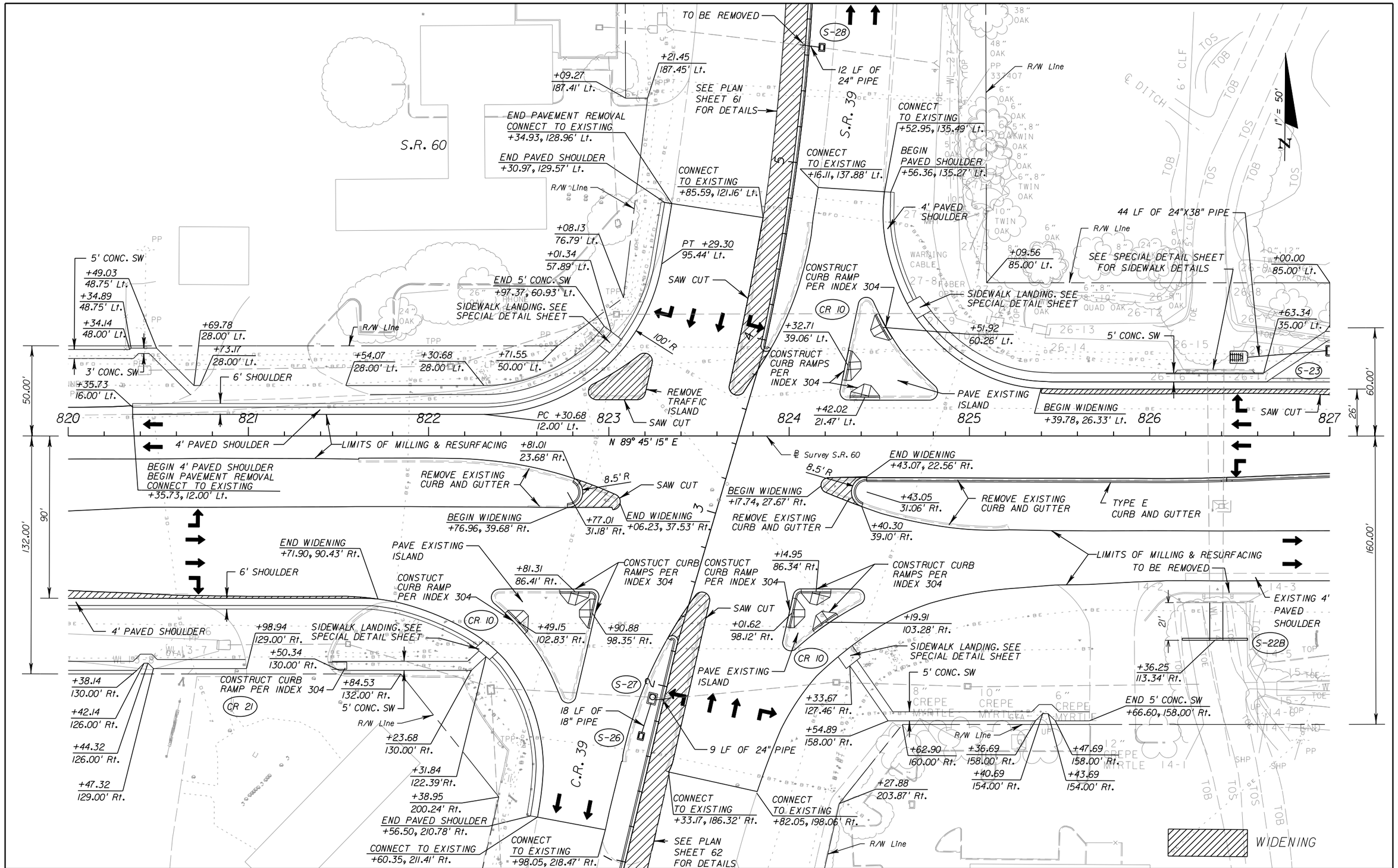

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

WADE TRIM
8745 Henderson Road, Suite 220, Tampa FL 33634
Engineer of Record: David O. Theung, PE No. 44786
Certificate of Authorization No. 3952

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	423053-1-52-01

PLAN

SHEET NO. 54

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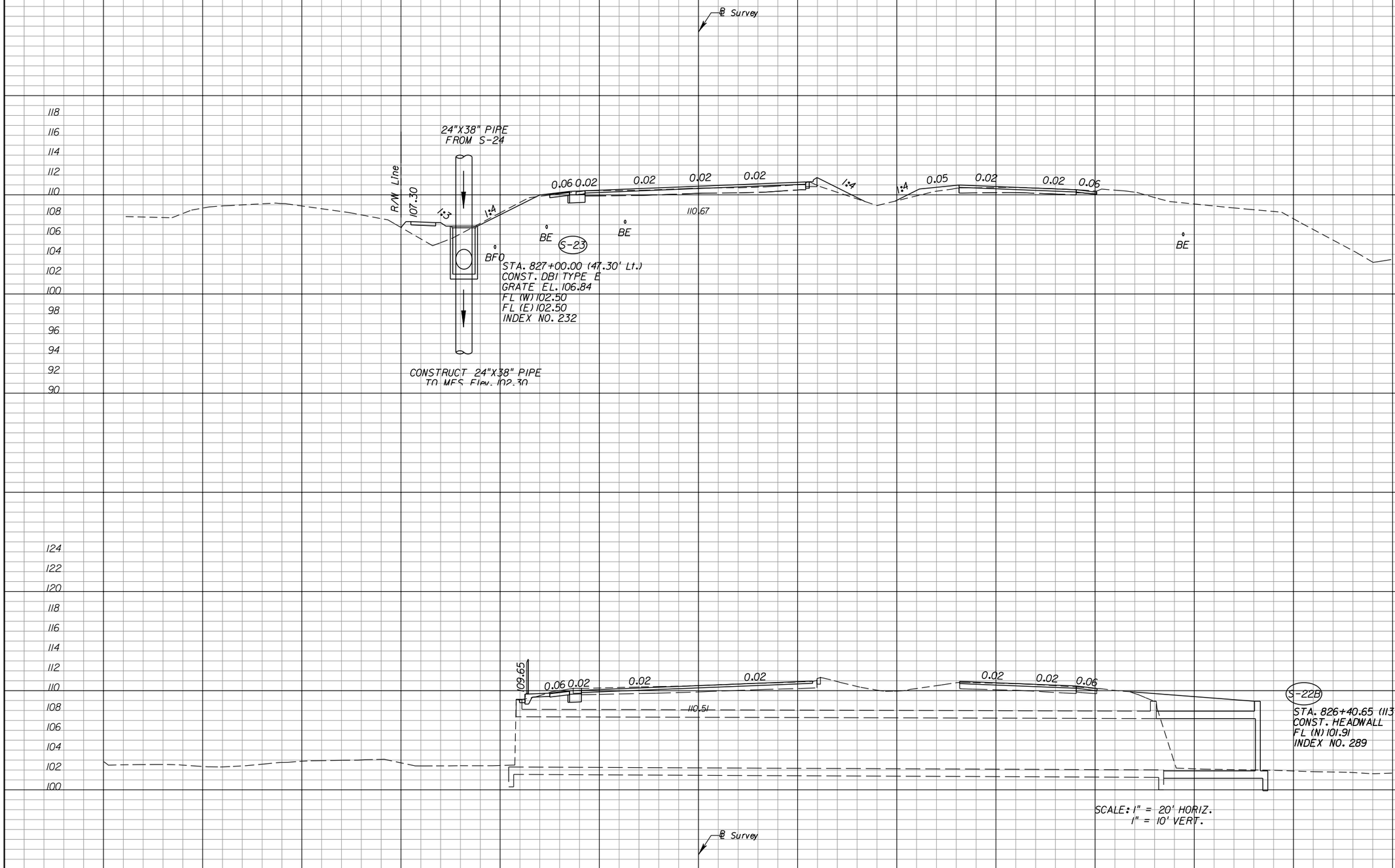

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DATE	DESCRIPTION	DATE	DESCRIPTION

WADETRIM
8745 Henderson Road, Suite 220, Tampa FL 33634
Engineer of Record: David O. Theung, PE No. 44786
Certificate of Authorization No. 3952

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
60	HILLSBOROUGH	423053-1-52-01

DRAINAGE STRUCTURES

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SWFWMD DRAINAGE DOCUMENTATION

State Road 60

from Turkey Creek Road to Clarence Gordon Jr. Road
Section 10110
Hillsborough County (10)
Financial Project ID: 423053-1-52-01

Prepared For:

Florida Department of Transportation
District 7

December 3, 2010

Prepared by:

WADETRIM

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SECTION 1.0
GENERAL PROJECT INFORMATION

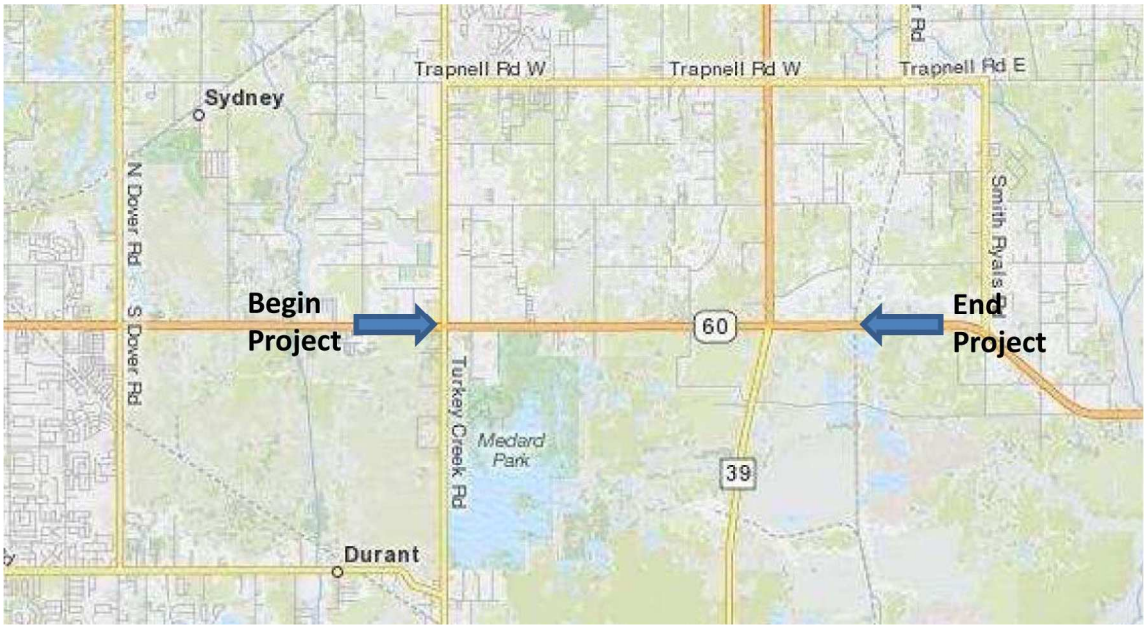
1.1 INTRODUCTION

This drainage design documentation serves to assess and document the Stormwater, Floodplain, and Wetland Impacts along the project corridor. This report will present an analysis and justification of any impacts to these systems and serve as the support documentation for the proposed roadway and sidewalk improvements.

1.2 SITE LOCATION AND DESCRIPTION

The Florida Department of Transportation (Department) has identified and programmed a Resurfacing, Restoration, and Rehabilitation (RRR) project for SR-60 in the current 5-year Work Program. This project is currently scheduled for a June, 2011 letting. The project lies in the eastern portion of unincorporated Hillsborough County, the land use in the project vicinity is a mix of light commercial, farm and ranch land. The limits are from Turkey Creek Road (MP 16.353) to Clarence Gordon Jr. Road (MP 20.273). The project covers approximately 3.920 miles of this east/west route. The project lies within Sections 23, 24, 25 and 26 of Township 29, Range 21 and Sections 19, 20, 21, 28, 29, and 30 of Township 29, Range 22. Refer to Figure 1.2.1, Project Location Map.

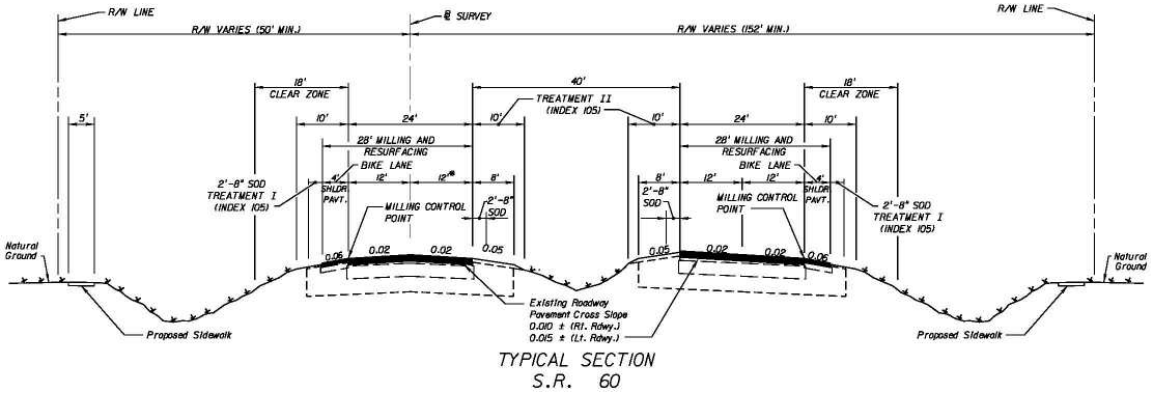
Figure 1.2.1 Project Location Map



The intent of the project is to resurface the existing 4-lane rural highway. Right turn lanes will be extended to meet "L" in the Department's Design Standard Index 301, which is 460 feet, and add a 50 foot taper for a total length of 510 feet. In addition, the right turn lanes will be offset

outward to accommodate a 4-foot bicycle lane located between the turn lane and through lane. A 5-foot pedestrian sidewalk will be added to both sides of the roadway from east Turkey Creek Road to Clarence Gordon Jr. Road on the north side of S.R.60 and from Turkey Creek Road to SR-39 on the south side of the SR-60. Refer to Figure 1.2.2., Proposed Typical Section, for pictorials of the proposed sections.

Figure 1.2.2 – Proposed Typical Section



TYPICAL SECTION
S.R. 60

The project terrain is flat and poorly drained. There are wetlands or other surface waters lying adjacent to the roadway along the project corridor. In general, offsite runoff drains away from the project to the Little Alafia River and/or tributaries. Refer to **Appendix 7**, SWFWMD Aerial and Drainage Maps for further clarification. A cross drain, or multiple cross drains, convey the basin runoff under SR-60 from the north side to the south for several major basins. The size and location of the cross drains within the project limits are summarized below in Table 1.2.1, Summary of Existing Cross Drains.

Table 1.2.1 – Summary of Existing Cross Drains

Structure	Station
7' x 3'	686+50
6' x 8'	697+50
(3) 10' x 10'	709+74
18”	753+75
24”	786+00
24”	798+25
(2) 7' x 5'	826+36
(2) 30”	856+85

1.3 SOIL CHARACTERISTICS

The Hillsborough County Soil Conservation Service (SCS) Soil Survey mappings identifies 10 main soil units within the limits of the project.

The majority of the project corridor is made of Seffner Fine Sand (47). These soils are nearly level to gently sloping and moderately well drained to excessively drained. Detailed soils information and data is included in **Appendix 6**, Soils Report. The table below provides a legend for the Soils Map.

Table 1.3.1 – Soils Map Legend

MAP SYMBOL	SOIL NAME	HYDROLOGIC GROUP
4	Arents Nearly Level	
16	Felda Fine Sand, Occasionally Flooded	B/D
29	Myakka Fine Sand	B/D
33	Ona Fine Sand	B/D
35	Orlando Fine Sand, 0 to 5% slope	A
46	St. Johns Fine Sand	B/D
47	Seffner Fine Sand	C
51	Haplaquents, Clayey	
60	Winder Fine Sand, Frequently Flooded	B/D
61	Zolfo Fine Sand	C

In February of 2010, geotechnical explorations were conducted by Professional Service Industries, Inc (PSI). Nine (9) hand auger borings were done along the corridor, on both sides of the existing roadway. The borings were typically between 30 to 110 feet from the baseline survey of the roadway. The soil characteristics were assessed and compared with the SCS Soil Survey. The laboratory testing results were used as part of the Culvert Service Life Estimator, **Appendix 7.0**, to determine the allowable Optional Pipe parameters.

1.4 FLOOD PLAIN INFORMATION

Per Community Panel Numbers: 12057C0410H and 12057C0430H the project corridor lies within Flood Zones A, No base flood elevations determined, and X, Area determined to be outside of the 500-year floodplain. According to the Hillsborough County SWMM model, the 100-year flood stage elevations along the corridor vary between elevations 66.79 (NAVD) to 105.86 (NAVD) depending on the associated tributary. A copy of both the FEMA maps and the county node diagram, with stage elevations, can be found in **Appendix 5.0**.

1.5 EXISTING DRAINAGE STRUCTURES

In August of 2009, a drainage inventory was done of the existing drainage structures. A recommendation of repairs and/or replacements is listed in the Construction Plans as part of the Summary of Existing Structures Maintenance and Repair.

1.6 EXISTING SIDEDRAINS AND CROSSDRAINS

In August of 2009, a drainage inventory was done of the existing drainage structures. A recommendation of repairs and/or replacements is listed in the Construction Plans as part of the Summary of Existing Structures Maintenance and Repair.

SECTION 2.0
DRAINAGE REFERENCE AND RESOURCE INFORMATION

2.1 INVESTIGATIONS

Initial investigations and data collection were conducted to establish the existing conditions, available information, and historic conditions. The original roadway plans along the corridor were obtained to compare stormwater patterns. Field reviews, contact with FDOT Maintenance, and a pre-application meeting with SWFWMD were all part of the investigation process, the outcomes of which are discussed in the subsections below.

2.1.1 FIELD REVIEWS

Twelve separate field reviews by the design team have been conducted. The summer/fall of 2010 was an extremely active storm season in this region. Water levels and flows were observed during numerous visits to aid in the development of proposed stormwater systems and sidewalk placement.

2.1.2 DISCUSSION WITH FDOT MAINTENANCE

Wade Trim staff spoke with Mr. Harvey Hunt, FDOT Tampa Maintenance Office, regarding stormwater issues and related historic maintenance issues along the corridor. We also reviewed the existing roadway plans prior to the stormwater design. This project was discussed amongst all pertinent staff, and all agreed that the largest drainage issues were pooling water in the medians and the need for roadway cross slope corrections.

2.1.3 SWFWMD COORDINATION

On April 15, 2010, a SWFWMD pre-application meeting for this project was held at the SWFWMD Tampa office. At the time of the meeting the proposed sidewalks on the north sides of the road ran from station 678+00 to station 705+00 and from station 665+00 to station 691+00. At the time, no wetland or floodplain impacts were anticipated and thus the project was to qualify for an Exception.

Per the optional services approved by FDOT on September 28, 2010, a sidewalk will be added on the north side of the road along the length of the corridor, and on the south side of the road, from the beginning of the project to SR-39. Additionally, the box culvert on the southeast corner of the SR-39 intersection will be extended. The additional sidewalk along with the proposed box culvert extension will impact wetland areas and require a SWFWMD Standard General Permit with support stormwater documentation. Refer to **Appendix 1.2**, SWFWMD Coordination for the minutes of the pre-application meeting, and documentation.

2.2 RESOURCES FOR ANALYSIS

The following is a list of resources utilized for the stormwater analysis and design of the stormwater systems for this project:

1. Southwest Florida Water Management District
    a. Staff directives
    b. Environmental Resource Permitting Information Manual (July '06)
    c. Aerial Contour Maps

2. Florida Department of Transportation
    a. Staff directives
    b. FDOT Drainage Manual (English Units) (March '10)
    c. FDOT Drainage Handbook Hydrology (January '04)
    d. FDOT Storm Drain Handbook (January '08)
    e. FDOT Design Standards (English Units) (2010)
    f. FDOT Drainage Handbook Optional Pipe Material (June '08)

3. Field Analysis
    a. Aerial Survey and Photography by I. F. Rooks & Associates.
    b. Land Survey by Echezabal and Associates
    c. Jurisdictional Assessment by Wetlands by Earth Resources Consulting Scientists
    d. Geotechnical Assessment by PSI, Professional Service Industries, Inc.

SECTION 3.0
EXISTING DRAINAGE CHARACTERISTICS

3.1 WATERSHED, OFFSITE BASIN AND ROADWAY BASIN DESCRIPTIONS

There are eight (8) culvert crossings along the project corridor. Refer to Drainage Maps in the Construction Plans and SWFWMD Aerials, in **Appendix 7.0** for basin locations. Estimates of the existing 100-year peak stage elevations and floodway elevations within the project corridor were determined from the SWMM model provided by Hillsborough County in **Appendix 5.0**. Where applicable, the data from a previous flood study, FDOT Drainage Connection Permits and SWFWMD ERP Permits were used.

In the existing condition, the majority of the roadway stormwater runoff flows through a series of interconnected shallow ditches to the Little Alafia River or one of its minor tributaries.

There are two segments of the corridor that have interconnected storm sewer structures requiring stormdrain tabulation analysis. The segment on the northeast corner of SR-60 and Turkey Creek Road will be replaced due to the extension of the right turn lane and sidewalk placement. The portion of storm sewer at the intersection of SR-39 and SR-60 will require the relocation of one structure and the addition of one structure but no modification of the existing pipe network.

SECTION 4.0
PROPOSED DRAINAGE DESIGN

4.1 STORMWATER MANAGEMENT DESIGN APPROACH

Proposed and/or modified drainage structures and sidedrains were analyzed for the proposed condition and upsized when necessary. The analysis of these improvements was modeled using the rational method for a FDOT 3-year event in Bentley StormCad V8i.

4.2 DESIGN CRITERIA

The stormwater conveyance design for this project will meet the following criteria:

4.2.1 CONVEYANCE

The existing roadway conveyance system consists mainly of roadside ditches interconnected by sidedrains. The existing system will stay in place for a substantial portion of the project corridor. Only those facilities impacted by the turn lane extensions and/or sidewalk placement, will be replaced by their hydraulic equivalent. Depending on the location, runoff will continue to convey via open ditch or by pipe to the boundary location. The design event for the proposed conveyance system of ditches, pipes, and inlets is the 3-year frequency storm event (General Design) per Section 2.2 of the FDOT Drainage Manual. **Appendix 2.2** contains copies of the Time of Concentration calculations, proposed structure node diagram, catchment structure table and transition element table for verification of system capacity.

4.2.2 TAILWATER AND OUTFALL CONDITIONS

Tailwater elevations for the proposed systems were based on three criteria:

Relative location to cross drain: if the downstream boundary was a cross drain, the inside crown elevation was used at the tailwater elevation.

Top of bank: when the TOB was substantially below the crown of the receiving pipe system.

Receiving structure hydraulic gradeline: If structures were in a series along the right-of-way, the hydraulic gradeline elevation of the receiving structure side drains was used.

4.3 FLOOD PLAIN MITIGATION

The 100 year flood plain encroachment volume is defined as the proposed fill between the estimated seasonal high water elevation (if above ground) or the existing ground, and the proposed 100-year peak stage per Chapter 4, Section 4.4 of the ERP Manual. Generally, 100-year floodplain encroachment will occur where existing roadside ditches within the right-of-way are being filled for the proposed roadway. There are several areas were turn lane extensions and the addition of sidewalk require the filling of low areas. However this impact has been minimized by the use of retaining walls. Remaining impacts have been mitigated for by widening the existing ditches, such that there is no net gain of fill in the floodplain. The following roadway segments experience fill in the floodplain, yet require no floodplain mitigation facilities:

Little Alafia River between stations 698+20 to 721+00
Tributary east of SR-39 between stations 825+50 to 829+50

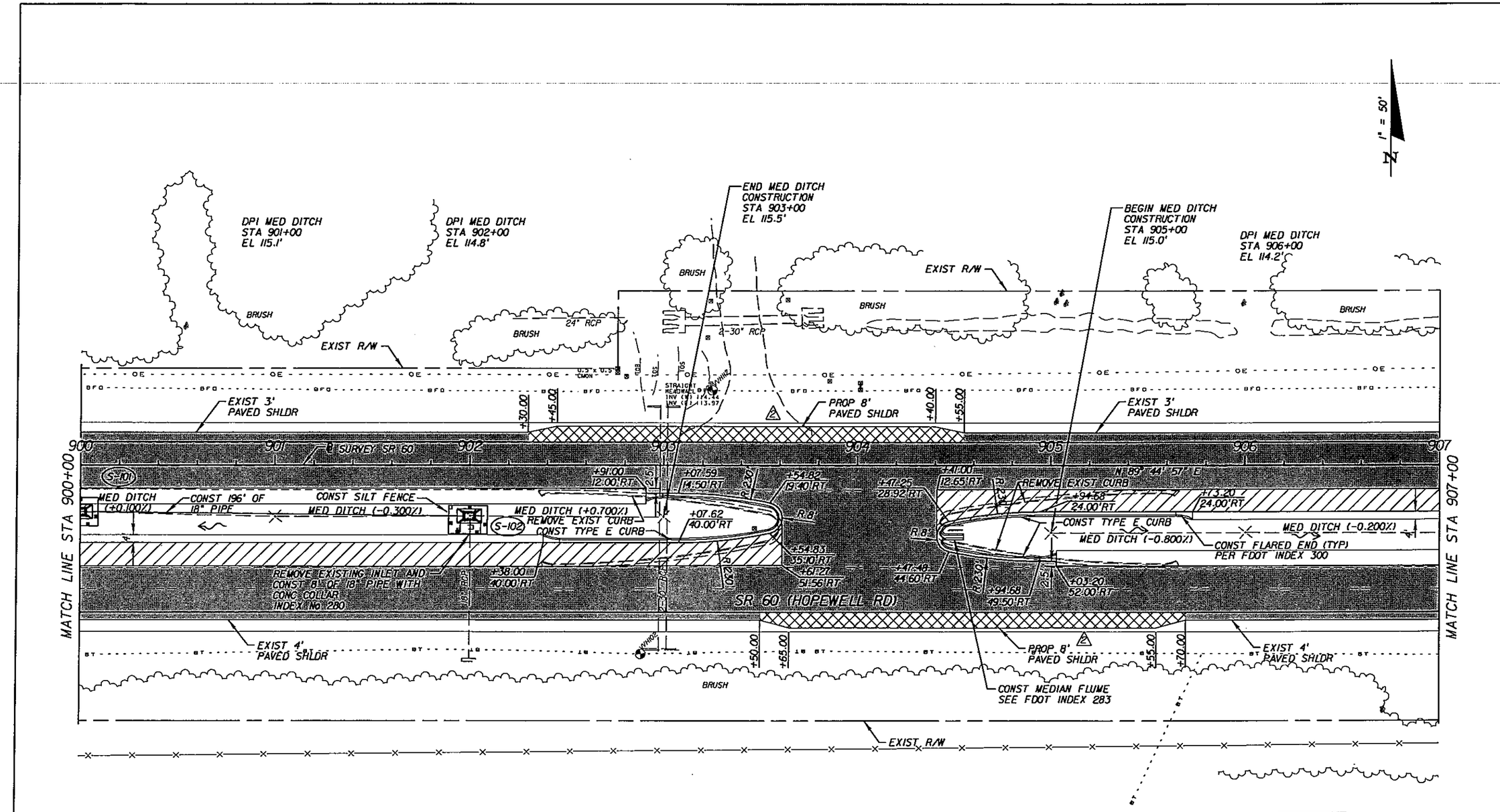
The Little Alafia River basin will experience a 34 cubic yard reduction in floodplain impacts in the post construction condition and the tributary east of SR-39 will experience a 76 cubic yard reduction. Consequently, no offsite floodplain mitigation will be required for this project. Refer to **Appendix 5.0**, Floodplain Impacts, for roadway cross section with delineated impact areas.

4.4 WETLAND IMPACT MITIGATION

The construction of the sidewalks and extension of the box culvert at station 826+36 will permanently impact 40 wetland and or other surface water areas which combined create an overall 0.653 permanent impact. An environmental narrative and accompanying Impact Summary can be found in **Appendix 3.0**.

4.5 BOX CULVERT EXTENSION

The double 7' x 5' box culvert at station 826+35 will be extended 21 feet to the south. The existing culvert bottom slope will be carried through the extension in order to insure proper flow and minimize loss in the culvert system. Verification that the extension would not have any effect on the upstream water elevations or decrease the culvert capacity was done utilizing HY-8 per FDOT Culvert Design Handbook. As per the Handbook the cross-sectional area of the culverts was examined for a flow of 6 feet per second to establish a 25-year flow regime. The 25-year flow regime was then manipulated to determine the 50-year design flow and 500-year maximum flow regimes. Input data and cross-section analysis for the existing and extended condition are represented in **Figures 4.5.1 through 4.5.4.** As demonstrated by **Figures 4.5.2** and **4.5.4** the extension of the culverts have no apparent adverse effect to the flow capacity.



REVISIONS					
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3/14/08	RA	2 REDRAW SHLDR LT/RT TO 8' WIDE			

Kisinger Campo & Associates Corp.
2203 N. Lois Avenue, Suite 1200
Tampa, Florida 33607
Florida Certificate of Authorization No. 02317
Engineer of Record:Richard Arico
P.E. No.:59674

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413405-1-52-01

PLAN (7)
STA 900+00 TO STA 907+00

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NOTE
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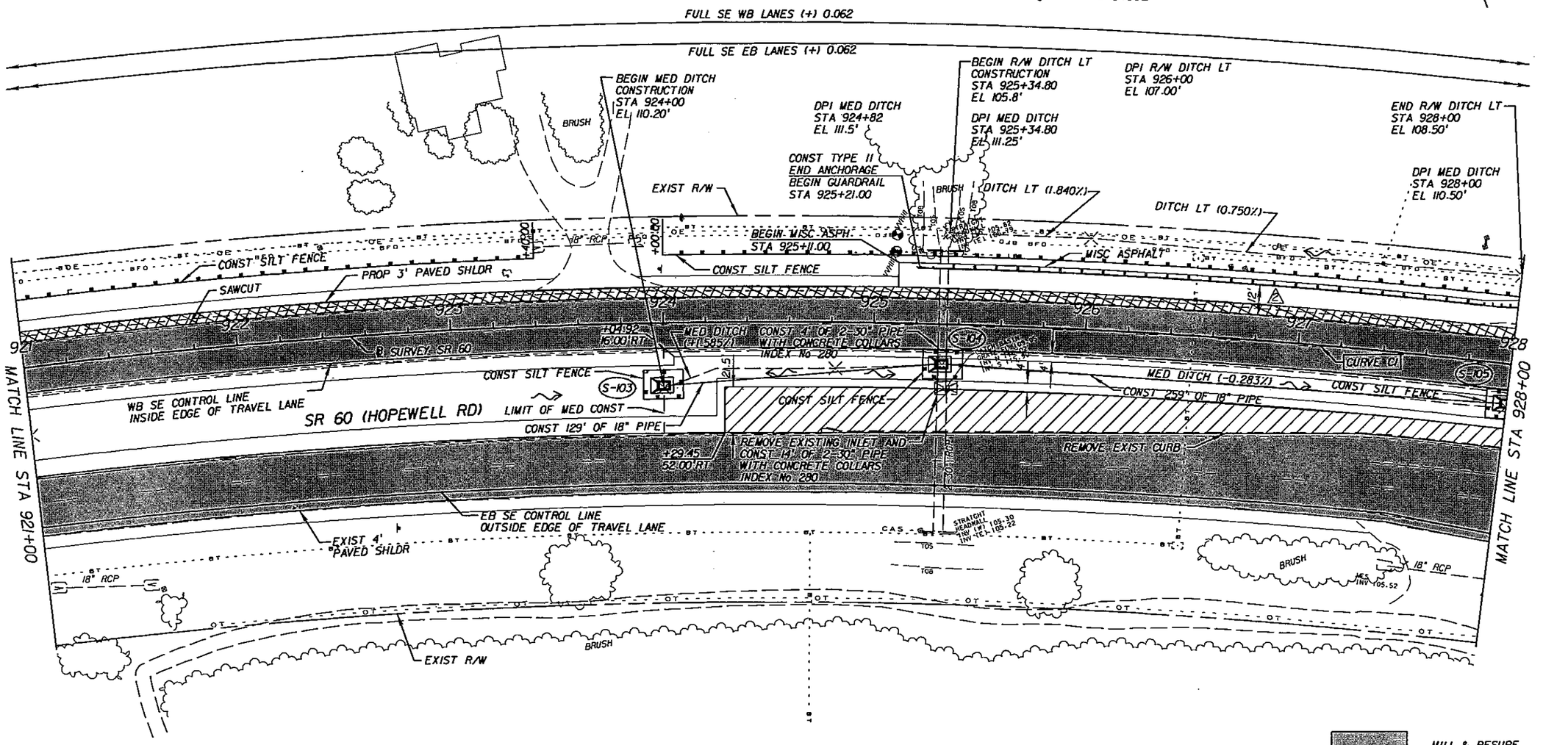
(+) INDICATES TRAVELWAY SLOPES "UPWARD" FROM THE SE CONTROL LINE.

CURVE DATA C1
PI STA = 924+70.50
DELTA = 38° 00' 27" (RT)
D = 2° 00' 00"
T = 986.64
L = 1,900.38
R = 2,864.79
PC STA = 914+83.86
PT STA = 933+84.24
e = 0.062

1" = 50'



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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
3/14/08	RA	2 REVISE 14' DIM TO 12'			

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Tampa, Florida 33607
Florida Certificate of Authorization No. 02317
Engineer of Record:Richard Arico
P.E. No.:59674

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413405-1-52-01

PLAN (10)
STA 921+00 TO STA 928+00

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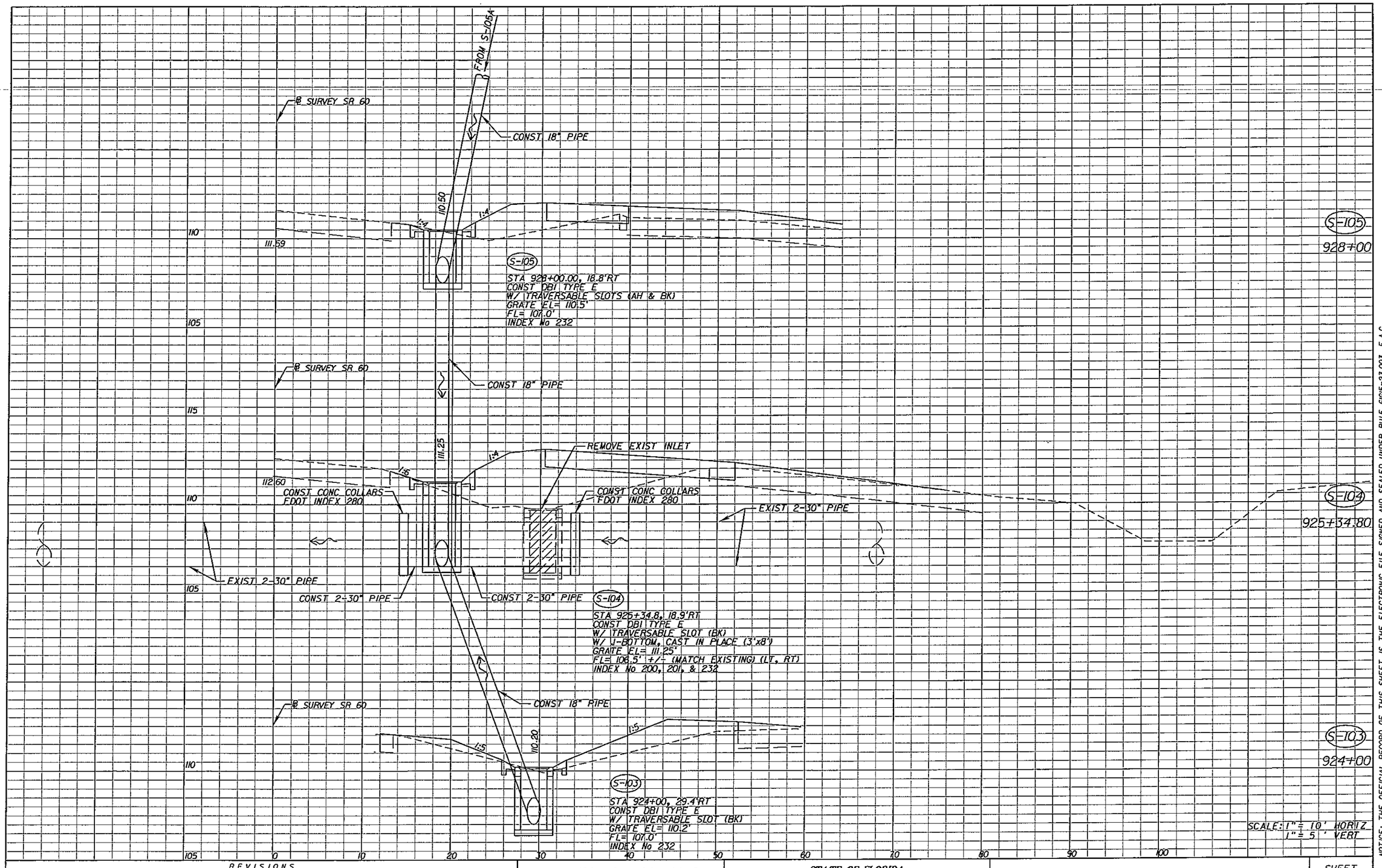

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2203 N. Lois Avenue, Suite 1200
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Engineer of Record: Tara K.M. Spieler
P.E. No.: 55333

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413405-1-52-01

DRAINAGE STRUCTURE (2)

SHEET NO. 53

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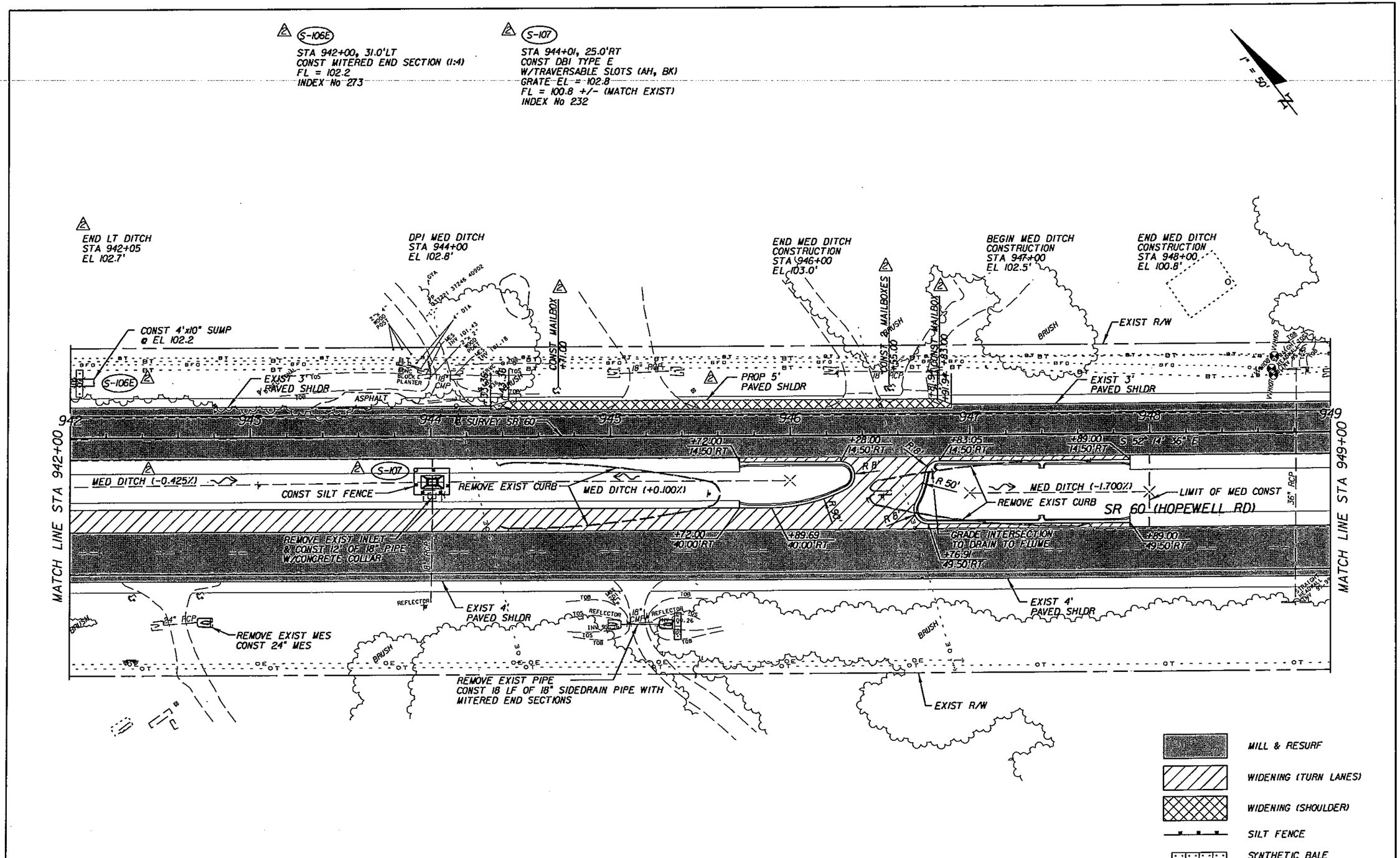

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
3/14/08	RA	2 ADD 5' SHLDR LT, MEDIAN OPEN, S-106E, LT DITCH, MAILBOXES. MOVE S-107, & REV MED DITCH.			

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Tampa, Florida 33607
Florida Certificate of Authorization No. 02317
Engineer of Record: Richard Arico
P.E. No.:59674

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413405-1-52-01

PLAN (13)
STA 942+00 TO STA 949+00

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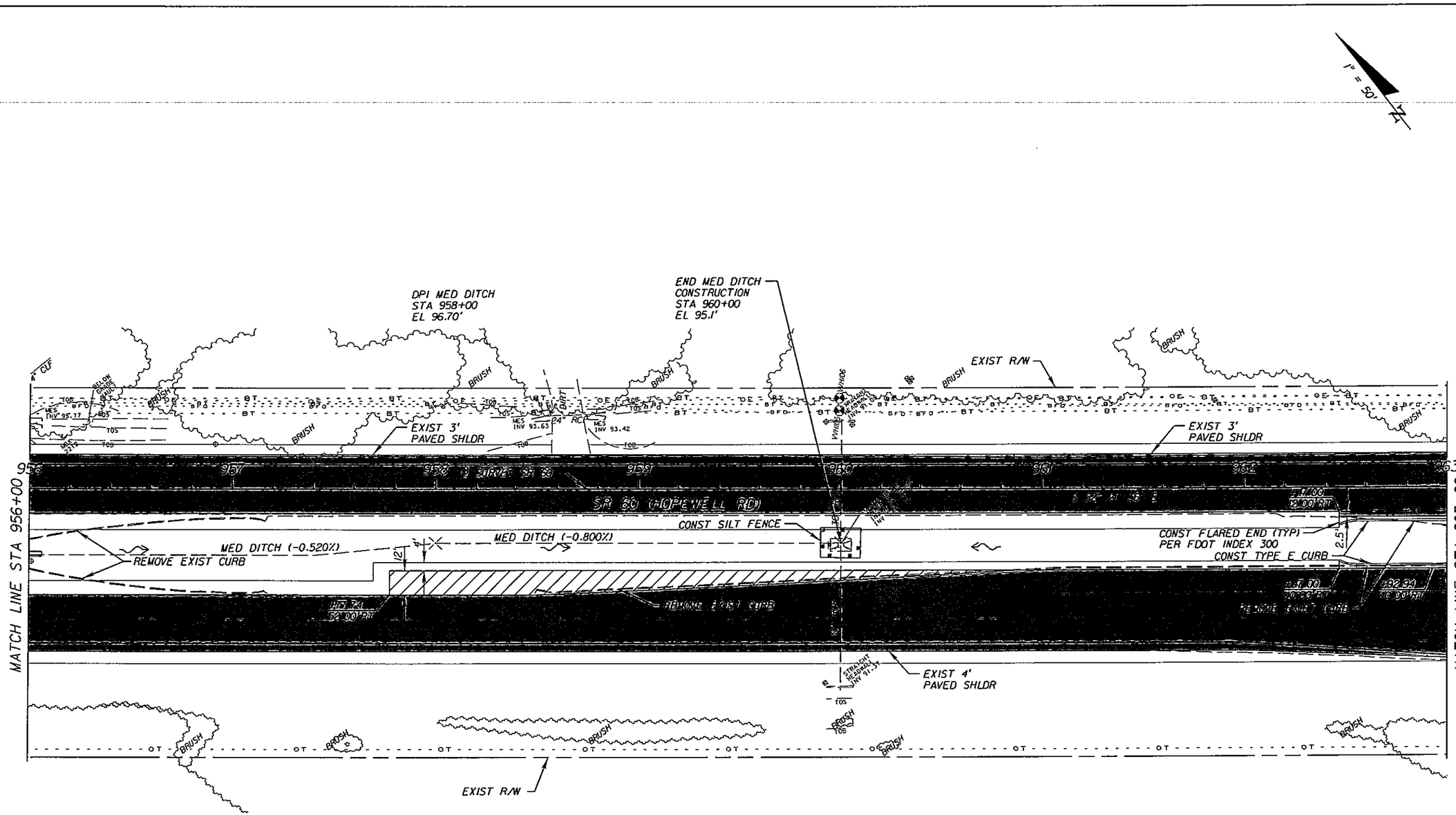

BM No 96
FDOT BRASS DISK SET ON 4"x4" CONC MONUMENT
STA 960+35, 54'LT
ELEV 92.598'

MILL & RESURF

WIDENING (TURN LANES)

WIDENING (SHOULDER)

SILT FENCE

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413405-1-52-01

PLAN (15)
STA 956+00 TO STA 963+00

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NOTE
(-) INDICATES TRAVELWAY SLOPES "DOWNWARD" FROM THE SE CONTROL LINE.
(+) INDICATES TRAVELWAY SLOPES "UPWARD" FROM THE SE CONTROL LINE.

* MATCH EXIST OUTSIDE LANE CROSS SLOPE IF OTHER THAN (+) 0.02

1" = 50'

SE TRANSITION
WB INSIDE LANE
FROM EXIST TO (+) 0.02*
+35
+55

SE TRANSITION
EB LANES
FROM EXIST TO (+) 0.062
+39

DPI MED DITCH
STA 972+00
EL 105.0'

END MED DITCH
CONSTRUCTION
STA 974+00
EL 104.6'

WB SE CONTROL LINE
OUTSIDE EDGE OF TRAVEL LANE
STA 976+55 TO 999+30

WB SE CONTROL LINE
@ SURVEY SR 60
STA 975+35 TO 976+55

EXIST R/W

REMOVE EXIST MES
CONST 18" MES

EXIST 3'
PAVED SHLDR

CONST SILT FENCE

MED DITCH (+0.967%)

MED DITCH (-0.200%)

SR 60 (HOPEWELL RD)

EB SE CONTROL LINE
INSIDE EDGE OF TRAVEL LANE
STA 974+39 TO 1001+46

REMOVE EXIST CURB

REMOVE EXIST PAVT
AND SOD MEDIAN AREA

REMOVE EXIST CURB

LIMIT OF MED CONST

MATCH LINE STA 970+00

MATCH LINE STA 977+00

EXIST 4'
PAVED SHLDR

BEGIN PROP 4' PAVED SHLDR
STA 974+39.40

SAWCUT

CONST SILT FENCE

+20.00

+00.00

EXIST R/W

REMOVE EXIST PIPE
CONST 18 LF OF 18" SIDEDRAIN PIPE
WITH MITERED END SECTIONS

BM No 97
FDOT BRASS DISK SET ON 4"x4" CONC MONUMENT
STA 970+39, 174'RT
ELEV 99.560'

MILL & RESURF
WIDENING (TURN LANES)
WIDENING (SHOULDER)
SILT FENCE
SYNTHETIC BALE

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P.E. No.: 59674

STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	HILLSBOROUGH	413405-1-52-01

PLAN (17)
STA 970+00 TO STA 977+00

SHEET NO. 38

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