



SR 400 (I-4) Project Development and Environment (PD&E) Study
FM No.: 432100-1-22-01



Pond Siting Report

Segment 1: State Road 400 (SR 400)/Interstate 4 (I-4) from West of CR 532 (Osceola/Polk County Line) to West of SR 528 (Beachline Expressway)

Osceola County (92130) and Orange County (75280)

September 2016

HNTB Corporation
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Professional Engineer Certificate

I hereby certify that I am a registered professional engineer in the State of Florida practicing with HNTB Corporation, Inc., a corporation authorized to operate as an engineering business, EB#6500, by the State of Florida, Department of Professional Regulation, Board of Professional Engineers, and that I have reviewed or approved the evaluation, findings, opinions, conclusions, or technical advice hereby reported for SR 400 (I-4) Project Development and Environment Study for the Florida Department of Transportation in Polk, Osceola and Orange County, Florida.

This Pond Siting Report (PSR) includes a summary of data collection efforts, calculations, and an overall drainage review prepared for the conceptual analyses for the State Road 400 (SR 400)/Interstate 4 (I-4) widening and extension from West of CR 532 (Osceola/Polk County Line) to West of SR 528 (Beachline Expressway) in Osceola and Orange Counties.

I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering and planning as applied through professional judgments and experience. This document is for planning purposes only and is not to replace any effort required for final design.

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DATE: September 2016




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Executive Summary

The Florida Department of Transportation (FDOT) proposes to add two (2) auxiliary lanes in either direction in the median along SR 400 (I-4). The project limits are within an approximate fourteen (14) mile segment of I-4 which extends from the Osceola-Polk County Line to west of SR 528, from Milepost 0.000 to 7.885 in Osceola County and from Milepost 0.000 to 5.650 in Orange County (herein referred to as I-4, Segment 1) and is located within Sections 4 of Township 26 South, Range 27 East; Sections 12, 13, 23, 26, 27, 33 and 34 of Township 25 South, Range 27 East; Sections 5, 6, 7, 17 and 18 of Township 25 South, Range 28 East; and Sections 11, 12, 14, 15, 22, 23, 27, 28, 29, 32 and 33 of Township 24 South, Range 28 East. The project datum is NAVD 88.

I-4 is classified as a major arterial road and is a hurricane evacuation route. The proposed improvements to I-4 include widening the existing six lane divided urban interstate to a ten lane divided highway. The typical section throughout Segment 1 will have three 12-foot general use travel lanes with 10-foot inside and 12-foot outside shoulders and two 12-foot express lanes with 4-foot inside and 10-foot outside shoulders in each direction. A barrier wall between the adjacent shoulders will separate the express lanes from the general use lanes. Twelve-foot auxiliary lanes will be provided in some areas in both the eastbound and westbound directions. The typical section includes a minimum 44-foot rail envelope in the median within a minimum 300 foot right of way.

While the overall typical section remains consistent throughout Segment 1, there are some areas along the Segment 1 corridor that will have special sections. Special cross sections were developed to meet the needs of the project due to right of way constraints, existing utility easements or other design considerations along the corridor. These special sections may include C-D roads, braided ramp systems, elevated express lanes or elevated general use lanes. Additionally, the median width may vary in certain locations to accommodate changes in the horizontal alignment due to crossroad support structures, water crossings or other features. In the area between World Drive and SR 417, the median is considerably wider than 44 feet to accommodate a future high speed rail station. The special sections along the Segment 1 corridor are identified as follows:

- I-4 Eastbound elevated express lanes between E. of SR 429 and W. of World Drive
- C-D system (Eastbound and Westbound) between World Drive and SR 417
- I-4 Eastbound elevated general use lanes with at grade C-D Road between SR 536 and SR 535
- I-4 Westbound elevated general use lanes between SR 536 and E. of Daryl Carter Parkway with at grade C-D Road between SR 536 and Central Florida Parkway

The project will be divided into thirty-nine (39) drainage basins, which requires eighty-seven (87) pond sites for floodplain compensation and the treatment and attenuation of project runoff. Eighty-nine (89) alternate sites were evaluated. It is the intent of this report to suggest and evaluate, in detail, potential pond sites for this purpose in order to ultimately determine the most advantageous location for each pond. The table below lists the recommended pond alternatives.

Table 1 - Summary of Recommended FPC Pond Sites

Basin Designation	Recommended Alternative
100	FPC 100
101	FPC 101A
102	FPC 102
103	FPC 103A
105	FPC 105A
109	FPC 109
114	FPC 114A, 114B & 114C
132	FPC 132 & 133
138	FPC 138
142	FPC 141

Table 2 - Summary of Recommended Pond Sites

Basin Designation	Recommended Alternative
100	Pond 100
101	Pond 101A-101G
102	Pond 102
103	Pond 103
104	Pond 104
105	Pond 105A & 105B
106	Pond 106A & 106B
107	Pond 107
108	Pond 108A & 108B
109	Pond 109
110	Pond 110
111	Pond 111
112	Pond 112A-112E
113	Pond 113A-113G
114	Pond 114A & 114B
115	Pond 115
116	Pond 116
117	Pond 117
118	Pond 118
119	Pond 119A & 119B
120	Pond 120
121	Pond 121A & 121B
122	Pond 122A-122C
123	Pond 123
124	Pond 124
125	Pond 125
126	Pond 126
127	Pond 127

Basin Designation	Recommended Alternative
128	Pond 128A & 128B
129	Pond 129
130	Pond 130 & 130A
131	Pond 131A & 131B
132	Pond 132-135
136	Pond 136B
137	Pond 137, 137A & 137B
138	Pond 138, 138A & 138B
139	Pond 139A & 139B
140	Pond 140
142	Pond 142B

Table 3 - Summary of Existing Pond Names and Associated Projects*

Basin Name	Pond Alternative Name	Existing Stormwater Facilities	Reason For New Alternative
100	Pond 100	Pond 7-7 (I-4 Widening, Section 7) Pond 57.6 & Pond 57.8 (Section 1 FONSI-1999)	–
100	FPC 100	–	New alternative to accommodate proposed widening impacts.
101	Pond 101A	Pond A (Interchange of County Road 532/Interstate 4 (SR400)), Pond 1A (I-4 Six Laning From Polk County Line to SR530 (US 192), Pond 57.6 (Section 1 FONSI-1999)	–
101	Pond 101B	Pond B (Interchange of County Road 532/Interstate 4 (SR400)), Pond 1B (Permit No. 49-00809-P) , Pond 57.8 (Section 1 FONSI-1999)	–
101	Pond 101C	–	New alternative to accommodate new alignment.
	Pond 101D	–	New alternative to accommodate new alignment.
	Pond 101E	–	New alternative to accommodate new alignment.
	Pond 101F	–	New alternative to accommodate new alignment.
	Pond 101G	–	New alternative to accommodate new alignment.
101	FPC 101A	–	New alternative to accommodate proposed widening impacts.
102	Pond 102	Pond 2 (I-4 6-Laning of SR 400 (I-4), Polk County Line to SR 530 (US 192) Osceola County,	–

Basin Name	Pond Alternative Name	Existing Stormwater Facilities	Reason For New Alternative
		Pond 58.3 (Section 1 FONSI-1999)	
102	FPC 102	–	New alternative to accommodate proposed widening impacts.
103	Pond 103	Pond 3 (I-4 6-Laning of SR 400 (I-4), Polk County Line to SR 530 (US 192) Osceola County, Pond 58.8 (Section 1 FONSI-1999)	–
103	FPC 103A	–	New alternative to accommodate proposed widening impacts.
103	FPC 103B	–	New alternative to accommodate proposed widening impacts.
104	Pond 104	Pond B-2 (DEP App. No. 187636-001)	–
105	Pond 105A & Pond 105B	Pond F-4-A and F-4-B (DEP App. No. 187636-001)	Regraded ponds.
105	FPC 105A	–	New alternative to accommodate proposed widening impacts.
106	Pond 106A & Pond 106B	Pond 4 (Application No. 020204-8), Pond F-4-A (DEP App. No. 187636-001)	Regraded ponds.
		Pond F-4-B (DEP App. No. 187636-001)	
107	Pond 107	Pond F-7 (DEP App. No. 187636-001)	–
108	Pond 108A	Pond G-1 (DEP App. No. 187636-001), Pond 59.5 (Section 1 FONSI)	Modified pond due to proposed alignment.
108	Pond 108B	Pond 59.9(Section 1 FONSI)	–
109	Pond 109	Pond 5b (App. No. 020204-8), Pond 60.4 (Section 1 FONSI)	Expanded and regraded pond to accommodate proposed widening.
109	FPC 109	–	New alternative to accommodate proposed widening impacts.
110	Pond 110	World Drive Interchange (Permit # 49-00792-S), I4-CD Road (permit # 48-00714-S) and the I-4 six lane project (Application # 020204-8; Ponds MV-5A and TP-2)	Expanded and modified pond to accommodate proposed widening.
111	Pond 111	World Drive Interchange (Permit # 49-00792-S), I4-CD Road (permit # 48-00714-S) and the I-4 six lane project (Application # 020204-8; Ponds MV-5A and TP-2)	–
112	Pond 112A, 112B, 112C, 112D & 112E	A, A2, A3, B and B1, SFWMD (Permit No. 49-00792-S).	Enlarged and regraded alternatives due to proposed alignment.
113	Pond 113A, 113B, 113C, 113D & 113G	C, C1, C3, D2 and D3, SFWMD (Permit No. 49-00792-S).	Enlarged and regraded alternatives due to proposed alignment.
	Pond 113E & Pond	–	New alternative.

Basin Name	Pond Alternative Name	Existing Stormwater Facilities	Reason For New Alternative
	113F		
114	Pond 114A	Pond TP-3A (Permit No. 49-00792-S)	–
	Pond 114B	Pond TP-3B (Permit No. 49-00792-S)	–
114	FPC 114A	Pond CP-4A (Permit No. 49-00792-S)	–
114	FPC 114B	Pond CP-4B (Permit No. 49-00792-S)	–
114	FPC 114C	–	New alternative to accommodate proposed widening impacts.
115	Pond 115	Pond TP-4 (App. No. 960621-13)	–
116	Ponds 116	Pond TP-5 (Permit No. 49-00792-S)	–
117	Pond 117	Pond TP-6 (Permit No. 49-00792-S)	–
118	Pond 118	Pond A (FDEP Permit No. 48/492061169 & 48/492138449)	Modified and regraded existing pond.
119	Pond 119A	Pond 1A (Permit No. 49-00809-P)	Regraded existing pond.
	Pond 119B	Pond 1B (Permit No. 49-00809-P)	Regraded existing pond.
120	Pond 120	Pond B (FDEP Permit No. 48/492061169 & 48/492138449)	Modified and regraded existing pond.
121	Pond 121A	Pond NW1 (Permit No. 49-00792-S)	Regraded existing pond.
	Pond 121B	Pond NW2 (Permit No. 49-00792-S)	Regraded existing pond.
122	Pond 122A	–	New alternative.
	Pond 122B	Pond SE-1 (Permit No. 49-00792-S)	Modified and regraded existing pond.
	Pond 122C	–	New alternative.
123	Pond 123	Pond NW3 (Permit No. 49-00792-S)	Regraded existing pond.
124	Pond 124	Pond SE-4 (Permit No. 49-00792-S, CD Road Permit – SFWMD App. No. 030115-14, Braided Ramp permit – SFWMD App. No. 101001-20)	Regraded existing pond.
125	Pond 125	Pond SE-2 (Permit No. 49-00792-S)	Modified and regraded existing pond.
126	Pond 126	Pond SE-3 (Permit No. 49-00792-S)	Modified and regraded existing pond.
127	Not Analyzed	–	Treats Osceola Parkway and ramps
128	Ponds 128A	Pond B-1 and B (Permit Application No. 030115-14)	Modified existing ponds.
128	Ponds 128B	Pond B (Permit Application No. 030115-14)	–
129	Not Analyzed	Pond C (SFWMD Application No. 980715-1)	Treats Osceola Parkway and ramps
130	Pond 130	Pond D (SFWMD App. 980715-3)	Reduced and regraded existing pond.
	Pond 130A	–	New pond alternative.
131	Pond 131A & 131B	Ponds E & F (App. No. 980715-3)	Modified and regraded existing pond.

Basin Name	Pond Alternative Name	Existing Stormwater Facilities	Reason For New Alternative
132	Pond 132	Pond 66.6 (Section 1 FONSI)	–
	Pond 133	Pond 66.5 (Section 1 FONSI)	–
	Pond 134	Pond 66.7 (Section 1 FONSI)	–
	Pond 135	Pond 66.8 (Section 1 FONSI)	–
132	FPC 132	–	New alternative to accommodate proposed widening impacts.
132	FPC 133	–	New alternative to accommodate proposed widening impacts.
136	Pond 136A	Pond 3 (Lake Vista Village permit)	–
	Pond 136B	–	New pond alternative.
137	Pond 137	Existing pond 137A (retention area 2) (SFWMD Application No. 90113-1)	Reconfigured to accommodate proposed alignment.
	Pond 137A	Existing pond 137B (detention area 1) (SFWMD Application No. 90113-1)	Reconfigured to accommodate proposed alignment.
	Pond 137B	–	New pond alternative.
138	Pond 138	Dry detention swales, (SFWMD Permit No. 48-01243-P, (Application No. 011109-7).	Swales are being impacted; proposed ponds will replace treatment
	Pond 138A	–	New pond alternative.
	Pond 138B	–	New pond alternative.
138	FPC 138	–	New alternative to accommodate proposed widening impacts.
139	Pond 139A	Pond 2 (SFWMD App. No. 011109-7), Pond 2A (App. 080205-41)	Expanded and reconfigured pond.
139	Pond 139B	Pond 2 (SFWMD App. No. 011109-7), Pond 2B (App. 080205-41)	Expanded and reconfigured pond.
140	Pond 140	Pond 1 (SFWMD App. No. 011109-7), Fenton Street Overpass (SFWMD App. 080205-41), Modification (App. 080205-41)	Modified and regraded existing pond.
142	FPC 141	–	New alternative to accommodate proposed widening impacts.
142	Pond 142B	–	New pond alternative.

*Existing ponds were renamed for naming consistency with the proposed basins – Table 3 depicts these changes.

1.0 Introduction

The Florida Department of Transportation (FDOT) has contracted HNTB Corporation to re-evaluate the existing Project Development and Environment (PD&E) studies for I-4 Ultimate. The FDOT proposes to add two (2) auxiliary lanes in either direction in the median along SR 400 (I-4). The project limits extend from the Osceola/Polk County line (just west of C.R. 532) to west of SR 528 in Orange County. The project will be divided into thirty-nine (39) drainage basins, which requires eighty-seven (87) pond sites for floodplain compensation and for the treatment and attenuation of project runoff. Eighty-

nine (89) alternate sites were evaluated. It is the intent of this report to suggest and evaluate, in detail, potential pond sites for this purpose in order to ultimately determine the most advantageous location for each pond site.

2.0 Project Description

This project lies within FDOT District 5, Southwest Florida Water Management District (SWFWMD), South Florida Water Management District (SFWMD) and the Reedy Creek Improvement District (RCID). The project limits are within a 13.5-mile segment of I-4 which extend from the Polk County/Osceola County Line to west of SR 528, from Milepost 0.000 to 7.885 in Osceola County and from Milepost 0.000 to 5.650 in Orange County and is located within Section 4 of Township 26 South, Range 27 East, Sections 12, 13, 23, 26, 27, 33 and 34 of Township 25 South, Range 27 East, Sections 5, 6, 7, 17 and 18 of Township 25 South, Range 28 East, and Sections 11, 12, 14, 15, 22, 23, 27, 28, 29, 32 and 33 of Township 24 South, Range 28 East. The limits of the project are shown on the Project Location Map in [Figure 1](#). The project is being designed under the 1988 NAVD (North American Vertical Datum). A reproduction of the USGS quadrangle map for the project vicinity is shown in [Figure 2](#).

I-4 is classified as a major arterial road and is a hurricane evacuation route. The proposed improvements to I-4 include widening the existing six (6) lane divided urban highway to a ten (10) lane divided urban highway. The existing roadway typical section has three (3) 12-foot travel lanes with 10-foot shoulders in each direction. An eastbound and westbound collector distributor (CD) road occurs from World Drive to SR 536. The existing right of way width varies but is typically 300 feet. The typical section in the proposed condition will be three (3) 12-foot travel lanes, two (2) 12-foot auxiliary lanes, two (2) 10-foot paved inside shoulders, two (2) 10-foot shoulders with a barrier wall separating the auxiliary lanes from the travel lanes and two (2) 10-foot outside paved shoulders. A 44 foot future rail corridor down the center of the roadway is provided for the full length of the project. Please refer to the Preliminary Engineering Report (PER) for additional information.

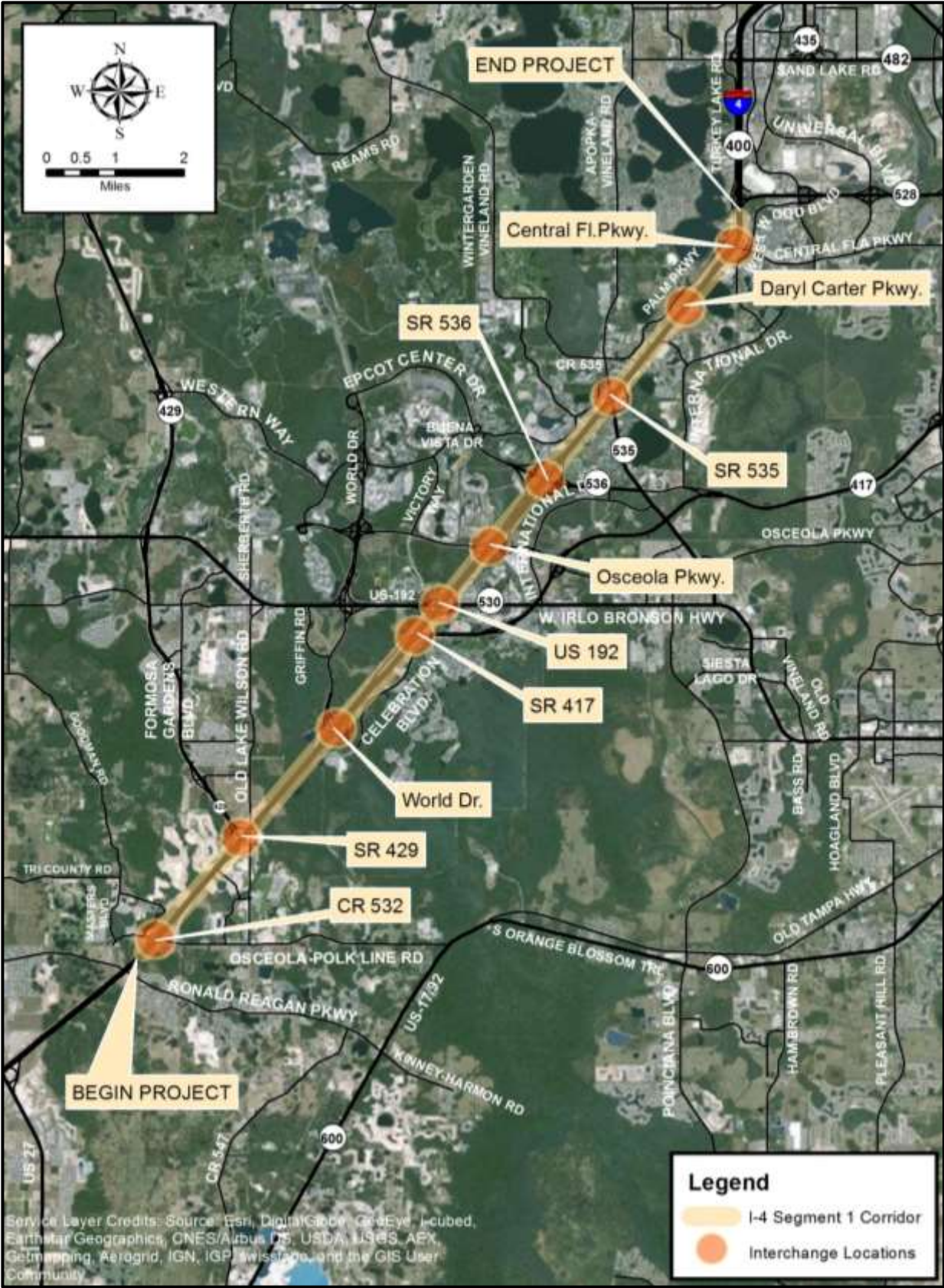


Figure 1 – Project Location Map



Figure 2 – USGS Quadrangle Map

3.0 Design Criteria

The design of stormwater management facilities for this project is governed by the rules and criteria set forth by SWFWMD, SFWMD, RCID and the FDOT. These criteria were drawn from the 2012 SFWMD Basis of Review for Environmental Resource Permits (ERP BOR) and the 2015 FDOT Drainage Manual.

Water Quality and Pond Recovery

- Wet detention
 - Treatment – Greater of 1” over the basin or 2.5” over new impervious area (ERP BOR, Section 5.2.1), which includes projects that are full reconstruction (SFWMD meeting minutes)
 - Recovery – Maximum discharge of one-half the treatment volume in 24 hours (ERP BOR, Section 7.2)
- Dry retention
 - Treatment – 50% of the amounts for wet detention: Greater of 0.5” over the basin or 1.25” over impervious area (ERP BOR, Section 5.2.1)

Water Quantity

- Open Basin – Limits the post-development peak discharge rate to the pre-development peak discharge rate for the local government: 25-year / 24-hour storm event for Polk, Osceola and Orange County. (ERP BOR, Section 6.3)
- To limit the Reedy Creek Impact Fee; the 50-year / 72-hour storm event was used.
- Per SFWMD, treatment is only required for new impervious areas.

Pond Design (FDOT, Section 5.3.4.2)

- Ponds shall be designed to provide a minimum 20-foot of horizontal clearance between the top edge of the normal pool elevation and the right of way line. Maintenance berm shall be at least 15-feet with a slope of 1:8 or flatter.
- Corners of ponds shall be rounded to provide an acceptable turning radius for maintenance equipment (30-foot minimum inside radius).
- At least 1-foot of freeboard is required above the maximum design stage of the pond below the front of the maintenance berm.

4.0 Existing Drainage Conditions

4.1 Land Uses

The existing land uses adjacent to the project area and the pond alternatives are agricultural, acreage not zoned for agriculture, residential, retail/office, recreation, public/semi-public, parcels with no values, vacant nonresidential and vacant residential, industrial and other. Future land uses include commercial, conservation, median and low density residential, hotel, motel and timeshare, planned development and mixed use. The widening of I-4 does not alter the existing or future land uses in the area. The existing land uses are shown in [Figure 3](#) and the proposed land uses are shown in [Figure 4](#).

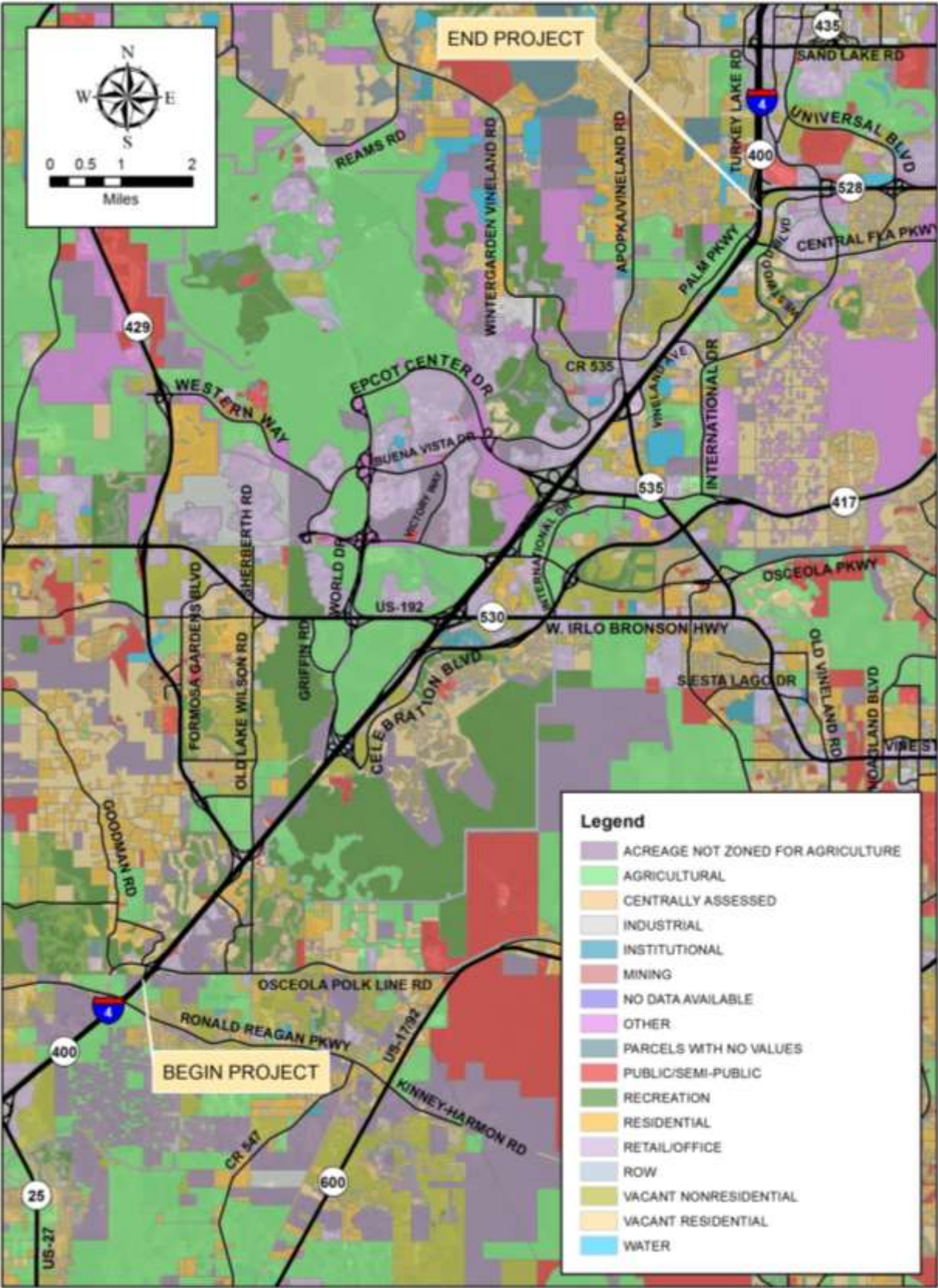


Figure 3 – Existing Land Use Map

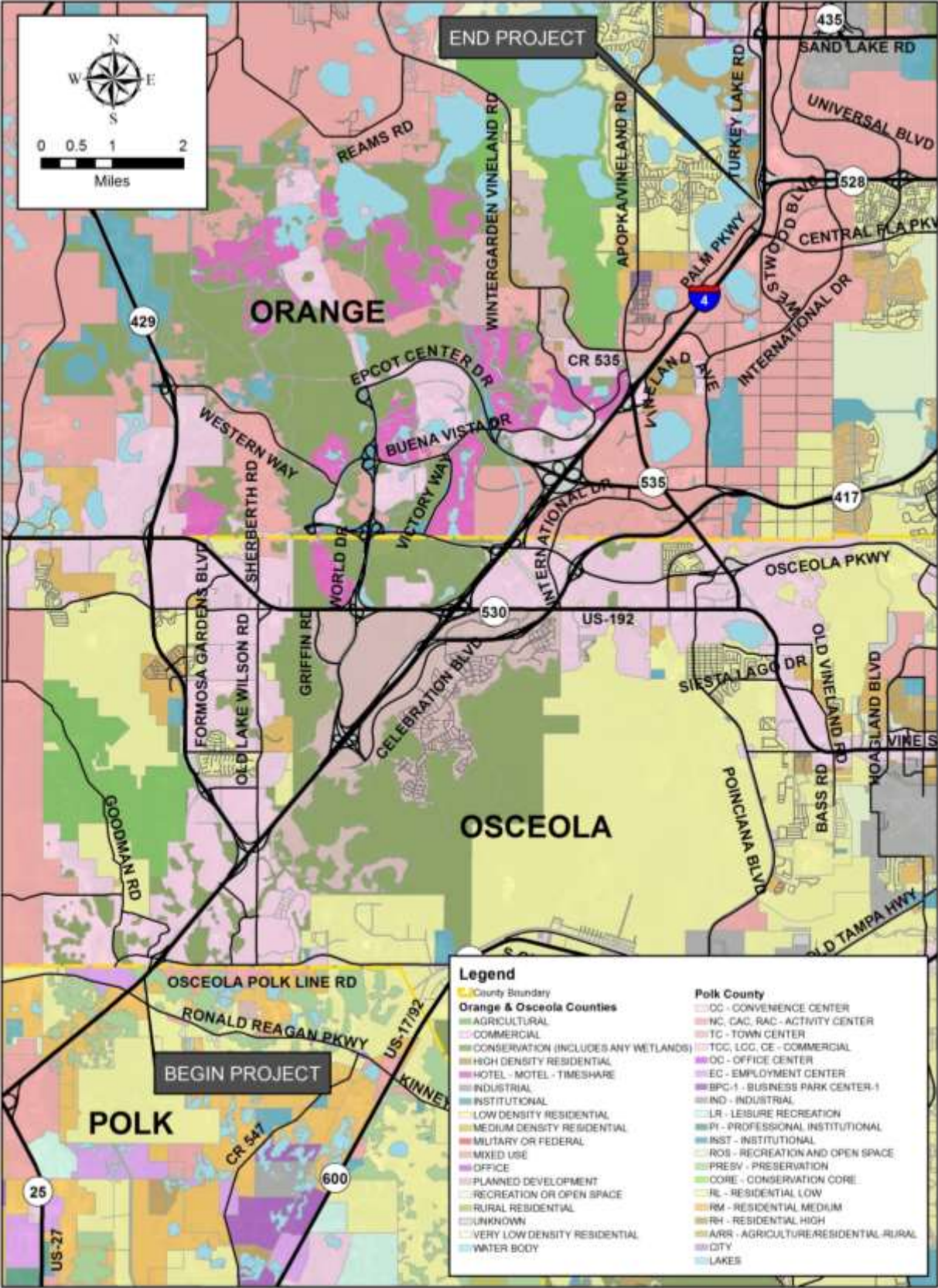


Figure 4 – Future Land Use Map

4.2 Soil Conditions

The Soil Survey of Polk County, Florida (1990), the Soil Survey of Osceola County, Florida (1979) the Soil Survey of Orange County, Florida (1989) was published by the United States Department of Agriculture (USDA) and Natural Resources Conservation Service (NRCS) and has been reviewed for the project vicinity. There are forty-one (41) mapped soil types located within the project area. Table 4 lists these soil types and their hydrological properties. The soil survey map for the project is illustrated in [Figure 5](#).

Table 4 – Osceola and Orange County NRCS Soil Survey Information

Soil Type	Hydrologic Soil Group
Adamsville sand (1)	A
Arents (4)	A
Archbold fine sand (2)	A
Basinger fine sands (3, 5, 6, 36)	A/D
Candler sand (4,7,8)	A
Hontoon muck (15)	A/D
Immokalee fine sands (16, 20)	A/D
Myakka fine sand (22,25)	A/D
Ona fine sand (26, 27)	B/D
Placid fine sand (33)	A/D
Placid and Myakka fine sand (25)	A/D
Pits (31, 33)	N/A
Pomello fine sand (34)	A
Pompano fine sand (37)	A/D
Riviera fine sand (38)	C/D
Samsula muck (13, 40)	A/D
Sanibel muck (42)	A/D
Seffner fine sand (43)	A/D
Smyrna fine sand (42, 44)	A/D
Smyrna and Myakka fine sand (17)	A/D
St. Johns fine sand (37)	B/D
St. Lucie fine sand (38)	A
Tavares fine sand (15, 44, 46)	A
Tavares-Millhopper fine sands (47)	A
Urban land (50)	N/A
Vero fine sand (45)	N/A
Wauchula fine sand (46)	A/D
Zolfo fine sand (54)	A



Figure 5 – Soil Survey Map

4.3 Existing Roadway Drainage Systems

The project corridor is primarily located in the South Florida Water Management District, with a small portion in the Southwest Florida Water Management District. The project is separated into thirty-nine (39) drainage basins. Most of the basins consist of the pond site and the full right of way. All of the basins are open. The elevation difference between NGVD 29 and NAVD 88 varies along the project and ranges from 0.80 feet to 0.90 feet, with NGVD 29 higher in elevation than NAVD 88. The project lies within two (2) primary basins: Reedy Creek Basin and Shingle Creek Basin. Only one (1) pond in this segment is a dry retention pond, while the remaining are wet detention ponds.

4.3.1 Basin 100

Basin 100 extends from Sta. 590+00 and continues to the Osceola/Polk County line at Sta. 622+00. Basin 100 consists of the pond site and full right of way. This project was originally permitted through SWFWMD (Permit No. 43011896.027). The existing plans were originally designed in 1929 NGVD. Stormwater runoff is collected by a storm sewer system and drains to the existing wet detention pond (Pond 7-7 in Permit No. 43011896.027). Existing Pond 7-7 provides treatment and attenuation and is linked to its receiving wetland, WL-7RS; via a drop structure that is comprised of a sizable weir and multiple-pipe outfall. Pond 7-7 was designed to hold the SWFWMD 100-year 24-hour storm runoff well below the top of the pond embankment. The pond discharges to the adjacent wetlands that ultimately discharge to the Reedy Creek Swamp via Davenport Creek. The existing pond is located from Sta. 607+50 to Sta. 614+50. The pond soils are classified in Hydrologic Soil Group A/D.

4.3.2 Basin 101

Basin 101 begins from I-4 westbound at Sta. 622+00 and continues just northeast of CR 532 at Sta. 635+00 and from I-4 eastbound from Sta. 627+00 to Sta. 635+00. Basin 101 includes the existing CR 532 interchange as well as the CR 532 to I-4 WB General Use Lane (GUL) Ramp, the Osceola Polk Line Road ramp to I-4 EB and portions of the I-4 WB and EB ramps to CR 532. Swales along the ramps and CR 532 convey runoff to a storm sewer system which outfalls into the existing ponds (Pond 1A and Pond 1B, Permit No. 020204-8). Pond 1A is located in the southwest quadrant of the I-4 and CR 532 interchange and Pond 1B is located in the northwest quadrant from Sta. 630+00 to Sta. 632+50 and from Station 635+00 to Sta. 638+00 respectively. Existing Pond 1A is hydraulically connected to existing Pond 1B via an 18" diameter equalizer pipe. The ponds discharge to the adjacent wetlands that ultimately discharge to the Reedy Creek Swamp via Davenport Creek. The pond soils are classified in Hydrologic Soil Groups A and A/D. This project was originally permitted through SFWMD (Permit No. 49-008098-P). The existing plans were originally designed in NGVD29, then later converted to NAVD88 using a conversion factor of 0.85. These existing ponds were designed as wet detention ponds. In the existing condition, the 100 year floodplain is not encroached upon.

4.3.3 Basin 102

Basin 102 begins at the high point of the CR 532 Bridge at Sta. 635+00 and continues northeast to a highpoint at Sta. 670+74. In the existing condition, the entire median conveys runoff to the existing pond (Pond 2 in Application No. 020204-8) which is located on the east side of I-4 from Sta. 647+50 to Sta. 660+00. The pond soils are classified in Hydrologic Soil Group A. The existing plans were designed in 1988 NAVD. The pond discharges into the existing roadside ditch on the eastbound side of I-4. The ditch mimics

the historic conditions and drains to the downstream end of the double 48" RCP at Sta. 664+19.77, then ultimately discharges to the Reedy Creek Swamp via Davenport Creek. The 100 year floodplain (Permit Application No. 020204-8) is currently encroached upon. Floodplain compensation is provided in existing Pond 2. There are no wetland impacts within the basin limits.

4.3.4 Basin 103

Basin 103 begins at the high point at Sta. 670+74 and continues northeast to the highpoint at Sta. 706+00 (Tradition Blvd). In historic conditions, the median of I-4 was untreated. From the beginning of the basin to 920 feet, the median drains to a double 9' by 7' box culvert under the eastbound and westbound lanes. These culverts provide conveyance for 1,470 acres of offsite flow under I-4 to the northwest. The median drains the following 1,230 feet to a 36" RCP cross-drain which conveys runoff from a 46 acres offsite area to the northwest side of I-4. The median drains the following 1850 feet to the existing quadruple 12' x 8' box culvert. These culverts provide conveyance of 16,600 acres of offsite flow to the southeast side of I-4. The existing pond (Pond 3 permitted Application No. 020204-8) is a wet detention pond and discharges to Davenport Creek, then ultimately to the Reedy Creek Swamp. The pond soil is classified in Hydrologic Soil Group A and is lies between Sta. 695+50 to Sta. 702+00. The 100 year floodplain (Permit Application No. 020204-8) is currently encroached upon. Floodplain compensation is provided in existing Pond 3.

4.3.5 Basin 104

Basin 104 begins at Sta. 80+50 and continues northwest along SR 429 (Western Beltway) to Sta. 103+00 (DEP Application No. 187636-001). Basin 104 is located within the SR 429 interchange and contains the full right of way. The existing plans were designed in 1988 NAVD. Stormwater runoff from the roadway is collected by inlets and directed to the existing ponds (Pond B-2 in DEP Application No. 187636-001). The existing pond was designed to include the future six lane widening of SR 429. The existing pond was designed as a wet detention pond and is located adjacent to SR 429. The pond soil is classified in Hydrologic Soil Group A. The pond discharges to the Davenport Tributary, then ultimately to the Reedy Creek Swamp. The existing pond provides floodplain compensation for the Davenport Tributary (DEP Permit Application No. 187636-001).

4.3.6 Basin 105

Basin 105 begins at Sta. 706+00 (Tradition Blvd) and continues northeast along I-4 westbound to Sta. 755+00 just north of Old Lake Wilson Road and is located within the SR 429 interchange. Basin 105 includes I-4 westbound, 493 feet of the 44 foot median, existing ramps A and D, portions of existing ramps B and C, portions of Old Lake Wilson Road and the pond sites. The existing plans were designed in 1988 NAVD. Stormwater runoff from the roadway is collected by roadside ditches and directed to the existing ponds (Pond F-4-A and Pond F-4-B in DEP Application No. 187636-001) via an 18" RCP. The control structure is located on the western part of Pond F-4-A and discharges via a 30" RCP to the existing double 7' x 4' concrete box culvert which discharges to the Davenport Tributary, then ultimately to the Reedy Creek Swamp. The existing ponds were designed as wet detention ponds and are located between Sta. 731+00 to Sta. 744+00. The pond soil is classified in Hydrologic Soil Group A. The floodplain associated with the Davenport Tributary (DEP Permit Application No. 187636-001) is currently encroached upon. Floodplain compensation is provided in the existing ponds.

4.3.7 Basin 106

Basin 106 begins at Sta. 706+00 (Tradition Blvd), which is a high point and continues northeast along I-4 eastbound to a highpoint at Sta. 735+67 and is located within the SR 429 interchange. Basin 106 includes the ramps to SR 429 and I-4 eastbound. In historic conditions, the basin only includes the I-4 mainline. Once the SR 429 was permitted, the basin limit included the SR 429 Ramp to I-4 eastbound as well as I-4. The existing plans were designed in 1929 NGVD and later modified in 1988 NAVD.

Basin 106 is a result of the SR 429, the I-4 Interchange project and the I-4 Six laning project. Wetland mitigation for the SR 429 was accomplished in accordance with the Beltway Bill and The Central Florida Beltway Mitigation Trust. The environmental permitting of the Turnpike project occurred with the Florida Department of Environmental Protection (FDEP). The I-4 Six-laning project was permitted through SFWMD. The ponds within the interchange were all designed for future I-4 Ultimate conditions.

Stormwater runoff from the roadway is collected and directed to Pond 4 (Permit Application No. 020204-8) and Pond F-2-A & Pond F-2-B (DEP Permit Application No. 187636-001). The two (2) existing ponds are interconnected with a control structure located in existing Pond F-2-B. The pond discharges to the Davenport Tributary, then ultimately to the Reedy Creek Swamp. Ponds F-2-A and F-2-B provide floodplain compensation for the floodplain impacts associated with the Davenport Tributary (DEP Permit Application No. 187636-001).

4.3.8 Basin 107

Basin 107 begins at the SR 429 Ramp to I-4 EB at Sta. 735+67 and continues northeast along I-4 eastbound to Sta. 747+00 and is located within the SR 429 interchange. Basin 107 includes I-4 eastbound, the 44 foot median and the pond site. The existing plans were designed in 1988 NAVD. Stormwater runoff from the roadway is collected and directed to the existing pond (Pond F-7 in DEP Application No. 187636-001) via an 18" RCP. The existing control structure is located on the southeastern part of the pond and discharges via a 24" RCP to the Davenport Tributary, then ultimately to the Reedy Creek Swamp. The existing pond was designed as a wet detention pond and is located between Sta. 736+00 to Sta. 740+00. The pond soil is classified in Hydrologic Soil Group A. The floodplain associated with Davenport Tributary (DEP Permit Application No. 187636-001) is currently encroached upon. Floodplain compensation is provided in existing Pond F-7.

4.3.9 Basin 108

Basin 108 begins just south of Old Lake Wilson Road at Sta. 747+00 to Sta. 761+19 and is located within the SR 429 interchange. Basin 108 includes I-4 eastbound, the grass median, the SR 429 ramp to I-4 eastbound, portions of Old lake Wilson Road and the pond site. The existing plans were designed in 1988 NAVD. Stormwater runoff from the roadway is collected by inlets and roadside ditches and directed to the existing pond (Pond G-1 in DEP Permit Application No. 187636-001) via a 42" RCP. The existing pond's control structure is located on the eastern side of the pond and discharges to the Davenport Tributary, then ultimately to the Reedy Creek Swamp. The existing pond was designed as a wet detention pond and is located between Sta. 746+00 to Sta. 755+40. The pond soil is classified in Hydrologic Soil Group A. The floodplain associated with the Davenport Tributary (DEP Permit Application No. 187636-001) is currently encroached upon. Floodplain compensation is provided in existing Pond G-1.

4.3.10 Basin 109

Basin 109 limits extend just south of the existing pond (Pond 5B Application No. 020204-8) to Reedy Creek, which is from Sta. 761+19 to 813+00. The soil types within the basin consist of soils classified in Hydrologic Soil Group A, A/D and C/D. Historically, eastbound and westbound lanes of I-4 were untreated. Offsite runoff from the west flows to the east through cross drains located within the basin. On the east side, runoff from the pavement sheet flows into wetlands and eventually discharges into the Reedy Creek Basin. The historic basin limits include 50 feet of I-4 westbound roadway, 400 feet of median and 1,000 feet of I-4 eastbound roadway. No treatment was provided to pavement 3,790 feet south of the high point of the Reedy Creek Bridge because of hydraulic difficulties in conveying the water to the existing pond (Pond 5B, permitted Application No. 020204-8). Pavement tradeoff (compensating treatment) occurred in this basin because of this untreated portion. Pond 5B is a wet detention that discharges to Reedy Creek, then ultimately to the Reedy Creek Swamp.

Basin 109 encroaches onto the Reedy Creek 100 year floodplain (Permit Application No. 020204-8). Floodplain compensation is currently provided in the existing Pond MV-5A that was built under the World Drive Interchange Project. Wetlands were previously impacted. There is a minimum of 25 ft. of buffer between the toe of slope and the edge of the wetland.

4.3.11 Basin 110 and Basin 111

Basin 110 and Basin 111 are divided into two (2) sub-basins. Basin 110 includes the westbound limits from Sta. 813+00 to Sta. 833+30 (just south of the World Drive Interchange) and Basin 111 includes the eastbound limits from Sta. 813+00 to Sta. 842+18. Basins 110 and 111 are located within the Reedy Creek Basin. The existing plans were originally designed in 1929 NGVD and later modified in 1988 NAVD. This basin consists of soils classified in Hydrologic Soil Group A/D and C/D. Three (3) projects are encompassed within this basin: World Drive Interchange (Permit # 49-00792-S), I4-CD Road (permit # 48-00714-S) and the I-4 six lane project (Application # 020204-8).

Runoff is conveyed to two (2) ponds, existing Ponds MV-5A and TP-2 (permitted Application No. 020204-8, 14) which is owned by The Celebration Company (TCC) and the Celebration Community Development District (CCDD), respectively. Legal agreements have been established between FDOT (District 5) and both entities allowing FDOT to previously modify the existing permits for these ponds.

Existing Pond TP-2 was originally a borrow pit and was expanded as part of the I-4 CD-Roads Project. This Pond is currently owned by CCDD. Pond TP-2 provides treatment and attenuation for the east side of the I-4 and existing ramp and ultimately discharges to the Reedy Creek Swamp via Reedy Creek. Existing Pond MV-5A provides treatment and attenuation for westbound lane of I-4, the existing ramps and future Celebration development. Pond MV-5A discharges through spreader swales into wetlands adjacent to the Reedy Creek floodplain and the wildlife management conservation area (WMCA).

Pond MV-5A provides floodplain compensation for the encroachment of the 100 year floodplain. Revisions were made to eliminate the floodplain impacts by widening the side slope from 1:6 to 1:2 with guardrail therefore eliminating these impacts. Consequently, compensation is no longer needed.

4.3.12 Basin 112 and Basin 113

Basin 112 begins at Sta. 833+30 and continues along I-4 westbound to Sta. 863+18 and Basin 113 begins at Sta. 842+18 and continues along I-4 eastbound to Sta. 863+18. This section is part of the World Drive Interchange located within the Reedy Creek Basin. The World Drive Interchange contains several infield ponds permitted by the SFWMD (Permit No. 49-00792-S). The existing ponds were investigated for their use for the six-laning improvement. The northwest system ponds are as follows: ponds A, A2, A3, D2 and D3. They are interconnected with a control structure located in Pond A and discharge is conveyed in a roadside ditch to a wetland system ultimately discharging to the Reedy Creek Swamp. The southwest system ponds (permit No. 49-00792-S) include Ponds B, B1, C, C1 and C3 which are interconnected with a control structure located in Pond C. The pond system discharges to a wetland and stages up then discharges to the Reedy Creek Swamp. The pond soil is classified in Hydrologic Soil Group A/D and C/D.

4.3.13 Basin 114

Basin 114 limits extend from Sta. 863+00, south of existing Pond TP-3A to Sta. 914+00, south of existing Pond TP-5 (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. In the existing condition, Ponds TP-3A and TP-3B provide treatment and attenuation for westbound lanes of the I-4 mainline and the westbound collector distributor (WBCD) road. Existing Ponds TP-3A and TP-3B are interconnected wet detention ponds. The ponds discharge southwesterly to an existing concrete box culvert which crosses under the I-4 mainline and ultimately outfalls to the Reedy Creek Swamp. Basin 114 encroaches onto the 100 year floodplain (SFWMD Permit No. 960621-13). Floodplain compensation Ponds CP-4A, CP-4B and CP-5 and treatment Ponds TP-5 and TP-6 provide compensation.

4.3.14 Basin 115

Basin 115 begins at Sta. 863+18 and continues northeast along the I-4 mainline and eastbound collector distributor (EBCD) road to Sta. 914+14. The basin consists of soils that are classified in Hydrologic Soil Group A/D. The storm water runoff from the collector distributor (CD) road is collected via a storm sewer system and is conveyed through a series of pipes that flow east away from the I-4 and follows underneath Celebration Boulevard along the wetlands to the existing pond (Pond TP-4 in permitted Application No. 970509-15) which is located 980 feet east of the collector distributor (CD) road from Sta. 871+00 to Sta. 876+00. The pond discharges to the east to the wetlands through a spreader swale, ultimately discharging to the Reedy Creek Swamp.

4.3.15 Basin 116

Basin 116 limits extend from Sta. 914+00, south of existing pond (Pond TP-5 in Permit No. 49-00792-S) to Sta. 938+50, just south of SR 417. The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. Existing Pond TP-5 provides treatment and attenuation for westbound collector distributor (WBCD) road only. Pond TP-5 is a wet detention pond. The pond discharges southeasterly to an existing concrete box culvert which crosses under the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 116 encroaches onto the 100 year floodplain (SFWMD Application No. 960621-13). Floodplain compensation Ponds CP-4A, CP-4B and CP-5 and treatment Ponds TP-5 and TP-6 provide compensation.

4.3.16 Basin 117

Basin 117 limits extend from Sta. 914+00, south of existing Pond TP-6 to Sta. 945+00, just south of SR 417 (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. Existing pond TP-6 provides treatment and attenuation for westbound and eastbound lanes of the I-4 mainline and EBCD road. Pond TP-6 is a wet detention pond. The pond discharges southwesterly to an existing concrete box culvert which crosses under EBCD road and ultimately outfalls to Reedy Creek. Basin 117 encroaches onto the 100 year floodplain (SFWMD Permit # 960621-13). Floodplain compensation ponds CP-4A, CP-4B and CP-5 and treatment ponds TP-5 and TP-6 provide compensation.

4.3.17 Basin 118

Basin 118 limits extend from Sta. 928+00, north of existing Pond TP-5 to Sta. 945+00, just south of SR 417 (FDEP Permit No. 48/492061169 & 48/492138449). The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. In the existing condition, Pond A provides treatment and attenuation for WBCD road ramp and the infield area between WBCD road ramp and westbound lanes of the I-4 mainline. Pond A is a wet detention pond. The pond discharges southwesterly to an existing concrete box culvert which crosses under the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 118 does not encroach onto the 100 year floodplain.

4.3.18 Basin 119

Basin 119 limits extend from Sta. 945+00, north of SR 417 to Sta. 958+40, south of SR 530 (Permit No. 49-00809-P). The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. Existing Ponds 1A and 1B provide treatment and attenuation for westbound and eastbound lanes of the I-4 mainline and WBCD road. Ponds 1A and 1B are interconnected wet detention ponds. The ponds discharge southeasterly to an existing concrete box culvert which crosses under the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 119 does not encroach onto the 100 year floodplain.

4.3.19 Basin 120

Basin 120 limits extend from Sta. 940+75, north of existing Pond TP-6 to Sta. 954+00, north of SR 417 (FDEP Permit No. 48/492061169 & 48/492138449). The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. In the existing condition, existing Pond B provides treatment and attenuation for EBCD road ramp and the infield area between EBCD road ramp and eastbound lanes of the I-4 mainline. Existing Pond B is a wet detention pond. The pond discharges southwesterly to an existing concrete box culvert which crosses under the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 120 does not encroach onto the 100 year floodplain.

4.3.20 Basin 121

Basin 121 limits extend from Sta. 958+40 to Sta. 974+38 LT, which is the I-4 westbound mainline and US 192 (SR 530) interchange (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A. In the existing condition, Ponds NW1 and NW2 provide treatment and attenuation for westbound lanes of the I-4 mainline and US 192 (SR 530). Existing Ponds NW1 and NW2 are interconnected wet detention ponds. The ponds discharge southwesterly to an existing cross drain which crosses under US 192 and the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 121 does not encroach onto the 100 year floodplain.

4.3.21 Basin 122

Basin 122 limits extend from Sta. 954+00 to Sta. 976+93 RT, which is the I-4 eastbound mainline and US 192 (SR 530) interchange (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A. In the existing condition, Pond SE 1 provides treatment and attenuation for eastbound lanes of the I-4 mainline and US 192 (SR 530). Existing Pond SE 1 was designed as a wet detention pond. The pond discharges southeasterly to an existing ditch and then flows east to the existing cross drain and ultimately outfalls to Reedy Creek. Basin 122 does not encroach onto the 100 year floodplain.

4.3.22 Basin 123

Basin 123 limits extend from Sta. 974+38 to Sta. 978+24 LT, which is the I-4 westbound mainline and US 192 (SR 530) interchange (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A. In the existing condition, Pond NW3 provides treatment and attenuation for westbound lanes of the I-4 mainline and US 192 (SR 530). Existing Pond NW3 is a wet detention pond. The pond discharges southwesterly to an existing cross drain which crosses under US 192 and the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 123 does not encroach onto the 100 year floodplain.

4.3.23 Basin 124

Basin 124 limits extend from Sta. 978+24 to Sta. 984+21 LT, which is the westbound lanes of I-4 at the US 192 (SR 530) interchange. (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A. The US 192 (SR 530) Interchange was constructed prior to the required water quality standards, but was later modified under the CD Road Permit (SFWMD Application No. 030115-14) and later the Braided Ramp Permit (SFWMD Application No. 101001-20). Based on these modifications, Pond SE 4 currently provides treatment and attenuation for the new impervious area of I-4 and US 192 (SR 530) that was constructed after the original I-4 four-lane and SR 530 interchange. Existing Pond SE 4 is a wet detention pond. The pond discharges southwesterly to an existing cross drain which crosses under US 192 and the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 123 does not encroach onto the 100 year floodplain.

4.3.24 Basin 125

Basin 125 limits extend from Sta. 977+00 to Sta. 984+21 RT, which is the I-4 and US 192 (SR 530) interchange (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A. In the existing condition, Pond SE 2 provides treatment and attenuation for eastbound lanes of the I-4 mainline and US 192 (SR 530). Existing Pond SE 2 is a wet detention pond. The pond discharges southwesterly to an existing cross drain which crosses under US 192 and the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 125 does not encroach onto the 100 year floodplain.

4.3.25 Basin 126

Basin 126 limits extend from Sta. 984+21 to Sta. 997+67, which is the I-4 and US 192 (SR 530) interchange (Permit No. 49-00792-S). The soil types within the basin consist of soils classified in Hydrologic Soil Group A. In the existing condition, Pond SE 3 provides treatment and attenuation for the I-4 mainline and US 192 (SR 530). Existing Pond SE 3 is a wet detention pond. The pond discharges southwesterly to an existing

cross drain which crosses under US 192 and the I-4 mainline and ultimately outfalls to Reedy Creek. Basin 126 does not encroach onto the 100 year floodplain.

4.3.26 Basin 127

Basin 127 serves a portion of Osceola Parkway and some of the existing ramps. No portion of I-4 or the collector distributor (CD) roads contribute to this basin. No modifications are proposed to the basin or the pond (Pond A), so it was not analyzed.

4.3.27 Basin 128

Basin 128 begins at Sta. 997+67 and continues northeast to the Osceola Parkway Interchange and Bonnet Creek (C-1 Canal) at Sta. 1033+74. The majority of the basin is classified in Hydrologic Soil Group A/D, with a minor amount of type A soil. This basin has been permitted and modified multiple times. When Osceola Parkway was constructed (SFWMD Application No. 930203-2), the existing I-4 typical was six lanes and was untreated. Osceola Parkway was initially constructed as an overpass, with no connection to I-4. Treatment for Osceola Parkway was provided using ditch blocks and treatment swales. The interchange at Osceola Parkway was permitted under SFWMD Application No. 980715-1. The interchange project provided treatment for the additional impervious, as well as, a portion of Osceola Parkway due to the interchange impacting the previously permitted treatment swales. Treatment was provided in the existing Ponds A, B, and B-1 (Application No. 980715-1). This area was further modified with the addition of the collector distributor (CD) roads (SFWMD Application No. 030115-14) and a braided ramp project (SFWMD Application No. 101001-20). Treatment for the additional impervious area for the CD roads and braided ramps was provided in existing Pond B-1 that is equalized with Pond B. Existing Ponds A and B provide treatment for portions of Osceola Parkway and the interchange ramps. No portion of I-4, the CD roads or braided ramps drain to these ponds. With the exception of a minor amount of I-4, which is being treated as compensation treatment for the above projects, the existing I-4 roadway remains untreated. The existing Osceola Parkway and Interchange plans were designed in NGVD 29. The CD roads and braided ramp project plans were designed in NAVD 88. The ponds discharge into the existing roadside ditch on the westbound side of I-4. The ditch drains to an inlet that discharges to Bonnet Creek (C-1 Canal). The construction of the Osceola Parkway Interchange impacted the 100-year floodplain of Bonnet Creek (C-1 Canal). Therefore, floodplain compensation was provided in existing Pond A. On the west side of I-4, just south of the Osceola Parkway Interchange, the C-2 Canal floodplain covers most of the wetlands adjacent to I-4. The CD Road project impacted the C-2 Canal floodplain, the floodplain compensation was provided within the US 192 interchange ponds.

4.3.28 Basin 129

Basin 129 consists of a portion of Osceola Parkway and some of the existing I-4 ramps. No portion of I-4 or the CD Roads contribute to this basin. Floodplain compensation for the original interchange was provided in the existing pond. As no modifications are proposed for the basin or the pond, it was not analyzed.

4.3.29 Basin 130

Basin 130 limits extend from Sta. 1035+00 to Sta. 1065+63 RT and from Sta. 1035+00 to Sta. 1050+00 LT. The soil types within the basin consist of soils classified in Hydrologic Soil Group A and A/D. I-4 was constructed to six lanes prior to the permitting regulations, with runoff discharging directly to Bonnet Creek (C-1 Canal). Under SFWMD App. No. 930209-3, Osceola Parkway was constructed as an overpass

(no connection to I-4), with a portion of an existing borrow pit adjacent to I-4 eastbound converted into a pond for Osceola Parkway (NW Pond under the permit). No treatment was provided for I-4.

The Osceola Parkway Interchange was permitted under SFWMD App. 980715-3. This project modified the existing pond and renamed it Pond D. This design modification only provided treatment for the new impervious area. The interchange project used the existing condition of Application No. 930209-3, which only considered the area of Osceola Parkway. Therefore, their post-development area was much larger than their pre-development area. All of the area flows to Bonnet Creek (C-1 Canal), so this was an extremely conservative approach.

Currently, only Osceola Parkway, the ramps and CD roads are being treated. A small amount of I-4 may be routed to the existing pond; however it is compensation treatment only.

4.3.30 Basin 131

Basin 131 limits extend from Sta. 1065+63 to 1078+56 RT and 1050+00 to 1083+17 LT. The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. I-4 was constructed with six lanes prior to the permitting regulations, with runoff discharging directly to Bonnet Creek (C-1 Canal).

Under SFWMD App. No. 980715-3, the CD Road system was constructed. Water quality treatment for the new impervious area was provided in existing Ponds E & F, which are located between the mainline and the CD road systems. No treatment was provided for I-4, except as compensation treatment for the new pavement that was not capable of being treated.

Currently, only the CD Roads are being treated. A small amount of I-4 may be routed to the existing ponds; however it is compensation treatment only.

4.3.31 Basin 132

Basins 133, 134 and 135 have been combined with Basin 132 since the previous draft submittal. Due to FDOT coordination and additional design information since the last submittal, it has been possible to eliminate Basins 133, 134 and 135. All of the basins discharge to Bonnet Creek (C-1 Canal), which is part of the Reedy Creek Basin.

Basin 132 limits extend from Sta. 1083+17 to 1127+65. The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. The Epcot Center Drive Interchange (SR 536) was permitted under SFWMD App. 04101-Q (Permit No. 48-00099-S). The existing permit plans and calculations were based on a NGVD 29 datum.

The permit documents indicate that multiple “detention areas” were created to provide the required attenuation for the project, while leaving the existing vegetation within these areas. Weirs were constructed in front of culverts or areas were bermed to provide temporary storage and attenuation. Water quality treatment was not mentioned in the permit application, only attenuation. Therefore to be conservative, it was considered that all proposed pavement under that project was treated. The basin discharges directly to Bonnet Creek (C-1 Canal).

4.3.32 Basin 136

Basin 136 limits extend from Sta. 1127+65 to Sta. 1156+30. The soil types within the basin consist of soils classified in Hydrologic Soil Group A/D. This area is a gap between interchanges that has not been permitted. The roadway currently does not receive any treatment before discharging to the cross drain at Sta. 1138+20 that flows to Disney property.

The pond site is located on a site that was previously an existing neighborhood (Lake Vista Village). The neighborhood was permitted under SFWMD Permit 48-00131-S. This vacant area currently has “For Sale” signs displayed. The permit documents are in the NGVD 29 datum.

4.3.33 Basin 137

Basin 137 limits extend from Sta. 1156+30 to Sta. 1193+20 RT and Sta. 1156+30 to Sta. 1176+58 LT. The soil types within the basin consist of soils classified as Urban Land in Hydrologic Soil Group D, with some Type A. The original I-4/SR 535 Interchange was constructed prior to the stormwater requirements, with runoff ultimately discharging to Bonnet Creek (C-1 Canal). The interchange was later modified with the widening of SR 535 from four to six lanes under SFWMD App. No. 90113-1. Ramp improvements were also done at this time. The documents submitted for the permit used the NGVD 29 datum.

Existing ponds (retention area 1 and 2) provided treatment for new impervious under SFWMD Application No. 90113-1. Under the permit, they were approved to only provide 1” of treatment over the new impervious area.

The existing ponds outfall to a ditch on the northeast side of the interchange. The ditch flows north to an existing cross drain just north of the interchange where it flows across I-4 and enters a FDOT drainage easement that flows southwest into RCID’s master drainage system to Black Lake and ultimately to Bonnet Creek (C-1 Canal).

4.3.34 Basin 138

Basin 138 extends from Sta. 1193+20 to Sta. 1262+00 RT and Sta. 1176+50 to Sta. 1262+00 LT, which spans from just south of the existing CR 535 interchange to just south of the existing Daryl Carter Parkway (previously known as Fenton Street) overpass. The majority of Basin 138 is classified in Hydrologic Soil Groups A/D or B/D with the remainder of the basin classified in Group A. This project was originally permitted through SFWMD, Permit No. 48-01243-P (Application No. 011109-7). The existing plans were designed in NGVD 29. The existing conditions were used as a basis for determining the basin limits. Currently, a series of ditch blocks and dry detention swales are used to treat this basin. The swales discharge to the existing cross drain just north of the interchange, which flows through a drainage easement into the Reedy Creek master drainage system to Black Lake and ultimately to Bonnet Creek (C-1 Canal).

4.3.35 Basin 139

Basin 139 extends from Sta. 1262+00 to Sta. 1277+00. The auxiliary lane project from SR 535 to SR 528 was the first permitted project for this section of I-4. The auxiliary lane project was permitted under SFWMD App. No. 011109-7 and included existing Pond 2 to provide treatment for the proposed roadway improvements, which were to widen I-4 from six lanes to eight lanes. The permit was later modified under SFWMD App. 080205-41 for the addition of the Daryl Carter Parkway (previously known as Fenton Street)

overpass. The existing pond was split into Pond 2A and 2B under App. 080205-41, as Daryl Carter Parkway (previously known as Fenton Street) cut through the existing pond.

The basin consists of mostly Type A and A/D soils. The proposed basin is larger than the existing basin, as additional area that was going elsewhere is now going to the pond. In the original permit, the pond was designed to attenuate more than what was required (open basin to Big Sand Lake). However, the pond will need to be regraded due to the proposed roadway improvements. The pond outfalls to a ditch that flows to a cross drain at Sta. 1307+00, which flows to Big Sand Lake, which is part of the Shingle Creek Basin.

4.3.36 Basin 140

Basin 140 extends from Sta. 1262+00 to Sta. 1277+00. The basin consists of mostly Type A and A/D soils. The auxiliary lane project from SR 535 to SR 528 was the first permitted project for this section of I-4. This auxiliary lane project was permitted under SFWMD App. No. 011109-7 and included existing Pond 1 to provide treatment for the proposed roadway improvements, which were to widen I-4 from six lanes to eight lanes. The permit was later modified under SFWMD App. 080205-41 for the addition of the Daryl Carter Parkway (previously known as Fenton Street). Existing Pond 1 was also modified to provide a minor amount of treatment for the project. The pond outfalls to a ditch that flows to a cross drain at Sta. 1307+00, which flows to Big Sand Lake, which is part of the Shingle Creek Basin.

4.3.37 Basin 142

Basin 141 has been combined with Basin 142 since the previous draft submittal. Due to property owner coordination and additional geotechnical information since the last submittal, it has been possible to eliminate Basin 141. Both basins discharge to Big Sand Lake, which is part of the Shingle Creek Basin.

Basin 142 extends from Sta. 1277+00 to Sta. 1335+00, which spans the length of I-4 from just north of Daryl Carter Parkway (previously known as Fenton Street) to the Central Florida Parkway Interchange. The majority of basin is classified in Hydrologic Soil Groups B/D and A, with the remainder of the basin classified in Group A/D. This project was originally permitted through SFWMD, Permit No. 48-01243-P (Application No. 011109-7). The project was then later modified under Permit No. 48-01243-P (Application No. 021218-13). The existing plans were designed in NGVD 29. The existing permit did not provide formal treatment for this basin. Instead, in the permit, a portion of the existing basin was conveyed to a different basin in the permitted proposed condition so that there was no net increase in impervious area. To provide an accurate pre-development versus post-development comparison, the existing basin area used will be equal to the post-development area. There are two (2) small existing dry ponds located near the interchange to which a small portion of I-4 and some ramps drain. No permitted information was found on these ponds. Therefore, to be conservative, the impervious area which drains to these ponds will be considered as having treatment and the treatment volume provided will be maintained in the proposed condition. This basin discharges to the Big Sand Lake Outlet that crosses I-4 just south of Central Florida Parkway. The Big Sand Lake Outlet eventually discharges to Shingle Creek.

The current proposed roadway improvements will be impacting an existing Orange County Pond (Pond C), which was permitted under SFWMD App. 090610-12. The Orange County Pond (Pond C) has sufficient

treatment volume that the minor reduction due to the proposed improvements is still below the existing weir. Please refer to the OC Pond calculations under this basin for more information.

4.4 Floodplains/Floodways

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Polk, Osceola and Orange County. According to FEMA Map Numbers 12105C0125F, 12097C0040F, 12097C0035F, 12095C0585F, 12095C0395F, and 12095C0415F, portions of the roadway are located within the 100-year floodplain. Based on the FEMA floodplain lines, the roadway widening will impact the floodplain on both sides of the roadway at numerous locations within the project limits. The FEMA Flood Insurance Rate Maps for the project is shown in [Figure 6](#).

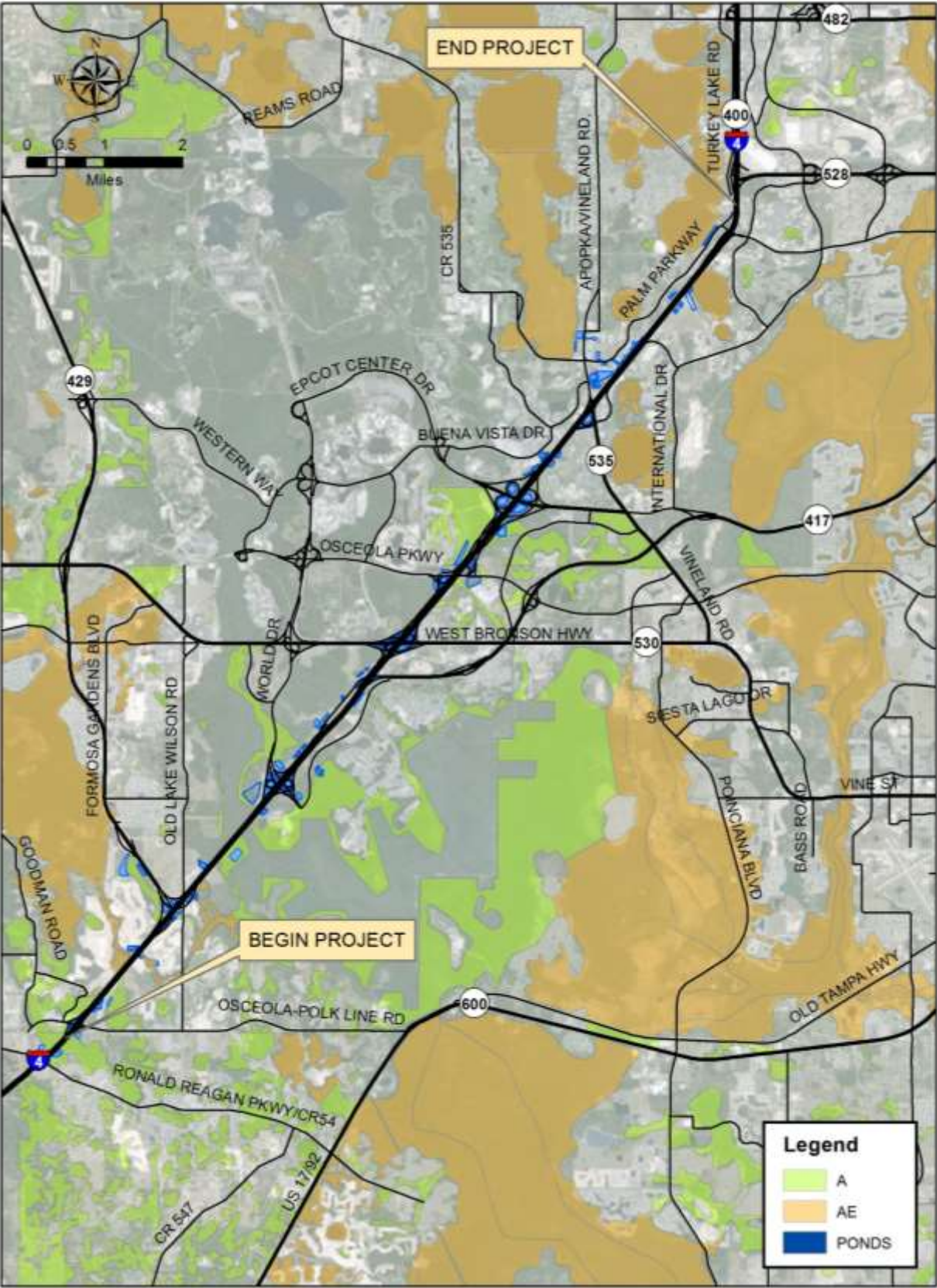


Figure 6 – FEMA Flood Insurance Map

5.0 Proposed Drainage Conditions/Stormwater Ponds

5.1 Overview

This project will make significant improvements to the water quality along the I-4 roadway corridor. The stormwater runoff from the new impervious areas will be treated in existing and proposed stormwater facilities. The stormwater runoff will be collected by storm sewer systems and roadside ditches. The water quality treatment and attenuation will be achieved through the expansion and construction of offsite ponds, some of which will require acquisition of additional right of way.

The stormwater runoff will be routed to existing and proposed stormwater ponds. There are a total of thirty-nine (39) basins within the project limits. In areas with poor soils and high water table, only wet detention ponds were considered. All of the basins are open. The ponds were sized based on the assumption that the offsite runoff would be drained through separate systems. The basin limits of the proposed basins are the same as the existing condition. The location of the outfall in the proposed condition is the same as the existing.

5.2 Methodology of Pond Determinators

Based on the available information, only the hydraulically feasible and environmentally permissible alternative pond sites are considered. The basins that discharge to the Reedy Creek Improvement District (RCID) are designed for the 50 year/72 hour storm event to minimize the RCID discharge fee. Alternative pond sites are analyzed and evaluated for the following parameters:

- Hydrologic and hydraulic factors such as existing ground elevation, soil types, seasonal high water table (SHWT), stormwater conveyance feasibility, allowable hydraulic grade line (HGL), and basin outfalls.
- Cultural resource impacts
- Environmental resource impacts, including wetlands and threatened or endangered species
- Potential for hazardous materials and contamination
- Floodplain impacts
- Potential for impacts to major utilities
- Estimated right of way acquisition cost
- Property owner input (on properties where the property owner requested a meeting)

5.3 Pond Alternatives

5.3.1 Basin 100

Basin 100 begins just west of CR 54 in Polk County at Sta. 590+00 and continues northeast to the Osceola/Polk County line at Sta. 622+00. The basin consists of the full right of way and the pond site. The stormwater runoff from the roadway will be collected by roadside ditches and storm sewer systems that discharge to the ponds. There is only one (1) alternative for this basin, which consists of utilizing the existing pond.

5.3.1.1 Pond 100

Pond 100 is an existing pond (Pond 7-7 in SWFWMD Permit No. 43011896.027) that will need to be expanded and reconfigured to accommodate the new roadway alignment. Pond 100 is located from Sta. 607+50 to Sta. 614+50 and will collect runoff from I-4 and a portion of the eastbound GUL ramps. The basin soils are classified in Hydrologic Soil Group A/D. Pond 100 is located within the FDOT's existing right of way; therefore, no additional right of way is required for this pond. The pond will be designed as a wet detention pond that will continue to discharge to the adjacent wetlands that ultimately discharge to the Reedy Creek Swamp via Davenport Creek. **Pond 100 is the recommended alternative for this basin.**

5.3.2 Basin 101

Basin 101 extends from I-4 westbound at Sta. 622+00 and continues just northeast of CR 532 at Sta. 635+00 and from I-4 eastbound from Sta. 627+00 to Sta. 635+00. Basin 101 includes the existing CR 532 interchange as well as the CR 532 to I-4 WB GUL Ramp, the Osceola Polk Line Road ramp to I-4 EB and portions of the I-4 WB and EB ramps to CR 532. Basin 101 lies within FDOT District 5, SFWMD and RCID. The basin consists of seven (7) pond sites, the proposed roadway and infield areas, as well as the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected by roadside ditches and storm sewer systems that discharge to the ponds. Proposed Ponds 101A, 101B, 101C, 101D, 101E, 101F and 101G will be connected hydraulically and will continue to discharge to the Reedy Creek Swamp via Davenport Creek. There is only one (1) alternative for this basin, which consists of utilizing the existing infield areas within the right of way and modifying the two (2) existing ponds.

5.3.2.1 Ponds 101A, 101B, 101C, 101D, 101E, 101F and 101G

Pond 101A and Pond 101D are existing ponds (Pond 1A and Pond 1B in Permit No. 49-00809-P). This alternative includes reconfiguring Pond 101A and Pond 101D, and adding proposed Ponds 101B, 101C, 101E, 101F and 101G. All of the ponds are located within the I-4/CR 532 interchange from Sta. 628+00 to Sta. 640+00 and will continue to discharge to adjacent wetlands to the west. The basin soils are classified in Hydrologic Soil Group A and A/D. Ultimately, this basin discharges to the Reedy Creek Swamp via the Davenport Creek Swamp. **Ponds 101A, 101B, 101C, 101D, 101E, 101F and 101G are the recommended alternative for this basin.**

5.3.3 Basin 102

Basin 102 begins at the high point of the CR 532 Bridge at Sta. 635+00 and includes the full I-4 right of way until Sta. 670+74. The basin consists of an existing pond site and the full right of way which includes the future 44 foot rail corridor. Basin 102 lies within the FDOT District 5, SFWMD and RCID. The stormwater runoff from the roadway is collected by roadside ditches and storm sewer systems that discharge to the pond. The pond discharges into the existing roadside ditch on the eastbound side of I-4. The ditch mimics the historic conditions and drains to the downstream end of the double 48" RCP at Sta. 664+19.77, then ultimately discharges to the Reedy Creek Swamp via Davenport Creek. There is only one (1) alternative for this basin which consists of utilizing the existing pond.

5.3.3.1 Pond 102

Pond 102 (existing Pond 2 in Permit Application No. 020204-8) lies just north of CR 532 on the east side of I-4 from Sta. 648+00 to 660+00 (which is a low point). The pond was built under the SR 400 (I-4) SR 429 from the Polk County Line to SR 530 (US 192) project (FPID No. 242523-1-52-01). The existing plans were designed in 1929 NGVD and were later modified in 1988 NAVD. The pond collects the runoff from the I-4 mainline and is located within the FDOT's existing right of way. The basin soils are classified in Hydrologic Soil Groups A and A/D. The pond is designed as a wet detention pond that discharges to the Reedy Creek Swamp and was originally designed to include floodplain compensation since the roadway encroaches on the 100 year floodplain. For future conditions, only treatment and attenuation will be provided in Pond 102. Floodplain compensation will be provided in Pond FPC 102. FPC 102 will account for prior and future floodplain impacts. This pond alternative (Preferred Pond 58.3 in Section 1 FONSI PD&E) does not require expanding or regrading. The existing outfall pipe may need to be re-examined to determine if modification is necessary to accommodate additional runoff. Pond 102 is located within the FDOT's existing right of way; therefore, no additional right of way is required for this pond. **Pond 102 is the recommended alternative for this basin.**

5.3.4 Basin 103

Basin 103 begins at the high point at Sta. 670+74 and continues northeast to the highpoint at Sta. 705+00 (Tradition Blvd). The basin limits have been adjusted from the existing condition to accommodate for the proposed improvements. The basin consists of the existing pond site and the full right of way, which includes the future 44 foot rail corridor. The stormwater runoff from the roadway will mimic the original storm sewer systems that discharge to the pond. There is only one (1) alternative for this basin, which consists of utilizing the existing pond.

5.3.4.1 Pond 103

Pond 103 (existing Pond 3 in Permit Application No. 020204-8) lies adjacent to I-4 westbound, just north of Davenport Creek and just south of Tradition Blvd. from Sta. 695+00 to Sta. 702+00. The pond was built under the SR 400 (I-4) widening from the Polk County Line to SR 530 (US 192) project (FPID No. 242523-1-52-01). The existing plans were designed in 1929 NGVD and were later modified in 1988 NAVD. Pond 103 collects the runoff from the mainline of I-4. The basin soils are classified in Hydrologic Soil Group A and A/D. The pond is designed as a wet detention pond that discharges to the Davenport Creek and then ultimately to the Reedy Creek Swamp. The pond was originally designed to include floodplain compensation since the roadway encroaches on the 100 year floodplain. For future conditions, only treatment and attenuation will be provided in Pond 103. Floodplain compensation will be provided in FPC 103A. FPC 103A will provide prior and future floodplain impacts. This pond was evaluated as an alternative (Pond 58.8 under Section 1 FONSI PD&E) and will require regrading. The existing outfall pipe may need to be re-examined to determine if modification is necessary to accommodate additional runoff. Pond 103 is located within the FDOT's existing right of way; therefore, no additional right of way is required.

Pond 103 is the recommended alternative for this basin.

5.3.5 Basin 104

Basin 104 begins at Sta. 80+50 and continues northwest along SR 429 to Sta. 103+00. Basin 104 is located within the SR 429 interchange and contains the full right of way. The existing plans were designed in 1988 NAVD. The stormwater runoff will mimic the existing condition. There is only one (1) alternative for this basin, which consists of utilizing the existing pond.

5.3.5.1 Pond 104

Pond 104 is an existing pond (Pond B-2 in DEP Application No. 187636-001) that does not require expanding or regrading. Pond 104 was built under the SR 429 Part C, Section 1 project (FPID 403498-3-32-01). Pond 104 and is a new alternative and was not evaluated under the Section 1 Finding of No Significant Impact (FONSI). The basin soils are classified in Hydrologic Soil Group A. Pond 104 is designed as a wet detention pond that will continue to collect runoff from SR 429 and discharge to the Davenport Tributary and then ultimately to the Reedy Creek Swamp. The existing outfall pipe may need to be re-examined to determine if modification is necessary to accommodate additional runoff. No additional right of way will be required for the pond in this basin. **Pond 104 is the recommended alternative for this basin.**

5.3.6 Basin 105

Basin 105 begins at Sta. 706+00 (Tradition Blvd) and continues northeast along I-4 westbound to Sta. 755+00 just north of Old Lake Wilson Road and is located within the SR 429 interchange. Basin 109 consists of the westbound portion of I-4 as well as the SR 429 ramps and the north portion of Old Lake Wilson Road. The stormwater runoff from the roadway will be collected by storm sewer systems that discharge to the ponds. There is only one (1) alternative for this basin.

5.3.6.1 Ponds 105A and 105B

Pond 105A and Pond 105B are existing ponds (Pond F-4-A & F-4-B in DEP Application No. 187636-001) that will need to be regraded. The ponds were built under the SR 429 Part C, Section 1 project (FPID 403498-3-32-01). Ponds 105A and 105B were evaluated under Section 1 FONSI as Pond 59.5 and Pond 59.6 and are located within the infield area between the SR 429 ramps from Sta. 731+00 to Sta. 743+50. The basin soils are classified in Hydrologic Soil Group A. Ponds 105A and 105B are designed as wet detention ponds that will continue to collect runoff from SR I-4 and discharge to the Davenport Tributary and then ultimately to the Reedy Creek Swamp. The existing outfall pipe may need to be re-examined to determine if modification is necessary to accommodate additional runoff. Basin 105 impacts the Davenport Tributary floodplain (DEP Application No. 187636-001). Floodplain compensation will be provided in FPC 105A. **Ponds 105A and 105B are the recommended alternative for this basin.**

5.3.7 Basin 106

Basin 106 begins at Sta. 706+00 (Tradition Blvd), which is a high point and continues northeast along I-4 eastbound to a highpoint at Sta. 735+67 and is located within the SR 429 interchange. The basin consists of two (2) pond sites, I-4 eastbound, the I-4 ramp to SR 429 westbound and the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected by storm sewer systems that discharge to the ponds. There is only one (1) alternative for this basin, which consists of utilizing the two (2) existing ponds.

5.3.7.1 Ponds 106A and 106B

Pond 106A (existing Pond 4 in permitted Application No. 020204-8 and existing Pond F-2-A in DEP App. No. 187636-001) lies adjacent to I-4 eastbound and the infield of the I-4 Ramp to SR 429 from Sta. 722+00 to Sta. 729+00. Pond 106A was built under the SR 400 (I-4) widening from Polk County Line to SR 530 (US 192) project (FPID No. 242523-1-52-01). The existing plans were designed in 1929 NGVD and were later modified in 1988 NAVD. This alternative was evaluated as a preferred alternative as Pond 59.5 in Section 1 FONSI PD&E and will be reduced in size and regraded to accommodate the proposed roadway alignment. The basin soils are classified in Hydrologic Soil Group A. The pond is designed as a wet detention pond.

Pond 106B (existing Pond F-2-B in in DEP App. No. 187636-001) lies northeast of Pond 106A from Sta. 730+00 to Sta. 735+00. Pond 106B was built under the SR 429 Part C, Section 1 project (FPID 403498-3-32-01). The existing plans were designed in 1988 NAVD. Pond 106B was not evaluated under Section 1 FONSI. The basin soils are classified in Hydrologic Soil Group A. The pond is designed as a wet detention pond. Only treatment and attenuation will be provided in Pond 106B. Floodplain compensation will be provided in Pond FPC 105A for prior and future floodplain impacts. Pond 106B is connected to Pond 106A via an existing 24" CMP. Pond 106A discharges to a double 7' x 4' CBC, which then discharges to the Davenport Tributary and then ultimately to the Reedy Creek Swamp. **Ponds 106A and 106B are the recommended alternative for this basin.**

5.3.8 Basin 107

Basin 107 begins at Sta. 735+67 and continues northeast to Sta. 747+00. The basin consists of I-4 eastbound, the future 44 foot rail corridor, infield of the ramp and the pond site. The stormwater runoff from the roadway will mimic the existing conditions. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.8.1 Pond 107

Pond 107 is an existing pond (Pond F-7 in DEP Application No. 187636-001) that will not need to be modified. Pond 107 was built under the SR 429 Part C, Section 1 project (FPID 403498-3-32-01). Pond 107 is located adjacent to I-4 eastbound from Sta. 736+00 to Sta. 740+00. The basin soils are classified in Hydrologic Soil Group A. The pond is designed as a wet detention pond. Only treatment and attenuation will be provided in Pond 107. Floodplain compensation will be provided in Pond FPC 109 for prior and future floodplain impacts. The pond will continue to discharge southeast to the wetland adjacent to Pond 107. Ultimately, this basin discharges to the Reedy Creek Swamp via the Davenport Creek Swamp. Pond 107 was not evaluated under Section 1 FONSI and does not require expanding or regrading. Therefore, no additional right of way will be required for this basin. **Pond 107 is the recommended alternative for this basin.**

5.3.9 Basin 108

Basin 108 begins at Sta. 747+00 and continues northeast to Sta. 761+19. The basin consists of I-4 eastbound, the future 44 foot rail corridor, the SR 429 ramp to I-4 eastbound, approximately 2200 feet of south Old Lake Wilson Road and two (2) wet detention ponds. The stormwater runoff from the roadway

will be collected through a stormwater system that discharges to the ponds. There is only one (1) alternative for this basin.

5.3.9.1 Ponds 108A and 108B

Pond 108A is an existing pond (Pond G-1 in DEP Application No. 187636-001) that will be reduced and regraded. Pond 108A was built under the SR 429 Part C, Section 1 project (FPID 403498-3-32-01) and was evaluated under Section 1 FONSI as a preferred alternative named Pond 59.5. Pond 108A is located adjacent to I-4 eastbound from Sta. 746+00 to Sta. 755+40. The basin soils are classified in Hydrologic Soil Group A. The pond is designed as a wet detention pond. Only treatment and attenuation will be provided within Pond 108A. Floodplain compensation will be provided in FPC 105A for prior and future floodplain impacts. Pond 108A will continue to discharge to the adjacent wetlands. Ultimately, this basin discharges to the Reedy Creek Swamp via the Davenport Creek Swamp. Pond 108A is located within FDOT right of way.

Pond 108B is a proposed wet detention pond located adjacent to the SR 429 ramp to I-4 EB from Sta. 751+00 to Sta. 756+00 and will be connected to Pond 108A via a pipe. The basin soils are classified in Hydrologic Soil Group A. The pond is designed as a wet detention pond. Additional right-of-way will be required for Pond 108B with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Pond 108B has the least amount of impacts. **Therefore, Pond 108A and 108B are the recommended alternative for this basin.**

5.3.10 Basin 109

Basin 109 begins at Sta. 761+19 and continues north to the highpoint of the bridge over Reedy Creek at Sta. 813+00. From Sta. 761+19 to Sta. 775+20, the basin limits mimic the original basin, which consists of the existing pond site and the full right of way. The remainder of the basin will be compensated for due to hydraulic constraints. The stormwater runoff from the roadway will be collected by storm sewer systems that discharge to the pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.10.1 Pond 109

Pond 109 is an existing pond (Pond 105B in Permit No. 020204-8) that will need to be expanded and regraded in order to accommodate the roadway widening. The pond was built under the SR 400 (I-4) widening from Polk County Line to SR 530 (US 192) project (FPID No. 242523-1-52-01). This pond alternative was evaluated under Section 1 FONSI as Pond 60.4. The existing plans were designed in 1988 NAVD. The existing pond will be expanded within the existing right of way. The pond is located adjacent to I-4 westbound from Sta. 770+50 to Sta. 775+50. The basin soils are classified in Hydrologic Soil Groups A and A/D. The pond will be designed as a wet detention pond and will continue to discharge to the northeast to the wetlands, ultimately discharging to Reedy Creek. Pond 109 provides treatment and attenuation only. Floodplain compensation will be provided in FPC 109. No additional right of way will be required for this basin. **Pond 109 is the recommended alternative for this basin.**

5.3.11 Basin 110

Basin 110 begins at Sta. 813+00 and continues northeast to Sta. 833+30. The basin consists of I-4 eastbound, as well as the on-ramp, the westbound collector distributor (WBCD) road and future Celebration development. The stormwater runoff from the roadway will be collected by storm sewer systems that discharge to the pond. Pond 110 is owned by The Celebration Company (TCC) and the Celebration Community Development District (CCDD), respectively. Legal agreements have been established between FDOT and both entities allowing FDOT to modify the existing permits. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.11.1 Pond 110

Pond 110 is an existing pond (Pond MV-5A, Existing basin 6E in Permitted Application Nos. 020204-8, 960112-4 and Permit Nos. 49-00792-S, 48-00714-S) that will need to be expanded in order to accommodate the roadway widening. The pond was designed under the World Drive Extension/I-4 Interchange project (FPID No. 92130-1426) and later modified under the SR 400 (I-4) widening from Polk County Line to SR 530 (US 192) project (FPID No. 242523-1-52-01). This pond alternative was evaluated under Section 1 FONSI as Pond 61.0. The existing plans were designed in 1929 NGVD. The existing pond will be expanded and the maintenance berm regraded and reduced to the minimum 15-foot criteria. The pond is located north of the Reedy Creek Bridge and lies adjacent to I-4 westbound from Sta. 825+00 to 843+00. The basin soils are classified in Hydrologic Soil Group A/D and C/D. The pond is designed as a wet detention pond and will provide treatment and attenuation for the westbound lanes of I-4, the westbound collector distributor (WBCD) road and future Celebration development. The pond will continue to discharge into wetlands adjacent to the Reedy Creek floodplain and the wildlife management conservation area (WMCA), ultimately discharging to Reedy Creek. Additional right-of-way will be required for Pond 110 with an acquisition of three (3) parcels (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Pond 110 has the least amount of impacts. **Pond 110 is the recommended alternative for this basin.**

5.3.12 Basin 111

Basin 111 begins at Sta. 813+00 and continues northeast along I-4 eastbound to Sta. 842+18. The basin consists of the I-4 eastbound lanes, the future 44 foot rail corridor, a small portion of the ramp to World Drive and the pond site. This section is located within the Reedy Creek Basin. The stormwater runoff from the roadway will be collected by storm sewer systems that discharge to the pond. Pond 111 is owned by The Celebration Company (TCC) and the Celebration Community Development District (CCDD), respectively. Legal agreements have been established between FDOT and both entities allowing FDOT to modify the existing permits. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.12.1 Pond 111

Pond 111 is an existing pond (Pond TP-2 in permitted Application No. 020204-4) that does not require expanding or regrading in order to accommodate the roadway widening. The pond was originally built under the I-4 Collector Distributor (CD) Road Project (FPID 92130-3420). This pond

alternative was not evaluated under Section 1 FONSI. The existing plans were designed in 1929 NAVD. The pond is located north of the Reedy Creek Bridge and lies adjacent to I-4 eastbound from Sta. 824+00 to 830+00. The basin soils are classified in Hydrologic Soil Group A/D and C/D. The pond is designed as a wet detention pond and will provide treatment for the east side of the I-4 mainline and the existing ramp. The pond discharges to a roadside ditch, which conveys water into Reedy Creek floodplain, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 111 is the recommended alternative for this basin.**

5.3.13 Basin 112

Basin 112 begins at Sta. 833+30 and continues westbound along I-4 to Sta. 863+18. The basin consists of the full right of way from I-4 westbound, World Drive from the west side of I-4, the west side of the centered median and five (5) existing pond sites located within the infield ramps. The stormwater runoff from the roadway will be collected by roadside ditches and storm sewer systems that discharge to the ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds.

5.3.13.1 Ponds 112A, 112B, 112C, 112D and 112E

Ponds 112A, 112B, 112C, 112D and 112E are existing ponds (Ponds A2, A3, D2, D3, A in Permit No. 49-00792-S). The ponds were built under the World Drive project (FPID 92130-1426) and later revisited for the I-4 Collector Distributor (CD) Road Project (FPID 92130-3420). The ponds will need to be regraded and the maintenance berm reduced to the minimum 15-foot criteria. The ponds are located adjacent to I-4 westbound within the infield ramps from Sta. 836+00 to Sta. 856+00. The basin soils are classified in Hydrologic Soil Group A/D and C/D. The ponds are designed as wet detention ponds and will continue to function as one via equalizer pipes. The ponds will continue to discharge into the wetlands to the north, which ultimately discharges to Reedy Creek. No additional right of way will be required for this basin. **Ponds 112A, 112B, 112C, 112D and 112E are the recommended alternative for this basin.**

5.3.14 Basin 113

Basin 113 begins at Sta. 842+18 and continues eastbound along I-4 to Sta. 863+18. The basin consists of the full right of way from I-4 eastbound, World Drive from the east side of I-4, the east side of the centered median and five (5) existing pond sites and two (2) proposed ponds, located within the infield ramps of the World Drive Interchange. The stormwater runoff from the roadway will be collected by roadside ditches and storm sewer systems that discharge to the ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds and the infield ramp areas.

5.3.14.1 Ponds 113A, 113B, 113C, 113D, 113E, 113F and 113G

Ponds 113A, 113B, 113C, 113D, and 113G are existing ponds (Pond B1, B2, C, C1, C3 in Permit No. 49-00792-S). The ponds were built under the World Drive project (FPID 92130-1426) and later re-evaluated for the I-4 Collector Distributor (CD) Road Project (FPID 92130-3420). The ponds will need to be regraded and the berms reduced to the minimum 15-foot criteria. The ponds are located adjacent to I-4 eastbound between the I-4 EB Ramp to World Drive and World Drive eastbound lanes from Sta. 844+00 to Sta. 860+00. The basin soils are classified in Hydrologic Soil

Group A/D and C/D. The ponds are designed as wet detention ponds and will continue to function as one via equalizer pipes. The ponds will continue to discharge into the wetlands to the south, which ultimately discharge to Reedy Creek.

Ponds 113E and 113F are proposed ponds located within the infield ramp area at Sta. 847+50 and 851+00. The basin soils are classified in Hydrologic Soil Group A/D and C/D. The ponds are designed as wet detention ponds and will connect to the existing ponds via equalizer pipes. No additional right of way will be required for this basin. **Ponds 113A, 113B, 113C, 113D, 113E, 113F and 113G are the recommended alternative for this basin.**

5.3.15 Basin 114

Basin 114 extends from Sta. 863+00 to Sta. 914+00. The basin consists of the westbound lanes of the I-4 mainline, the westbound collector distributor (WBCD) road, the future 44 foot rail corridor and two (2) existing pond sites. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds.

5.3.15.1 Ponds 114A and 114B

Ponds 114A and 114B are existing ponds (TP-3A and TP-3B) that will not need to be modified. The ponds are located on the west side of the I-4 mainline from Sta. 869+00 to Sta. 882+00. The basin soils are classified in Hydrologic Soil Group A/D. The ponds are designed as wet detention ponds and will continue to function as one via an equalizer pipe. The ponds will continue to discharge into the wetlands to the southwest, which ultimately discharges to Reedy Creek. No additional right of way will be required for this basin. **Ponds 114A and 114B are the recommended alternative for this basin.**

5.3.16 Basin 115

Basin 115 begins at Sta. 863+18 and continues northeast to Sta. 914+14. The basin consists of the eastbound lanes of the I-4 mainline, the eastbound collector distributor (EBCD) road and one (1) existing pond site. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.16.1 Pond 115

Pond 115 is an existing pond (Pond TP-4 in Application No. 960621-13) located within the FDOT right of way. The pond does not need to be expanded or regraded. The pond is located adjacent to wetlands east of Celebration Avenue, from Sta. 871+00 to Sta. 876+00. The basin soils are classified in Hydrologic Soil Groups A/D and C/D. The pond is designed as a wet detention pond and will continue to discharge to the adjacent wetlands, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 115 is the recommended alternative for this basin.**

5.3.17 Basin 116

Basin 116 extends from Sta. 914+00 to Sta. 938+50. The basin consists of one (1) existing pond site and westbound collector distributor (WBCD) road only. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.17.1 Pond 116

Pond 116 is an existing pond (Pond TP-5 in Application No. 960621-13) located within the FDOT right of way. The pond does not need to be expanded or regraded. The pond is located adjacent to westbound collector distributor (WBCD) road from Sta. 920+00 to Sta. 924+00. The basin soils are classified in Hydrologic Soil Group A/D. The pond is designed as a wet detention pond and will continue to discharge to the adjacent wetlands, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 116 is the recommended alternative for this basin.**

5.3.18 Basin 117

Basin 117 extends from Sta. 914+00 to Sta. 945+00. The basin consists of one (1) existing pond site, both westbound and eastbound lanes of the I-4 mainline and eastbound collector distributor (EBCD) road. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.18.1 Pond 117

Pond 117 is an existing pond (Pond TP-6 in Application No. 960621-13) located within the FDOT right of way. The pond does not need to be expanded or regraded. The pond is located adjacent to eastbound collector distributor (EBCD) road from Sta. 921+00 to Sta. 933+00. The basin soils are classified in Hydrologic Soil Group A/D. The pond is designed as a wet detention pond and will continue to discharge to the adjacent wetlands, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 117 is the recommended alternative for this basin.**

5.3.19 Basin 118

Basin 118 extends from Sta. 928+00 to Sta. 945+00. The basin consists of one (1) existing pond site and the westbound collector distributor (WBCD) road ramp. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.19.1 Pond 118

Pond 118 is an existing pond (Pond A in Application No. 960621-13) located within the FDOT right of way. The pond will need to be modified and regraded. The pond is located adjacent to westbound collector distributor (WBCD) road from Sta. 932+00 to Sta. 939+00. The basin soils are classified in Hydrologic Soil Group A/D. The pond is designed as a wet detention pond and will continue to discharge to the adjacent wetlands, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 118 is the recommended alternative for this basin.**

5.3.20 Basin 119

Basin 119 extends from Sta. 945+00 to Sta. 958+40. The basin consists of two (2) existing pond sites, both westbound and eastbound lanes of the I-4 mainline, westbound collector distributor (WBCD) road and the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds.

5.3.20.1 Ponds 119A and 119B

Ponds 119A and 119B are existing ponds (Ponds 1A and 1B) located within the FDOT right of way. The ponds will need to be regraded. The ponds are located on the west side of the I-4 mainline from Sta. 940+00 to Sta. 950+00. The basin soils are classified in Hydrologic Soil Group A/D. The ponds are designed as wet detention ponds and will continue to function as one via an equalizer pipe. The ponds will continue to discharge into the wetlands, which ultimately discharges to Reedy Creek. No additional right of way will be required for this basin. **Ponds 119A and 119B are the recommended alternative for this basin.**

5.3.21 Basin 120

Basin 120 extends from Sta. 940+75 to Sta. 954+00. The basin consists of one (1) existing pond site and the eastbound collector distributor (EBCD) road ramp. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.21.1 Pond 120

Pond 120 is an existing pond (Pond B in FDEP Permit No. 48/492061169 & 48/492138449) located within the FDOT right of way. The pond will need to be modified and regraded. The outfall control structure may need to be altered in the proposed condition. The pond is located adjacent to EBCD road from Sta. 943+00 to Sta. 946+00. The basin soils are classified in Hydrologic Soil Group A/D. The pond is designed as a wet detention pond and will continue to discharge to the adjacent wetlands, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 120 is the recommended alternative for this basin.**

5.3.22 Basin 121

Basin 121 extends from Sta. 958+40 to Sta. 974+38 LT. The basin consists of two (2) existing pond sites, westbound lanes of the I-4 mainline and US 192 (SR 530) and the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds.

5.3.22.1 Ponds 121A and 121B

Ponds 121A and 121B are existing ponds (NW1 and NW2) located within the FDOT right of way. The ponds are located on the west side of the I-4 mainline from Sta. 965+00 to Sta. 971+00. The basin soils are classified in Hydrologic Soil Group A. Pond 121B will need to be modified and regraded. Pond 121A will remain unchanged. The ponds are designed as wet detention ponds and will remain interconnected and continue to discharge to the adjacent wetlands, ultimately

discharging to Reedy Creek. No additional right of way will be required for this basin. **Ponds 121A and 121B are the recommended alternative for this basin.**

5.3.23 Basin 122

Basin 122 extends from Sta. 954+00 to Sta. 976+93 RT. The basin consists of an existing pond site and two (2) proposed pond sites, eastbound lanes of the I-4 mainline and US 192 (SR 530). The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond and the two (2) proposed ponds that are located within the FDOT right of way.

5.3.23.1 Ponds 122A, 122B and 122C

Ponds 122A and 122C are proposed ponds located within the FDOT right of way. The ponds are located on the east side of the I-4 mainline from Sta. 965+00 to Sta. 982+00. The pond soils are classified in Hydrologic Soil Group A. The ponds are designed as wet detention ponds and will continue to function as one via an equalizer pipe.

Pond 122B is an existing pond (SE 1) located within the FDOT right of way. The pond is located on the east side of the I-4 mainline from Sta. 969+00 to Sta. 978+50. The pond soils are classified in Hydrologic Soil Group A. Pond 121B will need to be modified and regraded. The pond is designed as a wet detention pond and will continue to discharge to an existing ditch, ultimately discharging to Reedy Creek. Pond 122B will be interconnected to Pond 122A and Pond 122C via an equalizer pipe. No additional right of way will be required for this basin. **Ponds 122A, 122B and 122C are the recommended alternative for this basin.**

5.3.24 Basin 123

Basin 123 extends from Sta. 974+38 to Sta. 978+24 LT. The basin consists of the existing pond site, westbound lanes of the I-4 mainline, US 192 (SR 530) and the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.24.1 Pond 123

Pond 123 is an existing pond (Pond NW3) located within the FDOT right of way. The pond is located on the west side of the I-4 mainline from Sta. 974+00 to Sta. 977+00. The basin soils are classified in Hydrologic Soil Group A. The pond will need to be modified and regraded. The pond will remain a wet detention pond and continue to discharge to an existing ditch, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 123 is the recommended alternative for this basin.**

5.3.25 Basin 124

Basin 124 extends from Sta. 978+24 to Sta. 984+21 LT. The basin consists of the existing pond site, westbound lanes of the I-4 mainline, US 192 (SR 530) and the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.25.1 Pond 124

Pond 124 is an existing wet detention pond (SE 4) located within the FDOT right of way. The pond is located on the west side of the I-4 mainline from Sta. 978+00 to Sta. 982+00. The basin soils are classified in Hydrologic Soil Group A. Pond 124 will need to be modified and regraded and the maintenance berm reduced to the minimum 15-foot criteria. The pond will remain a wet detention pond and continue to discharge to an existing ditch, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 124 is the recommended alternative for this basin.**

5.3.26 Basin 125

Basin 125 extends from Sta. 977+00 to Sta. 984+21 RT. The basin consists of the existing pond site, eastbound lanes of the I-4 mainline and US 192 (SR 530). The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.26.1 Pond 125

Pond 125 is an existing wet detention pond (SE 2) located within the FDOT right of way. The pond is located on the east side of the I-4 mainline from Sta. 979+00 to Sta. 983+00. The pond soils are classified in Hydrologic Soil Group A. Pond 125 will need to be modified and regraded and the maintenance berm reduced to the minimum 15-foot criteria. The pond will remain a wet detention pond and continue to discharge to an existing ditch, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 125 is the recommended alternative for this basin.**

5.3.27 Basin 126

Basin 126 extends from Sta. 984+21 to Sta. 997+67. The basin consists of the existing pond site, I-4 mainline and US 192 (SR 530) ramps and the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond.

5.3.27.1 Pond 126

Pond 126 is an existing wet detention pond (SE 3) located within the FDOT right of way. The pond is located on the east side of the I-4 mainline from Sta. 985+00 to Sta. 989+00. The basin soils are classified in Hydrologic Soil Group A and A/D. Pond 126 will need to be reduced and regraded; the maintenance berm will be reduced to the minimum 15-foot criteria. The pond will remain a wet detention pond and continue to discharge to an existing ditch, ultimately discharging to Reedy Creek. No additional right of way will be required for this basin. **Pond 126 is the recommended alternative for this basin.**

5.3.28 Basin 127

Basin 127 serves a portion of Osceola Parkway and some of the existing ramps. No portion of I-4 or the collector distributor (CD) roads contribute to this basin. As no modifications are proposed to the basin or the pond (Pond A in SFWMD application No. 980715-1), Pond 127 was not analyzed.

5.3.29 Basin 128

Basin 128 begins at Sta. 997+67 and continues northeast to the Osceola Parkway Interchange and Bonnet Creek (C-1 Canal) at Sta. 1033+74. The basin consists of the existing pond sites, the full I-4 right of way, which includes the future 44 foot rail corridor and a portion of the existing Osceola Parkway Interchange. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds.

5.3.29.1 Ponds 128A and 128B

Ponds 128A and 128B are existing ponds (Ponds B-1 and B in Permit Application No. 030115-14) located within the existing ramps in the southwest quadrant of the Osceola Parkway Interchange from Sta. 1021+00 to Sta. 1031+00. The pond soils are classified in Hydrologic Soil Group A/D. Pond 128A will need to be modified and regraded; Pond 128B will remain unchanged. The ponds are designed as wet detention ponds and will continue to discharge to Bonnet Creek (C-1 Canal), ultimately discharging to Reedy Creek. Pond 128A will be interconnected to Pond 128B via an equalizer pipe. No additional right of way will be required for this basin. **Ponds 128A and 128B are the recommended alternative for this basin.**

5.3.30 Basin 129

Basin 129 consists of a portion of Osceola Parkway and some of the existing I-4 ramps. No portion of I-4 or the collector distributor (CD) roads contribute to this basin. Floodplain compensation for the original interchange was provided in the existing pond. As no modifications are proposed for the basin or the pond, (Pond C in SFWMD Application No. 980715-1) it was not analyzed.

5.3.31 Basin 130

Basin 130 limits extend from Sta. 1035+00 to Sta. 1065+63 RT and from Sta. 1035+00 to Sta. 1050+00 LT. The basin consists of I-4 mainline, the future 44 foot rail corridor and two (2) wet detention ponds. The stormwater runoff from the roadway will be collected through stormwater systems that discharge to the ponds. There is only one (1) alternative for this basin, which is to utilize the existing pond and one (1) proposed pond that is located outside of the FDOT right of way. There are no proposed floodplain impacts within this basin.

The crossing of I-4 and Osceola Parkway over Bonnet Creek (C-1 Canal) is identified as a critical area of concern because the bridges over Bonnet Creek (C-1 Canal) are currently considered structurally deficient and required crutch bent construction several years ago. The crutch piles installed at the I-4 bridges over Bonnet Creek (C-1 Canal) exemplified the difficulty of working on the bridge under the Osceola Parkway bridges. Constructing the I-4 Ultimate Improvements with this same configuration is not desirable for future maintenance or replacement of the I-4 bridges, so alternatives for realigning Bonnet Creek (C-1 Canal) were investigated to provide a long-term solution. For additional information, please refer to the Bonnet Creek Technical Memo and the meeting minutes of the coordination meeting with RCID in Appendix D.

In addition, an offsite Gaylord Palms development pond (Pond SMA-M in SFWMD Application No. 971210-9) located just south of Pond 130 will be impacted by the proposed Bonnet Creek (C-1 Canal) realignment.

Pond SMA-M is an existing wet detention pond that discharges to Bonnet Creek (C-1 Canal), which ultimately discharges to Reedy Creek. The impacts to Pond SMA-M will be compensated for in Pond 130A.

5.3.31.1 Ponds 130 and 130A

Pond 130 is an existing wet detention pond (NW Pond and Pond D) located within the FDOT right of way. The pond is located on the east side of the I-4 mainline from Sta. 1041+00 to Sta. 1052+00. The basin soils are classified in Hydrologic Soil Group A/D. Pond 130 will need to be reduced in size and regraded as a result of the Bonnet Creek (C-1 Canal) realignment. The pond will remain a wet detention pond and will discharge to Bonnet Creek (C-1 Canal), which ultimately discharges to Reedy Creek.

Pond 130A is a proposed pond located on the west side of the I-4 mainline from Sta. 1040+00 to Sta. 1059+00. The pond soils are classified in Hydrologic Soil Group A/D. The pond is designed as a wet detention pond and discharges to Bonnet Creek (C-1 Canal), ultimately discharging to Reedy Creek. Additional right-of-way will be required for Pond 130A with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Pond 130A has the least amount of impacts. **Ponds 130 and 130A are the recommended alternative for this basin.**

5.3.32 Basin 131

Basin 131 extends from Sta. 1065+63 to Sta. 1078+56 RT and from Sta. 1050+00 to Sta. 1083+17 LT. The basin consists of one (1) existing pond site and one (1) proposed pond site, I-4 mainline and the future 44 foot rail corridor. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the ponds. The proposed roadway improvements will eliminate an existing pond (Pond F). There is only one (1) alternative for this basin, which is to utilize the existing pond and one (1) proposed pond that is located outside of the FDOT right of way.

5.3.32.1 Ponds 131A and 131B

Ponds 131A and 131B are existing ponds (Pond E and borrow pit). Pond 131A is located on the west side of the I-4 mainline from Sta. 1071+00 to Sta. 1077+00 and Pond 131B is located on the east side of the I-4 mainline from Sta. 1074+00 to Sta. 1082+00. The basin soils are classified in Hydrologic Soil Group A/D. Both ponds will need to be modified and regraded. The ponds will be interconnected wet detention ponds that discharge to Bonnet Creek (C-1 Canal) and ultimately discharge to Reedy Creek. Basin 131 impacts the Bonnet Creek (C-1 Canal) floodplain (DEP Application No. 187636-001). Floodplain compensation will be provided in FPC 132 and FPC 133. Additional right-of-way will be required for Pond 131B with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Ponds 131A and 131B have the least amount of impacts. **Ponds 131A and 131B are the recommended alternative for this basin.**

5.3.33 Basin 132

Basin 132 limits extend from Sta. 1083+17 to 1127+65. The basin consists of the I-4 mainline, the Epcot Center Drive Interchange (SR 536), the interchange ramps, the future 44 foot rail corridor and four (4) detention ponds within the Epcot Center Drive Interchange (SR 536) ramps. The stormwater runoff from the roadway will be collected through stormwater systems that discharge to the ponds. There is only one (1) alternative for this basin, which is to utilize the three (3) existing “detention areas” and one (1) proposed pond that is located within the FDOT right of way.

5.3.33.1 Ponds 132, 133, 134 and 135

Ponds 132 and 134 are existing “detention areas” (Ponds 66.6 and 66.7 from the former PD&E/FEIS Study) that will need to be modified and regraded to function as a pond. The ponds are located within the FDOT right of way. Pond 132 is located on the west side of the I-4 mainline from Sta. 1091+00 to Sta. 1099+00 and will discharge to the west under the Epcot center Drive Interchange (SR 526) ramp. An existing ditch along the ramp will drain to the west to existing wetlands located at the crossdrain CD-12 outfall at Station 1083+18.65. Pond 134 is located on the west side of the I-4 mainline from Sta. 1103+00 to Sta. 1108+00 and is interconnected with Pond 132. The ponds are designed as wet detention ponds that will discharge to Bonnet Creek (C-1 Canal), ultimately discharging to Reedy Creek. Basin 132 impacts the Bonnet Creek (C-1 Canal) floodplain (DEP Application No. 187636-001). The basin soils are classified in Hydrologic Soil Group A/D. Floodplain compensation will be provided in FPC 132.

Ponds 133 is an existing “detention area” (Ponds 66.5 from the former PD&E/FEIS Study) that will need to be modified and regraded to function as a pond. Pond 133 is located on the east side of the I-4 mainline from Sta. 1091+00 to Sta. 1100+00. Pond 135 is a proposed pond (Ponds 66.8 from the former PD&E/FEIS Study) located on the east side of the I-4 mainline from Sta. 1103+00 to Sta. 1110+00. The ponds are located within the FDOT right of way. The basin soils are classified in Hydrologic Soil Group A/D. The ponds will be interconnected, wet detention ponds that will discharge to Bonnet Creek (C-1 Canal), ultimately discharging to Reedy Creek. Basin 133 impacts the Bonnet Creek (C-1 Canal) floodplain (DEP Application No. 187636-001). Floodplain compensation will be provided in FPC 133. **Ponds 132, 133, 134 and 135 are the recommended alternative for this basin.**

5.3.34 Basin 136

Basin 136 limits extend from Sta. 1127+65 to Sta. 1156+30. The basin consists of I-4 mainline, the 44 foot future rail corridor and one (1) proposed wet detention pond. The stormwater runoff from the roadway will be collected through stormwater systems that discharge to the pond. There are two (2) alternatives for this basin, which requires one (1) proposed pond that is located outside of the FDOT right of way.

5.3.34.1 Pond 136A

Pond 136A is an existing offsite wet detention pond (Pond 3 under the existing Lake Vista Village permit) located outside of the FDOT right of way. The pond is located adjacent to the east side of the I-4 mainline from Sta. 1131+00 to Sta. 1138+00. The basin soils are classified in Hydrologic Soil Group A and A/D. Pond 136A will need to be expanded and regraded to accommodate the

proposed roadway improvements. The pond will remain a wet detention pond and continue to discharge to an existing ditch, ultimately discharging to Reedy Creek. Additional right-of-way will be required for Pond 136A with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage).

5.3.34.2 Pond 136B

Pond 136B is a proposed wet detention pond located outside of the FDOT right of way. The pond is located adjacent to the east side of the I-4 mainline from Sta. 1140+00 to Sta. 1147+00. The basin soils are classified in Hydrologic Soil Group A and A/D. The pond will discharge to an existing ditch, ultimately discharging to Reedy Creek. Additional right-of-way will be required for Pond 136B with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Pond 136B has the least amount of impacts. **Pond 136B is the recommended alternative for this basin.**

5.3.35 Basin 137

Basin 137 limits extend from Sta. 1156+30 to Sta. 1193+20 RT and Sta. 1156+30 to Sta. 1176+58 LT. The basin consists of three (3) pond sites, the full I-4 right of way for a portion of the basin and the eastbound lanes of the I-4 mainline for the remainder of the basin, which includes the future 44 foot rail corridor and a portion of the existing SR 535 Interchange. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds and one (1) proposed pond that is located within the FDOT right of way.

5.3.35.1 Ponds 137, 137A and 137B

Pond 137A is an existing pond (Retention Area 1) located adjacent to the east side of the I-4 mainline from Sta. 1169+00 to Sta. 1177+00. Pond 137 is a proposed pond located on the east side of the I-4 mainline from Sta. 1165+00 to Sta. 1174+00 and Pond 137B is a proposed pond located on the east side of the I-4 mainline from Sta. 1177+00 to Sta. 1180+00. The basin soils are classified as Urban Land in Hydrologic Soil Group D, with some Type A. Pond 137A will need to be modified and regraded to accommodate the roadway improvements. The ponds will be interconnected, wet detention ponds and will discharge to a drainage easement into the Reedy Creek master drainage system to Black Lake and ultimately to Bonnet Creek (C-1 Canal). **Ponds 137, 137A and 137B are the recommended alternative for this basin.**

5.3.36 Basin 138

Basin 138 extends from Sta. 1193+20 to Sta. 1262+00 RT and Sta. 1176+50 to Sta. 1262+00 LT, which spans from just south of the existing SR 535 interchange to just south of the existing Daryl Carter Parkway (previously known as Fenton Street) overpass. The basin consists of three (3) proposed pond sites, the full I-4 right of way for a portion of the basin and the westbound lanes of the I-4 mainline for the remainder of the basin, which includes the future 44 foot rail corridor and a portion of the existing SR 535 Interchange. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the proposed ponds. There is only one (1) alternative for this basin, which is to utilize the three (3) proposed ponds that are located outside of the FDOT right of way.

5.3.36.1 Ponds 138, 138A and 138B

Ponds 138, 138A and 138B are proposed pond located outside of the FDOT right of way. Pond 138 is located on the west side of the I-4 mainline from Sta. 1193+00 to Sta. 1199+00, Pond 138A is located on the west side of the I-4 mainline from Sta. 1196+00 to Sta. 1202+00 and Pond 138B is located on the west side of the I-4 mainline from Sta. 1194+00 to Sta. 1211+00. The majority of Basin 138 is classified in Hydrologic Soil Groups A/D or B/D, with the remainder of the basin classified in Group A. The ponds will be interconnected, wet detention ponds and will discharge to a drainage easement into the Reedy Creek master drainage system to Black Lake and ultimately to Bonnet Creek (C-1 Canal). Additional right-of-way will be required for these ponds with an acquisition of nine (9) parcels (Refer to Table 6 for parcel acquisition acreage). Four (4) existing ponds are being impacted as a result of the proposed improvements. Compensation for these impacts will be provided in Ponds 138, 138A and 138B. After consideration from the public involvement meeting and meetings with property owners, it was determined that Ponds 138, 138A and 138B have the least amount of impacts. **Ponds 138, 138A and 138B are the recommended alternative for this basin.**

5.3.37 Basin 139

Basin 139 extends from Sta. 1262+00 to Sta. 1277+00. The basin consists of two (2) existing pond sites, the full I-4 right of way, which includes the future 44 foot rail corridor and the south east portion of the existing Daryl Carter Parkway (previously known as Fenton Street) overpass. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing ponds. There is only one (1) alternative for this basin, which is to utilize the existing ponds. The ponds will need to be modified and enlarged to accommodate the proposed roadway improvement which causes a portion of the ponds to be located outside of the FDOT right of way.

In addition, an Orange County pond (Pond C in SFWMD Application No. 090610-12) will be impacted by the proposed roadway improvements. The impacts to Pond C will be compensated for in Ponds 139A and 139B.

5.3.37.1 Ponds 139A and 139B

Ponds 139A and 139B are existing ponds (Ponds 2A and 2B) that are being impacted by the proposed roadway improvements. The ponds will need to be modified and enlarged, which causes the ponds to be located outside of the r/w. The ponds are located on the east side of the I-4 mainline from Sta. 1267+00 to Sta. 1277+00. The pond soils are classified in Hydrologic Soil Group A, A/D and B/D. The ponds will be interconnected, wet detention ponds and will discharge to a ditch that flows to a cross drain at Sta. 1307+00, which flows to Big Sand Lake and ultimately discharges to Shingle Creek. Additional right-of-way will be required for Ponds 139A and 139B with an acquisition of two (2) parcels (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Ponds 139A and 139B have the least amount of impacts. **Ponds 139A and 139B are the recommended alternative for this basin.**

5.3.38 Basin 140

Basin 140 extends from Sta. 1262+00 to Sta. 1277+00. The basin consists of one (1) existing pond site, the full I-4 right of way, which includes the future 44 foot rail corridor and a portion of the existing Daryl Carter Parkway (previously known as Fenton Street) overpass. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the existing pond. There is only one (1) alternative for this basin, which is to utilize the existing pond. The pond will need to be modified and enlarged to accommodate the roadway improvement which causes a portion of the pond to be located outside of the FDOT right of way.

5.3.38.1 Pond 140

Pond 140 is an existing wet detention pond (Pond 1) that is being impacted by the proposed roadway improvements and will need to be modified and enlarged. The pond is located on the west side of the I-4 mainline from Sta. 1273+00 to Sta. 1280+00. The pond soils are classified in Hydrologic Soil Group A, A/D and B/D. The pond will discharge to a ditch that flows to a cross drain at Sta. 1307+00, which flows to Big Sand Lake and ultimately discharges to Shingle Creek. Additional right-of-way will be required for Pond 140 with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Pond 140 has the least amount of impacts. **Pond 140 is the recommended alternative for this basin.**

5.3.39 Basin 142

Basin 142 extends from Sta. 1277+00 to Sta. 1335+00, which spans the length of I-4 from just north of Daryl Carter Parkway (previously known as Fenton Street) to the Central Florida Parkway Interchange. The basin consists of one (1) proposed pond site, the full I-4 right of way, which includes the future 44 foot rail corridor and a portion of the existing Central Florida Parkway Interchange. The stormwater runoff from the roadway will be collected in storm sewer systems that discharge to the proposed pond. There are two (2) existing ponds that will be impacted by the proposed roadway widening. There is only one (1) alternative for this basin, which is to utilize a proposed pond site that is located outside of the FDOT right of way.

5.3.39.1 Pond 142B

Pond 142B is a proposed dry retention pond located on the southwest corner of the I-4/Central Florida Parkway Interchange from Sta. 1317+00 to Sta. 1333+00. The pond soil is classified in Hydrologic Soil Group A and A/D. The pond is a modified version of Pond 70.8 from the Final Environmental Impact Statement (FEIS) PD&E. This pond site was identified as the recommended pond alternative in the FEIS PD&E. Pond 142B was enlarged to provide for the roadway improvements. The pond discharges to the Big Sand Lake Outlet that crosses I-4 just south of Central Florida Parkway. The Big Sand Lake Outlet eventually discharges to Shingle Creek. Additional right-of-way will be required for Pond 142B with an acquisition of four (4) parcels (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that Pond 142B has the least amount of impacts. Basin 142 impacts the Lake Willis floodplain. Floodplain compensation will be provided in FPC 141. **Pond 142B is the recommended alternative for this basin.**

6.0 Floodplains/Floodways

6.1.1 Basin 100

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Polk County; a portion of Basin 100 is located within Zone A of the 100-year floodplain. The floodplain elevation is 115.00 ft. NAVD and the seasonal high water elevation is 113.80 ft. NAVD (SWFWMD Permit # 43011896.027). Basin 100 accounts for 6.06 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 602+50 to Sta. 627+00 on the eastbound side of the roadway and from Sta. 602+50 to Sta. 622+00 on the westbound side of the roadway.

6.1.1.1 FPC 100

Compensation is being provided in Floodplain Compensation Pond (FPC) 100 which is located on the west side of the I-4 mainline from Sta. 600+00 to Sta. 609+00. The pond provides 6.41 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 100 with an acquisition of two (2) parcels (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 100 has the least amount of impacts. **FPC 100 is the recommended alternative for this basin.**

6.1.2 Basin 101

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Polk County; a portion of Basin 101 is located within Zone A of the 100-year floodplain. The floodplain elevation is 115.00 ft. NAVD and the seasonal high water elevation is 113.80 ft. NAVD (SWFWMD Permit # 43011896.027). Basin 100 accounts for 2.30 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 622+00 to Sta. 626+00 on the left side of the roadway.

6.1.2.1 FPC 101A

Compensation is being provided in Floodplain Compensation Pond (FPC) 101A which is located on the east side of the I-4 mainline from Sta. 628+00 to Sta. 631+00. The pond provides 2.78 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 101A with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 101A has the least amount of impacts. **FPC 101A is the recommended alternative for this basin.**

6.1.3 Basin 102

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Polk County; a portion of Basin 102 is located within Zone A of the 100-year floodplain. The floodplain elevation is estimated at 108.98 ft. NAVD and the seasonal high water elevation is 107.50 ft. NAVD (SWFWMD Permit # 020204-8). Basin 102 accounts for 2.73 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 662+50 to Sta. 664+50 on both sides of the roadway.

6.1.3.1 FPC 102

Compensation is being provided in Floodplain Compensation Pond (FPC) 102 which is located on the east side of the I-4 mainline from Sta. 658+00 to Sta. 663+00. The pond provides 3.36 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 102 with an acquisition of

two (2) parcels (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 102 has the least amount of impacts. **FPC 102 is the recommended alternative for this basin.**

6.1.4 Basin 103

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Osceola County; there are two (2) areas within Basin 103 located within Zone A of the 100-year floodplain.

The first floodplain elevation is estimated at 99.23 ft. NAVD and the seasonal high water elevation is 91.00 ft. NAVD (SFWMD Permit # 020204-8). This portion of Basin 103 accounts for 9.40 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 677+00 to Sta. 682+00 on both sides of the roadway.

6.1.4.1 Pond 103

Compensation is being provided in Pond 103, which is an existing wet detention pond located on the west side of the I-4 mainline from Sta. 695+00 to Sta. 702+00. The pond was originally designed to provide floodplain compensation and has additional compensation volume for the current project. The pond provides 12.95 ac-ft. of compensation volume. Additional right-of-way is not required since Pond 103 is within the FDOT right of way. **Pond 103 is the recommended alternative for this basin.**

The second floodplain elevation is estimated at 93.13 ft. NAVD and the seasonal high water elevation is 91.00 ft. NAVD (SFWMD Permit # 020204-8). This portion of Basin 103 accounts for 2.72 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 695+00 to Sta. 698+50 on both sides of the roadway. There are two (2) alternatives for this basin, which requires one (1) proposed pond that is located outside of the FDOT right of way.

6.1.4.2 FPC 103A

Compensation is being provided in Floodplain Compensation Pond FPC 103A which is located on the east side of the I-4 mainline from Sta. 700+00 to Sta. 704+00. The pond provides 2.85 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 103A with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 103A has the least amount of impacts. **FPC 103A is the recommended alternative for this basin.**

6.1.4.3 FPC 103B

Compensation is being provided in Floodplain Compensation Pond FPC 103B which is located on the east side of the I-4 mainline from Sta. 700+00 to Sta. 704+00. The pond provides 2.72 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 103B with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). During soil borings performed by GEC, it was discovered that the northern portion of the site contained a petroleum odor. It was found in the lab that the 5 - 15 foot boring sample was saturated and had a petroleum odor. Due to the potential for petroleum contamination within the site, this alternative is not recommended.

6.1.5 Basin 105

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Osceola County. The Reedy Creek Improvement District (RCID) is not covered within the FEMA FIRM maps. RCID has established the 100-year floodplain within these limits and those values are used for the appropriate basins.

A portion of Basin 105 is located within Zone A of the 100-year floodplain. The floodplain elevation is estimated at 96.30 ft. NAVD and the seasonal high water elevation is 93.50 ft. NAVD (FDEP Permit # 49-187636-001).

In the existing condition, there are treatment ponds that provide floodplain compensation within the basin. Treatment Ponds F-2A, F-2B, F-4A, F-4B, F-7, and G-1 provide 31.82 ac-ft. of volume for a total floodplain impact of 27.32 ac-ft.

6.1.5.1 FPC 105A

In the proposed condition, floodplain compensation will be provided in Floodplain Compensation Pond FPC 105A only. The existing treatment ponds will provide attenuation and treatment for the roadway runoff. Pond FPC105A is located on the west side of the I-4 mainline from Sta. 730+00 to Sta. 745+00. Basin 105 accounts for 2.10 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 731+50 to Sta. 732+00 on the left side of the roadway and from Sta. 733+00 to Sta. 734+50 on the right side of the roadway.

FPC 105A provides floodplain compensation for the proposed roadway and the previously permitted impacts. The pond provides 29.99 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 105A with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). Numerous sand skink tracks were observed at the site during cover board surveys performed by Stantec. Mitigation costs will be included in the pond construction costs. Additional details, regarding the sand skink survey and relevant factors for this pond can be found under separate cover in the Endangered Species Biological Assessment (ESBA) March 2016. After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 105A has the least amount of impacts. **FPC 105A is the recommended alternative for this basin.**

6.1.6 Basin 109

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Osceola County; there are two (2) areas within Basin 109 located within Zone A of the 100-year floodplain.

The first floodplain elevation is 85.00 ft. NAVD and the seasonal high water elevation is 72.70 ft. NAVD (SFWMD Permit # 020204-8). This portion of Basin 109 accounts for 1.56 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 763+00 to Sta. 765+00 on the right side of the roadway.

The second floodplain elevation is 75.20 ft. NAVD and the seasonal high water elevation is 72.70 ft. NAVD (SFWMD Permit # 020204-8). This portion of Basin 109 accounts for 12.22 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 803+00 to Sta. 817+00 on the right side of the roadway and from Sta.

800+00 to Sta. 815+00 on the left side of the roadway. The total roadway floodplain impacts equal to 13.78 ac-ft.

6.1.6.1 FPC 109

Compensation is being provided in Floodplain Compensation Pond FPC 109, which is an existing borrow pit located on the east side of the I-4 mainline from Sta. 789+00 to Sta. 797+00. The borrow pit provides floodplain compensation for the I-4 mainline and an adjacent project along Celebration Boulevard, which accounts for 9.89 ac-ft. of impacts. The pond provides 24.43 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 109 with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 109 has the least amount of impacts. **FPC 109 is the recommended alternative for this basin.**

6.1.7 Basin 114

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Osceola County; there are several areas within Basin 114 located within Zone A of the 100-year floodplain. The floodplain elevation is 84.39 ft. NAVD and the seasonal high water elevation is 82.15 ft. NAVD (SFWMD Permit # 960621-13).

In the existing condition, there are floodplain compensation ponds and treatment ponds that provide floodplain compensation within the basin. Floodplain compensation ponds CP-4A, CP-4B, CP-5 and treatment ponds TP-5 and TP-6 provide 54.71 ac-ft. of compensation volume for a total floodplain impact of 39.38 ac-ft.

6.1.7.1 FPC 114C

In the proposed condition, floodplain compensation will be provided in the existing floodplain compensation Ponds CP-4A, CP-4B and CP-5 only. Treatment Ponds TP-5, TP-6 and TP-7 will provide additional treatment and attenuation volume for their respective basins. The elimination of the treatment ponds reduces the floodplain compensation volume by 22.40 ac-ft. The total compensation volume is 32.31 ac-ft., a deficit of 7.07 ac-ft.

Compensation is being provided in Floodplain Compensation Pond FPC 114C which is located on the west side of the I-4 mainline from Sta. 895+00 to Sta. 900+00. The pond provides 7.26 ac-ft. of compensation volume. The total proposed compensation volume provided equals 39.57 ac-ft. Additional right-of-way will be required for FPC 114C with an acquisition of two (2) parcels (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 114C has the least amount of impacts. **FPC 114C is the recommended alternative for this basin.**

6.1.8 Basin 132

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Orange County. The Reedy Creek Improvement District (RCID) is not covered within the FEMA FIRM maps. RCID has established the 100-year floodplain within these limits and those values are used for the appropriate basins.

There are several areas within Basin 132 located within Zone A of the 100-year floodplain. Basin 132 is part of the Epcot Center Drive Interchange (SR 536). The floodplain elevation is 85.00 ft. NAVD and the seasonal high water elevation is 82.00 ft. NAVD (SFWMD Permit # 48-00099-S). Basins 132 and 133 account for 8.89 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 1081+00 to Sta. 1084+00 on the left side of the roadway and from Sta. 1082+00 to Sta. 1086+00 on the right side of the roadway.

6.1.8.1 FPC 132 & FPC 133

Compensation is being provided in Floodplain Compensation Ponds FPC 132 and FPC 133 which is located on both sides of the I-4 mainline from Sta. 1083+00 to Sta. 1089+00. The ponds provide 12.20 ac-ft. of compensation volume. Additional right-of-way is not required since FPC 132 and FPC 133 are within the FDOT right of way. **FPC 132 and FPC 133 are the recommended alternative for this basin.**

6.1.9 Basin 138

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Orange County; a portion of Basin 138 is located within Zone AE of the Cypress Creek 100-year floodplain. The floodplain elevation is 101.00 ft. NAVD and the seasonal high water elevation is 99.00 ft. NAVD (SFWMD Permit # 000914-13). Basin 138 accounts for 2.75 ac-ft. of floodplain impacts. The limits of the impacts are approximately 1200 ft. on the northwest corner of the SR 535 and Palm Parkway intersection.

6.1.9.1 FPC 138

Compensation is being provided in Floodplain Compensation Pond FPC 138 which is located on the northwest corner of the SR 535 and Palm Parkway intersection. The pond provides 3.50 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 138 with an acquisition of two (2) parcels (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 138 has the least amount of impacts. **FPC 138 is the recommended alternative for this basin.**

6.1.10 Basin 142

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) for Orange County; a portion of Basin 142 is located within Zone A of the Lake Willis 100-year floodplain. The floodplain elevation is 107.00 ft. NAVD and the seasonal high water elevation is 103.70 ft. NAVD (SFWMD Permit # 011109-7). Basin 142 accounts for 1.39 ac-ft. of floodplain impacts. The limits of the impacts are from Sta. 1291+46 to Sta. 1302+00 on the right side of the roadway.

6.1.10.1 FPC 141

Compensation is being provided in Floodplain Compensation Pond FPC 141 which is located on the right side of the I-4 mainline from Sta. 1285+00 to Sta. 1289+00. The pond provides 1.92 ac-ft. of compensation volume. Additional right-of-way will be required for FPC 141 with an acquisition of one (1) parcel (Refer to Table 6 for parcel acquisition acreage). After consideration from the public involvement meeting and meetings with property owners, it was determined that FPC 141 has the least amount of impacts. **FPC 141 is the recommended alternative for this basin.**

7.0 Conclusion

The Pond Alternative Matrices (Tables 5-7) show a summary of the engineering data and analysis, as well as, the impact and cost analysis. The cost evaluation for the stormwater management facility alternatives in this report include stormwater management facility construction costs, costs associated with wetland impacts, cost associated with threatened or endangered species and parcel acquisition costs. The stormwater management facility construction costs include costs of installed drainage structures, drainage pipes and outfalls, clearing and grubbing, earthwork excavation and grading, berm construction, erosion protection, fencing, access accommodations and sodding. The associated parcel acquisition costs for each alternative evaluated include the estimated cost of land and any impacted improvements, administrative costs and legal fees. The recommended pond sites are shown in Tables 1 and 2.

Table 5 – Pond Engineering Data & Analysis

Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	Lowest Edge of Roadway (ft)	Outfall Location	Roadway Drainage Area (ac)	Method of Treatment	Required Treatment & Attenuation Volume (ac-ft)	Provided Treatment & Attenuation Volume (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
100	Station 607+50 to Station 614+50 FDOT Property	Smyrna (A/D) & Myakka (A/D)	113.8	117.0	Adjacent Wetlands	31.22	Wet Detention	6.83	6.83	N/A	N/A
101A	Station 629+00 to Station 632+00 FDOT Property	Candler (A) & Placid (A/D)	112.2	115.0	Adjacent Wetlands	25.35	Wet Detention	5.23	6.17	N/A	N/A
101B	Station 630+50 to Station 632+00 FDOT Property	Candler (A) & Placid (A/D)					Wet Detention			N/A	N/A
101C	Station 633+00 to Station 634+50 FDOT Property	Candler (A) & Pompano (A/D)					Wet Detention			N/A	N/A
101D	634+50 to Station 638+50 FDOT Property	Candler (A) & Pompano (A/D)					Wet Detention			N/A	N/A
101E	628+00 to Station 634+00 FDOT Property	Candler (A) & Placid (A/D)					Wet Detention			N/A	N/A
101F	634+00 to Station 635+50 FDOT Property	Candler (A)					Wet Detention			N/A	N/A
101G	636+00 to Station 640+00 FDOT Property	Candler (A)					Wet Detention			N/A	N/A
102	Station 648+00 to Station 660+00 FDOT Property	Candler (A) & Pompano (A/D)	107.5	112.0	Existing Roadside Ditch	32.32	Wet Detention	14.22	15.91	N/A	N/A
103	Station 695+00 to Station 702+00 FDOT Property	Candler (A) & Pompano (A/D)	92.5	97.0	Davenport Creek	25.49	Wet Detention	12.90	12.90	N/A	N/A
104	Station 80+50 to Station 103+00 (SR 429) FDOT Property	Candler (A)	99.0	105.0	Davenport Tributary	11.77	Wet Detention	4.53	10.83	N/A	N/A
105A	Station 731+00 to 736+30 FDOT Property	Candler (A)	93.5	97.5	Davenport Tributary	63.06	Wet Detention	19.21	27.29	N/A	N/A

Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	Lowest Edge of Roadway (ft)	Outfall Location	Roadway Drainage Area (ac)	Method of Treatment	Required Treatment & Attenuation Volume (ac-ft)	Provided Treatment & Attenuation Volume (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
105B	Station 739+00 to Station 743+50 FDOT Property	Candler (A)	93.5	97.5	Davenport Tributary	63.06	Wet Detention	19.21	27.29	N/A	N/A
106A	Station 722+00 to Station 729+00 FDOT Property	Candler (A)	93.2	99.0	Davenport Tributary	22.93	Wet Detention	9.47	13.00	N/A	N/A
106B	Station 730+00 to Station 735+00 FDOT Property	Candler (A)	93.2	99.0	Davenport Tributary	22.93	Wet Detention	9.47	13.00	N/A	N/A
107	Station 736+00 to Station 740+00 FDOT Property	Candler (A)	93.0	99.0	Davenport Tributary	6.73	Wet Detention	3.48	5.69	N/A	N/A
108A	Station 746+00 to Station 755+40 FDOT Property	Candler (A)	85.3	90.0	Davenport Tributary	28.58	Wet Detention	7.85	10.80	N/A	N/A
108B	Station 751+00 to Station 756+00 FDOT Property	Candler (A)	85.3	90.0	Davenport Tributary	28.58	Wet Detention	7.85	10.80	N/A	N/A
	Parcel No. 34-25-27-4012-0002-0013									0.10	0.10
109	Station 770+50 to Station 775+50 FDOT Property	Candler (A), Samsula (A/D) & Pomello (A/D)	82.0	86.0	Adjacent Wetlands	39.06	Wet Detention	13.70	22.43	N/A	N/A
110	Station 825+00 to Station 843+00 The Celebration Co.	Immokalee (A/D), Pompano (A/D) & Riviera (C/D)	74.15	80.0	Adjacent Wetlands	12.69	Wet Detention	6.49	10.40	0.98	3.29
	Parcel No.23-25-27-0000-0051-0000									1.37	2.76
	Parcel No.14-25-27-0000-0041-0000									5.05	64.81
111	Station 824+00 to 830+00 Celebration CDD	Immokalee (A/D) & Riviera (C/D)	74.70	78.4	Existing Roadside Ditch	13.81	Wet Detention	2.68	3.68	N/A	N/A
112A	Station 836+00 to Station 843+00 FDOT Property	Immokalee (A/D) & Pompano (A/D)	77.15	80.0	Existing Roadside Ditch	48.14	Wet Detention	8.27	10.83	N/A	N/A
112B	Station 843+00 to Station 847+00 FDOT Property	Immokalee (A/D) & Pompano (A/D)	77.15	80.0	Existing Roadside Ditch	48.14	Wet Detention	8.27	10.83	N/A	N/A
112C	Station 848+00 to Station 851+00 FDOT Property	Immokalee (A/D) & Pompano (A/D)	77.15	80.0	Existing Roadside Ditch	48.14	Wet Detention	8.27	10.83	N/A	N/A
112D	Station 852+50 to Station 856+00 FDOT Property	Immokalee (A/D) & Pompano (A/D)	77.15	80.0	Existing Roadside Ditch	48.14	Wet Detention	8.27	10.83	N/A	N/A
112E	Station 845+00 to Station 850+00 FDOT Property	Immokalee (A/D) & Pompano (A/D)	77.15	80.0	Existing Roadside Ditch	48.14	Wet Detention	8.27	10.83	N/A	N/A
113A	844+00 to Station 846+00 FDOT Property	Immokalee (A/D) & Wabasso (C/D)	77.15	80.0	Existing Roadside Ditch	39.55	Wet Detention	6.30	6.30	N/A	N/A

Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	Lowest Edge of Roadway (ft)	Outfall Location	Roadway Drainage Area (ac)	Method of Treatment	Required Treatment & Attenuation Volume (ac-ft)	Provided Treatment & Attenuation Volume (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
113B	848+00 to Station 850+00 FDOT Property	Immokalee (A/D) & Wabasso (C/D)	77.15	80.0	Existing Roadside Ditch	39.55	Wet Detention	6.30	6.30	N/A	N/A
113C	Station 851+00 to Station 855+00 FDOT Property	Immokalee (A/D) & Wabasso (C/D)	77.15	80.0	Existing Roadside Ditch	39.55	Wet Detention	6.30	6.30	N/A	N/A
113D	Station 855+00 to Station 860+00 FDOT Property	Pompano (A/D) & Wabasso (C/D)	77.15	80.0	Existing Roadside Ditch	39.55	Wet Detention	6.30	6.30	N/A	N/A
113E	Station 850+10 to Station 851+20 FDOT Property	Pompano (A/D) & Wabasso (C/D)	77.15	80.0	Existing Roadside Ditch	39.55	Wet Detention	6.30	6.30	N/A	N/A
113F	Station 847+20 to Station 848+70 FDOT Property	Immokalee (A/D) & Wabasso (C/D)	77.15	80.0	Existing Roadside Ditch	39.55	Wet Detention	6.30	6.30	N/A	N/A
113G	Station 850+00 to Station 852+00 FDOT Property	Immokalee (A/D) & Wabasso (C/D)	77.15	80.0	Existing Roadside Ditch	39.55	Wet Detention	6.30	6.30	N/A	N/A
114A	Station 869+00 to Station 875+40 Enterprise Comm. Development District	Myakka (A/D) & Smyrna (A/D)	78.70	83.20	Adjacent Wetlands	40.98	Wet Detention	6.50	6.98	N/A	N/A
114B	Station 875+70 to Station 882+00 Enterprise Comm. Development District	Myakka (A/D) & Smyrna (A/D)	78.70	83.20	Adjacent Wetlands	40.98	Wet Detention	6.50	6.98	N/A	N/A
115	Station 871+00 to Station 876+00 Celebration CDD	Pompano (A/D) & Riviera (C/D)	72.2	83.9	Adjacent Wetlands	26.65	Wet Detention	5.96	10.09	N/A	N/A
116	Station 920+00 to Station 924+00 FDOT Property	Immokalee (A/D) & Pompano (A/D)	82.2	85.7	Existing Roadside Ditch	8.5	Wet Detention	0.93	0.93	N/A	N/A
117	Station 921+00 to Station 933+00 Celebration CDD	Immokalee (A/D), Pompano (A/D) & Smyrna (A/D)	81.2	87.2	Existing Roadside Ditch	39.22	Wet Detention	6.32	7.64	N/A	N/A
118	Station 932+00 to Station 939+00 FDOT Property	Basinger (A/D), Immokalee (A/D), Placid (A/D) & Pompano (A/D)	85.0	88.5	Adjacent Wetlands	4.32	Wet Detention	0.61	0.80	N/A	N/A

Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	Lowest Edge of Roadway (ft)	Outfall Location	Roadway Drainage Area (ac)	Method of Treatment	Required Treatment & Attenuation Volume (ac-ft)	Provided Treatment & Attenuation Volume (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
119A	Station 940+00 to Station 944+50 FDOT Property	Placid (A/D) & Smyrna (A/D)	85.5	90.0	Adjacent Wetlands	19.59	Wet Detention	3.25	3.30	N/A	N/A
119B	Station 945+50 to Station 950+00 FDOT Property										
120	Station 943+00 to Station 946+00 FDOT Property	Immokalee (A/D), Placid (A/D) & Smyrna (A/D)	86.0	90.5	Existing Roadside Ditch	15.85	Wet Detention	1.64	1.80	N/A	N/A
121A	Station 965+00 to Station 967+50 FDOT Property	Arents (A)	86.0	91.0	Adjacent Wetlands	17.85	Wet Detention	7.50	7.97	N/A	N/A
121B	Station 966+00 to Station 971+00 FDOT Property										
122A	Station 965+00 to Station 967+80 FDOT Property	Arents (A)	85.49	88.0	Existing Roadside Ditch	32.98	Wet Detention	12.52	12.52	N/A	N/A
122B	Station 969+00 to Station 978+50 FDOT Property										
122C	Station 978+00 to Station 982+00 FDOT Property										
123	Station 974+00 to Station 977+00 FDOT Property	Arents (A)	86.5	91.5	Adjacent Wetlands	9.38	Wet Detention	2.93	4.61	N/A	N/A
124	Station 978+00 to Station 982+00 FDOT Property	Arents (A)	86.5	88.5	Adjacent Wetlands	8.63	Wet Detention	3.68	5.96	N/A	N/A
125	Station 979+00 to Station 983+00 FDOT Property	Arents (A)	83.5	85.8	Existing Roadside Ditch	7.66	Wet Detention	4.68	11.08	N/A	N/A
126	Station 985+00 to Station 989+00 FDOT Property	Arents (A) & Myakka (A/D)	85.0	89.1	Existing Roadside Ditch	18.93	Wet Detention	7.00	7.54	N/A	N/A
127	Station 1017+50 to Station 1022+50 FDOT Property	Existing FDOT Pond									
128A	Station 1021+00 to Station 1025+00 FDOT Property	Myakka (A/D)	87.2	90.8	Existing Roadside Ditch	44.49	Wet Detention	10.90	14.56	N/A	N/A
128B	Station 1025+00 to Station 1031+00 FDOT Property										
129	Station 1031+50 to Station 1035+50 FDOT Property	Existing FDOT Pond									
130	Station 1041+00 to Station 1052+00 FDOT Property	Sanibel muck, Smyrna-Smyrna, Myakka Placid (A/D) & Arents (A)	82.1	85.0	Bonnet Creek	61.87	Wet Detention	24.76	25.43	N/A	N/A

Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	Lowest Edge of Roadway (ft)	Outfall Location	Roadway Drainage Area (ac)	Method of Treatment	Required Treatment & Attenuation Volume (ac-ft)	Provided Treatment & Attenuation Volume (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
130A	Station 1040+00 to Station 1059+00 Parcel No. 32-24-28-0000-00-002									12.82	40.30
131A	Station 1071+00 to Station 1077+00 FDOT Property	Sanibel muck (A/D) & Smyrna (A/D)	85.1	86.2	Adjacent Wetlands	44.94	Wet Detention	9.69	10.22	N/A	N/A
131B	Station 1074+00 to Station 1082+00 Parcel ID No. 33-24-28-0000-00-007									9.11	71.3
132	Station 1091+00 to Station 1099+00 FDOT Property	Basinger (A/D) & Smyrna (A/D)	90.0	93.0	Adjacent Wetlands	159.27	Wet Detention	39.54	59.38	N/A	N/A
133	Station 1091+00 to Station 1100+00 FDOT Property										
134	Station 1103+00 to Station 1108+00 FDOT Property										
135	Station 1103+00 to Station 1110+00 FDOT Property										
136A	Station 1131+00 to Station 1138+00 Parcel ID No.28-24-28-0000-00-002	Archbold (A) & Sanibel (A/D)	97.6	103.0	Existing Roadside Ditch	23.40	Wet Detention	4.93	9.96	5.15	24.69
136B	Station 1140+00 to Station 1147+00 Parcel ID No. 28-24-28-0000-00-002	Archbold (A) & Sanibel (A/D)	98.0	103.0	Existing Roadside Ditch	23.40	Wet Detention	5.68	8.69	4.66	24.69
137	Station 1165+00 to Station 1174+00 FDOT Property	St. Lucie (A) & Urban Land (D)	106.2	109.7	Existing Roadside Ditch	45.44	Wet Detention	5.03	16.26	N/A	N/A
137A	Station 1169+00 to Station 1177+00 FDOT Property										
137B	Station 1177+00 to Station 1180+00 FDOT Property										
138, 138A & 138B	Station 1193+00 to Station 1211+00 Parcel ID No. 28-24-22-0000-00-029	Basinger (A/D), Immokalee (A/D), Pomello (A/D), St. Johns (B/D), Smyrna (A/D) & Zolfo (A)	100.5	105.0	Existing Roadside Ditch	119.96	Wet Detention	26.39	68.71	0.39	0.39
	Parcel ID No. 28-24-22-0000-00-027									0.41	0.41
	Parcel ID No. 28-24-22-0000-00-031									0.43	0.43
	Parcel ID No. 28-24-22-0000-00-035									0.66	0.66
	Parcel ID No. 28-24-22-0000-00-032									1.79	1.79
	Parcel ID No. 28-24-22-0000-00-034									0.15	0.15
	Parcel ID No. 28-24-22-0000-00-028									0.42	0.42
	Parcel ID No. 28-24-22-0000-00-030									0.66	0.66
	Parcel ID No. 28-24-22-0000-00-033									24.73	31.70
139A	Station 1267+00 to Station 1271+00 FDOT Property	Candler (A) & Smyrna (A/D)	127.7	130.0	Existing Roadside Ditch	11.72	Wet Detention	7.09	8.18	N/A	N/A

Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	Lowest Edge of Roadway (ft)	Outfall Location	Roadway Drainage Area (ac)	Method of Treatment	Required Treatment & Attenuation Volume (ac-ft)	Provided Treatment & Attenuation Volume (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
	Parcel ID No. 14-24-28-0000-00-020									1.57	16.07
139B	Station 1273+00 to Station 1277+00 FDOT Property	Candler (A) & Smyrna (A/D)	127.7	130.0	Existing Roadside Ditch	11.72	Wet Detention	7.09	8.18	N/A	N/A
	Parcel ID No. 28-24-14-0000-00-006									1.61	32.60
140	Station 1273+00 to Station 1280+00 FDOT Property	Pomello (A/D), St. Lucie (A) & Smyrna (A/D)	127.2	131.0	Existing Roadside Ditch	15.09	Wet Detention	3.07	3.10	N/A	N/A
	Parcel ID No. 14-24-28-0000-00-018									1.51	3.83
142B	Station 1317+00 to Station 1333+00 Parcel ID No. 11-24-28-0000-00-027	Basinger (A/D), Seffner (A/D), Tavares (A) & Tavares - Millhopper (A)	97.5	105.0	Big Sand Lake	70.40	Dry Retention	16.93	17.71	2.53	2.53
	Parcel ID No. 11-24-28-0000-00-004									2.01	18.64
	Parcel ID No. 11-24-28-0000-00-003									5.06	48.99
	Parcel ID No. 11-24-28-0000-00-024									0.42	38.82

Table 6 – Floodplain Compensation Pond Engineering Data & Analysis

FPC Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	100 YR Floodplain Elevation (ft)	Required Compensation (ac-ft)	Storage Provided (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
100	Station 600+00 to 609+00 Parcel ID No. 27-26-04-0000-0003-3010	Placid (A/D) & Tavares (A)	113.8	115.00	6.06	6.41	5.64	32.85
	Parcel ID No. 27-26-04-0000-0003-3020						2.50	12.97
101A	Station 628+00 to 631+00 Parcel ID No. 27-26-04-000000-011010	Candler & Tavares (A)	113.8	115.00	2.30	2.78	4.56	45.53
102	Station 658+00 to Station 663+00 Parcel ID No. 35-25-27-4895-PRCL-01C0	Pomello (A/D) & Pompano (A/D)	107.5	108.98	2.73	3.36	0.83	108.82
	Parcel ID No. 34-25-27-4012-0001-0010						2.34	200.79
103A	Station 696+00 to Station 699+00 Parcel ID No. 35-25-27-4895-PRCL-01C0	Candler (A) & Pompano (A/D)	91.0	93.13	2.72	2.85	2.06	108.82
103B	Station 700+00 to Station 704+00 Parcel ID No. 27-25-27-2985-TRAC-FD30	Candler (A) & Pomello (A/D) & Pompano (A/D)	91.0	93.13	2.72	2.72	1.87	13.81

FPC Pond	Location	Soil Names & Hydrologic Groups	Estimated SHWT El. (ft)	100 YR Floodplain Elevation (ft)	Required Compensation (ac-ft)	Storage Provided (ac-ft)	Required Add. Pond Area Including Access (ac)	Total Parcel Available (ac)
105A	Station 41+00 to Station 59+00 (SR429) Parcel ID No. 22-25-27-3160-000C-0010	Candler (A) & Pomello (A/D) Hontoon (A/D)	93.50	96.30	29.42	29.99	16.10	78.80
109	Station 789+00 to Station 797+00 Parcel ID No. 23-25-27-0000-0012-0000	Myakka (A/D) & Riviera (C/D)	72.7	75.2	13.78	24.43	11.16	30.67
114A	Station 869+00 to Station 876+00 The Celebration Co.	Basinger (A/D) & Myakka (A/D)	82.15	84.39	7.07	7.26	N/A	N/A
114B	Station 877+00 to Station 882+00 The Celebration Co.						N/A	N/A
114C	Station 895+00 to Station 900+00 Parcel ID No. 13-25-27-0000-0035-0000 Parcel ID No. 12-25-27-0000-0010-0000						Myakka (A/D)	3.37
132 & 133	Station 1083+00 to Station 1087+00 FDOT Property	Basinger (A/D), Sanibel (A/D) & Smyrna (A/D)	82.0	85.0	8.89	12.20	N/A	N/A
	Station 1084+00 to Station 1089+00 FDOT Property						N/A	N/A
138	NW Corner of SR 535/Palm Parkway Intersection Parcel ID No. 21-24-28-5844-00-320	Smyrna-Smyrna (A/D)	99.0	101.0	2.75	3.50	2.84	5.24
	Parcel ID No. 21-24-28-5844-00-010						0.03	4.91
141	Station 1285+00 to Station 1289+00 Parcel ID No. 14-24-28-0000-00-006	Basinger (A/D), Pomello (A/D) & St. Lucie (A)	103.7	107.0	1.39	1.92	4.17	32.60

Table 7 – Pond and Floodplain Compensation Pond Impact & Cost Analysis

Pond	Existing Land Use	Threatened or Endangered Species Impacts	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Floodplain Impacts (ac-ft)	Wetland/ Surface Water Impacts (ac)		Total Pond Cost	Rankings
Pond 100	Industrial	High	Low	N	6.06	3.6	0.19	\$801,159	1
Pond 101A	Industrial	Moderate	Low	Y	2.30	0.00		\$565,649	1
Pond 101D	Industrial	Moderate	Low						
101B,101C, 101E,101F & 101G	Industrial	Low	Low						

Pond	Existing Land Use	Threatened or Endangered Species Impacts	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Floodplain Impacts (ac-ft)	Wetland/ Surface Water Impacts (ac)	Total Pond Cost	Rankings
Pond 102	Public / Semi-Public	High	Low	N	2.73	0.00	\$25,226	1
Pond 103	Public / Semi-Public	High	Low	N	12.12	0.21	\$275,339	1
Pond 104	Industrial	High	Low	N	0.00	0.00	\$0.00*	1
Pond 105A	Industrial	Moderate	Low	N	29.42	0.00	\$118,824	1
Pond 105B	Industrial	High	Low	N		0.00		1
Pond 106A	Industrial	Moderate	Medium	N	0.00	0.00	\$122,120	1
Pond 106B	Industrial	Moderate	Medium	Y	0.00	0.00		1
Pond 107	Industrial	Moderate	Low	N	0.00	0.00	\$16,905	1
Pond 108A	Industrial	Moderate	Low	Y	0.00	0.00	\$168,100	1
Pond 108B	Public / Semi-Public	Moderate	Low	Y	0.00	2.80	\$1,078,583	1
Pond 109	Public / Semi-Public	High	Low	Y	13.78	0.00	\$662,042	1
Pond 110	Acreage Not Zoned For Agriculture	High	Low	Y	0.00	0.00	\$2,888,003	1
Pond 111	Centrally Assessed	High	Low	N	0.00	0.00	\$0.00*	1
Pond 112A & 112B	Industrial	Moderate	Low	N	0.00	0.00	\$1,277,851	1
Pond 112C	Industrial	Moderate	Low	Y	0.00	0.00		1
Pond 112D & Pond 112E	Industrial	Moderate	Low	Y	0.00	0.00		1
Pond 113A,B,C,D	Industrial	Moderate	Low	Y	0.00	0.00	\$454,352	1
Pond 113E & Pond 113F	Industrial	Low	Low	N	0.00	0.00		1
Pond 113G	Industrial	Moderate	Low					
Pond 114A & Pond 114B	Centrally Assessed	High	Low	Y	7.07	0.00	\$0.00*	1
Pond 115	Centrally Assessed & Agricultural	High	Low	N	0.00	0.00	\$0.00*	1

Pond	Existing Land Use	Threatened or Endangered Species Impacts	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Floodplain Impacts (ac-ft)	Wetland/ Surface Water Impacts (ac)		Total Pond Cost	Rankings
Pond 116	Industrial	High	Low	N	0.00	0.00		\$0.00*	1
Pond 117	Centrally Assessed	Moderate	Low	N	0.00	0.00		\$0.00*	1
Pond 118	Industrial	Moderate	Low	N	0.00	0.00		\$101,386	1
Pond 119A & Pond 119B	Vacant Nonresidential	High	Low	Y	0.00	0.02		\$59,805	1
Pond 120	Acreage not zoned for Agriculture	Moderate	Low	N	0.00	0.00		\$116,146	1
Pond 121A & Pond 121B	Industrial	Moderate	Low	N	0.00	0.00		\$235,368	1
Pond 122A & Pond 122C	Industrial	Moderate	Low	N	0.00	0.26		\$247,749	1
Pond 122B	Industrial	Moderate	Low	Y	0.00	0.00		\$37,368	1
Pond 123	Industrial	Moderate	Low	Y	0.00	0.00		\$35,898	1
Pond 124	Industrial	Moderate	Low	N	0.00	0.00		\$43,606	1
Pond 125	Industrial	Moderate	Low	Y	0.00	0.00		\$28,628	1
Pond 126	Industrial	Moderate	Low	N	0.00	0.00		\$114,373	1
Pond 127	Industrial	High	Low	N	0.00	0.00		\$0.00*	N/A
Pond 128A	Industrial	Moderate	Low	Y	0.00	0.00		\$46,987	1
Pond 128B	Industrial	Moderate	Low	N	0.00	0.00		\$29,409	1
Pond 129	Industrial	High	Low	N	0.00	0.00		\$0.00*	N/A
Pond 130	Water	Moderate	Low	N	0.00	0.00		\$682,623	1
Pond 130A	Water	Moderate	Low	Y	0.00	0.73	3.73	\$8,837,818	1
Pond 131A	Industrial	Moderate	Low	Y	0.00	0.00		\$147,095	1
Pond 131B	Agriculture	High	Low	N	0.00	1.24		\$6,222,292	1
Pond 132	Industrial	Moderate	Low	N	8.89	9.81		\$1,451,943	1

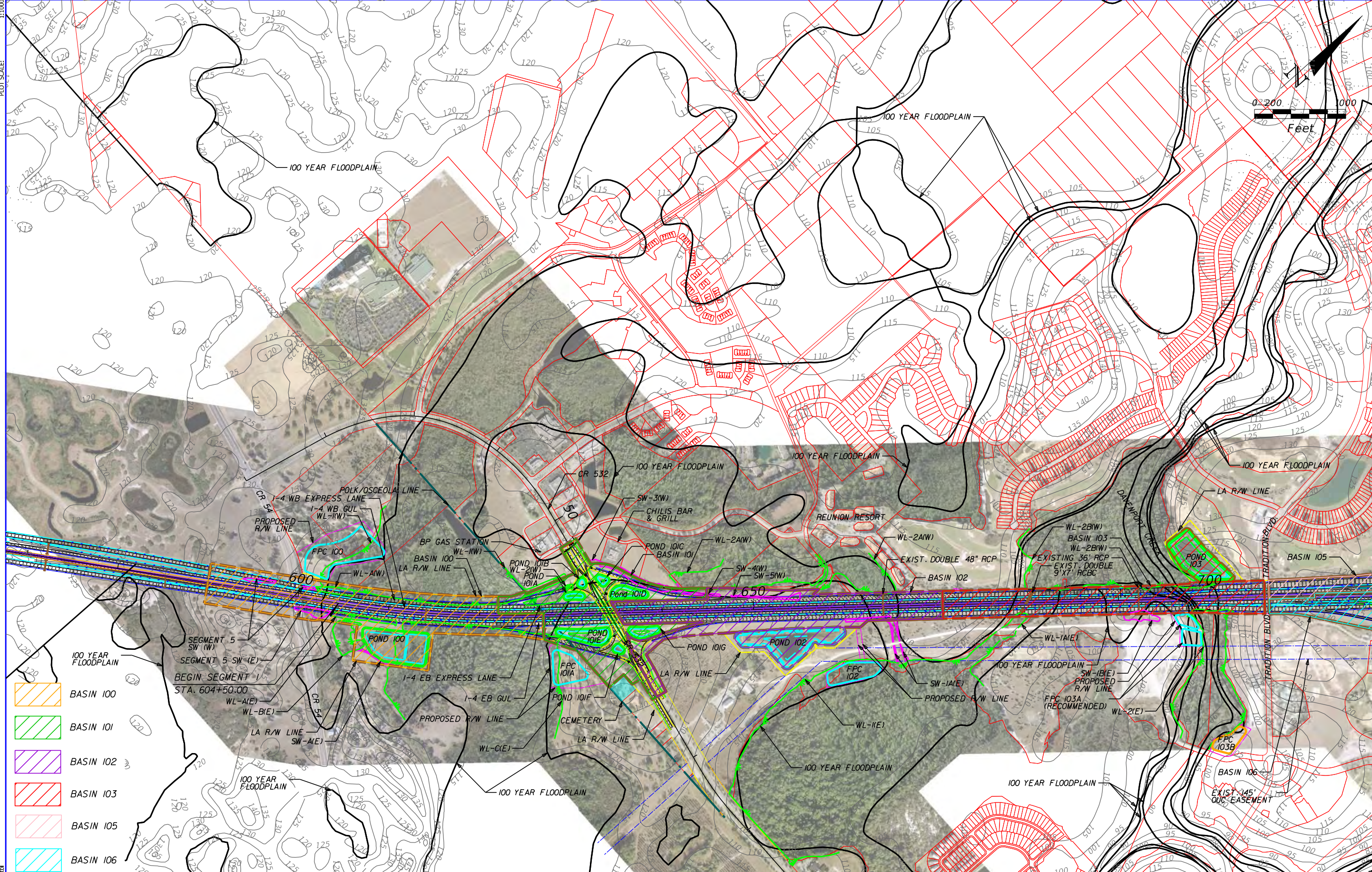
Pond	Existing Land Use	Threatened or Endangered Species Impacts	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Floodplain Impacts (ac-ft)	Wetland/ Surface Water Impacts (ac)		Total Pond Cost	Rankings
Pond 133	Industrial	Moderate	Low	N		10.05		\$1,968,087	1
Pond 134	Industrial	Moderate	Low	N	0.00	11.58		\$2,147,505	1
Pond 135	Industrial	Moderate	Low	Y	0.00	0.00		\$922,011	1
Pond 136A	Vacant Nonresidential	High	Low	N	0.00	0.00		\$7,049,487	2
Pond 136B	Vacant Nonresidential	Moderate	Medium	N	0.00	0.00		\$6,572,193	1
Pond 137	Industrial	Moderate	Low	Y	0.00	0.00	0.75	\$1,442,346	1
Pond 137A	Industrial	Moderate	Low	Y	0.00	0.00			1
Pond 137B	Industrial	Moderate	Low	Y	0.00	0.00			1
Pond 138	Acreage not zoned for Agriculture	Moderate	Medium	Y	2.75	0.00		\$62,091,151	1
Pond 138A	Acreage not zoned for Agriculture	Low	Medium	Y		0.00			1
Pond 138B	Acreage not zoned for Agriculture	Low	Medium	Y		0.82			1
Pond 139A	Other	High	Low	Y	0.00	0.00		\$2,277,197	1
Pond 139B	Other	High	Low	Y	0.00	0.00		\$4,565,423	1
Pond 140	Other / Vacant Nonresidential	High	Low	N	0.00	0.00		\$2,063,559	1
Pond 142B	Agricultural	High	Medium	Y	1.39	0.00		\$13,350,188	1
FPC 100	Agricultural	High	Medium	N	0.00	2.14		\$2,319,834	1
FPC 101A	Agricultural	High	Medium	N	0.00	1.02		\$1,165,745	1
FPC 102	Acreage not zoned for Agriculture	High	Medium	Y	0.00	2.95		\$1,467,137	1
FPC 103A	Public / Semi-Public	High	Low	Y	0.00	0.06		\$1,047,053	1
FPC 103B	Acreage not zoned for Agriculture	Low	Low	N	0.00	0.04		\$1,372,254	2

Pond	Existing Land Use	Threatened or Endangered Species Impacts	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Floodplain Impacts (ac-ft)	Wetland/ Surface Water Impacts (ac)		Total Pond Cost	Rankings
FPC 105A	Public / Semi-Public	High	Medium	Y	0.00	3.67		\$7,780,653	1
FPC 109	Public / Semi-Public	High	Low	N	0.00	0.00		\$3,219,000	1
FPC 114A & FPC 114B	Agricultural	High	Low	Y	0.00	0.00		\$0.00*	1
FPC 114C						0.30		\$1,815,534	
FPC 132	Industrial	Moderate	Low	N	0.00	1.37		\$720,118	1
FPC 133	Industrial	Moderate	Low	N		3.41			1
FPC 138	Acreage not zoned for Agriculture	Moderate	Low	N	0.00	1.41		\$865,195	1
FPC 141	Agricultural	High	Low	N	0.00	2.20	1.02	\$5,055,958	1

* Since there are no proposed changes to this pond, the total pond cost is \$0.

APPENDIX A – DRAINAGE MAPS

MODEL: 16.5x10.6 (ft.)
 SHEET SIZE: 11,000
 PLOT SCALE:



- BASIN 100
- BASIN 101
- BASIN 102
- BASIN 103
- BASIN 105
- BASIN 106

MATCHLINE STA 718+00.00

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 PEN TABLE:
 Color_FOOTPRINT.dwg
 FOOT.tbl

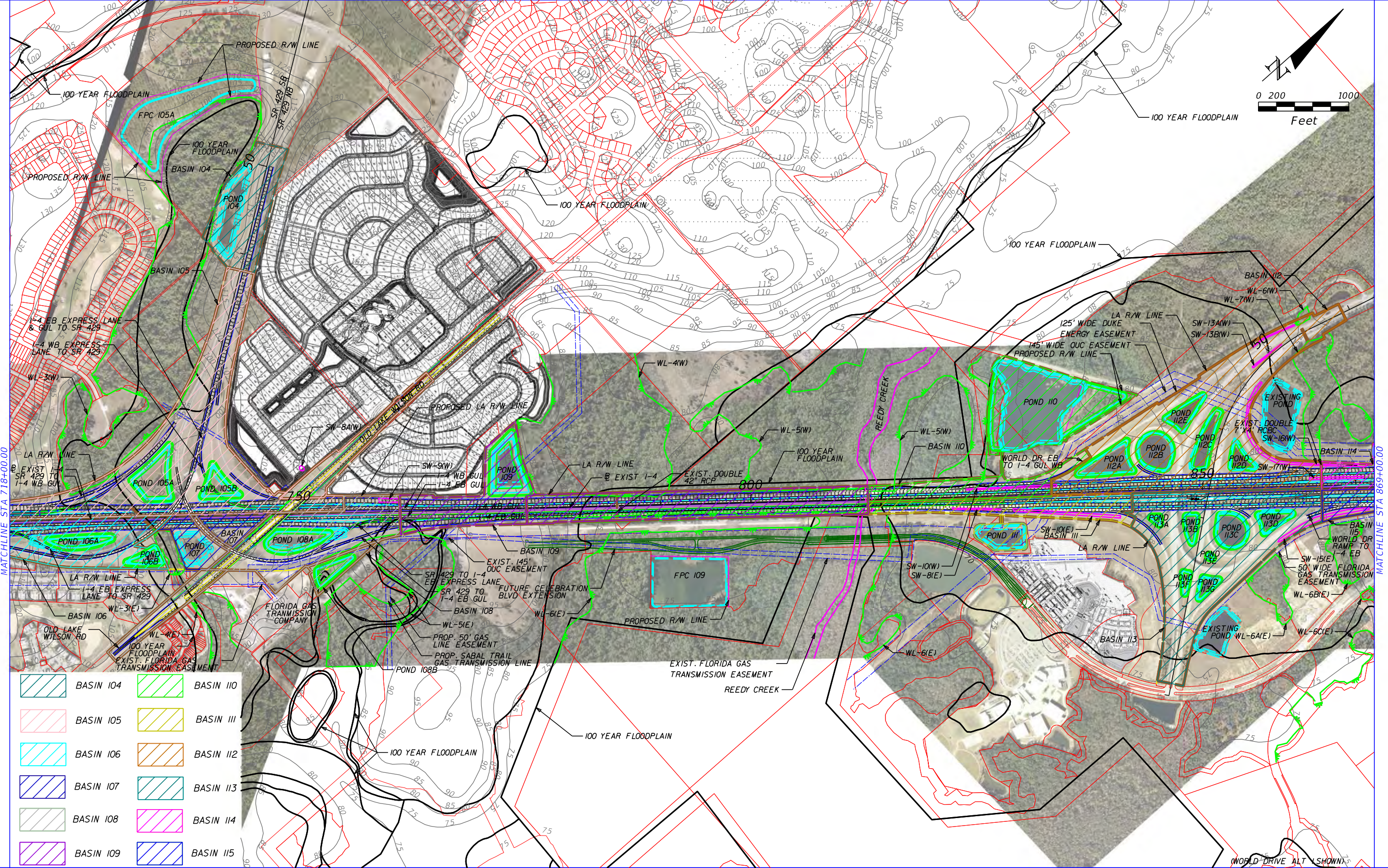
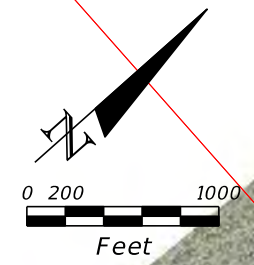
REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
 OVERALL DRAINAGE MAP
 SEGMENT 1**

SHEET NO.
 A-1



MATCHLINE STA 718+00.00

MATCHLINE STA 869+00.00

	BASIN 104		BASIN 110
	BASIN 105		BASIN 111
	BASIN 106		BASIN 112
	BASIN 107		BASIN 113
	BASIN 108		BASIN 114
	BASIN 109		BASIN 115

REVISIONS	
DATE	DESCRIPTION

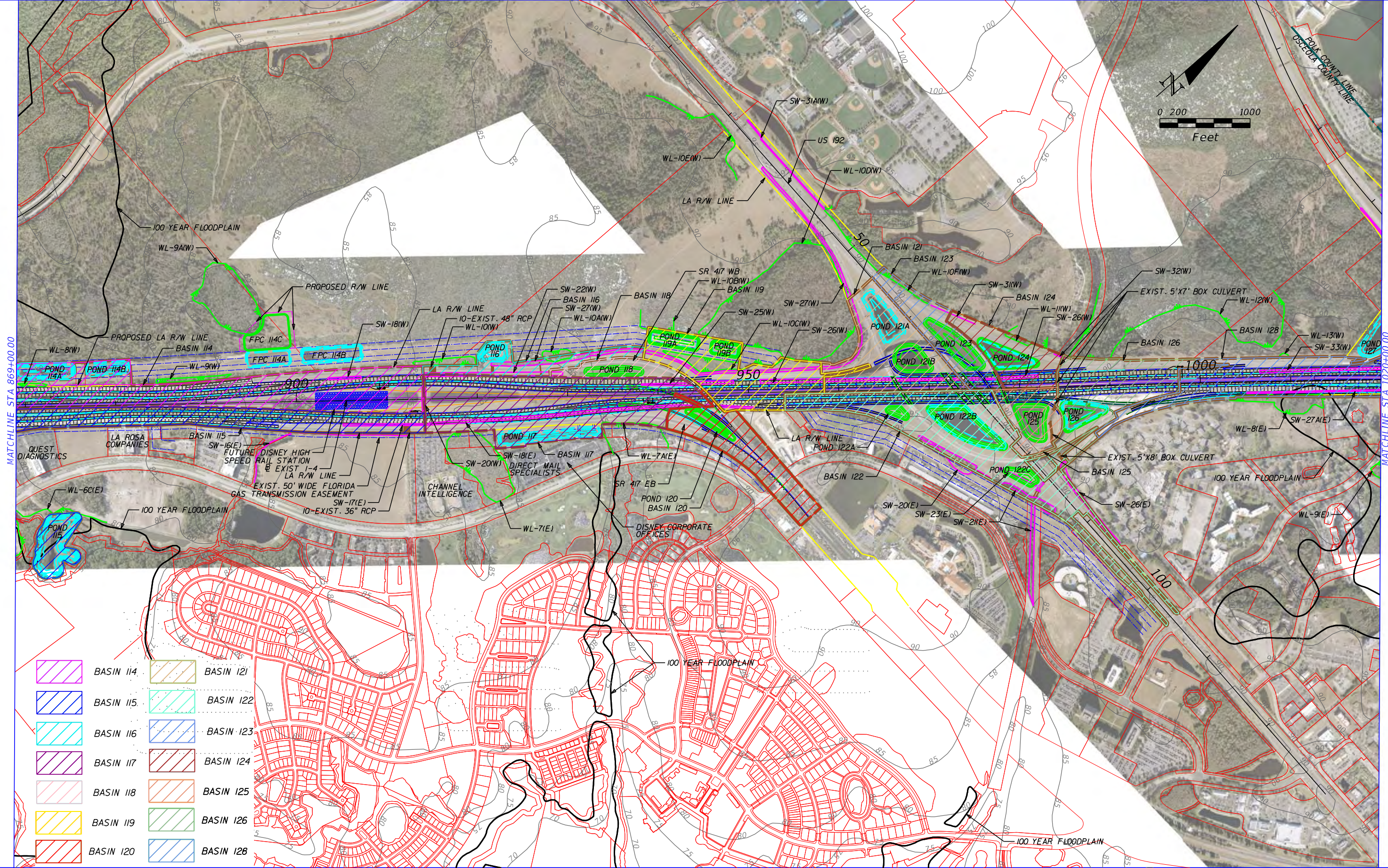
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
OVERALL DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-2



MATCHLINE STA 869+00.00

MATCHLINE STA 1020+00.00

	BASIN 114		BASIN 121
	BASIN 115		BASIN 122
	BASIN 116		BASIN 123
	BASIN 117		BASIN 124
	BASIN 118		BASIN 125
	BASIN 119		BASIN 126
	BASIN 120		BASIN 128

REVISIONS	
DATE	DESCRIPTION

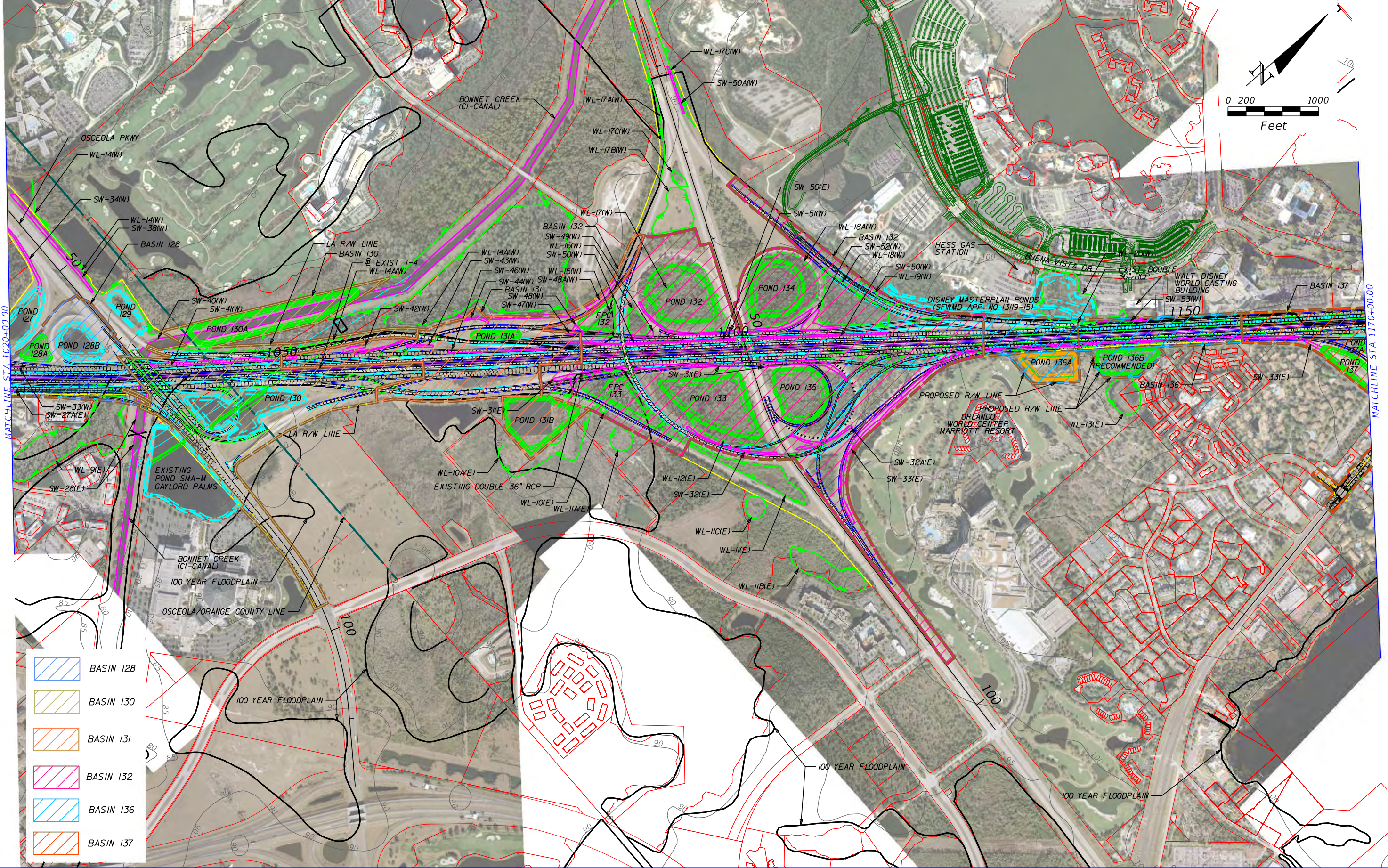
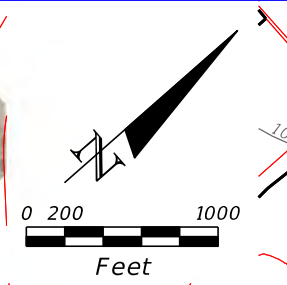
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
 OVERALL DRAINAGE MAP
 SEGMENT 1**

SHEET NO.
 A-3



- BASIN 128
- BASIN 130
- BASIN 131
- BASIN 132
- BASIN 136
- BASIN 137

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

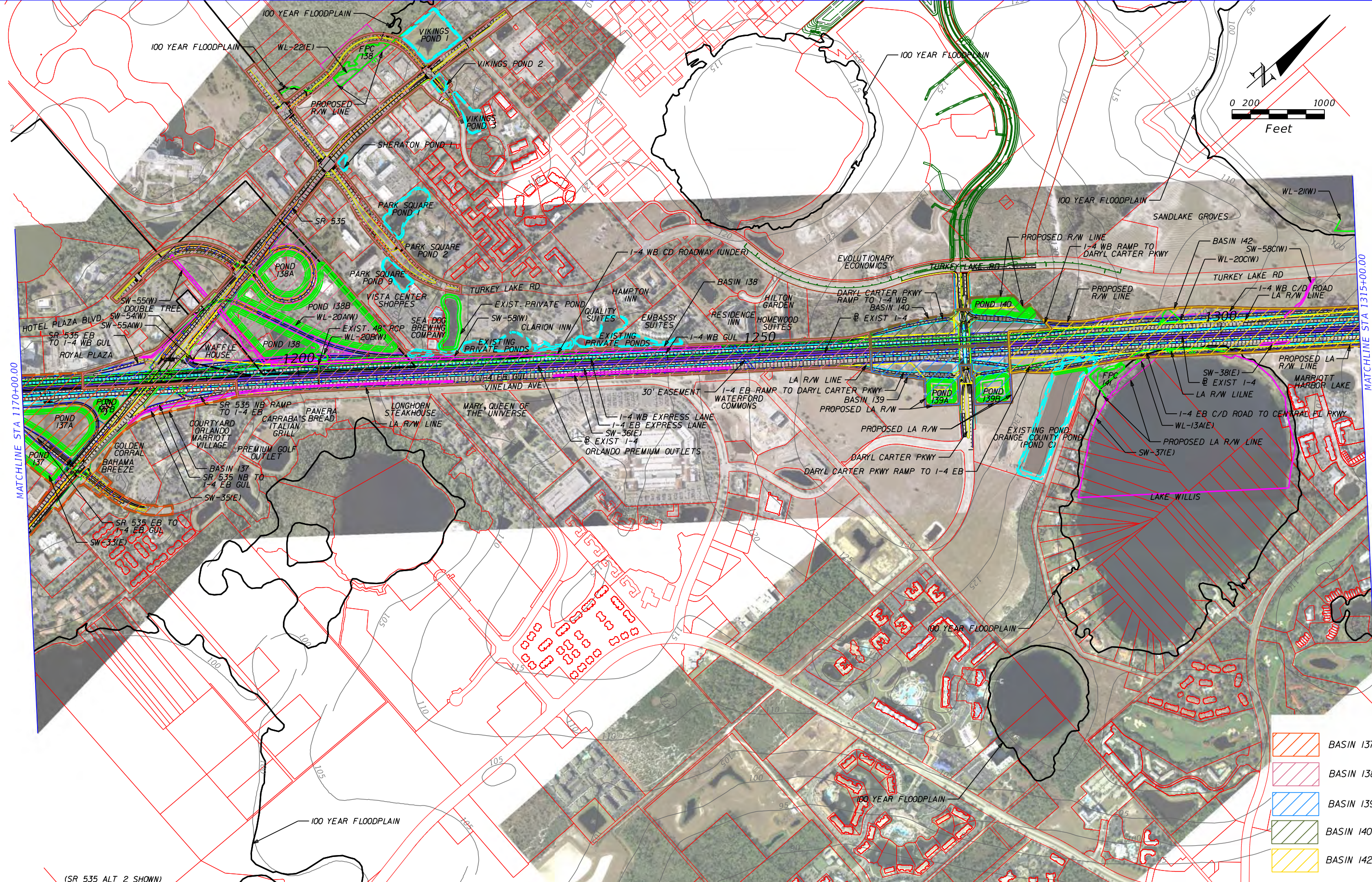
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
 OVERALL DRAINAGE MAP
 SEGMENT 1**

SHEET NO.
 A-4



MATCHLINE STA 1170+00.00

MATCHLINE STA 1315+00.00

(SR 535 ALT 2 SHOWN)

- BASIN 137
- BASIN 138
- BASIN 139
- BASIN 140
- BASIN 142

REVISIONS		REVISIONS	
DATE	DESCRIPTION	DATE	DESCRIPTION

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

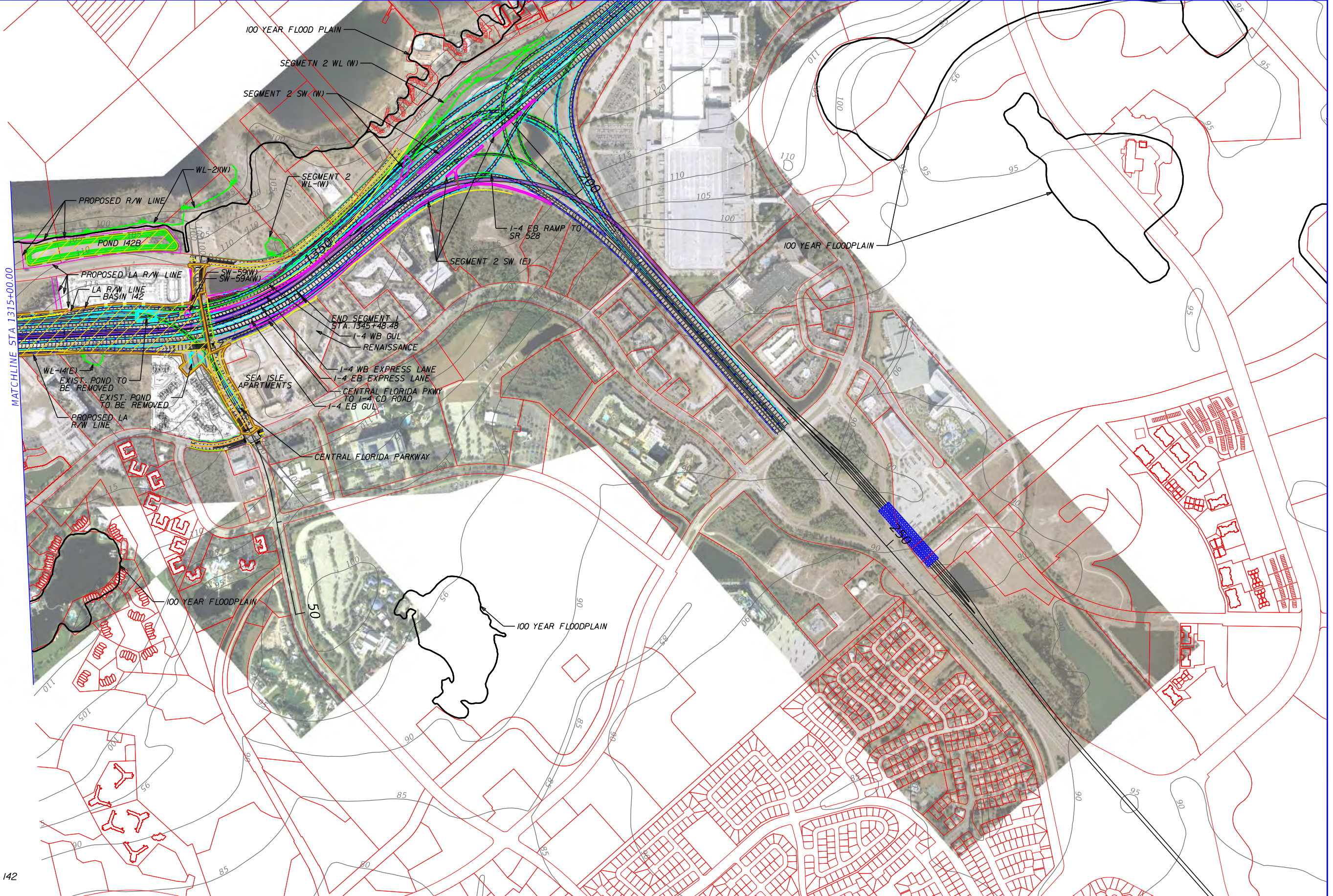
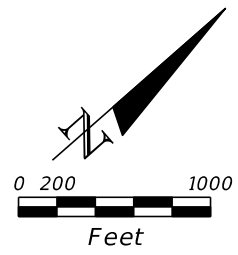
ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
OVERALL DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-5

dmprcd
16.8x10.6 (ft.)
1:10000.0



MATCHLINE STA 1315+00.00

BASIN 142

PRINT DRIVER:
PEN TABLE:
Color: FOOTPRINT.dwg
FOOT.tbl

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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

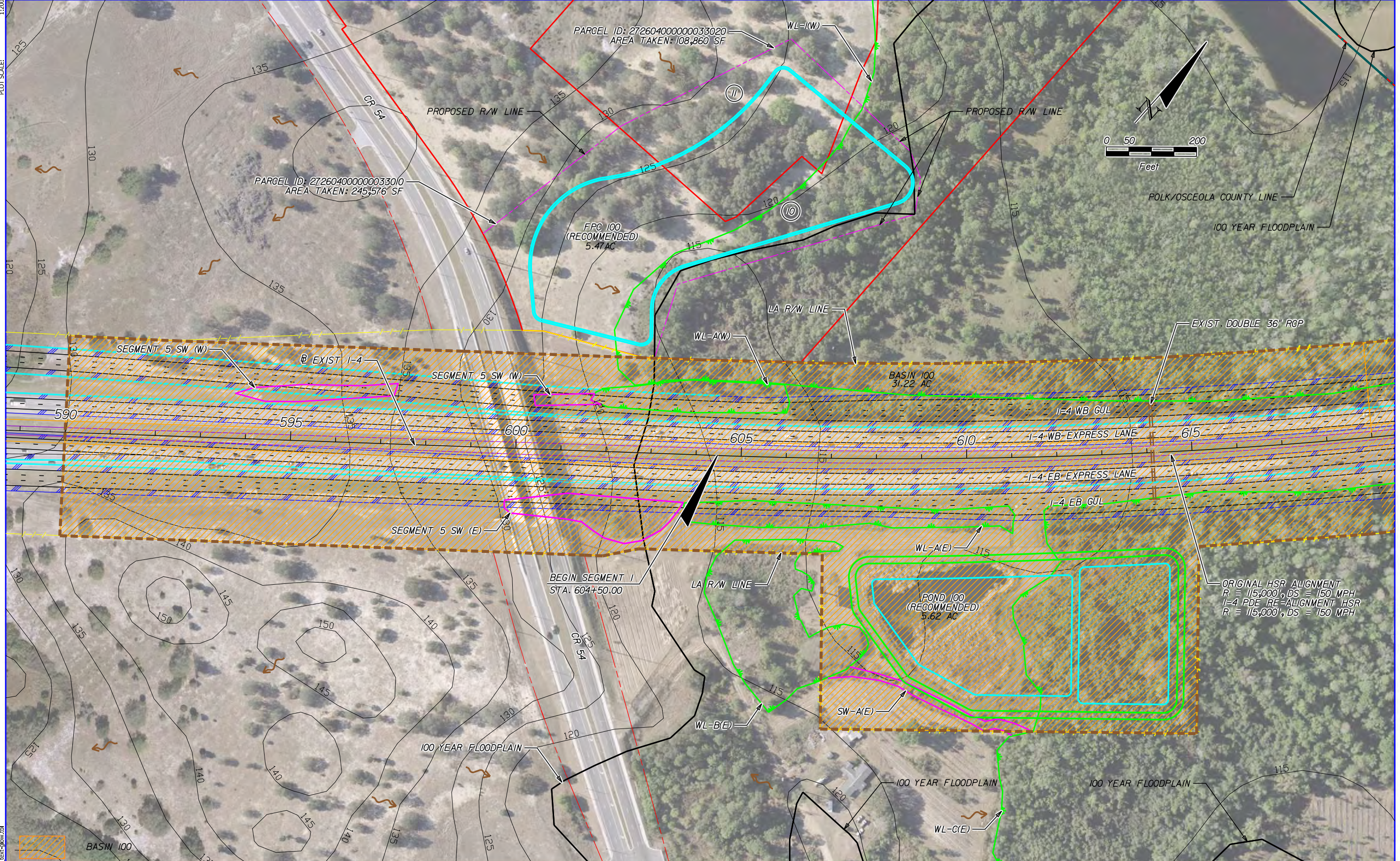
ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
OVERALL DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-6

dmrpd01a
 MODEL: 16.5x10.6 (ft.)
 SHEET SIZE: 1:200
 PLOT SCALE:



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

REVISIONS	
DATE	DESCRIPTION

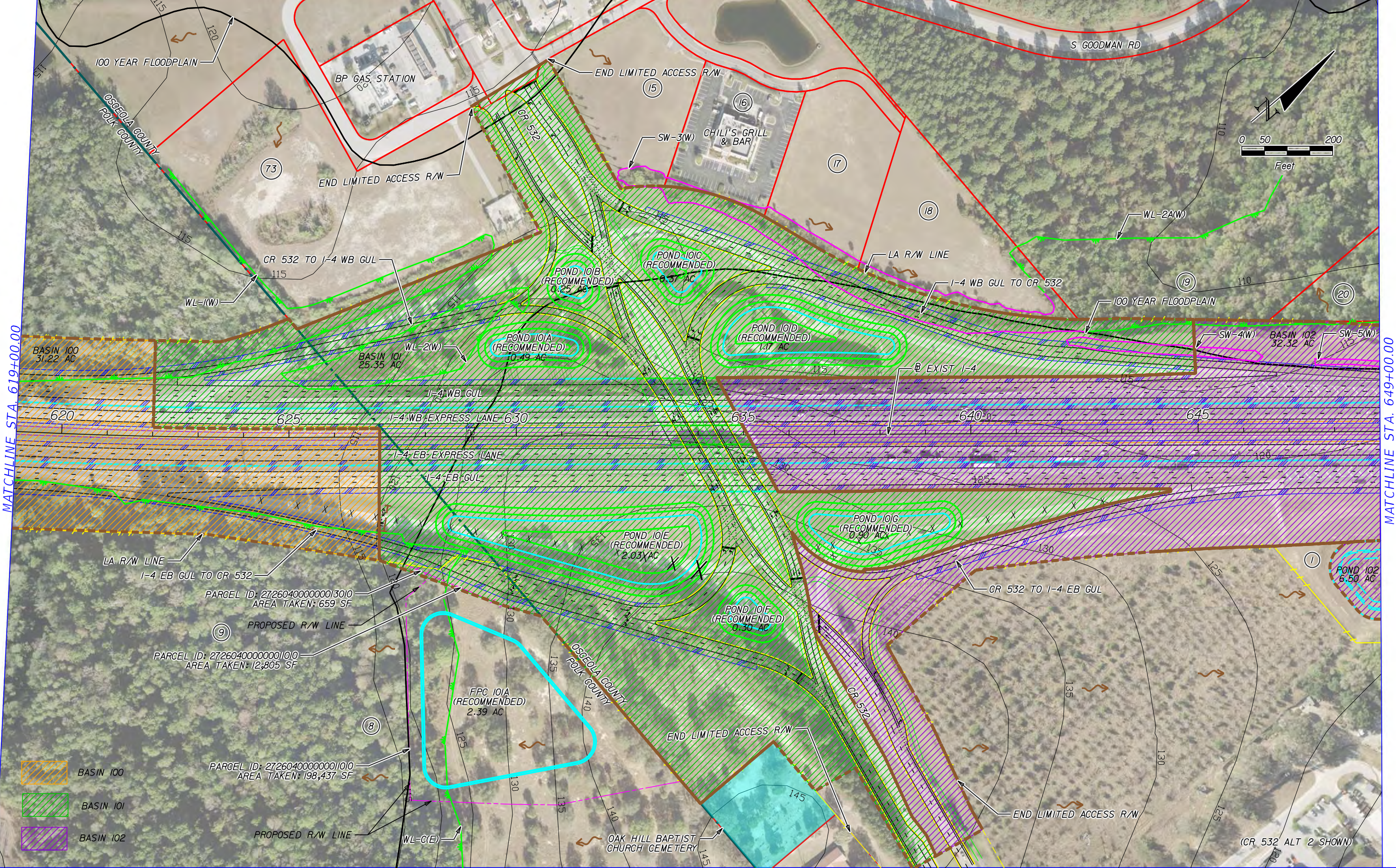
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	POLK	432100-1-22-01

**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT 1**

SHEET NO.
 A-7

MODEL: drmpd01
SHEET SIZE: 16.5x10.6 (ft.)
PLOT SCALE: 1:200



MATCHLINE STA. 619+00.00

MATCHLINE STA. 649+00.00

- BASIN 100
- BASIN 101
- BASIN 102

PARCEL ID: 272604000000013010
AREA TAKEN: 659 SF

PROPOSED R/W LINE

PARCEL ID: 27260400000001010
AREA TAKEN: 12,805 SF

PROPOSED R/W LINE

PARCEL ID: 27260400000001010
AREA TAKEN: 198,437 SF

PROPOSED R/W LINE

REVISIONS	
DATE	DESCRIPTION

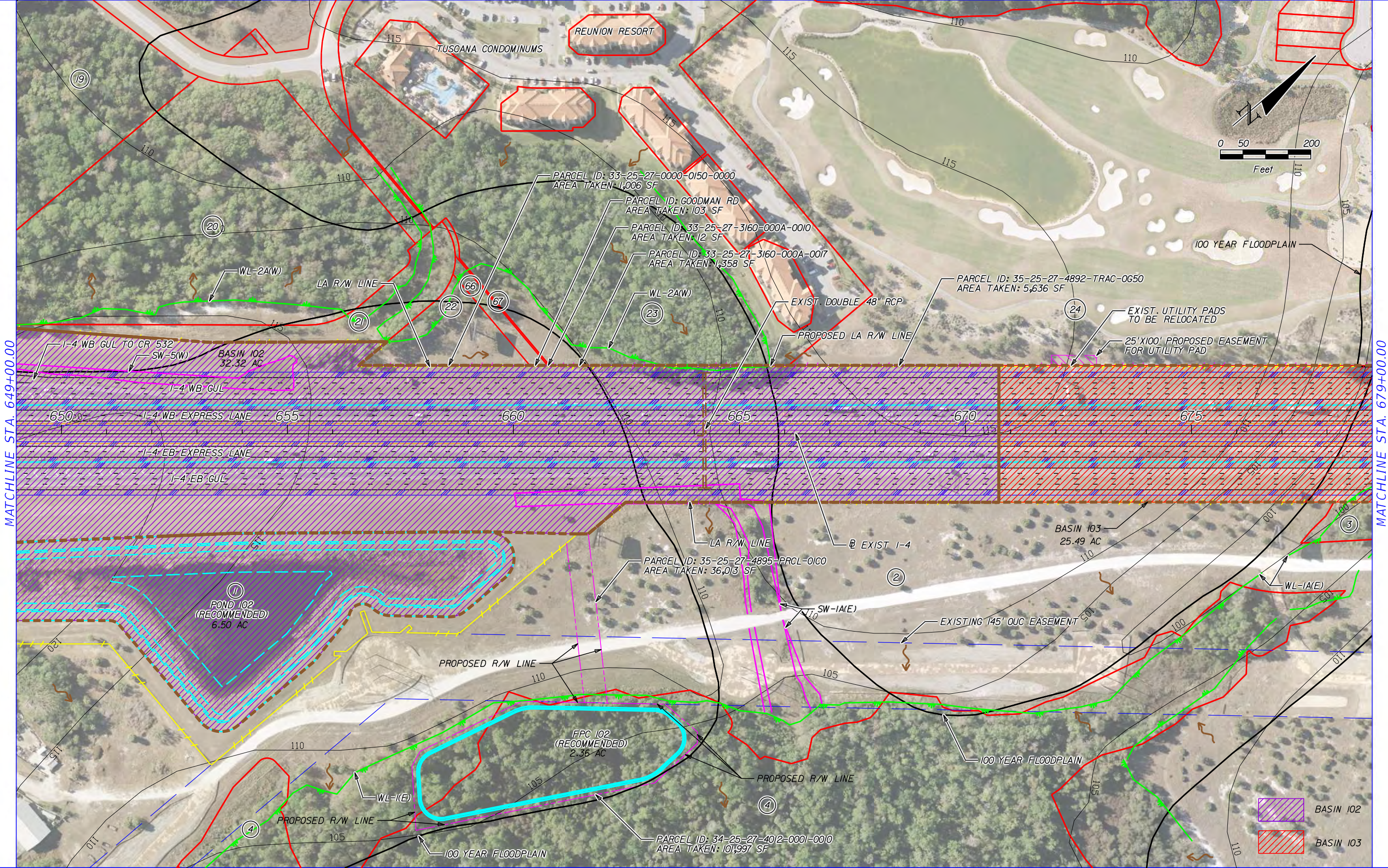
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT I**

SHEET NO.
A-8



MATCHLINE STA. 649+00.00

MATCHLINE STA. 679+00.00



REVISIONS	
DATE	DESCRIPTION

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

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

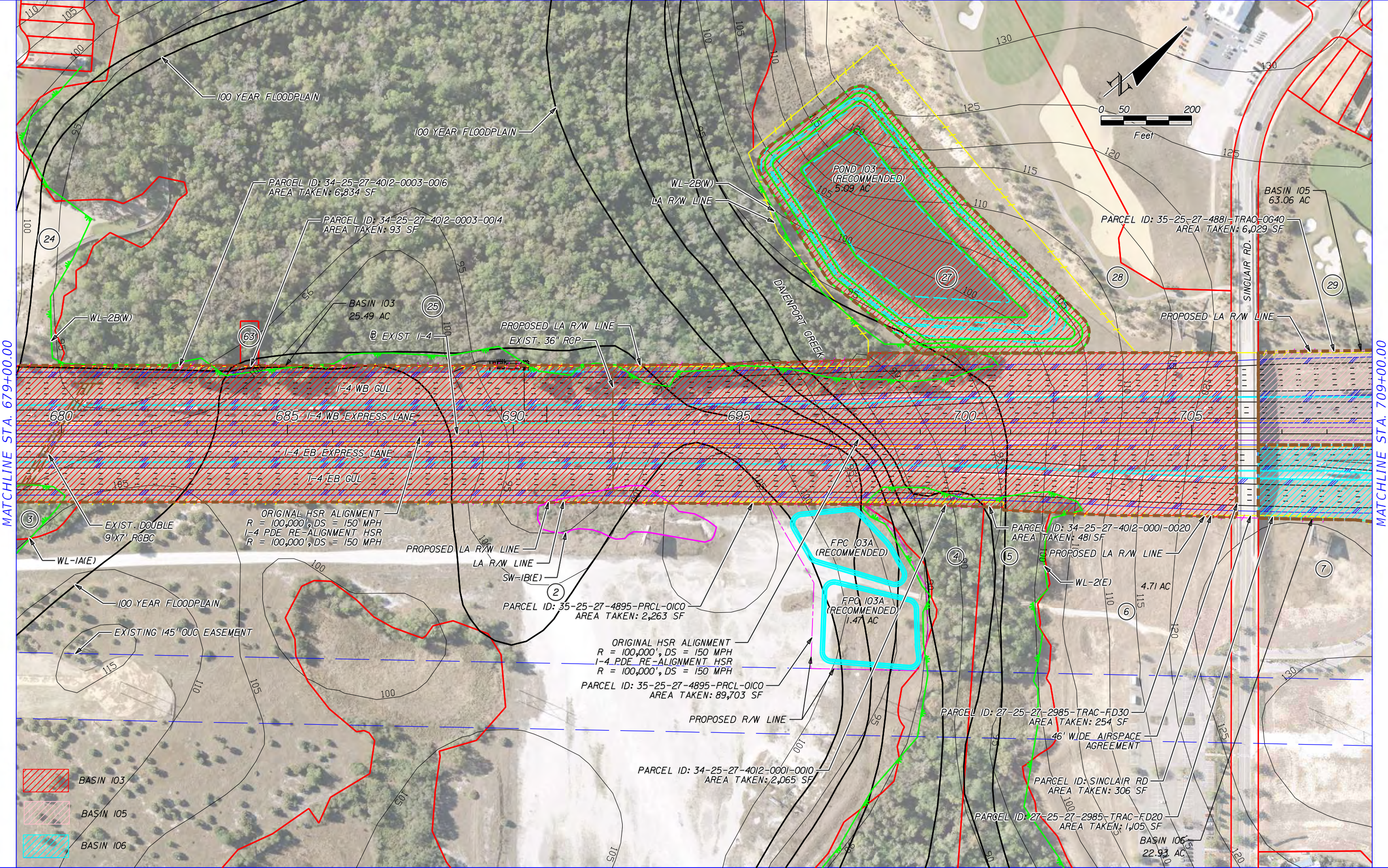
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-9

dmrpd03
16.5x10.6 (ft.)
1:200

Color FOOTPRINT.dwg
Color LA R/W.dwg



- BASIN 103
- BASIN 105
- BASIN 106

MATCHLINE STA. 679+00.00

MATCHLINE STA. 709+00.00

REVISIONS	
DATE	DESCRIPTION

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

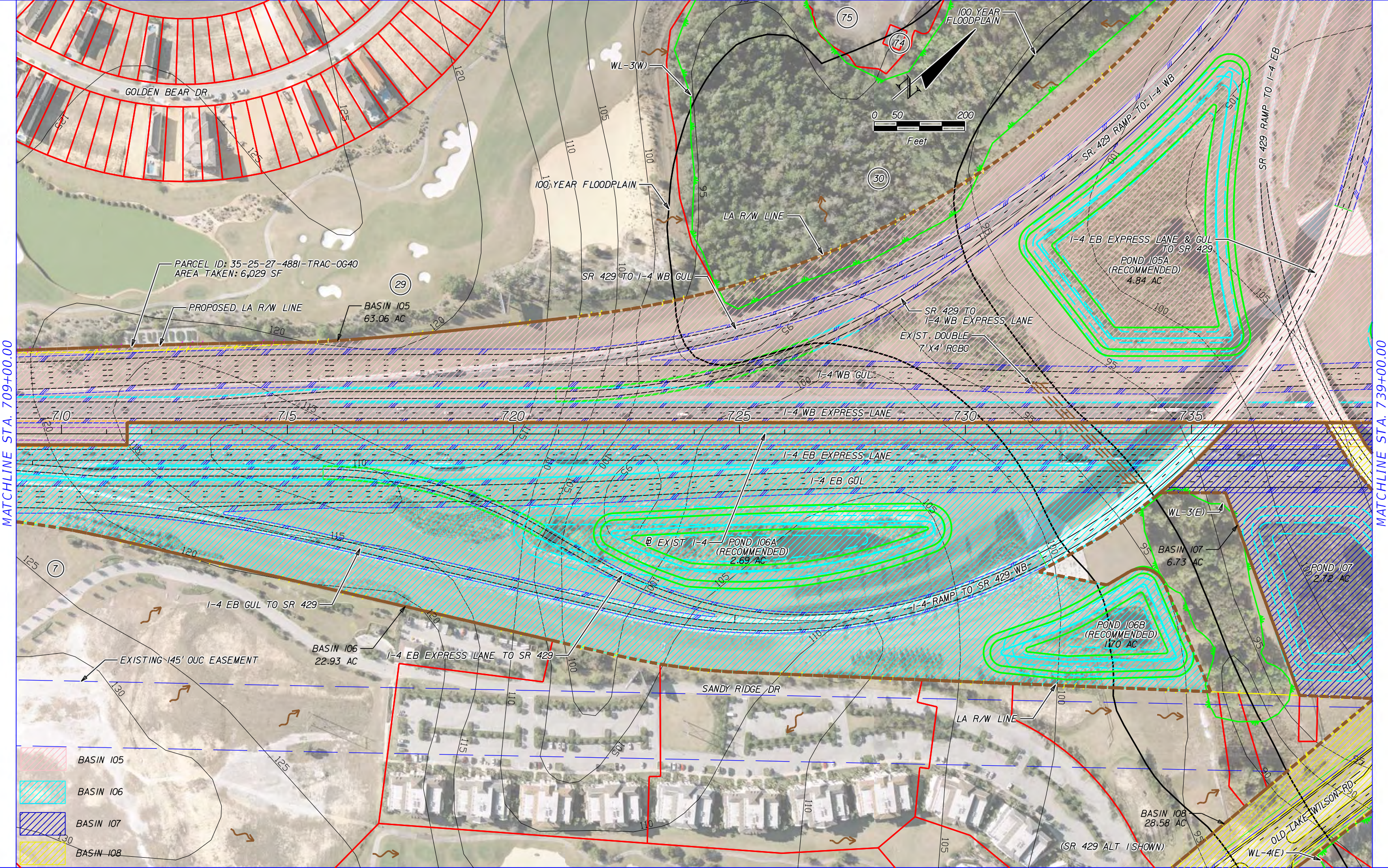
ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

I-4 PD&E STUDY
DRAINAGE MAP SEGMENT 1

SHEET NO.
A-10

MODEL: drmpd04
SHEET SIZE: 16.5x10.6 (ft.)
PLOT SCALE: 1:200



- BASIN 105
- BASIN 106
- BASIN 107
- BASIN 108

REVISIONS	
DATE	DESCRIPTION

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

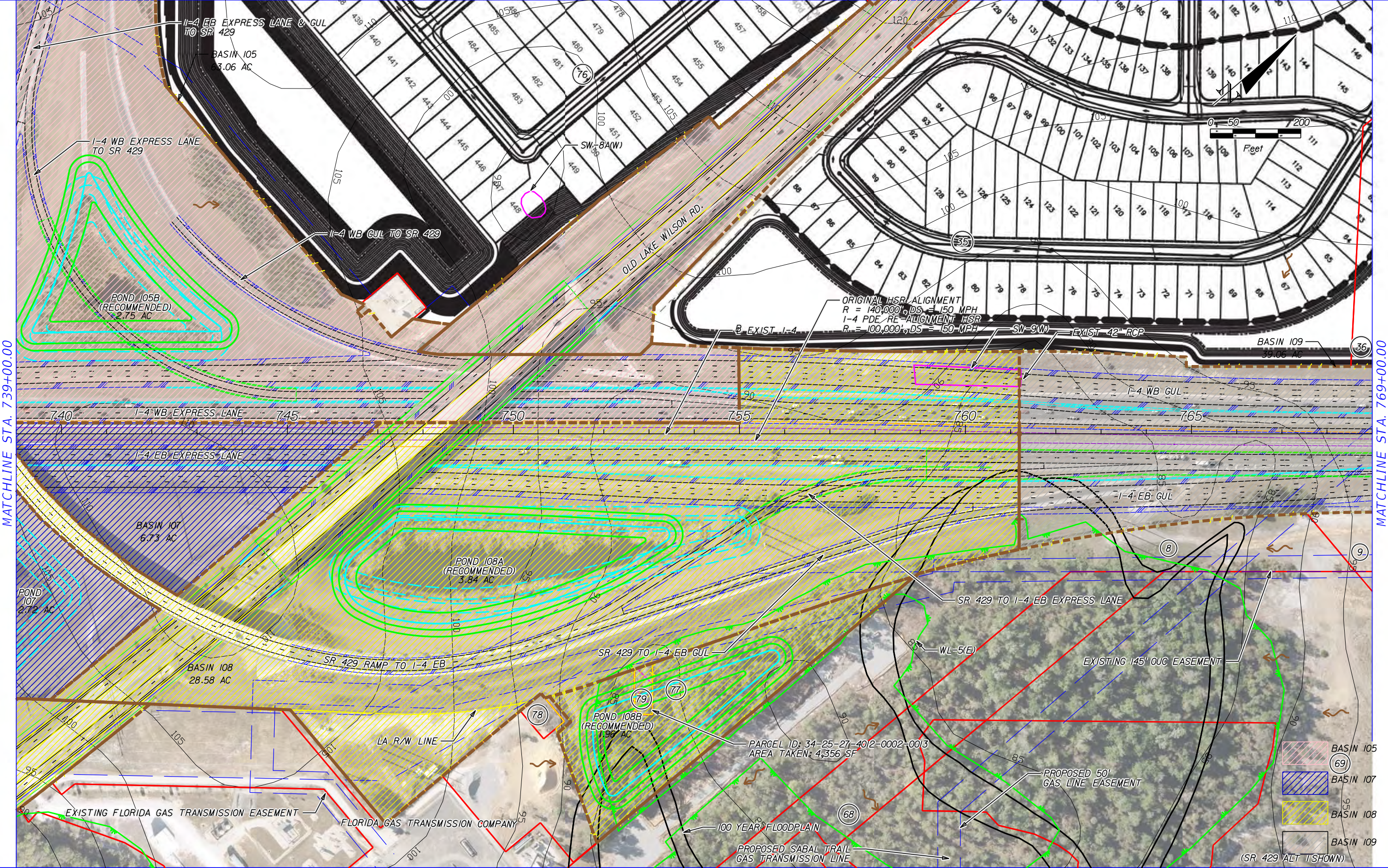
ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-11

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



MATCHLINE STA. 739+00.00

MATCHLINE STA. 769+00.00

REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
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 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

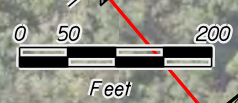
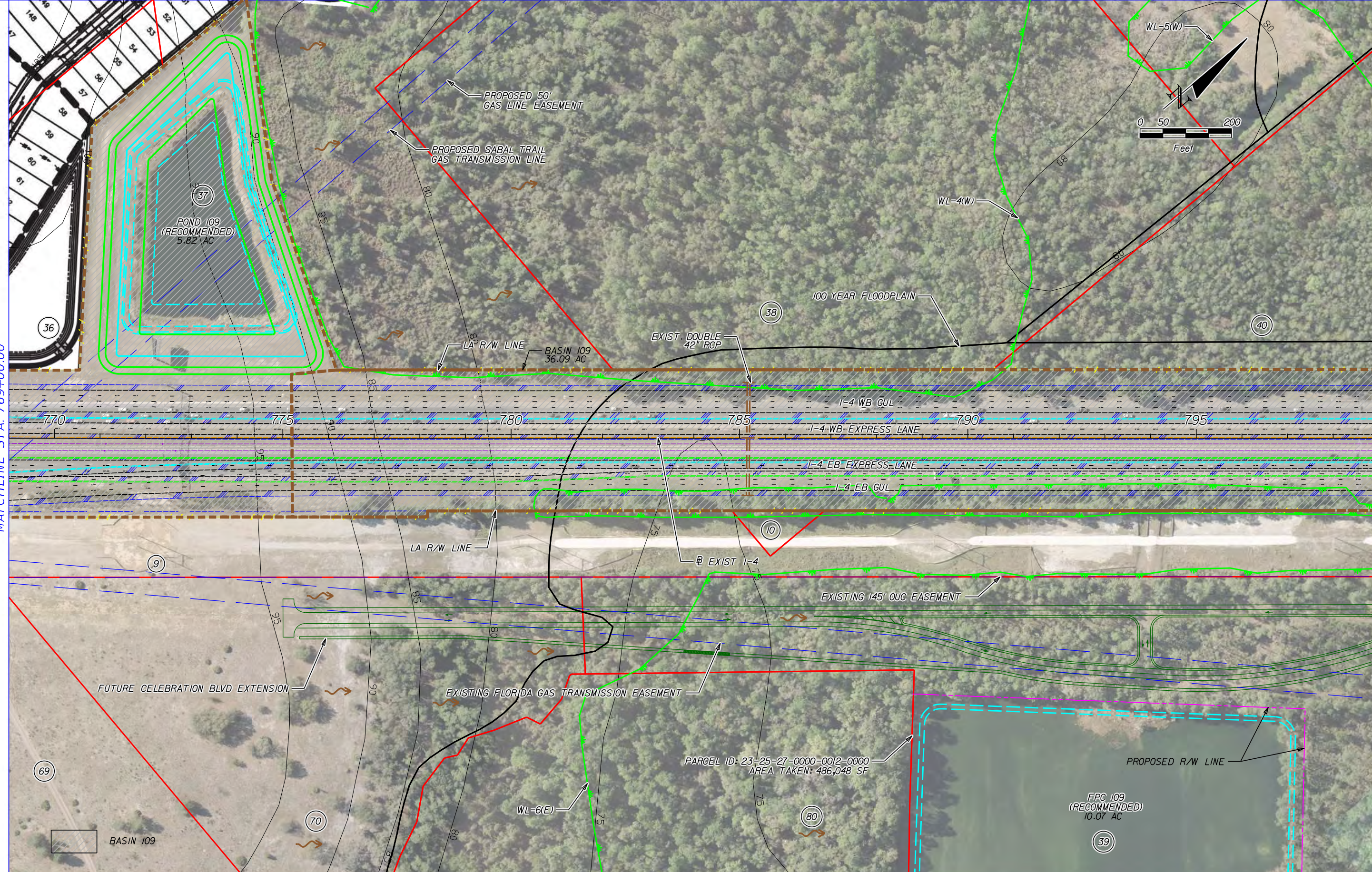
**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT I**

SHEET NO.
 A-12

MODEL: drmpd06
SHEET SIZE: 16.5x10.6 (ft.)
PLOT SCALE: 1:200

MATCHLINE STA. 769+00.00

MATCHLINE STA. 799+00.00



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

REVISIONS	
DATE	DESCRIPTION

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

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

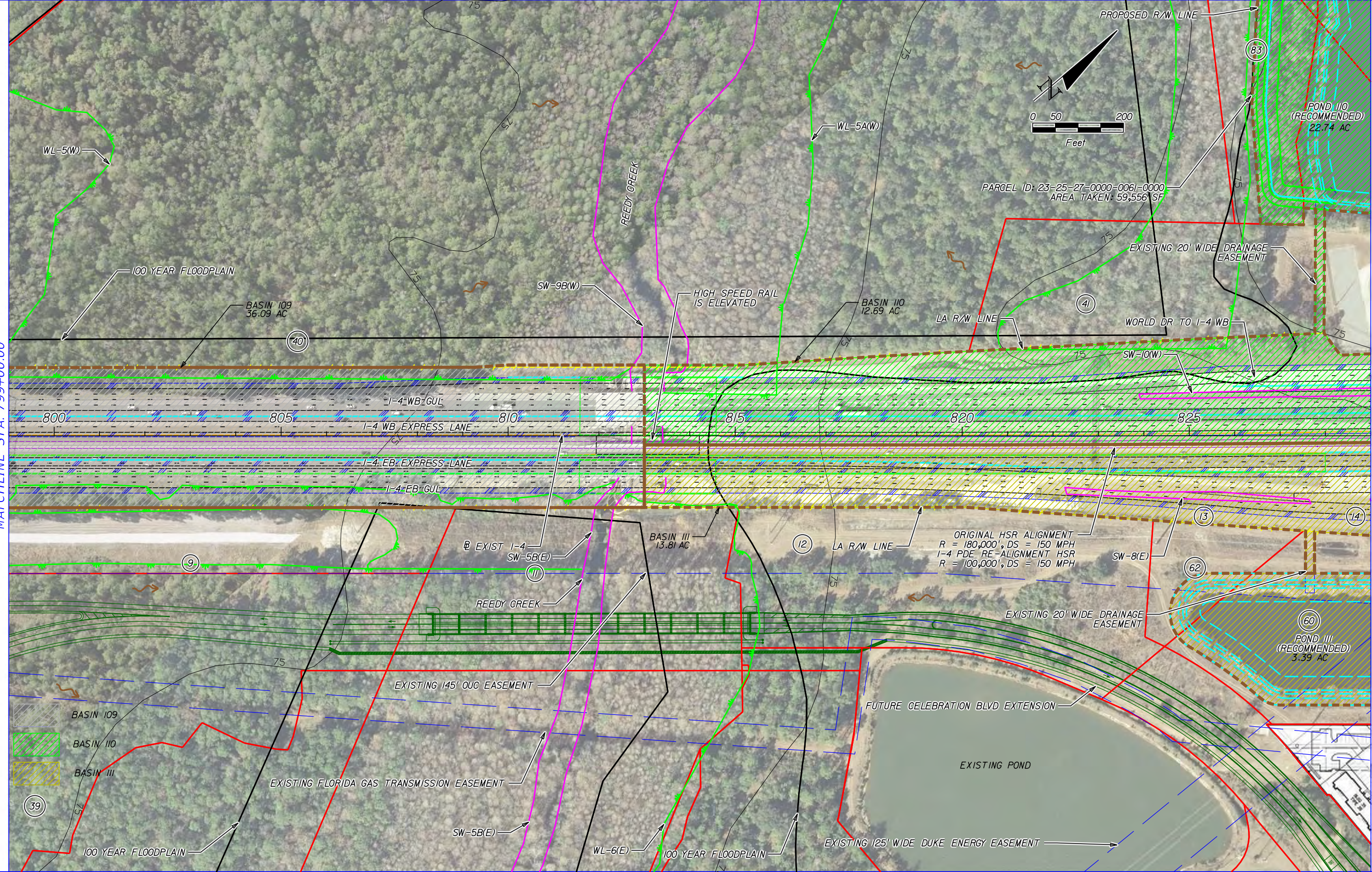
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT I**

SHEET NO.
A-13

MATCHLINE STA. 799+00.00

MATCHLINE STA. 829+00.00



REVISIONS	
DATE	DESCRIPTION

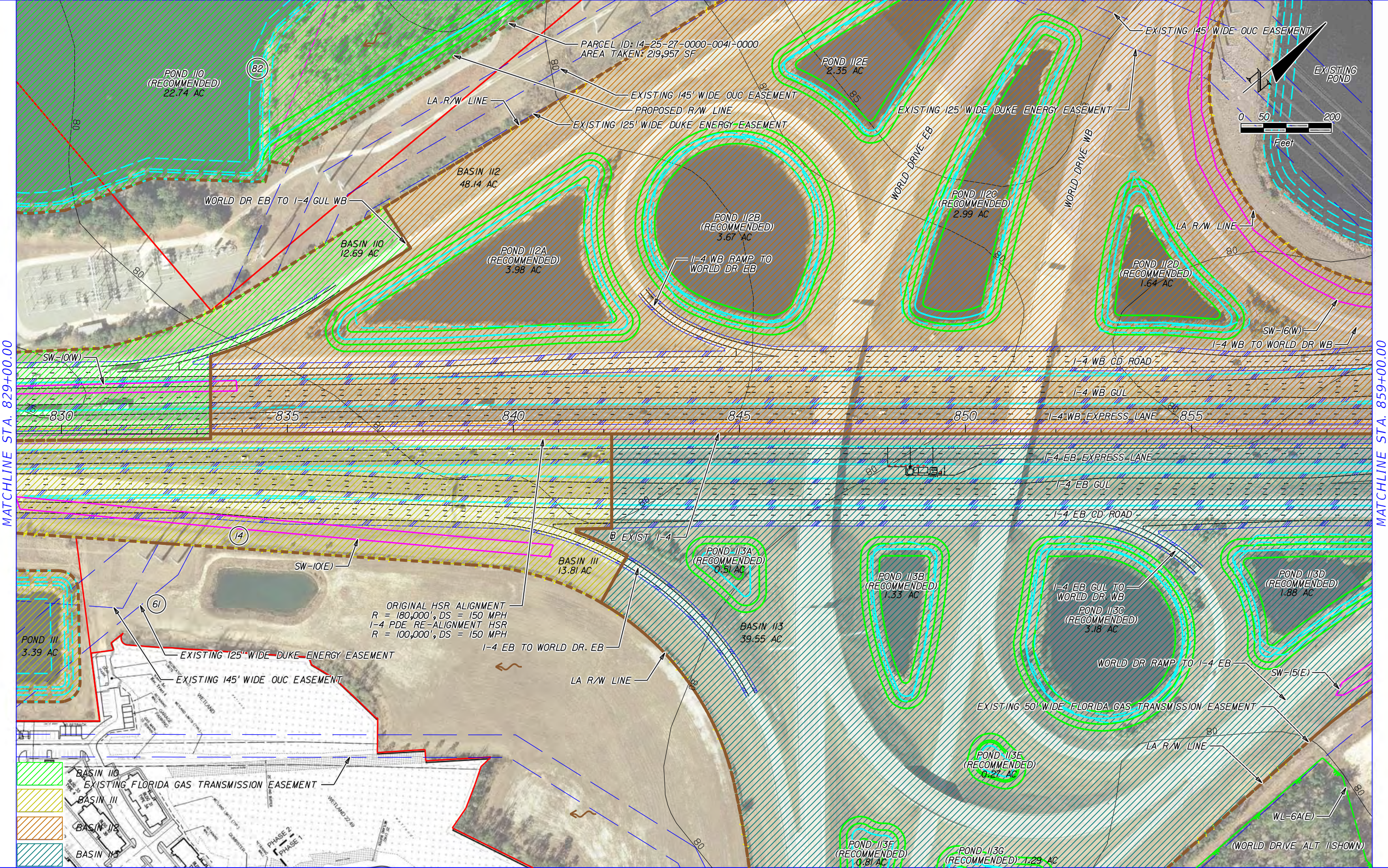
HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAJ, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT I**

SHEET NO.
 A-14



MATCHLINE STA. 829+00.00

MATCHLINE STA. 859+00.00

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

LEGEND

- BASIN 110 (Green hatched)
- BASIN 111 (Yellow hatched)
- BASIN 112 (Orange hatched)
- BASIN 113 (Blue hatched)
- EXISTING FLORIDA GAS TRANSMISSION EASEMENT (Red outline)

ORIGINAL HSR ALIGNMENT
 R = 180,000', DS = 150 MPH
 I-4 PDE RE-ALIGNMENT HSR
 R = 100,000', DS = 150 MPH

HNTB CORPORATION
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ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT I**

SHEET NO.
 A-15

MODEL: 16.5x10.6 (ft.)
SHEET SIZE: 1:200
PLOT SCALE:



MATCHLINE STA. 859+00.00

MATCHLINE STA. 889+00.00



- BASIN II2
- BASIN II3
- BASIN II4
- BASIN II5

REVISIONS	
DATE	DESCRIPTION

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

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

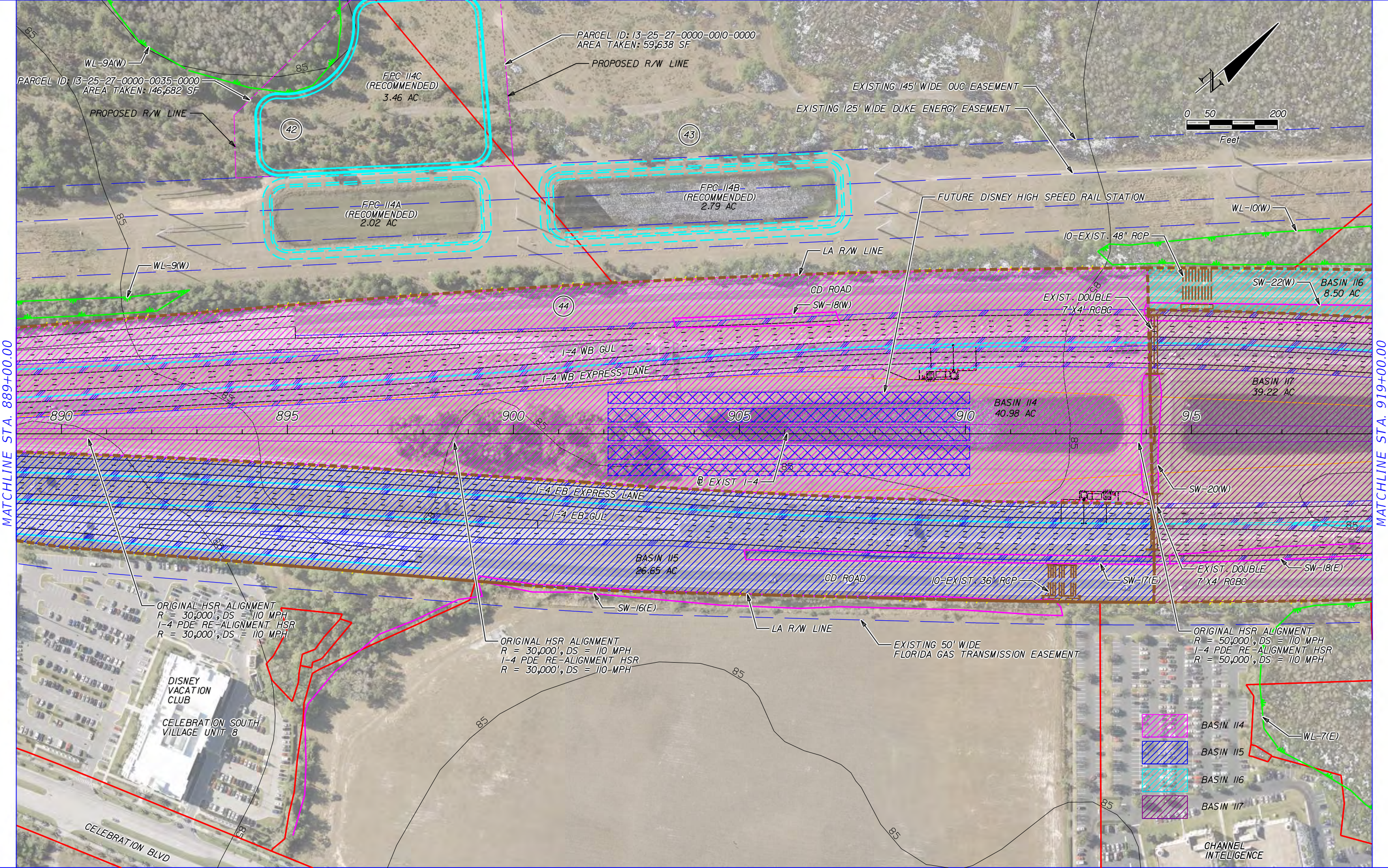
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT I**

SHEET NO.
A-16

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

MODEL: 16.5x10.6 (ft.)
SHEET SIZE: 1:200
PLOT SCALE:



MATCHLINE STA. 889+00.00

MATCHLINE STA. 919+00.00

ORIGINAL HSR ALIGNMENT
R = 30,000', DS = 110 MPH
I-4 PDE RE-ALIGNMENT HSR
R = 30,000', DS = 110 MPH

ORIGINAL HSR ALIGNMENT
R = 30,000', DS = 110 MPH
I-4 PDE RE-ALIGNMENT HSR
R = 30,000', DS = 110 MPH

ORIGINAL HSR ALIGNMENT
R = 50,000', DS = 110 MPH
I-4 PDE RE-ALIGNMENT HSR
R = 50,000', DS = 110 MPH

- BASIN 114
- BASIN 115
- BASIN 116
- BASIN 117

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

REVISIONS	
DATE	DESCRIPTION

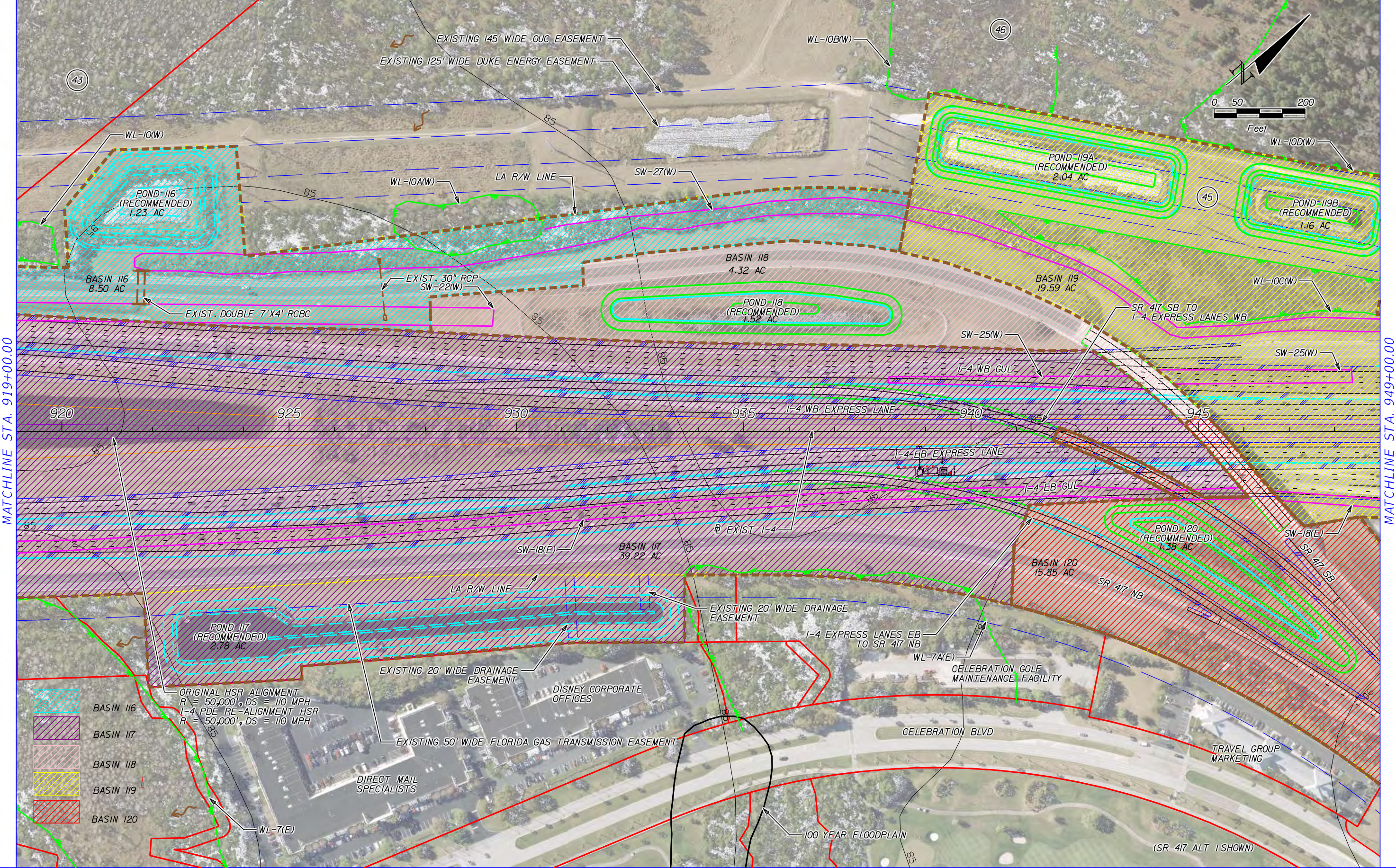
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT I**

SHEET NO.
A-17



MATCHLINE STA. 919+00.00

MATCHLINE STA. 949+00.00

- BASIN 116
- BASIN 117
- BASIN 118
- BASIN 119
- BASIN 120

ORIGINAL HSR ALIGNMENT
R = 50,000', DS = 110 MPH
I-4 PDE RE-ALIGNMENT HSR
R = 50,000', DS = 110 MPH

REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
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ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT I**

SHEET NO.
A-18

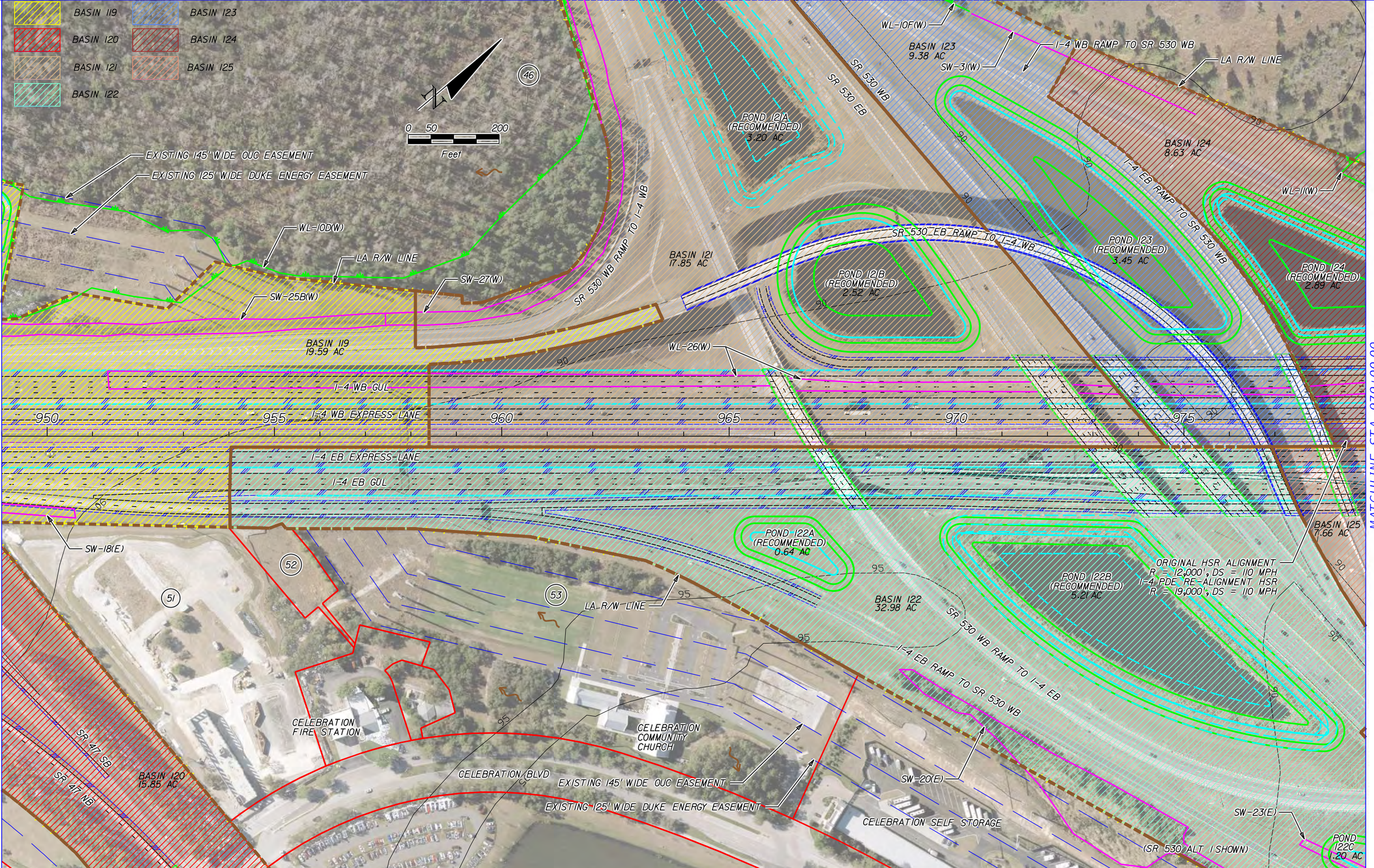
MODEL: drmprd12
SHEET SIZE: 16.5x10.6 (ft.)
PLOT SCALE: 1:200

	BASIN 119		BASIN 123
	BASIN 120		BASIN 124
	BASIN 121		BASIN 125
	BASIN 122		



MATCHLINE STA. 949+00.00

MATCHLINE STA. 979+00.00



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

REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
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ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

I-4 PD&E STUDY DRAINAGE MAP SEGMENT 1

SHEET NO.
A-19

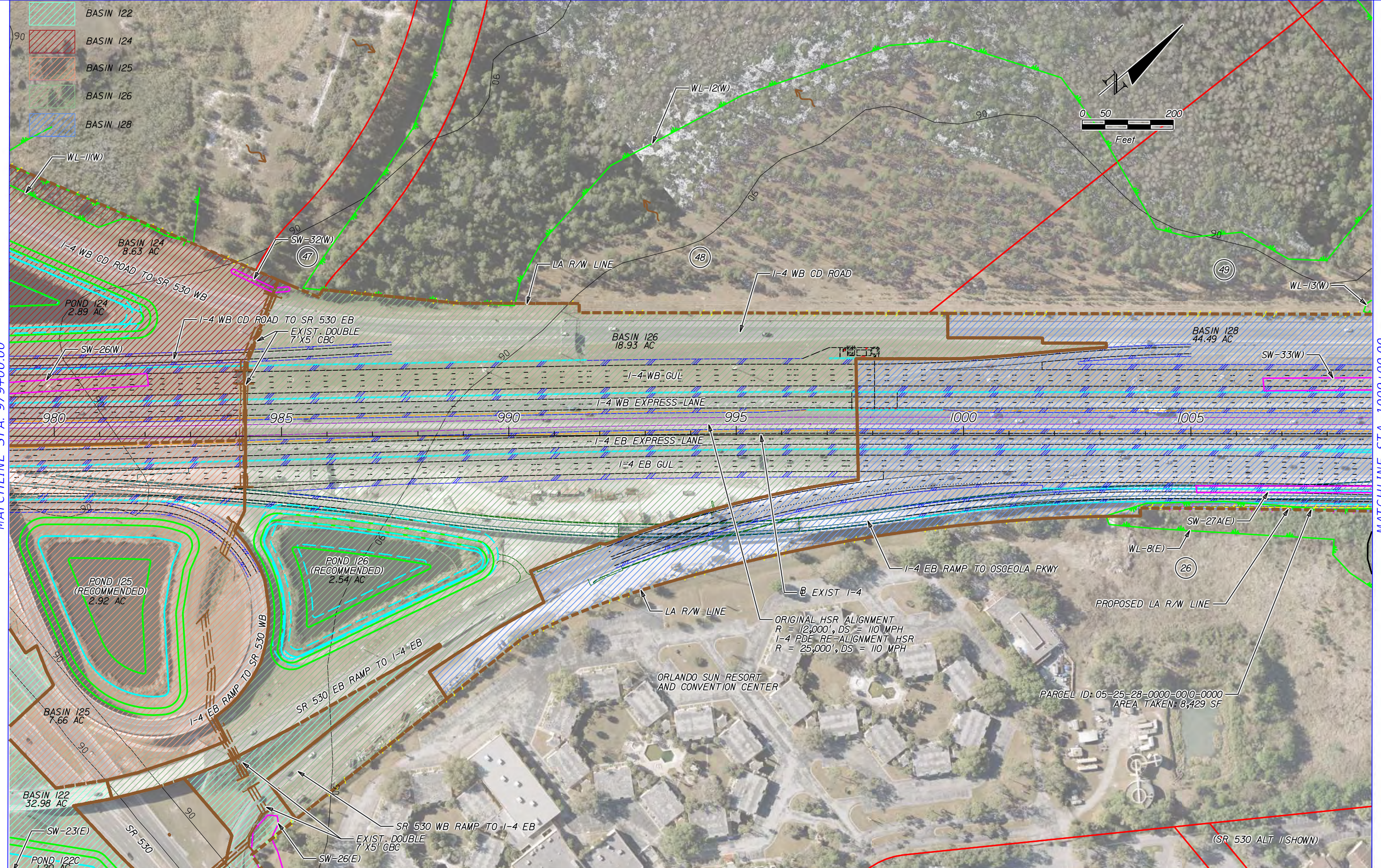
MODEL: drmpd13
 SHEET SIZE: 16.5x10.6 (ft.)
 PLOT SCALE: 1:200

-  BASIN 122
-  BASIN 124
-  BASIN 125
-  BASIN 126
-  BASIN 128



MATCHLINE STA. 979+00.00

MATCHLINE STA. 1009+00.00



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

REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
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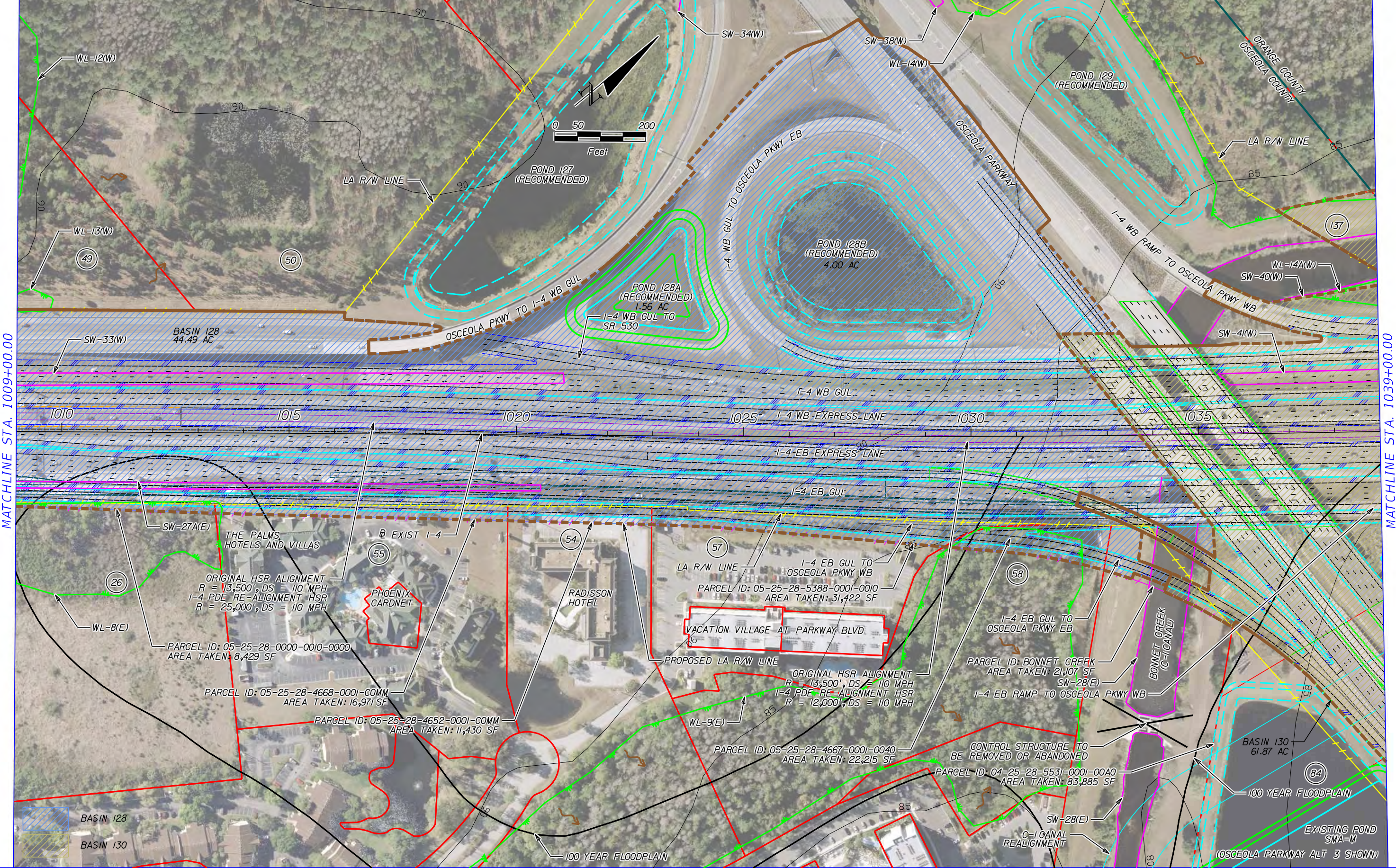
ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT I**

SHEET NO.
 A-20

MODEL: drmprd14
SHEET SIZE: 16.5x10.6 (ft.)
PLOT SCALE: 1:200



MATCHLINE STA. 1009+00.00

MATCHLINE STA. 1039+00.00

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

REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
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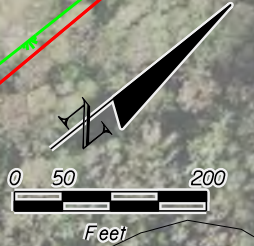
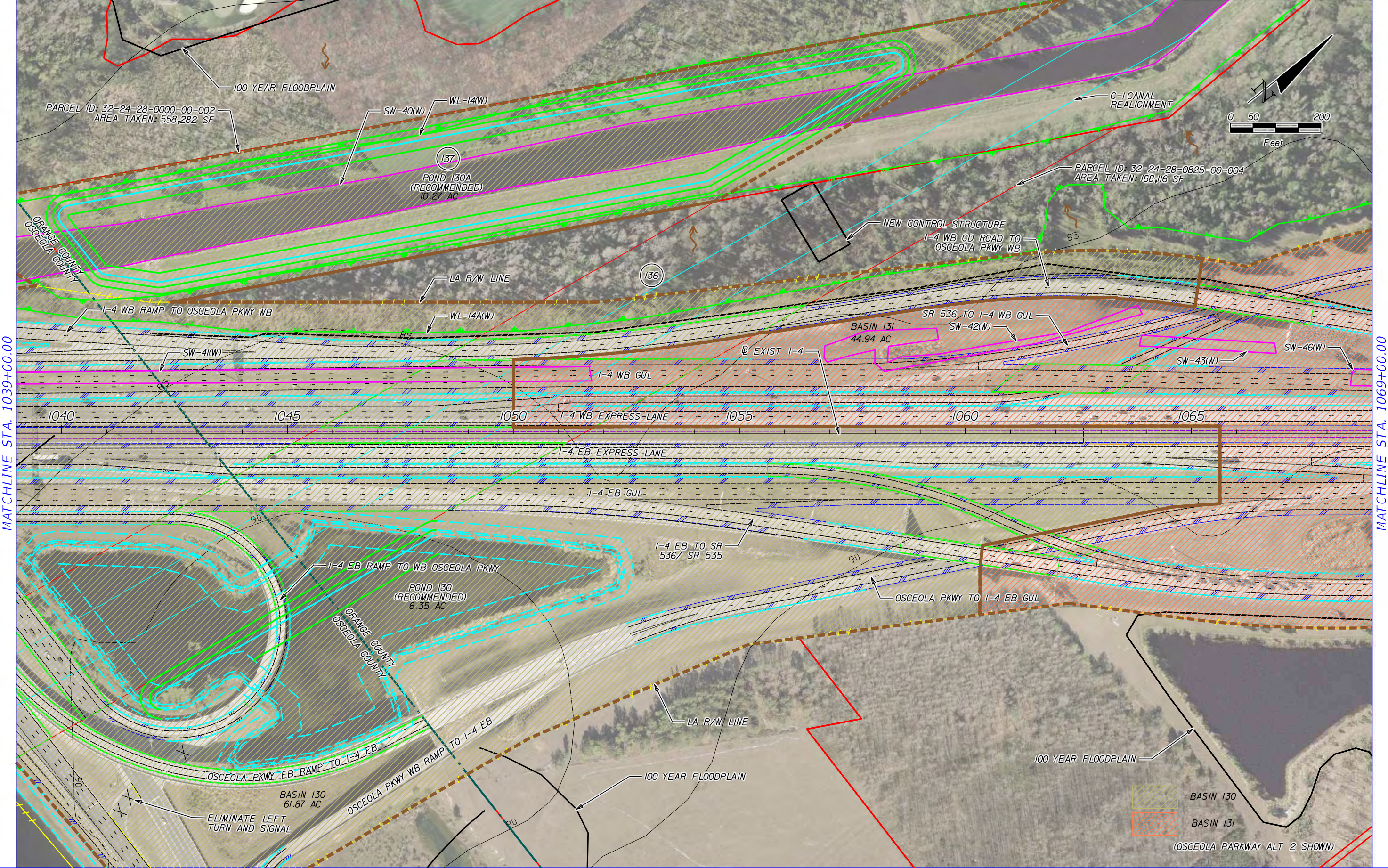
ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-21

MODEL: drmpd15
SHEET SIZE: 16.5x10.6 (ft.)
PLOT SCALE: 1:200



MATCHLINE STA. 1039+00.00

MATCHLINE STA. 1069+00.00

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

REVISIONS	
DATE	DESCRIPTION

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

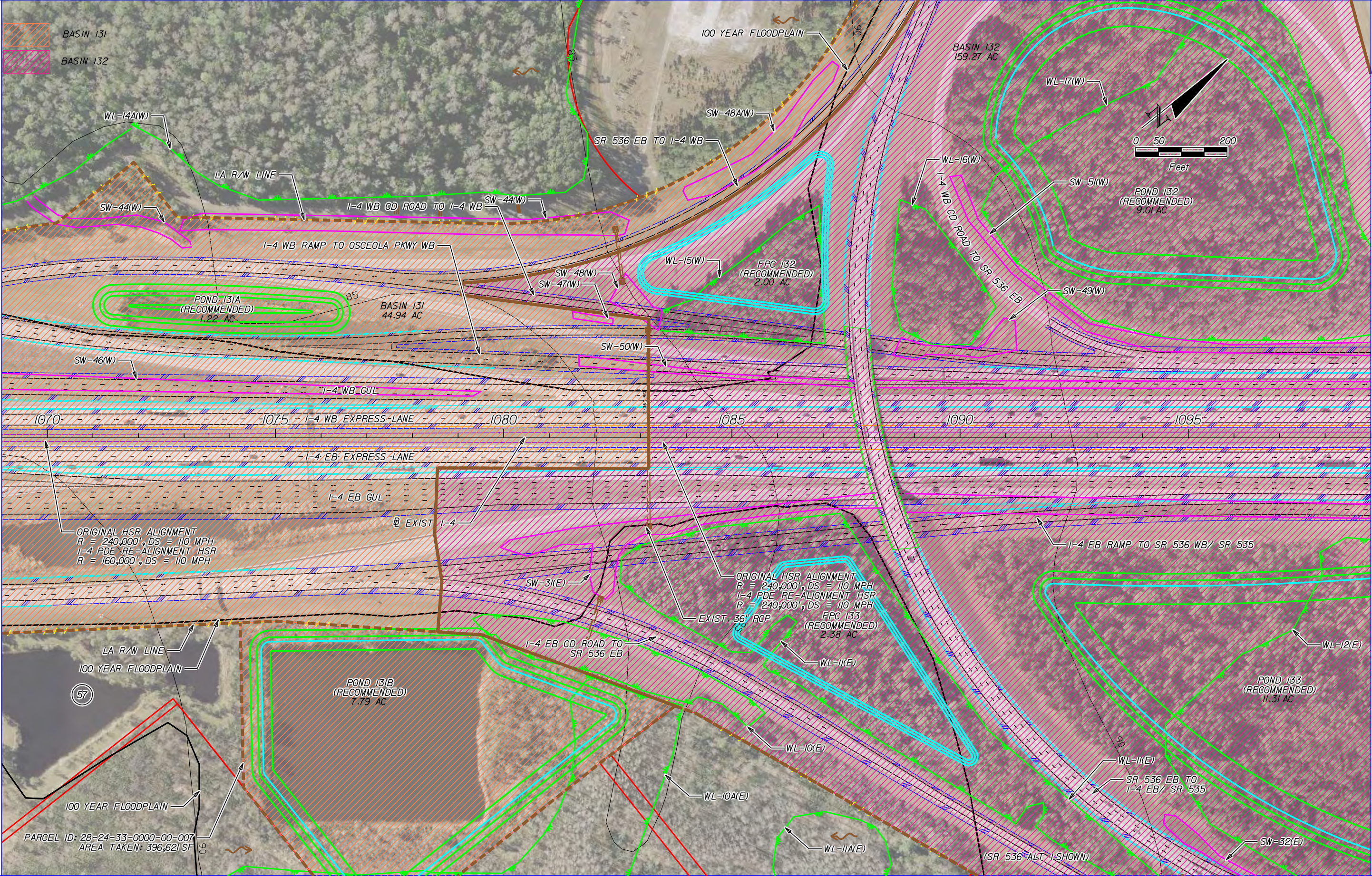
ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA ORANGE	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-22

MODEL: 16.5x10.6 (ft.)
SHEET SIZE: 1:200
PLOT SCALE:



MATCHLINE STA. 1069+00.00

MATCHLINE STA. 1099+00.00

Color FOOTPRINT: akf:fig
FOOTPRINT: akf:fig

REVISIONS	
DATE	DESCRIPTION

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

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

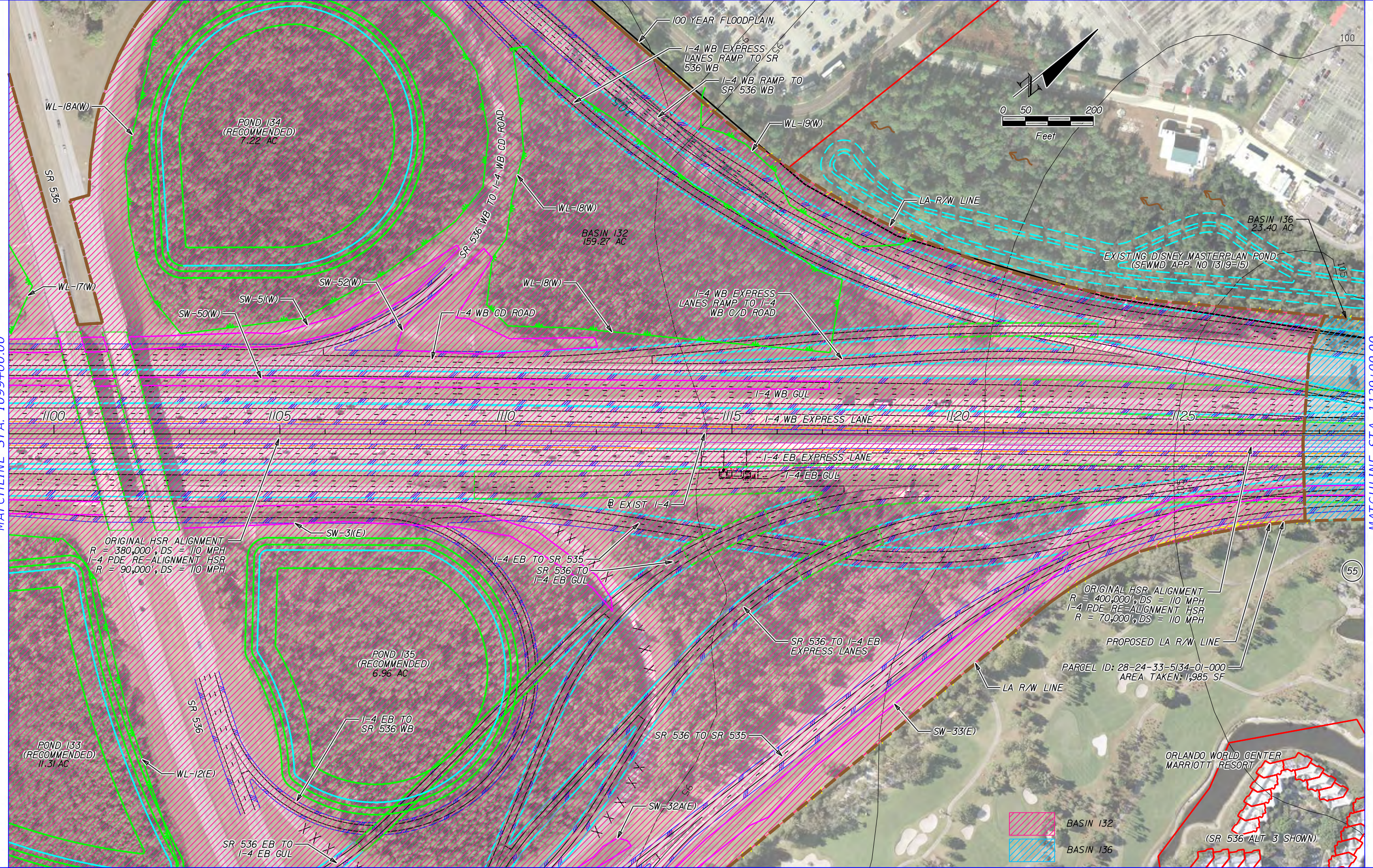
**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-23

MODEL: drmpd17
 SHEET SIZE: 16.5x10.6 (ft.)
 PLOT SCALE: 1:200

MATCHLINE STA. 1099+00.00

MATCHLINE STA. 1129+00.00



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

REVISIONS	
DATE	DESCRIPTION

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

ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

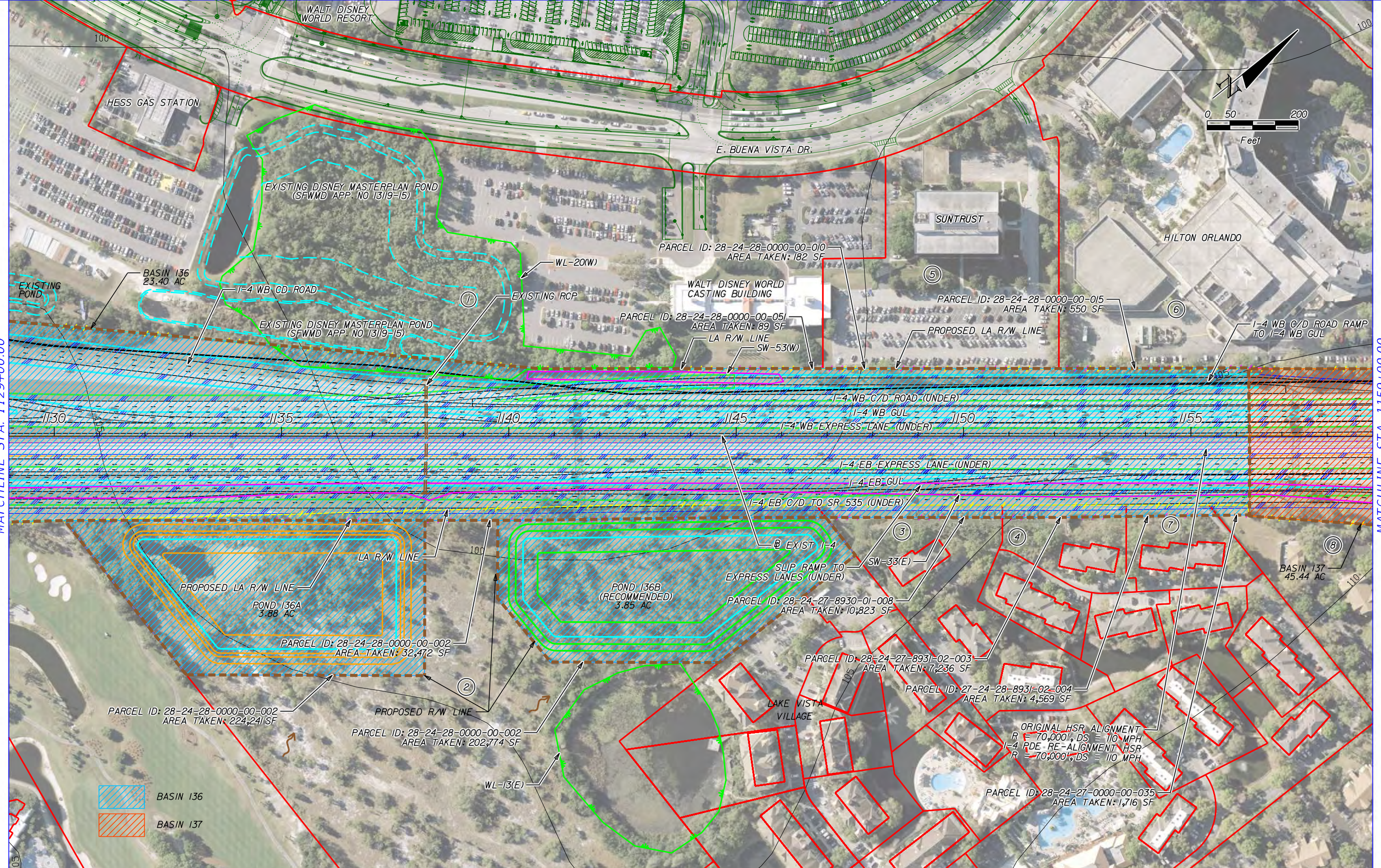
I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT 1

SHEET NO.
 A-24



MATCHLINE STA. 1129+00.00

MATCHLINE STA. 1159+00.00



BASIN 136
 BASIN 137

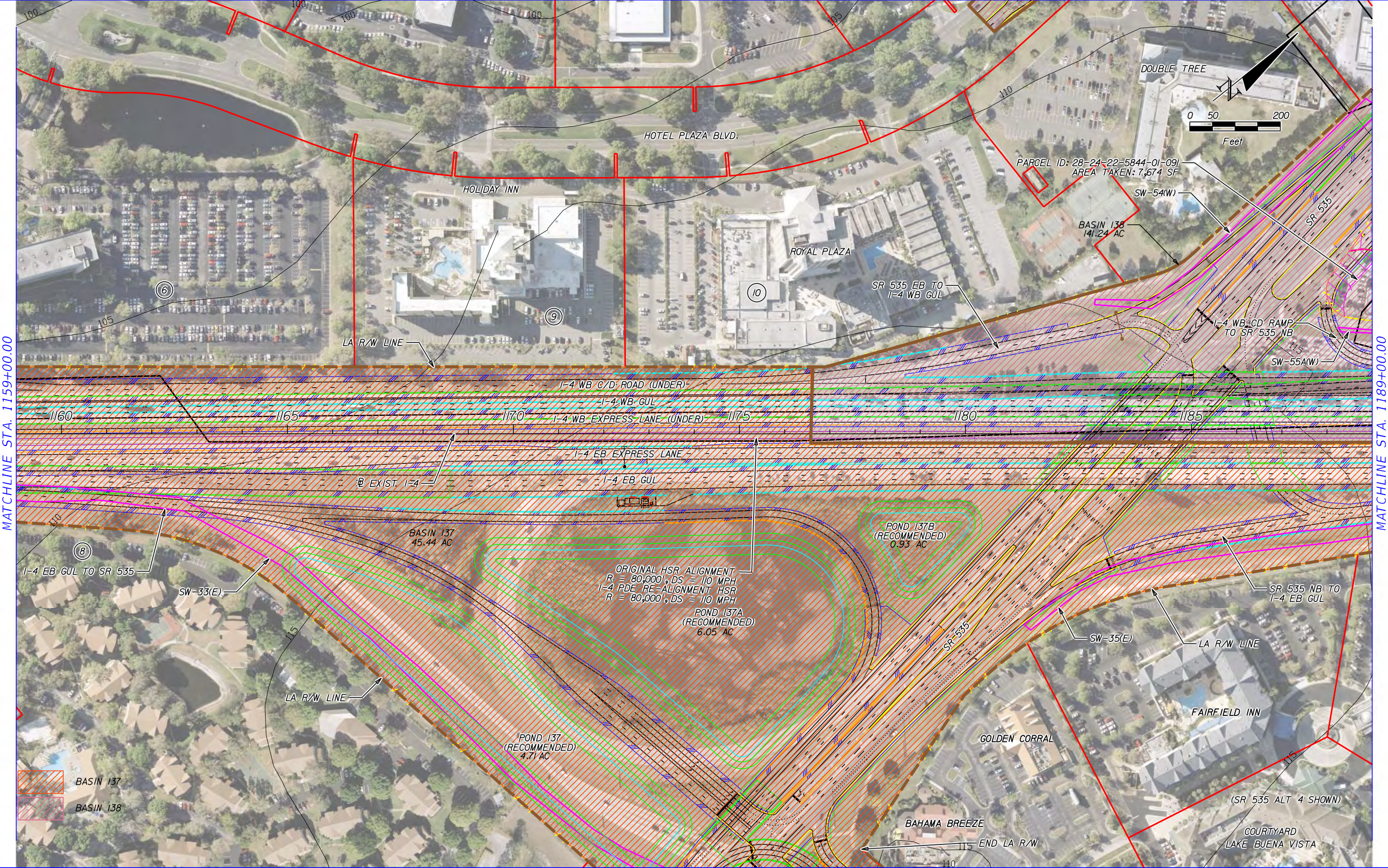
REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT 1**

SHEET NO.
 A-25



MATCHLINE STA. 1159+00.00

MATCHLINE STA. 1189+00.00

BASIN 137
 BASIN 138

REVISIONS		REVISIONS	
DATE	DESCRIPTION	DATE	DESCRIPTION

HNTB CORPORATION
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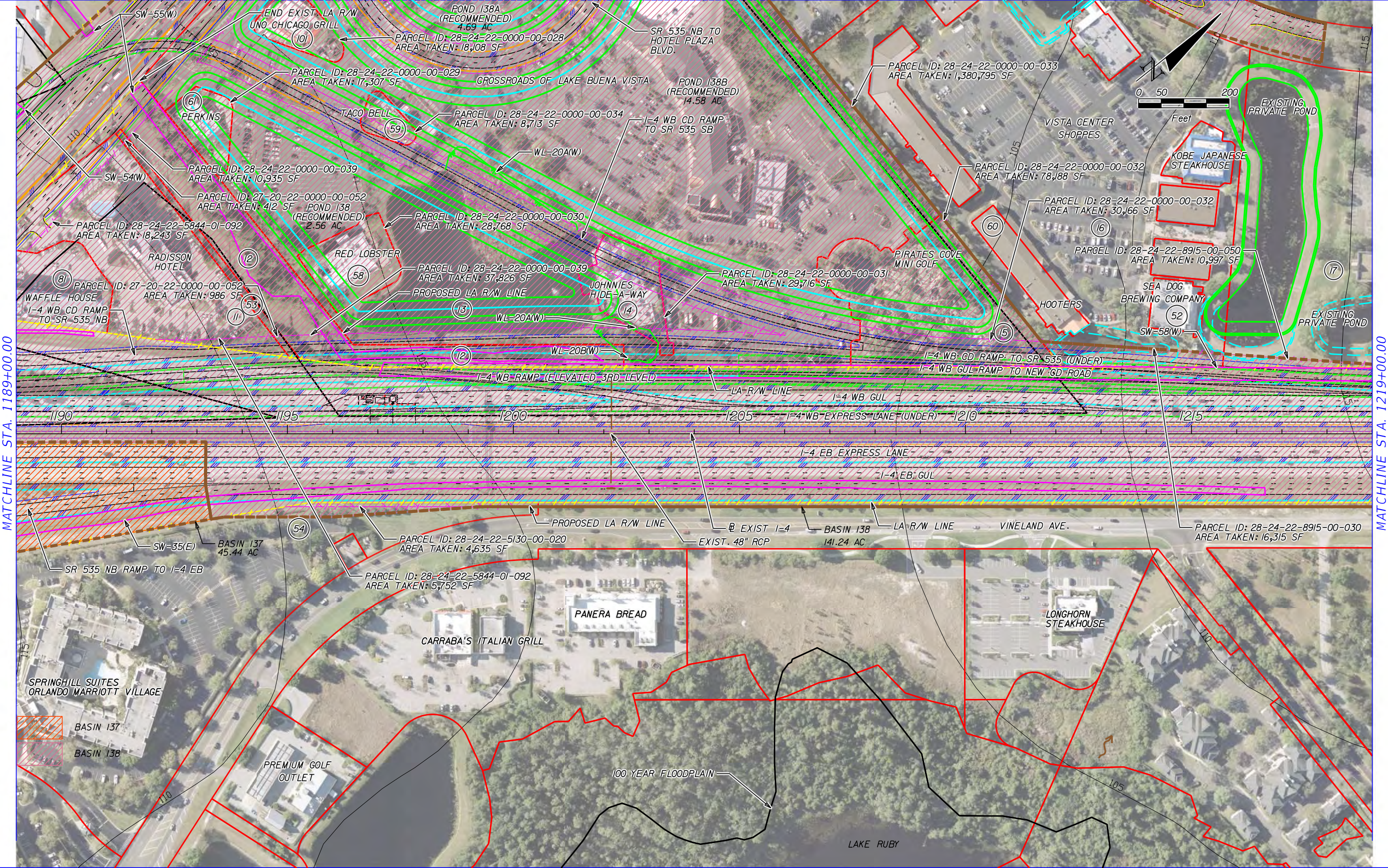
 ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT 1**

SHEET NO.
 A-26

MODEL: drmmr20
SHEET SIZE: 16.5x10.6 (ft.)
PLOT SCALE: 1:200



MATCHLINE STA. 1189+00.00

MATCHLINE STA. 1219+00.00

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

REVISIONS	
DATE	DESCRIPTION

HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
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CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

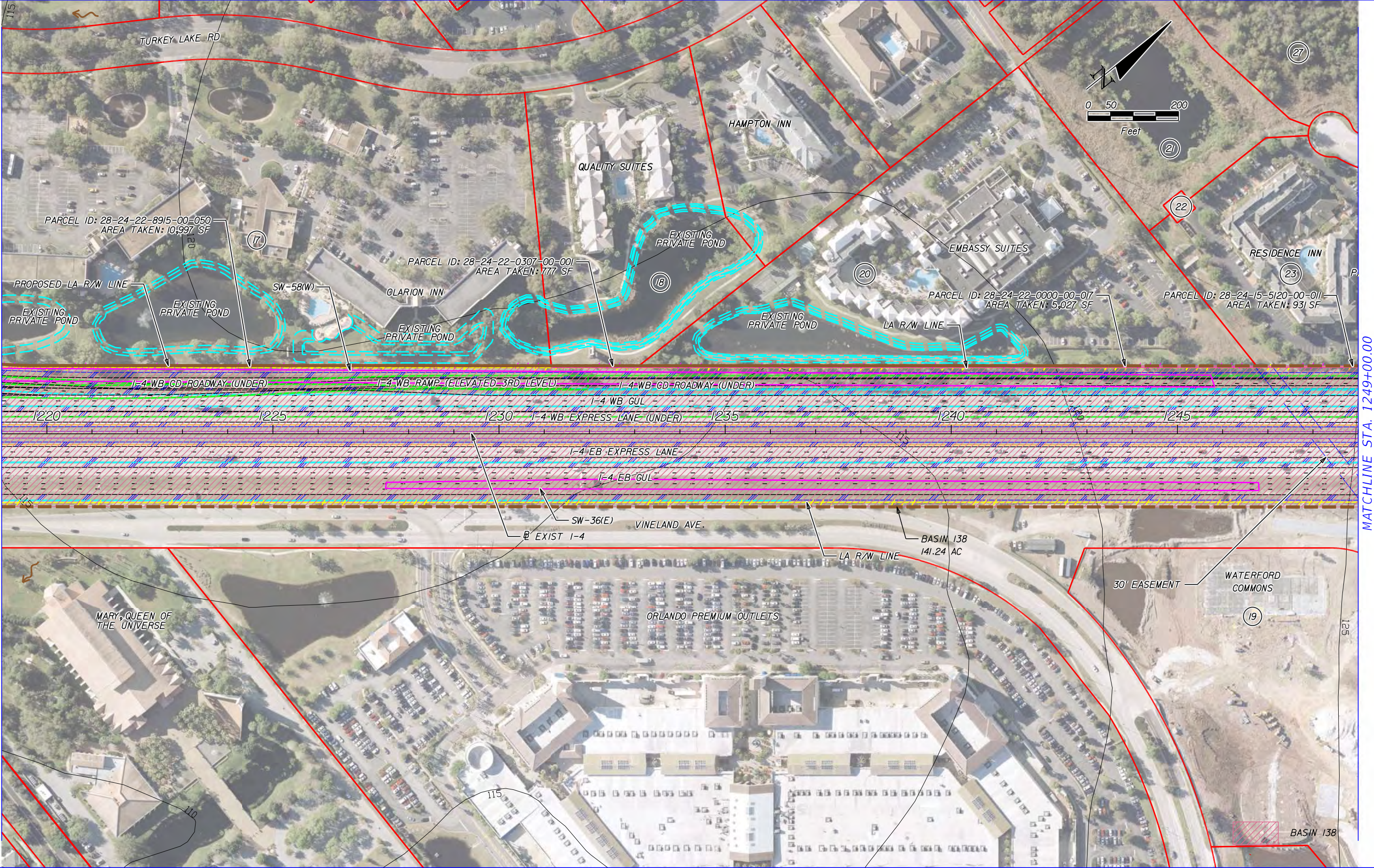
**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-27



MATCHLINE STA. 1219+00.00

MATCHLINE STA. 1249+00.00



REVISIONS		REVISIONS	
DATE	DESCRIPTION	DATE	DESCRIPTION

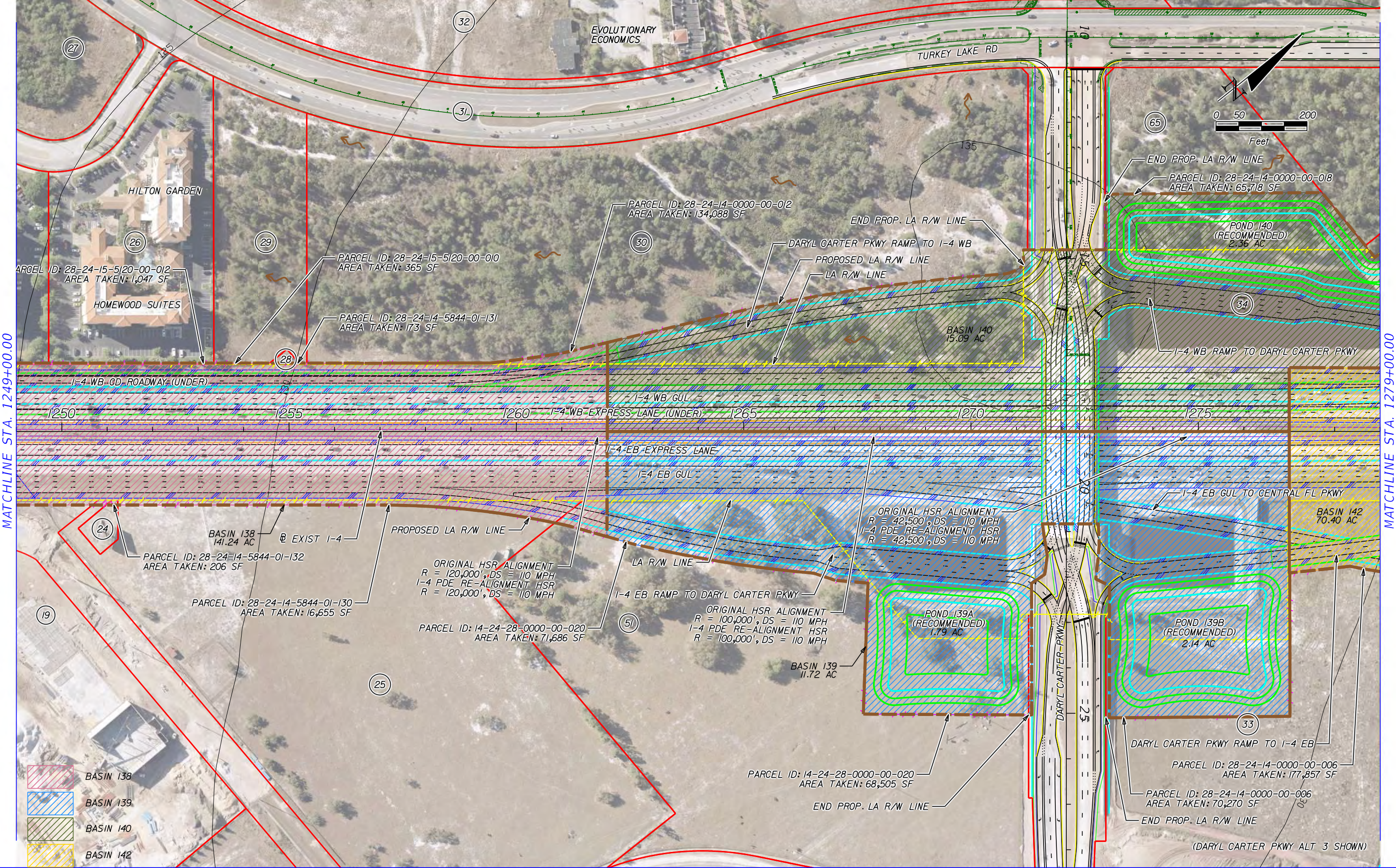
HNTB CORPORATION
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 SUITE 400
 LAKE MARY, FL 32746
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 CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
 FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
 DRAINAGE MAP
 SEGMENT 1**

SHEET NO.
 A-28



MATCHLINE STA. 1249+00.00

MATCHLINE STA. 1279+00.00

- BASIN 138
- BASIN 139
- BASIN 140
- BASIN 142

REVISIONS	
DATE	DESCRIPTION

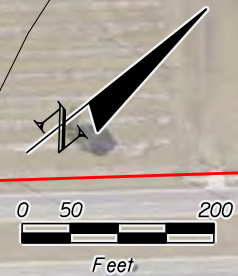
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAJ, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

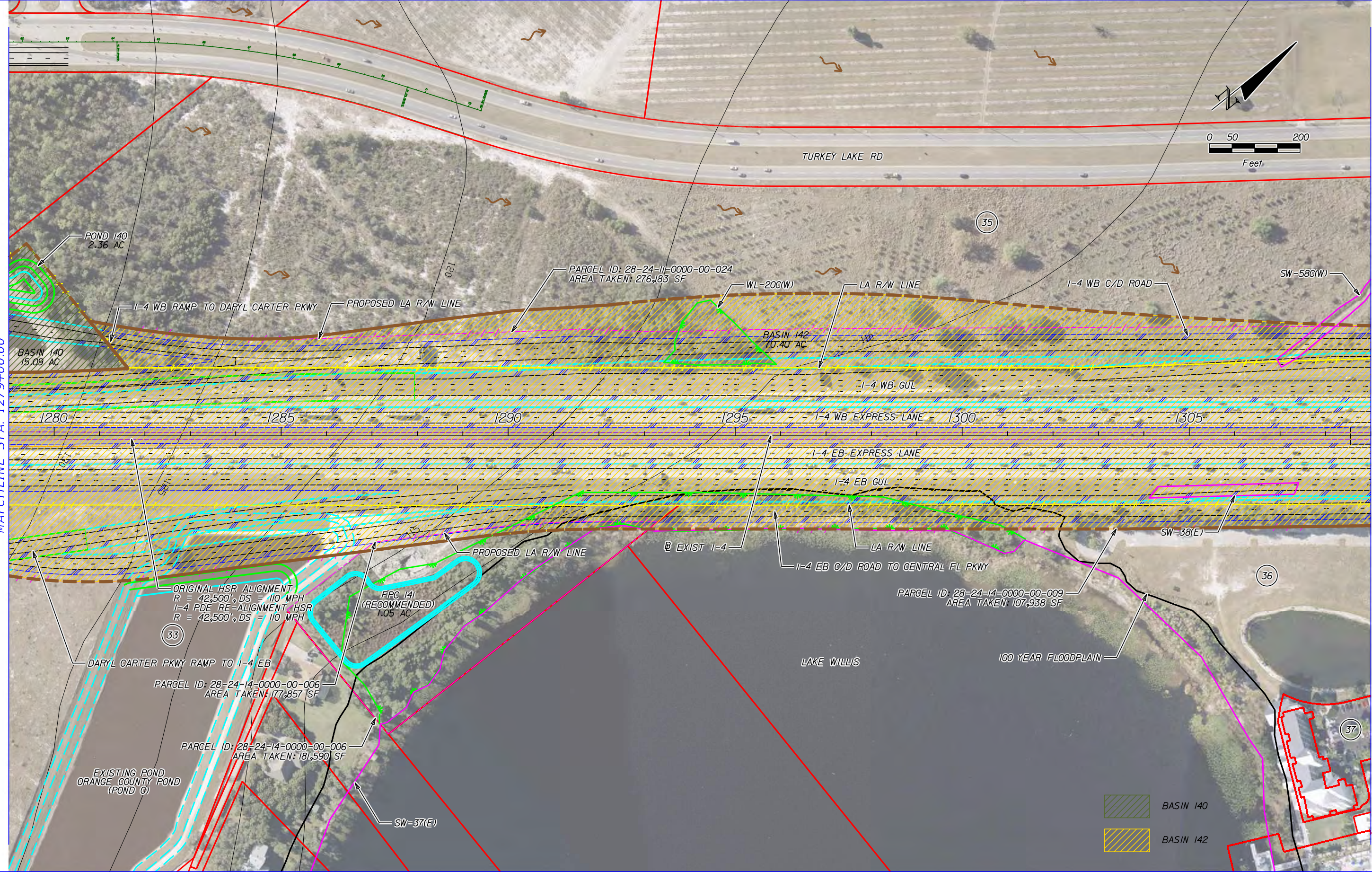
**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET
NO.
A-29



MATCHLINE STA. 1279+00.00

MATCHLINE STA. 1309+00.00



REVISIONS	
DATE	DESCRIPTION

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

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

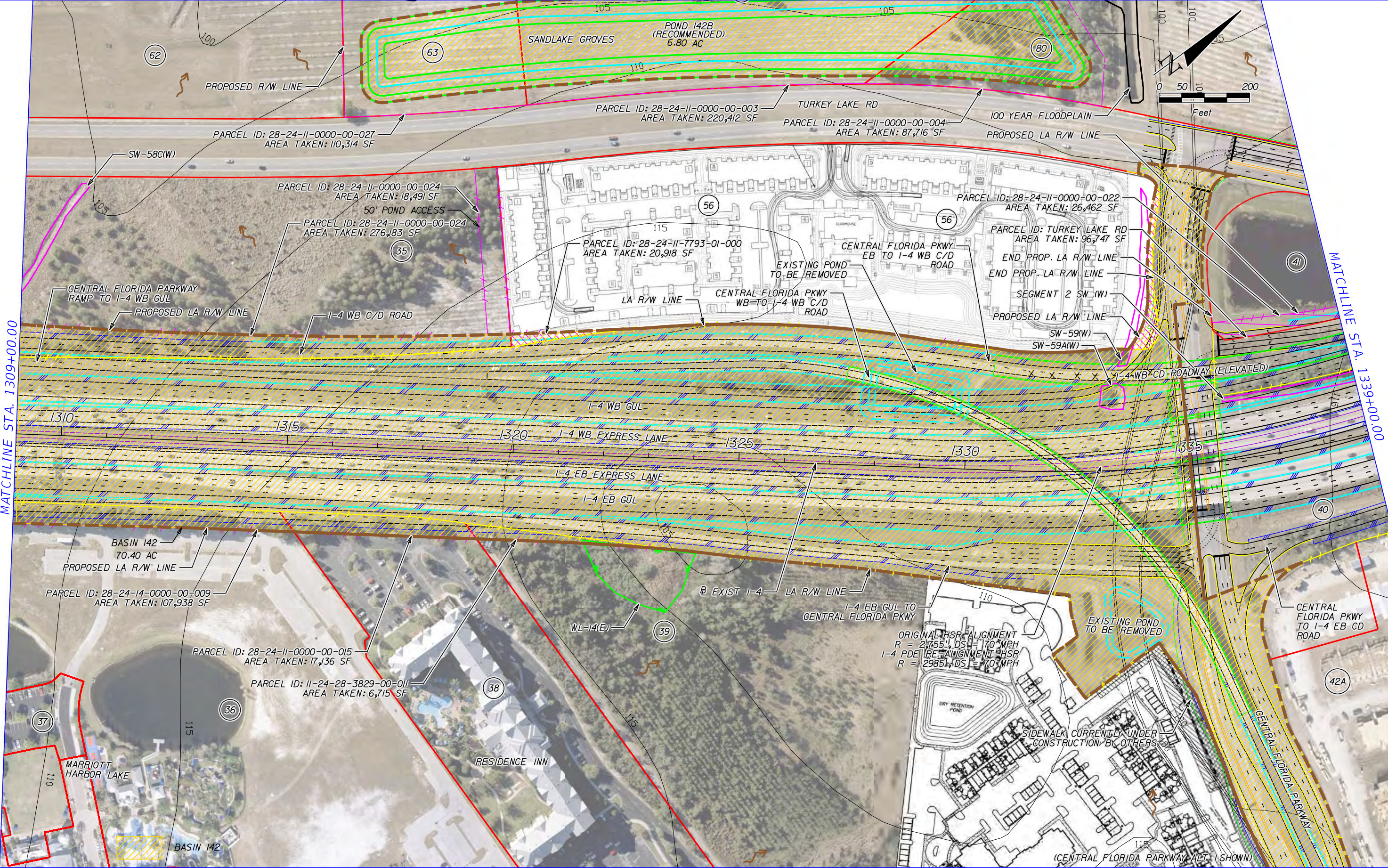
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-30

MODEL: 16.5x10.6 (ft.)
SHEET SIZE: 1:200
PLOT SCALE:

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



REVISIONS	
DATE	DESCRIPTION

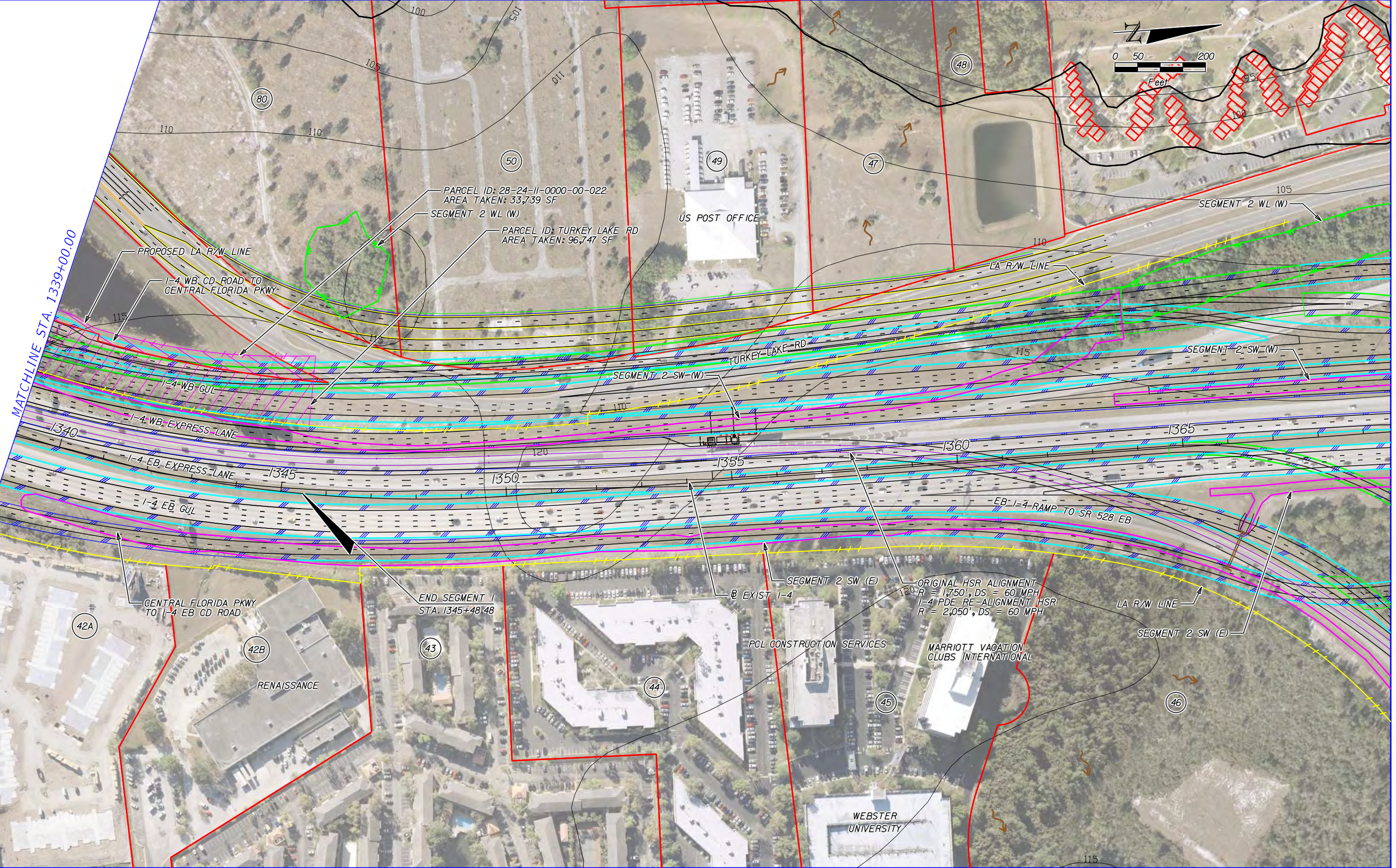
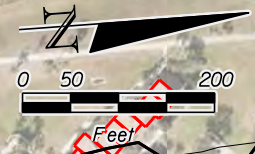
HNTB CORPORATION
610 CRESCENT EXECUTIVE CT
SUITE 400
LAKE MARY, FL 32746
(407) 805-0355
CERT. OF AUTH. NO. 6500

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-31



MATCHLINE STA. 1339+00.00

REVISIONS	
DATE	DESCRIPTION

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

ENGINEER OF RECORD: SANAM RAI, P.E.
FL. REGISTRATION NO. 69089

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

**I-4 PD&E STUDY
DRAINAGE MAP
SEGMENT 1**

SHEET NO.
A-32

APPENDIX B – BASIN CALCULATIONS

Office

Project

19 May 2014

INPUT

State Plane, NAD83
0901 - Florida East, U.S. Feet
Vertical - NGVD29 (Vertcon94), U.S. Feet

OUTPUT

State Plane, NAD83
0901 - Florida East, U.S. Feet
Vertical - NAVD88, U.S. Feet

I-4 Segment 1

1/1

Northing/Y: 1453563.76	Northing/Y: 1453563.760
Easting/X: 480313.97	Easting/X: 480313.970
Elevation/Z: 0	Elevation/Z: -0.876
Convergence: -0 15 33.92177	Convergence: -0 15 33.92177
Scale Factor: 0.999976621	Scale Factor: 0.999976621
Combined Factor: 0.999980949	Combined Factor: 0.999980990

Grid Shift (U.S. ft.): X/Easting = 0.0, Y/Northing = 0.0

Remark:

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 100
 POND NAME: 100

STATION LIMITS: From: 590+00
 To: 622+00

Roadway Length: 3200 ft
 R/W Width: 425 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft

Total Impervious Width: 72 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)
 Additional Pervious: 5.32 ac
 Impervious Roadway Area: 5.29 ac
 Pervious Roadway Area: 25.93 ac
 Total Roadway Area: 31.22 ac

Pond Area:
 Pervious Pond Area: 1.99 ac
 Water Surface Area: 3.63 ac
 Total Pond Area: 5.62 ac

Total Area:
 Impervious Area: 5.29 ac
 Pervious Area: 33.24 ac
 Water Surface Area: 3.63 ac
 Total Area: 42.16 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	5.29 ac	518.3
Water Area	---	100	3.63 ac	363.0
Open Land (Grass cover 50% - 75%)	A	49	9.97 ac	488.7
Open Land (Grass cover 50% - 75%)	A/D	84	23.27 ac	1954.6
Total:			42.16 ac	3324.6

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 78.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.68$ in

Precipitation (P) = 7.0 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 4.57$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:

SR	1-Mar-16
BJS	1-Mar-16

 made by:

SR	1-Mar-16
BJS	1-Mar-16

 checked by:

BJS	1-Mar-16
-----	----------

 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 100
 POND NAME: 100

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	12	144 ft
Wall	2 ft	2	4 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft

Total Impervious Width: 236 ft

Additional Impervious: 1.56 ac
 (ramps, turn lanes, etc.)

Additional Pervious: 5.32 ac

Impervious Roadway Area: 18.90 ac

Pervious Roadway Area: 12.32 ac

Total Roadway Area: 31.22 ac

Pond Area:

Pervious Pond Area: 1.99 ac

Water Surface Area: 3.63 ac

Total Pond Area: 5.62 ac

Total Area:

Impervious Area: 18.90 ac

Pervious Area: 19.63 ac

Water Surface Area: 3.63 ac

Total Area: 42.16 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	18.90 ac	1851.9
Water Area	---	100	3.63 ac	363.0
Rail Corridor (Gravel)	A/D	91	3.23 ac	294.1
Open Land (Grass cover 50% - 75%)	A	49	5.89 ac	288.6
Open Land (Grass cover 50% - 75%)	A/D	84	10.51 ac	883.0
Total:			42.16 ac	3680.7

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 87.3$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.45$ in

Precipitation (P) = 7.0 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 5.51$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:

SR	1-Mar-16
BJS	1-Mar-16

 made by:

SR	1-Mar-16
BJS	1-Mar-16

 checked by:

BJS	1-Mar-16
-----	----------

 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 100
 POND NAME: 100

POND SIZING : WET DETENTION POND (OPEN BASIN) - SWFWMD

Required Treatment Volume:

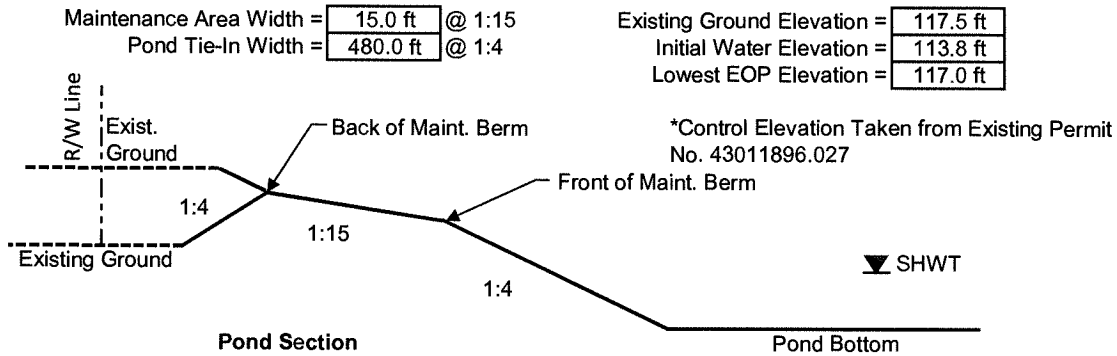
1" over Total Area = 3.51 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **3.51 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 4.57 in
 Q_{post} = 5.51 in
 ΔQ = 0.94 in

Attenuation V_{req} = $\Delta Q/12 \times$ Total Area = **3.32 ac-ft**



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
117.50	Back of Maintenance Berm	5.62 ac			17.59 ac-ft
116.50	Front of Maintenance Berm	4.94 ac			12.31 ac-ft
115.00	---	4.76 ac			5.03 ac-ft
113.80	Initial Water Elevation	3.63 ac			0.00 ac-ft
107.80	Pond Bottom	0.00 ac			

Required Treatment Volume: 3.51 ac-ft Required Treat. Vol. + Atten.: 6.83 ac-ft

Top El. Of Treatment Volume: 114.64 Top El. Of Treat. Vol. + Atten.: 115.37

HNTB Corporation
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 Lake Mary, FL 32746

made by: LDP 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 101 (Pond 101A is Pond 1A & 101B is Pond 1B in Permit No. 49-00809-P)
 POND NAME: 101A - 101G

STATION LIMITS: From: 622+00 LT Roadway Length: 1300 ft
 To: 635+00 LT R/W Width: VARIES
 From: 627+00 RT Roadway Length: 810 ft
 To: 635+10 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft
Total Impervious Width:			72 ft

Additional Impervious: 3.11 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 4.85 ac
 Pervious Roadway Area: 20.50 ac
 Total Roadway Area: 25.35 ac

Pond Area:
 Pervious Pond Area: 5.52 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 5.52 ac

Total Area:
 Impervious Area: 4.85 ac
 Pervious Area: 26.02 ac
 Water Surface Area: 0.00 ac
 Total Area: 30.87 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.85 ac	475.7
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	16.39 ac	803.1
Open Land (Grass cover 50% - 75%)	A/D	84	14.48 ac	1216.3
Total:			35.72 ac	2495.1

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 69.8$

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN} = 4.32$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 8.86$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:

LDP	1-Mar-16
BJS	1-Mar-16

 made by:

LDP	1-Mar-16
BJS	1-Mar-16

 checked by:

BJS	1-Mar-16
-----	----------

 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 101 (Pond 101A is Pond 1A & 101B is Pond 1B in Permit No. 49-00809-P)
 POND NAME: 101A - 101G

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	12	144 ft
Guardrail	5 ft	1	5 ft
Wall	2 ft	4	8 ft
Shoulder	10 ft	4	40 ft
Shoulder	12 ft	4	48 ft

Total Impervious Width: 245 ft

Additional Impervious: 5.62 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 11.55 ac
 Pervious Roadway Area: 13.80 ac
 Total Roadway Area: 25.35 ac

Pond Area:

Pervious Pond Area: 2.81 ac
 Water Surface Area: 2.71 ac
 Total Pond Area: 5.52 ac

Total Area:

Impervious Area: 11.55 ac
 Pervious Area: 16.61 ac
 Water Surface Area: 2.71 ac
 Total Area: 30.87 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	11.55 ac	1132.3
Water Area	---	100	2.71 ac	270.5
Open Land (Grass cover 50% - 75%)	A	49	11.94 ac	585.1
Gravel (Rail Corridor)	A	76	0.60 ac	45.6
Open Land (Grass cover 50% - 75%)	A/D	84	4.07 ac	341.9
Total:			30.87 ac	2375.4

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 76.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 3.00$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 9.89$ in

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 101 (Pond 101A is Pond 1A & 101B is Pond 1B in Permit No. 49-00809-P)
 POND NAME: 101A - 101G

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

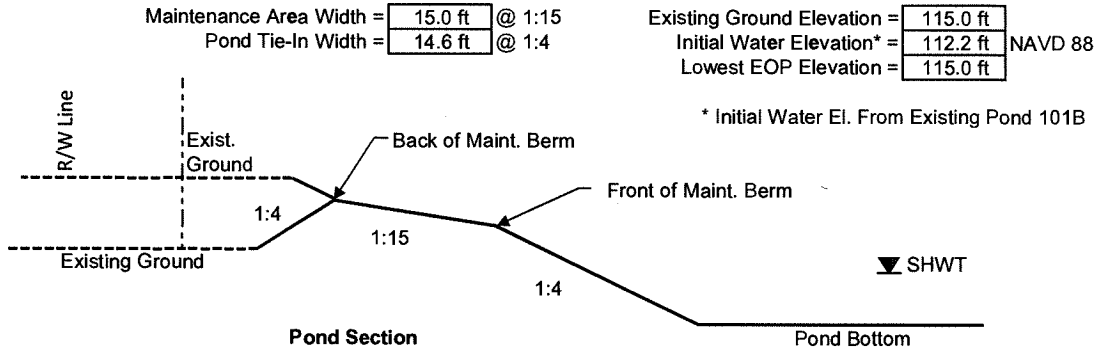
2.5" over New Impervious Area = 1.40 ac-ft (New Imp. = 11.55 ac - 4.85ac)
 1" over Total Area = 2.57 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **2.57 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 8.86 in
 Q_{post} = 9.89 in
 ΔQ = 1.03 in

Attenuation V_{req} = $\Delta Q/12 \times$ Total Area = **2.66 ac-ft**



POND 101A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	0.49 ac			1.11 ac-ft
115.15	Front of Maintenance Berm	0.30 ac			0.71 ac-ft
114.15	---	0.26 ac			0.43 ac-ft
113.15	---	0.21 ac			0.19 ac-ft
112.15	Initial Water Elevation	0.17 ac			0.00 ac-ft
106.15	Pond Bottom	0.02 ac			

POND 101B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	0.25 ac			0.51 ac-ft
115.15	Front of Maintenance Berm	0.14 ac			0.32 ac-ft
114.15	---	0.12 ac			0.19 ac-ft
113.15	---	0.09 ac			0.08 ac-ft
112.15	Initial Water Elevation	0.07 ac			0.00 ac-ft
106.15	Pond Bottom	0.00 ac			

POND 101C

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	0.37 ac			0.82 ac-ft
115.15	Front of Maintenance Berm	0.22 ac			0.53 ac-ft
114.15	---	0.19 ac			0.32 ac-ft
113.15	---	0.16 ac			0.15 ac-ft
112.15	Initial Water Elevation	0.13 ac			0.00 ac-ft
106.15	Pond Bottom	0.01 ac			

HNTB Corporation
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 Lake Mary, FL 32746

date:
 made by: LDP 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 101 (Pond 101A is Pond 1A & 101B is Pond 1B in Permit No. 49-00809-P)
 POND NAME: 101A - 101G

POND 101D

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	1.17 ac			3.17 ac-ft
115.15	Front of Maintenance Berm	0.84 ac			2.16 ac-ft
114.15	---	0.76 ac			1.36 ac-ft
113.15	---	0.68 ac			0.64 ac-ft
112.15	Initial Water Elevation	0.60 ac			0.00 ac-ft
106.15	Pond Bottom	0.19 ac			

POND 101E

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	2.03 ac			5.94 ac-ft
115.15	Front of Maintenance Berm	1.56 ac			4.14 ac-ft
114.15	---	1.44 ac			2.64 ac-ft
113.15	---	1.32 ac			1.26 ac-ft
112.15	Initial Water Elevation	1.21 ac			0.00 ac-ft
106.15	Pond Bottom	0.56 ac			

POND 101F

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	0.30 ac			0.63 ac-ft
115.15	Front of Maintenance Berm	0.17 ac			0.40 ac-ft
114.15	---	0.15 ac			0.24 ac-ft
113.15	---	0.12 ac			0.11 ac-ft
112.15	Initial Water Elevation	0.09 ac			0.00 ac-ft
106.15	Pond Bottom	0.00 ac			

POND 101G

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	0.90 ac			2.34 ac-ft
115.15	Front of Maintenance Berm	0.63 ac			1.58 ac-ft
114.15	---	0.56 ac			0.98 ac-ft
113.15	---	0.49 ac			0.46 ac-ft
112.15	Initial Water Elevation	0.43 ac			0.00 ac-ft
106.15	Pond Bottom	0.09 ac			

PONDS 101A TO 101G

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.15	Back of Maintenance Berm	5.52 ac			14.53 ac-ft
115.15	Front of Maintenance Berm	3.87 ac			9.83 ac-ft
114.15	---	3.47 ac			6.17 ac-ft
113.15	---	3.08 ac			2.89 ac-ft
112.15	Initial Water Elevation	2.71 ac			0.00 ac-ft
106.15	Pond Bottom	0.87 ac			

Required Treatment Volume: 2.57 ac-ft Required Treat. Vol. + Atten.: 5.23 ac-ft
 Top El. Of Treatment Volume: 112.93 Top El. Of Treat. Vol. + Atten.: 113.86

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 102 (Existing Pond 2, Permit # 020204-8)
 POND NAME: 102

STATION LIMITS: From: 635+00 Roadway Length: 3574 ft
 To: 670+74 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft
Total Impervious Width:			72 ft

Additional Impervious: 2.16 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 8.07 ac
 Pervious Roadway Area: 24.25 ac
 Total Roadway Area: 32.32 ac

Pond Area:
 Pervious Pond Area: 6.50 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 6.50 ac

Total Area:
 Impervious Area: 8.07 ac
 Pervious Area: 30.75 ac
 Water Surface Area: 0.00 ac
 Total Area: 38.82 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	8.07 ac	790.6
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	30.45 ac	1491.8
Open Land (Grass cover 50% - 75%)	A/D	84	0.31 ac	25.8
Total:			38.82 ac	2308.2

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 59.5$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 6.82$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 7.25$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 102 (Existing Pond 2, Permit # 020204-8)
 POND NAME: 102

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	12	144 ft
Guardrail	5 ft	1	5 ft
Wall	2 ft	2	4 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft
Total Impervious Width:			241 ft

Additional Impervious: 0.64 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 20.41 ac
 Pervious Roadway Area: 11.91 ac
 Total Roadway Area: 32.32 ac

Pond Area:
 Pervious Pond Area: 2.38 ac
 Water Surface Area: 4.12 ac
 Total Pond Area: 6.50 ac

Total Area:
 Impervious Area: 20.41 ac
 Pervious Area: 14.29 ac
 Water Surface Area: 4.12 ac
 Total Area: 38.82 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	20.41 ac	2000.5
Water Area	---	100	4.12 ac	412.0
Open Land (Grass cover 50% - 75%)	A	49	11.17 ac	547.4
Rail Corridor (Gravel)	A	76	2.96 ac	224.8
Open Land (Grass cover 50% - 75%)	A/D	84	0.16 ac	13.2
Total:			38.82 ac	3197.9

CN = Total CN * Area / Total Area = **82.4**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.14$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.65$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 102 (Existing Pond 2, Permit # 020204-8)
 POND NAME: 102

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

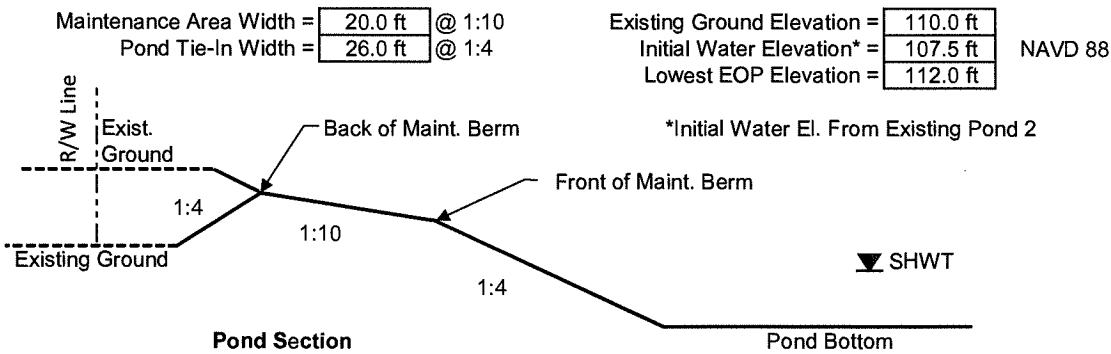
2.5" over New Impervious Area = 2.57 ac-ft
 1" over Total Area = 3.24 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 3.24 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 7.25 in
 Q_{post} = 10.65 in
 ΔQ = 3.40 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 10.98 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
114.00	Back of Maintenance Berm	6.50 ac			32.73 ac-ft
112.00	Front of Maintenance Berm	5.22 ac			21.01 ac-ft
108.50	----	4.36 ac			4.24 ac-ft
107.50	Initial Water Elevation	4.12 ac			0.00 ac-ft
95.50	Pond Bottom	1.46 ac			

Required Treatment Volume: 3.24 ac-ft Required Treat. Vol. + Atten.: 14.22 ac-ft
 Top El. Of Treatment Volume: 108.26 Top El. Of Treat. Vol. + Atten.: 110.85

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 103 (Existing Pond 3, Permit # 020204-8)
 POND NAME: 103

STATION LIMITS: From: 670+74 Roadway Length: 3526 ft
 To: 706+00 R/W Width: 320 ft Varies

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft
Total Impervious Width:			72 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)
 Impervious Roadway Area: 5.83 ac
 Pervious Roadway Area: 19.66 ac
 Total Roadway Area: 25.49 ac

Pond Area:
 Pervious Pond Area: 5.09 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 5.09 ac

Total Area:
 Impervious Area: 5.83 ac
 Pervious Area: 24.75 ac
 Water Surface Area: 0.00 ac
 Total Area: 30.58 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	5.83 ac	571.2
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	17.65 ac	864.8
Open Land (Grass cover 50% - 75%)	A/D	84	7.10 ac	596.7
Total:			30.58 ac	2032.7

CN = Total CN * Area / Total Area = **66.5**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 5.04$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 8.35$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 103 (Existing Pond 3, Permit # 020204-8)
 POND NAME: 103

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	12	144 ft
Guardrail	5 ft	5	25 ft
Wall	2 ft	4	8 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft
Total Impervious Width:			265 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 21.45 ac
 Pervious Roadway Area: 4.04 ac
 Total Roadway Area: 25.49 ac

Pond Area:
 Pervious Pond Area: 1.40 ac
 Water Surface Area: 3.69 ac
 Total Pond Area: 5.09 ac

Total Area:
 Impervious Area: 21.45 ac
 Pervious Area: 5.44 ac
 Water Surface Area: 3.69 ac
 Total Area: 30.58 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	21.45 ac	2102.2
Water Area	---	100	3.69 ac	369.1
Open Land (Grass cover 50% - 75%)	A	49	1.56 ac	76.4
Rail Corridor (Gravel)	A	76	1.82 ac	138.5
Rail Corridor (Gravel)	A/D	91	1.20 ac	109.0
Open Land (Grass cover 50% - 75%)	A/D	84	0.86 ac	72.2
Total:			<u>30.58 ac</u>	<u>2867.4</u>

CN = Total CN * Area / Total Area = **93.8**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = \frac{1000}{93.8} - 10 = 0.67$ in
 Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = \frac{(12.9 - 0.2 \times 0.67)^2}{(12.9 + 0.8 \times 0.67)} = 12.13$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 103 (Existing Pond 3, Permit # 020204-8)
 POND NAME: 103

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

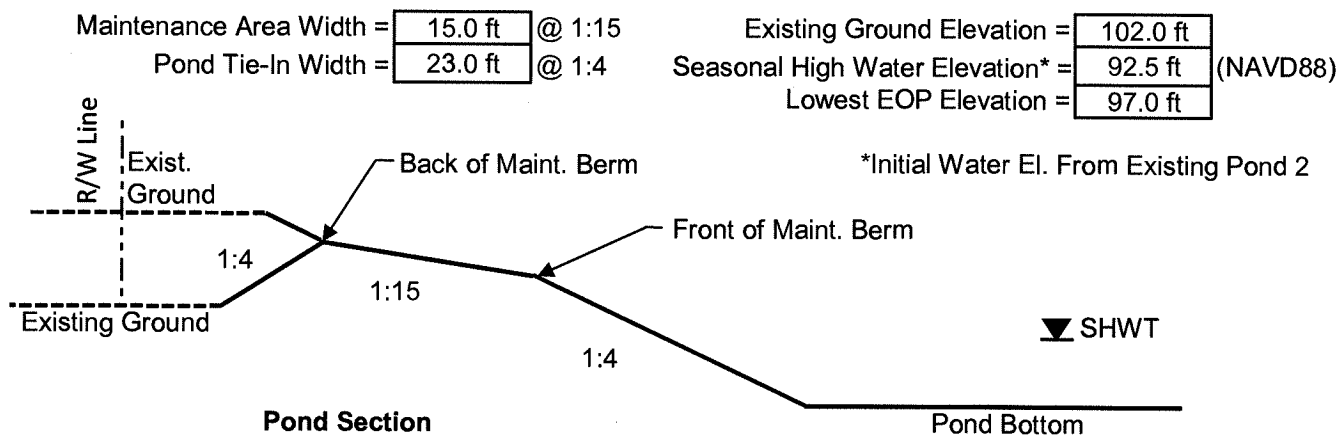
2.5" over New Impervious Area = 3.25 ac-ft
 1" over Total Area = 2.55 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 3.25 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 8.35 in
 Q_{post} = 12.13 in
 ΔQ = 3.79 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 9.65 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
98.75	Back of Maintenance Berm	5.09 ac			26.73 ac-ft
96.75	Front of Maintenance Berm	4.42 ac			17.22 ac-ft
95.75		4.24 ac			12.89 ac-ft
92.50	Initial Water Elevation	3.69 ac			0.00 ac-ft
80.50	Pond Bottom	1.91 ac			

Required Treatment Volume: 3.25 ac-ft Required Treat. Vol. + Atten.: 12.90 ac-ft
 Top El. Of Treatment Volume: 93.30 Top El. Of Treat. Vol. + Atten.: 95.68

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 104
 POND NAME: 104 (Pond B2 in DEB Application # 187636-001)

STATION LIMITS: From: 080+50 Roadway Length: 1425 ft
 To: 094+75 R/W Width: Varies

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	6 ft	2	12 ft
Outside Shoulder	4 ft	2	8 ft

Total Impervious Width: 68 ft

Additional Impervious: 0.85 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 3.07 ac
 Pervious Roadway Area: 8.70 ac
 Total Roadway Area: 11.77 ac

Pond Area:
 Pervious Pond Area: 5.16 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 5.16 ac

Total Area:
 Impervious Area: 3.07 ac
 Pervious Area: 13.86 ac
 Water Surface Area: 0.00 ac
 Total Area: 16.93 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	3.07 ac	301.3
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	39	13.86 ac	540.4
Total:			16.93 ac	841.7

CN = Total CN * Area / Total Area = **49.7**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 10.11$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 5.64$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 104
 POND NAME: 104 (Pond B2 in DEB Application # 187636-001)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Shoulder	10 ft	2	20 ft
Shoulder	6 ft	2	12 ft
Total Impervious Width:			104 ft

Additional Impervious: 0.13 ac
 (ramps, turn lanes, etc.)
 Impervious Roadway Area: 3.53 ac
 Pervious Roadway Area: 8.24 ac
 Total Roadway Area: 11.77 ac

Pond Area:
 Pervious Pond Area: 1.85 ac
 Water Surface Area: 3.31 ac
 Total Pond Area: 5.16 ac

Total Area:
 Impervious Area: 3.53 ac
 Pervious Area: 10.09 ac
 Water Surface Area: 3.31 ac
 Total Area: 16.93 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	3.53 ac	346.2
Water Area	---	100	3.31 ac	331.0
Open Land (Grass cover 50% - 75%)	A	39	10.09 ac	393.4
Total:			<u>16.93 ac</u>	<u>1070.6</u>

CN = Total CN * Area / Total Area = **63.2**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 5.81$ in
 Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 7.85$ in

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 104
 POND NAME: 104 (Pond B2 in DEB Application # 187636-001)

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

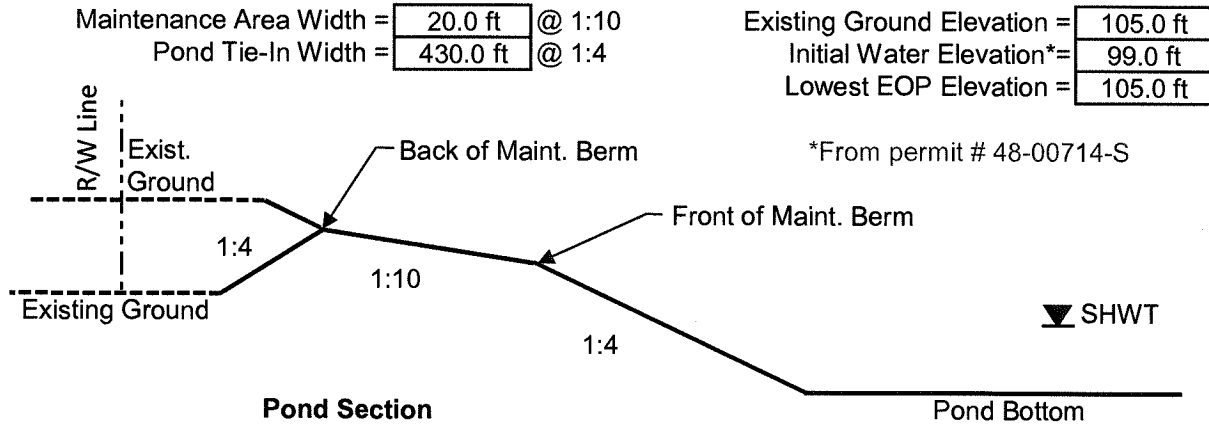
2.5" over New Impervious Area = 0.10 ac-ft
 1" over Total Area = 1.41 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **1.41 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 5.64 in
 Q_{post} = 7.85 in
 ΔQ = 2.21 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} =$ **3.12 ac-ft**



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
105.00	Back of Maintenance Berm	5.16 ac			24.11 ac-ft
103.00	Front of Maintenance Berm	4.11 ac			14.84 ac-ft
102.00	---	3.91 ac			10.83 ac-ft
99.00	Initial Water Elevation	3.31 ac			0.00 ac-ft
93.00	Pond Bottom	2.17 ac			

Required Treatment Volume: 1.41 ac-ft Required Treat. Vol. + Atten.: 4.53 ac-ft
 Top El. Of Treatment Volume: 99.39 Top El. Of Treat. Vol. + Atten.: 100.22

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 105 (Pond F-4A & F-4B in DEB Application # 187636-001)
 POND NAME: 105A + 105B

STATION LIMITS: From: 706+48 LT Roadway Length: 4852 ft
 To: 755+00 LT R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	10 ft	0	0 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

(SR 429)
 Additional Impervious: 11.90 ac
 (ramps, turn lanes, etc.)
 Impervious Roadway Area: 15.92 ac
 Pervious Roadway Area: 47.14 ac
 Total Roadway Area: 63.06 ac

Pond Area:

Pervious Pond Area: 7.59 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 7.59 ac

Total Area:

Impervious Area: 15.92 ac
 Pervious Area: 54.73 ac
 Water Surface Area: 0.00 ac
 Total Area: 70.65 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	15.92 ac	1559.7
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	0.15 ac	12.4
Open Land (Grass cover 50% - 75%)	A	49	54.59 ac	2674.8
			Total:	4246.9

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 60.1$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 6.64$ in Precipitation (P) = 12.5 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 7.01$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 105
 POND NAME: 105A + 105B

(Pond F-4A & F-4B in DEB Application # 187636-001)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	5	60 ft
Barrier Wall	2 ft	1	2 ft
Guardrail	5 ft	1	5 ft
Shoulder	10 ft	2	20 ft
Shoulder	12 ft	2	24 ft
Total Impervious Width:			111 ft

(SR 429 + Old Lake Wilson Rd)
 Additional Impervious: 16.38 ac

Impervious Roadway Area: 28.75 ac
 Pervious Roadway Area: 34.31 ac
 Total Roadway Area: 63.06 ac

Pond Area:

Pervious Pond Area: 2.88 ac
 Water Surface Area: 4.71 ac
 Total Pond Area: 7.59 ac

Total Area:

Impervious Area: 28.75 ac
 Pervious Area: 37.19 ac
 Water Surface Area: 4.71 ac
 Total Area: 70.65 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	28.75 ac	2817.0
Water Area	---	100	4.71 ac	471.3
Open Land (Grass cover 50% - 75%)	A/D	84	5.95 ac	499.9
Open Land (Grass cover 50% - 75%)	A	49	31.24 ac	1530.8
Total:			70.65 ac	5319.0

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 75.3$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 =$

3.28 in

Precipitation (P) = 12.5 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} =$

9.27 in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 105
 POND NAME: 105A + 105B

(Pond F-4A & F-4B in DEB Application # 187636-001)

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

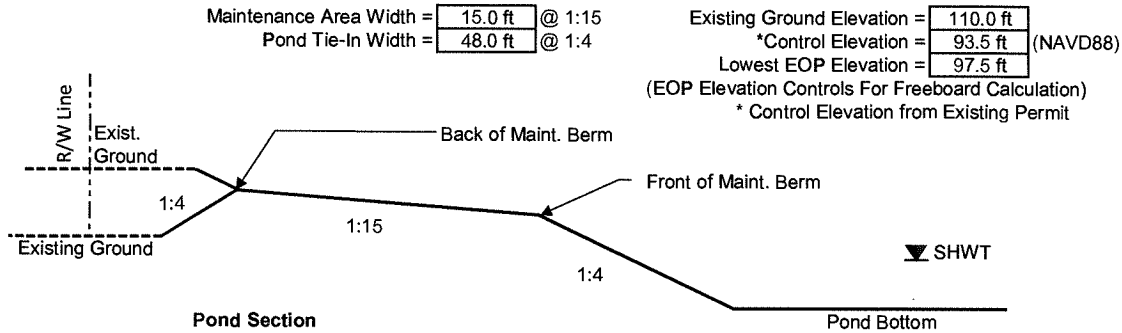
2.5" over New Impervious Area = 2.67 ac-ft (New Imp. = 28.75 ac - 15.92ac)
 1" over Total Area = 5.89 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **5.89 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 7.01 in
 Q_{post} = 9.27 in
 ΔQ = 2.26 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **13.33 ac-ft**



POND 105A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
100.50	Back of Maintenance Berm	4.84 ac			26.62 ac-ft
99.50	Front of Maintenance Berm	4.18 ac			22.11 ac-ft
97.00	---	3.76 ac			12.18 ac-ft
95.00	---	3.44 ac			4.98 ac-ft
93.50	Initial Water Elevation	3.20 ac			0.00 ac-ft
87.50	Pond Bottom	2.32 ac			

POND 105B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
100.50	Back of Maintenance Berm	2.75 ac			13.75 ac-ft
99.50	Front of Maintenance Berm	2.25 ac			11.25 ac-ft
97.00	---	1.93 ac			6.02 ac-ft
95.00	---	1.69 ac			2.40 ac-ft
93.50	Initial Water Elevation	1.51 ac			0.00 ac-ft
87.50	Pond Bottom	0.89 ac			

POND 105A + POND 105B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
100.50	Back of Maintenance Berm	7.59 ac			40.36 ac-ft
99.50	Front of Maintenance Berm	6.43 ac			33.35 ac-ft
97.00	---	5.69 ac			18.20 ac-ft
95.00	---	5.13 ac			7.38 ac-ft
93.50	Initial Water Elevation	4.71 ac			0.00 ac-ft
87.50	Pond Bottom	3.21 ac			

Required Treatment Volume: 5.89 ac-ft Required Treat. Vol. + Atten.: 19.21 ac-ft
 Top El. Of Treatment Volume: 94.70 Top El. Of Treat. Vol. + Atten.: 97.19

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 106

POND NAME: 106A & 106B

(Pond 104 in Permit #020204-8,
 Pond F-4A & F-4B in DEB Application # 187636-001)

STATION LIMITS: From: 706+48
 To: 735+67

RT Roadway Length: 2919 ft
 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	10 ft	0	0 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 2.41 ac
 Pervious Roadway Area: 20.52 ac
 Total Roadway Area: 22.93 ac

Pond Area:

Pervious Pond Area: 4.39 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 4.39 ac

Total Area:

Impervious Area: 2.41 ac
 Pervious Area: 24.91 ac
 Water Surface Area: 0.00 ac
 Total Area: 27.32 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	2.41 ac	236.4
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	24.91 ac	1220.5
			Total:	27.32 ac
				1456.9

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 53.3$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 8.75$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 6.25$ in

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 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 106
 POND NAME: 106A & 106B (Pond 104 in Permit #020204-8,
 Pond F-4A & F-4B in DEB Application # 187636-001)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	5	60 ft
Barrier Wall	2 ft	1	2 ft
Guardrail	5 ft	1	5 ft
Shoulder	10 ft	2	20 ft
Shoulder	12 ft	2	24 ft
Total Impervious Width:			111 ft

Additional Impervious: 2.68 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 10.12 ac
 Pervious Roadway Area: 12.81 ac
 Total Roadway Area: 22.93 ac

Pond Area:
 Pervious Pond Area: 2.37 ac
 Water Surface Area: 2.02 ac
 Total Pond Area: 4.39 ac

Total Area:
 Impervious Area: 10.12 ac
 Pervious Area: 15.18 ac
 Water Surface Area: 2.02 ac
 Total Area: 27.32 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	10.12 ac	991.6
Water Area	---	100	2.02 ac	202.0
Gravel (Rail Corridor)	A	76	2.66 ac	202.2
Open Land (Grass cover 50% - 75%)	A	49	12.52 ac	613.6
Total:			27.32 ac	2009.3

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 73.5$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 3.60$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 9.40$ in

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 checked by:

BJS	1-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 106
 POND NAME: 106A & 106B (Pond 104 in Permit #020204-8,
 Pond F-4A & F-4B in DEB Application # 187636-001)

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

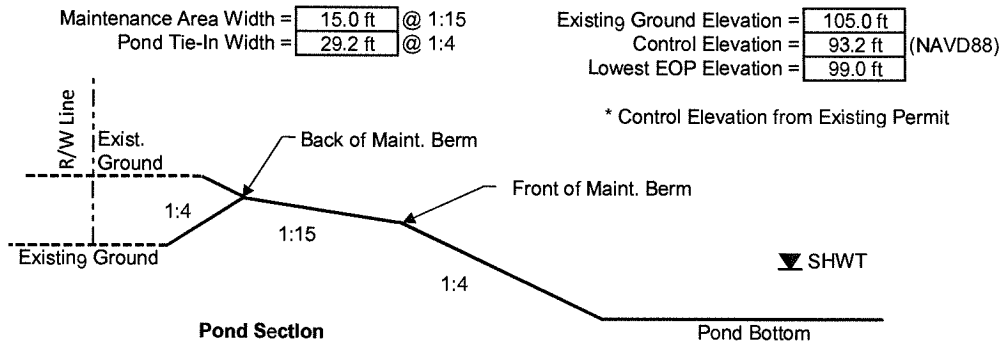
2.5" over New Impervious Area = 1.61 ac-ft (New Imp. = 10.12 ac - 2.41ac)
 1" over Total Area = 2.28 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 2.28 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 6.25 in
 Q_{post} = 9.40 in
 ΔQ = 3.16 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 7.19 \text{ ac-ft}$



POND 106A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
100.20	Back of Maintenance Berm	2.69 ac			12.51 ac-ft
99.20	Front of Maintenance Berm	2.11 ac			10.11 ac-ft
93.20	Initial Water Elevation	1.26 ac			0.00 ac-ft
90.00	Pond Bottom	0.84 ac			

POND 106B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
100.20	Back of Maintenance Berm	1.70 ac			7.72 ac-ft
99.20	Front of Maintenance Berm	1.31 ac			6.21 ac-ft
93.20	Initial Water Elevation	0.76 ac			0.00 ac-ft
90.00	Pond Bottom	0.51 ac			

POND 106A + POND 106B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
100.20	Back of Maintenance Berm	4.39 ac			20.23 ac-ft
99.20	Front of Maintenance Berm	3.42 ac			16.32 ac-ft
93.20	Initial Water Elevation	2.02 ac			0.00 ac-ft
90.00	Pond Bottom	1.35 ac			

Required Treatment Volume: 2.28 ac-ft Required Treat. Vol. + Atten.: 9.47 ac-ft
 Top El. Of Treatment Volume: 94.04 Top El. Of Treat. Vol. + Atten.: 96.68

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 107 (Pond F-7 in DEB Application # 187636-001)
 POND NAME: 107

STATION LIMITS: From: 735+67 RT Roadway Length: 1133 ft
 To: 747+00 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft
Total Impervious Width:			36 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 0.94 ac
 Pervious Roadway Area: 5.79 ac
 Total Roadway Area: 6.73 ac

Pond Area:
 Pervious Pond Area: 2.72 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 2.72 ac

Total Area:
 Impervious Area: 0.94 ac
 Pervious Area: 8.51 ac
 Water Surface Area: 0.00 ac
 Total Area: 9.45 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	0.94 ac	91.8
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	8.51 ac	417.2
Total:			9.45 ac	508.9

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 53.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 8.57$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 6.33$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 107 (Pond F-7 in DEB Application # 187636-001)
 POND NAME: 107

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	5	60 ft
Barrier Wall	2 ft	1	2 ft
Shoulder	10 ft	2	20 ft
Shoulder	12 ft	2	24 ft
Total Impervious Width:			106 ft

Additional Impervious: 0.00 ac
 (Ramps, Turn lanes, etc.)
 Impervious Roadway Area: 2.76 ac
 Pervious Roadway Area: 3.97 ac
 Total Roadway Area: 6.73 ac

Pond Area:
 Pervious Pond Area: 0.98 ac
 Water Surface Area: 1.74 ac
 Total Pond Area: 2.72 ac

Total Area:
 Impervious Area: 2.76 ac
 Pervious Area: 4.95 ac
 Water Surface Area: 1.74 ac
 Total Area: 9.45 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	2.76 ac	270.2
Water Area	---	100	1.74 ac	174.0
Gravel (Rail Corridor)	A	76	1.16 ac	88.2
Open Land (Grass cover 50% - 75%)	A	49	3.79 ac	185.9
Total:			9.45 ac	718.2

CN = Total CN * Area / Total Area = **76.0**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 3.16$ in
 Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 9.76$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 107 (Pond F-7 in DEB Application # 187636-001)
 POND NAME: 107

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

2.5" over New Impervious Area = 0.38 ac-ft (New Imp. = 2.76 ac - 0.94ac)
 1" over Total Area = 0.79 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 0.79 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 6.33 in
 Q_{post} = 9.76 in
 ΔQ = 3.42 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 2.70 \text{ ac-ft}$

Maintenance Area Width =

20.0 ft

 @ 1:20
 Pond Tie-In Width =

12.0 ft

 @ 1:4

Existing Ground Elevation =

100.0 ft

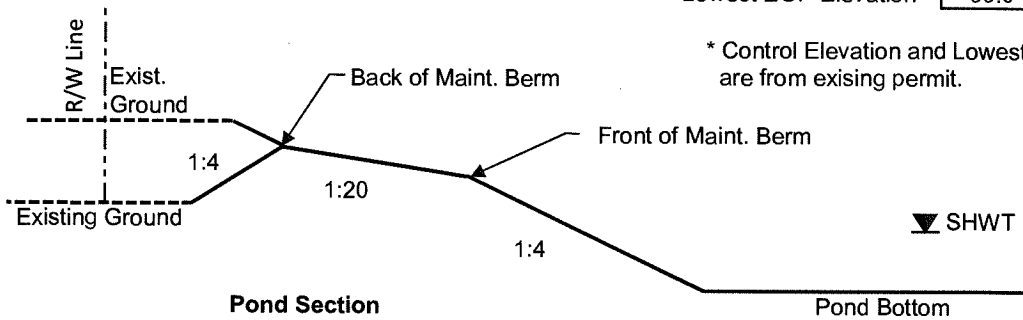
 Control Elevation =

93.0 ft

 (NAVD88)
 Lowest EOP Elevation =

99.0 ft

* Control Elevation and Lowest EOP Elevation are from existing permit.



POND 107

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
99.00	Back of Maintenance Berm	2.72 ac			12.65 ac-ft
97.00	Front of Maintenance Berm	2.15 ac			7.78 ac-ft
93.00	Initial Water Elevation	1.74 ac			0.00 ac-ft
87.00	Pond Bottom	1.19 ac			

Required Treatment Volume: 0.79 ac-ft Required Treat. Vol. + Atten.: 3.48 ac-ft
 Top El. Of Treatment Volume: 93.40 Top El. Of Treat. Vol. + Atten.: 94.79

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 108 (Pond G-1 in FDEP Application # 187636-001, 020204-15)
 POND NAME: 108A & 108B

STATION LIMITS: From: 747+00 RT Roadway Length: 1419 ft
 To: 761+19 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 4.90 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 6.07 ac
 Pervious Roadway Area: 22.51 ac
 Total Roadway Area: 28.58 ac

Pond Area:
 Pervious Pond Area: 5.80 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 5.80 ac

Total Area:
 Impervious Area: 6.07 ac
 Pervious Area: 28.31 ac
 Water Surface Area: 0.00 ac
 Total Area: 34.38 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	6.07 ac	595.1
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	10.11 ac	849.4
Open Land (Grass cover 50% - 75%)	A	49	18.20 ac	891.6
Total:			34.38 ac	2336.1

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 67.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 4.72$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 8.57$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 108 (Pond G-1 in FDEP Application # 187636-001, 020204-15)
 POND NAME: 108A & 108B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	5	60 ft
Barrier Wall	2 ft	1	2 ft
Shoulder	10 ft	2	20 ft
Shoulder	12 ft	2	24 ft

Total Impervious Width: 106 ft

Additional Impervious: 9.62 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 13.07 ac
 Pervious Roadway Area: 15.51 ac
 Total Roadway Area: 28.58 ac

Pond Area:

Pervious Pond Area: 3.09 ac
 Water Surface Area: 2.71 ac
 Total Pond Area: 5.80 ac

Total Area:

Impervious Area: 13.07 ac
 Pervious Area: 18.60 ac
 Water Surface Area: 2.71 ac
 Total Area: 34.38 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	13.07 ac	1281.2
Water Area	---	100	2.71 ac	271.0
Gravel (Rail Corridor)	A/D	91	0.38 ac	34.4
Gravel (Rail Corridor)	A	76	1.28 ac	97.1
Open Land (Grass cover 50% - 75%)	A/D	84	6.72 ac	564.8
Open Land (Grass cover 50% - 75%)	A	49	10.22 ac	500.7
Total:			34.38 ac	2749.1

CN = Total CN * Area / Total Area = 80.0

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.51$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.31$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 108 (Pond G-1 in FDEP Application # 187636-001, 020204-15)
 POND NAME: 108A & 108B

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

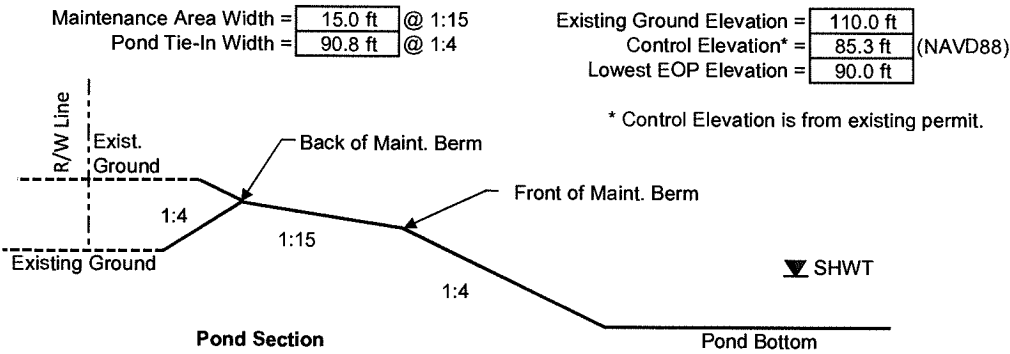
2.5" over New Impervious Area = 1.46 ac-ft (New Imp. = 13.07 ac - 6.07ac)
 1" over Total Area = 2.87 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **2.87 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 8.57 in
 Q_{post} = 10.31 in
 ΔQ = 1.74 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **4.99 ac-ft**



POND 108A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
89.80	Back of Maintenance Berm	3.84 ac			13.95 ac-ft
88.80	Front of Maintenance Berm	3.24 ac			10.41 ac-ft
85.30	Initial Water Elevation	2.71 ac			0.00 ac-ft
79.30	Pond Bottom	1.87 ac			

POND 108B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
89.80	Back of Maintenance Berm	1.96 ac			6.45 ac-ft
88.80	Front of Maintenance Berm	1.53 ac			4.71 ac-ft
85.30	Initial Water Elevation	1.16 ac			0.00 ac-ft
79.30	Pond Bottom	0.58 ac			

POND 108A + POND 108B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
89.80	Back of Maintenance Berm	5.80 ac			20.41 ac-ft
88.80	Front of Maintenance Berm	4.77 ac			15.12 ac-ft
85.30	Initial Water Elevation	3.87 ac			0.00 ac-ft
79.30	Pond Bottom	2.45 ac			

Required Treatment Volume: 2.87 ac-ft Required Treat. Vol. + Atten.: 7.85 ac-ft

Top El. Of Treatment Volume: 86.26 Top El. Of Treat. Vol. + Atten.: 87.12

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 109 Existing Pond 5b, Permit # 020204-8
 POND NAME: 109

STATION LIMITS: From: 761+19 Roadway Length: 1401 ft
 To: 775+20 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Inside Shoulder	8 ft	2	16 ft
Outside Shoulder	4 ft	2	8 ft
Total Impervious Width:			72 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 2.32 ac
 Pervious Roadway Area: 9.84 ac
 Total Roadway Area: 12.16 ac

Pond Area:
 Pervious Pond Area: 5.82 ac
 Water Surface Area: 0.00 ac Exist. Ponds NWL Surface Area
 Total Pond Area: 5.82 ac

Total Area:
 Impervious Area: 2.32 ac
 Pervious Area: 15.66 ac
 Water Surface Area: 0.00 ac
 Total Area: 17.98 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	2.32 ac	226.9
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	10.72 ac	525.3
Open Land (Grass cover 50% - 75%)	A/D, B/D, C/D	84	4.94 ac	415.3
Total:			17.98 ac	1167.5

CN = Total CN * Area / Total Area = **64.9**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 5.40$ in

Precipitation (P) = 12.90 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 8.11$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 109 Existing Pond 5b, Permit # 020204-8
 POND NAME: 109

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	11	132 ft
Guardrail	5 ft	1	5 ft
Wall	2 ft	2	4 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft
Total Impervious Width:			229 ft

Additional Impervious: 0.12 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 7.49 ac
 Pervious Roadway Area: 4.67 ac
 Total Roadway Area: 12.16 ac

Pond Area:
 Pervious Pond Area: 1.78 ac
 Water Surface Area: 4.04 ac
 Total Pond Area: 5.82 ac

Total Area:
 Impervious Area: 7.49 ac
 Pervious Area: 6.45 ac
 Water Surface Area: 4.04 ac
 Total Area: 17.98 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	7.49 ac	733.6
Water Area	---	100	4.04 ac	404.0
Gravel (Rail Corridor)	A	76	1.13 ac	85.9
Gravel (Rail Corridor)	A/D, B/D, C/D	91	0.25 ac	22.8
Open Land (Grass cover 50% - 75%)	A	49	2.84 ac	139.2
Open Land (Grass cover 50% - 75%)	A/D, B/D, C/D	84	2.23 ac	187.7
Total:			17.98 ac	1573.1

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 87.5$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.43$ in

Precipitation (P) = 12.90 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.33$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 109 Existing Pond 5b, Permit # 020204-8
 POND NAME: 109

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

2.5" over New Impervious Area = 1.08 ac-ft
 1" over Total Area = 1.50 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **1.50 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 8.11 in
 Q_{post} = 11.33 in
 ΔQ = 3.22 in

Attenuation V_{req} = $\Delta Q/12 \times$ Total Area = **4.82 ac-ft**

TOTAL INCLUDING COMPENSATION FOR BASIN 109 COMPENSATION

Required Treatment Volume:

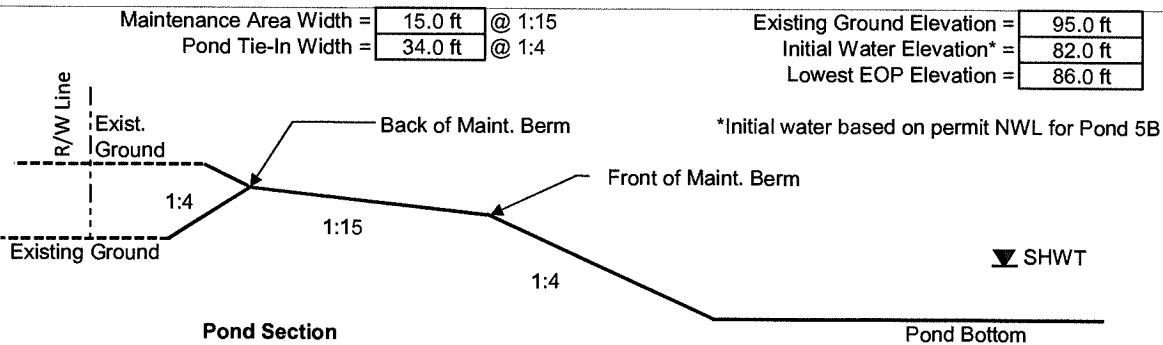
Required Treatment Volume Basin 109 = 1.50 ac-ft
 Required Treatment Volume Basin 109 COMP = 3.34 ac-ft

Treatment V_{req} = **4.84 ac-ft**

Required Attenuation Volume:

Total Runoff: V_{109} = 4.82 ac-ft
 $V_{109 COMP}$ = 4.05 ac-ft

Attenuation V_{req} = **8.87 ac-ft**



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
89.00	Back of Maintenance Berm	5.82 ac			32.91 ac-ft
88.00	Front of Maintenance Berm	5.11 ac			27.45 ac-ft
87.00	---	4.93 ac			22.43 ac-ft
82.00	Initial Water Elevation	4.04 ac			0.00 ac-ft
70.00	Pond Bottom	2.23 ac			

Required Treatment Volume: 4.84 ac-ft Required Treat. Vol. + Atten.: 13.70 ac-ft
 Top El. Of Treatment Volume: 83.08 Top El. Of Treat. Vol. + Atten.: 85.06

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 109 (Compensation)
 POND NAME: 109

STATION LIMITS: From: 775+19 Roadway Length: 3781 ft
 To: 813+00 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Inside Shoulder	8 ft	2	16 ft
Outside Shoulder	4 ft	2	8 ft
Total Impervious Width:			72 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 6.25 ac
 Pervious Roadway Area: 20.65 ac
 Total Roadway Area: 26.90 ac

Pond Area:
 Pervious Pond Area: 0.00 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 0.00 ac

Total Area:
 Impervious Area: 6.25 ac
 Pervious Area: 20.65 ac
 Water Surface Area: 0.00 ac
 Total Area: 26.90 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	6.25 ac	612.4
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	0.99 ac	48.5
Open Land (Grass cover 50% - 75%)	A/D, B/D, C/D	84	4.22 ac	354.5
Woods (Good Cover)	A/D, B/D, C/D	77	15.44 ac	1189.0
Total:			26.90 ac	2204.3

CN = Total CN * Area / Total Area = **81.9**

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:

made by:	LDP	1-Mar-16
checked by:	BJS	1-Mar-16
HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 109 (Compensation)
 POND NAME: 109

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.20$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.59$ in

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	13	156 ft
Guardrail	5 ft	1	5 ft
Wall	2 ft	2	4 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft

Total Impervious Width: 253 ft

Additional Impervious: 0.32 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 22.28 ac
 Pervious Roadway Area: 4.62 ac
 Total Roadway Area: 26.90 ac

Pond Area:

Pervious Pond Area:	0.00 ac
Water Surface Area:	0.00 ac
Total Pond Area:	0.00 ac

Total Area:

Impervious Area:	22.28 ac
Pervious Area:	4.62 ac
Water Surface Area:	0.00 ac
Total Area:	26.90 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	22.28 ac	2183.3
Water Area	---	100	0.00 ac	0.0
Gravel (Rail Corridor)	A	76	0.22 ac	16.7
Gravel (Rail Corridor)	A/D, B/D, C/D	91	3.26 ac	296.7
Open Land (Grass cover 50% - 75%)	A	49	0.38 ac	18.6
Wood (Good Cover)	A/D, B/D, C/D	79	0.27 ac	21.3
Open Land (Grass cover 50% - 75%)	A/D, B/D, C/D	84	0.49 ac	41.3
Total:			26.90 ac	2577.9

CN = Total CN * Area / Total Area = **95.8**

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BJS	1-Mar-16
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HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 109 (Compensation)
POND NAME: 109

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.43$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.39$ in

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

2.5" over New Impervious Area = 3.34 ac-ft
1" over Total Area = 2.24 ac-ft

Treatment $V_{req} =$ Largest of Trt. Vol. = 3.34 ac-ft

Required Attenuation Volume:

Total Runoff: $Q_{pre} = 10.59$ in
 $Q_{post} = 12.39$ in
 $\Delta Q = 1.81$ in

Attenuation $V_{req} = \Delta Q/12 \times$ Total Area = 4.05 ac-ft

Compensation For Basin 109 Compensation will be provided in Pond 109.

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 110 (Existing Pond MV-5A, Existing Basin 6E Permit # 020204-8)
 POND NAME: 110

STATION LIMITS: From: 813+00 LT Roadway Length: 2030 ft
 To: 833+30 LT R/W Width: 300 ft Varies

EXISTING CONDITION

Roadway Area: (Westbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 1.68 ac
 Pervious Roadway Area: 11.01 ac
 Total Roadway Area: 12.69 ac

Pond Area:
 Pervious Pond Area: 8.17 ac
 Water Surface Area: 14.57 ac
 Total Pond Area: 22.74 ac

Total Area:
 Impervious Area: 1.68 ac
 Pervious Area: 19.18 ac
 Offsite Pervious Area (Celebration): 4.92 ac
 Offsite Impervious Area (Celebration): 14.54 ac
 Water Surface Area: 14.57 ac
 Total Area: 54.88 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	16.21 ac	1588.8
Water Area	---	100	14.57 ac	1457.0
Open Land (Grass cover 50% - 75%)	A/D, C/D	84	24.10 ac	2024.2
Total:			54.88 ac	5070.0

CN = Total CN * Area / Total Area = **92.4**

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN}$ = 0.82 in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$ = 11.96 in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 110 (Existing Pond MV-5A, Existing Basin 6E Permit # 020204-8)
 POND NAME: 110

PROPOSED CONDITION

Roadway Area: (Westbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	5	60 ft
Wall	2 ft	2	4 ft
Guardrail	5 ft	1	5 ft
Shoulder	10 ft	2	20 ft
Shoulder	12 ft	2	24 ft
Slip Ramp	12 ft	2	24 ft
Ramp Shoulder	8 ft	1	8 ft
Ramp Shoulder	12 ft	1	12 ft

Total Impervious Width: 157 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 7.32 ac
 Pervious Roadway Area: 5.37 ac
 Total Roadway Area: 12.69 ac

Pond Area:
 Pervious Pond Area: 2.03 ac
 Water Surface Area: 20.71 ac
 Total Pond Area: 22.74 ac

Total Area:
 Impervious Area: 7.32 ac
 Pervious Area: 7.40 ac
 Offsite Pervious Area (Celebration): 4.92 ac
 Offsite Impervious Area (Celebration): 14.54 ac
 Water Surface Area: 20.71 ac
 Total Area: 54.88 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	21.85 ac	2141.5
Water Area	---	100	20.71 ac	2071.0
Gravel (Rail Corridor)	A/D, C/D	91	0.91 ac	82.9
Open Land (Grass cover 50% - 75%)	A/D, C/D	84	11.41 ac	958.3
Total:			54.88 ac	5253.6

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 95.7$

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN}$ = 0.45 in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$ = 12.38 in

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made by: LDP 1-Mar-16

checked by: BJS 1-Mar-16

HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 110 (Existing Pond MV-5A, Existing Basin 6E Permit # 020204-8)
 POND NAME: 110

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

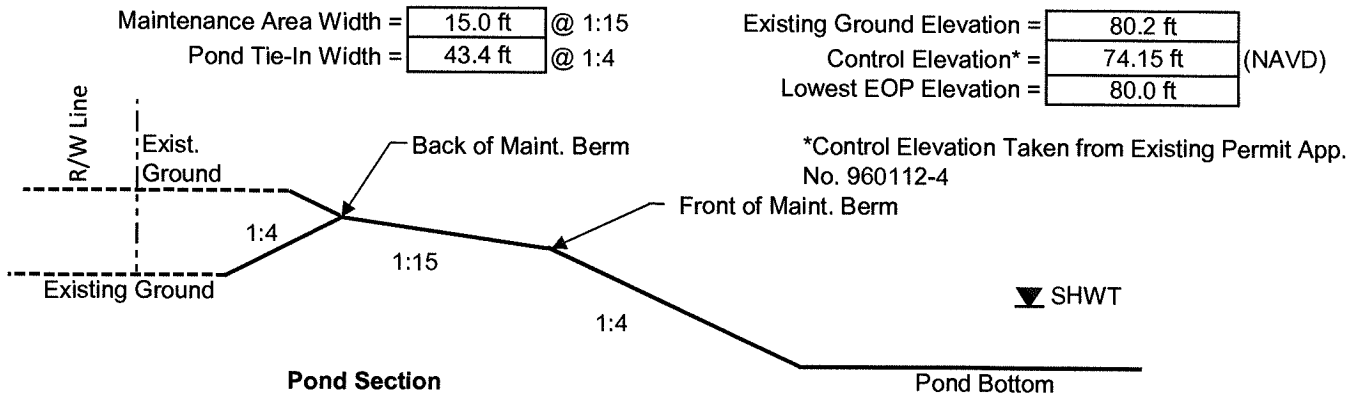
2.5" over New Impervious Area = 1.17 ac-ft
 1" over Total Area = 4.57 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 4.57 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.96 in
 Q_{post} = 12.38 in
 ΔQ = 0.42 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 1.92 \text{ ac-ft}$



Pond 5WB

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
76.65	Back of Maintenance Berm	22.74 ac			53.50 ac-ft
75.65	Front of Maintenance Berm	21.28 ac			31.49 ac-ft
74.65	---	20.90 ac			10.40 ac-ft
74.15	Initial Water Elevation	20.71 ac			0.00 ac-ft
62.15		18.47 ac			

Required Treatment Volume: 4.57 ac-ft Required Treat. Vol. + Atten.: 6.49 ac-ft
 Top El. Of Treatment Volume: 74.37 Top El. Of Treat. Vol. + Atten.: 74.46

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 111 (Existing Pond TP-2 Permit # 960621-12, Existing Basin 6E Permit # 020204-8)
 POND NAME: 111

STATION LIMITS: From: 813+00 RT Roadway Length: 2918 ft
 To: 842+18 RT R/W Width: 255 ft Varies

EXISTING CONDITION

Roadway Area: (Eastbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 1.89 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 4.30 ac
 Pervious Roadway Area: 9.51 ac
 Total Roadway Area: 13.81 ac

Pond Area:
 Pervious Pond Area: 3.39 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 3.39 ac

Total Area:
 Impervious Area: 4.30 ac
 Pervious Area: 12.90 ac
 Water Surface Area: 0.00 ac
 Total Area: 17.20 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.30 ac	421.6
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D, C/D	84	12.90 ac	1083.5
Total:			17.20 ac	1505.0

CN = Total CN * Area / Total Area = **87.5**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.43$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.33$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 111 (Existing Pond TP-2 Permit # 960621-12, Existing Basin 6E Permit # 020204-8)
 POND NAME: 111

PROPOSED CONDITION

Roadway Area: (Eastbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Wall	2 ft	1	2 ft
Guardrail	5 ft	0	0 ft
Shoulder	10 ft	1	10 ft
Shoulder	12 ft	2	24 ft

Total Impervious Width: 84 ft

Additional Impervious: 3.24 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 8.87 ac
 Pervious Roadway Area: 4.94 ac
 Total Roadway Area: 13.81 ac

Pond Area:
 Pervious Pond Area: 0.76 ac
 Water Surface Area: 2.63 ac
 Total Pond Area: 3.39 ac

Total Area:
 Impervious Area: 8.87 ac
 Pervious Area: 5.70 ac
 Water Surface Area: 2.63 ac
 Total Area: 17.20 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	8.87 ac	869.0
Water Area	---	100	2.63 ac	263.0
Gravel (Rail Corridor)*	A/D, C/D	91	1.56 ac	142.0
Open Land (Grass cover 50% - 75%)	A/D, C/D	84	4.14 ac	348.0
Total:			17.20 ac	1621.9

CN = Total CN * Area / Total Area = **94.3**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = \frac{1000}{94.3} - 10 = 0.60$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = \frac{(12.9 - 0.2 \times 0.60)^2}{(12.9 + 0.8 \times 0.60)} = 12.20$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 111 (Existing Pond TP-2 Permit # 960621-12, Existing Basin 6E Permit # 020204-8)
 POND NAME: 111

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

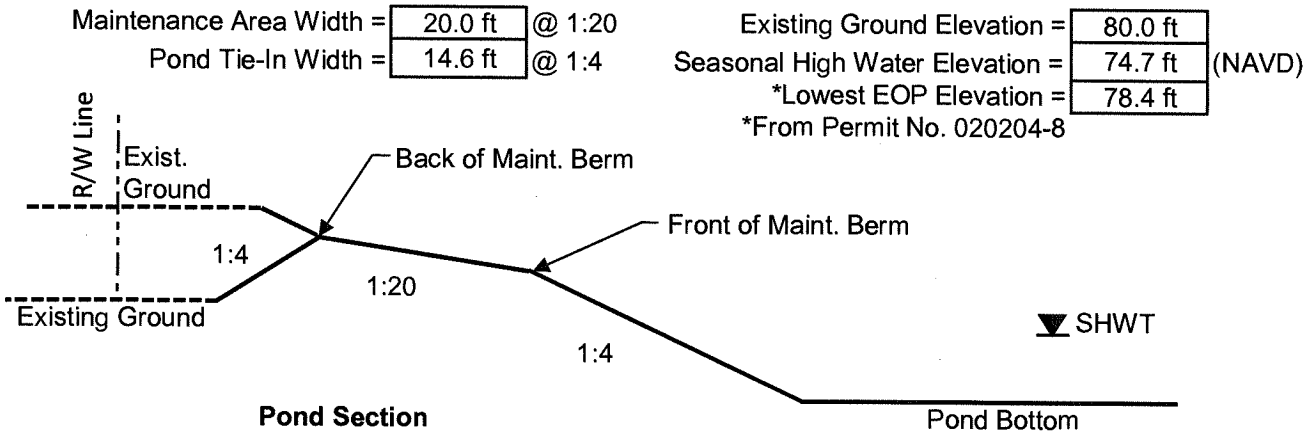
2.5" over New Impervious Area = 0.95 ac-ft
 1" over Total Area = 1.43 ac-ft

Treatment $V_{req} = \text{Largest of Trt. Vol.} = 1.43 \text{ ac-ft}$

Required Attenuation Volume:

Total Runoff: $Q_{pre} = 11.33 \text{ in}$
 $Q_{post} = 12.20 \text{ in}$
 $\Delta Q = 0.87 \text{ in}$

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 1.25 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
78.15	Back of Maintenance Berm	3.39 ac			10.49 ac-ft
77.15	Front of Maintenance Berm	3.23 ac			7.18 ac-ft
74.70	Initial Water Elevation	2.63 ac			0.00 ac-ft
62.75	Pond Bottom	1.24 ac			

Required Treatment Volume: 1.43 ac-ft Required Treat. Vol. + Atten.: 2.68 ac-ft

Top El. Of Treatment Volume: 75.19 Top El. Of Treat. Vol. + Atten.: 75.62

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 112 (Pond A, A2, A3, D2 and D3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 112A + 112B + 112C + 112D + 112E

STATION LIMITS: From: 833+30 LT Roadway Length: 2988 ft
 To: 863+18 LT R/W Width: VARIES

EXISTING CONDITION

Roadway Area: (Westbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 2.47 ac
 Pervious Roadway Area: 45.67 ac
 Total Roadway Area: 48.14 ac

Pond Area:
 Pervious Pond Area: 14.63 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 14.63 ac

Total Area:
 Impervious Area: 2.47 ac
 Pervious Area: 60.30 ac
 Water Surface Area: 0.00 ac
 Total Area: 62.77 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	2.47 ac	242.0
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% or less)	A/D, C/D	89	60.30 ac	5366.8
		Total:	62.77 ac	5608.8

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 89.4$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.19$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.57$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 112 (Pond A, A2, A3, D2 and D3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 112A + 112B + 112C + 112D + 112E

PROPOSED CONDITION

Roadway Area: (Westbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	7	84 ft
Slip Ramp	12 ft	1	12 ft
Wall	2 ft	3	6 ft
Slip Ramp Shoulder	8 ft	1	8 ft
Slip Ramp Shoulder	10 ft	1	10 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft

Total Impervious Width: 164 ft

Additional Impervious: 10.30 ac
 (World Drive & Ramps)

Impervious Roadway Area: 21.55 ac
 Pervious Roadway Area: 26.59 ac
 Total Roadway Area: 48.14 ac

Pond Area:
 Pervious Pond Area: 4.43 ac
 Water Surface Area: 10.20 ac
 Total Pond Area: 14.63 ac

Total Area:
 Impervious Area: 21.55 ac
 Pervious Area: 31.02 ac
 Water Surface Area: 10.20 ac
 Total Area: 62.77 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	21.55 ac	2111.9
Water Area	---	100	10.20 ac	1020.0
Rail Corridor (Gravel)	A/D, C/D	91	1.33 ac	121.0
Open Land (Grass cover 50% or less)	A/D, C/D	89	29.69 ac	2642.4
		Total:	62.77 ac	5895.3

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 93.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.65$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.15$ in

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 112 (Pond A, A2, A3, D2 and D3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 112A + 112B + 112C + 112D + 112E

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

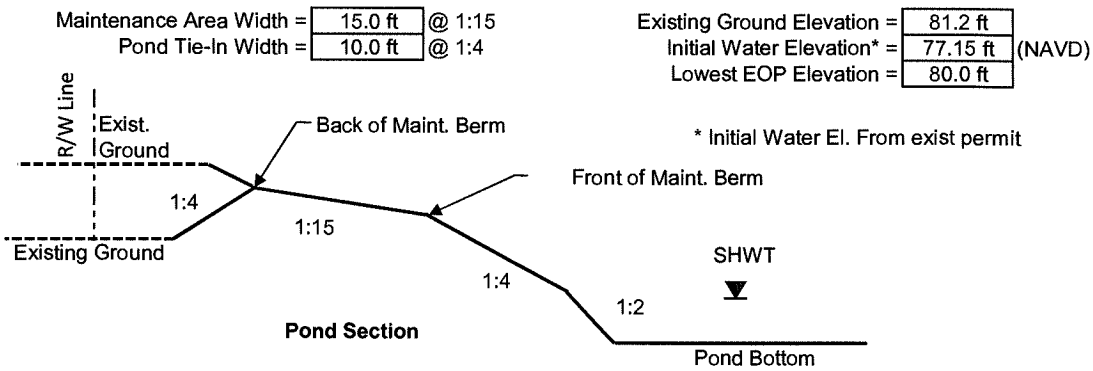
2.5" over New Impervious Area = 3.98 ac-ft
 1" over Total Area = 5.23 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **5.23 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.57 in
 Q_{post} = 12.15 in
 ΔQ = 0.58 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **3.04 ac-ft**



POND 112A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	3.98 ac			12.96 ac-ft
80.15	Front of Maintenance Berm	3.34 ac			9.30 ac-ft
79.15	---	3.18 ac			6.04 ac-ft
77.15	Initial Water Elevation	2.86 ac			0.00 ac-ft
63.15	Pond Bottom	2.24 ac			

POND 112B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	3.67 ac			12.95 ac-ft
79.15	Front of Maintenance Berm	3.19 ac			6.09 ac-ft
78.15	---	3.07 ac			2.96 ac-ft
77.15	Initial Water Elevation	2.84 ac			0.00 ac-ft
63.15	Pond Bottom	2.39 ac			

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 112 (Pond A, A2, A3, D2 and D3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 112A + 112B + 112C + 112D + 112E

POND 112C

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	2.99 ac			9.88 ac-ft
79.15	Front of Maintenance Berm	2.42 ac			4.47 ac-ft
78.15	---	2.27 ac			2.13 ac-ft
77.15	Initial Water Elevation	1.98 ac			0.00 ac-ft
63.15	Pond Bottom	1.42 ac			

POND 112D

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	1.64 ac			5.23 ac-ft
79.15	Front of Maintenance Berm	1.27 ac			2.32 ac-ft
78.15	---	1.18 ac			1.09 ac-ft
77.15	Initial Water Elevation	1.00 ac			0.00 ac-ft
63.15	Pond Bottom	0.67 ac			

POND 112E

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	2.35 ac			7.69 ac-ft
79.15	Front of Maintenance Berm	1.88 ac			3.46 ac-ft
78.15	---	1.76 ac			1.64 ac-ft
77.15	Initial Water Elevation	1.52 ac			0.00 ac-ft
63.15	Pond Bottom	1.08 ac			

POND 112A + POND 112B + POND 112C + POND 112D + POND 112E

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	14.63 ac			49.34 ac-ft
79.15	Front of Maintenance Berm	12.10 ac			22.61 ac-ft
78.15	---	11.46 ac			10.83 ac-ft
77.15	Initial Water Elevation	10.20 ac			0.00 ac-ft
63.15	Pond Bottom	7.80 ac			

Required Treatment Volume: 5.23 ac-ft Required Treat. Vol. + Atten.: 8.27 ac-ft
 Top El. Of Treatment Volume: 77.63 Top El. Of Treat. Vol. + Atten.: 77.93

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 checked by:

BJS	1-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 113 (Pond B, B1, C, C1 and C3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 113A + 113B + 113C + 113D + 113E + 113F + 113G

STATION LIMITS: From: 842+18 RT Roadway Length: 2100 ft
 To: 863+18 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area: (Eastbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft
Total Impervious Width:			36 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 1.74 ac
 Pervious Roadway Area: 37.81 ac
 Total Roadway Area: 39.55 ac

Pond Area:
 Pervious Pond Area: 9.26 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 9.26 ac

Total Area:
 Impervious Area: 1.74 ac
 Pervious Area: 47.07 ac
 Water Surface Area: 0.00 ac
 Total Area: 48.81 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	1.74 ac	170.1
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% or less)	A/D, C/D	89	47.07 ac	4189.6
			Total:	48.81 ac
				4359.7

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 89.3$

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN} = 1.20$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.57$ in

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 made by: LDP 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 113 (Pond B, B1, C, C1 and C3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 113A + 113B + 113C + 113D + 113E + 113F + 113G

PROPOSED CONDITION

Roadway Area: (Eastbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	7	84 ft
Wall	2 ft	3	6 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	2	20 ft

Total Impervious Width: 163 ft

Additional Impervious: 9.96 ac
 (World Drive & Ramps)

Impervious Roadway Area: 17.82 ac
 Pervious Roadway Area: 21.73 ac
 Total Roadway Area: 39.55 ac

Pond Area: Pervious Pond Area: 3.52 ac
 Water Surface Area: 5.74 ac
 Total Pond Area: 9.26 ac

Total Area: Impervious Area: 17.82 ac
 Pervious Area: 25.26 ac
 Water Surface Area: 5.74 ac
 Total Area: 48.81 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	17.82 ac	1746.2
Water Area	---	100	5.74 ac	573.7
Rail Corridor (Gravel)	A/D, C/D	91	0.98 ac	89.2
Open Land (Grass cover 50% or less)	A/D, C/D	89	24.28 ac	2160.5
			Total:	48.81 ac 4569.5

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 93.6$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.68$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.12$ in

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 113 (Pond B, B1, C, C1 and C3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 113A +113B + 113C + 113D + 113E + 113F + 113G

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

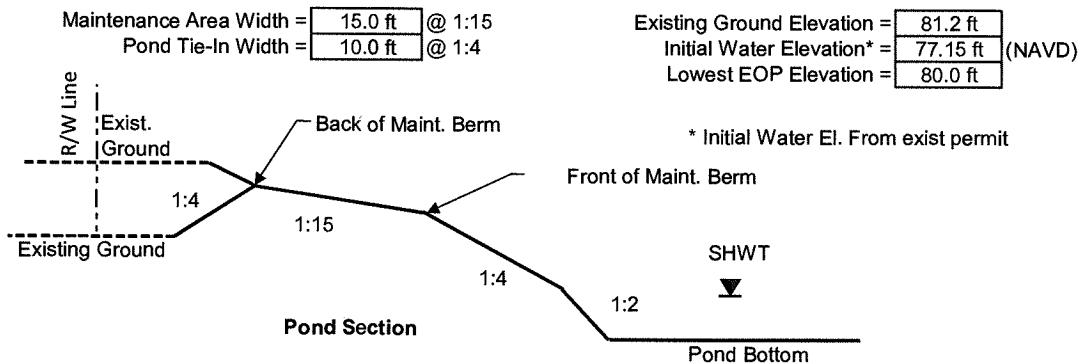
2.5" over New Impervious Area = 3.35 ac-ft
 1" over Total Area = 4.07 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **4.07 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.57 in
 Q_{post} = 12.12 in
 ΔQ = 0.55 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **2.23 ac-ft**



POND 113A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	0.51 ac			1.22 ac-ft
80.15	Front of Maintenance Berm	0.33 ac			0.81 ac-ft
79.15	---	0.29 ac			0.50 ac-ft
77.15	Initial Water Elevation	0.21 ac			0.00 ac-ft
63.15	Pond Bottom	0.09 ac			

POND 113B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	1.33 ac			4.16 ac-ft
79.15	Front of Maintenance Berm	1.01 ac			1.82 ac-ft
78.15	---	0.93 ac			0.85 ac-ft
77.15	Initial Water Elevation	0.77 ac			0.00 ac-ft
63.15	Pond Bottom	0.51 ac			

POND 113C

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	3.18 ac			41.83 ac-ft
79.15	Front of Maintenance Berm	2.73 ac			35.92 ac-ft
78.15	---	2.62 ac			33.24 ac-ft
77.15	Initial Water Elevation	2.40 ac			30.73 ac-ft
63.15	Pond Bottom	1.99 ac			

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date:

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BJS	3-Mar-16

 made by:

LDP	3-Mar-16
BJS	3-Mar-16

 checked by:

BJS	3-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 113 (Pond B, B1, C, C1 and C3 in Permit # 49-00792-S and Permit App. # 020204-8)
 POND NAME: 113A +113B + 113C + 113D + 113E + 113F + 113G

POND 113D

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	1.88 ac			6.02 ac-ft
79.15	Front of Maintenance Berm	1.47 ac			2.68 ac-ft
78.15	---	1.36 ac			1.26 ac-ft
77.15	Initial Water Elevation	1.16 ac			0.00 ac-ft
63.15	Pond Bottom	0.78 ac			

POND 113E

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	0.27 ac			0.66 ac-ft
79.15	Front of Maintenance Berm	0.15 ac			0.24 ac-ft
78.15	---	0.12 ac			0.10 ac-ft
77.15	Initial Water Elevation	0.08 ac			0.00 ac-ft
63.15	Pond Bottom	0.02 ac			

POND 113F

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	0.81 ac			2.31 ac-ft
79.15	Front of Maintenance Berm	0.55 ac			0.95 ac-ft
78.15	---	0.49 ac			0.43 ac-ft
77.15	Initial Water Elevation	0.37 ac			0.00 ac-ft
63.15	Pond Bottom	0.15 ac			

POND 113G

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	1.29 ac			4.01 ac-ft
79.15	Front of Maintenance Berm	0.97 ac			1.75 ac-ft
78.15	---	0.89 ac			0.82 ac-ft
77.15	Initial Water Elevation	0.74 ac			0.00 ac-ft
63.15	Pond Bottom	0.45 ac			

PONDS 113A TO 113G

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
81.15	Back of Maintenance Berm	9.26 ac			29.64 ac-ft
79.15	Front of Maintenance Berm	7.21 ac			13.17 ac-ft
78.15	---	6.70 ac			6.22 ac-ft
77.15	Initial Water Elevation	5.74 ac			0.00 ac-ft
63.15	Pond Bottom	3.98 ac			

Required Treatment Volume: 4.07 ac-ft Required Treat. Vol. + Atten.: 6.30 ac-ft
 Top El. Of Treatment Volume: 77.80 Top El. Of Treat. Vol. + Atten.: 78.16

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 114
 POND NAME: 114A + 114B

STATION LIMITS: From: 863+00
 To: 914+00

Roadway Length: 5100 ft
 R/W Width: 350 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
CD Road Travel Lane	12 ft	2	24 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft

Total Impervious Width: 72 ft

Additional Impervious: 2.06 ac
 (Westbound CD Road)

Additional Pervious: 2.14 ac

Impervious Roadway Area: 10.49 ac

Pervious Roadway Area: 30.49 ac

Total Roadway Area: 40.98 ac

Pond Area:
 Pervious Pond Area: 4.14 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 4.14 ac

Total Area:
 Impervious Area: 10.49 ac
 Pervious Area: 36.77 ac
 Water Surface Area: 0.00 ac
 Total Area: 47.26 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	10.49 ac	1028.0
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	36.77 ac	3088.5
Total:			47.26 ac	4116.5

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 87.1$

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN} = 1.48$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.28$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 114
 POND NAME: 114A + 114B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	10	120 ft
Wall	2 ft	3	6 ft
Shoulder	8 ft	2	16 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft

Total Impervious Width: 186 ft

Additional Impervious: 0.35 ac
 (ramps, turn lanes, etc.)
 Additional Pervious: 2.14 ac

Impervious Roadway Area: 22.13 ac
 Pervious Roadway Area: 18.85 ac
 Total Roadway Area: 40.98 ac

Pond Area:

Pervious Pond Area: 1.71 ac
 Water Surface Area: 2.43 ac
 Total Pond Area: 4.14 ac

Total Area:

Impervious Area: 22.13 ac
 Pervious Area: 22.70 ac
 Water Surface Area: 2.43 ac
 Total Area: 47.26 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	22.13 ac	2168.4
Water Area	---	100	2.43 ac	243.0
Rail Corridor (Gravel)	A/D	91	5.15 ac	468.8
Open Land (Grass cover 50% - 75%)	A/D	84	17.55 ac	1474.2
Total:			47.26 ac	4354.4

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 92.1$

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN} = 0.85$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.93$ in

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 114
 POND NAME: 114A + 114B

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

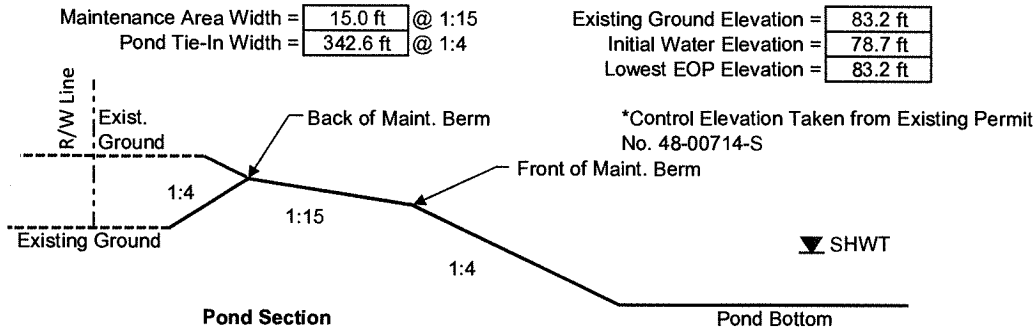
2.5" over New Impervious Area = 2.42 ac-ft
 1" over Total Area = 3.94 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **3.94 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.28 in
 Q_{post} = 11.93 in
 ΔQ = 0.65 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} =$ **2.56 ac-ft**



POND 114A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
83.15	Back of Maintenance Berm	2.34 ac			7.70 ac-ft
82.15	Front of Maintenance Berm	1.83 ac			5.62 ac-ft
79.50	---	1.49 ac			1.22 ac-ft
78.65	Initial Water Elevation	1.38 ac			0.00 ac-ft
68.15	Pond Bottom	0.00 ac			

POND 114B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
83.15	Back of Maintenance Berm	1.80 ac			5.88 ac-ft
82.15	Front of Maintenance Berm	1.40 ac			4.28 ac-ft
79.50	---	1.13 ac			0.93 ac-ft
78.65	Initial Water Elevation	1.05 ac			0.00 ac-ft
68.15	Pond Bottom	0.00 ac			

POND 114A + 114B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
83.15	Back of Maintenance Berm	4.14 ac			13.58 ac-ft
82.15	Front of Maintenance Berm	3.23 ac			9.90 ac-ft
79.50	---	2.62 ac			2.15 ac-ft
78.65	Initial Water Elevation	2.43 ac			0.00 ac-ft
68.15	Pond Bottom	0.00 ac			

Required Treatment Volume: 3.94 ac-ft Required Treat. Vol. + Atten.: 6.50 ac-ft
 Top El. Of Treatment Volume: 81.14 Top El. Of Treat. Vol. + Atten.: 80.99

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 115 (Existing Pond TP-4, Permit Application # 960621-13)
 POND NAME: 115

STATION LIMITS: From: 863+18 RT Roadway Length: 5096 ft
 To: 914+14 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area: (14 Eastbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 4.21 ac
 Pervious Roadway Area: 22.44 ac
 Total Roadway Area: 26.65 ac

Pond Area:
 Pervious Pond Area: 5.19 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 5.19 ac

Total Area:
 Impervious Area: 4.21 ac
 Pervious Area: 27.63 ac
 Water Surface Area: 0.00 ac
 Total Area: 31.84 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.21 ac	412.7
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover less than 50%)	A/D, B/D	89	27.63 ac	2458.9
Total:			31.84 ac	2871.7

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 90.2$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.09$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.68$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 115 (Existing Pond TP-4, Permit Application # 960621-13)
 POND NAME: 115

PROPOSED CONDITION

Roadway Area: (I4 Eastbound + CD Road)

Description	Width	Quantity	Total Width
Travel Lanes	12 ft	5	60 ft
Shoulder	12 ft	4	48 ft
CD Road Lanes	12 ft	4	48 ft
CD Shoulder	12 ft	2	24 ft
Guardrail	5 ft	1	5 ft

Total Impervious Width: 185 ft

Additional Impervious: 0.88 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 22.52 ac
 Pervious Roadway Area: 4.13 ac
 Total Roadway Area: 26.65 ac

Pond Area:
 Pervious Pond Area: 1.53 ac
 Water Surface Area: 3.66 ac
 Total Pond Area: 5.19 ac

Total Area:
 Impervious Area: 22.52 ac
 Pervious Area: 5.66 ac
 Water Surface Area: 3.66 ac
 Total Area: 31.84 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	22.52 ac	2207.2
Water Area	---	100	3.66 ac	366.0
Open Land (Grass cover less than 50%)	A/D, B/D	89	5.66 ac	503.5
Total:			31.84 ac	3076.7

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 96.6$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.35$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.49$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 115 (Existing Pond TP-4, Permit Application # 960621-13)
 POND NAME: 115

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

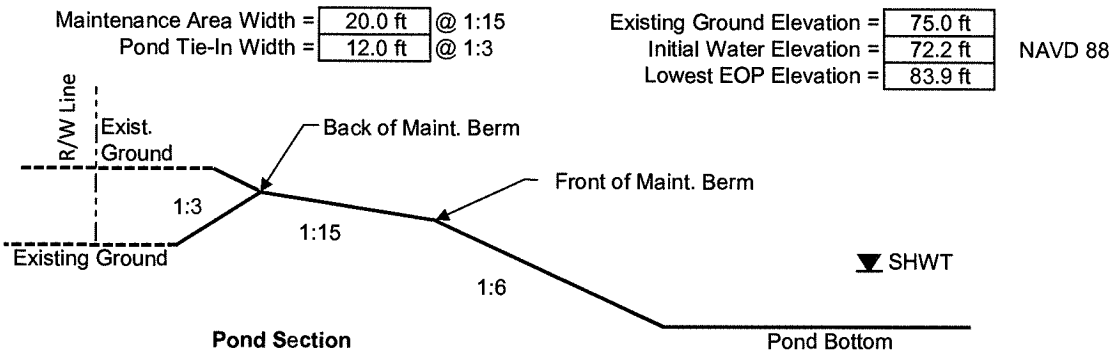
2.5" over New Impervious Area = 3.81 ac-ft
 1" over Total Area = 2.65 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 3.81 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.68 in
 Q_{post} = 12.49 in
 ΔQ = 0.81 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 2.15 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
75.65	Back of Maintenance Berm	5.19 ac			14.94 ac-ft
74.73	Floodplain Elevation	4.49 ac			10.49 ac-ft
74.65	Front of Maintenance Berm	4.41 ac			10.09 ac-ft
73.15	-----	3.96 ac			3.81 ac-ft
72.15	Initial Water Elevation	3.66 ac			0.00 ac-ft
60.15	Pond Bottom	3.09 ac			

Required Treatment Volume: 3.81 ac-ft Required Treat. Vol. + Atten.: 5.96 ac-ft
 Top El. Of Treatment Volume: 73.15 Top El. Of Treat. Vol. + Atten.: 73.66

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 116
 POND NAME: 116

STATION LIMITS: From: 914+00 Roadway Length: 2450 ft
 To: 938+50 R/W Width: 0 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	10 ft	1	10 ft
Outside Shoulder	8 ft	1	8 ft
Total Impervious Width:			42 ft

Additional Impervious: 1.87 ac
 (Westbound CD Road)
 Additional Pervious: 0.00 ac
 Impervious Roadway Area: 1.87 ac
 Pervious Roadway Area: 6.63 ac
 Total Roadway Area: 8.50 ac

Pond Area: Pervious Pond Area: 1.23 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 1.23 ac

Total Area: Impervious Area: 1.87 ac
 Pervious Area: 7.86 ac
 Water Surface Area: 0.00 ac
 Total Area: 9.73 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	1.87 ac	183.3
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	7.86 ac	660.2
Total:			<u>9.73 ac</u>	<u>843.5</u>

CN = Total CN * Area / Total Area = **86.7**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.54$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.22$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 116
 POND NAME: 116

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Wall	2 ft	0	0 ft
Shoulder	8 ft	1	8 ft
Shoulder	10 ft	1	10 ft

Total Impervious Width: 42 ft

Additional Impervious: 1.87 ac
 (Westbound CD Road)
 Additional Pervious: 0.00 ac
 Impervious Roadway Area: 1.87 ac
 Pervious Roadway Area: 6.63 ac
 Total Roadway Area: 8.50 ac

Pond Area:
 Pervious Pond Area: 0.53 ac
 Water Surface Area: 0.70 ac
 Total Pond Area: 1.23 ac

Total Area:
 Impervious Area: 1.87 ac
 Pervious Area: 7.16 ac
 Water Surface Area: 0.70 ac
 Total Area: 9.73 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	1.87 ac	183.3
Water Area	---	100	0.70 ac	70.0
Rail Corridor (Gravel)	A/D	91	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	7.16 ac	601.4
Total:			<u>9.73 ac</u>	<u>854.7</u>

CN = Total CN * Area / Total Area = **87.8**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.38$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.38$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 116
 POND NAME: 116

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

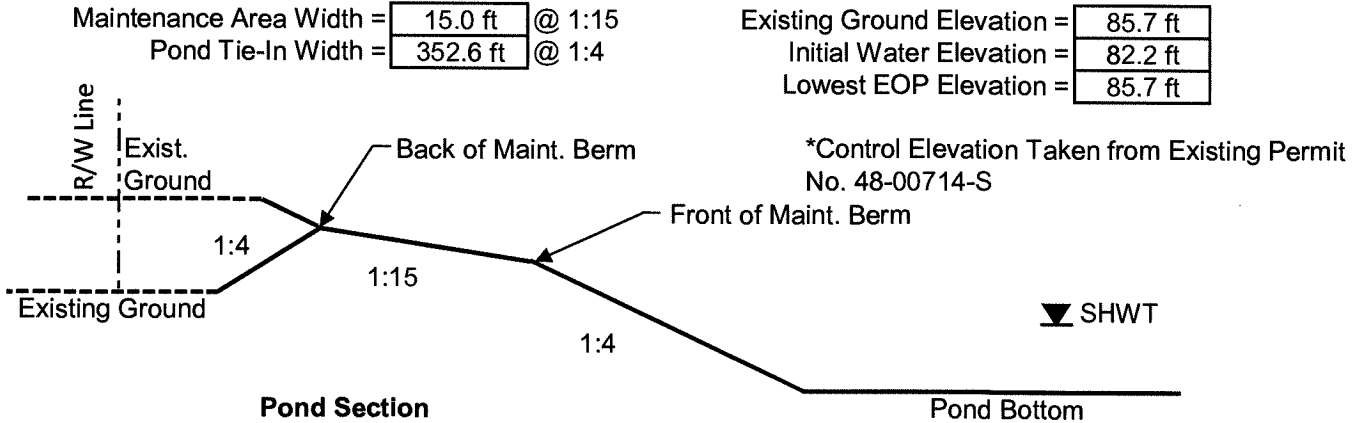
2.5" over New Impervious Area = 0.00 ac-ft
 1" over Total Area = 0.81 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 0.81 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.22 in
 Q_{post} = 11.38 in
 ΔQ = 0.15 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 0.12 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
85.65	Back of Maintenance Berm	1.23 ac			3.01 ac-ft
84.65	Front of Maintenance Berm	0.85 ac			1.97 ac-ft
82.70	---	0.76 ac			0.40 ac-ft
82.15	Initial Water Elevation	0.70 ac			0.00 ac-ft
70.15	Pond Bottom	0.00 ac			

Required Treatment Volume: 0.81 ac-ft Required Treat. Vol. + Atten.: 0.93 ac-ft
 Top El. Of Treatment Volume: 83.21 Top El. Of Treat. Vol. + Atten.: 83.36

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 117
 POND NAME: 117

STATION LIMITS: From: 914+00 Roadway Length: 3100 ft
 To: 945+00 R/W Width: 590 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft
Total Impervious Width:			72 ft

Additional Impervious: 2.89 ac
 (Eastbound CD Road)

Impervious Roadway Area: 8.01 ac
 Pervious Roadway Area: 31.21 ac
 Total Roadway Area: 39.22 ac

Pond Area:
 Pervious Pond Area: 2.78 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 2.78 ac

Total Area:
 Impervious Area: 8.01 ac
 Pervious Area: 33.99 ac
 Water Surface Area: 0.00 ac
 Total Area: 42.00 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	8.01 ac	785.4
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	33.99 ac	2855.0
Total:			42.00 ac	3640.4

CN = Total CN * Area / Total Area = **86.7**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.54$ in
 Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.22$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 117
 POND NAME: 117

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	14	168 ft
Wall	2 ft	4	8 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft

Total Impervious Width: 264 ft

Additional Impervious: 4.81 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 23.60 ac
 Pervious Roadway Area: 15.62 ac
 Total Roadway Area: 39.22 ac

Pond Area:
 Pervious Pond Area: 1.39 ac
 Water Surface Area: 1.39 ac
 Total Pond Area: 2.78 ac

Total Area:
 Impervious Area: 23.60 ac
 Pervious Area: 17.01 ac
 Water Surface Area: 1.39 ac
 Total Area: 42.00 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	23.60 ac	2312.6
Water Area	---	100	1.39 ac	139.0
Rail Corridor (Gravel)	A/D	91	3.13 ac	284.9
Open Land (Grass cover 50% - 75%)	A/D	84	13.88 ac	1166.2
Total:			42.00 ac	3902.7

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 92.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.76$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.03$ in

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BJS	3-Mar-16

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BJS	3-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 117
 POND NAME: 117

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

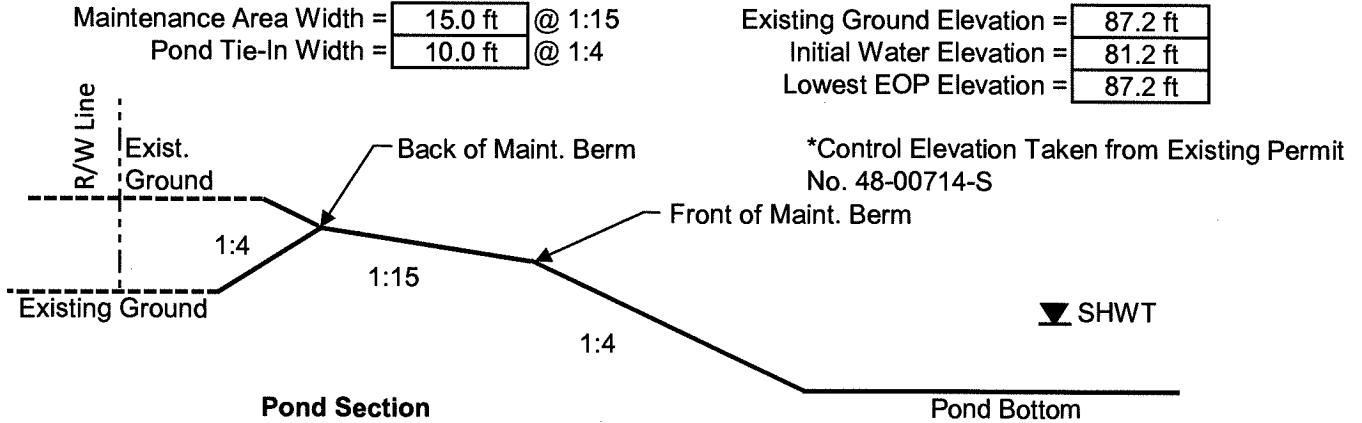
2.5" over New Impervious Area = 3.25 ac-ft
 1" over Total Area = 3.50 ac-ft

Treatment $V_{req} = \text{Largest of Trt. Vol.} = 3.50 \text{ ac-ft}$

Required Attenuation Volume:

Total Runoff: $Q_{pre} = 11.22 \text{ in}$
 $Q_{post} = 12.03 \text{ in}$
 $\Delta Q = 0.81 \text{ in}$

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} = 2.82 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
87.15	Back of Maintenance Berm	2.78 ac			12.51 ac-ft
86.15	Front of Maintenance Berm	2.55 ac			9.84 ac-ft
83.15	---	1.85 ac			3.24 ac-ft
81.15	Initial Water Elevation	1.39 ac			0.00 ac-ft
75.15	Pond Bottom	0.00 ac			

Required Treatment Volume: 3.50 ac-ft Required Treat. Vol. + Atten.: 6.32 ac-ft
 Top El. Of Treatment Volume: 83.31 Top El. Of Treat. Vol. + Atten.: 84.55

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 118
 POND NAME: 118

STATION LIMITS: From: 928+00 Roadway Length: 1700 ft
 To: 945+00 R/W Width: 0 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	8 ft	1	8 ft
Outside Shoulder	10 ft	1	10 ft

Total Impervious Width: 42 ft

Additional Impervious: 1.73 ac
 (ramps, turn lanes, etc.)

Additional Pervious: 2.59 ac

Impervious Roadway Area: 1.73 ac

Pervious Roadway Area: 2.59 ac

Total Roadway Area: 4.32 ac

Pond Area:
 Pervious Pond Area: 1.52 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 1.52 ac

Total Area:
 Impervious Area: 1.73 ac
 Pervious Area: 4.11 ac
 Water Surface Area: 0.00 ac
 Total Area: 5.84 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	1.73 ac	169.5
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	4.11 ac	345.2
Total:			5.84 ac	514.8

CN = Total CN * Area / Total Area = **88.1**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.34$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.42$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 118
 POND NAME: 118

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Wall	2 ft	0	0 ft
Shoulder	8 ft	1	8 ft
Shoulder	10 ft	1	10 ft

Total Impervious Width: 42 ft

Additional Impervious: 1.73 ac
 (ramps, turn lanes, etc.)
 Additional Pervious: 2.59 ac
 Impervious Roadway Area: 1.73 ac
 Pervious Roadway Area: 2.59 ac
 Total Roadway Area: 4.32 ac

Pond Area:
 Pervious Pond Area: 0.78 ac
 Water Surface Area: 0.74 ac
 Total Pond Area: 1.52 ac

Total Area:
 Impervious Area: 1.73 ac
 Pervious Area: 3.37 ac
 Water Surface Area: 0.74 ac
 Total Area: 5.84 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	1.73 ac	169.5
Water Area	---	100	0.74 ac	74.0
Rail Corridor (Gravel)	A/D	91	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	3.37 ac	283.1
Total:			5.84 ac	526.6

CN = Total CN * Area / Total Area = **90.2**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.09$ in
 Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.68$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 118
 POND NAME: 118

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

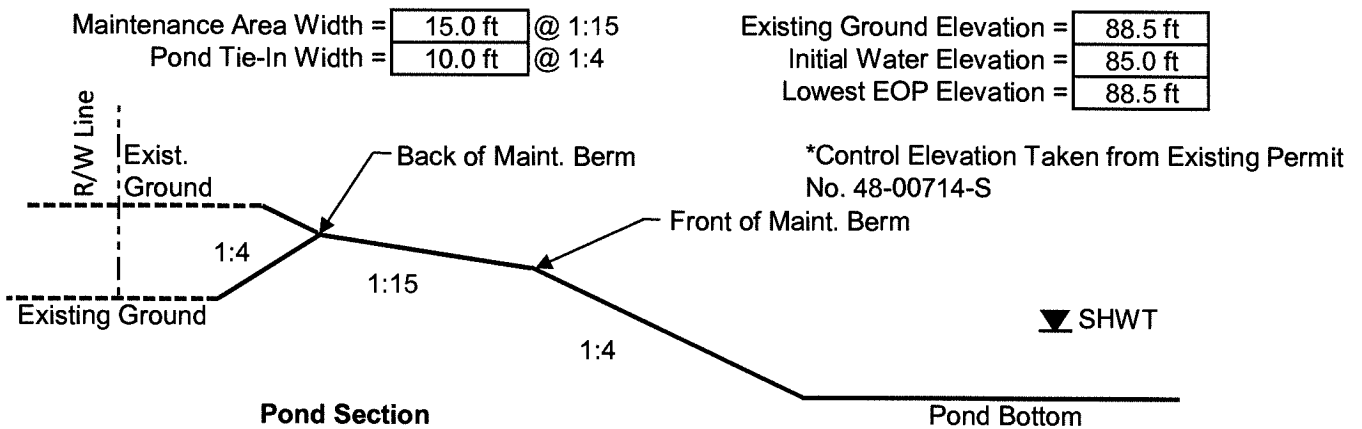
2.5" over New Impervious Area = 0.00 ac-ft
 1" over Total Area = 0.49 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **0.49 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.42 in
 Q_{post} = 11.68 in
 ΔQ = 0.26 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **0.13 ac-ft**



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
88.50	Back of Maintenance Berm	1.52 ac			3.51 ac-ft
87.50	Front of Maintenance Berm	1.04 ac			2.23 ac-ft
86.00	---	0.86 ac			0.80 ac-ft
85.00	Initial Water Elevation	0.74 ac			0.00 ac-ft
77.00	Pond Bottom	0.00 ac			

Required Treatment Volume: 0.49 ac-ft Required Treat. Vol. + Atten.: 0.61 ac-ft
 Top El. Of Treatment Volume: 85.61 Top El. Of Treat. Vol. + Atten.: 85.77

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 119
 POND NAME: 119A + 119B

STATION LIMITS: From: 945+00 Roadway Length: 900 ft
 To: 954+00 R/W Width: 400 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft

Total Impervious Width: 72 ft

Additional Impervious: 0.80 ac
 (ramps, turn lanes, etc.)
 Additional Pervious: 0.00 ac
 Impervious Roadway Area: 2.29 ac
 Pervious Roadway Area: 17.30 ac
 Total Roadway Area: 19.59 ac

Pond Area:
 Pervious Pond Area: 3.24 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 3.24 ac

Total Area:
 Impervious Area: 2.29 ac
 Pervious Area: 20.54 ac
 Water Surface Area: 0.00 ac
 Total Area: 22.83 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	2.29 ac	224.2
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	20.54 ac	1725.6
Total:			22.83 ac	1949.7

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 85.4$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.71$ in
 Precipitation (P) = 12.9 in (for 50yr/72hr storm event)
 Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.05$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 119
 POND NAME: 119A + 119B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	13	156 ft
Wall	2 ft	4	8 ft
Shoulder	6 ft	2	12 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft

Total Impervious Width: 264 ft

Additional Impervious: 2.91 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 8.36 ac
 Pervious Roadway Area: 11.23 ac
 Total Roadway Area: 19.59 ac

Pond Area:

Pervious Pond Area: 1.23 ac
 Water Surface Area: 2.01 ac
 Total Pond Area: 3.24 ac

Total Area:

Impervious Area: 8.36 ac
 Pervious Area: 12.46 ac
 Water Surface Area: 2.01 ac
 Total Area: 22.83 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	8.36 ac	819.7
Water Area	---	100	2.01 ac	201.0
Rail Corridor (Gravel)	A/D	91	0.91 ac	82.7
Open Land (Grass cover 50% - 75%)	A/D	84	11.55 ac	969.9
Total:			22.83 ac	2073.3

CN = Total CN * Area / Total Area = 90.8

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.01$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.76$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 119
 POND NAME: 119A + 119B

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

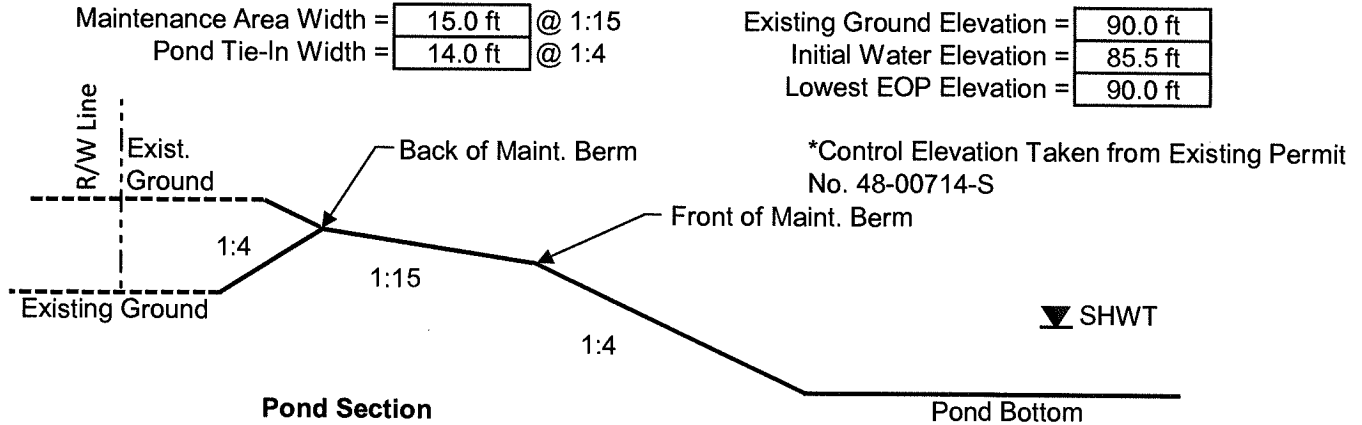
2.5" over New Impervious Area = 1.27 ac-ft
 1" over Total Area = 1.90 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 1.90 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.05 in
 Q_{post} = 11.76 in
 ΔQ = 0.71 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} = 1.35 \text{ ac-ft}$



POND 119A + 119B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
89.00	Back of Maintenance Berm	3.24 ac			8.47 ac-ft
88.00	Front of Maintenance Berm	2.48 ac			5.61 ac-ft
86.20	---	2.14 ac			1.45 ac-ft
85.50	Initial Water Elevation	2.01 ac			0.00 ac-ft
75.50	Pond Bottom	0.44 ac			

Required Treatment Volume: 1.90 ac-ft Required Treat. Vol. + Atten.: 3.25 ac-ft

Top El. Of Treatment Volume: 86.42 Top El. Of Treat. Vol. + Atten.: 86.98

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 120
 POND NAME: 120

STATION LIMITS: From: 940+75 Roadway Length: 1325 ft
 To: 954+00 R/W Width: 0 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	0	0 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	8 ft	0	0 ft
Outside Shoulder	4 ft	0	0 ft

Total Impervious Width: 0 ft

(SR 417 Ramps)
 Additional Impervious: 4.66 ac
 (ramps, turn lanes, etc.)
 Additional Pervious: 11.19 ac
 Impervious Roadway Area: 4.66 ac
 Pervious Roadway Area: 11.19 ac
 Total Roadway Area: 15.85 ac

Pond Area:
 Pervious Pond Area: 1.38 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 1.38 ac

Total Area:
 Impervious Area: 4.66 ac
 Pervious Area: 12.57 ac
 Water Surface Area: 0.00 ac
 Total Area: 17.23 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.66 ac	456.7
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	12.57 ac	1055.9
Total:			17.23 ac	1512.6

CN = Total CN * Area / Total Area = **87.8**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.39$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.37$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 120
 POND NAME: 120

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	0	0 ft
Wall	2 ft	0	0 ft
Shoulder	12 ft	0	0 ft
Shoulder	10 ft	0	0 ft

Total Impervious Width: 0 ft

Additional Impervious: 5.39 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 5.39 ac
 Pervious Roadway Area: 10.46 ac
 Total Roadway Area: 15.85 ac

Pond Area:
 Pervious Pond Area: 0.87 ac
 Water Surface Area: 0.51 ac
 Total Pond Area: 1.38 ac

Total Area:
 Impervious Area: 5.39 ac
 Pervious Area: 11.33 ac
 Water Surface Area: 0.51 ac
 Total Area: 17.23 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	5.39 ac	528.2
Water Area	---	100	0.51 ac	51.0
Rail Corridor (Gravel)	A/D	91	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	11.33 ac	951.7
Total:			17.23 ac	1530.9

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 88.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.25$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.51$ in

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HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 120
 POND NAME: 120

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

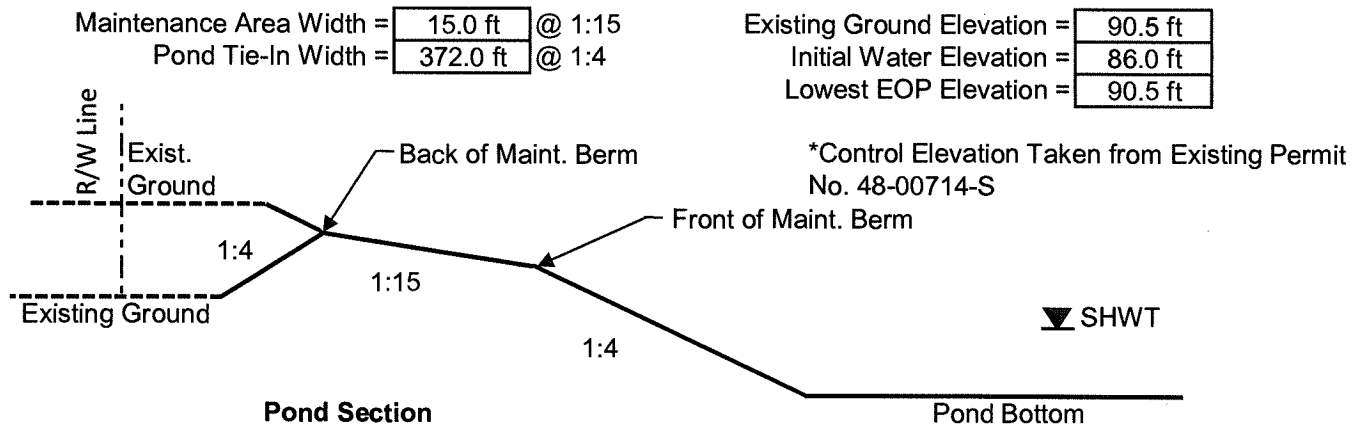
2.5" over New Impervious Area = 0.15 ac-ft
 1" over Total Area = 1.44 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 1.44 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.37 in
 Q_{post} = 11.51 in
 ΔQ = 0.14 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 0.20 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
90.50	Back of Maintenance Berm	1.38 ac			3.68 ac-ft
89.50	Front of Maintenance Berm	0.93 ac			2.52 ac-ft
89.00	---	0.87 ac			2.07 ac-ft
86.00	Initial Water Elevation	0.51 ac			0.00 ac-ft
81.00	Pond Bottom	0.00 ac			

Required Treatment Volume: 1.44 ac-ft Required Treat. Vol. + Atten.: 1.64 ac-ft
 Top El. Of Treatment Volume: 88.08 Top El. Of Treat. Vol. + Atten.: 88.37

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 121
 POND NAME: 121A + 121B (Pond NW-1 in Permit Application # 101001-20 and 030115-14)

STATION LIMITS: From: 958+40 Roadway Length: 1598 ft
 To: 974+38 R/W Width: 170 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 3.59 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 4.91 ac
 Pervious Roadway Area: 12.94 ac
 Total Roadway Area: 17.85 ac

Pond Area:
 Pervious Pond Area: 5.72 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 5.72 ac

Total Area:
 Impervious Area: 4.91 ac
 Pervious Area: 18.66 ac
 Water Surface Area: 0.00 ac
 Total Area: 23.57 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.91 ac	481.2
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	18.66 ac	914.3
Total:			23.57 ac	1395.6

CN = Total CN * Area / Total Area = 59.2

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 6.89$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 7.21$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 121
 POND NAME: 121A + 121B (Pond NW-1 in Permit Application # 101001-20 and 030115-14)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Wall	2 ft	2	4 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft

Total Impervious Width: 120 ft

Additional Impervious: 4.69 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 9.09 ac
 Pervious Roadway Area: 8.76 ac
 Total Roadway Area: 17.85 ac

Pond Area:

Pervious Pond Area: 1.97 ac
 Water Surface Area: 3.75 ac
 Total Pond Area: 5.72 ac

Total Area:

Impervious Area: 9.09 ac
 Pervious Area: 10.73 ac
 Water Surface Area: 3.75 ac
 Total Area: 23.57 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	9.09 ac	891.0
Water Area	---	100	3.75 ac	375.0
Rail Corridor (Gravel)	A	76	1.66 ac	126.2
Open Land (Grass cover 50% - 75%)	A	49	9.07 ac	444.3
Total:			23.57 ac	1836.5

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 77.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.83$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.03$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 121
 POND NAME: 121A + 121B (Pond NW-1 in Permit Application # 101001-20 and 030115-14)

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

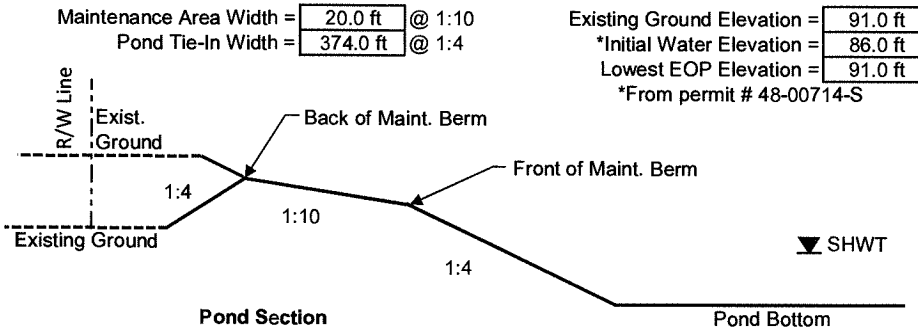
2.5" over New Impervious Area = 0.87 ac-ft
 1" over Total Area = 1.96 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **1.96 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 7.21 in
 Q_{post} = 10.03 in
 ΔQ = 2.82 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} =$ **5.54 ac-ft**



POND 121A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.00	Back of Maintenance Berm	3.20 ac			12.51 ac-ft
89.00	Front of Maintenance Berm	2.48 ac			6.83 ac-ft
86.40	---	2.13 ac			0.84 ac-ft
86.00	Initial Water Elevation	2.07 ac			0.00 ac-ft
74.00	Pond Bottom	0.69 ac			

POND 121B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.00	Back of Maintenance Berm	2.52 ac			9.99 ac-ft
89.00	Front of Maintenance Berm	1.98 ac			5.49 ac-ft
86.40	---	1.72 ac			0.68 ac-ft
86.00	Initial Water Elevation	1.68 ac			0.00 ac-ft
74.00	Pond Bottom	0.71 ac			

POND 121A + POND 121B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.00	Back of Maintenance Berm	5.72 ac			22.50 ac-ft
89.00	Front of Maintenance Berm	4.46 ac			12.32 ac-ft
86.40	---	3.85 ac			1.52 ac-ft
86.00	Initial Water Elevation	3.75 ac			0.00 ac-ft
74.00	Pond Bottom	1.40 ac			

Required Treatment Volume: 1.96 ac-ft Required Treat. Vol. + Atten.: 7.50 ac-ft
 Top El. Of Treatment Volume: 86.51 Top El. Of Treat. Vol. + Atten.: 87.84

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HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 122 (Pond SE-1 in permit application # 101001-20 and 030115-14)
 POND NAME: 122A +122B +122C

STATION LIMITS: From: 954+00 RT Roadway Length: 2293 ft
 To: 976+93 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area: (Eastbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft

Total Impervious Width: 36 ft

Additional Impervious: 2.15 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 4.04 ac
 Pervious Roadway Area: 28.93 ac
 Total Roadway Area: 32.98 ac

Pond Area:
 Pervious Pond Area: 7.05 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 7.05 ac

Total Area:
 Impervious Area: 4.04 ac
 Pervious Area: 35.98 ac
 Water Surface Area: 0.00 ac
 Total Area: 40.02 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.04 ac	396.4
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% or less)	A	49	35.98 ac	1762.8
		Total:	40.02 ac	2159.2

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 54.0$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 8.53$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 6.35$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 122 (Pond SE-1 in permit application # 101001-20 and 030115-14)
 POND NAME: 122A +122B +122C

PROPOSED CONDITION

Roadway Area: (Eastbound)

Description	Width	Quantity	Total Width
Travel Lane	12 ft	5	60 ft
Wall	2 ft	2	4 ft
Shoulder	10 ft	2	20 ft
Shoulder	12 ft	2	24 ft
Guardrail	5 ft	1	5 ft
Slip Ramp	15 ft	1	15 ft
Shoulder	6 ft	2	12 ft

Total Impervious Width: 140 ft

Additional Impervious: 6.61 ac
 (World Drive & Ramps)

Impervious Roadway Area: 13.98 ac
 Pervious Roadway Area: 19.00 ac
 Total Roadway Area: 32.98 ac

Pond Area:
 Pervious Pond Area: 2.83 ac
 Water Surface Area: 4.22 ac
 Total Pond Area: 7.05 ac

Total Area:
 Impervious Area: 13.98 ac
 Pervious Area: 21.82 ac
 Water Surface Area: 4.22 ac
 Total Area: 40.02 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	13.98 ac	1369.9
Water Area	---	100	4.22 ac	422.0
Open Land (Grass cover 50% or less)	A	49	21.82 ac	1069.3
Total:			40.02 ac	2861.1

CN = Total CN * Area / Total Area = 71.5

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 3.99$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 9.10$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 122 (Pond SE-1 in permit application # 101001-20 and 030115-14)
 POND NAME: 122A +122B +122C

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

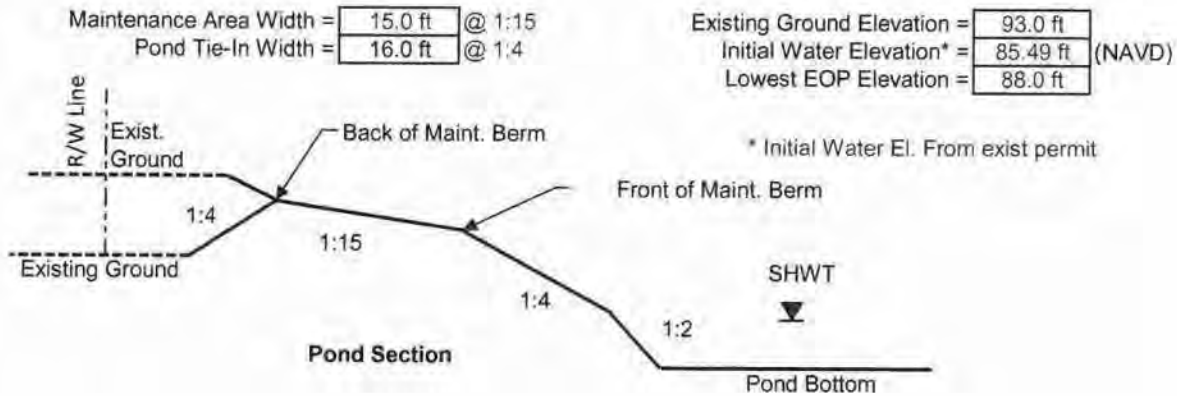
2.5" over New Impervious Area = 2.07 ac-ft
 1" over Total Area = 3.34 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **3.34 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 6.35 in
 Q_{post} = 9.10 in
 ΔQ = 2.75 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **9.18 ac-ft**



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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 122 (Pond SE-1 in permit application # 101001-20 and 030115-14)
 POND NAME: 122A +122B +122C

Pond 122A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.50	Back of Maintenance Berm	0.64 ac			2.03 ac-ft
90.50	Front of Maintenance Berm	0.42 ac			1.50 ac-ft
88.00	---	0.30 ac			0.60 ac-ft
85.49	Initial Water Elevation	0.18 ac			0.00 ac-ft
73.50	Pond Bottom	0.02 ac			

Pond 122B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.50	Back of Maintenance Berm	5.21 ac			24.89 ac-ft
90.50	Front of Maintenance Berm	4.47 ac			20.05 ac-ft
88.00	---	4.00 ac			9.46 ac-ft
85.49	Initial Water Elevation	3.54 ac			0.00 ac-ft
73.50	Pond Bottom	2.67 ac			

Pond 122C

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.50	Back of Maintenance Berm	1.20 ac			4.47 ac-ft
90.50	Front of Maintenance Berm	0.88 ac			3.43 ac-ft
88.00	---	0.68 ac			1.48 ac-ft
85.49	Initial Water Elevation	0.50 ac			0.00 ac-ft
73.50	Pond Bottom	0.10 ac			

Pond 122A + Pond 122B + Pond 122C

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.50	Back of Maintenance Berm	7.05 ac			31.39 ac-ft
90.50	Front of Maintenance Berm	5.77 ac			24.98 ac-ft
88.00	---	4.98 ac			11.55 ac-ft
85.49	Initial Water Elevation	4.22 ac			0.00 ac-ft
73.50	Pond Bottom	2.79 ac			

Required Treatment Volume: 3.34 ac-ft

Required Treat. Vol. + Atten.: 12.52 ac-ft

Top El. Of Treatment Volume: 86.22

Top El. Of Treat. Vol. + Atten.: 88.21

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 123
 POND NAME: 123 (Pond NW-3 in Permit Application # 101001-20 and 030115-14)

STATION LIMITS: From: 974+38 Roadway Length: 386 ft
 To: 978+24 R/W Width: 200 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft
Total Impervious Width:			36 ft

Additional Impervious: 4.33 ac
 (ramps, turn lanes, etc.)
 Impervious Roadway Area: 4.65 ac
 Pervious Roadway Area: 4.73 ac
 Total Roadway Area: 9.38 ac

Pond Area:
 Pervious Pond Area: 3.45 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 3.45 ac

Total Area:
 Impervious Area: 4.65 ac
 Pervious Area: 8.18 ac
 Water Surface Area: 0.00 ac
 Total Area: 12.83 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.65 ac	455.6
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	8.18 ac	400.9
Total:			12.83 ac	856.5

CN = Total CN * Area / Total Area = **66.8**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 4.98$ in Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 8.39$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 123
 POND NAME: 123 (Pond NW-3 in Permit Application # 101001-20 and 030115-14)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Wall	2 ft	2	4 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft

Total Impervious Width: 120 ft

Additional Impervious: 4.33 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 5.39 ac
 Pervious Roadway Area: 3.99 ac
 Total Roadway Area: 9.38 ac

Pond Area:
 Pervious Pond Area: 1.30 ac
 Water Surface Area: 2.15 ac
 Total Pond Area: 3.45 ac

Total Area:
 Impervious Area: 5.39 ac
 Pervious Area: 5.29 ac
 Water Surface Area: 2.15 ac
 Total Area: 12.83 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	5.39 ac	528.5
Water Area	---	100	2.15 ac	215.0
Rail Corridor (Gravel)	A	76	0.25 ac	19.0
Open Land (Grass cover 50% - 75%)	A	49	5.04 ac	246.8
			<u>12.83 ac</u>	<u>1009.3</u>

CN = Total CN * Area / Total Area = **78.7**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.71$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.13$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 123
 POND NAME: 123 (Pond NW-3 in Permit Application # 101001-20 and 030115-14)

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

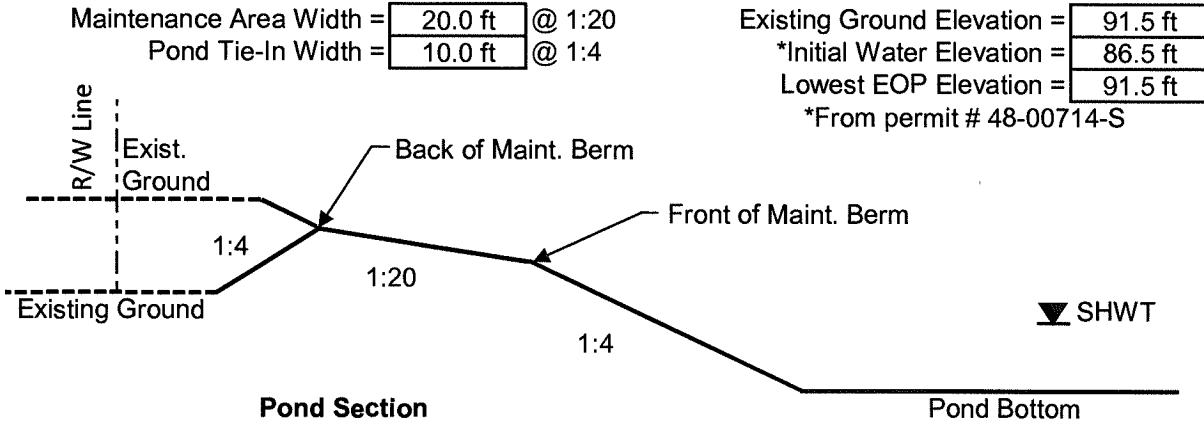
2.5" over New Impervious Area = 0.16 ac-ft
 1" over Total Area = 1.07 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 1.07 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 8.39 in
 Q_{post} = 10.13 in
 ΔQ = 1.74 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 1.86 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.50	Back of Maintenance Berm	3.45 ac			12.60 ac-ft
90.50	Front of Maintenance Berm	2.62 ac			9.56 ac-ft
87.00	---	2.22 ac			1.09 ac-ft
86.50	Initial Water Elevation	2.15 ac			0.00 ac-ft
74.50	Pond Bottom	0.56 ac			

Required Treatment Volume: 1.07 ac-ft Required Treat. Vol. + Atten.: 2.93 ac-ft
 Top El. Of Treatment Volume: 86.99 Top El. Of Treat. Vol. + Atten.: 87.76

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 124
 POND NAME: 124 (Pond SE-4 in SFWMD Permit Application No. 101001-20)

STATION LIMITS: From: 978+24 LT Roadway Length: 597 ft
 To: 984+21 LT R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft
Total Impervious Width:			36 ft

Additional Impervious: 0.83 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 1.32 ac
 Pervious Roadway Area: 7.31 ac
 Total Roadway Area: 8.63 ac

Pond Area:
 Pervious Pond Area: 2.89 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 2.89 ac

Total Area:
 Impervious Area: 1.32 ac
 Pervious Area: 10.20 ac
 Water Surface Area: 0.00 ac
 Total Area: 11.52 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	1.32 ac	129.7
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	10.20 ac	499.6
**CN used from permit.			Total:	11.52 ac 629.3

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 54.6$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 8.31$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 6.46$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 124
 POND NAME: 124 (Pond SE-4 in SFWMD Permit Application No. 101001-20)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	7	84 ft
Wall	2 ft	3	6 ft
Guardrail	5 ft	0	0 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft
Total Impervious Width:			134 ft

Additional Impervious: 1.55 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 3.39 ac
 Pervious Roadway Area: 5.24 ac
 Total Roadway Area: 8.63 ac

Pond Area:
 Pervious Pond Area: 1.11 ac
 Water Surface Area: 1.78 ac
 Total Pond Area: 2.89 ac

Total Area:
 Impervious Area: 3.39 ac
 Pervious Area: 6.35 ac
 Water Surface Area: 1.78 ac
 Total Area: 11.52 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	3.39 ac	331.9
Rail Corridor (Gravel)	A	76	0.65 ac	49.4
Water Area	---	100	1.78 ac	178.0
Open Land (Grass cover 50% - 75%)	A	49	5.70 ac	279.5
Total:			11.52 ac	838.7

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 72.8$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 3.73$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 9.30$ in

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 124
 POND NAME: 124 (Pond SE-4 in SFWMD Permit Application No. 101001-20)

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

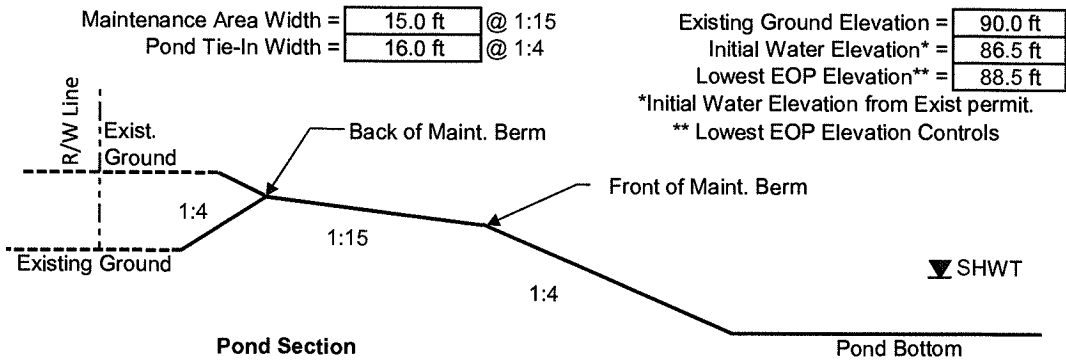
2.5" over New Impervious Area = 0.43 ac-ft
 1" over Total Area = 0.96 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **0.96 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 6.46 in
 Q_{post} = 9.30 in
 ΔQ = 2.83 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} =$ **2.72 ac-ft**



POND 124

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.50	Back of Maintenance Berm	2.89 ac			10.84 ac-ft
90.50	Front of Maintenance Berm	2.34 ac			8.22 ac-ft
89.50	---	2.19 ac			5.96 ac-ft
86.50	Initial Water Elevation	1.78 ac			0.00 ac-ft
74.50	Pond Bottom	0.44 ac			

Required Treatment Volume: 0.96 ac-ft Required Treat. Vol. + Atten.: 3.68 ac-ft
 Top El. Of Treatment Volume: 86.98 Top El. Of Treat. Vol. + Atten.: 88.35

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 125
 POND NAME: 125 (Pond SE-2 in SFWMD Permit Application No. 101001-20)

STATION LIMITS: From: 977+00 RT Roadway Length: 721 ft
 To: 984+21 RT R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	2	24 ft
Inside Shoulder	4 ft	1	4 ft
Outside Shoulder	8 ft	1	8 ft
Total Impervious Width:			36 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)
 Impervious Roadway Area: 0.60 ac
 Pervious Roadway Area: 7.06 ac
 Total Roadway Area: 7.66 ac

Pond Area:
 Pervious Pond Area: 2.92 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 2.92 ac

Total Area:
 Impervious Area: 0.60 ac
 Pervious Area: 9.98 ac
 Water Surface Area: 0.00 ac
 Total Area: 10.58 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	0.60 ac	58.4
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	9.98 ac	489.2
Total:			10.58 ac	547.6

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 51.8$

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN} = 9.32$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 5.98$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 125
 POND NAME: 125 (Pond SE-2 in SFWMD Permit Application No. 101001-20)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Wall	2 ft	2	4 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft

Total Impervious Width: 125 ft

Additional Impervious: 2.78 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 4.85 ac
 Pervious Roadway Area: 2.81 ac
 Total Roadway Area: 7.66 ac

Pond Area:
 Pervious Pond Area: 1.19 ac
 Water Surface Area: 1.73 ac
 Total Pond Area: 2.92 ac

Total Area:
 Impervious Area: 4.85 ac
 Pervious Area: 4.00 ac
 Water Surface Area: 1.73 ac
 Total Area: 10.58 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	4.85 ac	475.2
Water Area	---	100	1.73 ac	173.0
Open Land (Grass cover 50% - 75%)	A	49	4.00 ac	196.0
Total:			10.58 ac	844.3

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 79.8$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.53$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.29$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 125
 POND NAME: 125 (Pond SE-2 in SFWMD Permit Application No. 101001-20)

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

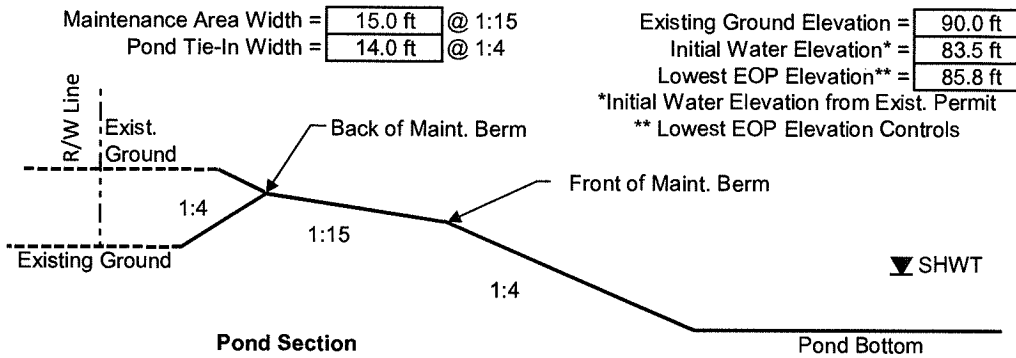
2.5" over New Impervious Area = 0.89 ac-ft
 1" over Total Area = 0.88 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 0.89 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 5.98 in
 Q_{post} = 10.29 in
 ΔQ = 4.31 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} = 3.80 \text{ ac-ft}$



POND 125

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
91.00	Back of Maintenance Berm	2.92 ac			16.16 ac-ft
90.00	Front of Maintenance Berm	2.45 ac			13.47 ac-ft
89.00	---	2.33 ac			11.08 ac-ft
83.54	Initial Water Elevation	1.73 ac			0.00 ac-ft
71.50	Pond Bottom	0.66 ac			

Required Treatment Volume: 0.89 ac-ft Required Treat. Vol. + Atten.: 4.68 ac-ft
 Top El. Of Treatment Volume: 83.98 Top El. Of Treat. Vol. + Atten.: 85.85

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 126
 POND NAME: 126 (Pond SE-3 in SFWMD Permit Application No. 101001-20)

STATION LIMITS: From: 984+21 Roadway Length: 1346 ft
 To: 997+67 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft
Total Impervious Width:			72 ft

Additional Impervious: 1.03 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 3.25 ac
 Pervious Roadway Area: 15.68 ac
 Total Roadway Area: 18.93 ac

Pond Area:
 Pervious Pond Area: 2.54 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 2.54 ac

Total Area:
 Impervious Area: 3.25 ac
 Pervious Area: 18.22 ac
 Water Surface Area: 0.00 ac
 Total Area: 21.47 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	3.25 ac	319.0
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	14.04 ac	688.0
Open Land (Grass cover 50% - 75%)	A/D	84	4.17 ac	350.6
**CN used from permit.			Total:	21.47 ac
				1357.6

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 63.2$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 5.81$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 7.85$ in

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date:

LDP	1-Mar-16
BJS	1-Mar-16

 made by: LDP
 checked by: BJS
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 126
 POND NAME: 126 (Pond SE-3 in SFWMD Permit Application No. 101001-20)

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	10	120 ft
Wall	2 ft	4	8 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft
Total Impervious Width:			221 ft

Additional Impervious: 4.34 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 11.17 ac
 Pervious Roadway Area: 7.76 ac
 Total Roadway Area: 18.93 ac

Pond Area:
 Pervious Pond Area: 0.71 ac
 Water Surface Area: 1.83 ac
 Total Pond Area: 2.54 ac

Total Area:
 Impervious Area: 11.17 ac
 Pervious Area: 8.47 ac
 Water Surface Area: 1.83 ac
 Total Area: 21.47 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	11.17 ac	1094.6
Rail Corridor (Gravel)	A	76	1.15 ac	87.4
Rail Corridor (Gravel)	A/D	91	0.07 ac	6.4
Water Area	---	100	1.83 ac	183.0
Open Land (Grass cover 50% - 75%)	A	49	5.54 ac	271.5
Open Land (Grass cover 50% - 75%)	A/D	84	1.71 ac	143.6
Total:			21.47 ac	1786.5

CN = Total CN * Area / Total Area = 83.2

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.02$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.76$ in

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date:
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 128
 POND NAME: 128

STATION LIMITS: From: 997+67 Roadway Length: 3607 ft
 To: 1033+74 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	10 ft	2	20 ft
Outside Shoulder	10 ft	2	20 ft

Total Impervious Width: 112 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)
 Osceola Parkway

Impervious Roadway Area: 9.27 ac
 Pervious Roadway Area: 35.22 ac
 Total Roadway Area: 44.49 ac

Pond Area:
 Pervious Pond Area: 5.56 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 5.56 ac

Total Area:
 Impervious Area: 9.27 ac
 Pervious Area: 40.78 ac
 Water Surface Area: 0.00 ac
 Total Area: 50.05 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	—	98	9.27 ac	908.9
Water Area	—	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	2.38 ac	116.6
Open Land (Grass cover 50% - 75%)	A/D	84	20.68 ac	1736.9
Woods (Good cover)	A/D	77	17.72 ac	1364.4
			Total:	50.05 ac 4126.7

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 82.5$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.13$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.66$ in

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date:
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 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 128
 POND NAME: 128

PROPOSED CONDITION

Pond B in SFWMD Permit Application No. 101001-20.

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	12	144 ft
Wall	2 ft	5	10 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft

Total Impervious Width: 247 ft

Additional Impervious: 11.96 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 32.41 ac
 Pervious Roadway Area: 12.08 ac
 Total Roadway Area: 44.49 ac

Pond Area:

Pervious Pond Area: 2.33 ac
 Water Surface Area: 3.23 ac
 Total Pond Area: 5.56 ac

Total Area:

Impervious Area: 32.41 ac
 Pervious Area: 14.41 ac
 Water Surface Area: 3.23 ac
 Total Area: 50.05 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	32.41 ac	3176.5
Rail Corridor (Gravel)	A/D	91	2.98 ac	271.2
Water Area	---	100	3.23 ac	323.0
Open Land (Grass cover 50% - 75%)	A	49	1.31 ac	64.2
Open Land (Grass cover 50% - 75%)	A/D	84	10.12 ac	849.8
Total:			50.05 ac	4684.7

$CN = \frac{\text{Total } CN * \text{Area}}{\text{Total Area}} = 93.6$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.68$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.11$ in

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 128
 POND NAME: 128

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

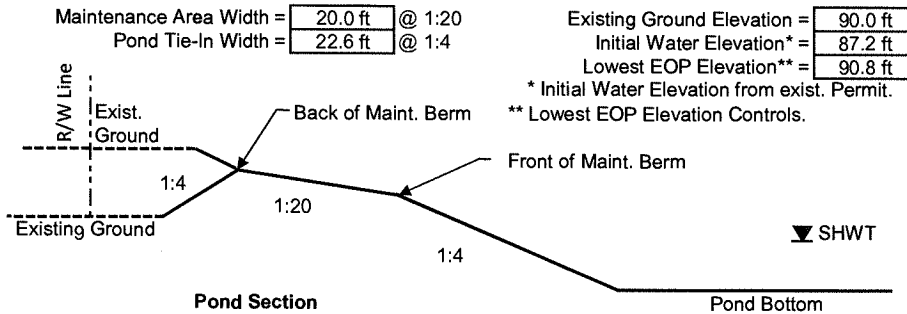
2.5" over New Impervious Area = 4.82 ac-ft
 1" over Total Area = 4.17 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **4.82 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 10.66 in
 Q_{post} = 12.11 in
 ΔQ = 1.46 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **6.08 ac-ft**



POND 128A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
93.15	Back of Maintenance Berm	1.56 ac			5.83 ac-ft
92.15	Front of Maintenance Berm	1.10 ac			4.50 ac-ft
91.15	---	1.02 ac			3.44 ac-ft
87.15	Initial Water Elevation	0.70 ac			0.00 ac-ft
80.15	Pond Bottom	0.26 ac			

POND 128B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
93.15	Back of Maintenance Berm	4.00 ac			17.80 ac-ft
92.15	Front of Maintenance Berm	3.16 ac			14.22 ac-ft
91.15	---	3.03 ac			11.12 ac-ft
87.15	Initial Water Elevation	2.53 ac			0.00 ac-ft
80.15	Pond Bottom	1.80 ac			

POND 128A & 128B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
93.15	Back of Maintenance Berm	5.56 ac			23.63 ac-ft
92.15	Front of Maintenance Berm	4.26 ac			18.72 ac-ft
91.15	---	4.05 ac			14.56 ac-ft
87.15	Initial Water Elevation	3.23 ac			0.00 ac-ft
80.15	Pond Bottom	2.06 ac			

Required Treatment Volume: 4.82 ac-ft Required Treat. Vol. + Atten.: 10.90 ac-ft
 Top El. Of Treatment Volume: 88.47 Top El. Of Treat. Vol. + Atten.: 90.27

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 130
 POND NAME: 130

STATION LIMITS: From: 1035+00 LT & RT
 To: 1050+00

Roadway Length: 1500 ft
 R/W Width: VARIES

STATION LIMITS: From: 1035+00 RT
 To: 1065+63

Roadway Length: 3063 ft
 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	10 ft	2	20 ft
Outside Shoulder	10 ft	2	20 ft
Total Impervious Width:			112 ft

Additional Impervious: 16.22 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 24.01
 Pervious Roadway Area: 37.86 ac
 Total Roadway Area: 61.87 ac

Pond Area:
 Pervious Pond Area: 16.62 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 16.62 ac

Total Area:
 Impervious Area: 24.01 ac
 Pervious Area: 54.48 ac
 Water Surface Area: 0.00 ac
 Total Area: 78.49 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	24.01 ac	2353.4
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A/D	84	54.48 ac	4575.9
Woods (Good cover)	A	25	0.00 ac	0.0
Woods (Poor cover)	A	45	0.00 ac	0.0
Woods (Good cover)	A/D	77	0.00 ac	0.0
Total:			78.49 ac	6929.4

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 88.3$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.33$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.43$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 130
 POND NAME: 130

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	14	168 ft
Wall	2 ft	4	8 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft
Total Impervious Width:			269 ft

Additional Impervious: 15.86 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 34.58 ac
 Pervious Roadway Area: 27.29 ac
 Total Roadway Area: 61.87 ac

Pond Area:

Pervious Pond Area: 4.52 ac
 Water Surface Area: 12.10 ac
 Total Pond Area: 16.62 ac

Total Area:

Impervious Area: 34.58 ac
 Pervious Area: 31.81 ac
 Water Surface Area: 12.10 ac
 Total Area: 78.49 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	34.58 ac	3388.9
Rail Corridor (Gravel)	A/D	91	2.38 ac	216.6
Water Area	---	100	12.10 ac	1210.0
Open Land (Grass cover 50% - 75%)	A/D	84	29.43 ac	2472.1
Total:			78.49 ac	7287.5

CN = Total CN * Area / Total Area = **92.8**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.77$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.02$ in

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date:

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BJS	1-Mar-16

 checked by:

BJS	1-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 130
 POND NAME: 130

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

2.5" over New Impervious Area = 2.20 ac-ft
 1" over Total Area = 6.54 ac-ft

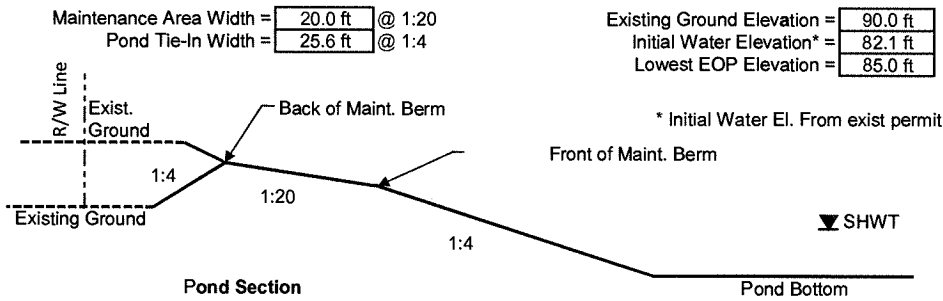
Treatment V_{req} = Largest of Trt. Vol. = **6.54 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.43 in
 Q_{post} = 12.02 in
 ΔQ = 0.59 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} =$ **3.83 ac-ft**

Required Compensation Volume: 14.39 ac-ft (Offsite Pond impacts)



POND 130

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
86.10	Back of Maintenance Berm	6.35 ac			19.84 ac-ft
85.10	Front of Maintenance Berm	5.08 ac			14.13 ac-ft
84.10	---	4.83 ac			9.17 ac-ft
82.10	Initial Water Elevation	4.34 ac			0.00 ac-ft
72.10	Pond Bottom	0.00 ac			

POND 130A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
86.10	Back of Maintenance Berm	10.27 ac			34.51 ac-ft
85.10	Front of Maintenance Berm	8.86 ac			24.94 ac-ft
84.10	---	8.50 ac			16.26 ac-ft
82.10	Initial Water Elevation	7.76 ac			0.00 ac-ft
72.10	Pond Bottom	5.98 ac			

POND TOTAL

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
86.10	Back of Maintenance Berm	16.62 ac			54.35 ac-ft
85.10	Front of Maintenance Berm	13.94 ac			39.07 ac-ft
84.10	---	13.33 ac			25.43 ac-ft
82.10	Initial Water Elevation	12.10 ac			0.00 ac-ft
72.10	Pond Bottom	5.98 ac			

Required Treatment Volume: 6.54 ac-ft Required Treat. Vol. + Atten.: 24.76 ac-ft
 Top El. Of Treatment Volume: 82.71 Top El. Of Treat. Vol. + Atten.: 84.05

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date:
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 checked by: BJS 1-Mar-16
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PROJECT: I-4 PD&E - SEGMENT 1

Required Treatment Volume:

Pond SMA-M (Wet Detention)

Existing Pond Volume (SFWM D App. No. 971210-9)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
83.00		14.51 ac			81.45 ac-ft
82.60	25yr / 72hr Elevation	14.38 ac			75.67 ac-ft
81.00		13.88 ac			53.06 ac-ft
80.00		13.57 ac			39.34 ac-ft
78.65	Weir Elevation	13.16 ac			21.29 ac-ft
78.00		12.96 ac			12.81 ac-ft
77.00	Initial Water Elevation	12.65 ac			0.00 ac-ft

*Elevations in NAVD 88.

Reduced Pond Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
83.00		11.90 ac			65.98 ac-ft
82.60	25yr / 72hr Elevation	11.60 ac			61.28 ac-ft
81.00		11.37 ac			42.90 ac-ft
80.00		11.11 ac			31.66 ac-ft
78.65	Weir Elevation	10.70 ac			16.94 ac-ft
78.00		10.60 ac			10.47 ac-ft
77.00	Initial Water Elevation	10.34 ac			0.00 ac-ft

Reduced Treatment & Attenuation Volume = 14.39 ac-ft

HNTB Corporation
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 Lake Mary, FL 32746

date:

SR	3-Mar-16
BJS	3-Mar-16

 made by:

SR	3-Mar-16
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 checked by:

BJS	3-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 131
 POND NAME: 131A & 132B Alternative 1

STATION LIMITS: From: 1065+63 RT Roadway Length: 1293 ft
 To: 1078+56 R/W Width: VARIES

STATION LIMITS: From: 1050+00 LT Roadway Length: 3317 ft
 To: 1083+17 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	10 ft	2	20 ft
Outside Shoulder	10 ft	2	20 ft
Total Impervious Width:			112 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 5.93 ac
 Pervious Roadway Area: 39.01 ac
 Total Roadway Area: 44.94 ac

Pond Area: Pervious Pond Area: 4.88 ac
 Water Surface Area: 4.13 ac Exist. Barrow Pit
 Total Pond Area: 9.01 ac

Total Area: Impervious Area: 5.93 ac
 Pervious Area: 43.89 ac
 Water Surface Area: 4.13 ac
 Total Area: 53.95 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	5.93 ac	580.8
Water Area	---	100	4.13 ac	413.0
Open Land (Grass cover 50% - 75%)	A/D	84	17.52 ac	1472.0
Woods (Good cover)	A/D	77	26.37 ac	2030.5
Total:			53.95 ac	4496.3

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 83.3$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.00$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.78$ in

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date:
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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 131
 POND NAME: 131A & 132B Alternative 1

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	10	120 ft
Wall	2 ft	4	8 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft
Total Impervious Width:			221 ft

Additional Impervious: 10.89 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 22.58 ac
 Pervious Roadway Area: 22.36 ac
 Total Roadway Area: 44.94 ac

Pond Area:
 Pervious Pond Area: 1.92 ac
 Water Surface Area: 7.09 ac
 Total Pond Area: 9.01 ac

Total Area:
 Impervious Area: 22.58 ac
 Pervious Area: 24.28 ac
 Water Surface Area: 7.09 ac
 Total Area: 53.95 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	22.58 ac	2213.3
Rail Corridor (Gravel)	A/D OR B/D	91	1.56 ac	142.0
Water Area	---	100	7.09 ac	709.0
Open Land (Grass cover 50% - 75%)	A/D OR D	84	22.72 ac	1908.1
Total:			53.95 ac	4972.3

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 92.2$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.85$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.93$ in

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date:
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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 131
 POND NAME: 131A & 132B Alternative 1

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

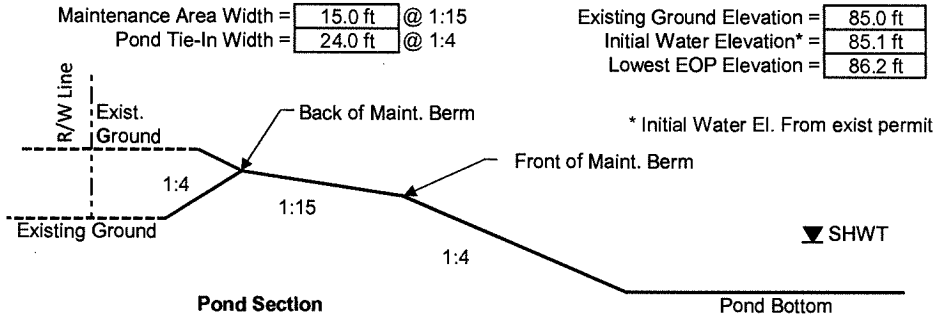
2.5" over New Impervious Area = 3.47 ac-ft
 1" over Total Area = 4.50 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **4.50 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 10.78 in
 Q_{post} = 11.93 in
 ΔQ = 1.16 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **5.20 ac-ft**



POND 131A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
88.50	Back of Maintenance Berm	1.22 ac			2.67 ac-ft
87.50	Front of Maintenance Berm	0.81 ac			1.66 ac-ft
86.50	---	0.71 ac			0.90 ac-ft
85.10	Initial Water Elevation	0.57 ac			0.00 ac-ft
80.00	Pond Bottom	0.09 ac			

POND 131B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
88.50	Back of Maintenance Berm	7.79 ac			23.62 ac-ft
87.50	Front of Maintenance Berm	7.00 ac			16.22 ac-ft
86.50	---	6.80 ac			9.32 ac-ft
85.10	Initial Water Elevation	6.52 ac			0.00 ac-ft
80.00	Pond Bottom	5.53 ac			

POND 131A & 131B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
88.50	Back of Maintenance Berm	9.01 ac			26.29 ac-ft
87.50	Front of Maintenance Berm	7.81 ac			17.88 ac-ft
86.50	---	7.51 ac			10.22 ac-ft
85.10	Initial Water Elevation	7.09 ac			0.00 ac-ft
80.00	Pond Bottom	5.62 ac			

Required Treatment Volume: 4.50 ac-ft Required Treat. Vol. + Atten.: 9.69 ac-ft
 Top El. Of Treatment Volume: 85.72 Top El. Of Treat. Vol. + Atten.: 86.43

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date:
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 checked by: BJS 3-Mar-16
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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 132
 POND NAME: 132, 133, 134 & 135

STATION LIMITS: From: 1083+17 To: 1127+65
 Roadway Length: 4448 ft
 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Inside Shoulder	4 ft	2	8 ft
Outside Shoulder	8 ft	2	16 ft
Total Impervious Width:			72 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 7.35 ac
 Pervious Roadway Area: 151.92 ac
 Total Roadway Area: 159.27 ac

Pond Area:
 Pervious Pond Area: 34.50 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 34.50 ac

Total Area:
 Impervious Area: 7.35 ac
 Pervious Area: 186.42 ac
 Water Surface Area: 0.00 ac
 Total Area: 193.77 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	7.35 ac	720.5
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	4.49 ac	220.0
Open Land (Grass cover 50% - 75%)	A/D	84	94.42 ac	7931.1
Woods (Good cover)	A	25	3.68 ac	92.0
Woods (Good cover)	A/D & B/D	77	83.83 ac	6454.9
**CN used from permit.			Total:	193.77 ac 15418.5

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 79.6$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.57$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.26$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:

made by:	LDP	3-Mar-16
checked by:	BJS	3-Mar-16
HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 132
 POND NAME: 132, 133, 134 & 135

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	14	168 ft
Wall	2 ft	5	10 ft
Guardrail	5 ft	1	5 ft
Shoulder	8 ft	2	16 ft
Shoulder	10 ft	5	50 ft
Shoulder	12 ft	5	60 ft
Total Impervious Width:			309 ft

Additional Impervious: 33.25 ac
 (ramps, turn lanes, etc.)

SB Epcot Center and Ramps

Impervious Roadway Area: 64.80 ac
 Pervious Roadway Area: 94.47 ac
 Total Roadway Area: 159.27 ac

Pond Area:
 Pervious Pond Area: 5.62 ac
 Water Surface Area: 28.88 ac
 Total Pond Area: 34.50 ac

Total Area:
 Impervious Area: 64.80 ac
 Pervious Area: 100.09 ac
 Water Surface Area: 28.88 ac
 Total Area: 193.77 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	64.80 ac	6350.7
Rail Corridor (Gravel)	A	76	0.36 ac	27.4
Rail Corridor (Gravel)	A/D OR B/D	91	3.72 ac	338.5
Water Area	---	100	28.88 ac	2888.0
Open Land (Grass cover 50% - 75%)	A	49	4.30 ac	210.7
Open Land (Grass cover 50% - 75%)	A/D OR D	84	91.71 ac	7703.4
Total:			193.77 ac	17518.7

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 90.4$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.06$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.71$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

made by: LDP 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 132
 POND NAME: 132, 133, 134 & 135

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

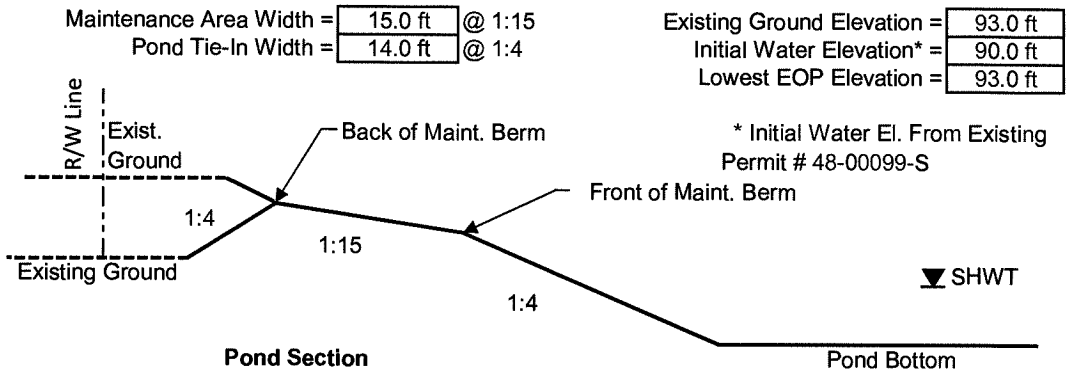
2.5" over New Impervious Area = 11.97 ac-ft
 1" over Total Area = 16.15 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 16.15 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 10.26 in
 Q_{post} = 11.71 in
 ΔQ = 1.45 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 23.40 \text{ ac-ft}$



HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: LDP 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 132
 POND NAME: 132, 133, 134 & 135

POND 132

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
94.00	Back of Maintenance Berm	9.01 ac			32.38 ac-ft
93.00	Front of Maintenance Berm	8.22 ac			23.76 ac-ft
92.00	---	8.02 ac			15.64 ac-ft
90.00	Initial Water Elevation	7.62 ac			0.00 ac-ft
80.00	Pond Bottom	5.74 ac			

POND 133

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
94.00	Back of Maintenance Berm	11.31 ac			40.43 ac-ft
93.00	Front of Maintenance Berm	10.28 ac			29.64 ac-ft
92.00	---	10.01 ac			19.49 ac-ft
90.00	Initial Water Elevation	9.48 ac			0.00 ac-ft
80.00	Pond Bottom	6.98 ac			

POND 134

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
94.00	Back of Maintenance Berm	7.22 ac			25.73 ac-ft
93.00	Front of Maintenance Berm	6.54 ac			18.85 ac-ft
92.00	---	6.37 ac			12.39 ac-ft
90.00	Initial Water Elevation	6.02 ac			0.00 ac-ft
80.00	Pond Bottom	4.43 ac			

POND 135

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
94.00	Back of Maintenance Berm	6.96 ac			24.67 ac-ft
93.00	Front of Maintenance Berm	6.28 ac			18.05 ac-ft
92.00	---	6.10 ac			11.86 ac-ft
90.00	Initial Water Elevation	5.76 ac			0.00 ac-ft
80.00	Pond Bottom	4.17 ac			

POND 132 + POND 133 + POND 134 + POND 135

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
94.00	Back of Maintenance Berm	34.50 ac			123.20 ac-ft
93.00	Front of Maintenance Berm	31.32 ac			90.29 ac-ft
92.00	---	30.50 ac			59.38 ac-ft
90.00	Initial Water Elevation	28.88 ac			0.00 ac-ft
80.00	Pond Bottom	21.32 ac			

Required Treatment Volume: 16.15 ac-ft Required Treat. Vol. + Atten.: 39.54 ac-ft
 Top El. Of Treatment Volume: 90.54 Top El. Of Treat. Vol. + Atten.: 91.36

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 136
 POND NAME: 136A

STATION LIMITS: From: 1127+65 (RT & LT) Roadway Length: 2865 ft
 To: 1156+30 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	1	5 ft
Inside Shoulder	8 ft	2	16 ft
Outside Shoulder	10 ft	2	20 ft
Total Impervious Width:			89 ft

Additional Impervious: 1.95 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 7.80 ac
 Pervious Roadway Area: 15.60 ac
 Total Roadway Area: 23.40 ac

Pond Area:
 Pervious Pond Area: 3.88 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 3.88 ac

Total Area:
 Impervious Area: 7.80 ac
 Pervious Area: 19.48 ac
 Water Surface Area: 0.00 ac
 Total Area: 27.28 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	7.80 ac	764.8
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	3.57 ac	174.9
Open Land (Grass cover 50% - 75%)	A/D or D	84	9.76 ac	819.5
Woods (Good cover)	A	25	0.00 ac	0.0
Woods (Poor cover)	A/D or B/D	83	2.38 ac	197.5
Woods (Good cover)	A/D or B/D	77	3.77 ac	290.3
**CN used from permit.			Total:	2247.1

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 82.4$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.14$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.65$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 136
 POND NAME: 136A

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	12	144 ft
Wall	2 ft	6	12 ft
Shoulder	6 ft	2	12 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft

Total Impervious Width: 256 ft

Additional Impervious: 9.32 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 17.74 ac
 Pervious Roadway Area: 5.66 ac
 Total Roadway Area: 23.40 ac

Pond Area:

Pervious Pond Area: 1.19 ac
 Water Surface Area: 2.69 ac
 Total Pond Area: 3.88 ac

Total Area:

Impervious Area: 17.74 ac
 Pervious Area: 6.85 ac
 Water Surface Area: 2.69 ac
 Total Area: 27.28 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	17.74 ac	1738.4
Rail Corridor (Gravel)	A	76	0.44 ac	33.5
Rail Corridor (Gravel)	A/D OR D	91	1.70 ac	154.6
Water Area	---	100	2.69 ac	269.0
Open Land (Grass cover 50% - 75%)	A	49	2.93 ac	143.7
Open Land (Grass cover 50% - 75%)	A/D OR D	84	1.78 ac	149.5
Total:			27.28 ac	2488.6

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 91.2$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.96$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 11.81$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 136
 POND NAME: 136A

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

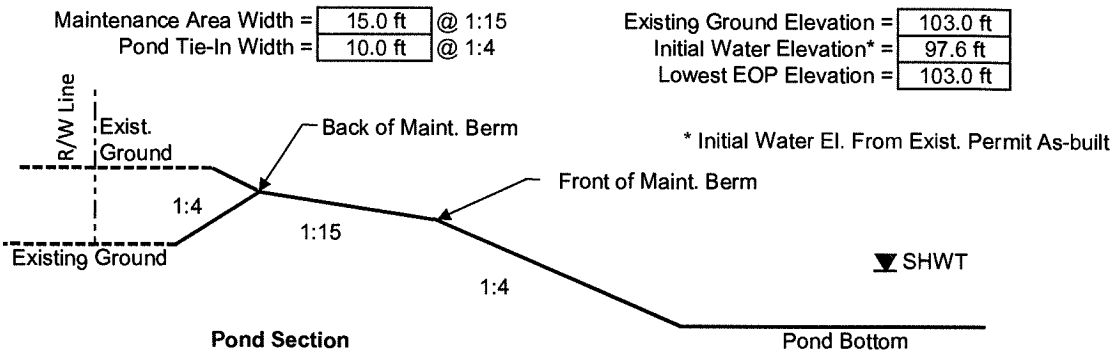
2.5" over New Impervious Area = 2.07 ac-ft
 1" over Total Area = 2.27 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **2.27 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 10.65 in
 Q_{post} = 11.81 in
 ΔQ = 1.17 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} =$ **2.66 ac-ft**



POND 136A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
103.00	Back of Maintenance Berm	3.88 ac			16.81 ac-ft
102.00	Front of Maintenance Berm	3.32 ac			13.21 ac-ft
100.00	---	3.03 ac			6.86 ac-ft
97.60	Initial Water Elevation	2.69 ac			0.00 ac-ft
90.00	Pond Bottom	1.73 ac			

Required Treatment Volume: 2.27 ac-ft Required Treat. Vol. + Atten.: 4.93 ac-ft
 Top El. Of Treatment Volume: 98.39 Top El. Of Treat. Vol. + Atten.: 99.32

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 136
 POND NAME: 136B

STATION LIMITS: From: 1127+65 (RT & LT) Roadway Length: 2865 ft
 To: 1156+30 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	4	48 ft
Guardrail	5 ft	1	5 ft
Inside Shoulder	8 ft	2	16 ft
Outside Shoulder	10 ft	2	20 ft
Total Impervious Width:			89 ft

Additional Impervious: 1.95 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 7.80 ac
 Pervious Roadway Area: 15.60 ac
 Total Roadway Area: 23.40 ac

Pond Area:
 Pervious Pond Area: 3.85 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 3.85 ac

Total Area:
 Impervious Area: 7.80 ac
 Pervious Area: 19.45 ac
 Water Surface Area: 0.00 ac
 Total Area: 27.25 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	7.80 ac	764.8
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	3.57 ac	174.9
Open Land (Grass cover 50% - 75%)	A/D or D	84	9.76 ac	819.5
Woods (Poor cover)	A/D or B/D	83	2.38 ac	197.5
Woods (Good cover)	A/D or B/D	77	3.74 ac	288.0
**CN used from permit.			Total:	2244.7

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 82.4$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.14$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.65$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 136
 POND NAME: 136B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	12	144 ft
Wall	2 ft	6	12 ft
Shoulder	6 ft	2	12 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft

Total Impervious Width: 256 ft

Additional Impervious: 9.32 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 17.74 ac
 Pervious Roadway Area: 5.66 ac
 Total Roadway Area: 23.40 ac

Pond Area:

Pervious Pond Area: 1.17 ac
 Water Surface Area: 2.68 ac
 Total Pond Area: 3.85 ac

Total Area:

Impervious Area: 17.74 ac
 Pervious Area: 6.83 ac
 Water Surface Area: 2.68 ac
 Total Area: 27.25 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	17.74 ac	1738.4
Rail Corridor (Gravel)	A	76	0.44 ac	33.4
Rail Corridor (Gravel)	A/D OR D	91	1.69 ac	154.2
Water Area	---	100	2.68 ac	268.0
Open Land (Grass cover 50% - 75%)	A	49	0.87 ac	42.8
Open Land (Grass cover 50% - 75%)	A/D OR D	84	3.82 ac	321.2
Total:			27.25 ac	2558.0

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 93.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.65$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.15$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 3-Mar-16
 checked by: BJS 3-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 136
 POND NAME: 136B

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

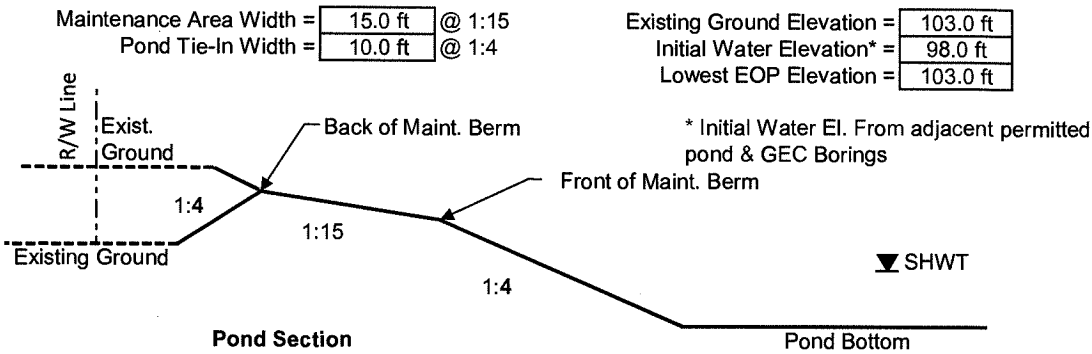
2.5" over New Impervious Area = 2.07 ac-ft
 1" over Total Area = 2.27 ac-ft

Treatment $V_{req} = \text{Largest of Trt. Vol.} = 2.27 \text{ ac-ft}$

Required Attenuation Volume:

Total Runoff: $Q_{pre} = 10.65 \text{ in}$
 $Q_{post} = 12.15 \text{ in}$
 $\Delta Q = 1.50 \text{ in}$

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 3.41 \text{ ac-ft}$



POND 136B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
103.00	Back of Maintenance Berm	3.85 ac			15.44 ac-ft
102.00	Front of Maintenance Berm	3.26 ac			11.88 ac-ft
100.00	---	2.97 ac			5.65 ac-ft
98.00	Initial Water Elevation	2.68 ac			0.00 ac-ft
90.00	Pond Bottom	1.62 ac			

Required Treatment Volume: 2.27 ac-ft Required Treat. Vol. + Atten.: 5.68 ac-ft
 Top El. Of Treatment Volume: 98.80 Top El. Of Treat. Vol. + Atten.: 100.01

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by: SR 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 137
 POND NAME: 137, 137A & 137B

STATION LIMITS: From: 1156+30 (RT & LT) Roadway Length: 2028 ft
 To: 1176+58 R/W Width: VARIES

STATION LIMITS: From: 1176+58 (RT) Roadway Length: 1662 ft
 To: 1193+20 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Guardrail	5 ft	1	5 ft
Inside Shoulder	8 ft	2	16 ft
Outside Shoulder	10 ft	2	20 ft
Total Impervious Width:			113 ft

Additional Impervious: 13.20 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 20.62 ac
 Pervious Roadway Area: 24.82 ac
 Total Roadway Area: 45.44 ac

Pond Area:
 Pervious Pond Area: 11.69 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 11.69 ac

Total Area:
 Impervious Area: 20.62 ac
 Pervious Area: 36.51 ac
 Water Surface Area: 0.00 ac
 Total Area: 57.13 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	20.62 ac	2020.4
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	11.69 ac	572.8
Open Land (Grass cover 50% - 75%)	D	84	24.82 ac	2085.2
Total:			57.13 ac	4678.4

**CN used from permit.

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 81.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.21$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.58$ in

HNTB Corporation
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 Lake Mary, FL 32746

date:
 made by: SR 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 137
 POND NAME: 137, 137A & 137B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	15	180 ft
Wall	2 ft	6	12 ft
Guardrail	5 ft	0	0 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	6	60 ft

Total Impervious Width: 300 ft

Additional Impervious: 13.32 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 26.03 ac
 Pervious Roadway Area: 19.41 ac
 Total Roadway Area: 45.44 ac

Pond Area:

Pervious Pond Area: 3.07 ac
 Water Surface Area: 8.62 ac
 Total Pond Area: 11.69 ac

Total Area:

Impervious Area: 26.03 ac
 Pervious Area: 22.48 ac
 Water Surface Area: 8.62 ac
 Total Area: 57.13 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	26.03 ac	2550.6
Rail Corridor (Gravel)	D	91	2.05 ac	186.4
Water Area	---	100	8.62 ac	862.0
Open Land (Grass cover 50% - 75%)	A	49	17.52 ac	858.7
Open Land (Grass cover 50% - 75%)	D	84	2.91 ac	244.4
Total:			57.13 ac	4702.2

CN = Total CN * Area / Total Area = 82.3

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.15$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 10.64$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

made by: SR 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 137
 POND NAME: 137, 137A & 137B

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

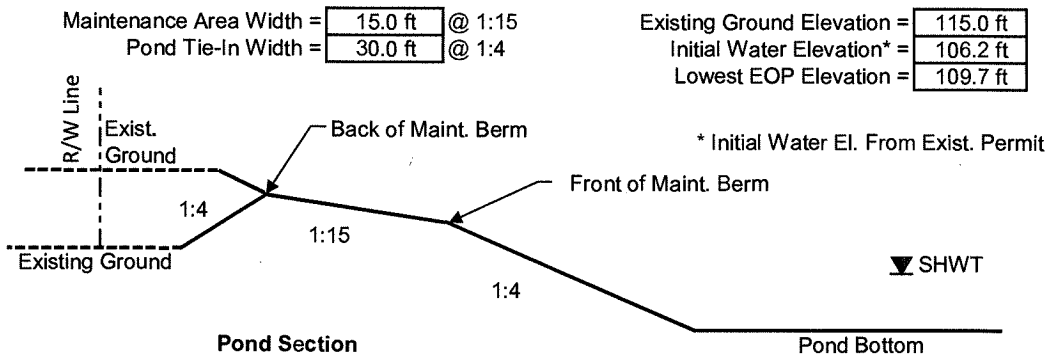
2.5" over New Impervious Area = 1.13 ac-ft
 1" over Total Area = 4.76 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = **4.76 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 10.58 in
 Q_{post} = 10.64 in
 ΔQ = 0.06 in

Attenuation $V_{req} = \Delta Q / 12 \times \text{Total Area} =$ **0.27 ac-ft**



HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

made by: SR 1-Mar-16
 checked by: BJS 1-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 137
 POND NAME: 137, 137A & 137B

POND 137

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
110.00	Back of Maintenance Berm	4.71 ac			14.40 ac-ft
109.00	Front of Maintenance Berm	3.89 ac			10.10 ac-ft
108.00	---	3.70 ac			6.31 ac-ft
106.20	Initial Water Elevation	3.31 ac			0.00 ac-ft
96.20	Pond Bottom	2.31 ac			

POND 137A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
110.00	Back of Maintenance Berm	6.05 ac			19.85 ac-ft
109.00	Front of Maintenance Berm	5.32 ac			14.16 ac-ft
108.00	---	5.13 ac			8.94 ac-ft
106.20	Initial Water Elevation	4.80 ac			0.00 ac-ft
96.20	Pond Bottom	3.90 ac			

POND 137B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
110.00	Back of Maintenance Berm	0.93 ac			2.47 ac-ft
109.00	Front of Maintenance Berm	0.68 ac			1.67 ac-ft
108.00	---	0.62 ac			1.02 ac-ft
106.20	Initial Water Elevation	0.51 ac			0.00 ac-ft
96.20	Pond Bottom	0.26 ac			

POND 137 + 137A + 137B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
110.00	Back of Maintenance Berm	11.69 ac			36.72 ac-ft
109.00	Front of Maintenance Berm	9.89 ac			25.93 ac-ft
108.00	---	9.45 ac			16.26 ac-ft
106.20	Initial Water Elevation	8.62 ac			0.00 ac-ft
96.20	Pond Bottom	6.47 ac			

Required Treatment Volume: 4.76 ac-ft Required Treat. Vol. + Atten.: 5.03 ac-ft
 Top El. Of Treatment Volume: 106.73 Top El. Of Treat. Vol. + Atten.: 106.76

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:

SR	6-Sep-16
BJS	6-Sep-16

 made by:

SR	6-Sep-16
BJS	6-Sep-16

 checked by:

BJS	6-Sep-16
-----	----------

 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 138
 POND NAME: 138, 138A & 138B

STATION LIMITS: From: 1193+20 RT & LT Roadway Length: 6880 ft
 To: 1262+00 R/W Width: 300 ft
 From: 1176+50 LT Roadway Length: 1650 ft
 To: 1193+00 R/W Width: 150 ft

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Guardrail	5 ft	1	5 ft
Inside Shoulder	10 ft	2	20 ft
Outside Shoulder	10 ft	2	20 ft
Total Impervious Width:			117 ft

Additional Impervious: 31.10 ac
 (ramps, turn lanes, etc.)
 Commercial Site: 30.10 ac
 Impervious Roadway Area: 81.90 ac
 Pervious Roadway Area: 59.34 ac
 Total Roadway Area: 141.24 ac

Pond Area:

Pervious Pond Area: 0.00 ac
 Water Surface Area: 3.30 ac Exist. Cross Roads Pond
 Total Pond Area: 3.30 ac

Total Area:

Impervious Area: 81.90 ac
 Pervious Area: 59.34 ac
 Water Surface Area: 3.30 ac
 Total Area: 144.54 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	81.90 ac	8025.7
Water Area	---	100	3.30 ac	330.0
Open Land (Grass cover 50% - 75%)	A	49	11.87 ac	581.6
Open Land (Grass cover 50% - 75%)	A/D or B/D	84	47.48 ac	3988.0
Total:			144.54 ac	12925.3

CN = Total CN * Area / Total Area = 89.4

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN}$ = 1.18 in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$ = 11.58 in

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 checked by:

BJS	6-Sep-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 138
 POND NAME: 138, 138A & 138B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	15	180 ft
Wall	2 ft	6	12 ft
Guardrail	5 ft	0	0 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	6	60 ft
Total Impervious Width:			300 ft

Additional Impervious: 29.95 ac
 (ramps, turn lanes, etc.)
 Commercial Site: 4.00 ac
 Impervious Roadway Area: 87.01 ac
 Pervious Roadway Area: 32.95 ac
 Total Roadway Area: 119.96 ac

Pond Area:

Pervious Pond Area: 6.24 ac
 Water Surface Area: 18.34 ac
 Total Pond Area: 24.58 ac

Total Area:

Impervious Area: 87.01 ac
 Pervious Area: 39.19 ac
 Water Surface Area: 18.34 ac
 Total Area: 144.54 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	87.01 ac	8527.4
Rail Corridor (Gravel)	A	76	2.49 ac	189.2
Rail Corridor (Gravel)	A/D or B/D	91	3.90 ac	354.9
Water Area	---	100	18.34 ac	1834.0
Open Land (Grass cover 50% - 75%)	A	49	1.87 ac	91.9
Open Land (Grass cover 50% - 75%)	A/D or B/D	84	30.92 ac	2597.3
Total:			144.54 ac	13594.8

CN = Total CN * Area / Total Area = **94.1**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.63$ in

Precipitation (P) = 12.9 in (for 50yr/72hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 12.17$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 138
 POND NAME: 138, 138A & 138B

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

2.5" over New Impervious Area = 1.07 ac-ft
 1" over Total Area = 12.05 ac-ft

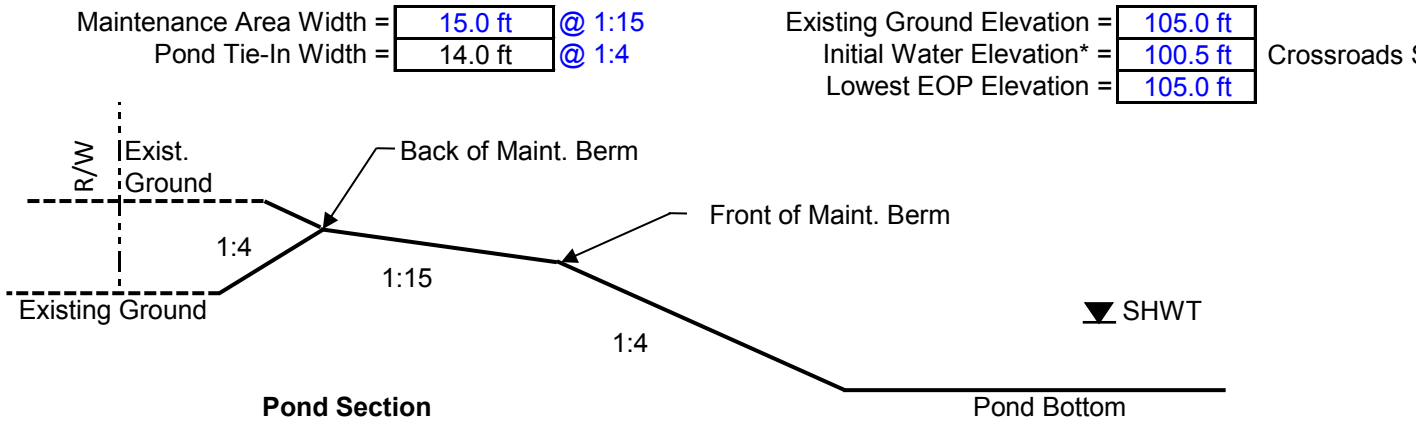
Treatment V_{req} = Largest of Trt. Vol. = 12.05 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 11.58 in
 Q_{post} = 12.17 in
 ΔQ = 0.59 in

Attenuation V_{req} = $\Delta Q/12 \times$ Total Area = 7.10 ac-ft

Required Compensation Volume: 7.24 ac-ft (Offsite Pond Impacts)
(Treatment and Attenuation Volume)



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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 138
 POND NAME: 138, 138A & 138B

POND 138

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
105.00	Pond R/W				
106.00	Back of Maintenance Berm	5.50 ac			24.09 ac-ft
105.00	Front of Maintenance Berm	4.69 ac			19.00 ac-ft
104.00	---	4.48 ac			14.41 ac-ft
103.00	---	4.27 ac			10.04 ac-ft
100.50	Initial Water Elevation	3.76 ac			0.00 ac-ft
90.50	Pond Bottom	2.78 ac			

POND 138A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
105.00	Pond R/W				
106.00	Back of Maintenance Berm	4.69 ac			21.70 ac-ft
105.00	Front of Maintenance Berm	4.15 ac			17.28 ac-ft
104.00	---	4.01 ac			13.20 ac-ft
103.00	---	3.87 ac			9.26 ac-ft
100.50	Initial Water Elevation	3.54 ac			0.00 ac-ft
90.50	Pond Bottom	2.92 ac			

POND 138B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
105.00	Pond R/W				
106.00	Back of Maintenance Berm	14.39 ac			67.36 ac-ft
105.00	Front of Maintenance Berm	12.85 ac			53.74 ac-ft
104.00	---	12.44 ac			41.09 ac-ft
103.00	---	12.04 ac			28.85 ac-ft
100.50	Initial Water Elevation	11.04 ac			0.00 ac-ft
90.50	Pond Bottom	9.08 ac			

POND 138 + POND 138A + POND 138B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
105.00	Pond R/W				
106.00	Back of Maintenance Berm	24.58 ac			113.15 ac-ft
105.00	Front of Maintenance Berm	21.69 ac			90.02 ac-ft
104.00	---	20.93 ac			68.71 ac-ft
103.00	---	20.18 ac			48.15 ac-ft
100.50	Initial Water Elevation	18.34 ac			0.00 ac-ft
90.50	Pond Bottom	14.78 ac			

Required Treatment Volume: 12.05 ac-ft Required Treat. Vol. + Atten.: 26.39 ac-ft
 Top El. Of Treatment Volume: 101.13 Top El. Of Treat. Vol. + Atten.: 101.87

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PROJECT: I-4 PD&E - SEGMENT 1

Required Treatment Volume:

Vikings at Cypress Pointe Ponds

Existing Pond 1 Volume (SFWMD Permit No. 48-00416-S)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
104.28	25yr/24hr Design Stage	5.06 ac	315.0 ft	100.0 ft	11.93 ac-ft
102.20	Weir Elevation	4.64 ac	298.4 ft	83.4 ft	1.84 ac-ft
101.80	Initial Water Elevation	4.56 ac	295.2 ft	80.2 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond 1 Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
104.28	25yr/24hr Design Stage	4.30 ac	315.0 ft	100.0 ft	10.07 ac-ft
102.20	Weir Elevation	3.90 ac	298.4 ft	83.4 ft	1.54 ac-ft
101.80	Initial Water Elevation	3.82 ac	295.2 ft	80.2 ft	0.00 ac-ft

*Elevations in NGVD 29.

Existing Pond 2 Volume (SFWMD Permit No. 48-00416-S)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
104.48	25yr/24hr Design Stage	0.53 ac	315.0 ft	100.0 ft	1.21 ac-ft
102.20	Weir Elevation	0.40 ac	296.8 ft	81.8 ft	0.15 ac-ft
101.80	Initial Water Elevation	0.37 ac	293.6 ft	78.6 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond 2 Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
104.48	25yr/24hr Design Stage	0.00 ac	315.0 ft	100.0 ft	0.00 ac-ft
102.20	Weir Elevation	0.00 ac	296.8 ft	81.8 ft	0.00 ac-ft
101.80	Initial Water Elevation	0.00 ac	293.6 ft	78.6 ft	0.00 ac-ft

*Elevations in NGVD 29.

Existing Pond 3 Volume (SFWMD Permit No. 48-00416-S)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
104.75	25yr/24hr Design Stage	1.74 ac	315.0 ft	100.0 ft	4.59 ac-ft
102.20	Weir Elevation	1.42 ac	294.6 ft	79.6 ft	0.56 ac-ft
101.80	Initial Water Elevation	1.37 ac	291.4 ft	76.4 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond 3 Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
104.75	25yr/24hr Design Stage	1.60 ac	315.0 ft	100.0 ft	4.11 ac-ft
102.20	Weir Elevation	1.24 ac	294.6 ft	79.6 ft	0.49 ac-ft
101.80	Initial Water Elevation	1.19 ac	291.4 ft	76.4 ft	0.00 ac-ft

*Elevations in NGVD 29.

Required Compensation Treatment Volume= 0.52 ac-ft

Required Comp. Treatment & Attenuation Volume= 3.55 ac-ft

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

Required Treatment Volume:

Park Square Inn Ponds

Existing Pond 1 Volume

(SFWMD Permit Application No. 05118-B)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
108.50	25yr/24hr Design Stage	3.18 ac	315.0 ft	100.0 ft	9.88 ac-ft
108.00	Weir Elevation	3.08 ac	311.0 ft	96.0 ft	8.31 ac-ft
105.00	Initial Water Elevation	2.46 ac	287.0 ft	72.0 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond 1 Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
108.50	25yr/24hr Design Stage	3.01 ac	315.0 ft	100.0 ft	9.31 ac-ft
108.00	Weir Elevation	2.92 ac	311.0 ft	96.0 ft	7.83 ac-ft
105.00	Initial Water Elevation	2.30 ac	287.0 ft	72.0 ft	0.00 ac-ft

*Elevations in NGVD 29.

Existing Pond 9 Volume

(SFWMD Permit Application No. 05118-B)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
109.00	25yr/24hr Design Stage	1.37 ac	315.0 ft	100.0 ft	3.05 ac-ft
108.75	Weir Elevation	1.34 ac	313.0 ft	98.0 ft	2.71 ac-ft
106.50	Initial Water Elevation	1.07 ac	295.0 ft	80.0 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond 9 Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
109.00	25yr/24hr Design Stage	1.26 ac	315.0 ft	100.0 ft	2.79 ac-ft
108.75	Weir Elevation	1.23 ac	313.0 ft	98.0 ft	2.48 ac-ft
106.50	Initial Water Elevation	0.97 ac	295.0 ft	80.0 ft	0.00 ac-ft

*Elevations in NGVD 29.

Required Compensation Treatment Volume= **0.72 ac-ft**

Required Comp.Treatment & Attenuation Volume= **0.83 ac-ft**

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PROJECT: I-4 PD&E - SEGMENT 1

Required Treatment Volume:

Sheraton Resort Pond

Existing Pond 1 Volume

(SFWMD Permit Application No. 120203-11)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
101.10	25yr/24hr Design Stage	0.50 ac	315.0 ft	100.0 ft	1.16 ac-ft
99.83	Weir Elevation	0.39 ac	304.8 ft	89.8 ft	0.59 ac-ft
98.00	Initial Water Elevation	0.26 ac	290.2 ft	75.2 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond 1 Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
108.50	25yr/24hr Design Stage	0.27 ac	315.0 ft	100.0 ft	0.69 ac-ft
108.00	Weir Elevation	0.22 ac	311.0 ft	96.0 ft	0.57 ac-ft
105.00	Initial Water Elevation	0.16 ac	287.0 ft	72.0 ft	0.00 ac-ft

*Elevations in NGVD 29.

Required Compensation Treatment Volume= 0.02 ac-ft

Required Comp.Treatment & Attenuation Volume= 0.47 ac-ft

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PROJECT: I-4 PD&E - SEGMENT 1

Required Treatment Volume:

Lake 5 (Vista Centre Shoppes)

Existing Pond Volume (SFWMD Permit App. 12168-S)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
114.00		2.63 ac	286.0 ft	135.0 ft	12.56 ac-ft
113.23	Weir Elevation	2.48 ac	279.8 ft	128.8 ft	10.59 ac-ft
108.00	Initial Water Elevation	1.57 ac	238.0 ft	87.0 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
114.00		2.39 ac	286.0 ft	135.0 ft	11.36 ac-ft
113.23	Weir Elevation	2.26 ac	279.8 ft	128.8 ft	9.57 ac-ft
108.00	Initial Water Elevation	1.40 ac	238.0 ft	87.0 ft	0.00 ac-ft

Required Compensation Treatment Volume= 1.02 ac-ft

Required Comp.Treatment & Attenuation Volume= 1.20 ac-ft

Retention Basin 1 (Vista Centre Shoppes)

Existing Pond Volume (SFWMD Permit App. 12168-S)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
109.00		0.42 ac	280.0 ft	70.0 ft	1.20 ac-ft
105.00	Initial Water Elevation	0.18 ac	248.0 ft	38.0 ft	0.00 ac-ft

*Elevations in NGVD 29.

Pond eliminated in proposed condition

Required Comp.Treatment & Attenuation Volume= 1.20 ac-ft

Required Comp.Treatment & Attenuation Volume= 2.40 ac-ft

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 139
 POND NAME: 139A & 139B

STATION LIMITS: From: 1262+00 To: 1277+00 Roadway Length: 1500 ft
 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	3	36 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	10 ft	1	10 ft
Outside Shoulder	12 ft	1	12 ft
Total Impervious Width:			58 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 2.00 ac
 Pervious Roadway Area: 9.72 ac
 Total Roadway Area: 11.72 ac

Pond Area: Pervious Pond Area: 3.93 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 3.93 ac

Total Area: Impervious Area: 2.00 ac
 Pervious Area: 13.65 ac
 Water Surface Area: 0.00 ac
 Total Area: 15.65 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	2.00 ac	195.7
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	7.99 ac	391.5
Open Land (Grass cover 50% - 75%)	A/D	84	5.66 ac	475.7
Total:			15.65 ac	1062.9

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 67.9$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 4.72$ in

Precipitation (P) = 8.6 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 4.73$ in

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 139
 POND NAME: 139A & 139B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Wall	2 ft	2	4 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft

Total Impervious Width: 125 ft

Additional Impervious:
 (ramps, turn lanes, etc.) 2.40 ac

Impervious Roadway Area: 6.70 ac
 Pervious Roadway Area: 5.02 ac
 Total Roadway Area: 11.72 ac

Pond Area:

Pervious Pond Area: 1.46 ac
 Water Surface Area: 2.47 ac
 Total Pond Area: 3.93 ac

Total Area:

Impervious Area: 6.70 ac
 Pervious Area: 6.48 ac
 Water Surface Area: 2.47 ac
 Total Area: 15.65 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	6.70 ac	657.0
Rail Corridor	A	76	0.27 ac	20.3
Rail Corridor	A/D	91	0.38 ac	34.2
Water Area	---	100	2.47 ac	247.0
Open Land (Grass cover 50% - 75%)	A	49	3.38 ac	165.8
Open Land (Grass cover 50% - 75%)	A/D	84	2.45 ac	205.7
Total:			15.65 ac	1330.0

$CN = \frac{\text{Total CN} * \text{Area}}{\text{Total Area}} = 85.0$

Runoff:

Soil Capacity (S) = $\frac{1000 - 10}{CN} = 1.77$ in

Precipitation (P) = 8.6 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 6.79$ in

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 139
 POND NAME: 139A & 139B

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

2.5" over New Impervious Area = 0.98 ac-ft
 1" over Total Area = 1.30 ac-ft

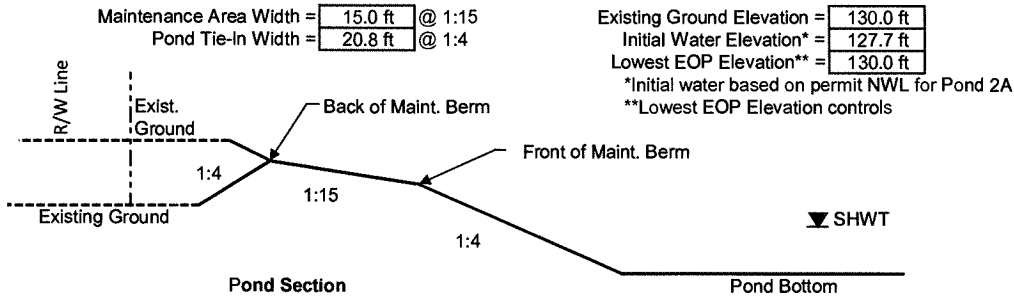
Treatment V_{req} = Largest of Trt. Vol. = **1.30 ac-ft**

Required Attenuation Volume:

Total Runoff: Q_{pre} = 4.73 in
 Q_{post} = 6.79 in
 ΔQ = 2.06 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} =$ **2.68 ac-ft**

Required Compensation Volume: **3.10 ac-ft** (Offsite Pond Impacts)



POND 139A

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
132.70	Back of Maintenance Berm	1.79 ac			6.67 ac-ft
131.70	Front of Maintenance Berm	1.44 ac			5.06 ac-ft
130.70	---	1.35 ac			3.66 ac-ft
129.70	---	1.26 ac			2.36 ac-ft
127.70	Initial Water Elevation	1.10 ac			0.00 ac-ft
119.20	Pond Bottom	0.51 ac			

POND 139B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
132.70	Back of Maintenance Berm	2.14 ac			8.16 ac-ft
131.70	Front of Maintenance Berm	1.75 ac			6.22 ac-ft
130.70	---	1.65 ac			4.52 ac-ft
129.70	---	1.55 ac			2.92 ac-ft
127.70	Initial Water Elevation	1.37 ac			0.00 ac-ft
119.20	Pond Bottom	0.68 ac			

POND 139A & POND 139B

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
132.70	Back of Maintenance Berm	3.93 ac			14.84 ac-ft
131.70	Front of Maintenance Berm	3.19 ac			11.28 ac-ft
130.70	---	3.00 ac			8.18 ac-ft
129.70	---	2.81 ac			5.28 ac-ft
127.70	Initial Water Elevation	2.47 ac			0.00 ac-ft
119.20	Pond Bottom	1.19 ac			

Required Treatment Volume: 1.30 ac-ft Required Treat. Vol. + Atten.: 7.09 ac-ft
 Top El. Of Treatment Volume: 128.19 Top El. Of Treat. Vol. + Atten.: 130.32

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PROJECT: I-4 PD&E - SEGMENT 1

Required Treatment Volume:

Orange County Existing Pond C

Existing Pond C Volume

(SFWMD Permit App. No. 090610-12)

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.68	25yr/24hr Design Stage	8.95 ac	315.0 ft	100.0 ft	38.30 ac-ft
113.55	Weir Elevation	7.92 ac	290.0 ft	75.0 ft	11.90 ac-ft
112.00	Initial Water Elevation	7.43 ac	277.6 ft	62.6 ft	0.00 ac-ft

*Elevations in NGVD 29.

Reduced Pond C Volume

Elevation	Description	Area	Dimensions		Storage
			Length	Width	
116.68	25yr/24hr Design Stage	8.00 ac	315.0 ft	100.0 ft	35.20 ac-ft
113.55	Weir Elevation	7.36 ac	290.0 ft	75.0 ft	11.16 ac-ft
112.00	Initial Water Elevation	7.04 ac	277.6 ft	62.6 ft	0.00 ac-ft

*Elevations in NGVD 29.

Required Compensation Treatment Volume= 0.74 ac-ft

Required Comp.Treatment & Attenuation Volume= 3.10 ac-ft

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PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 140
 POND NAME: 140

STATION LIMITS: From: 1262+00 To: 1277+00
 Roadway Length: 1500 ft
 R/W Width: VARIES

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	3	36 ft
Guardrail	5 ft	0	0 ft
Inside Shoulder	10 ft	1	10 ft
Outside Shoulder	12 ft	1	12 ft

Total Impervious Width: 58 ft

Additional Impervious: 0.00 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 2.00 ac
 Pervious Roadway Area: 13.09 ac
 Total Roadway Area: 15.09 ac

Pond Area:
 Pervious Pond Area: 2.36 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 2.36 ac

Total Area:
 Impervious Area: 2.00 ac
 Pervious Area: 15.45 ac
 Water Surface Area: 0.00 ac
 Total Area: 17.45 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	2.00 ac	195.7
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	4.64 ac	227.4
Open Land (Grass cover 50% - 75%)	A/D	84	10.81 ac	908.3
Total:			17.45 ac	1331.4

CN = Total CN * Area / Total Area = **76.3**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 3.11$ in

Precipitation (P) = 8.6 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 5.74$ in

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:
 made by:

LDP	1-Mar-16
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 checked by:

BJS	1-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 140
 POND NAME: 140

PROPOSED CONDITION

STATION LIMITS: From: 1262+00 Roadway Length: 1500 ft
 To: 1277+00 R/W Width: VARIES

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Wall	2 ft	2	4 ft
Guardrail	5 ft	1	5 ft
Shoulder	12 ft	2	24 ft
Shoulder	10 ft	2	20 ft
Total Impervious Width:			125 ft

Additional Impervious: 2.73 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 7.03 ac
 Pervious Roadway Area: 8.06 ac
 Total Roadway Area: 15.09 ac

Pond Area: Pervious Pond Area: 0.94 ac
 Water Surface Area: 1.42 ac
 Total Pond Area: 2.36 ac

Total Area: Impervious Area: 7.03 ac
 Pervious Area: 9.00 ac
 Water Surface Area: 1.42 ac
 Total Area: 17.45 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	7.03 ac	689.4
Water Area	---	100	1.42 ac	142.0
Rail Corridor (Gravel)	A	76	0.29 ac	21.7
Rail Corridor (Gravel)	A/D	91	0.37 ac	33.5
Open Land (Grass cover 50% - 75%)	A	49	2.73 ac	133.7
Open Land (Grass cover 50% - 75%)	A/D	84	5.61 ac	471.5
Total:			17.45 ac	1491.8

CN = Total CN * Area / Total Area = **85.5**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.70$ in

Precipitation (P) = 8.6 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 6.85$ in

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date:
 made by:

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 checked by:

BJS	1-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 140
 POND NAME: 140

POND SIZING : WET DETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

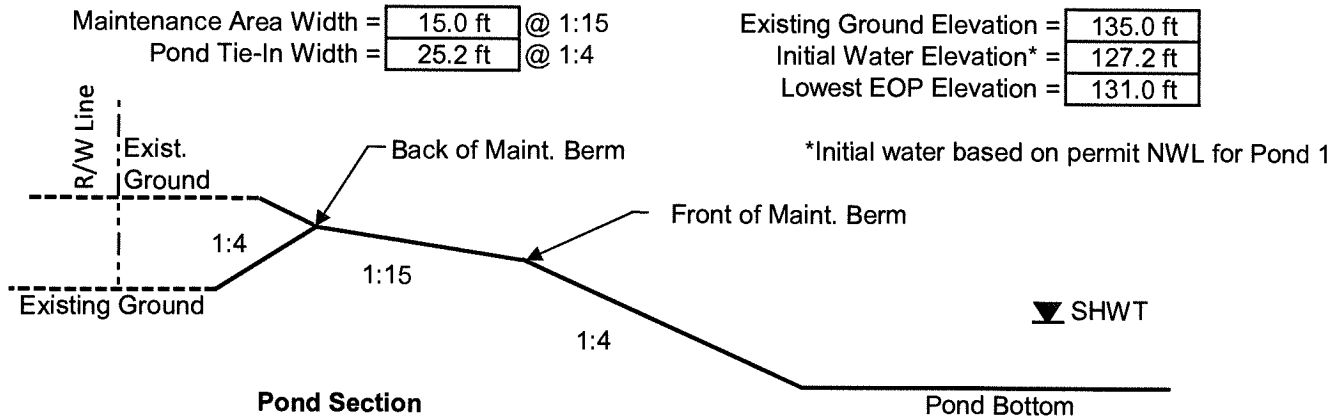
2.5" over New Impervious Area = 1.05 ac-ft
 1" over Total Area = 1.45 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 1.45 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 5.74 in
 Q_{post} = 6.85 in
 ΔQ = 1.11 in

Attenuation V_{req} = $\Delta Q/12 \times$ Total Area = 1.61 ac-ft



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
131.20	Back of Maintenance Berm	2.36 ac			6.95 ac-ft
130.20	Front of Maintenance Berm	1.82 ac			4.86 ac-ft
129.20	---	1.69 ac			3.10 ac-ft
128.20	---	1.55 ac			1.48 ac-ft
127.20	Initial Water Elevation	1.42 ac			0.00 ac-ft
119.20	Pond Bottom	1.02 ac			

Required Treatment Volume: 1.45 ac-ft Required Treat. Vol. + Atten.: 3.07 ac-ft
 Top El. Of Treatment Volume: 128.18 Top El. Of Treat. Vol. + Atten.: 129.18

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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 142
 POND NAME: 142B

STATION LIMITS: From: 1277+00 Roadway Length: 5800 ft
 To: 1335+00 R/W Width: Varies

EXISTING CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	6	72 ft
Inside Shoulder	8 ft	2	16 ft
Outside Shoulder	10 ft	2	20 ft

Total Impervious Width: 108 ft

Additional Impervious: 8.17 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 22.55 ac
 Pervious Roadway Area: 47.85 ac
 Total Roadway Area: 70.40 ac

Pond Area:
 Pervious Pond Area: 6.80 ac
 Water Surface Area: 0.00 ac
 Total Pond Area: 6.80 ac

Total Area:
 Impervious Area: 22.55 ac
 Pervious Area: 54.65 ac
 Water Surface Area: 0.00 ac
 Total Area: 77.20 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	22.55 ac	2209.9
Water Area	---	100	0.00 ac	0.0
Open Land (Grass cover 50% - 75%)	A	49	30.82 ac	1510.2
Open Land (Grass cover 50% - 75%)	A/D & B/D	84	23.83 ac	2001.7
Total:			<u>77.20 ac</u>	<u>5721.8</u>

CN = Total CN * Area / Total Area = **74.1**

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 3.49$ in

Precipitation (P) = 8.6 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 5.48$ in

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date:
 made by:

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 checked by:

BJS	1-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 142
 POND NAME: 142B

PROPOSED CONDITION

Roadway Area:

Description	Width	Quantity	Total Width
Travel Lane	12 ft	14	168 ft
Guardrail	5 ft	1	5 ft
Wall	2 ft	4	8 ft
Shoulder	12 ft	4	48 ft
Shoulder	10 ft	4	40 ft
Total Impervious Width:			269 ft

Additional Impervious: 17.49 ac
 (ramps, turn lanes, etc.)

Impervious Roadway Area: 53.31 ac
 Pervious Roadway Area: 17.09 ac
 Total Roadway Area: 70.40 ac

Pond Area:
 Pervious Pond Area: 2.44 ac
 Water Surface Area: 4.36 ac (At the Treatment Volume Stage)
 Total Pond Area: 6.80 ac

Total Area:
 Impervious Area: 53.31 ac
 Pervious Area: 19.53 ac
 Water Surface Area: 4.36 ac
 Total Area: 77.20 ac

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious Area	---	98	53.31 ac	5224.1
Water Area	---	100	4.36 ac	436.0
Rail Corridor (Gravel)	A	76	3.36 ac	255.2
Rail Corridor (Gravel)	B/D	91	1.48 ac	135.1
Open Land (Grass cover 50% - 75%)	A	49	5.68 ac	278.3
Open Land (Grass cover 50% - 75%)	A/D & B/D	84	9.01 ac	756.8
Total:			77.20 ac	7085.6

$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 91.8$

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 0.90$ in

Precipitation (P) = 8.6 in (for 25yr/24hr storm event)

Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)} = 7.61$ in

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date:
 made by:

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 checked by:

BJS	1-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

BASIN NAME: 142
 POND NAME: 142B

POND SIZING : DRY RETENTION POND (OPEN BASIN) - SFWMD

Required Treatment Volume:

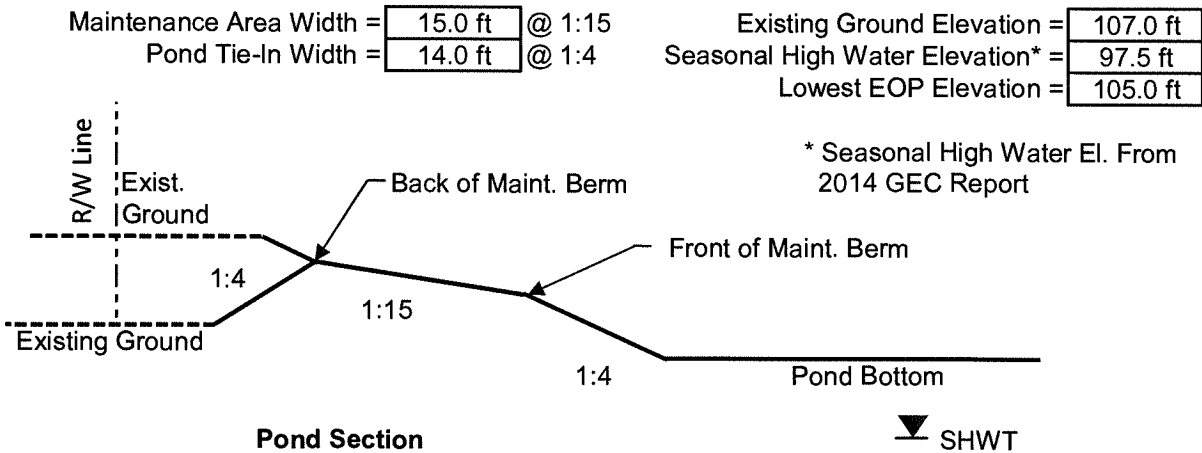
1.25" over New Impervious Area = 3.20 ac-ft
 0.5" over Total Area = 3.22 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 3.22 ac-ft

Required Attenuation Volume:

Total Runoff: Q_{pre} = 5.48 in
 Q_{post} = 7.61 in
 ΔQ = 2.13 in

Attenuation $V_{req} = \Delta Q/12 \times \text{Total Area} = 13.72 \text{ ac-ft}$



Elevation	Description	Area	Dimensions		Storage
			Length	Width	
106.00	Back of Maintenance Berm	6.80 ac			29.37 ac-ft
105.00	Front of Maintenance Berm	5.61 ac			23.17 ac-ft
104.00	---	5.30 ac			17.71 ac-ft
103.00	---	4.99 ac			12.57 ac-ft
100.25	Pond Bottom	4.15 ac			0.00 ac-ft

Required Treatment Volume: 3.22 ac-ft Required Treat. Vol. + Atten.: 16.93 ac-ft

Top El. Of Treatment Volume: 100.95 Top El. Of Treat. Vol. + Atten.: 103.85

APPENDIX C – FLOODPLAIN CALCULATIONS

HNTB Corporation
 610 Crescent Executive Court, Suite 400
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date:

made by:	SR	1-Mar-16
checked by:	BJS	1-Mar-16
HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 100

FLOODPLAIN COMPENSATION CALCULATIONS

WESTBOUND ROADWAY:

Station Limits: 602+50 to 622+00
 Roadway Length: 1950 ft
 Roadway Width: 60 ft

EASTBOUND ROADWAY:

Station Limits: 602+50 to 627+00
 Roadway Length: 2450 ft
 Roadway Width: 60 ft

100 YR Floodplain Elevation: 115.00 ft Zone A (From SWFWMD Permit # 43011896.027 & FPID # 201204-1-52-01)
 Ave. Existing Ground Elevation: 114.0 ft
 Elevation Difference: 1.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference

Westbound Roadway = 2.69 ac-ft
 Eastbound Roadway = 3.37 ac-ft
Total = 6.06 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 6.06 ac-ft
 Total Required Compensation: 6.06 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 100

100 YR Floodplain Elevation: 115.00 ft Seasonal High Water Elevation: 113.8 ft (From SWFWMD Permit # 43011896.027 & FPID # 201204-1-52-01)
 Existing Ground Elevation: 120 -125 ft

Elevation	Area	Storage
115.00	5.47 ac	6.41 ac-ft
114.00	5.26 ac	1.05 ac-ft
113.80	5.22 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 6.41 ac-ft
Total Compensation Needed: 6.06 ac-ft
Additional Storage Provided: 0.35 ac-ft

HNTB Corporation
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	date:	
made by:	SR	2-Mar-16
checked by:	BJS	2-Mar-16
HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 101A

FLOODPLAIN COMPENSATION CALCULATIONS

WESTBOUND ROADWAY:

Station Limits: 622+00 to 626+00

Roadway Length: 400 ft

Roadway Width: 250 ft

100 YR Floodplain Elevation: 115.00 ft Zone A (From SWFWMD Permit # 43011896.027 &
 Ave. Existing Ground Elevation: 114.0 ft FPID # 201204-1-52-01)
 Elevation Difference: 1.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 2.30 ac-ft

Total Roadway Required Compensation: 2.30 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 2.30 ac-ft

Total Required Compensation: 2.30 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 101A

100 YR Floodplain Elevation: 115.00 ft Seasonal High Water Elevation: 113.8 ft (From SWFWMD Permit #
 Existing Ground Elevation: 130.0 ft 43011896.027 & FPID #
 201204-1-52-01)

Elevation	Area	Storage
115.00	2.39 ac	2.78 ac-ft
114.00	2.27 ac	0.45 ac-ft
113.80	2.25 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 2.78 ac-ft

Total Compensation Needed: 2.30 ac-ft

Additional Storage Provided: 0.49 ac-ft

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date:

made by:	SR	2-Mar-16
checked by:	BJS	2-Mar-16
HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 102

FLOODPLAIN COMPENSATION CALCULATIONS

EASTBOUND & WESTBOUND ROADWAY:

Station Limits: 662+50 to 664+50

Roadway Length: 200 ft

Roadway Width: 300 ft

100 YR Floodplain Elevation: 108.98 ft (From SFWMD Permit # 020204-8)

Ave. Existing Ground Elevation: 107.0 ft

Elevation Difference: 2.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 2.73 ac-ft

Total Roadway Required Compensation: 2.73 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 2.73 ac-ft

Total Required Compensation: 2.73 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 102

100 YR Floodplain Elevation: 108.98 ft

Seasonal High Water Elevation: 107.5 ft

(From SFWMD Permit # 020204-8)

Existing Ground Elevation: 110.0 ft

Elevation	Area	Storage
108.98	2.36 ac	3.36 ac-ft
108.00	2.24 ac	1.10 ac-ft
107.50	2.17 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 3.36 ac-ft

Total Compensation Needed: 2.73 ac-ft

Additional Storage Provided: 0.63 ac-ft

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made by:

SR	2-Mar-16
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 date:
 checked by:

BJS	2-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: 103

FLOODPLAIN COMPENSATION CALCULATIONS

EASTBOUND & WESTBOUND ROADWAY:

Station Limits: 677+00 to 682+00

Roadway Length: 500 ft

Roadway Width: 300 ft

100 YR Floodplain Elevation: 99.23 ft (At Exist. 2 - 9'x7' CBC From SFWMD Permit # 020204-8)

Ave. Existing Ground Elevation: 96.5 ft

Elevation Difference: 2.7 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 9.40 ac-ft

Total Roadway Required Compensation: 9.40 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 9.40 ac-ft

Total Required Compensation: 9.40 ac-ft

PROPOSED FLOODPLAIN POND:

POND 103

100 YR Floodplain Elevation: 99.23 ft Seasonal High Water Elevation: 91.0 ft (From SFWMD Permit

Existing Ground Elevation: 105.0 ft # 020204-8)

	Elevation	Area	Storage
Back of Maintenance Berm	98.75	4.80 ac	12.95 ac-ft
Front of Maintenance Berm	96.75	4.14 ac	4.01 ac-ft
Top El. of Treat. Vol. + Atten.	95.73	3.72 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 12.95 ac-ft

Total Compensation Needed: 9.40 ac-ft

Additional Storage Provided: 3.55 ac-ft

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date:

made by:	SR	2-Mar-16
checked by:	BJS	2-Mar-16
HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 103A

FLOODPLAIN COMPENSATION CALCULATIONS

EASTBOUND & WESTBOUND ROADWAY:

Station Limits: 695+00 to 698+50

Roadway Length: 350 ft

Roadway Width: 300 ft

100 YR Floodplain Elevation: 93.13 ft (At Exist. 4 - 12'x8' CBC From SFWMD Permit # 020204-8)

Ave. Existing Ground Elevation: 92.0 ft

Elevation Difference: 1.1 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 2.72 ac-ft

Total Roadway Required Compensation: 2.72 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 2.72 ac-ft

Total Required Compensation: 2.72 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 103A

100 YR Floodplain Elevation: 93.13 ft

Existing Ground Elevation: 110.0 ft

Seasonal High Water Elevation: 91.0 ft

(From SFWMD Permit # 020204-8)

Elevation	Area	Storage
93.13	1.47 ac	2.85 ac-ft
92.00	1.33 ac	1.27 ac-ft
91.00	1.20 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 2.85 ac-ft

Total Compensation Needed: 2.72 ac-ft

Additional Storage Provided: 0.12 ac-ft

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 Lake Mary, FL 32746

date:

made by:	SR	2-Mar-16
checked by:	BJS	2-Mar-16
HNTB job #:	59219	

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 103B

FLOODPLAIN COMPENSATION CALCULATIONS

EASTBOUND & WESTBOUND ROADWAY:

Station Limits: 695+00 to 698+50

Roadway Length: 350 ft

Roadway Width: 300 ft

100 YR Floodplain Elevation: 93.13 ft (At Exist. 4 - 12'x8' CBC From SFWMD Permit # 020204-8)

Ave. Existing Ground Elevation: 92.0 ft

Elevation Difference: 1.1 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 2.72 ac-ft

Total Roadway Required Compensation: 2.72 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 2.72 ac-ft

Total Required Compensation: 2.72 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 103B

100 YR Floodplain Elevation: 93.13 ft

Existing Ground Elevation: 110.0 ft

Seasonal High Water Elevation: 91.0 ft

(From SFWMD Permit # 020204-8)

Elevation	Area	Storage
93.13	1.38 ac	2.72 ac-ft
92.00	1.27 ac	1.23 ac-ft
91.00	1.18 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 2.72 ac-ft

Total Compensation Needed: 2.72 ac-ft

Additional Storage Provided: 0.00 ac-ft

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made by: SR 2-Mar-16
 checked by: BJS 2-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 105A

FLOODPLAIN COMPENSATION CALCULATIONS

Westbound Roadway

Station Limits: 731+50 to 732+00

Roadway Length: 50 ft

Roadway Width: 70 ft

100 YR Floodplain Elevation: 96.3 ft
 Ave. Existing Ground Elevation: 91.0 ft
 Elevation Difference: 5.3 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 0.42 ac-ft

SB to WB Ramp

Station Limits: 000+00 to 000+76 (on curve)

Roadway Length: 76 ft

Roadway Width: 91 ft

100 YR Floodplain Elevation: 96.3 ft
 Ave. Existing Ground Elevation: 91.5 ft
 Elevation Difference: 4.8 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 0.76 ac-ft

EASTBOUND ROADWAY:

Station Limits: 733+00 to 734+50

Roadway Length: 150 ft

Roadway Width: 50 ft

100 YR Floodplain Elevation: 96.3 ft
 Ave. Existing Ground Elevation: 91.0 ft
 Elevation Difference: 5.3 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 0.91 ac-ft

Displaced Floodplain from Treatment

Table I-1 FDEP Permit 49-187636-001 27.32 ac-ft

Roadway Required Compensation: 2.10 ac-ft

Total Required Compensation: 29.42 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 105A

100 YR Floodplain Elevation: 96.3 ft Seasonal High Water Elevation: 93.5 ft
 Existing Ground Elevation: 110-100

Elevation	Area	Storage
96.25	11.40 ac	29.99 ac-ft
95.00	10.95 ac	16.02 ac-ft
93.50	10.41 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 29.99 ac-ft

Total Compensation Needed: 29.42 ac-ft

Additional Storage Provided: 0.57 ac-ft

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date:
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 checked by: BJS 2-Mar-16
 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC-109 (Existing Borrow Pit)

FLOODPLAIN COMPENSATION CALCULATIONS

WB @ Reedy Creek

Station Limits: 800+00 to 815+00

Roadway Length: 1500 ft

Roadway Width: 61 ft

100 YR Floodplain Elevation: 75.2 ft
 Ave. Existing Ground Elevation: 71.0 ft
 Elevation Difference: 4.2 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 8.72 ac-ft

EB @ Reedy Creek

Station Limits: 803+00 to 817+00

Roadway Length: 735 ft

Roadway Width: 50 ft

100 YR Floodplain Elevation: 75.2 ft
 Ave. Existing Ground Elevation: 71.0 ft
 Elevation Difference: 4.2 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 3.50 ac-ft

EB South of Reedy Creek

Station Limits: 763+00 to 765+00

Roadway Length: 200 ft

Roadway Width: 170 ft

100 YR Floodplain Elevation: 85.0 ft
 Ave. Existing Ground Elevation: 83.0 ft
 Elevation Difference: 2.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 1.56 ac-ft

Total Roadway Required Compensation: 13.78 ac-ft

PROPOSED FLOODPLAIN POND:

FPC-109 (Existing Borrow Pit)

100 YR Floodplain Elevation: 75.2 ft Seasonal High Water Elevation: 72.7 ft (GEC Borings)
 Existing Ground Elevation: 75-71

Elevation	Area	Storage
75.20	10.07 ac	24.43 ac-ft
74.20	9.83 ac	14.48 ac-ft
72.70	9.47 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 24.43 ac-ft

Total Compensation Needed: 13.78 ac-ft

***Additional Storage Provided: 10.65 ac-ft**

***9.89 ac-ft of compensation volume is needed for future extension of Celebration boulevard to Island Village.**

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made by:

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 date:
 checked by:

BJS	2-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 114C

FLOODPLAIN COMPENSATION CALCULATIONS

REQUIRED COMPENSATION

Required Roadway Compensation: 7.07 ac-ft (From SFWMD Permit # 48-00714-S)

Total Required Compensation: 7.07 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 114C

100 YR Floodplain Elevation: 84.39 ft Seasonal High Water Elevation: 82.15 ft (From SFWMD Permit # 48-00714-S)
 Existing Ground Elevation: 85.0 ft

Elevation	Area	Storage
84.39	3.46 ac	7.26 ac-ft
84.00	3.30 ac	5.94 ac-ft
83.00	3.20 ac	2.69 ac-ft
82.15	3.13 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 7.26 ac-ft

Total Compensation Needed: 7.07 ac-ft

Additional Storage Provided: 0.19 ac-ft

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Lake Mary, FL 32746

made by:

SR	2-Mar-16
checked by: BJS	2-Mar-16

HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 132 & FPC 133

FLOODPLAIN COMPENSATION CALCULATIONS

WESTBOUND ROADWAY:

Station Limits: 1081+00 to 1084+00

Roadway Length: 300 ft

Roadway Width: 200 ft

100 YR Floodplain Elevation: 85.0 ft
Ave. Existing Ground Elevation: 82.0 ft
Elevation Difference: 3.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 4.13 ac-ft

EPCOT TO WB I4 RAMP

Station Limits: 1075+00 to 1082+00 (on curve)

Roadway Length: 735 ft

Roadway Width: 50 ft

100 YR Floodplain Elevation: 85.0 ft
Ave. Existing Ground Elevation: 82.0 ft
Elevation Difference: 3.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 2.53 ac-ft

EASTBOUND ROADWAY:

Station Limits: 1082+00 to 1086+00

Roadway Length: 400 ft

Roadway Width: 100 ft

100 YR Floodplain Elevation: 85.0 ft
Ave. Existing Ground Elevation: 83.0 ft
Elevation Difference: 2.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 1.84 ac-ft

EB I4 TO EPCOT RAMP:

Station Limits: 1082+64 to 1084+58 (on curve)

Roadway Length: 211 ft

Roadway Width: 40 ft

100 YR Floodplain Elevation: 85.0 ft
Ave. Existing Ground Elevation: 83.0 ft
Elevation Difference: 2.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 0.39 ac-ft

Total Roadway Required Compensation: 8.89 ac-ft

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

made by:

SR	2-Mar-16
----	----------

 date:
 checked by:

BJS	2-Mar-16
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 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 132 & FPC 133

FLOODPLAIN COMPENSATION CALCULATIONS

PROPOSED FLOODPLAIN POND:

FPC 132

100 YR Floodplain Elevation: 85.0 ft Seasonal High Water Elevation: 82.0 ft
 Existing Ground Elevation: 85-87

Elevation	Area	Storage
85.00	2.00 ac	5.56 ac-ft
83.00	1.82 ac	1.74 ac-ft
82.00	1.65 ac	0.00 ac-ft

FPC 133

100 YR Floodplain Elevation: 85.0 ft Seasonal High Water Elevation: 82.0 ft
 Existing Ground Elevation: 85-87

Elevation	Area	Storage
85.00	2.38 ac	6.64 ac-ft
83.00	2.18 ac	2.08 ac-ft
82.00	1.98 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 12.20 ac-ft

Total Compensation Needed: 8.89 ac-ft

Additional Storage Provided: 3.31 ac-ft

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

made by:

SR	2-Mar-16
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 date:

2-Mar-16

 checked by:

BJS	2-Mar-16
-----	----------

 HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 138

FLOODPLAIN COMPENSATION CALCULATIONS

EASTBOUND ROADWAY:

Station Limits: 000+00 to 012+00

Roadway Length: 1200 ft

Roadway Width: 100 ft

100 YR Floodplain Elevation: 101.0 ft (Cypress Creek FEMA Zone AE)

Ave. Existing Ground Elevation: 100.0 ft

Elevation Difference: 1.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 2.75 ac-ft

Total Roadway Required Compensation: 2.75 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 2.75 ac-ft

Total Required Compensation: 2.75 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 138

100 YR Floodplain Elevation: 101.0 ft

Seasonal High Water Elevation: 99.0 ft

Existing Ground Elevation: 102.0 ft

(Based on The Vikings at
 Cypress Pointe project,
 SFWMD App # 000914-13)

Elevation	Area	Storage
101.00	1.81 ac	3.50 ac-ft
99.50	1.73 ac	0.84 ac-ft
99.00	1.64 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 3.50 ac-ft

Total Compensation Needed: 2.75 ac-ft

Additional Storage Provided: 0.74 ac-ft

HNTB Corporation
 610 Crescent Executive Court, Suite 400
 Lake Mary, FL 32746

date:

made by:	SR	2-Mar-16
checked by:	BJS	2-Mar-16

HNTB job #: 59219

PROJECT: I-4 PD&E - SEGMENT 1

POND NAME: FPC 141

FLOODPLAIN COMPENSATION CALCULATIONS

EASTBOUND ROADWAY:

Station Limits: 1291+00 to 1302+00

Roadway Length: 1100 ft

Roadway Width: 55 ft

100 YR Floodplain Elevation: 107.0 ft (Lake Willis)

Ave. Existing Ground Elevation: 106.0 ft

Elevation Difference: 1.0 ft

Required Compensation = Roadway Length * Roadway Width * Elevation Difference: 1.39 ac-ft

Total Roadway Required Compensation: 1.39 ac-ft

REQUIRED COMPENSATION

Required Roadway Compensation: 1.39 ac-ft

Total Required Compensation: 1.39 ac-ft

PROPOSED FLOODPLAIN POND:

FPC 141

100 YR Floodplain Elevation: 107.0 ft

Seasonal High Water Elevation: 103.7 ft

Existing Ground Elevation: 112.0 ft

Elevation	Area	Storage
107.00	1.05 ac	1.92 ac-ft
106.00	0.96 ac	0.92 ac-ft
105.00	0.87 ac	0.00 ac-ft

Total Storage Provided by FPC Ponds: 1.92 ac-ft

Total Compensation Needed: 1.39 ac-ft

Additional Storage Provided: 0.53 ac-ft

APPENDIX D –
BONNET CREEK TECHNICAL MEMO & RCID MEETING MINUTES

MEMORANDUM



Date: February 4, 2015

To: Beata Stys-Palasz, Senior Project Manager, FDOT

From: Luis Diaz, Project Manager
Barry Switzer, Stormwater Section Manager

Project: HNTB Project No. 59219 – I-4 PD&E
Bonnet Creek (C-1 Canal) Crossing

During the preparation of the I-4 PD&E (SAMR), the crossing of I-4 and Osceola Parkway over Bonnet Creek was identified as a critical area of concern. The I-4 Bonnet Creek Bridges are currently considered structurally deficient and required crutch bent construction several years ago. The crutch piles installed at the I-4 bridges over Bonnet Creek exemplified the difficulty of working on the bridge under the Osceola Parkway bridges. Constructing the I-4 Ultimate Improvements with this same configuration is not desirable for future maintenance or replacement of the I-4 bridges, so alternatives were investigated to provide a long-term solution.

The I-4 SAMR improvements propose relatively minor changes to the I-4/Osceola Parkway interchange; new exit ramps and bridges are being proposed for the eastbound Managed Lanes and General Use Lanes to eastbound Osceola Parkway, and replacement of the Osceola Parkway bridges with longer bridges over I-4 due to the Ultimate improvements. Several roadway options were investigated to address the maintenance access issue under the Osceola Parkway bridges. Providing a single span bridge on the eastbound lanes of I-4 to place the bridge abutments west of Bonnet Creek and east of the westbound Osceola Parkway bridge would require a clear span of approximately 450 feet. The required beam depth would make it necessary to raise the profile of I-4 to provide clearance over Bonnet Creek and would reduce the clearance under Osceola Parkway, requiring the profile of Osceola Parkway to be raised as well. This is not an acceptable option.

The next alternative reviewed was to raise the profile of Osceola Parkway to provide sufficient “headroom” for future maintenance/replacement of the I-4 bridge over Bonnet Creek. This alternative would require reconstruction of most of the interchange, including the loop ramps, to make this possible. Again, this was an unacceptable alternative. The third variable is Bonnet Creek, so alternative alignments through the interchange were reviewed.

Since Bonnet Creek is one of the major outfalls for the Reedy Creek Improvement District, care was taken to minimize impacts to the system and to the surrounding area. Items to be considered include:

- Maintain the canal typical cross section (width, depth, side slopes and maintenance berms),
- Minimize the number of bends and bend angles to reduce headloss in the channel,
- Maintaining the channel length and slope,
- Minimize wetland impacts,
- Minimize impacts outside of right-of-way,
- Address the need to relocate the existing Amil gate south of the interchange,
- Minimize the resultant I-4 bridge lengths by reducing the skew,
- Constructability of the channel to maintain flow,
- Maintenance Considerations; maintenance berm under the bridge, access and clearances,
- Maintenance of Traffic during Construction

The discharges in this portion of Bonnet Creek are controlled by Amil gates located south of EPCOT Center Drive (upstream of I-4) and immediately downstream of I-4, and the existing velocities are on the order of 2-3 feet per second for the 50-year and 100-year design storms, respectively. RCID has a discharge limit of 13 cubic feet per second per square mile of watershed for the 50-year, 72-hour storm event. The energy losses and the water surface superelevation around a bend were reviewed to determine what impact the alignment would have on the headloss, and ultimately, the water surface profile. Both reference sources we consulted (FDOT Drainage Handbook, Open Channel and the Evaluation of Superelevation in Open Channel Bends with Probabilistic Analysis Methods, 2008 ASCE) stated that the variable that affects the water surface superelevation the most is the velocity. The ASCE paper also states that the energy loss incurred in the flow around a bend is very small and may be neglected. Based on this information, it appears that the bends may not be a major consideration. However, to minimize the headloss through the bends, the proposed alignments utilized flatter bend angles and larger radii than what exists in the current alignment. A summary of the proposed alignments is presented in Table 1 below; please refer to the attached figures of each alternative alignment.

Table 1: Summary of Channel Bend Geometry

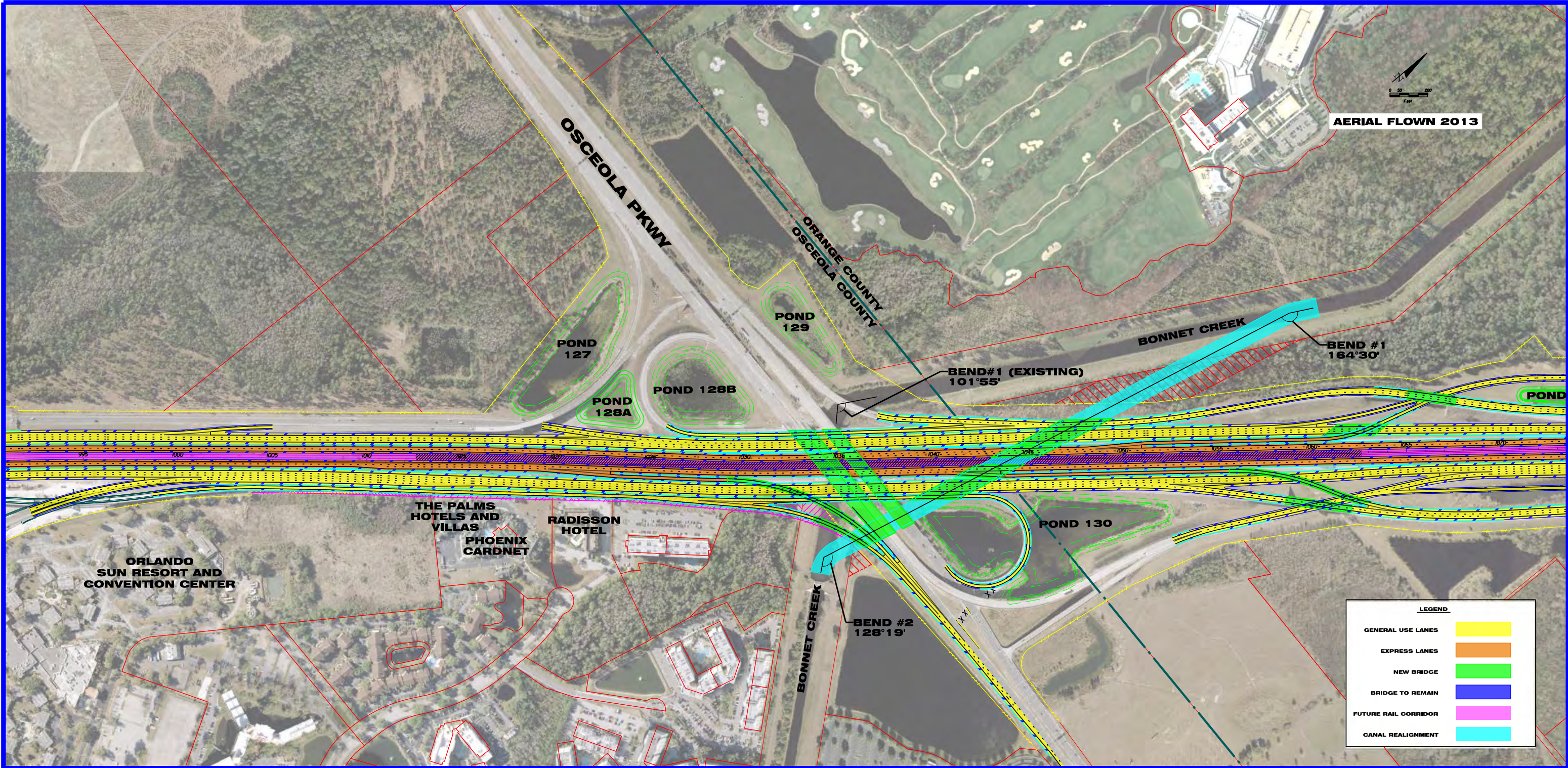
Channel Alignment	Bend #1		Bend #2		Bend #3		Reduction in Overall Channel Length
	Angle	Radius	Angle	Radius	Angle	Radius	
Existing	101° 55'	125 ft.	-	-	-	-	-
Alternative 1	164° 30'	350 ft.	128° 19'	150 ft.	-	-	462 ft.
Alternative 2	155° 21'	250 ft.	137° 28'	150 ft.	-	-	400 ft.
Alternative 3	138° 45'	650 ft.	128° 19'	250 ft.	102° 20'	350 ft.	293 ft.
Alternative 4	100° 18'	150 ft.	90° 00'	150 ft.	102° 20'	350 ft.	62 ft.

It will also be desirable, but not necessary, to maintain the canal length and slope to avoid any adverse impacts to the water surface elevation. Since the velocities are low, the additional headloss in a slightly longer reach of the channel is minor. If erosion is a concern, the bends may be armored with riprap similar to what is currently in place. Shorter channel lengths will have less impact to wetlands and surrounding properties and also reduce the skew across I-4 which reduces the I-4 bridge lengths. We have identified four alternative alignments for your consideration that attempt to address the considerations listed above. Limiting the improvements to lie upstream of the control structure south of I-4 eliminate the need to relocate this structure and reduces impacts to existing features not being affected by the I-4 Ultimate improvements. There are trade-offs for each of the four alternative alignments.

Alignments 1 and 2 will not require significant increases in the length of the Osceola Parkway bridges, but will require skewed bridges on I-4 and will have greater wetland impacts north of I-4. Alignments 3 and 4 will require longer bridges along Osceola Parkway but will have shorter bridges along I-4 and less wetland impacts. Construction of the channel, maintenance considerations and maintenance of traffic will be similar for each of the alternative alignments.

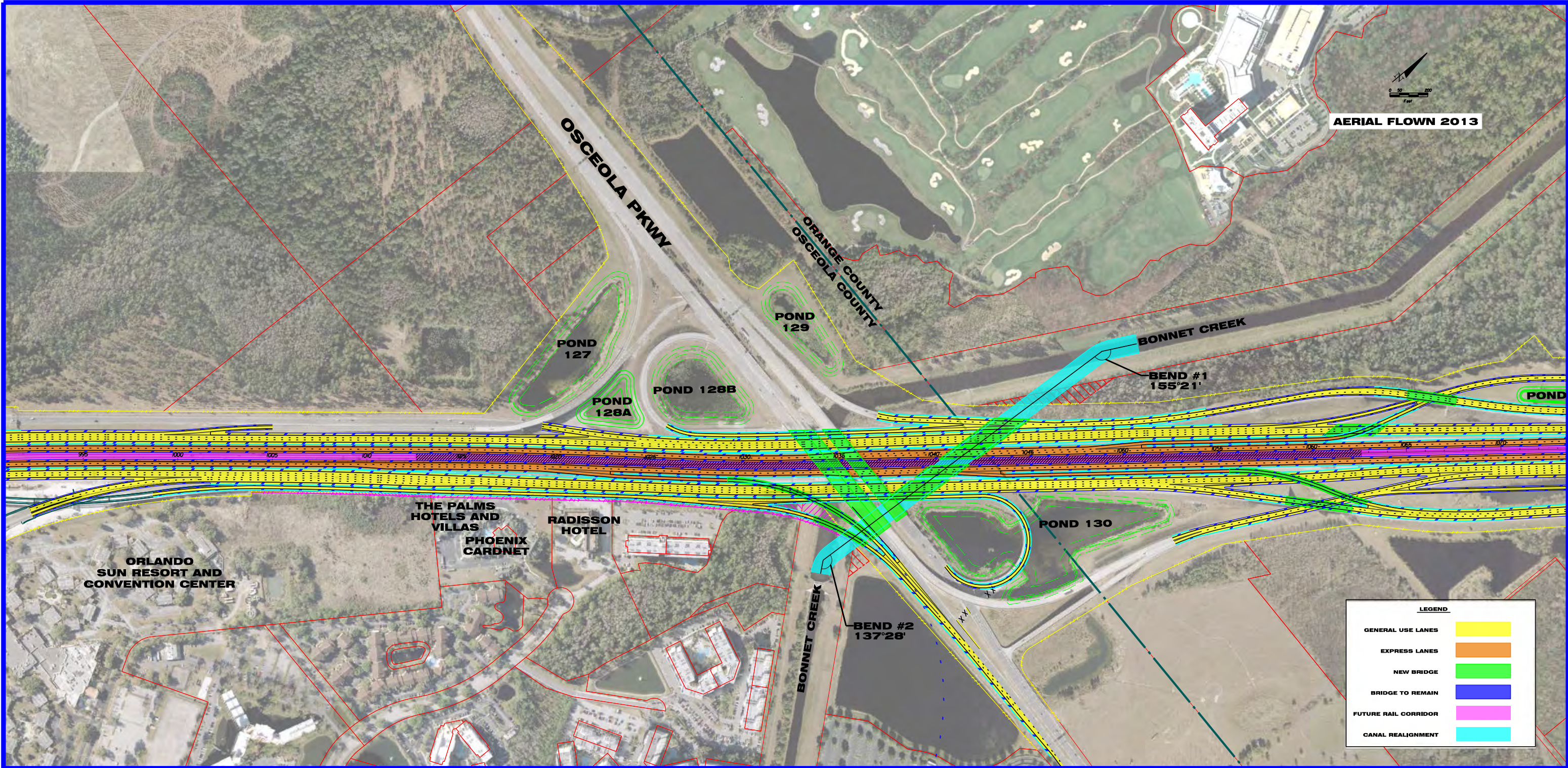
We believe that any of the four alternatives proposed will meet the needs of the project and will not create any adverse impacts on the RCID system. The proposed canal is consistent with the existing system and the proposed improvements will have no negative impact on the operation or water surface elevation of the canal. The realignment of the canal away from the I-4/Osceola Parkway Interchange will eliminate the access issues with the I-4 bridges over Bonnet Creek.

End of Memorandum



SR-400 (I-4) Segment 1
BONNET CREEK REALIGNMENT ALTERNATIVE 1





AERIAL FLOWN 2013

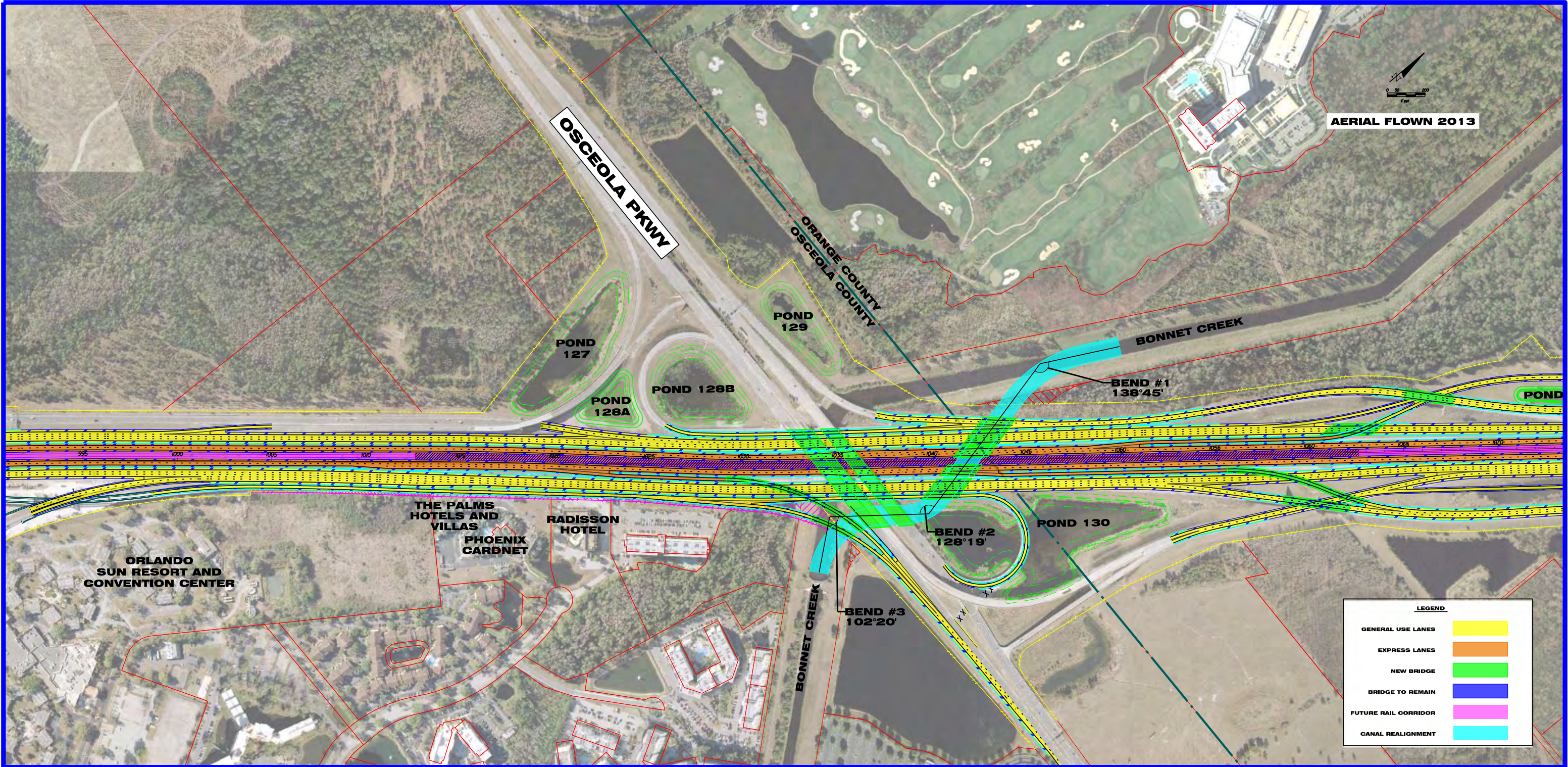
LEGEND	
GENERAL USE LANES	
EXPRESS LANES	
NEW BRIDGE	
BRIDGE TO REMAIN	
FUTURE RAIL CORRIDOR	
CANAL REALIGNMENT	



SR-400 (I-4) Segment 1 BONNET CREEK REALIGNMENT ALTERNATIVE 2



AERIAL FLOWN 2013



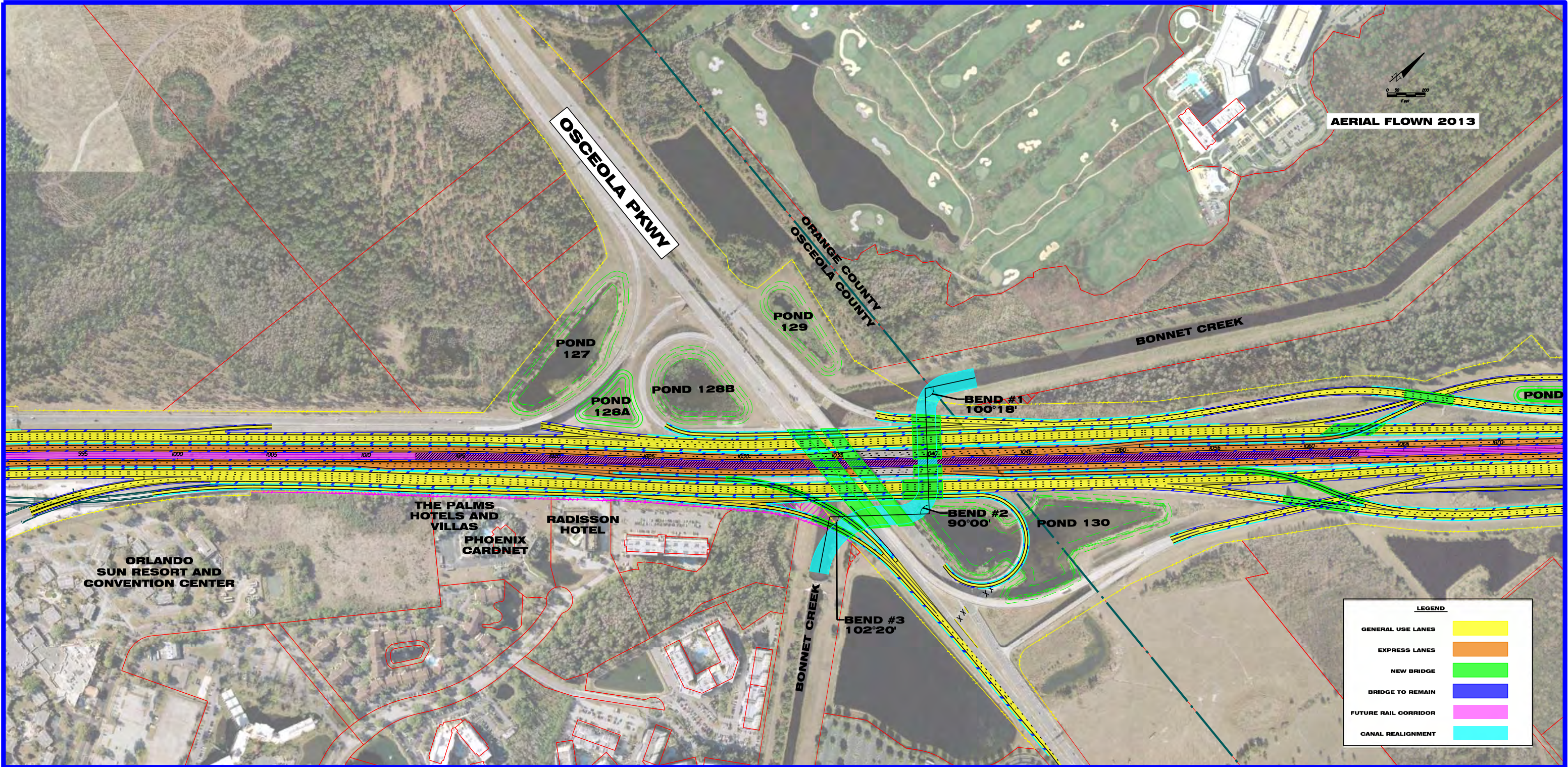
LEGEND	
GENERAL USE LANES	
EXPRESS LANES	
NEW BRIDGE	
BRIDGE TO REMAIN	
FUTURE RAIL CORRIDOR	
CANAL REALIGNMENT	



SR-400 (I-4) Segment 1
BONNET CREEK REALIGNMENT ALTERNATIVE 3



AERIAL FLOWN 2013



SR-400 (I-4) Segment 1 BONNET CREEK REALIGNMENT ALTERNATIVE 4



MEETING NOTES



Date: 4/3/15

HNTB Project No. 59219 - I-4 BtU PD&E

Meeting Name: Coordination Meeting with RCID and WDI

Meeting Date: 3/24/15

Location: Reedy Creek Improvement District Offices

Purpose: To Coordinate with RCID and WDI Staff

Attending: Kate Kolbo - RCID
Todd Rimmer - WDI
Tom Biggs - WDI
Lee Pulham - RCID
Beata Stys-Palasz - FDOT
Isaac Naziru - FDOT
Jeremy Dilmore - FDOT
Ferrell Hickson - FDOT
Jason Learned - FDOT
Smith Siromaskul - HDR
Hari Salkapuram - HDR
Luis Diaz - HNTB
Robert Denney - HNTB

The meeting started with introductions. Jeremy proceeded with an overall explanation of how the express lanes will work and that they would be priced based on the destination, and that the price will be shown at each access point to the express lanes.

Todd asked what delivery method would be used, and Beata indicated that the improvements from Central Florida Parkway to US 27 are currently expected to be constructed using a Public Private Partnership (P3) delivery method. The stopping point at this time is the right of way. Beata indicated that only design is currently funded. There is no funding available for right of way or construction at this time.

Beata indicated that this project was advertised for design, and was recently awarded to AECOM, and that the survey alone will take between 6 and 7 months.

Smith proceeded with a PowerPoint presentation that explained how we arrived at the proposed SR 535 interchange configuration. Smith explained how the traffic numbers used in the analysis were derived, as well as the assumptions that were used as inputs into the VISSIM model. (a copy of the PowerPoint presentation is attached to the minutes).

Discussion then turned to the I-4 crossing over Bonnet Creek. Robert showed the latest concept that realigns Bonnet Creek under I-4. This concept partially clips the Gaylord Palms Hotel retention pond, and includes creating a pond out of the remnant part of Bonnet Creek that would be abandoned with the proposed realignment. The concept also showed the construction of a new water control structure upstream of the existing structure. Kate appreciated that the new water control structure could be constructed in the dry, and then the ends of the new realigned section of the creek could be connected to the existing creek. Beata asked if the District would allow FDOT to use the remnant part of Bonnet Creek as a pond, and Kate indicated that this should not be a problem.

Isaac indicated that additional survey would be needed and he asked Robert to send him the revised concept for the surveyors to use in determining the limits of survey.

Discussion then turned to Reedy Creek. Kate suggested that we make sure that the I-4 Bridge over Reedy Creek be designed long enough so that there is no upstream rise in the surface water. Robert and Ferrell agreed that it would be a good idea to have a commitment in the Preliminary Engineering Report stating that no upstream rise will be allowed.

Ferrell also asked if wildlife shelves were required under the I-4 bridge over Shingle Creek. Robert indicated that he was not aware of any, but would check with the project biologists to see if this had been evaluated.

Discussion then turned to the express lane slip ramp locations. Robert explained that the slip ramp from the express lanes to the Collector Distributor (CD) system, between SR 535 and SR 536, only allowed access to SR 536 WB and EB, not to the ramp to the Disney parking garage. Todd asked if we had looked at providing access to the CD system so that motorist could access the parking garage from the express lanes. Luis indicated that it was initially looked at, but because of impacts to adjacent buildings, it was dismissed. Todd asked that we reevaluate and let WDI and RCID know what the impacts are and give them the opportunity to weigh in. Todd stressed that they would really like to have access from the WB express lanes to the Disney parking garage. Luis indicated that we will take another look at this and circle back with WDI and RCID.

Robert then explained that right of way impacts in the area between SR 429 and World Drive have since been eliminated. There were numerous impacts to adjacent utilities as well as the future Celebration Boulevard. Robert indicated that the current proposed concept shows the EB express lanes elevated (double stacked) over the general use lanes, thereby eliminating right of way impacts and utility impacts.

Action Items:

- *Robert to send the revised Bonnet Creek concept to Beata, Isaac, Kate, Lee, Todd and Tom.*
- *Robert add a commitment to the Preliminary Engineering Report that indicates that no rise in surface water is allowed upstream of the Shingle Creek Bridge over I-4.*
- *Robert to work with the project biologist to determine if the I-4 bridge over Shingle Creek needs to be longer to accommodate a dry wildlife shelf.*
- *Robert to develop the concept to access the Disney parking garage from the WB express lanes and circle back with WDI and RCID to review / discuss.*

END OF MINUTES

APPENDIX E – CORRESPONDENCE

MEETING MINUTES



Meeting Date/Time: June 6, 2013 / 2:00 PM

HNTB Project No. 59219

Meeting Name: I-4 SAMR SFWMD Pre-Application Meeting

Location: SFWMD, Orlando Service Center

Purpose: SFWMD Pre-App for I-4 Ultimate

Attending: Luis Diaz, HNTB
Heather Johnstone, HNTB
Mark Daron, SFWMD
Nicole Gough, SFWMD
Annette Burkett, SFWMD
Mike Drauer, Stantec
Hannah Hernandez, FDOT
Ferrell Hickson, FDOT
Beata Stys-Palasz, FDOT (phone)

The purpose of this meeting was to discuss the I-4 PD&E project and the drainage approach to the project. The following items were discussed:

- **Project Overview:**
 - 5 Sections and 5 Reports – 5)US 27 to Polk County Line, 1)Polk County Line to SR 528, 2)SR 528 to Kirkman Interchange, 3)SR 434 to SR46, and 4)SR 46 to SR 472
 - Sections 1, and 2 are located in SFWMD
 - Sections 3 and 4 are located in SJRWMD
 - Section 5 is located in SWFWMD
 - Design to be completed by end of 2014
- **Project Team:**
 - HNTB – Roadway, Structures, and Drainage
 - Stantec – Contamination, Air, Noise and Wildlife
 - 3 E Consultants – Wetlands
 - Southeastern Archaeology Research – Cultural Resources
 - GEC – Geotechnical
- **Areas of Interest:**
 - We asked if there were any flooding issues along the I-4 corridor that they know about. Mark stated that he was not aware of any flooding in the area.

- Commuter Rail was discussed. Heather explained that in other areas of the state, the rail was considered to be pervious or gravel. Mark said that gravel would be acceptable if the rail were to be built that way, but ultimately the curve number for the rail would be decided when the project is submitted for review.
 - HNTB asked if the new Statewide Rule would have an impact on this project. Mark stated that for this project, there would not be a big impact. Phosphorus loading calculations will still be required in areas that are considered impaired. Nitrogen loading calculations are not required at this time.
 - Ferrell asked if the ditch at Osceola Parkway could be realigned to allow a different configuration at the interchange. Mark stated that Reedy Creek Improvement District would need to be contacted.
 - Mark stated that there is an easement through the lake near Whole Foods and Sand Lake Road that should be researched before designing the outfall for the ponds in this area.
 - Mark said that there are several conservation easements along the I-4 corridor that could be verified on their website.
 - Ferrell asked if there are any local agencies that would be interested on teaming up with the FDOT for a joint-use treatment project. Mark said to contact Bill Graf with SFWMD.
- Water Quality Criteria:
 - The water quality criteria have remained the same for wet detention ponds: 1" over the basin or 2.5" over impervious area.
 - The water quality criteria have also remained the same for dry retention ponds: 0.5" over the basin or 1.25" over impervious area.
 - Although the handbook states open basins should be designed for the 25yr/3dy event, SFWMD allows ponds to be designed for the storm event required by the county instead. For open basins within Orange County, the 25yr/24hr storm event is acceptable. For open basins within Osceola County, the 10yr/72hr event is acceptable.
 - It has not been determined yet if the FDOT is required to provide an extra 50% treatment for impaired waters.
 - SFWMD only requires the treatment of new impervious area, regardless of whether or not the roadway is reconstructed.

Should any revisions, additions or clarifications of these notes be required, please advise Heather Johnstone at hjohnstone@hntb.com .

MEETING MINUTES



Meeting Date/Time: June 12, 2014 / 1:00 PM

HNTB Project No. 59219

Meeting Name: I-4 PD&E Segment 1: Drainage & R/W Coordination

Location: RCID

Purpose: Discuss Drainage and potential R/W impacts with Disney and RCID

Attending: Robert Denney HNTB
Katherine Luetzow, HNTB
Michael Dollery, FDOT
Todd Rimmer, Disney
Kate Kolbo, RCID
Lee Pulham, RCID

The purpose of this meeting was to discuss the I-4 PD&E project, specifically the drainage approach and the potential right of way impacts to Disney and the Reedy Creek Improvement District (RCID). The following items were discussed:

- Project Overview:
 - Section 1 limits, from West of CR 532 to West of SR 528 in Polk, Osceola and Orange Counties
 - Ultimate I-4 roadway typical section
 - Maintaining a 44' rail corridor in the median of I-4
- Right of Way Impacts
 - Todd indicated that Disney would want an input on any proposed ponds or floodplain compensation ponds that are located on existing Disney property.
 - Todd confirmed the identified parcels adjacent to I-4 that are being impacted that are listed as Celebration are controlled by Disney.
 - Disney requested that we move a proposed floodplain compensation pond site that was identified for the floodplain impacts to Reedy Creek.
 - The pond site identified is currently located northeast of the Old Lake Wilson Road across from an existing FDOT stormwater pond.
 - Todd indicated this site has planned development.
 - It was requested we use the existing Celebration borrow pit that is located just north of the proposed compensation pond for the necessary floodplain compensation.
 - Todd provided William (Bill) Telford at Atkins as a contact to discuss
 - Disney indicated that the planned Celebration Boulevard road extension is

- under negotiations.
 - Todd has sent HNTB the 30% plans
 - For the existing joint use ponds located within the OUC Power Easement north of World Drive:
 - Discussions are needed with OUC, as to what access requirements will be needed if we expand the existing ponds out of the existing easement.
 - Based on OUC's requirements, Disney requests input on whether we proceed with expanding the existing ponds, or providing an additional pond on Disney Property outside of the OUC easement.
 - The planned Disney High Speed Rail Station was briefly discussed
 - Todd indicated that from Disney's standpoint the future station was still a consideration but not a requirement. Further, neither Disney nor Celebration wants the station. He indicated Osceola County was the main entity requesting it.
 - RCID indicated that FDOT would not be granted additional R/W over Bonnett Creek at the Osceola Parkway Interchange. This location is extremely important to RCID as it affects all property upstream and therefore RCID must be able to regulate.
 - Kate indicated that air rights or lease agreements were possible.
- Drainage/Environmental
 - Water Quality Criteria:
 - RCID's water quality criteria is the same as SFWMD's:
 - The water quality for wet detention ponds: 1" over the basin or 2.5" over impervious area.
 - The water quality criteria for dry retention ponds: 0.5" over the basin or 1.25" over impervious area.
 - Attenuation Requirements for any area draining to RCID:
 - There is a discharge limit of 13 CSM (13 cubic feet of discharge per second per square mile of watershed) for the 50-year, 72-hour storm event.
 - If discharges are higher than the allowable limit, RCID will have to determine whether the master system can accept the additional discharge. If so, FDOT would need to pay a discharge fee of approximately \$5/CSM above the 13 CSM limit.
 - RCID confirmed using the 100-year floodplain established by RCID within the RCID boundaries.
 - Lee will provide HNTB a shapefile of the RCID limits.
 - RCID indicated that floodplain compensation areas would need to be modeled within RCID's master system to verify that they are actually hydraulically connected and providing true floodplain compensation.
 - RCID also indicated that floodplain compensation could be provided upstream of an impact as an alternative to providing compensation at the source of the impact.
 - RCID and Disney indicated there is a possibility of FDOT mitigating to RCID for floodplain compensation, therefore allowing Disney and RCID to provide compensation at a location of their choosing.
 - There is a wetland conservation area surrounding the I-4 crossing of Reedy Creek.
 - RCID indicated that this area is heavily protected as it was established as part of RCID's overall mitigation plan with SFWMD.
 - Lee indicated that she will send HNTB the shapefile for the conservation easement.

- RCID indicated that any proposed bridges over Bonnett Creek at Osceola Parkway would need to span the 100-year floodplain, as well as provide a minimum of 30'-40' on each bank for RCID access to their control structure.
 - No impacts to Bonnett Creek will be allowed.

Should any revisions, additions or clarifications of these notes be required, please advise Katherine Luetzow at kluetzow@htnb.com.

PHONE MEETING NOTES



Date: 7/29/2014

HNTB Project No. 59219 - I-4 PD&E

Meeting Name: I-4 PD&E - Pond 100C2, 100C3, FPC 100

Location: Phone Meeting

Purpose: To discuss proposed ponds and project timeline

Attending: HNTB - Sanam Rai, Property Owner - Mark Reicher (Rida Development - ChampionsGate)

Mr. Reicher was interested about the project, its potential impacts to his property and the anticipated timeline of the project.

Mr. Reicher mentioned that the FPC 100 site has been sold and is being developed into a Wendy's restaurant. He also pointed out that the Pond 100C2 site was originally planned for a hotel but was never developed. He stated that the Pond 100C2 location could make for a good pond site because of accessibility and triangular shape of the site.

Mr. Rai explained the PD&E study concept and its preliminary phase. It was explained that the pond sites are alternatives and are subject to change based on many factors.

Mr. Rai mentioned that the property owners can visit the following website to find out the necessary project information and any updates: www.i4express.com

END OF MINUTES

MEETING NOTES



Date: 7/24/2014

HNTB Project No. 59219 - I-4 PD&E

Meeting Name: I-4 PD&E - Pond 131B (Old Pond 188B)

Location: HNTB Office - 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746, 2:00 PM

Purpose: To discuss proposed ponds and project timeline

Attending: FDOT - Heather Johnstone, Michael Dollery, HNTB - Sanam Rai, Property Owner - Chris Liew, Robert Paymayesh (Darton US Holdings, Inc.)

Ms. Johnstone and Mr. Rai gave a brief overview of the project limits and explained the PD&E study concept and its preliminary phase. It was explained that the start of the design phase of the project would start sometime in the first quarter of 2015, at the earliest. Mr. Dollery explained that the project right of way acquisition won't occur for a few years.

Mr. Liew and Mr. Paymayesh were interested about the project, its potential impacts to their property and the anticipated timeline of the project.

Mr. Liew mentioned that the existing borrow pit (proposed pond site) within his property is part of an overall stormwater management facility. He also indicated that the proposed pond site could be expanded to the west to incorporate another borrow pit.

Mr. Liew also indicated that the parcel located just east of the proposed pond (not owned by Mr. Liew) is a site which is undevelopable due to access restrictions and could be a potential pond site. Mr. Rai mentioned that the parcel looked too small for a potential pond site but would look at it further.

Mr. Liew and Mr. Paymayesh expressed a desire to identify the timeline of the project. Ms. Johnstone and Mr. Dollery indicated that the project is federally funded and that the federal process must be followed which prohibits purchasing right of way prior to final design and permitting.

Ms. Johnstone mentioned that the property owners can visit the following website to find out the necessary project information and any updates: www.i4express.com

END OF MINUTES

MEETING NOTES



Date: 8/12/2014

HNTB Project No. 59219 - I-4 PD&E

Meeting Name: I-4 PD&E - Pond 138 (Old Pond 195)

Location: HNTB Office - 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746, 2:00 PM

Purpose: To discuss proposed ponds and project timeline

Attending: FDOT - Heather Johnstone, Michael Dollery, HNTB - Sanam Rai, Property Owners - Henry Wulf (CFJB Law), John Ragland (TIAA-CREF Global Real Estate), Joe Kolb (VHB), John Lambert (Jones Lang LaSalle), John Schupp (Jones Lang LaSalle), Dan DeRango (DeRango, Best & Associates)

Mr. Wulf gave a brief presentation about the TCAM Core Property, the acquisition and potential impacts, parcel appraisals, preliminary valuation of the lands and future improvements, and anticipated costs. A preliminary report prepared by DeRango, Best & Associates was handed out by Mr. Wulf.

Ms. Johnstone and Mr. Rai gave a brief overview of the project limits and explained the PD&E study concept and its preliminary phase. It was explained that the start of the design phase of the project would start sometime in the first quarter of 2015, at the earliest. Mr. Dollery explained that the project right of way acquisition won't occur for a few years.

Mr. Kolb indicated that 2 new restaurants are proposed at the north end of the existing crossroads pond. He said that they were in the permitting phase of design.

Mr. DeRango discussed other available parcels in the vicinity of the proposed pond site. Ms. Johnstone and Mr. Rai mentioned that those alternatives were not viable due to a number of issues including proposed developments, different basin divides and potential pond sites for other basins along the I-4 project.

Mr. Ragland expressed a desire to identify the timeline of the project. Ms. Johnstone and Mr. Dollery indicated that the design phase of the project would begin around March 2015 and would take approximately 2 years to complete, at the earliest. The right of way acquisition would begin 3 years after the completion of the design phase.

Mr. Kolb and Mr. Rai agreed to coordinate regarding existing pond calculations and cadd files, as needed.

Ms. Johnstone mentioned that the property owners can visit the following website to find out the necessary project information and any updates: www.i4express.com

END OF MINUTES

MEETING NOTES



Date: 7/7/2014

HNTB Project No. 59219 - I-4 PD&E

Meeting Name: I-4 PD&E - Ponds 140 & 141

Location: FDOT - D5 Office

Purpose: To discuss proposed ponds and project timeline

Attending: FDOT - Beata Stys-Palasz, HNTB - Katherine Luetzow, Property Owner - Daryl Carter

Mr. Carter was wanting to know more about the project and what the anticipated timeline was.

Beata explained the project is just in the study phase at this time and the project R/W acquisition is about 4 years out.

Mr. Carter indicated that at this time he is considering selling a portion of the property, specifically the parcels on the south side adjacent to Pond 139. The process is currently in negotiations with developers. He expressed a desire to work with the FDOT and indicated he would be willing to not sell portions of the R/W needed for the future I-4 ramps and development. Beata requested that any future development consider the future I-4 needs as to not cost-prohibit the interchange at Fenton due to development.

Mr. Carter expressed a desire to increase the timeline of the project. Beata indicated as the project is federally funded that the federal process must be followed which prohibits purchasing R/W prior to final design and permitting.

Beata discussed an alternative at Fenton of having direct connects instead of the general use/CD road interchange. The reduced R/W impacts were discussed. Mr. Carter will review and consider if there is an alternative that works best for his purposes. Mr. Carter did indicate that a compressed interchange (less R/W impacts) would be preferred but acknowledged pros and cons with the direct connection configuration.

RECORD OF TELEPHONE CALL



Job # 59219
Call From Robert Denney
Call To Rick Mattaway
Parcel ID 11-24-28-0000-00-024

Date 7/1/2014
Of HNTB
Of LRM Property Management

Subject Discussed

Rick Mattaway wanted to know more information about the project and what would be involved. I explained that the project is just in the study phase and the design project is at least 2 years out. During the design phase, pond sites would be re-evaluated and at that time right-of-way acquisition would begin. I further explained that the pond (Pond 198-B) is one of two alternatives for that area. Rick questioned why the roadway impacts were not included in the letter as well, which I explained we are still evaluating those and they are more of an unknown than the ponds sites at this time.

Action to be Taken

None. Rick will touch base periodically to request and update of our design.



MEETING ATTENDANCE

Project: I-4 PD&E

Location: 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746

Subject: Reunion West II LLC / Pond 105C (Old Pond 103A3) Coordination for I-4 PD&E

Date: 12/15/2014

Attendee	Representing	Telephone	E-mail
Heather Johnstone	FDOT	386-943-5540	heather.johnstone@dot.state.fl.us
SARAH RAI	HNTB		SARAI@HNTB.COM
Lucy Phillip	HNTB		lphillip@hntb.com
LEIS DIAZ	HNTB	407-805-0355	LDIAZ@HNTB.COM
ROBERT DENNEY	HNTB	407-805-0355	rdenny@hntb.com
Jim Bagley	Developer	407 446 8250	jim.bagley@encorefund.com

MEETING NOTES



Date: 12/15/2014

HNTB Project No. 59219 - I-4 PD&E

Meeting Name: I-4 PD&E - Pond 105C (Old Pond 103A3)

Location: HNTB Office - 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746,
10:00 AM

Purpose: To discuss proposed ponds and project timeline

Attending: FDOT - Heather Johnstone, HNTB - Sanam Rai, Luz Phillip, Luis Diaz, Robert Denney,
Property Owner - Jim Bagley

Ms. Johnstone and Mr. Diaz gave a brief overview of the project limits and explained the PD&E study concept and its preliminary phase. It was explained that the start of the design phase of the project would start sometime in the first quarter of 2015, at the earliest.

Mr. Bagley was interested about the project, its potential impacts to his property and the anticipated timeline of the project. He stated that the parcel where the pond is proposed is in a preliminary site planning (PSP) phase.

A few pond alternates were discussed. A joint-use linear pond east of Old Lake Wilson Road including the county, the property owner and FDOT was proposed. Another alternate was to modify the pond (in its current location) in a linear fashion along SR 429 to provide a water feature and buffer for future households.

Expanding an existing pond (Pond 109) along I-4 was also discussed. Mr. Rai and Ms. Johnstone mentioned that this alternate might not be feasible due to possible hydraulic constraints and maintaining existing basin divides.

Mr. Bagley stated that he also owns parcels where FPC 102, FPC 103 and 103A are proposed. It was agreed that HNTB would coordinate with Mr. Bagley's engineer, Dave Schmidt, regarding the pond alternatives.

Ms. Johnstone mentioned that the property owner can visit the following website to find out the necessary project information and any updates: www.i4express.com

END OF MINUTES



MEETING ATTENDANCE

Project: I-4 PD&E

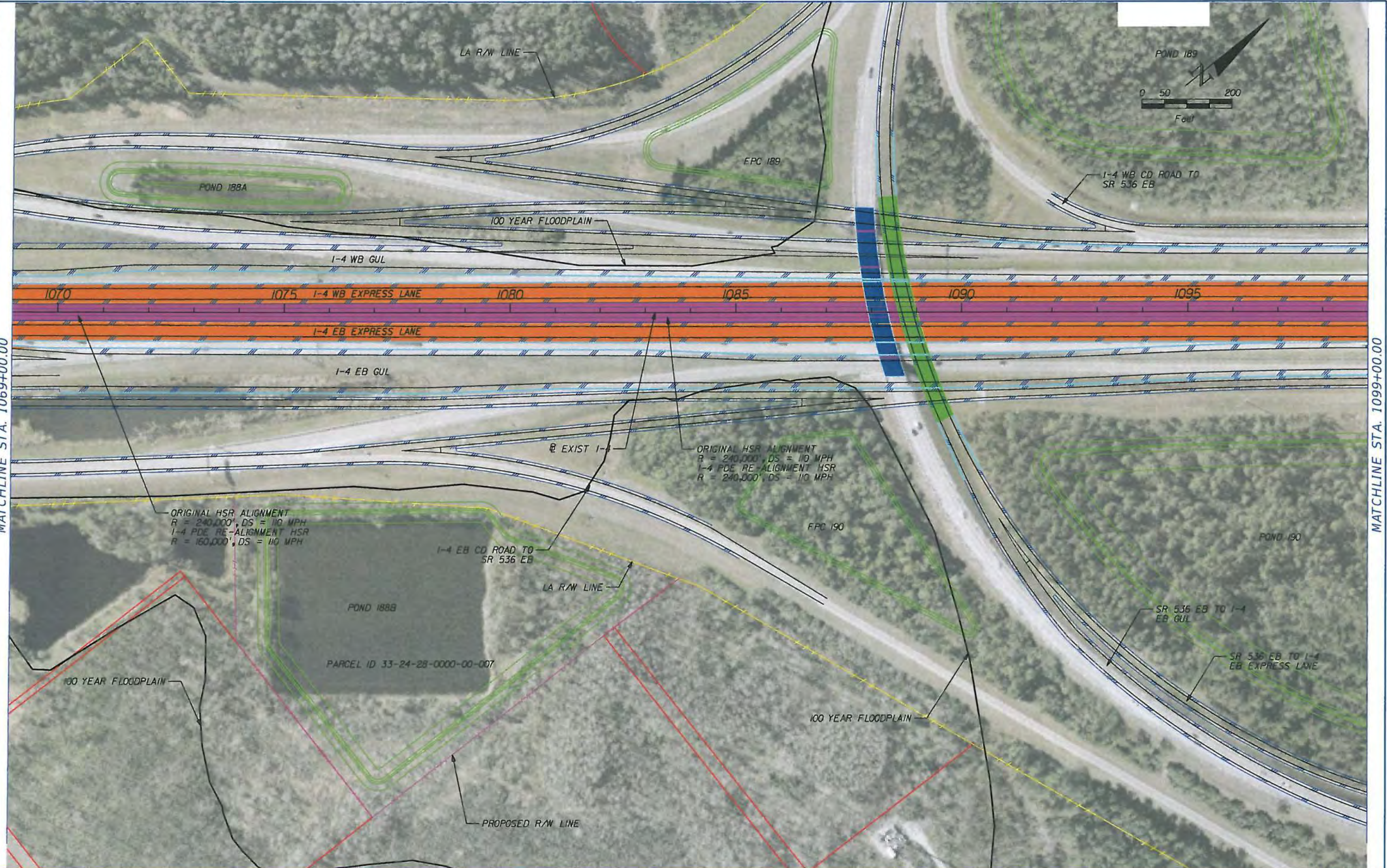
Location: 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746

Subject: GCB Associates LLC / Pond 131B (Old Pond 188B)
Coordination for I-4 PD&E

Date: 7/24/2014

Attendee	Representing	Telephone	E-mail
CHRIS LIEW	GCB	407 380 5183	CELL 60@YALHO.COM
Robert Jayrajesh	GCB	407 488 5028	bob@pe-grp.com
Heather Johnstone	FDOT	386-943-5540	heather.johnstone@dot. state.fl.us
Michael Dollery	FDOT	386 943-5093	Michael.dollery@dot.State.fl.us
SAVAM RAI	HNTB		Savari@HNTB.COM

MODEL: \$MODEL\$
 SHEET SIZE: \$SHEETSIZE\$
 PLOT SCALE: \$PLOTSCALE\$



MATCHLINE STA. 1069+00.00

MATCHLINE STA. 1099+00.00

PRINT DRIVER: \$PLTDVRS\$
 PEN TABLE: \$PENTBL\$

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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

ENGINEER OF RECORD: BARRY J. SWITZER, P.E.
 FL. REGISTRATION NO. 43422

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

POND 188B

SHEET NO.
E-14



MEETING ATTENDANCE

Project: I-4 PD&E

Location: 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746

Subject: Garrison Orlando Land LLC / Pond 136A & B (Old Pond 193) Coordination for I-4 PD&E

Date: 8/12/2014

Attendee	Representing	Telephone	E-mail
RAY ALLEN	EMERSON	813-229-4270	
KEN TINKLER	"		RALEN@CFTR.com
Gerry Dedembach	NP International	813-229-4245 352 538 5195	KTinkler@cfjhlaw.com gerryd@chw-inc.com
Lou Dorso	NP International	952-767-7500	LDorso@Nolan-Company.com
Heather Johnstone	FDOT	386-943-5540	heather.johnstone@dot.state.fl.us
SANAM RAI	HNTB		SARAI@HNTB.com
Michael Dollery	FDOT	386-943-5093	michael.dollery@dot.state.fl.us
JOSEPH PJURA	GENSLER	212-492-2574	JOSEPH_PJURA@GENSLER.COM



MEETING ATTENDANCE

Project: I-4 PD&E

Location: 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746

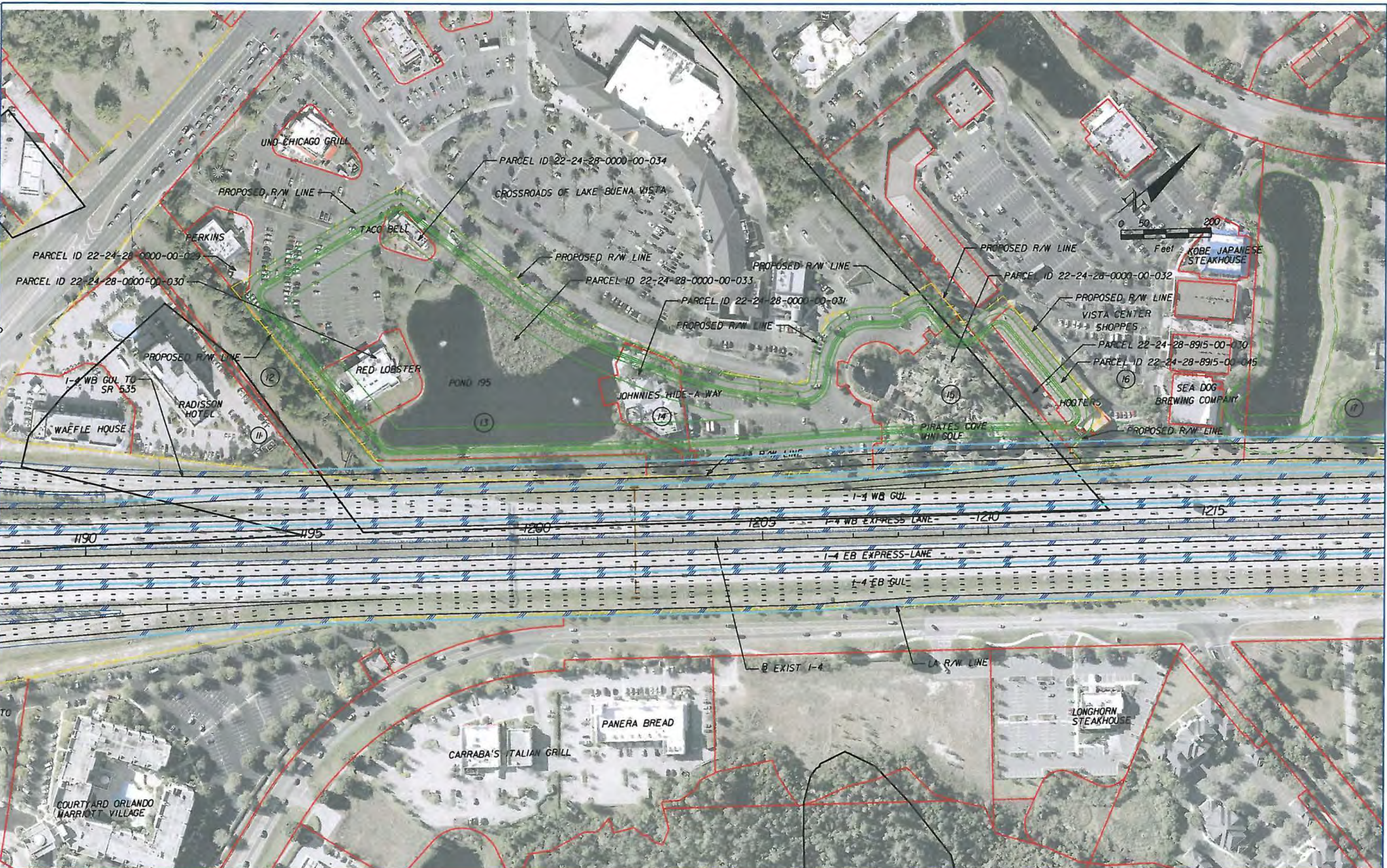
Subject: TSO Vista Centre LLC / Pond 138 (Old Pond 195)
Coordination for I-4 PD&E

Date: 7/24/2014

Attendee	Representing	Telephone	E-mail
MELDY MANN-SIMPSON	TSO VISTA CENTRE LP	407-253-6399	MELDY@SIMPSONORG.COM
David A. Shantz	Property owner TSO Vista Centre LP	407-835-6722	dshantz@shantz.com
Heather Johnstone	FDOT	386-943-5540	heather.johnstone@dot.state.fl.us
SAVAM RAI	HNTB		
Michael Dollery	FDOT	386-943-5093	michael.dollery@dot.state.fl.us

\$MODELNAME\$
 \$SHEETSIZE\$
 \$SCALE\$

\$PLTDRVS\$
 \$PENTBL\$



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

HNTB CORPORATION
 610 CRESCENT EXECUTIVE CT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: BARRY J. SWITZER, P.E.
 FL. REGISTRATION NO. 43422

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	ORANGE	432100-1-22-01

POND 195

SHEET NO.
 E-17



MEETING ATTENDANCE

Project: I-4 PD&E

Location: 610 Crescent Executive Court, Suite 400, Lake Mary, Florida 32746

Subject: Palm Parkway Development Co LLC / Pond 141A
(Old Pond 198) Coordination for I-4 PD&E

Date: 9/12/2014

Attendee	Representing	Telephone	E-mail
Heather Johnstone	FDOT	386-943-5540	heather.johnstone@dot.state.fl.us
Michael Dallery	FDOT	386-943-5093	michael.dallery@dot.state.fl.us
George Powell	Avenman LP	239 449 5562	george.Powell@Avenman.com
LUIS DEAZ	HNTB	407-805-0355	LDIAZ@HNTB.COM
ROBERT DENNEY	HNTB	407-805-0355	rdenny@hntb.com
Rick Mattaway	Palm Parkway	305-662-1421	mick@mattaway.com
Lucy Phillip	HNTB	407-805-0355	lphillip@hntb.com
SARAH RAE	HNTB	"	SARAE@HNTB.COM
Greg Crawford	Poulos & Bennett	407-404-2441	gcrawford@poulosandbennett.com

From: Sanam Rai
Sent: Tuesday, September 23, 2014 3:06 PM
To: 'Greg Crawford'
Cc: Luz Phillip
Subject: RE: I-4 Pond 141A/Old Pond 198 (Palm Parkway Development)
Attachments: POND141A.dxf

Greg,

I had to make the pond a bit larger to accommodate for the volume loss at the narrow portion of the proposed pond location. I enlarged the pond on the southern end. Please take a look and let me know if you have any questions or comments regarding the new shape.

Thanks,

Sanam

From: Greg Crawford [<mailto:gcrewford@poulosandbennett.com>]
Sent: Tuesday, September 16, 2014 5:15 PM
To: Sanam Rai
Cc: Luz Phillip
Subject: RE: I-4 Pond 141A/Old Pond 198 (Palm Parkway Development)

Sanam,

Sorry for the delay, but please find attached the file for the pond location discussed the other day. Please let me know if you have any questions. Thank you.

Sincerely,

Gregory R. Crawford, PE, PSM



4625 Halder Lane, Suite B
Orlando, FL 32814

o. 407-487-2594

f. 407-289-5280

www.poulosandbennett.com

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From: Sanam Rai [<mailto:sarai@HNTB.com>]
Sent: Monday, September 15, 2014 4:18 PM
To: Greg Crawford

Cc: Luz Phillip

Subject: I-4 Pond 141A/Old Pond 198 (Palm Parkway Development)

Greg,

Can you provide me with a cadd file of your proposed pond for Pond 141A?

Thank you,

Sanam

Sanam Rai, PE

Project Engineer - Drainage

HNTB Corporation

610 Crescent Executive Court, Suite 400
Lake Mary, FL 32746

Tel (407) 805-0355
Direct (407) 547-3025
Fax (407) 805-0227
www.hntb.com

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Sanam Rai

From: Sanam Rai
Sent: Friday, September 05, 2014 4:09 PM
To: 'george.powell@akerman.com'
Subject: RE: Financial Project No. 432100-1-22-01 Pond 198

Mr. Powell,

Thank you for taking my call. I will get in touch with you early next week to schedule a meeting at our Lake Mary office.

Thanks,

Sanam

Sanam Rai, PE
Project Engineer - Drainage

HNTB Corporation
610 Crescent Executive Court, Suite 400
Lake Mary, FL 32746

Tel (407) 805-0355
Direct (407) 547-3025
Fax (407) 805-0227
www.hntb.com

From: george.powell@akerman.com [<mailto:george.powell@akerman.com>]
Sent: Friday, September 05, 2014 3:24 PM
To: Luis Diaz
Cc: beata.stys-palasz@dot.state.fl.us
Subject: Financial Project No. 432100-1-22-01 Pond 198

Luis,

To follow up on my previous letter and telephone call, I would like to schedule a meeting with you in the latter part of next week with my client and our planner regarding Pond 198. Please advise me of some times and times that would work for you.

Thanks,

George Powell

George W. Powell, Jr.
Office Managing Partner
Akerman LLP | 9128 Strada Place | Suite 10205 | Naples, FL 34108
Dir: 239.449.5562 | Main: 239.449.5600 | Fax: 305.995.6997
george.powell@akerman.com

[vCard](#) | [Bio](#)



APPENDIX F – EXISTING PERMITS

Application No. 000914-13
The Vinings at Cypress Pointe

NOV 08 2000

APP# 000914-13

ORLANDO SERVICE CENTER

THE VININGS AT CYPRESS POINTE

Orange County, Florida

ADDITIONAL INFORMATION

NOV 08 2000

ORLANDO SERVICE CENTER

REVISED STORMWATER CALCULATIONS

Prepared for

CH Enterprises, L.L.C.
P.O. Box 231
Orlando, FL 32802

Prepared by

MILLER EINHOUSE RYMER & ASSOCIATES, INC.

918 Lucerne Terrace
Orlando, Florida 32806
(407) 246-0255

MERA Project No. O0046.04

October, 2000

October 30, 2000

SCANNED

SCANNED

Revised Stormwater Calculations
for
THE VININGS AT CYPRESS POINTE
ORANGE COUNTY, FLORIDA

CONTENTS

Figures

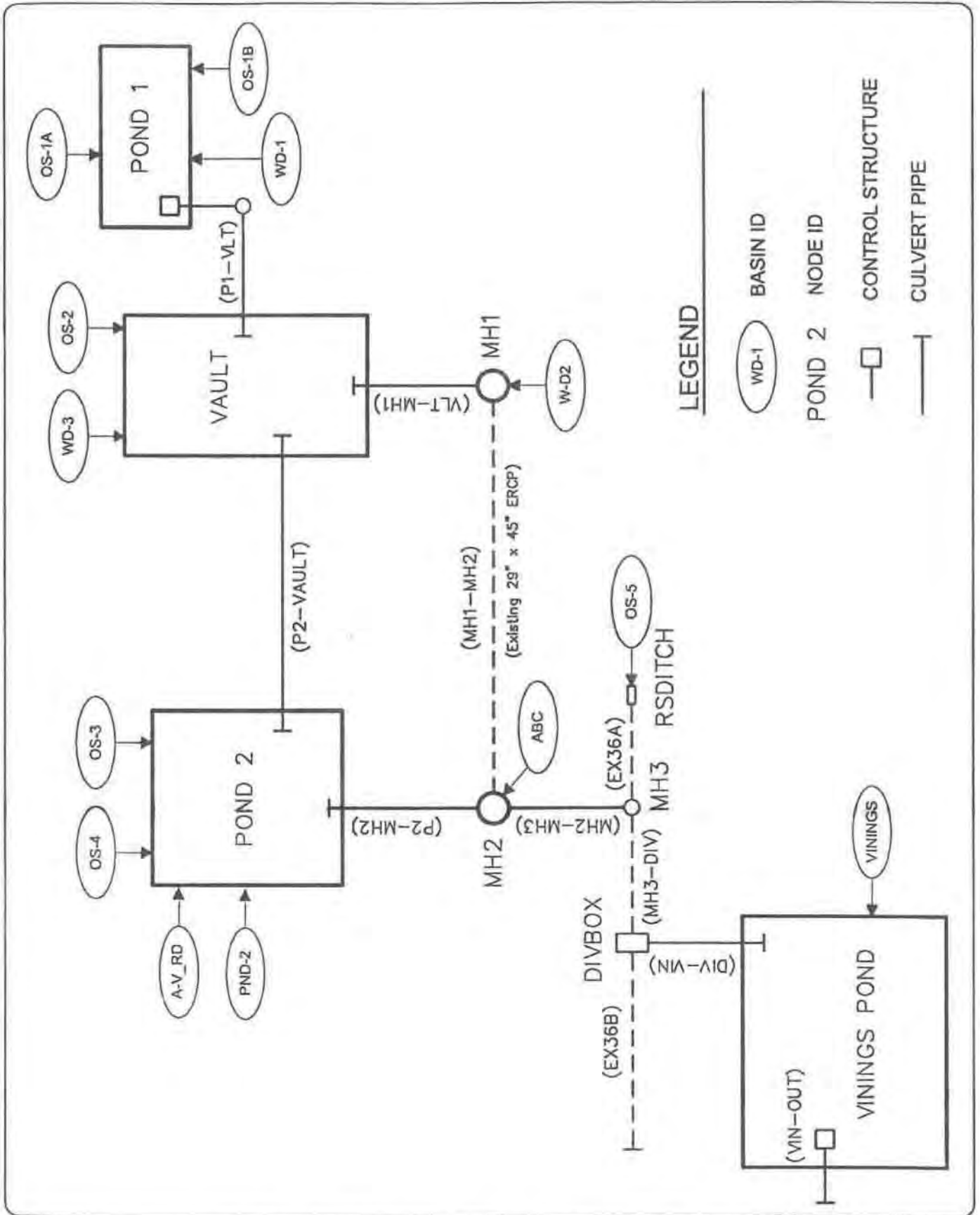
Figure 1	Existing Conditions Drainage Basin Map
Figure 2	Post-Development Drainage Basin Map
Figure 3	The Vinings at Cypress Pointe Master Drainage Plan
Figure 4	Network Nodal Diagram
Figure 6	Quadrangle Map
Figure 7	FEMA Flood Map
Figure 8	Soils Map
Figure 9	Map E for The Vinings at Cypress Pointe, P.D.

APPENDIX A Hydrologic Data and Calculations

Post-Development Sub-Basin Hydrologic Data
& Treatment Volume Calculations

APPENDIX B Computer Model Input And Output Data

CHAN Model Input Data
CHAN Model Data
10 Year – 24 Hour Storm
25 Year – 24 Hour Storm
100 Year – 24 Hour Storm
Water Quality Recovery Analysis



LEGEND

- BASIN ID
- POND 2
- CONTROL STRUCTURE
- CULVERT PIPE

Miller Einhouse Rymer & Associates, Inc.
 Planners • Engineers Landscape Architects
101 Gateway Avenue, Suite 100, Orlando, Florida 32807
 Phone: 407.251.1111
 Email: info@merai.com

THE SHOPS OF LAKE AVENUE
 ORANGE COUNTY, FLORIDA
NETWORK NODAL DIAGRAM

DATE: 4/27/00
 PROJECT NO.: 00046.04
FIGURE 4

APPENDIX "B"

Computer Model Input and Output Data

The Shoppes of Lake Avenue
Master Stormwater Management Plan

**COMPUTER MODEL INPUT DATA
POST-DEVELOPMENT CONDITIONS**

**Shoppes of Lake Avenue
Post-Development Conditions**

**Prepared by
Jeffrey D. Einhouse, P.E.**

**CHAN Version 2
Report of Model Network Input Data**

The Shops of Lake Avenue - Post Development

Node Element Data

BNDRY	<u>Node Type</u> Tailwater		<u>Bottom Elev</u> 99		<u>Initial Elev</u> 100.9		<u>Flood Elev</u> 102
	No area relation associated with this node						
VAULT	<u>Node Type</u> Lake		<u>Bottom Elev</u> 101		<u>Initial Elev</u> 101.8		<u>Flood Elev</u> 106
	Elev	101	101.8	106			
	Area	1.48	1.48	1.48			
POND-1	<u>Node Type</u> Lake		<u>Bottom Elev</u> 92		<u>Initial Elev</u> 106.5		<u>Flood Elev</u> 110
	Elev	92	102	105.5	107.5	110	
	Area	0.07	0.23	0.58	0.69	0.69	
POND-2	<u>Node Type</u> Lake		<u>Bottom Elev</u> 90		<u>Initial Elev</u> 101.8		<u>Flood Elev</u> 106
	Elev	90	96.5	101.8	102.8	105.5	106
	Area	0.09	0.21	0.53	0.62	0.62	2
	Elev	106.5					
	Area	4					
VIN-POND	<u>Node Type</u> Lake		<u>Bottom Elev</u> 90		<u>Initial Elev</u> 101.8		<u>Flood Elev</u> 105
	Elev	90	101.8	102	102.2	102.3	102.5
	Area	3	6.28	6.42	6.47	6.49	6.54
	Elev	103	103.5	104	104.5	105	
	Area	6.78	6.94	7.14	7.34	7.5	
MH2	<u>Node Type</u> Lake		<u>Bottom Elev</u> 98.4		<u>Initial Elev</u> 101.8		<u>Flood Elev</u> 107
	Elev	98.4	107				
	Area	0.01	0.1				
MH1	<u>Node Type</u> Lake		<u>Bottom Elev</u> 101.5		<u>Initial Elev</u> 101.8		<u>Flood Elev</u> 107
	Elev	101.5	107				
	Area	0.01	0.1				
MH3	<u>Node Type</u> Lake		<u>Bottom Elev</u> 101		<u>Initial Elev</u> 101.8		<u>Flood Elev</u> 106
	Elev	101	106				
	Area	0.01	0.1				
DIVBOX	<u>Node Type</u> Lake		<u>Bottom Elev</u> 100		<u>Initial Elev</u> 101.8		<u>Flood Elev</u> 106
	Elev	100	106				
	Area	0.01	0.1				

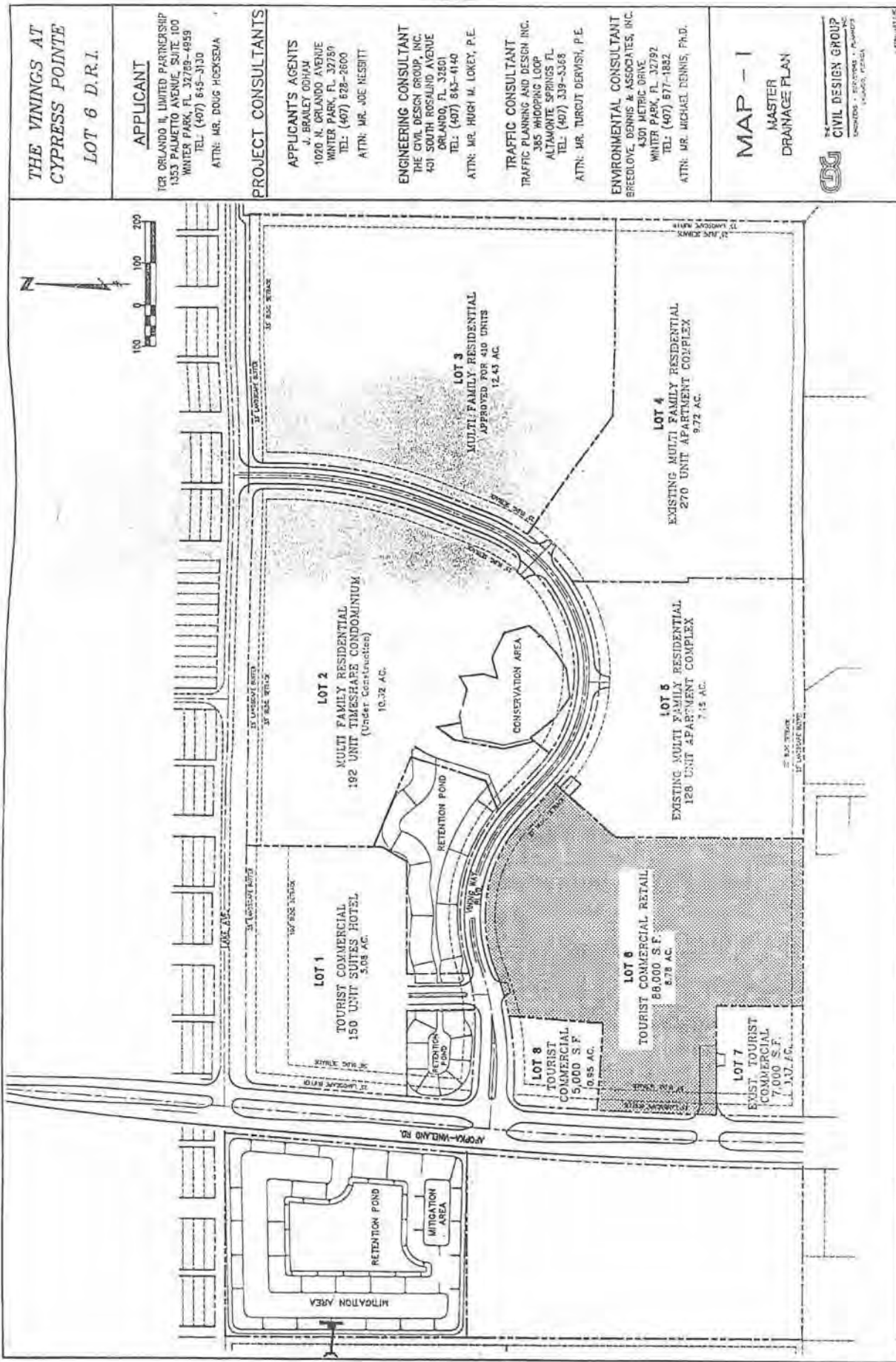
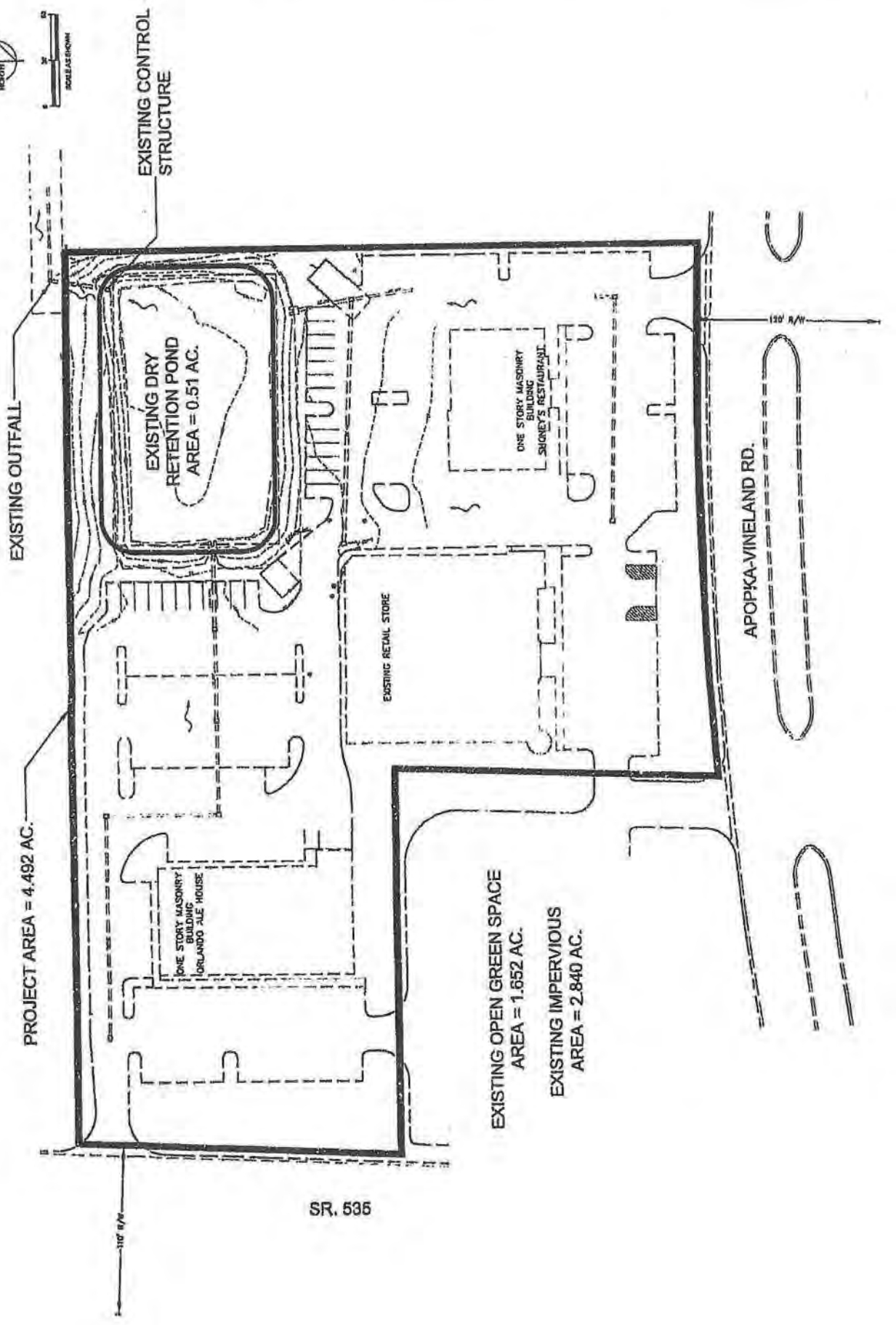
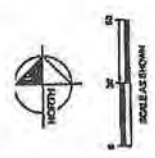


FIGURE 3

SCANNED BY



Top Elevation of Pond 105.00
 Top Area 226,347.00 s.f.
 Bottom Elevation of Pond 101.80
 Bottom Area 198,676.00 s.f.

Maximum Volume = 15.611 ac/ft at Elev. 105.00

Elevation	101.90	Volume	0.457 ac/ft	Area	199540.70
Elevation	102.00	Volume	0.916 ac/ft	Area	200405.41
Elevation	102.10	Volume	1.377 ac/ft	Area	201270.13
Elevation	102.20	Volume	1.840 ac/ft	Area	202134.83
Elevation	102.30	Volume	2.305 ac/ft	Area	202999.53
Elevation	102.40	Volume	2.772 ac/ft	Area	203864.23
Elevation	102.50	Volume	3.241 ac/ft	Area	204728.94
Elevation	102.60	Volume	3.712 ac/ft	Area	205593.66
Elevation	102.70	Volume	4.185 ac/ft	Area	206458.36
Elevation	102.80	Volume	4.660 ac/ft	Area	207323.06
Elevation	102.90	Volume	5.137 ac/ft	Area	208187.77
Elevation	103.00	Volume	5.616 ac/ft	Area	209052.47
Elevation	103.10	Volume	6.097 ac/ft	Area	209917.19
Elevation	103.20	Volume	6.580 ac/ft	Area	210783.09
Elevation	103.30	Volume	7.065 ac/ft	Area	211646.59
Elevation	103.40	Volume	7.552 ac/ft	Area	212511.30
Elevation	103.50	Volume	8.040 ac/ft	Area	213376.02
Elevation	103.60	Volume	8.531 ac/ft	Area	214240.72
Elevation	103.70	Volume	9.024 ac/ft	Area	215105.42
Elevation	103.80	Volume	9.519 ac/ft	Area	215970.13
Elevation	103.90	Volume	10.016 ac/ft	Area	216834.83
Elevation	104.00	Volume	10.514 ac/ft	Area	217699.55
Elevation	104.10	Volume	11.015 ac/ft	Area	218564.25
Elevation	104.20	Volume	11.518 ac/ft	Area	219428.95
Elevation	104.30	Volume	12.023 ac/ft	Area	220293.66
Elevation	104.40	Volume	12.529 ac/ft	Area	221158.36
Elevation	104.50	Volume	13.038 ac/ft	Area	222023.08
Elevation	104.60	Volume	13.549 ac/ft	Area	222887.78
Elevation	104.70	Volume	14.061 ac/ft	Area	223752.48
Elevation	104.80	Volume	14.576 ac/ft	Area	224617.19
Elevation	104.90	Volume	15.093 ac/ft	Area	225481.89
Elevation	105.00	Volume	15.611 ac/ft	Area	226346.61

WEIR

25/24

THE VININGS AT CYPRESS POINTE
 (FORMERLY CROW/JOLLEY P.D.)
 POND 1
 REVISED VOLUME CALCULATIONS

Top Elevation of Pond 105.00
 Top Area 24,388.00 s.f.
 Bottom Elevation of Pond 101.80
 Bottom Area 16,245.00 s.f.

Maximum Volume = 1.492 ac/ft at Elev. 105.00			
Elevation	101.90	Volume	0.038 ac/ft Area 16499.46
Elevation	102.00	Volume	0.076 ac/ft Area 16753.93
Elevation	102.10	Volume	0.115 ac/ft Area 17008.39
Elevation	102.20	Volume	0.154 ac/ft Area 17262.86
Elevation	102.30	Volume	0.194 ac/ft Area 17517.33
Elevation	102.40	Volume	0.234 ac/ft Area 17771.79
Elevation	102.50	Volume	0.275 ac/ft Area 18026.26
Elevation	102.60	Volume	0.317 ac/ft Area 18280.72
Elevation	102.70	Volume	0.359 ac/ft Area 18535.19
Elevation	102.80	Volume	0.402 ac/ft Area 18789.65
Elevation	102.90	Volume	0.446 ac/ft Area 19044.12
Elevation	103.00	Volume	0.490 ac/ft Area 19298.58
Elevation	103.10	Volume	0.534 ac/ft Area 19553.05
Elevation	103.20	Volume	0.579 ac/ft Area 19807.51
Elevation	103.30	Volume	0.625 ac/ft Area 20061.98
Elevation	103.40	Volume	0.671 ac/ft Area 20316.44
Elevation	103.50	Volume	0.713 ac/ft Area 20570.91
Elevation	103.60	Volume	0.766 ac/ft Area 20825.37
Elevation	103.70	Volume	0.814 ac/ft Area 21079.84
Elevation	103.80	Volume	0.863 ac/ft Area 21334.30
Elevation	103.90	Volume	0.912 ac/ft Area 21588.77
Elevation	104.00	Volume	0.962 ac/ft Area 21843.23
Elevation	104.10	Volume	1.012 ac/ft Area 22097.70
Elevation	104.20	Volume	1.063 ac/ft Area 22352.16
Elevation	104.30	Volume	1.115 ac/ft Area 22606.63
Elevation	104.40	Volume	1.167 ac/ft Area 22861.09
Elevation	104.50	Volume	1.220 ac/ft Area 23115.56
Elevation	104.60	Volume	1.273 ac/ft Area 23370.02
Elevation	104.70	Volume	1.327 ac/ft Area 23624.49
Elevation	104.80	Volume	1.382 ac/ft Area 23878.95
Elevation	104.90	Volume	1.437 ac/ft Area 24133.42
Elevation	105.00	Volume	1.492 ac/ft Area 24387.88

WEIR

25/24

THE VININGS AT CYPRESS POINTE
 (FORMERLY CROW/JOLLEY P.D.)
 POND 2
 REVISED VOLUME CALCULATIONS

Top Elevation of Pond 105.00
 Top Area 76,837.00 s.f.
 Bottom Elevation of Pond 101.80
 Bottom Area 59,663.00 s.f.

Maximum Volume = 5.014 ac/ft at Elev. 105.00

Elevation	101.90	Volume	0.138 ac/ft	Area	60199.68
Elevation	102.00	Volume	0.276 ac/ft	Area	60736.36
Elevation	102.10	Volume	0.416 ac/ft	Area	61273.04
Elevation	102.20	Volume	0.558 ac/ft	Area	61809.72
Elevation	102.30	Volume	0.700 ac/ft	Area	62346.40
Elevation	102.40	Volume	0.844 ac/ft	Area	62883.08
Elevation	102.50	Volume	0.989 ac/ft	Area	63419.76
Elevation	102.60	Volume	1.135 ac/ft	Area	63956.44
Elevation	102.70	Volume	1.283 ac/ft	Area	64493.12
Elevation	102.80	Volume	1.431 ac/ft	Area	65029.80
Elevation	102.90	Volume	1.581 ac/ft	Area	65566.48
Elevation	103.00	Volume	1.732 ac/ft	Area	66103.16
Elevation	103.10	Volume	1.885 ac/ft	Area	66639.84
Elevation	103.20	Volume	2.038 ac/ft	Area	67176.52
Elevation	103.30	Volume	2.193 ac/ft	Area	67713.20
Elevation	103.40	Volume	2.349 ac/ft	Area	68249.88
Elevation	103.50	Volume	2.506 ac/ft	Area	68786.55
Elevation	103.60	Volume	2.665 ac/ft	Area	69323.23
Elevation	103.70	Volume	2.825 ac/ft	Area	69859.91
Elevation	103.80	Volume	2.986 ac/ft	Area	70396.59
Elevation	103.90	Volume	3.148 ac/ft	Area	70933.27
Elevation	104.00	Volume	3.311 ac/ft	Area	71469.95
Elevation	104.10	Volume	3.476 ac/ft	Area	72006.63
Elevation	104.20	Volume	3.642 ac/ft	Area	72543.31
Elevation	104.30	Volume	3.809 ac/ft	Area	73079.99
Elevation	104.40	Volume	3.978 ac/ft	Area	73616.67
Elevation	104.50	Volume	4.147 ac/ft	Area	74153.35
Elevation	104.60	Volume	4.318 ac/ft	Area	74690.03
Elevation	104.70	Volume	4.490 ac/ft	Area	75226.72
Elevation	104.80	Volume	4.663 ac/ft	Area	75763.40
Elevation	104.90	Volume	4.838 ac/ft	Area	76300.08
Elevation	105.00	Volume	5.014 ac/ft	Area	76836.76

WEAR

25/24

THE VININGS AT CYPRESS POINTE
 (FORMERLY CROW/JOLLEY P.D.)
 POND 3
 REVISED VOLUME CALCULATIONS

Top Elevation of Pond 105.00
 Top Area 327,572.00 s.f.
 Bottom Elevation of Pond 101.80
 Bottom Area 274,584.00 s.f.

Maximum Volume = 22.118 ac/ft at Elev. 105.00

Elevation	Volume	Area
101.90	0.632 ac/ft	276239.84
102.00	1.268 ac/ft	277895.69
102.10	1.908 ac/ft	279551.56
102.20	2.552 ac/ft	281207.41
102.30	3.199 ac/ft	282863.25
102.40	3.851 ac/ft	284519.09
102.50	4.506 ac/ft	286174.97
102.60	5.164 ac/ft	287830.81
102.70	5.827 ac/ft	289486.66
102.80	6.494 ac/ft	291142.50
102.90	7.164 ac/ft	292798.38
103.00	7.838 ac/ft	294454.22
103.10	8.516 ac/ft	296110.06
103.20	9.197 ac/ft	297765.91
103.30	9.883 ac/ft	299421.78
103.40	10.572 ac/ft	301077.63
103.50	11.265 ac/ft	302733.47
103.60	11.962 ac/ft	304389.31
103.70	12.663 ac/ft	306045.19
103.80	13.367 ac/ft	307701.03
103.90	14.075 ac/ft	309356.88
104.00	14.788 ac/ft	311012.72
104.10	15.503 ac/ft	312668.59
104.20	16.223 ac/ft	314324.44
104.30	16.947 ac/ft	315980.28
104.40	17.674 ac/ft	317636.13
104.50	18.405 ac/ft	319292.00
104.60	19.140 ac/ft	320947.84
104.70	19.879 ac/ft	322603.69
104.80	20.621 ac/ft	324259.53
104.90	21.367 ac/ft	325915.41
105.00	22.117 ac/ft	327571.25

THE VININGS AT CYPRESS POINTE
 (FORMERLY CROW/JOLLEY P.D.)
 PONDS 1, 2 AND 3
 REVISED VOLUME CALCULATIONS

ORM SEWER TABULATION SHEET The Civil Design Group, Inc. Sheet No. 1 of 2
 PROJECT NO. 91-12.1 DATE 23/01/92 COUNTY ORANGE BY M. M. L. 102

LOCATION OF PEER END	TYPE OF STRUCTURE NO.	TYPE OF LINE	LENGTH (FT.)	DRAINAGE AREA (acms)			TIME OF CONC. TRATION MIN.	TIME OF FLOW IN SECTION	INTENSITY	TOTAL (CA)	TOTAL RUNOFF (CFS)	FLOW LINE ELEVATION (FEET)	ELEV. OF H.G. CROWN ELEV. FLOW LINE ELEV.		DIAMETER (IN)	SLOPE (%)	VELOCITY (FPS)	CAPACITY (CFS)	REMARKS
				INCRE. CO.	SUB	TOT							UPPER	LOWER					
1-1	1	1	105	2.51	1.63	1.63	13.0	0.12	7.4	1.03	12.06	106.92	103.66	104.4	0.25	3.84	12.06	C=0.65 K=0.18 h=0.18	
2-3	2	2	65	2.91	1.63	1.63	10.72	0.80	1.63	12.06	105.76	103.66	104.4	0.25	3.84	12.06	C=0.65 K=0.18 h=0.18		
3-4	3	3	132	1.72	1.22	1.22	13.00	1.16	7.4	2.37	105.70	103.66	104.4	0.25	3.84	12.06	C=0.71		
4-5	4	4	75	1.91	1.17	1.17	13.00	0.23	7.4	3.66	105.40	103.66	104.4	0.25	3.84	12.06	C=0.63		
5-6	5	5	132	1.01	1.44	1.44	11.16	0.20	7.1	2.15	105.27	103.66	104.4	0.25	3.84	12.06	C=0.65		
6-7	6	6	122	0.68	0.80	0.80	13.00	0.34	7.4	1.72	105.49	103.66	104.4	0.25	3.84	12.06	C=0.71		
7-8	7	7	142	3.90	0.61	3.33	12.06	0.27	6.9	3.98	107.76	103.66	104.4	0.25	3.84	12.06	C=0.65 K=0.18 h=0.18		

THE CIVIL DESIGN GROUP, INC.

Made by
N. J. LEOD
Checked by

Date
22 Jan 92
Date

Job No. 9112.1
Sheet No.

Calculations For
DRAINAGE AREAS LOT 2 VININGS

DRAINAGE AREA No. 1 = 2.51 ACRES			
BUILDINGS	31,246.09 S.F.	0.726 ACRES	
SIDEWALKS	4,791.32 S.F.	0.110 ACRES	
PAVINGS	25,055.43 S.F.	0.575 ACRES	
POLE DECK	5,715.26 S.F.	0.131 ACRES	
TOTAL IMPERVIOUS DA No. 1		1.602 ACRES	$\times 0.9 = 1.44$
GREEN AREA	29,532.48 S.F.	0.698 ACRES	$\times 0.2 = 0.14$
			<u>1.62</u>
$C = 1.62 \div 2.51 = 0.65$			
DRAINAGE AREA No. 2 = 1.74 ACRES			
BUILDINGS	22,417.15 S.F.	0.515 ACRES	
SIDEWALKS	2,897.78 S.F.	0.067 ACRES	
PAVINGS	20,721.49 S.F.	0.476 ACRES	
POLE DECK	3,098.21 S.F.	0.072 ACRES	
TOTAL IMPERVIOUS DA No. 2		1.129 ACRES	$\times 0.9 = 1.02$
GREEN AREA	21,730.00 S.F.	0.50 ACRES	$\times 0.2 = 0.10$
			<u>1.22</u>
$C = 1.22 \div 1.74 = 0.70$			

THE CIVIL DESIGN GROUP, INC.	Made by N. H. LEON	Date 22 Jan 92	Job No. 9112.1
	Checked by	Date	Sheet No. 2
Calculations For DRAINAGE AREAS LOT 2 VININGS			

DRAINAGE AREA No. 3 =	81,207.49 S.F.	1.86 ACRES	
Buildings	39,854.77 S.F.	0.91 ACRES	
SIDEWALKS	3,103.20 S.F.	0.07 ACRES	
PAVING	4,383.08 S.F.	0.10 ACRES	
TOTAL IMPERVIOUS		1.13 ACRES	X 0.9 = 1.02
GREEN AREA		0.725 ACRES	X 0.2 = 0.15
			1.17
C =	1.17 ÷ 1.86 =	0.63	
DRAINAGE AREA No. 4 =	44,516.49 S.F.	1.01 ACRES	
Buildings	11,883.37 S.F.	0.27 ACRES	
SIDEWALKS	2,975.12 S.F.	0.07 ACRES	
PAVING	13,468.00 S.F.	0.31 ACRES	
TOTAL IMPERVIOUS		0.649 ACRES	X 0.9 = 0.58
GREEN AREA	15,730.80 S.F.	0.36 ACRES	X 0.2 = 0.07
			0.65
C =	0.65 ÷ 1.0 =	0.65	

THE CIVIL DESIGN GROUP, INC.	Made by N. McLeod	Date 23 JAN 92	Job No. 9112.1
	Checked by	Date	Sheet No. 3
Calculations For DRAINAGE AREA LOT 2 VININGS			

DRAINAGE AREA No. 5	0.44 ACRES		
BUILDINGS	3,467.01 SF	0.125 ACRES	
SIDEWALKS	1,608.90 SF	0.038 ACRES	
PAVING	4,774.76 SF	0.110 ACRES	
TOTAL IMPERVIOUS		0.323 ACRES	$\times 0.9 = 0.2907$
GREEN AREA		0.12 ACRES	$\times 0.2 = 0.0240$
$C = 0.3147 - 0.44 = 0.721$			
DRAINAGE AREA No. 6	0.90 ACRES		
BUILDINGS	5,787.8 SF	0.119 ACRES	
SIDEWALKS	2,246.8 SF	0.075 ACRES	
PAVING	18,496.04 SF	0.425 ACRES	
TOTAL IMPERVIOUS		0.62 ACRES	$\times 0.9 = 0.5580$
GREEN AREA		0.28 ACRES	$\times 0.2 = 0.0560$
$C = 0.6140 - 0.90 = 0.68$			

THE CIVIL DESIGN GROUP, INC.	Made by N. M. LEO	Date 23 JAN 92	Job No. 9112.1
	Checked by	Date	Sheet No. 4

Calculations For
DRAINAGE AREAS LOT 2 VININGS

DRAINAGE AREA No.	ACRES		
1	0.29		
BUILDINGS	0.29 ACRES		
SIDEWALKS	∅		
PAVING	∅		
TOTAL IMPERVIOUS	0.29 ACRES	X 0.9 =	0.261
GREEN AREA	0.87 ACRES	X 0.2 =	0.174
			0.435
C.F. 0.435 ÷ 1.16 =			0.37
2	0.7		
BUILDINGS	∅		
SIDEWALKS	∅		
PAVING	0.102 ACRES		
TOTAL IMPERVIOUS	0.102 ACRES	X 0.9 =	0.092
GREEN AREA	0.63 ACRES	X 0.2 =	0.126
			0.218
C.F. 0.218 ÷ 0.17 =			0.63

VININGS AT CYPRESS POINTE/CROW-JOLLEY
 THE CIVIL DESIGN GROUP, INC.
 File Name: 8704PRE Date: 01-25-1992
 Santa Barbara Urban Hydrograph HYDROpac 1 Version 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL RATE	RAINFALL in	RUNOFF in	INSTANT RUNOFF	RUNOFF HYDRO.
0.00	0.000	0.000	0.000	0.00	0.00
0.25	0.001	0.005	0.000	0.00	0.00
0.50	0.001	0.010	0.000	0.00	0.00
0.75	0.002	0.015	0.000	0.00	0.00
1.00	0.002	0.020	0.000	0.00	0.00
1.25	0.003	0.025	0.000	0.00	0.00
1.50	0.004	0.030	0.000	0.00	0.00
1.75	0.005	0.050	0.000	0.00	0.00
2.00	0.008	0.070	0.000	0.00	0.00
2.25	0.010	0.090	0.000	0.00	0.00
2.50	0.013	0.110	0.000	0.00	0.00
2.75	0.017	0.145	0.000	0.00	0.00
3.00	0.021	0.180	0.000	0.00	0.00
3.25	0.027	0.235	0.000	0.00	0.00
3.50	0.034	0.290	0.000	0.00	0.00
3.75	0.041	0.355	0.000	0.00	0.00
4.00	0.049	0.420	0.000	0.00	0.00
4.25	0.059	0.507	0.000	0.00	0.00
4.50	0.070	0.600	0.004	1.12	0.04
4.75	0.080	0.690	0.013	2.78	0.18
5.00	0.091	0.780	0.028	4.28	0.42
5.25	0.102	0.875	0.049	6.01	0.76
5.50	0.113	0.970	0.074	7.39	1.19
5.75	0.124	1.070	0.106	9.10	1.69
6.00	0.136	1.170	0.141	10.34	2.27
6.25	0.159	1.370	0.225	24.10	3.35
6.50	0.183	1.570	0.321	27.92	4.98
6.75	0.209	1.800	0.445	35.90	6.91
7.00	0.236	2.030	0.581	39.40	9.13
7.25	0.270	2.320	0.767	53.94	11.83
7.50	0.303	2.610	0.966	57.74	14.99
7.75	0.345	2.965	1.224	74.76	18.68
8.00	0.386	3.320	1.495	78.51	22.85
8.25	0.438	3.765	1.849	102.73	27.73
8.50	0.489	4.210	2.216	106.50	33.26
8.75	0.541	4.655	2.594	109.51	38.64
9.00	0.593	5.100	2.980	111.96	43.82
9.25	0.630	5.415	3.255	80.53	47.59
9.50	0.666	5.730	3.539	81.42	50.00
9.75	0.701	6.030	3.808	78.14	52.14
10.00	0.736	6.330	4.080	78.77	54.03
10.25	0.754	6.485	4.221	41.02	54.45
10.50	0.772	6.640	4.363	41.17	53.49
10.75	0.791	6.800	4.510	42.56	52.66
11.00	0.809	6.960	4.658	42.70	51.94
11.25	0.821	7.060	4.750	26.81	50.70
11.50	0.833	7.160	4.843	26.86	48.98
11.75	0.843	7.250	4.926	24.13	47.29
12.00	0.854	7.340	5.009	24.17	45.63

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VININGS AT CYPRESS POINTE/CROW-JOLLEY
 THE CIVIL DESIGN GROUP, INC.
 File Name:8704PRE Date:01-25-1992
 Santa Barbara Urban Hydrograph HYDROpac 1 Version 2.00
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TIME hr	RAINFALL RATIO	RAINFALL in	RUNOFF in	INSTANT RUNOFF	RUNOFF HYDRO.
12.25	0.865	7.435	5.098	25.60	44.14
12.50	0.876	7.530	5.186	25.64	42.80
12.75	0.887	7.625	5.275	25.67	41.57
13.00	0.898	7.720	5.363	25.71	40.43
13.25	0.905	7.785	5.424	17.59	39.08
13.50	0.913	7.850	5.485	17.60	37.53
13.75	0.920	7.910	5.541	16.22	36.05
14.00	0.927	7.970	5.597	16.23	34.62
14.25	0.930	7.995	5.620	6.89	32.96
14.50	0.933	8.020	5.644	6.90	31.09
14.75	0.936	8.050	5.672	8.07	29.39
15.00	0.939	8.080	5.700	8.07	27.86
15.25	0.942	8.100	5.719	5.50	26.34
15.50	0.944	8.120	5.738	5.50	24.84
15.75	0.947	8.140	5.756	5.39	23.44
16.00	0.949	8.160	5.775	5.39	22.15
16.25	0.951	8.180	5.794	5.51	20.94
16.50	0.953	8.200	5.813	5.51	19.83
16.75	0.956	8.220	5.831	5.39	18.80
17.00	0.958	8.240	5.850	5.39	17.83
17.25	0.960	8.260	5.869	5.51	16.94
17.50	0.963	8.280	5.888	5.51	16.12
17.75	0.965	8.300	5.907	5.40	15.35
18.00	0.967	8.320	5.925	5.40	14.64
18.25	0.970	8.340	5.944	5.52	13.98
18.50	0.972	8.360	5.963	5.52	13.37
18.75	0.974	8.375	5.978	4.11	12.75
19.00	0.976	8.390	5.992	4.11	12.13
19.25	0.977	8.405	6.006	4.11	11.55
19.50	0.979	8.420	6.020	4.11	11.02
19.75	0.981	8.435	6.034	1.11	10.52
20.00	0.983	8.450	6.048	1.11	10.06
20.25	0.984	8.460	6.058	1.70	9.58
20.50	0.985	8.470	6.067	2.70	9.09
20.75	0.987	8.485	6.081	4.11	8.68
21.00	0.988	8.500	6.095	4.12	8.35
21.25	0.989	8.505	6.100	1.29	7.94
21.50	0.989	8.510	6.104	1.29	7.47
21.75	0.991	8.525	6.119	4.12	7.12
22.00	0.993	8.540	6.133	4.12	6.91
22.25	0.994	8.550	6.142	2.71	6.66
22.50	0.995	8.560	6.151	2.71	6.37
22.75	0.997	8.570	6.161	2.82	6.11
23.00	0.998	8.580	6.171	2.82	5.88
23.25	0.998	8.585	6.175	1.29	5.60
23.50	0.999	8.590	6.180	1.29	5.29
23.75	0.999	8.595	6.185	1.41	5.01
24.00	1.000	8.600	6.190	1.41	4.75

VININGS AT CYPRESS POINTE/CROW-JOLLEY
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RESULTS

Total Runoff. : 37.39 ac/ft
Time of Peak Discharge. . . : 10.25 hrs
Peak Discharge. : 54.45 cfs

COMPUTED USING THE FOLLOWING

Drainage Area. 72.48 acres
Soil Storage 2.50 inches
Cn No. 80.00
Time of Concentration. . 3.35 hours
Rainfall 8.60 inches
Duration 72.000 hours
Using ORANGE COUNTY Distribution
Routing Coefficient. . . 0.04

COMMENTS:

PRE DEVELOPMENT FLOOD HYDROGRAPH
FOR 25 YEAR 24 HOUR DESIGN STORM
ORANGE COUNTY DISTRIBUTION
ORIGINAL DRAINAGE CALCULATIONS

VININGS AT CYPRESS POINTE/CROW-JOLLEY
 THE CIVIL DESIGN GROUP, INC.
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TIME hr	RAINFALL RATIO	RAINFALL in	RUNOFF in	INSTANT RUNOFF	RUNOFF HYDRO.
0.00	0.000	0.000	0.000	0.00	0.00
0.25	0.001	0.005	0.000	0.00	0.00
0.50	0.001	0.010	0.000	0.00	0.00
0.75	0.002	0.015	0.000	0.00	0.00
1.00	0.002	0.020	0.000	0.00	0.00
1.25	0.003	0.025	0.000	0.00	0.00
1.50	0.004	0.030	0.000	0.00	0.00
1.75	0.006	0.050	0.000	0.00	0.00
2.00	0.008	0.070	0.000	0.00	0.00
2.25	0.010	0.090	0.000	0.00	0.00
2.50	0.013	0.110	0.000	0.00	0.00
2.75	0.017	0.145	0.002	0.53	0.11
3.00	0.021	0.180	0.007	1.59	0.49
3.25	0.027	0.235	0.022	4.28	1.47
3.50	0.034	0.290	0.043	6.02	2.94
3.75	0.041	0.355	0.073	8.86	4.74
4.00	0.049	0.420	0.109	10.35	6.69
4.25	0.059	0.507	0.163	15.65	9.21
4.50	0.070	0.600	0.227	18.66	12.39
4.75	0.080	0.690	0.294	19.21	15.01
5.00	0.091	0.780	0.363	20.21	16.89
5.25	0.102	0.875	0.440	22.23	18.62
5.50	0.113	0.970	0.519	22.95	20.21
5.75	0.124	1.070	0.604	24.71	21.66
6.00	0.136	1.170	0.691	25.23	22.98
6.25	0.159	1.370	0.870	51.90	29.21
6.50	0.183	1.570	1.054	53.13	38.53
6.75	0.209	1.800	1.267	61.97	46.14
7.00	0.236	2.030	1.484	62.32	52.64
7.25	0.270	2.320	1.761	80.30	60.21
7.50	0.303	2.610	2.041	81.03	68.39
7.75	0.345	2.965	2.385	99.76	77.19
8.00	0.386	3.320	2.731	100.34	86.34
8.25	0.438	3.765	3.167	126.48	97.17
8.50	0.489	4.210	3.605	126.97	108.99
8.75	0.541	4.655	4.044	127.33	116.25
9.00	0.593	5.100	4.484	127.60	120.74
9.25	0.630	5.415	4.796	90.50	116.06
9.50	0.666	5.730	5.109	90.59	105.85
9.75	0.701	6.030	5.406	86.21	98.87
10.00	0.736	6.330	5.704	86.27	93.02
10.25	0.754	6.485	5.858	44.70	82.49
10.50	0.772	6.640	6.012	44.72	67.38
10.75	0.791	6.800	6.171	46.09	58.59
11.00	0.809	6.960	6.330	46.10	53.59
11.25	0.821	7.060	6.430	28.88	47.15
11.50	0.833	7.160	6.530	28.89	39.85
11.75	0.843	7.250	6.619	25.92	34.87
12.00	0.854	7.340	6.708	25.92	31.29

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 Santa Barbara Urban Hydrograph HYDROpac 1 Version 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL RATIO	RAINFALL in	RUNOFF in	INSTANT RUNOFF	RUNOFF HYDRO.
12.25	0.865	7.435	6.803	27.41	29.44
12.50	0.876	7.530	6.897	27.41	28.63
12.75	0.887	7.625	6.992	27.42	28.14
13.00	0.898	7.720	7.087	27.42	27.85
13.25	0.905	7.785	7.151	18.74	25.94
13.50	0.913	7.850	7.216	18.74	23.06
13.75	0.920	7.910	7.275	17.25	21.03
14.00	0.927	7.970	7.335	17.25	19.52
14.25	0.930	7.995	7.360	7.32	16.63
14.50	0.933	8.020	7.385	7.32	12.91
14.75	0.936	8.050	7.415	8.56	10.92
15.00	0.939	8.080	7.444	8.56	9.98
15.25	0.942	8.100	7.465	5.83	8.87
15.50	0.944	8.120	7.485	5.83	7.65
15.75	0.947	8.140	7.504	5.71	6.90
16.00	0.949	8.160	7.524	5.71	6.42
16.25	0.951	8.180	7.544	5.83	6.16
16.50	0.953	8.200	7.564	5.83	6.03
16.75	0.956	8.220	7.584	5.71	5.93
17.00	0.958	8.240	7.604	5.71	5.84
17.25	0.960	8.260	7.624	5.84	5.81
17.50	0.963	8.280	7.644	5.84	5.82
17.75	0.965	8.300	7.664	5.71	5.80
18.00	0.967	8.320	7.683	5.71	5.77
18.25	0.970	8.340	7.704	5.84	5.77
18.50	0.972	8.360	7.724	5.84	5.80
18.75	0.974	8.375	7.739	4.35	5.51
19.00	0.976	8.390	7.754	4.35	5.05
19.25	0.977	8.405	7.769	4.35	4.77
19.50	0.979	8.420	7.784	4.35	4.60
19.75	0.981	8.435	7.799	4.35	4.50
20.00	0.983	8.450	7.814	4.35	4.44
20.25	0.984	8.460	7.823	2.86	4.10
20.50	0.985	8.470	7.833	2.86	3.60
20.75	0.987	8.485	7.848	4.35	3.60
21.00	0.988	8.500	7.863	4.35	3.90
21.25	0.989	8.505	7.868	1.37	3.48
21.50	0.989	8.510	7.873	1.37	2.64
21.75	0.991	8.525	7.888	4.35	2.72
22.00	0.993	8.540	7.903	4.35	3.37
22.25	0.994	8.550	7.913	2.86	3.46
22.50	0.995	8.560	7.922	2.86	3.22
22.75	0.997	8.570	7.933	2.98	3.10
23.00	0.998	8.580	7.943	2.98	3.05
23.25	0.998	8.585	7.948	1.37	2.70
23.50	0.999	8.590	7.952	1.37	2.17
23.75	0.999	8.595	7.958	1.49	1.87
24.00	1.000	8.600	7.963	1.49	1.72

VININGS AT CYPRESS POINTE/CROW-JOLLEY
THE CIVIL DESIGN GROUP, INC.
File Name:8704POST Date:01-25-1992
Santa Barbara Urban Hydrograph HYDRopac 1 Version 2.00
By: Russell C. Maynard

RESULTS

Total Runoff. : 48.09 ac/ft
Time of Peak Discharge. . . : 9.00 hrs
Peak Discharge. : 120.74 cfs

COMPUTED USING THE FOLLOWING

Drainage Area. 72.48 acres
Soil Storage 0.56 inches
Cn No. 94.70
Time of Concentration. . . 0.50 hours
Rainfall 8.60 inches
Duration 72.000 hours
Using ORANGE COUNTY Distribution
Routing Coefficient. . . . 0.20

COMMENTS:

POST DEVELOPMENT FLOOD HYDROGRAPH
FOR 25 YEAR 24 HOUR DESIGN STORM
ORANGE COUNTY DISTRIBUTION
ORIGINAL DRAINAGE CALCULATIONS

VININGS AT CYPRESS POINTE/CROW-JOLLEY
 File Name:8704POST Date:01-25-1992
 THE CIVIL DESIGN GROUP, INC.
 Flood Routing HYDRopak 1 Version 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL RATIO	RAINFALL inches	INFLOW cfs	OUTFLOW cfs	STAGE ft
0.00	0.000	0.000	0.000	0.000	101.80
0.25	0.001	0.005	0.000	0.000	101.80
0.50	0.001	0.010	0.000	0.000	101.80
0.75	0.002	0.015	0.000	0.000	101.80
1.00	0.002	0.020	0.000	0.000	101.80
1.25	0.003	0.025	0.000	0.000	101.80
1.50	0.004	0.030	0.000	0.000	101.80
1.75	0.006	0.050	0.030	0.000	101.80
2.00	0.008	0.070	0.000	0.000	101.80
2.25	0.010	0.090	0.000	0.000	101.80
2.50	0.013	0.110	0.000	0.000	101.80
2.75	0.017	0.145	0.106	0.000	101.80
3.00	0.021	0.180	0.487	0.003	101.80
3.25	0.027	0.235	1.467	0.010	101.80
3.50	0.034	0.290	2.941	0.026	101.81
3.75	0.041	0.355	4.741	0.054	101.82
4.00	0.049	0.420	6.686	0.097	101.84
4.25	0.059	0.507	9.211	0.155	101.86
4.50	0.070	0.600	12.388	0.234	101.90
4.75	0.080	0.690	15.006	0.334	101.94
5.00	0.091	0.780	16.887	0.450	101.99
5.25	0.102	0.875	18.621	0.510	102.04
5.50	0.113	0.970	20.208	0.554	102.10
5.75	0.124	1.070	21.656	0.600	102.16
6.00	0.136	1.170	22.981	1.792	102.23
6.25	0.159	1.370	29.214	4.986	102.29
6.50	0.183	1.570	38.534	12.909	102.37
6.75	0.209	1.800	46.140	21.307	102.45
7.00	0.236	2.030	52.643	29.850	102.52
7.25	0.270	2.320	60.211	39.449	102.58
7.50	0.303	2.610	68.393	42.441	102.65
7.75	0.345	2.965	77.194	43.114	102.74
8.00	0.386	3.320	86.336	43.971	102.85
8.25	0.438	3.765	97.166	45.031	102.99
8.50	0.489	4.210	108.989	46.686	103.15
8.75	0.541	4.655	116.252	48.594	103.34
9.00	0.593	5.100	120.736	50.573	103.54
9.25	0.630	5.415	116.061	52.307	103.72
9.50	0.666	5.730	105.854	53.806	103.88
9.75	0.701	6.030	98.873	55.031	104.02
10.00	0.736	6.330	93.820	55.976	104.13
10.25	0.754	6.485	82.487	56.712	104.21
10.50	0.772	6.640	67.376	57.129	104.26
10.75	0.791	6.800	58.588	57.263	104.28
11.00	0.809	6.960	53.592	57.236	104.27
11.25	0.821	7.060	47.153	57.079	104.26
11.50	0.833	7.160	39.846	56.768	104.22
11.75	0.843	7.250	34.868	56.324	104.17
12.00	0.854	7.340	31.288	55.792	104.11

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VININGS AT CYPRESS POINTE/CROW-JOLLEY
 File Name:8704POST Date:01-25-1992
 THE CIVIL DESIGN GROUP, INC.
 Flood Routing HYDROpac 1 Version 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL RATIO	RAINFALL inches	INFLOW cfs	OUTFLOW cfs	STAGE ft
12.25	0.865	7.435	29.439	55.211	104.04
12.50	0.876	7.530	20.628	54.579	103.97
12.75	0.887	7.625	28.143	53.909	103.89
13.00	0.898	7.720	27.853	53.247	103.82
13.25	0.905	7.785	25.943	52.573	103.75
13.50	0.913	7.850	23.061	51.856	103.67
13.75	0.920	7.910	21.034	51.094	103.59
14.00	0.927	7.970	19.521	50.306	103.51
14.25	0.930	7.995	16.627	49.382	103.42
14.50	0.933	8.020	12.905	48.380	103.32
14.75	0.936	8.050	10.921	47.325	103.22
15.00	0.939	8.080	9.978	46.258	103.11
15.25	0.942	8.100	8.867	45.192	103.01
15.50	0.944	8.120	7.654	44.354	102.90
15.75	0.947	8.140	6.901	43.532	102.79
16.00	0.949	8.160	6.425	42.715	102.69
16.25	0.951	8.180	6.164	39.724	102.58
16.50	0.953	8.200	6.032	37.579	102.50
16.75	0.956	8.220	5.928	21.364	102.45
17.00	0.958	8.240	5.841	16.947	102.41
17.25	0.960	8.260	5.814	13.774	102.38
17.50	0.963	8.280	5.822	11.504	102.36
17.75	0.965	8.300	5.803	9.880	102.34
18.00	0.967	8.320	5.766	8.711	102.33
18.25	0.970	8.340	5.769	7.871	102.32
18.50	0.972	8.360	5.796	7.275	102.32
18.75	0.974	8.375	5.514	6.813	102.31
19.00	0.976	8.390	5.046	6.375	102.31
19.25	0.977	8.405	4.766	5.956	102.31
19.50	0.979	8.420	4.598	5.593	102.30
19.75	0.981	8.435	4.497	5.294	102.30
20.00	0.983	8.450	4.437	5.167	102.30
20.25	0.984	8.460	4.102	5.049	102.30
20.50	0.985	8.470	3.604	4.892	102.29
20.75	0.987	8.485	3.603	4.723	102.29
21.00	0.988	8.500	3.900	4.595	102.29
21.25	0.989	8.505	3.483	4.476	102.28
21.50	0.989	8.510	2.636	4.290	102.28
21.75	0.991	8.525	2.724	4.078	102.27
22.00	0.993	8.540	3.373	3.943	102.27
22.25	0.994	8.550	3.464	3.874	102.27
22.50	0.995	8.560	3.221	3.804	102.27
22.75	0.997	8.570	3.100	3.720	102.27
23.00	0.998	8.580	3.052	3.635	102.26
23.25	0.998	8.585	2.701	3.535	102.26
23.50	0.999	8.590	2.167	3.391	102.26
23.75	0.999	8.595	1.071	3.210	102.26
24.00	1.000	8.600	1.719	3.024	102.25

VININGS AT CYPRESS POINTE/CROW-JOLLEY
 File Name:8704POST Date:01-25-1992
 THE CIVIL DESIGN GROUP, INC.
 Flood Routing HYDROPAC 1 Version 2.00
 By: Russell C. Maynard

RESULTS

Maximum Volume Stored. . . : 17.68 ac/ft
 Time of Peak Discharge/El. : 10.75 hrs
 Peak Discharge : 57.26 cfs
 Peak Elevation : 104.28

COMPUTED USING THE FOLLOWING

Drainage Area. 72.48 acres
 Soil Storage 0.56 inches
 Cn No. 94.70
 Time of Concentration. . 0.50 hours
 Rainfall 8.60 inches
 Duration 72 hours
 Using ORANGE COUNTY Distribution
 Routing Coefficient. . . 0.20

NO.	ELEVATION	STORAGE ac/ft	DISCHARGE cfs
1	101.80	0.00	0.00
2	102.00	1.33	0.48
3	102.20	2.68	0.63
4	102.30	3.36	5.26
5	102.50	4.73	27.33
6	102.60	5.42	42.05
7	103.00	8.24	45.11
8	103.50	11.85	50.24
9	104.00	15.56	54.89
10	104.50	19.39	59.18

VININGS AT CYPRESS POINTE/CROW-JOLLEY
File Name: 8704POST Date: 01-25-1992
THE CIVIL DESIGN GROUP, INC.
Flood Routing HYDROpac 1 Version 2.00
By: Russell C. Maynard

COMMENTS:

POST DEVELOPMENT FLOOD HYDROGRAPH
FOR 25 YEAR 24 HOUR DESIGN STORM
ORANGE COUNTY DISTRIBUTION
ORIGINAL DRAINAGE CALCULATIONS

CYPRESS POINTE RESORT
 THE CIVIL DESIGN GROUP, INC.
 File Name: 9112POST Date: 01-26-1992
 Santa Barbara Urban Hydrograph HYDROpac 1 Version 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL RATIO	RAINFALL in	RUNOFF in	INSTANT RUNOFF	RUNOFF HYDRO.
0.00	0.000	0.000	0.000	0.00	0.00
0.25	0.001	0.005	0.000	0.00	0.00
0.50	0.001	0.010	0.000	0.00	0.00
0.75	0.002	0.015	0.000	0.00	0.00
1.00	0.002	0.020	0.000	0.00	0.00
1.25	0.003	0.025	0.000	0.00	0.00
1.50	0.004	0.030	0.000	0.00	0.00
1.75	0.006	0.050	0.000	0.00	0.00
2.00	0.008	0.070	0.000	0.00	0.00
2.25	0.010	0.090	0.000	0.00	0.00
2.50	0.013	0.110	0.000	0.00	0.00
2.75	0.017	0.145	0.060	0.00	0.00
3.00	0.021	0.180	0.000	0.00	0.00
3.25	0.027	0.235	0.000	0.00	0.00
3.50	0.034	0.290	0.000	0.00	0.00
3.75	0.041	0.355	0.000	0.00	0.00
4.00	0.049	0.420	0.000	0.00	0.00
4.25	0.059	0.507	0.000	0.00	0.00
4.50	0.070	0.600	0.003	0.85	0.17
4.75	0.080	0.690	0.012	2.51	0.77
5.00	0.091	0.780	0.025	4.00	1.77
5.25	0.102	0.875	0.045	5.71	3.00
5.50	0.113	0.970	0.070	7.08	4.36
5.75	0.124	1.070	0.103	8.78	5.79
6.00	0.136	1.170	0.134	10.03	7.23
6.25	0.159	1.370	0.215	23.48	11.04
6.50	0.183	1.570	0.310	27.31	16.78
6.75	0.209	1.800	0.431	35.24	22.58
7.00	0.236	2.030	0.565	38.77	28.35
7.25	0.270	2.320	0.748	53.19	35.40
7.50	0.303	2.610	0.945	57.04	43.29
7.75	0.345	2.965	1.200	73.98	52.18
8.00	0.386	3.320	1.469	77.80	61.66
8.25	0.438	3.765	1.820	101.93	72.94
8.50	0.489	4.210	2.185	105.78	85.31
8.75	0.541	4.655	2.560	108.87	94.11
9.00	0.593	5.100	2.945	111.38	100.52
9.25	0.630	5.415	3.221	80.15	98.62
9.50	0.666	5.730	3.501	81.06	91.41
9.75	0.701	6.030	3.769	77.03	86.63
10.00	0.736	6.330	4.040	78.46	83.24
10.25	0.754	6.485	4.181	40.88	73.81
10.50	0.772	6.640	4.322	41.03	60.67
10.75	0.791	6.800	4.469	42.42	53.09
11.00	0.809	6.960	4.616	42.56	48.85
11.25	0.821	7.060	4.708	26.73	43.17
11.50	0.833	7.160	4.800	26.78	36.60
11.75	0.843	7.250	4.883	24.06	32.13
12.00	0.854	7.340	4.966	24.10	28.91

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CYPRESS POINTE RESORT
 THE CIVIL DESIGN GROUP, INC.
 File Name:9112POST Date:01-26-1992
 Santa Barbara Urban Hydrograph HYDROpac 1 Version: 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL RATIO	RAINFALL in	RUNOFF in	INSTANT RUNOFF	RUNOFF HYDRO.
12.25	0.865	7.435	5.054	25.52	27.27
12.50	0.876	7.530	5.142	25.56	26.58
12.75	0.887	7.625	5.231	25.60	26.18
13.00	0.898	7.720	5.319	25.64	25.96
13.25	0.905	7.785	5.380	17.54	24.21
13.50	0.913	7.850	5.440	17.56	21.55
13.75	0.920	7.910	5.496	16.18	19.67
14.00	0.927	7.970	5.552	16.19	18.28
14.25	0.930	7.995	5.576	6.88	15.58
14.50	0.933	8.020	5.599	6.88	12.10
14.75	0.936	8.050	5.627	8.05	10.24
15.00	0.939	8.080	5.655	8.05	9.37
15.25	0.942	8.100	5.674	5.49	8.33
15.50	0.944	8.120	5.693	5.49	7.19
15.75	0.947	8.140	5.711	5.37	6.49
16.00	0.949	8.160	5.730	5.37	6.04
16.25	0.951	8.180	5.749	5.49	5.80
16.50	0.953	8.200	5.768	5.49	5.68
16.75	0.956	8.220	5.786	5.38	5.58
17.00	0.958	8.240	5.805	5.38	5.50
17.25	0.960	8.260	5.824	5.50	5.47
17.50	0.963	8.280	5.843	5.50	5.48
17.75	0.965	8.300	5.861	5.38	5.47
18.00	0.967	8.320	5.880	5.38	5.43
18.25	0.970	8.340	5.899	5.50	5.44
18.50	0.972	8.360	5.918	5.50	5.46
18.75	0.974	8.375	5.932	4.10	5.20
19.00	0.976	8.390	5.946	4.10	4.76
19.25	0.977	8.405	5.960	4.10	4.50
19.50	0.979	8.420	5.974	4.10	4.34
19.75	0.981	8.435	5.988	4.10	4.24
20.00	0.983	8.450	6.003	4.10	4.19
20.25	0.984	8.460	6.012	2.70	3.87
20.50	0.985	8.470	6.021	2.70	3.40
20.75	0.987	8.485	6.035	4.11	3.40
21.00	0.988	8.500	6.050	4.11	3.68
21.25	0.989	8.505	6.054	1.29	3.29
21.50	0.989	8.510	6.058	1.29	2.49
21.75	0.991	8.525	6.073	4.11	2.57
22.00	0.993	8.540	6.087	4.11	3.19
22.25	0.994	8.550	6.096	2.70	3.27
22.50	0.995	8.560	6.105	2.70	3.04
22.75	0.997	8.570	6.115	2.82	2.93
23.00	0.998	8.580	6.125	2.82	2.89
23.25	0.998	8.585	6.129	1.29	2.55
23.50	0.999	8.590	6.134	1.29	2.05
23.75	0.999	8.595	6.139	1.41	1.77
24.00	1.000	8.600	6.143	1.41	1.63

CYPRESS POINTE RESORT
THE CIVIL DESIGN GROUP, INC.
File Name: 9112POST Date: 01-26-1992
Santa Barbara Urban Hydrograph HYDROPac 1 Version 2.00
By: Russell C. Maynard

RESULTS

Total Runoff. : 37.11 ac/ft
Time of Peak Discharge. . . : 9.00 hrs
Peak Discharge. : 100.52 cfs

COMPUTED USING THE FOLLOWING

Drainage Area. 72.48 acres
Soil Storage 2.56 inches
Cn No. 79.62
Time of Concentration. . . 6.50 hours
Rainfall 8.60 inches
Duration. \$72.000 hours
Using ORANGE COUNTY Distribution
Routing Coefficient. . . . 0.20

COMMENTS:

POST DEVELOPMENT FLOOD HYDROGRAPH
FOR 25 YEAR 24 HOUR DESIGN STORM

CYPRESS POINTE RESORT
 File Name: 9112POST Date: 01-26-1992
 THE CIVIL DESIGN GROUP, INC.
 Flood Routing HYDROpac 1 Version 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL Ratio	RAINFALL inches	INFLOW cfs	OUTFLOW cfs	STAGE ft
0.00	0.000	0.000	0.000	0.000	101.80
0.25	0.001	0.005	0.000	0.000	101.80
0.50	0.001	0.010	0.000	0.000	101.80
0.75	0.002	0.015	0.000	0.000	101.80
1.00	0.002	0.020	0.000	0.000	101.80
1.25	0.003	0.025	0.000	0.000	101.80
1.50	0.004	0.030	0.000	0.000	101.80
1.75	0.006	0.050	0.000	0.000	101.80
2.00	0.008	0.070	0.000	0.000	101.80
2.25	0.010	0.090	0.000	0.000	101.80
2.50	0.013	0.110	0.000	0.000	101.80
2.75	0.017	0.145	0.000	0.000	101.80
3.00	0.021	0.180	0.000	0.000	101.80
3.25	0.027	0.235	0.000	0.000	101.80
3.50	0.034	0.290	0.000	0.000	101.80
3.75	0.041	0.355	0.000	0.000	101.80
4.00	0.049	0.420	0.000	0.000	101.80
4.25	0.059	0.507	0.000	0.000	101.80
4.50	0.070	0.600	0.171	0.001	101.80
4.75	0.080	0.690	0.771	0.004	101.80
5.00	0.091	0.780	1.767	0.014	101.81
5.25	0.102	0.875	3.003	0.033	101.81
5.50	0.113	0.970	4.360	0.061	101.83
5.75	0.124	1.070	5.789	0.100	101.84
6.00	0.136	1.170	7.235	0.150	101.86
6.25	0.159	1.370	11.042	0.220	101.89
6.50	0.183	1.570	16.782	0.327	101.94
6.75	0.209	1.800	22.579	0.478	102.00
7.00	0.236	2.030	28.348	0.539	102.08
7.25	0.270	2.320	35.399	0.615	102.18
7.50	0.303	2.610	43.285	5.107	102.30
7.75	0.343	2.965	52.177	17.591	102.41
8.00	0.386	3.320	61.662	28.014	102.52
8.25	0.438	3.765	72.942	32.119	102.63
8.50	0.489	4.210	85.307	37.031	102.77
8.75	0.541	4.655	94.114	42.535	102.93
9.00	0.593	5.100	100.518	46.028	103.09
9.25	0.630	5.415	98.617	47.659	103.25
9.50	0.666	5.730	91.414	49.101	103.39
9.75	0.701	6.030	86.627	50.308	103.51
10.00	0.736	6.330	83.237	51.239	103.61
10.25	0.754	6.485	73.813	51.974	103.69
10.50	0.772	6.640	60.669	52.384	103.73
10.75	0.791	6.800	53.091	52.505	103.74
11.00	0.809	6.960	48.851	52.464	103.74
11.25	0.821	7.060	43.169	52.290	103.72
11.50	0.833	7.160	36.602	51.957	103.68
11.75	0.843	7.250	32.129	51.483	103.63
12.00	0.854	7.340	28.909	50.919	103.57

←←←←←

CYPRESS POINTE RESORT
 File Name: 9112F0ST Date: 01-26-1992
 THE CIVIL DESIGN GROUP, INC.
 Flood Routing HYDROpac 1 Version 2.00
 By: Russell C. Maynard

TIME hr	RAINFALL RATIO	RAINFALL inches	INFLOW cfs	OUTFLOW cfs	STAGE ft
12.25	0.865	7.435	27.270	50.305	103.51
12.50	0.876	7.530	26.579	49.602	103.44
12.75	0.887	7.625	26.181	48.894	103.37
13.00	0.898	7.720	25.957	48.199	103.30
13.25	0.905	7.785	24.210	47.495	103.23
13.50	0.913	7.850	21.546	46.745	103.16
13.75	0.920	7.910	19.674	45.949	103.08
14.00	0.927	7.970	18.278	45.128	103.00
14.25	0.930	7.995	15.580	42.224	102.92
14.50	0.933	8.020	12.099	39.258	102.84
14.75	0.936	8.050	10.245	36.323	102.75
15.00	0.939	8.080	9.366	33.553	102.67
15.25	0.942	8.100	8.327	30.971	102.60
15.50	0.944	8.120	7.191	28.546	102.53
15.75	0.947	8.140	6.486	24.338	102.47
16.00	0.949	8.160	6.041	18.968	102.42
16.25	0.951	8.180	5.797	15.092	102.39
16.50	0.953	8.200	5.675	12.313	102.36
16.75	0.956	8.220	5.579	10.327	102.35
17.00	0.958	8.240	5.499	8.904	102.33
17.25	0.960	8.260	5.475	7.889	102.32
17.50	0.963	8.280	5.484	7.173	102.32
17.75	0.965	8.300	5.467	6.669	102.31
18.00	0.967	8.320	5.433	6.307	102.31
18.25	0.970	8.340	5.437	6.048	102.31
18.50	0.972	8.360	5.464	5.871	102.31
18.75	0.974	8.375	5.199	5.710	102.30
19.00	0.976	8.390	4.759	5.493	102.30
19.25	0.977	8.405	4.496	5.249	102.30
19.50	0.979	8.420	4.338	5.134	102.30
19.75	0.981	8.435	4.244	5.018	102.29
20.00	0.983	8.450	4.188	4.908	102.29
20.25	0.984	8.450	3.873	4.787	102.29
20.50	0.985	8.470	3.402	4.629	102.29
20.75	0.987	8.485	3.402	4.460	102.28
21.00	0.988	8.500	3.683	4.334	102.28
21.25	0.989	8.505	3.289	4.217	102.28
21.50	0.989	8.510	2.490	4.034	102.27
21.75	0.991	8.525	2.573	3.827	102.27
22.00	0.993	8.540	3.187	3.697	102.27
22.25	0.994	8.550	3.274	3.633	102.26
22.50	0.995	8.560	3.044	3.567	102.26
22.75	0.997	8.570	2.930	3.488	102.26
23.00	0.998	8.580	2.885	3.408	102.26
23.25	0.998	8.585	2.553	3.313	102.26
23.50	0.999	8.590	2.049	3.174	102.25
23.75	0.999	8.595	1.769	3.000	102.25
24.00	1.000	8.600	1.625	2.820	102.25

CYPRESS POINTE RESORT
 File Name:9112POST Date:01-26-1992
 THE CIVIL DESIGN GROUP, INC.
 Flood Routing HYDROpac 1 Version 2.00
 By: Russell C. Maynard

RESULTS

Maximum Volume Stored. . . . : 12.98 ac/ft
 Time of Peak Discharge/El. : 10.75 hrs
 Peak Discharge : 52.51 cfs
 Peak Elevation : 103.74

COMPUTED USING THE FOLLOWING

Drainage Area. 72.48 acres
 Soil Storage 2.56 inches
 Cn No. 79.62
 Time of Concentration. . 0.50 hours
 Rainfall 8.60 inches
 Duration 72 hours
 Using ORANGE COUNTY Distribution
 Routing Coefficient. . . 0.20

NO.	ELEVATION	STORAGE ac/ft	DISCHARGE cf.
1	101.80	0.00	0.00
2	102.00	1.27	0.48
3	102.20	2.55	0.63
4	102.30	3.20	5.26
5	102.50	4.51	27.33
6	103.00	7.84	45.11
7	103.50	11.27	50.24
8	104.00	14.79	54.89
9	104.50	18.41	59.18
10	105.00	22.12	62.50

CYPRESS POINTE RESORT
File Name: 9112POST Date: 01-26-1992
THE CIVIL DESIGN GROUP, INC.
Flood Routing HYDROpac I Version 2.00
By: Russell C. Maynard

COMMENTS:

POST DEVELOPMENT FLOOD HYDROGRAPH
FOR 25 YEAR 24 HOUR DESIGN STORM

SECTION V
LEGAL AND INSTITUTIONAL

A. PROOF OF OWNERSHIP:

SEE ITEM V-1 FOR THIS DOCUMENTATION.

B. RESPONSIBLE ENTITIES:

DATA IS SHOWN IN THIS REPORT AS ITEM V-2.

C. UTILITIES:

THIS PERMIT APPLICATION IS FOR A MODIFICATION TO AN EXISTING STORM WATER MANAGEMENT PERMIT.

DATA ON WATER SERVICE AVAILABLE IS PROVIDED AS ITEM V-3.

DATA ON SEWER SERVICE AVAILABLE IS PROVIDED AS ITEM V-4.

D. RECEIVING BODIES:

NONE ARE PART OF THIS SUBMITTAL PACKAGE.

E. LAND USE:

LAND USE TABLE AND EXHIBIT IS PROVIDED AS ITEM V-7.

F. DEVELOPMENT OF REGIONAL IMPACT (D.R.I.):

NONE ARE PART OF THIS SUBMITTAL PACKAGE.

G. BOUNDARY SURVEY:

DATA IS PROVIDED AS ITEM V-9.

THE VININGS AT CYPRESS POINTE

LOT 6 DRI

Project Synopsis

SCANNED

THE VININGS AT CYPRESS POINTE / LOT 6 DRI

HISTORY

The Vinings at Cypress Pointe PD is an approved, currency vested, mixed-use tourist commercial planned development which was approved by Orange County on November 17, 1987. See rezoning conditions of approval attached as Appendix A. The current land uses approved for the Vinings at Cypress Pointe are below all applicable DRI thresholds. A land use change proposed for Lot 6 of the Vinings at Cypress Pointe (from 88,000 square feet of retail commercial to 500 hotel rooms in one or more conventional or suite-type hotels) necessitates a DRI Review under current DRI thresholds.

The Florida Department of Community Affairs and the applicant, TCR Orlando II, Limited Partnership (Trammal Crow Residential), have entered into a Development Agreement pursuant to Florida Statute 380.032 to facilitate the review of a Development of Regional Impact Application for Development Approval for the development of 500 hotel rooms in one or more conventional or suite-type hotels on Lot 6 of the Vinings at Cypress Pointe.

The Development Agreement provides that the entire Vinings at Cypress Pointe PD shall be subject to DRI Review, but that the development of Lot 6 alone shall be subject to the terms, and conditions of the development order for the project. Under the terms of the Development Agreement, the remaining parcels within the Vinings of Cypress Pointe can continue to be developed according to their current conditions of approval regardless of the outcome of the DRI Review. A copy of the executed Development Agreement is attached as Appendix B.

PROJECT DESCRIPTION

The Vinings at Cypress Pointe PD is located west of Interstate 4, approximately 1/2 mile north of the I-4/State Road 535 Intersection near Lake Buena Vista and approximately 800 feet north of the Apopka Vineland Road/State Road 535 Intersection. See Exhibit 1 - General Location Map.

The Vinings at Cypress Pointe PD encompasses a total of 70^{+/-} acres; with approximately 6 acres located on the west side of Apopka Vineland Road and 64^{+/-} acres located on the east side of Apopka Vineland Road. Lake Avenue forms the property's north boundary, east of Apopka Vineland Road.

Adjoining the Vinings at Cypress Pointe to the east and south is the Vista Centre PD a 104^{+/-} acre mixed use tourist commercial development consisting of hotel, resort villa, and commercial retail uses. Directly to the south of Lot 6 of the Vinings at Cypress Pointe is an existing 6 story, 492 room Days Inn Hotel. To the west, on the west side of Apopka Vineland Road is the Buena Vista West Hotel PD/DRI which is approved for the development of a 10 story, 425 room suite-type hotel. See Exhibit 2 - Aerial Photograph.

Located within the International Drive Activity Center recently adopted by Orange County, the Vinings at Cypress Pointe has an Activity Center Mixed Use Land Use Designation that is consistent with both it's approved land use plan and the hotel development which is proposed for Lot 6.

The approved land use plan for the Vinings at Cypress Pointe PD permits the development of 1,000 multifamily units, a 150 room hotel and a total of 100,000 sq. ft. of tourist commercial retail development. Lot 6 is approximately 8.78 acres in size and is approved for 88,000 sq. ft. of tourist commercial retail development. See Exhibit 3 - Current Land Use Plan. The approved land use plan of the Vinings at Cypress Pointe, as described above, has been vested by Orange County for purposes of concurrency. See vested rights certificate attached as Appendix C.

As noted above, the Vinings at Cypress Pointe PD with it's currently approved and vested land use plan is below all applicable DRI Thresholds. A DRI Review is mandated, under current numerical thresholds, by the applicants desire to change the approved land use Lot 6 from it's current 88,000 square feet of tourist commercial retail space to permit the development of a total of 500 hotel rooms in one or more conventional or suite-type hotels. No other land use changes are proposed to be made to the approved land use plan for the Vinings at Cypress Pointe PD.

The proposed change in land use from 88,000 square feet of tourist commercial retail space to a 500 room hotel development has technically created a "DRI level" development under present DRI numerical thresholds, even though the proposed hotel use which is triggering the need for the DRI review will have less impact than the already approved and vested "sub-DRI" development plan.

SITE INFORMATION

The Vinings at Cypress Pointe is substantially developed at this time. The applicant has constructed all offsite road improvements required as rezoning conditions of approval including the 4-laning of Apopka Vineland Road, with provisions made for its eventual 6-laning, from the State Road 535 intersection north to just north of Lake Avenue. In addition, sufficient right-of-way has been dedicated along the property's north boundary to permit the 4-laning of Lake Avenue.

All of the onsite infrastructure improvements (master drainage system, internal road system, sewer lines, water lines, electric to site, etc.) have been constructed to permit the sale and development of individual lots within the PD.

The applicant has sold most of the lots within the development to third parties and presently owns only Lots 3 and 6 which are vacant and undeveloped at this time. The status of the lots within the development is outlined below:

Lot 1. Final site plan approval has been received from Orange County, Development Review Committee to construct a 150 room hotel and related amenities. The building permit application has been submitted to the Orange County Building Department for the hotel.

Except as noted below, Lot 1 originally consisted of pines, palmetto and limited amounts of scrub oak. A portion of Lot 1 has been cleared and is ready for development activity. A small portion of Lot 1 was low-lying and needed to be de-mucked. This portion of Lot 1 was the subject of a mitigation plan which was approved by all applicable regulatory authorities (i.e., the South Florida Water Management District, D.E.R. and Orange County), which mitigation has been completed.

Lot 2. Final site plan approval has been received from Orange County Development Review Committee to construct 190 multi-family units and related amenities. The building permit application has been submitted to the Orange County Building Department for the project. Originally, Lot 2 consisted of a mixture of pines, palmettos and limited amounts of scrub oak. The site has been substantially cleared and fill material for building pad locations has been stockpiled on the site.

Lot 3. Lot 3 is currently undeveloped and is approved for up to 412 multifamily units. Approximately 1/3 (the eastern side) of Lot 3 has been cleared. The balance of the property consists of a mixture of pines, palmettos and scrub oaks.

Lot 4. A 270 unit apartment project has been developed on Lot 4.

Lot 5. A 128 unit multifamily development has been developed on Lot 5.

Lot 6. Lot 6 is presently undeveloped and vacant. Originally, Lot 6 consisted almost exclusively of pines and palmettos (no scrub oaks). Approximately 18 months ago, Lot 6 (and Lot 8) were the subject of vandalism in that a fire was started on Lot 6 and Lot 8 which substantially burned much of the pine and palmetto located thereon.

Lot 7. Lot 7 contains a completed 7,000 square foot Sizzler Restaurant.

Lot 8. The owner of Lot 8 is in the process of filing for approval of a commercial site plan for a 5,000 square foot convenience store. Originally, Lot 8 consisted of pine and palmetto, and it was the subject of the vandalism mentioned above with respect to Lot 6.

SITE ASSESSMENTS

Wetlands

During the property's original rezoning approval process, jurisdictional agency site inspections were conducted by Orange County, the South Florida Water Management District (SFWMD), the U.S. Army Corp of Engineers (ACOE) and the Florida Department of Environmental Regulation (FDER).

To briefly summarize: there are no wetland areas subject to FDER jurisdiction within the entire property (inclusive of Lot 6); under permit agreements with the SFWMD and Orange County minor impacts to a 1 acre isolated wetland were approved, and another isolated cypress wetland was preserved. A Nationwide permit was received from the ACOE for impacts to the isolated wetland. See Breedlove Dennis and Associates summary report attached as Appendix D.

Threatened and Endangered Wildlife and Plant Species

Several thorough site evaluations of the Vinings of Cypress Pointe PD and the project area for potential or actual occurrences of threatened/endangered species have previously been conducted by Breedlove, Dennis and Associates with the result that they find that the potential for any impacts to threatened or endangered species on or adjacent to the project site are minimal or nonexistent. See Breedlove Dennis and Associates summary report attached as Appendix D.

Stormwater Management/100 year Floodplain

A master drainage system for the entire Vinings at Cypress Pointe PD has been designed, constructed and permitted by all applicable regulatory agencies, including Orange County and the South Florida Water Management District (SFWMD).

As documented in the letter from Hugh Lokey of the Civil Design Group attached as Appendix E, the proposed change in land use from 88,000 sq. ft. of retail commercial to the development of 500 hotel rooms will not materially or adversely affect the present, approved stormwater management system.

Transportation

Preliminary traffic calculations by Turgut Dervish of Traffic Planning and Design demonstrate that the development of Lot 6 as a 500 room hotel would generate approximately 70% of the trips that the development of the currently approved and vested 88,000 square feet of tourist commercial retail space would generate. See letter from Turgut Dervish of Traffic Planning and Design attached as Appendix F.

Police

A letter from the Orange County's Sheriff's Department regarding the availability of service and response times is attached as Appendix G.

Fire

A letter from the Orange County Fire Department confirming the location of nearby fire stations and the ability to serve the Vinings at Cypress Pointe PD is attached as Appendix H.

Water

A letter from Orange County Division of Public Utilities confirming the availability of adequate water service capacity to serve the needs of the Vinings at Cypress Pointe PD is attached as Appendix I.

Wastewater

A letter from Orange County Division of Public Utilities confirming the availability of adequate wastewater service capacity to serve the needs of the Vinings at Cypress Pointe PD is attached as Appendix J.

Solid Waste

A letter from Orange County Division of Public Utilities confirming the ability of Orange County to provide solid waste disposal service to the Vinings at Cypress Pointe PD is attached as Appendix K.

Archaeological/Historical

The Division of Historical Resources has verified that there are no historical or archaeological sites within the Vinings at Cypress Pointe PD. See letter from the Division of Historical Resources attached as Appendix L.

DELETION OF ADA QUESTIONS

Deletion of the following ADA Questions is requested based upon the inapplicability of some of the DRI requirements, the documentation that has been provided with the Project Synopsis, and the unique characteristics of this DRI in which the proposed "DRI level" development will have less impact than the currently approved and vested "sub-DRI" level development.

PART III. Environmental Resources Impacts

Question 12 - Vegetation and Wildlife
Question 13 - Wetlands
Question 14 - Water
Question 15 - Soils
Question 16 - Floodplains
Question 17 - Water Supply
Question 18 - Wastewater Management
Question 19 - Stormwater Management
Question 20 - Solid Waste/Hazardous Waste

PART IV. Transportation Resource Impacts

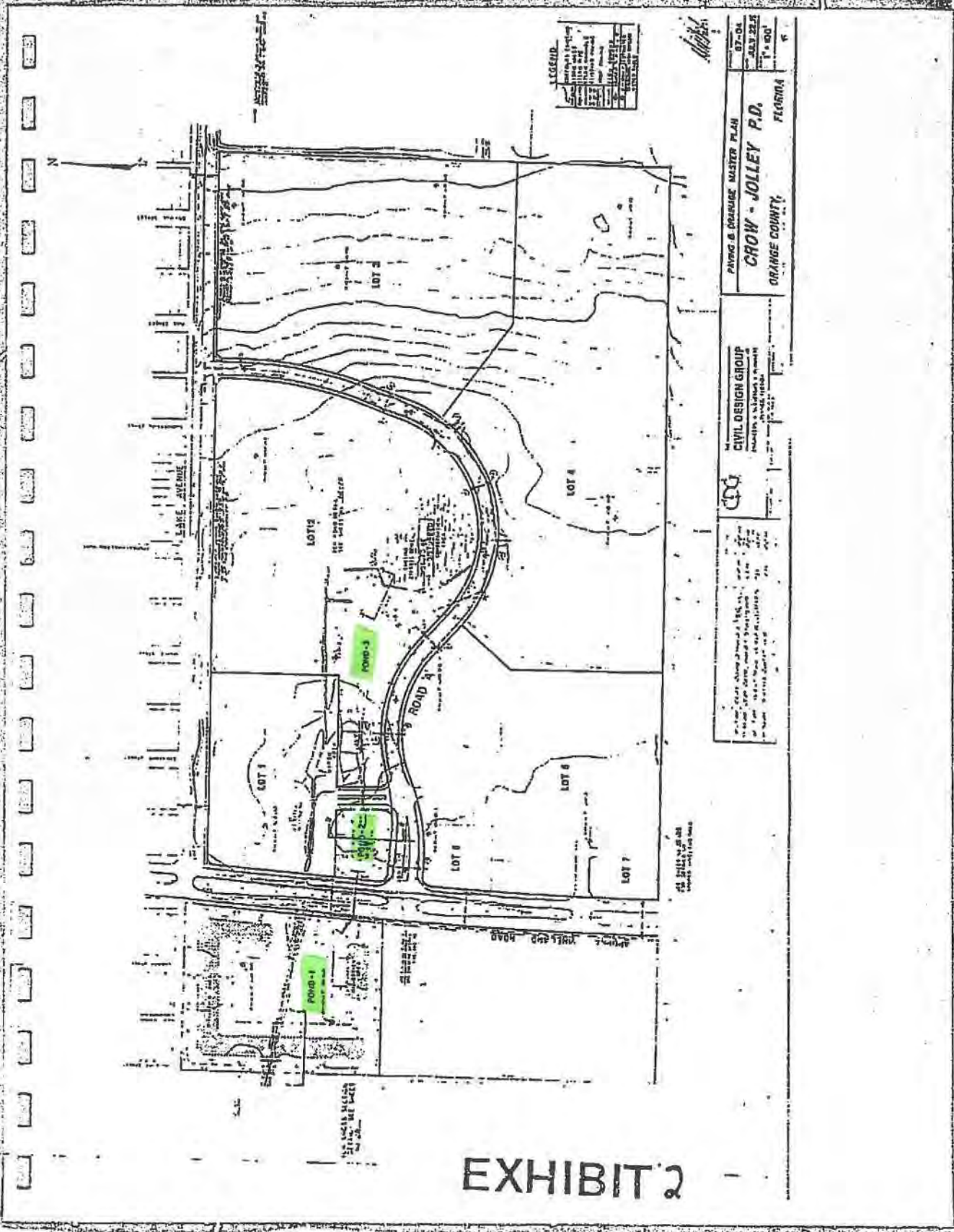
Question 21 - Transportation
Question 22 - Air
Question 23 - Hurricane Preparedness

PART V. Human Resource Impacts

Question 25 - Police and Fire Protection
Question 26 - Recreation and Open Space
Question 27 - Education
Question 28 - Health Care
Question 29 - Energy
Question 30 - Historical and Archaeological Sites

PART VI. Specific DRI Information

Questions 31-38



LEGEND

Proposed Driveway
Proposed Walkway
Proposed Parking Space
Proposed Driveway
Proposed Walkway
Proposed Parking Space
Proposed Driveway
Proposed Walkway
Proposed Parking Space

PARKING & DRAINAGE MASTER PLAN
CROW - JOLLEY P.D.
ORANGE COUNTY, FLORIDA

CIVIL DESIGN GROUP
10000 W. BOULEVARD, SUITE 100
ORANGE, FLORIDA 32837

DATE: 08/14/08
SCALE: AS SHOWN
PROJECT: CROW - JOLLEY P.D.
DRAWN BY: J. JOLLEY
CHECKED BY: J. JOLLEY
APPROVED BY: J. JOLLEY

ALL DIMENSIONS
SHOWN UNLESS NOTED

EXHIBIT 2



DETENTION POND DETAIL
 ST-2
 MAY 21
 CROW - JOLLEY P.D.
 ORANGE COUNTY, FLORIDA

CIVIL DESIGN GROUP
 11500 S. PALM BLVD. SUITE 100
 ORANGE, FL 32837
 (407) 261-1111
 WWW.CROWJOLLEY.COM

EXHIBIT 3

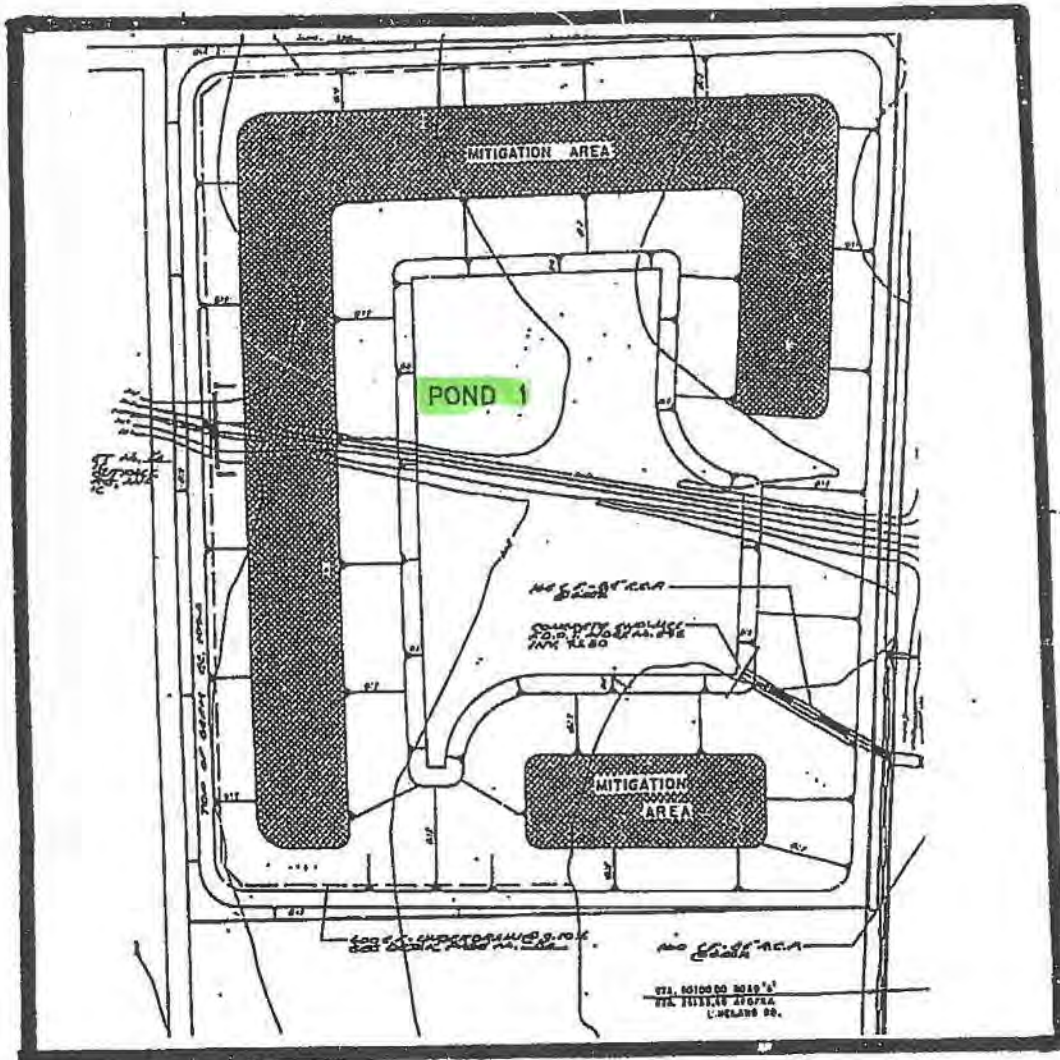


Figure 1
Planting Area

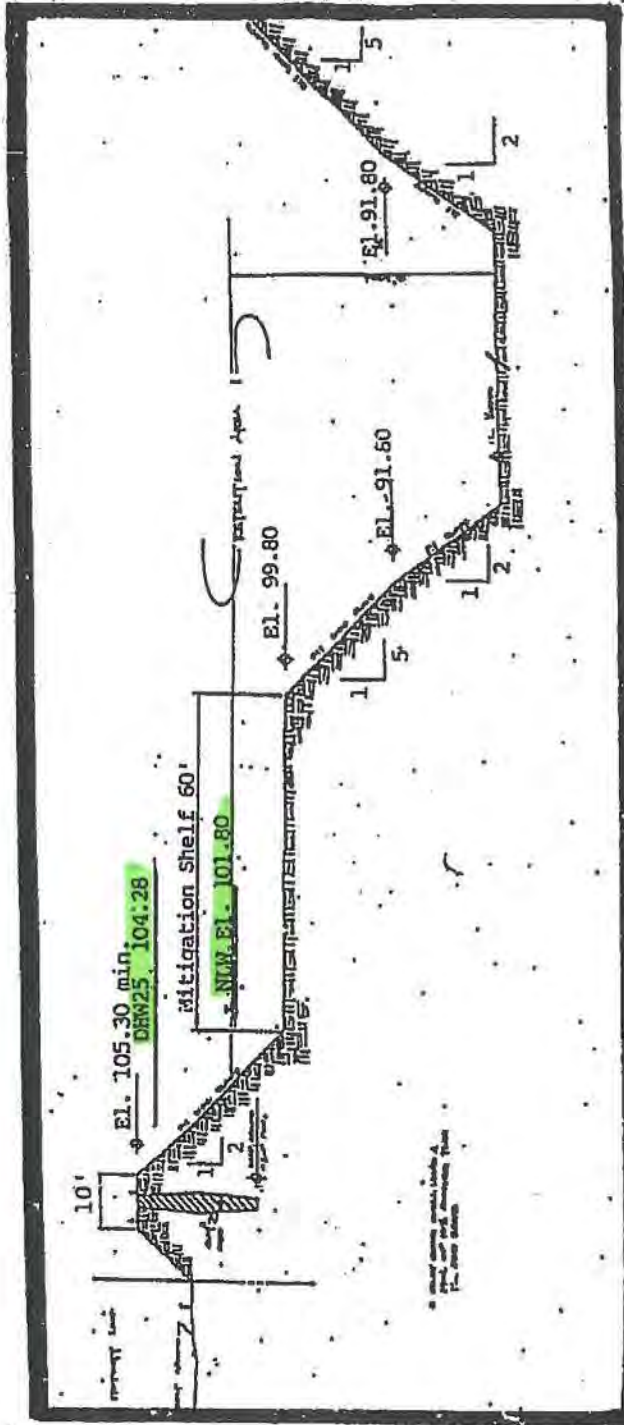


Figure 2
 Typical cross-section of stated elevations

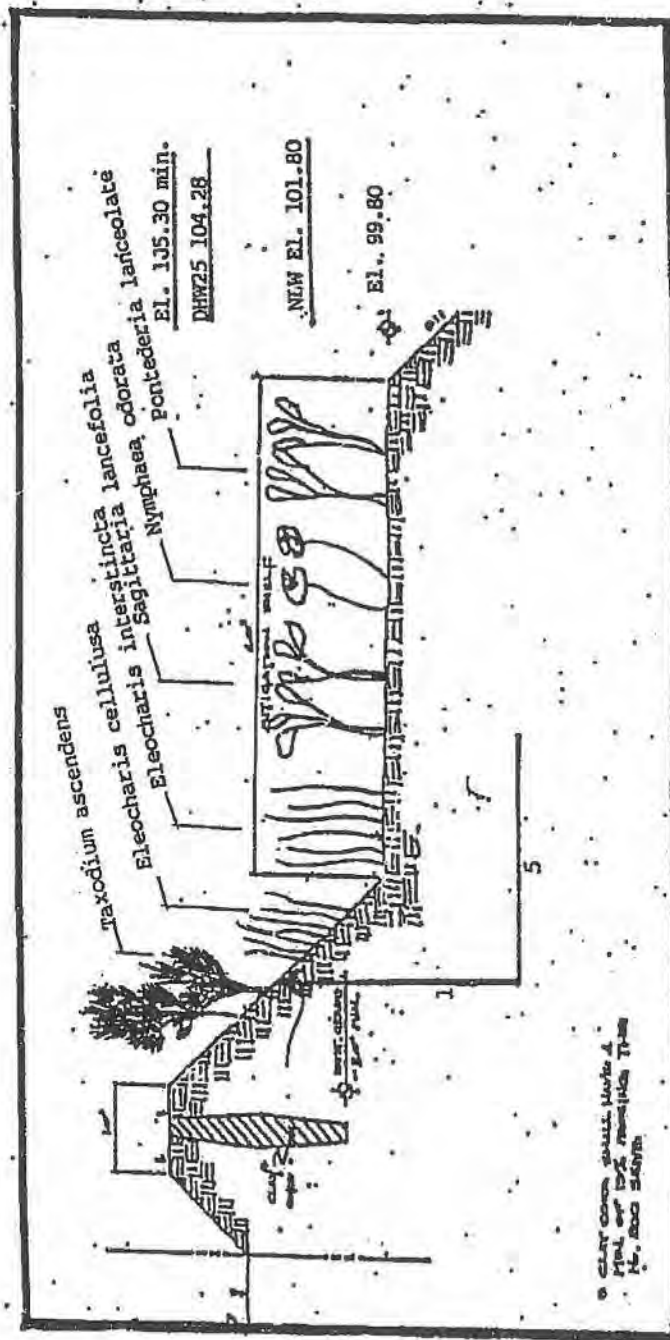
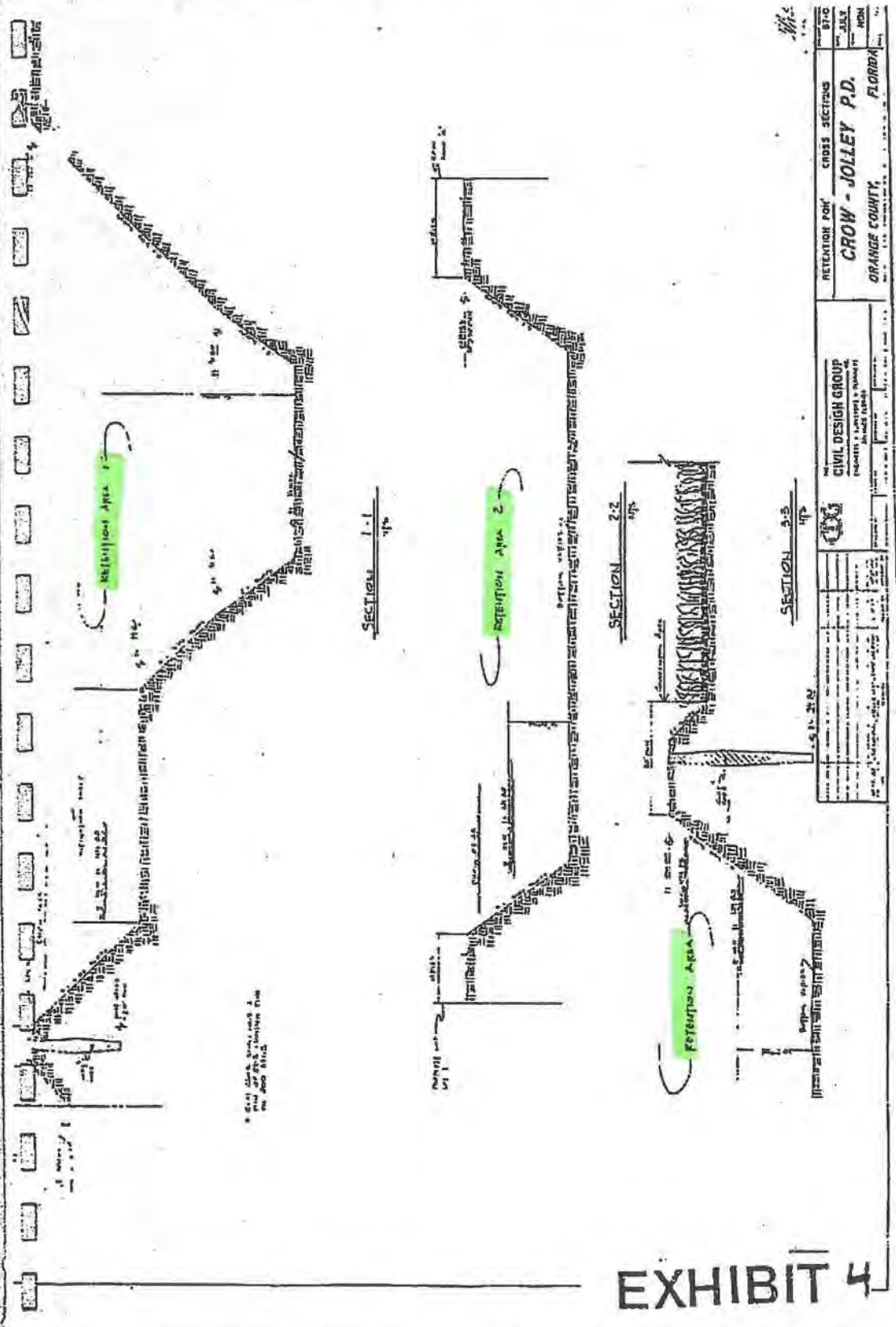
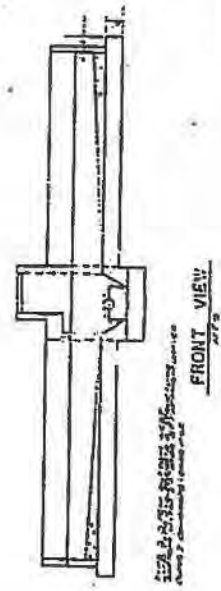
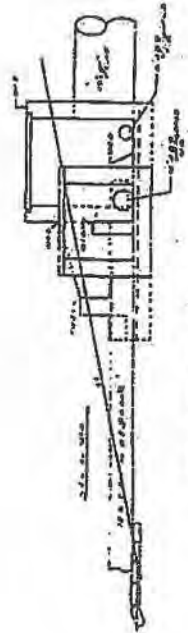
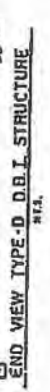
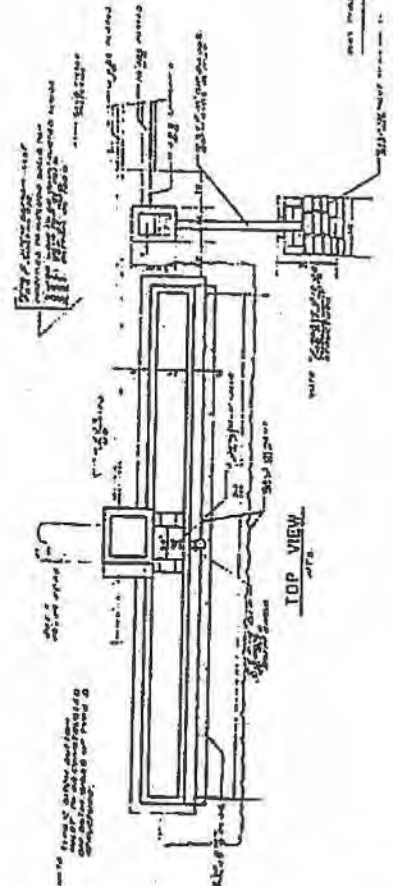
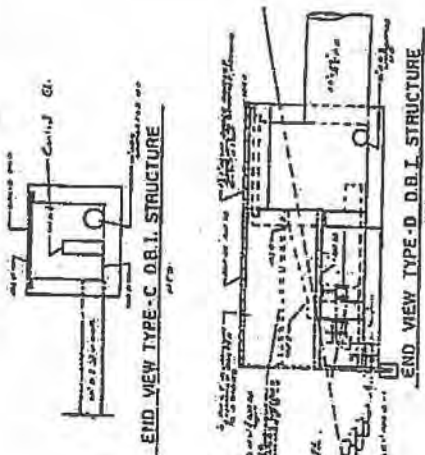
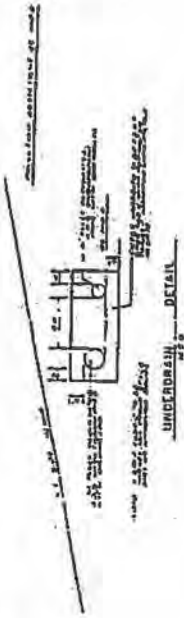


Figure 3
 Cross-section of typical planting locations and centers



RETENTION POND CROSS SECTIONS	
CROW - JOLLEY P.D.	
ORANGE COUNTY, FLORIDA	
CIVIL DESIGN GROUP	DATE: 11/15/2011
PROJECT: 11/15/2011	SCALE: AS SHOWN
DESIGNER: [Signature]	CHECKER: [Signature]
DATE: 11/15/2011	SCALE: AS SHOWN

EXHIBIT 4



OUTFALL STRUCTURE DETAIL	
CROW - JOLLEY P.D.	
ORANGE COUNTY, FLORIDA	
CIVIL DESIGN GROUP	DATE: JULY 23, 1976
DESIGNED BY: [Signature]	DRAWN BY: [Signature]
CHECKED BY: [Signature]	SCALE: AS SHOWN
PROJECT NO. 76-001	SHEET NO. 1 OF 1

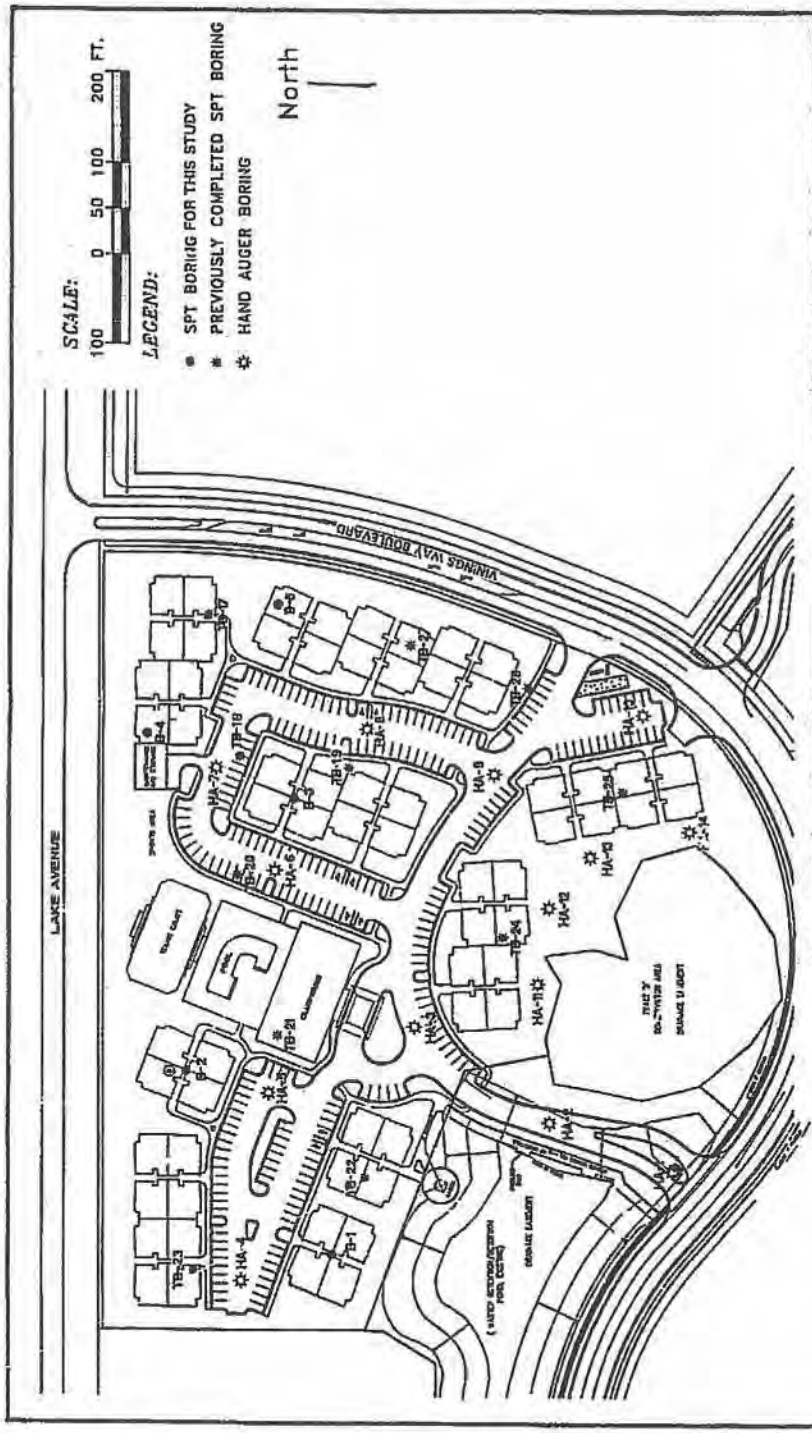
EXHIBIT 5

CORRECTION

THIS DOCUMENT

HAS BEEN REPHOTOGRAPHED

TO ASSURE LEGIBILITY



SCALE: 100 0 50 100 200 FT.

LEGEND:
 ● SPT BORING FOR THIS STUDY
 * PREVIOUSLY COMPLETED SPT BORING
 ☆ HAND AUGER BORING

North

PROJECT NO: 1466
 01-08-92
 CHECKED BY: B.P.M.
 DRAWN BY: K.C.D./D.L.L.

PREPARED FROM A DRAWING PROVIDED BY:
THE CIVIL DESIGN GROUP, INC.

Geotechnical and Environmental Consultants, Inc.
 5210 S. Orange Blossom Trail, Suite 405B
 Orlando, Florida 32808 407/240-0858, FAX 407/240-0782

ESTIMATED INSTRUCTIONS
LOT 2
VINYINGS AT CYPRESS POINTE
 PAGE 1

DRAINAGE CALCULATIONS
LOT 2
VININGS AT CYPRESS POINTE, P.D.

JANUARY, 1992

ITEM IV-13

The original drainage calculations for The Vinings at Cypress Pointe (Formerly Crow/Jolley P.D.) assumed "worst case" conditions for the design of the infrastructure. The average depth to wet season watertable was two feet below ground surface. A CN of 80.0 was used to compute the Pre-development Hydrograph. We assumed an impervious coverage of 70% at build-out. This would result in a CN of 94.7 after development.

At this time, Lots 1, 2, 4, 5 and 7 have been constructed and/or designed. The average impervious coverage on these lots is 54.53%. Lots 3, 6 and 8 have not been designed, so we therefore assumed 70% impervious coverage. This will result in 60.69% impervious lot coverage at build-out. In addition, an average of 2 feet of fill has been placed on the site, increasing the depth to wet season watertable to 4+ feet and thus increasing soil storage (see Table I). These changes from our original assumptions results in a Post-development CN of 79.62. For a detailed project analysis, see Table II.

The approved development plan for this project included an entrance at Sta. 85+42 on Vinings Way Boulevard. This entrance skirts the west side of the conservation area and encroaches on the eastern portion of stormwater retention/detention Pond Number 3. Although this entrance slightly depletes storage in Pond 3, the revised calculations for the overall P.D. demonstrates that this encroachment has no adverse affect upon the master drainage system.

TABLE I
Average Fill Material

Actual Condition

Lot 1	5.08	Ac.	x	3.25	Ft.	=	16.51	Ac.Ft.
Lot 2	10.32	Ac.	x	3.18	Ft.	=	32.62	Ac.Ft.
Lot 4	9.72	Ac.	x	1.70	Ft.	=	16.52	Ac.Ft.
Lot 5	7.16	Ac.	x	1.30	Ft.	=	9.31	Ac.Ft.
Lot 7	1.17	Ac.	x	4.00	Ft.	=	4.68	Ac.Ft.

Assumed Condition

Lot 3	12.43	Ac.	x	1.0	Ft.	=	12.48	Ac.Ft.
Lot 6	8.78	Ac.	x	2.0	Ft.	=	17.56	Ac.Ft.
Lot 8	<u>0.95</u>	Ac.	x	3.0	Ft.	=	<u>2.85</u>	Ac.Ft.
	55.61	Ac.					112.68	Ac.Ft.

Average Fill = 112.68 Ac.Ft./55.61 Ac. = 2.03 Ft.

TABLE II

Actual Conditions

	Area (Acres)	Imperv (Acres)	Perv (Acres)	Depth To Watertable (Feet)	S.S. (Inches)
Lot 1	5.08	3.52	1.56		
Lot 2	10.32	6.56	3.76		
Lot 4	9.72	4.45	5.27	4.0	3.72
Lot 5	7.16	2.93	4.23		
Lot 7	1.17	0.78	0.39		
Ponds @ 104	7.14	7.14	0	0	0
Pond Slopes	1.62	0	1.62	1.0	.045
Conservation Area	1.14	1.14	0	0	0
A-V Road R/W	3.79	2.30	1.49	2	0.74
VW Blvd. R/W	<u>3.18</u>	<u>2.55</u>	<u>0.63</u>	3	0.98
	50.32	31.37	18.95		

Assumed Conditions

Lot 3	12.43	8.70	3.73		
Lot 6	8.78	6.15	2.63	4.0	2.45
Lot 8	<u>0.95</u>	<u>0.66</u>	<u>0.29</u>		
	72.48	45.88	25.60		
		64.68%	35.32%		

Soil Storage = $185.38/72.48 = 2.56$ inches
 Curve Number (CN) = $1000/2.56 = 79.62$

Top Elevation of Pond 105.00
 Top Area 226,347.00 s.f.
 Bottom Elevation of Pond 101.80
 Bottom Area 198,676.00 s.f.

Maximum Volume = 15.611 ac/ft at Elev. 105.00

Elevation	Volume	Area
101.90	0.457 ac/ft	199540.70
102.00	0.916 ac/ft	200405.41
102.10	1.377 ac/ft	201270.13
102.20	1.840 ac/ft	202134.83
102.30	2.305 ac/ft	202999.53
102.40	2.772 ac/ft	203864.23
102.50	3.241 ac/ft	204728.94
102.60	3.712 ac/ft	205593.66
102.70	4.185 ac/ft	206458.36
102.80	4.660 ac/ft	207323.06
102.90	5.137 ac/ft	208187.77
103.00	5.616 ac/ft	209052.47
103.10	6.097 ac/ft	209917.19
103.20	6.580 ac/ft	210781.89
103.30	7.065 ac/ft	211646.59
103.40	7.552 ac/ft	212511.30
103.50	8.040 ac/ft	213376.02
103.60	8.531 ac/ft	214240.72
103.70	9.024 ac/ft	215105.42
103.80	9.519 ac/ft	215970.13
103.90	10.016 ac/ft	216834.83
104.00	10.514 ac/ft	217699.55
104.10	11.015 ac/ft	218564.25
104.20	11.518 ac/ft	219428.95
104.30	12.023 ac/ft	220293.66
104.40	12.529 ac/ft	221158.36
104.50	13.038 ac/ft	222023.08
104.60	13.549 ac/ft	222887.78
104.70	14.061 ac/ft	223752.48
104.80	14.576 ac/ft	224617.19
104.90	15.093 ac/ft	225481.89
105.00	15.611 ac/ft	226346.61

THE VININGS AT CYPRESS POINTE
 (FORMERLY CROW/JOLLEY P.D.)
 POND 1
 ORIGINAL VOLUME CALCULATIONS

Top Elevation of Pond	105.00
Top Area	24,388.00 s.f.
Bottom Elevation of Pond	101.80
Bottom Area	16,245.00 s.f.

Maximum Volume = 1.492 ac/ft at Elev.		105.00
Elevation	101.90	Volume 0.038 ac/ft Area 16499.46
Elevation	102.00	Volume 0.076 ac/ft Area 16753.93
Elevation	102.10	Volume 0.115 ac/ft Area 17008.39
Elevation	102.20	Volume 0.154 ac/ft Area 17262.86
Elevation	102.30	Volume 0.194 ac/ft Area 17517.33
Elevation	102.40	Volume 0.234 ac/ft Area 17771.79
Elevation	102.50	Volume 0.275 ac/ft Area 18026.26
Elevation	102.60	Volume 0.317 ac/ft Area 18280.72
Elevation	102.70	Volume 0.359 ac/ft Area 18535.19
Elevation	102.80	Volume 0.402 ac/ft Area 18789.65
Elevation	102.90	Volume 0.446 ac/ft Area 19044.12
Elevation	103.00	Volume 0.490 ac/ft Area 19298.58
Elevation	103.10	Volume 0.534 ac/ft Area 19553.05
Elevation	103.20	Volume 0.579 ac/ft Area 19807.51
Elevation	103.30	Volume 0.625 ac/ft Area 20061.98
Elevation	103.40	Volume 0.671 ac/ft Area 20316.44
Elevation	103.50	Volume 0.718 ac/ft Area 20570.91
Elevation	103.60	Volume 0.766 ac/ft Area 20825.37
Elevation	103.70	Volume 0.814 ac/ft Area 21079.84
Elevation	103.80	Volume 0.863 ac/ft Area 21334.30
Elevation	103.90	Volume 0.912 ac/ft Area 21588.77
Elevation	104.00	Volume 0.962 ac/ft Area 21843.23
Elevation	104.10	Volume 1.012 ac/ft Area 22097.70
Elevation	104.20	Volume 1.063 ac/ft Area 22352.16
Elevation	104.30	Volume 1.115 ac/ft Area 22606.63
Elevation	104.40	Volume 1.167 ac/ft Area 22861.09
Elevation	104.50	Volume 1.220 ac/ft Area 23115.56
Elevation	104.60	Volume 1.273 ac/ft Area 23370.02
Elevation	104.70	Volume 1.327 ac/ft Area 23624.49
Elevation	104.80	Volume 1.382 ac/ft Area 23878.95
Elevation	104.90	Volume 1.437 ac/ft Area 24133.42
Elevation	105.00	Volume 1.492 ac/ft Area 24387.88

THE VININGS AT CYPRESS POINTE
(FORMERLY CROW/JOLLEY P.D.)
POND 2
ORIGINAL VOLUME CALCULATIONS

Top Elevation of Pond 105.00
 Top Area 95,880.00 s.f.
 Bottom Elevation of Pond 101.80
 Bottom Area 68,522.00 s.f.

Maximum Volume = 6.039 ac/ft at Elev. 105.00

Elevation	Volume	Area
101.90	0.158 ac/ft	69376.92
102.00	0.319 ac/ft	70231.85
102.10	0.481 ac/ft	71086.77
102.20	0.645 ac/ft	71941.70
102.30	0.811 ac/ft	72796.63
102.40	0.979 ac/ft	73651.55
102.50	1.149 ac/ft	74506.48
102.60	1.321 ac/ft	75361.40
102.70	1.495 ac/ft	76216.33
102.80	1.671 ac/ft	77071.25
102.90	1.849 ac/ft	77926.18
103.00	2.029 ac/ft	78781.10
103.10	2.211 ac/ft	79636.03
103.20	2.395 ac/ft	80490.95
103.30	2.580 ac/ft	81345.88
103.40	2.768 ac/ft	82200.80
103.50	2.958 ac/ft	83055.73
103.60	3.149 ac/ft	83910.66
103.70	3.343 ac/ft	84765.58
103.80	3.539 ac/ft	85620.51
103.90	3.736 ac/ft	86475.43
104.00	3.936 ac/ft	87330.36
104.10	4.137 ac/ft	88185.28
104.20	4.340 ac/ft	89040.20
104.30	4.546 ac/ft	89895.13
104.40	4.753 ac/ft	90750.05
104.50	4.963 ac/ft	91604.98
104.60	5.174 ac/ft	92459.91
104.70	5.387 ac/ft	93314.84
104.80	5.602 ac/ft	94169.76
104.90	5.819 ac/ft	95024.68
105.00	6.039 ac/ft	95879.61

THE VININGS AT CYPRESS POINTE
 (FORMERLY CROW/JOLLEY P.D.)
 POND 3
 ORIGINAL VOLUME CALCULATIONS

Top Elevation of Pond 105.00
 Top Area 346,615.00 s.f.
 Bottom Elevation of Pond 101.80
 Bottom Area 283,443.00 s.f.

Maximum Volume = 23.143 ac/ft at Elev. 105.00

Elevation	101.90	Volume	0.653 ac/ft	Area	285417.09
Elevation	102.00	Volume	1.310 ac/ft	Area	287391.19
Elevation	102.10	Volume	1.972 ac/ft	Area	289365.28
Elevation	102.20	Volume	2.639 ac/ft	Area	291339.38
Elevation	102.30	Volume	3.310 ac/ft	Area	293313.47
Elevation	102.40	Volume	3.986 ac/ft	Area	295287.59
Elevation	102.50	Volume	4.666 ac/ft	Area	297261.69
Elevation	102.60	Volume	5.351 ac/ft	Area	299235.78
Elevation	102.70	Volume	6.040 ac/ft	Area	301209.88
Elevation	102.80	Volume	6.733 ac/ft	Area	303183.97
Elevation	102.90	Volume	7.432 ac/ft	Area	305158.06
Elevation	103.00	Volume	8.135 ac/ft	Area	307132.16
Elevation	103.10	Volume	8.842 ac/ft	Area	309106.25
Elevation	103.20	Volume	9.554 ac/ft	Area	311080.34
Elevation	103.30	Volume	10.270 ac/ft	Area	313054.44
Elevation	103.40	Volume	10.991 ac/ft	Area	315028.56
Elevation	103.50	Volume	11.717 ac/ft	Area	317002.66
Elevation	103.60	Volume	12.446 ac/ft	Area	318976.75
Elevation	103.70	Volume	13.181 ac/ft	Area	320950.84
Elevation	103.80	Volume	13.920 ac/ft	Area	322924.94
Elevation	103.90	Volume	14.664 ac/ft	Area	324899.03
Elevation	104.00	Volume	15.412 ac/ft	Area	326873.13
Elevation	104.10	Volume	16.164 ac/ft	Area	328847.22
Elevation	104.20	Volume	16.922 ac/ft	Area	330821.31
Elevation	104.30	Volume	17.683 ac/ft	Area	332795.41
Elevation	104.40	Volume	18.450 ac/ft	Area	334769.53
Elevation	104.50	Volume	19.220 ac/ft	Area	336743.63
Elevation	104.60	Volume	19.996 ac/ft	Area	338717.72
Elevation	104.70	Volume	20.776 ac/ft	Area	340691.81
Elevation	104.80	Volume	21.560 ac/ft	Area	342665.91
Elevation	104.90	Volume	22.349 ac/ft	Area	344640.00
Elevation	105.00	Volume	23.142 ac/ft	Area	346614.09

THE VININGS AT CYPRESS POINTE
 (FORMERLY CROW/JOLLEY P.D.)
 PONDS 1, 2 AND 3
 ORIGINAL VOLUME CALCULATIONS

Permit No. 48-00052-S-46

Application No. 130827-2

Integra Cove Apartments

Permit No. 48-0009-S
Application No. 08067-A
S.R. 535 Shopping Center



South Florida Water Management District

File
John R. Wodraska, Executive Director
Tilford C. Creel, Deputy Executive Director

Post Office Box 24680 3301 Gun Club Road
West Palm Beach, Florida 33416-4680
Telephone (305) 686-8800
Florida WATS Line 1-800-432-2045

IN REPLY REFER TO:

CERTIFIED MAIL NO. P 533 029 543
RETURN RECEIPT REQUESTED
RESOURCE CONTROL DEPARTMENT

November 23, 1987

Reedy Creek Improvement District
Post Office Box 36
Lake Buena Vista, Florida 32830

Subject: Application No. 08067-A, Permit No. 48-00009-S,
S.R. 535 Shopping Center, S22/T24S/R28E

Enclosed is a copy of this District's staff report covering the permit application referenced therein. It is requested that you read this staff report thoroughly and understand its contents. The recommendations as stated in the staff report will be presented to our Governing Board for consideration on December 10, 1987.

Should you object to the staff recommendation, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. You are advised, however, to be prepared to defend your position regarding the permit application when it is considered by the Governing Board for final agency action, even if you agree with the staff recommendation, as the Governing Board may take final agency action which differs materially from the proposed agency action. Should the Governing Board so act, you will be mailed a notice of final agency action and shall have the right to request an administrative hearing on the permit application if you have not previously requested a hearing on the proposed agency action.

Please contact this office if you have any questions concerning this matter. If we do not hear from you prior to the date on the "Notice of Rights", we will assume you concur with our recommendations.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the addressee and the persons listed in the attached distribution list not later than 5:00 p.m. this 23rd day of November, 1987, in accordance with Section 120.60(3), Florida Statutes.

Sincerely,


Vern Kaiser
Administrative Supervisor

SCANNED

Nancy H. Roen J.D. York
Chairman - Plantation Vice Chairman - Palm City

Nathaniel P. Reed Oscar M. Corbin, Jr. Arsenio Milian Fritz Stein James F. Garner Mike Stout Doran A. Jason
Hobe Sound Ft. Myers Miami Belle Glade Ft. Myers Windermere Key Biscayne

MICROFILMED

SCANNED

LAST DATE FOR GOVERNING BOARD ACTION:
January 7, 1988

DRAFT
Subject to Governing
Board Approval

**SURFACE WATER MANAGEMENT
PERMIT MODIFICATION**

APPLICATION NUMBER: 08067-A DATE: November 4, 1987
PERMIT NUMBER: 48-00009-S LAST MODIFICATION DATE: November 12, 1987
PROJECT NAME: S.R. 535 Shopping Center, Reedy Creek Improvement District
CITY: n/a COUNTY: Orange S22/T24S/R28E
OWNER: Walt Disney World and Reedy Creek Improvement District
DEVELOPER: same

	<u>TOTAL PROJECT</u>		<u>PREVIOUSLY PERMITTED</u>		<u>PRESENT PHASE</u>	
TOTAL	27086	ACRES	27086	ACRES	40.25	ACRES
WATER MANAGEMENT	900	ACRES	900	ACRES	5.53 *	ACRES
IMPERVIOUS	5700	ACRES	5700	ACRES	22.32	ACRES
CONSERVATION/ WILDLIFE	8200	ACRES	8200	ACRES	13.00 **	ACRES
AGRICULTURAL	3500	ACRES	3500	ACRES	0	ACRES

* Includes 3.5-acres of on-site wetlands.

** 9.5-acre conservation area established off-site + 3.5-acres of wetlands incorporated into the surface water management system (see "Comments" below).

SPECIAL DISTRICT: Reedy Creek Improvement District

SFWM BASIN: Upper Kissimmee

COMMENTS: This application is for construction and operation of the S.R. 535 Shopping Center (40.25-acres). This site is located within the C-1 drainage basin originally approved in the Operation Permit issued March 15, 1979. This permit included a proposed ultimate land use within Reedy Creek Improvement District as shown in the total project area above. This application for modification of the permit is a request to consider a site specific location for the S.R. 535 Shopping Center site, which was not identified in the original permit. The permittee is providing in excess of one inch of detention for water quality purposes.

SCANNED

FINAL - adopted by Governing Board

MICROFILMED

SCANNED
11-17-88
F-66

COMMENTS (Continued): The project site contains approximately 13.0-acres of wetlands. The wetlands are stressed by logging, dredging, and filling activities. Only 7-acres are considered viable. Construction of this project will impact 9.5-acres of the bayhead. The remaining 3.5-acres will be incorporated into the surface water management system (shown as "Natural Areas" on Exhibit 2). To offset the wetland loss, the applicant will establish a conservation area (see Exhibits 4A & 4B and Special Condition 7). This preserved site is a 9.5-acre upland/transitional area within the Reedy Creek flood plain which will be more beneficial for wildlife habitat and water quality.

The staff recommends that Permit No. 48-00009-S be modified for construction and operation subject to the following 12 Standard Limiting and 8 Special Conditions (for conceptual approvals only, these conditions as a minimum will apply to subsequent construction permitting).

APPLICATION REVIEWER:

SUPERVISOR/CHECKER:

TECHNICAL: M. Hiscock

K. Dickson

WATER QUALITY: M. Hiscock

D. Watt

ENVIRONMENTAL: E. Edmunson

C. Padera

DRAFT
Subject to Governing
Board Approval

APPROVED:

DIVISION DIRECTOR:

James T. Show
James T. Show, P.E.
Surface Water Management Division

DATE: 11/19/87

AGENDA DESCRIPTION: CONSTRUCTION AND OPERATION OF THE S.R. 535 SHOPPING CENTER CONSISTING OF 40.25-ACRES, DISCHARGING INTO THE S.R. 535 DRAINAGE DITCH TO BLACK LAKE AND THEN TO THE L-101 AND C-1 CANALS AND ULTIMATELY INTO REEDY CREEK (OPERATION APPROVAL GRANTED 3/15/79).

SCANNED

MICROFILMED SCANNED



PROJECT SITE

LEGEND

- Water Control Structure
- Canal
- Culvert
- Road
- Levee
- Cleared and Snagged

REEDY CREEK IMPROVEMENT DISTRICT
Orange & Osceola Counties, Florida

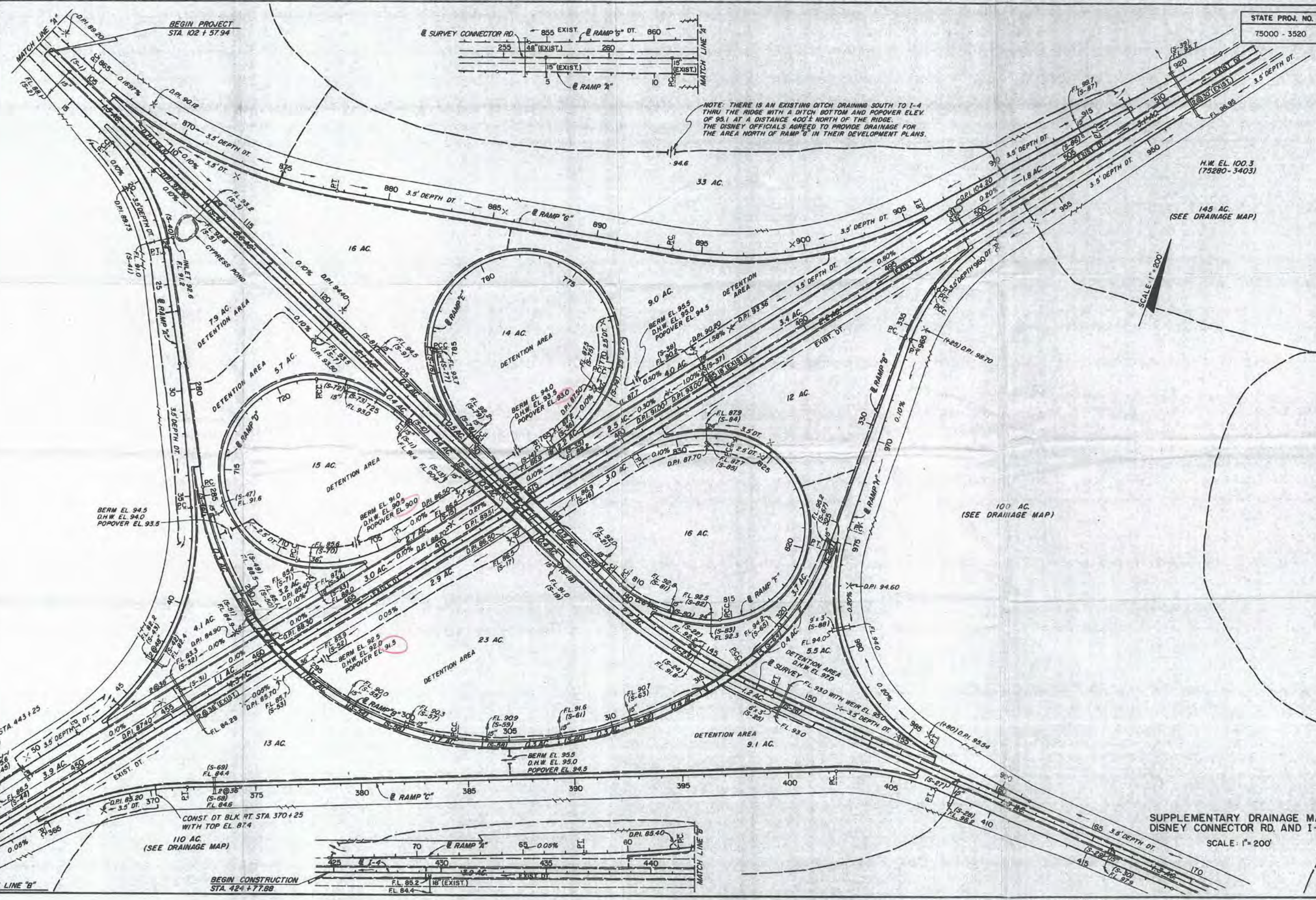
LOCATION MAP

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
ORLANDO, FLORIDA (305) 426-2431

AUGUST 1983

SCANNED
PLATE 1

Permit No. 48-00099-S
Application No. 04101-Q
Epcot Center (S.R. 536)



NOTE: THERE IS AN EXISTING DITCH DRAINING SOUTH TO I-4 THRU THE RIDGE WITH A DITCH BOTTOM AND POPOVER ELEV. OF 93.1 AT A DISTANCE 400' NORTH OF THE RIDGE. FOR THE DISNEY OFFICIALS AGREED TO PROVIDE DRAINAGE FOR THE AREA NORTH OF RAMP 'B' IN THEIR DEVELOPMENT PLANS.

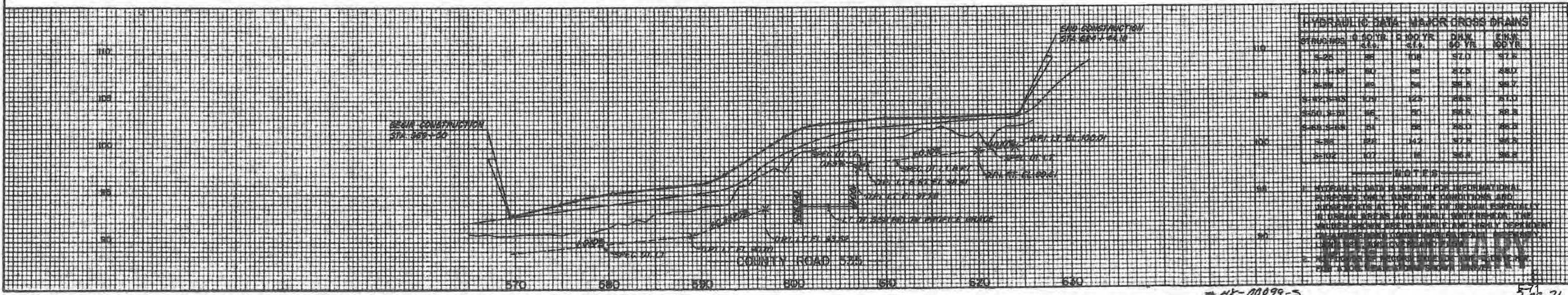
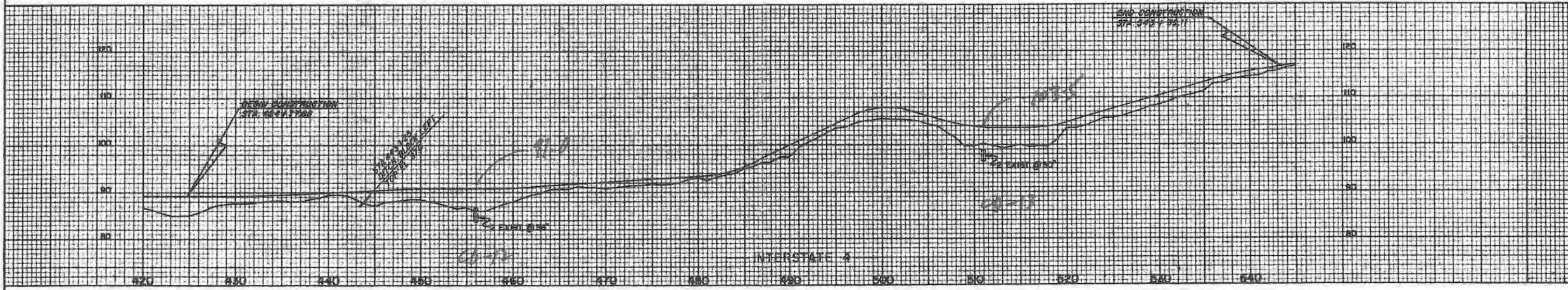
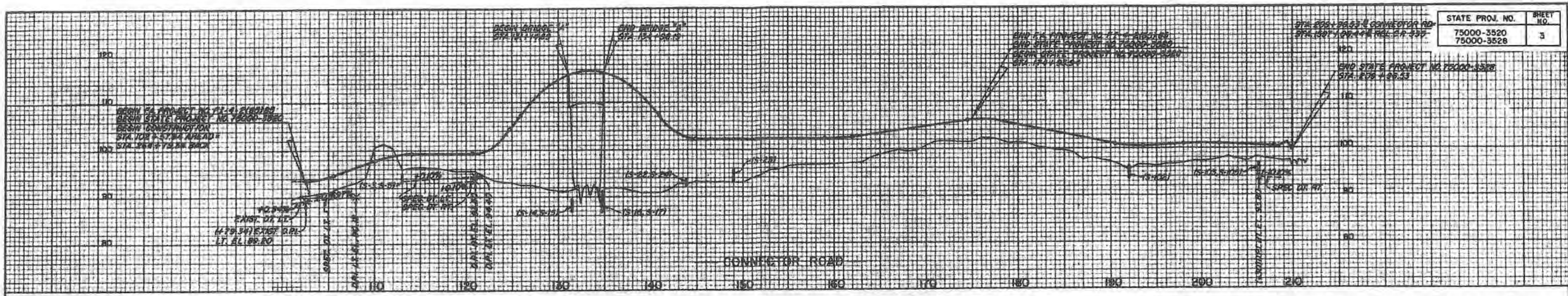
SCALE 1" = 200'

100 AC. (SEE DRAINAGE MAP)

SUPPLEMENTARY DRAINAGE MAP
DISNEY CONNECTOR RD. AND I-4
SCALE: 1" = 200'

Exhibit 3

MICROFILMED



HYDRAULIC DATA - MAJOR CROSS DRAINS

STATION	6.50 YR	10 YR	25 YR	50 YR
5+25	86	108	170	275
5+31	80	80	115	180
5+39	80	80	115	180
5+47	100	125	165	210
5+50	85	90	125	185
5+58	80	85	120	180
5+64	85	100	145	215
5+102	107	115	165	225

NOTES:
 1. HYDRAULIC DATA IS SHOWN FOR INFORMATIONAL PURPOSES ONLY BASED ON CONDITIONS AND UNDERSTANDINGS AT THE TIME OF DESIGN. SPECIALTY CONSULTANTS AND SPECIAL CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING THE DATA AND DESIGN. THE DATA IS NOT TO BE USED FOR ANY OTHER PURPOSES.
 2. ALL DIMENSIONS ARE IN FEET AND INCHES.
 3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.

W. K. LAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 11/80
 CHKD. BY DATE

SUBJECT DISNEY/I-4 INTERCHANGE
 SUPP DRAINAGE CALCS.

SHEET NO. 10 OF 19
 JOB NO. 75000-3520.

DESIGN DRAINAGE DETENTION BASINS

CRITERIA: (1) DETENTION AREAS ARE EMPTY WHEN RAINFALL BEGINS

(2) DESIGN RAINFALL = 50YR.

ACCUMULATED RAINFALL IS AS FOLLOWS: (ZONE 7)

15 MIN	=	7.8	x	0.25	=	1.95	IN.
30 "	=	6.0	x	0.50	=	3.00	"
1 HR	=	4.1	x	1.00	=	4.10	"
1 1/2 "	=	3.1	x	1.50	=	4.65	"
2 "	=	2.5	x	2.00	=	5.00	"
3 "	=	1.85	x	3.	=	5.55	"
4 "	=	1.50	x	4	=	6.00	"
6 "	=	1.13	x	6	=	6.78	"
8 "	=	0.92	x	8	=	7.36	"
12 "	=	0.68	x	12	=	8.16	"
16 "	=	0.55	x	16	=	8.80	"
20 "	=	0.47	x	20	=	9.40	"
24 "	=	0.41	x	24	=	9.84	"

(A) BASIN "A" - BOUNDED BY RAMP "B", RAMP "H", & CONN RD.

DHW = 97.0

EXIST GROUND = AVG 94.0

VOLUME OF DETENTION = 2.3 AC x 3 = 6.9 AC.-FT.

IN-FLOW	15 MIN	=	[(100 x 0.4) + (5.5 x 0.2)]	1.95/12	=	6.7	AC.-FT.
	30 "		3.425	x	3.00	=	10.3 "
	1 HR		"	x	4.10	=	14.0 "
	1.5 "		"	x	4.65	=	15.9 "
	2 "		"	x	5.00	=	17.1 "

MICROFILMED

BY PEG DATE 11/80
CHKD. BY DATE

SUBJECT DISNEY/I-4 INTERCHANGE
SUPP DRAINAGE CALCS.

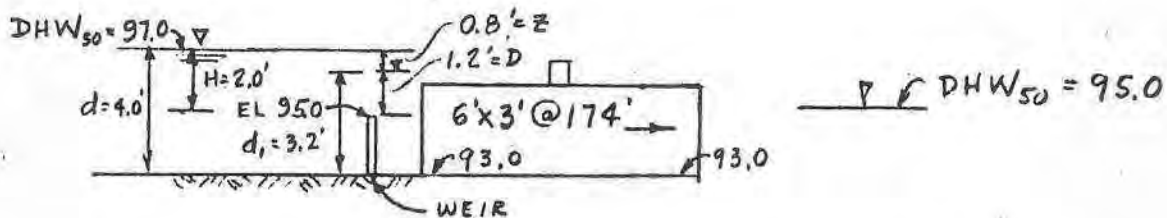
SHEET NO. 11 OF 19
JOB NO. 15000-3520

BASIN "A" (CONT)

REQD OUTFLOW RATE - 1ST HOUR = 14.0 - 6.9 = 7.1 AC-FT $\times \frac{43,560}{3600} = 85.9$ cfs.

EST. SIZE OF BOX CULVERT = 6'x3' $V = 85.9/18 = 4.8$ f.p.s.

DESIGN OF CULVERT & WEIR AT DRAINAGE DETENTION BASIN "A" - STA 149+00 \pm CONNECTOR ROAD.



HL₅₀ for 6'x3' Box x 174', Q = 85.9 cfs. = 0.72' (Outlet Control)

CRITICAL DEPTH (FOR $Q/D = \frac{85.9}{6} = 14.3$) = 1.9'

DHW₅₀ = 93.0 + $(\frac{3.0+1.9}{2})$ + 0.72 = 96.2' upstream (Outlet Control.)

For Inlet Control HW/D = 1.06 \therefore HW = 3.18 \therefore DHW₅₀ = 96.2' upstream for inlet control.

HEAD LOSS OVER WEIR = EL 97.0 - 96.2 = 0.8'

DETERMINE LENGTH OF WEIR BY KING FORMULA.

$$Q = 3.34 L Z^{1.47} \left[1 + 0.56 \left(\frac{H}{d} \right)^2 \right] \left(1 + 0.2 \sqrt{\frac{HD}{d_1 Z}} \right) \left(1 + 1.2 \frac{D}{Z} \right)$$

$$85.9 = 3.34 (L) (0.8)^{1.47} \left[1 + 0.56 \left(\frac{2.0}{4.0} \right)^2 \right] \left[1 + 0.2 \sqrt{\frac{(2.0)(1.2)}{(3.2)(0.8)}} \right] \left[1 + 1.2 \left(\frac{1.2}{0.8} \right) \right]$$

L = 9.37' Length of Weir Req'd. - Based on review of Index 8010 a 10' Length would be suitable with little problem. Also provide a slot to ground level to draw down water to exist. ground.

MICROFILMED

W. K. LAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 12/80

SUBJECT DISNEY/I-4 INTERCHANGE
SUPP DRAINAGE CALCS.

SHEET NO. 12 OF 19

CHKD. BY DATE

JOB NO.

75000-3520

BASIN 'A' (CONT)
FOR 100 YEAR STORM

AT THE END OF ONE HOUR

INFLOW = $4.6 \times 1.0 \times 3.425 = 15.8$ AC-FT

REQ'D OUTFLOW RATE - 1ST HR
 $15.8 - 6.9 = 8.9 \times \frac{43560}{3600} = 107.7$ cfs.

FOR 6' x 3' $V = \frac{107.7}{18} = 5.98$ fps.

FOR INLET CONTROL $Q/B = 107.7/6 = 17.95$; $\frac{HW}{D} = 1.28$; $HW = 3.8$
Upstream $HW_{100} = 96.84$

FOR OUTLET CONTROL $H_L = 1.2'$
CRITICAL FLOW = 2.2'
Upstream $HW_{100} = 93 + \left(\frac{2.2+3}{2}\right) + 1.2 = 96.8$
Controls at Culv.

Head Loss at Weir. = $L = 10'$ $d_1 = 3.8'$ $D = 1.8'$
Try $z = 1.0$ \therefore $DHW_{100} = 97.8$ $d = 4.8'$ $H = 2.8'$

$Q = 3.34 (10) (1)^{1.47} \left[1 + 0.56 \left(\frac{2.8}{4.8}\right)^2\right] \left[1 + 0.2 \sqrt{\frac{(2.8)(1.8)}{(3.8)(1)}}\right] \left[1 + 1.2 \left(\frac{1.8}{10}\right)\right]$
 $= (33.4)(1.1906)(1.2303)(3.16)$
 $= 154.60$ cfs. > 107.7 cfs.

Try $z = 0.8$ \therefore $DHW_{100} = 97.6$ $d = 4.6'$ $H = 2.6'$

$Q = (3.34)(10)(0.8)^{1.47} \left[1 + 0.56 \left(\frac{2.6}{4.6}\right)^2\right] \left[1 + 0.2 \sqrt{\frac{(2.6)(1.8)}{(3.8)(0.8)}}\right] \left[1 + 1.2 \left(\frac{1.8}{0.8}\right)\right]$
 $= (24.0596)(1.1789)(1.2482)(3.70)$
 $= 131.0 > 107.7$ cfs. \therefore Use $z = 0.75$ and $HW_{100} = 97.6$

MICROFILMED

W. K. LAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 11/80
 CHKD. BY DATE

SUBJECT DISNEY/I-4 INTERCHANGE
 SUPP DRAINAGE CALCS

SHEET NO. 13 OF 19
 JOB NO. 75000-3520

(B) BASIN "B" - BOUNDED BY RAMP "B", CONN RD, RAMP "C", AND BERM BETWEEN RAMP "B" & RAMP "C" LT STA 387.

DHW = 95.0

EXIST GROUND = AVG 92.0'

VOLUME OF DETENTION = 5.8 AC x 3' = 17.4 AC. FT.

INFLOW: (DETENTION BASINS A & B)

CA = (100.6 x 0.4) + (15.2 x 0.2) = 43.28

15 MIN	=	43.28/12 x 1.95	=	7.03	AC FT.
30 MIN	=	" x 3.00	=	10.82	"
1 HR	=	" x 4.10	=	14.78	"
1.5 "	=	" x 4.65	=	16.77	"
2.0 "	=	" x 5.00	=	18.03	"
3.0 "	=	" x 5.55	=	20.02	"
4.0 "	=	" x 6.00	=	21.64	"
6.0 "	=	" x 6.78	=	24.45	"
8 "	=	" x 7.36	=	26.55	"
12 "	=	" x 8.16	=	29.43	"
16 "	=	" x 8.80	=	31.74	"
20 "	=	" x 9.40	=	33.90	"
24 "	=	" x 9.84	=	35.49	"

TOTAL STORAGE = 17.4 + 6.9 = 24.3 AC-FT.

BASICALLY, THE FIRST SIX HRS OF RAINFALL COULD BE DETAINED.

REQ'D OUTFLOW (MAX VALUE @ 20 HRS DURING 24 HR PERIOD)

$$Q = \frac{43,560 \times (33.90 - 24.3)}{3600} = 5.81 \text{ cfs.}$$

Provide Conc Weir at the basin with 5' BW; 4:1 S.S.
 POPOVER EL. 94.5, TOP OF BERM 10" steel
 Pipe thru berm to drain down to exist ground.

MICROFILMED

W. K. MAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 11/80
CHKD. BY _____ DATE _____

SUBJECT DISNEY/I-4 INTERCHANGE
SUPP DRAINAGE CALCS

SHEET NO. 14 OF 19
JOB NO. 75000-3520

(C) BASIN "C" - BOUNDED BY CONN RD, RAMP "B" &
A BERM E/O I-4.

DHW EL. 92.0
AVG GND EL = 91.0

VOLUME OF DETENTION = $18.6 \text{ AC} \times 1.0 = 18.6 \text{ AC-FT.}$

INFLOW:

$$C.A. = (4.4)(0.8) + (1.1)(0.4) + (43.8)(0.2) = 12.72$$

$$\text{FOR 24 HR} = 12.72 / 12 \times 9.84 = 10.4 \text{ AC-FT.} < 18.6$$

∴ THE DETENTION HAS STORAGE CAPACITY BEYOND
THE 24 HR RAINFALL.

PROVIDE A POPOVER NEAR STA 295 @ RAMP B AT
ELEV. 91.5 - TOP OF BERM = 92.5 w/10" STEEL PIPE
THRU BERM.

MICROFILMED

W. K. LAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 11/80
 CHKD. BY DATE

SUBJECT DISNEY/I-4 INTERCHANGE
 SUPP DRAINAGE CALCS

SHEET NO. 15 OF 19
 JOB NO. 75000-3520

(D) BASIN "D" - BOUNDED BY CONN RD, A RIDGE OUTSIDE THE SOUTH ROADSIDE DITCH OF THE CONN RD EXTENDING TO STA 24⁺ RAMP A, RAMP A & RAMP B, A BERM BETWEEN RAMPS B & D NEAR STA 287100.

DHW EL 94.0
 GROUND ELEV VARIES 91.0 TO 94.0

VOLUME OF DETENTION = 0.9 AC x 3.0/2 = 1.35 AC-FT.

INFLOW:

C.A = (0.3 x 0.8) + (11 x 0.2) = 2.44

15 MIN	=	2.44/12 x 1.95	=	0.40
30 "	=	" x 3.00	=	.61
1 HR	=	" x 4.10	=	.83
1.5 "	=	" x 4.65	=	.95
2.0 "	=	" x 5.00	=	1.02
3.0 "	=	" x 5.55	=	1.13
4.0 "	=	" x 6.00	=	1.22
6.0 "	=	" x 6.78	=	1.38
20.0 "	=	" x 9.40	=	1.91

BASICALLY, THE FIRST 6 HOURS OF RAINFALL COULD BE DETAINED

REQD OUTFLOW (MAX VALUE @ 20 HRS DURING 24 HR PERIOD)

Q = $\frac{43,560}{3600} \times \frac{1.91 - 1.35}{20} = 0.34 \text{ cfs.}$

Provide std. 5' BW Weir + 4:1 ss. popover el. 93.5 Berm el 94.5 w/10" Steel Pipe thru berm to drain down to exist gnd.

MICROFILMED.

W. K. CAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 11/80
CHKD. BY DATE

SUBJECT DISNLY/I-4 INTERCHANGE
SUPP DRAINAGE CALCS.

SHEET NO. 16 OF 19
JOB NO. 75000-3520

(E) BASIN "E" - WITHIN LOOP RAMP "D"

DHW EL = 90.5

GND EL VARIES FROM 89.0 TO 90.5

VOLUME OF DETENTION = $5.6 \text{ AC} \times 1.5/2 = 4.2 \text{ AC-FT.}$

INFLOW :

$$C.A = (1.2)(0.8) + (15.0)(0.2) = 3.96$$

FOR 24 HR INFLOW = $3.96/12 \times 9.84 = 3.24 \text{ AC-FT.} < 4.2$

∴ THE DETENTION AREA HAS STORAGE CAPACITY BEYOND THE 24 HR RAINFALL.

PROVIDE A POPOVER RT STA 706+00 RAMP D
POPOVER EL 90.0, TOP OF BERM 91.0 W/10" STEEL PIPE
THRU BERM.

MICROFILMED

W. K. GAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 11/80

SUBJECT DISNEY/I-4 INTERCHANGE

SHEET NO. 17 OF 19

CHKD. BY DATE

SUPP DRAINAGE CALCS.

JOB NO.

75000-3520

(F) BASIN "F" - WITHIN LOOP RAMP "E"

DHW EL 93.5

EXIST GND VARIES FROM 91.5 TO 93.5

VOLUME OF DETENTION = $3.5 \text{ AC} \times 2.0/2 = 3.5 \text{ AC-FT.}$

INFLOW: C.A. = $(1.0)(0.8) + (14)(0.2) = 3.60$

FOR 24 HR INFLOW = $3.60/12 \times 9.84 = 2.95 < 3.5 \text{ AC-FT.}$

∴ THE DETENTION AREA HAS STORAGE CAPACITY BEYOND THE 24 HR RAINFALL

PROVIDE A POPOVER LT STA 476 ± @ I-4, POPOVER EL 93.0
TOP OF BERM 94.0, W/10" STEEL PIPE THRU BERM.

MICROFILMED

W. K. CAUGHERTY, CONSULTING ENGINEERS

BY PEG DATE 11/80

SUBJECT DISNEY/I-4 INTERCHANGE

SHEET NO. 18 OF 19

CHKD. BY DATE

SUPP DRAINAGE CALCS

JOB NO.

75000-3520

(G) BASIN "G" - BOUNDED BY RAMPS G & E, A RIDGE NEAR STA 886 RAMP G, & A RIDGE W/O THE DITCH W/O THE COLL-DIST. RD.

DHW EL. 95.0

EXIST GND EL 93.0[±] TO 95.0[±]

VOLUME OF DETENTION = $2.0 \times 1.5^* \times \frac{1}{2} = 1.5^* \text{ AC-FT.}$

INFLOW : C.A. = $(90)(0.2) = 1.80$

FOR 24 HR INFLOW = $1.80/12 \times 9.84 = 1.5 \text{ AC-FT} < 1.5^* \text{ AC-FT.}$

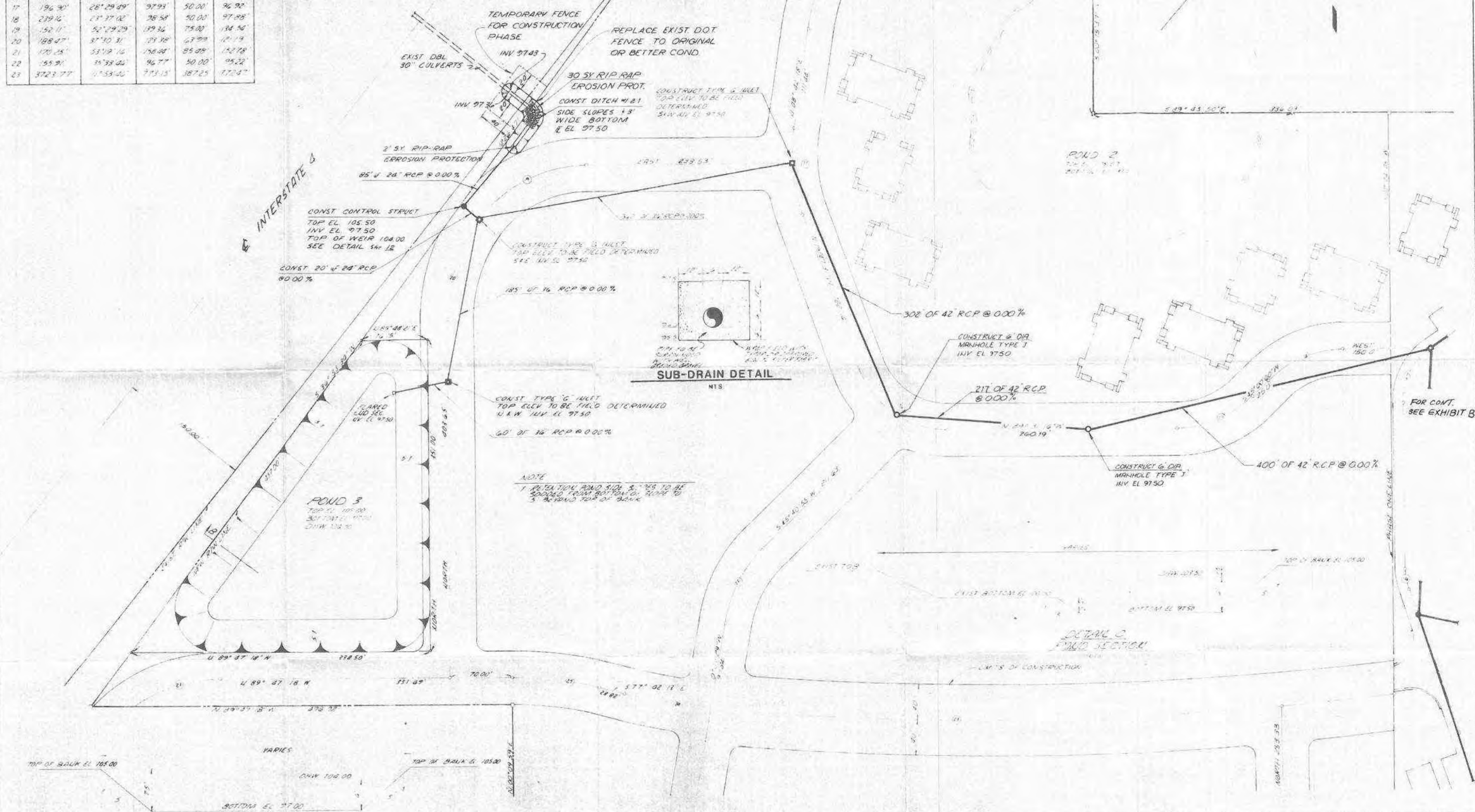
∴ THE DETENTION AREA HAS STORAGE CAPACITY BEYOND THE 24 HR RAINFALL

PROVIDE A POPOVER LT STA 483 @ I-4, POPOVER EL 94.5 TOP OF BERM 95.5 W/10" STEEL PIPE THRU BERM.

MICROFILMED

Permit No. 48-00131-S
Application No. 900906-5
Lake Vista Village Residential

CURVE DATA											
NO	R	Δ	A	T	CHD	NO	R	Δ	A	T	CHD
14	120.71'	35°00'00"	98.80'	50.00'	92.39'	24	472.73'	2°05'05"	79.63'	50.00'	79.65'
15	119.30'	85°28'38"	98.69'	50.00'	92.22'	25	338.66'	0°09'32"	79.88'	50.00'	79.82'
16	107.65'	29°23'05"	131.01'	75.00'	123.08'						
17	196.30'	28°29'49"	37.93'	50.00'	96.92'						
18	239.16'	2°37'02"	38.58'	50.00'	97.88'						
19	152.11'	52°29'29"	139.36'	75.00'	136.76'						
20	188.47'	87°30'31"	75.78'	67.89'	12.19'						
21	120.25'	53°19'16"	176.84'	85.00'	152.78'						
22	155.91'	35°38'00"	96.77'	50.00'	95.22'						
23	372.77'	11°53'40"	773.15'	387.25'	172.47'						



DETAIL B
POND SECTION
UTS

				DYER, RIDGLE, MILLS AND PRECOURT, INC. ENGINEERS SURVEYORS ORLANDO, FLORIDA			OFF SITE PONDS 2 & 3 LAKE VISTA VILLAGE MICROFILMED		51.20
							ORANGE COUNTY 48-00131-S		5-32
							FLORIDA		11 19
8-20-82	Revised Pond 3 Outfall	PCM	WK	DATE	REVISION	REVISED BY	CHECKED BY		



South Florida Water Management District

John R. Wodraska, Executive Director
Tilford C. Creel, Deputy Executive Director

Post Office Box 24680 3301 Gun Club Road
West Palm Beach, Florida 33416-4680
Telephone (305) 686-8800
Florida WATS Line 1-800-432-2045

IN REPLY REFER TO:

District Permit No. 48-00131-S

January 20, 1988

EPOCH PROPERTIES, INC.
359 CAROLINA AVENUE
WINTER PARK, FL 32789

Dear Sir or Madam:

Subject: Notice of Permit Transfer from Construction Phase to Operation Phase,
Lake Vista Village, Orange County
Section 28, Township 24 South, Range 28 East.

Pursuant to your request for transfer of the surface water management permit from Construction Phase to Operation Phase, you are hereby officially notified that Permit No. 48-00131-S has been transferred from Construction Phase to Operation Phase. A copy of the permit, including conditions, is enclosed.

If we can be of further assistance, please contact this office.

Sincerely,


Ronald E. Metzger, Director
Regulatory Administration Division

REM:HS:ta
Enclosure

xc: Dyer, Riddle, Mills & Precourt, Inc.
DER
Orange County Engineer

bxc: Office of Counsel
Director, Field Engineering
Inspection/John Krupilis
Eric Botka
Permit file/Pat Bomgardner
Carol McCray
Beth Ann Colavecchio
Reg. Admin. file
Tammy Adams
Kissimmee Field Station

MICROFILMED

SCANNED

File w/Permit

FIELD ENGINEERING DIVISION

REQUEST FOR FIELD INSPECTION

Date 12/31/86

SPECIAL INSPECTION _____ REGULAR FIELD INSP, _____ FINAL INSPECTION XX

INSPECTION REQUESTED BY: Alan Leavens

PROPERTY INVOLVED: County: Orange Sec 28 Twp 24 Rge 28

PERMIT/~~APPLICATION~~ NO.: 48-00131-S

PROJECT NAME: Lake Vista Village

REASON FOR INSPECTION REQUEST: Engineer's certification received

FIELD REPRESENTATIVE ASSIGNED: Jared Justesen *JJ*

DATE INSPECTED: 12/31/86

INSPECTION REPORT: This project is 53 acres of residential lands with a system of culverts and inlets routing discharge to onsite retention lakes. The ourfall is one 4' wide weir and two 4" bleeders, discharging to a tributary of Reedy Creek under I-4 via two 30" culverts. All elevations have been checked and logged in field book.

Bleeder elevation is 1' higher than permitted and one of the two bleeders has not been plugged as required. I have had preliminary discussions with the engineer regarding ground water inflow to the project, and possible modifications to the structure. Therefore recommend project be finaled as existing and monitored for possible adverse ground water conditions and future changes to the structure. *Alan Leavens 1/7/86*

MICROFILMED

cc: Jean Urquhart/Eric Botka/Dave Unsell

SCANNED

To: Alan Leavens, Director
 Field Engineering Division
 Resource Control Department
 South Florida Water Management District
 c/o Kissimmee Field Engineering Office
 80 South Airport Road
 Kissimmee, Florida 32741

RE: Engineer's Certification

Project Name Lake Vista Village, Phase 2 Permit No. 48-00131-S
 County Orange Sec. 28 Twp. 24S Rge. 28E

Dear Sir:

This is to certify that I have conducted a field examination of the referenced project. In my professional opinion, the surface water management system is constructed substantially in accordance with South Florida Water Management District permit and the project will function as it is designed.

I further certify that the outfall structure is as follows:

	<u>Permitted</u>	<u>As-Built</u>
Weir:	Size <u>4'</u> Elevation <u>104.00</u>	Size <u>4'</u> Elevation <u>104.17</u>
Bleeder:	Size <u>2-4"</u> Elevation <u>97.5</u>	Size <u>2-4"</u> Elevation <u>98.5</u> NGVD29
Retention/Detention (if applicable)	Size <u>50.1</u> acres	Size <u>50</u> acres
	Side Slopes: <u>5:1</u>	Side Slopes: <u>5:1</u>

Also, I certify that the items set forth in this permit's Limiting Conditions and Special Conditions have been complied with.

The Bench Mark used on this project is identified as follows, (see attached instructions):

See Attached Sheet

(Signature) William B. Dyer (Seal)
 William B. Dyer, P.E.
 Vice President

MICROFILMED
 SCANNED

Permit No. 48-00217-S-08

Application No. 05118-B

Howard Johnson Park Square Inn



South Florida Water Management District

John R. Wooraska, Executive Director
Triford C. Creel, Deputy Executive Director

Post Office Box 24680 3301 Gun Club Road
West Palm Beach, Florida 33416-4680
Telephone (407) 686-8800
Florida WATS Line 1-800-432-2045

IN REPLY REFER TO:
CERTIFIED MAIL NO. P 938 623 181
Resource Control Department
Application No.: 05118-B

October 11, 1988

RECEIVED OCT 13 1988

Austin Vista Limited
1408 N Westshore Blvd, Suite 1006
Tampa, FL 33607

Dear Sir or Madam:

Subject: Notice of Intent to Construct Works
Modification to Permit No.: 48-00217-S-08
Permittee: Austin Vista Limited
Project : Howard Johnson Park Square Inn
Location : Orange County, S22/T24S/R28E

18-00271-S

This letter is to notify you of the District's agency action concerning your request of May 11, 1988, to modify the above reference permit. This action is taken pursuant to Rule 40E.1.606 and Chapter 40E-40, Florida Administrative Code.

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

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing,
2. the attached 12 Standard Limiting Conditions, and
3. 10 Special Conditions.

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

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the addressee (and the persons listed in the attached distribution list) not later than 5:00 P.M., this 11th day of October, 1988, in accordance with Section 120.60(3), F.S.

Sincerely,

James T. Show
James T. Show, P.E., Director
Surface Water Management Division

JTS/kw
Enclosures

Nancy M. Roen
Chairman - Plantation

J.D. York
Vice Chairman - Palm City

Nathaniel P. Reed
Hobe Sound

Oscar M. Corbin, Jr.
Ft. Myers

Arsenio Milian
Miami

Fritz Stein
Belle Glade

James F. Garner
Ft. Myers

Mike Stout
Wandermere

Doran A. Jason
Key Biscayne



HOLLIS ENGINEERING, INC.

Civil & Environmental Engineers
Land Surveyors
Orlando • Sarasota

BY BB DATE 12/1/88 SUBJECT Howard Johnson SHEET NO. 1 OF 4
CHKD. BY _____ DATE _____ Park Square Inn JOB NO. _____

Modification of Existing Detention Pond

- APPROX. LENGTH OF 150 SF FILL AREA = $110'$
(X-SECTION #1)
THUS DISPLACEMENT VOLUME = $110' \times 150 = 110$ CF
- APPROX. LENGTH OF 150 SF FILL AREA = $150'$
(X-SECTION #2)
THUS DISPLACEMENT VOLUME = $150 \times 150 = 22,500$ CF

∴ TOTAL PROPOSED DISPLACEMENT
VOLUME = $22,610$ CF
DUE TO LOCATION OF PARKING
FACILITY.

(AREA AS SHOWN IN CROSS SECTION #3)

• 131.40 (X) = $23,000$ CF

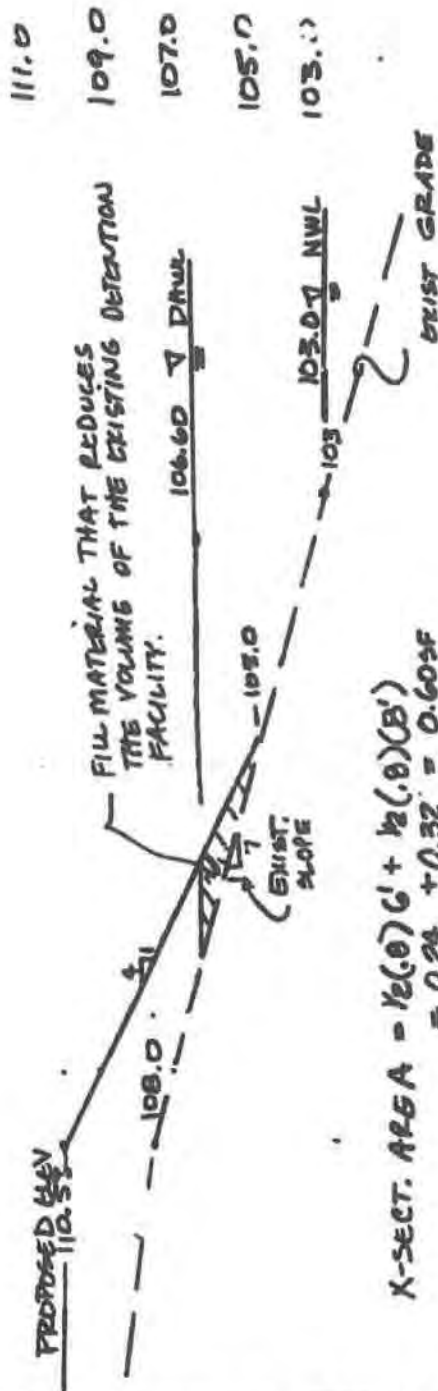
$X = 175'$

AVE. LENGTH = $175'$ of length req'd @ an average
displacement of (131.40%)

∴ $(131.40\%) \times 175' = \underline{\underline{22,624}} \text{ CF}$ ✓ please see attached
plans.

* $175'$ is the length of area where the excavation will occur
in accordance with X-section #3.

HORZ → 1" = 10'
 VERT → 1" = 5'



X-SECT. AREA = $\frac{1}{2}(0)C' + \frac{1}{2}(0)(B')$
 $= 0.24 + 0.52 = 0.60sf$
 $\sim 1.0 sf$

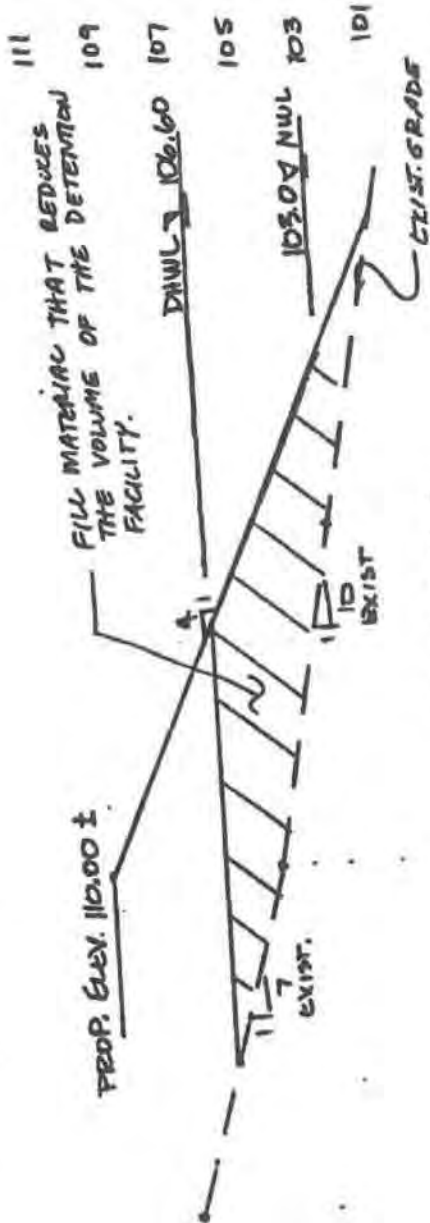
X SECT NO. 1

DHWL = DESIGN HIGH WATER LEVEL
 NWL = NORMAL WATER LEVEL

BY BB DATE 11/15/88 SUBJECT PAER SQUARE INLN SHEET NO. 2 OF 4
 CHECKED BY _____ DATE _____ SUBJECT DETENTION DISPLACEMENT VOLUME JOB NO. _____

HOLLIS ENGINEERING, INC.
 Civil & Environmental Engineers
 Land Surveyors
 Orlando • Sarasota

HORIZ → 1" = 10'
 VERT → 1" = 5'



X-SECT NO. 2

X-SECT. AREA = 5' x 50' = 150 SF

BY BB DATE 11/15/88 SUBJECT PARK SQUARE INN SHEET NO. 3 OF 4
 CHKD. BY _____ DATE _____ DET. DSP/ACT/MT/ST VOLUMS JOB NO. _____

HOLLIS ENGINEERING, INC.
 Civil & Environmental Engineers
 Land Surveyors
 Orlando - Sarasota

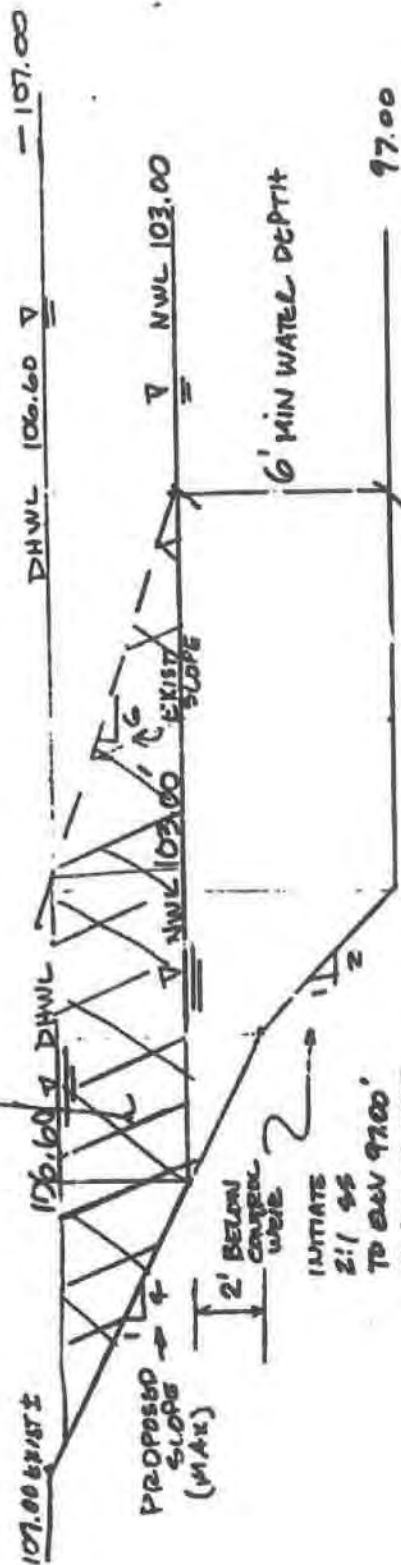
BY BR DATE 11/5/88 SUBJECT PARK SQUARE INN SHEET NO. 5 OF 4
 CHKD BY _____ DATE _____ DISY PERMIT VOLUME JOB NO. _____

HOLLIS ENGINEERING, INC.
 Civil & Environmental Engineers
 Land Surveyors
 Orlando • Sarasota



HORZ → 1" = 10'
 VERT → 1" = 5'

EXCAVATION AREA THAT RECOVERS THE
 DELETED POND VOLUME



X SECT NO. 3

X SECT AREA =

$$(18' \times 36') + \frac{1}{2}(16 \times 36') + \frac{1}{2}(21 \times 5.6') = 131.40 \text{ SF}$$

$$64.8 + 28.8 + 37.8$$



South Florida Water Management District

John R. Wodarska, Executive Director
Tilford C. Creel, Deputy Executive Director

Post Office Box 24680 3301 Gun Club Road
West Palm Beach, Florida 33416-4680
Telephone (407) 686-8800
Florida WATS Line 1-800-432-2045

IN REPLY REFER TO:
CERTIFIED MAIL NO. P 938 623 181
Resource Control Department
Application No.: 05118-B

October 11, 1988

Austin Vista Limited
1408 N Westshore Blvd, Suite 1006
Tampa, FL 33607

Dear Sir or Madam:

Subject: Notice of Intent to Construct Works
Modification to Permit No.: 48-00217-S-08
Permittee: Austin Vista Limited
Project : Howard Johnson Park Square Inn
Location : Orange County, S22/T24S/R28E

This letter is to notify you of the District's agency action concerning your request of May 11, 1988, to modify the above reference permit. This action is taken pursuant to Rule 40E.1.606 and Chapter 40E-40, Florida Administrative Code.

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

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 12 Standard Limiting Conditions, and
3. 10 Special Conditions.

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

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the addressee (and the persons listed in the attached distribution list) not later than 5:00 P.M., this 11th day of October, 1988, in accordance with Section 120.60(3), F.S.

Sincerely,

James T. Show
James T. Show, P.E., Director
Surface Water Management Division

JTS/kw
Enclosures

Nancy H. Roen
Chairman - Plantation

J.D. York
Vice Chairman - Palm City

Nathaniel P. Reed
Hobe Sound

Oscar M. Corbin, Jr.
Ft. Myers

Arsenic Milian
Miami

Fritz Stein
Belle Glade

James F. Garner
Ft. Myers

Mike Stout
Windermere

Doran A. Jason
Key Biscayne



South Florida Water Management District GENERAL PERMIT NOTICE OF RIGHTS

This Notice of Rights is intended to inform the recipient of the administrative and judicial review which may be available as mandated by section 120.60(3), Florida Statutes. Be advised that although this notice is intended to be comprehensive, the review procedures set forth herein have been the subject of judicial construction and interpretation which may affect the administrative or judicial review available. Recipients are therefore advised to become familiar with Chapters 120 and 373, Florida Statutes, and the judicial interpretation of the provisions of these chapters.

1. If a substantially affected person objects to the staff's recommendation, that person has the right to request an administrative hearing on the proposed agency action. The substantially affected person may request either a formal or an informal hearing, as set forth below. Failure to comply with the prescribed time periods shall constitute a waiver of the right to a hearing.
2. If a substantially affected person believes a genuine issue of material fact is in dispute, that person may request a formal hearing pursuant to section 120.57(1), Florida Statutes, by filing a petition not later than:
 - a. IF NOTICE OF THE APPLICATION WAS PUBLISHED BY THE APPLICANT, within fourteen (14) days after mailing of the proposed agency action or
 - b. IF NOTICE OF THE APPLICATION WAS NOT PUBLISHED, within fourteen days after receipt of actual notice.The request for a section 120.57(1), F.S., formal hearing must comply with the requirements of Rule 40E-1.521, Florida Administrative Code, a copy of which is attached. Petitions are deemed filed upon receipt by the District. Failure to substantially comply with the provisions of Rule 40E-1.521, Florida Administrative Code, shall constitute a waiver of the right to a 120.57(1) hearing. If a petition for administrative hearing is not timely filed, the staff's proposed agency will automatically mature into final agency action.
3. If a substantially affected person believes that no issues of material fact are in dispute, that person may request an informal hearing pursuant to section 120.57(2), F.S., by filing a petition for hearing not later than:
 - a. IF NOTICE OF THE APPLICATION WAS PUBLISHED BY THE APPLICANT, within fourteen (14) days after mailing of the proposed agency action or
 - b. IF NOTICE OF THE APPLICATION WAS NOT PUBLISHED, within fourteen days after receipt of actual notice.A request for informal hearing shall be considered as a waiver of the right to request a formal section 120.57(1), F.S., hearing. A request for a section 120.57(1), F.S., formal hearing not in substantial compliance with the provisions of rule 40E-1.521, F.A.C., may be considered by the District as a request for informal hearing. If a petition for administrative hearing is not timely filed, the staff's proposed agency action will automatically mature into final agency action.
4. Pursuant to section 373.114, Florida Statutes, a party to the proceeding below may seek review of a Final Order rendered on the permit application before the Land and Water Adjudicatory Commission, as provided therein. Review under this section is initiated by filing a request for review with the Land and Water Adjudicatory Commission and serving a copy on the Department of Environmental Regulation and any person named in the Order within 20 days after rendering of the District's Order. However, when the order to be reviewed has statewide or regional significance, as determined by the Land and Water Adjudicatory Commission within 60 days after receipt of a request for review, the commission may accept a request for review from any affected person within 30 days after the rendering of the order. Review under section 373.114, Florida Statutes, is limited solely to a determination of consistency with the provisions and purposes of Chapter 373, Florida Statutes. This review is appellate in nature and limited to the record below.
5. A party who is adversely affected by final agency action on the permit application is entitled to judicial review in the District Court of Appeal pursuant to section 120.68, Florida Statutes, as provided therein. Review under section 120.68, Florida Statutes in the District Court of Appeal is initiated by filing a petition in the appropriate District Court of Appeal in accordance with Florida rule of appellate Procedure 9.110. The Notice of Appeal must be filed within 30 days of the final agency action.
6. Section 373.617(2), Florida Statutes, provides:

Any person substantially affected by a final action of any agency with respect to a permit may seek review within 90 days of the rendering of such decision and request monetary damages and other relief in the circuit court in the judicial circuit in which the affected property is located, however, circuit court review shall be confined solely to determining whether final agency action is an unreasonable exercise of the state's police power constituting a taking without just compensation. Review of final agency action for the purpose of determining whether the action is in accordance with existing statutes or rules and based on component substantial evidence shall proceed in accordance with Chapter 120.
7. Please be advised that exhaustion of administrative remedies is generally a prerequisite to appeal to the District Court of Appeal or the seeking of Circuit Court review of final agency action by the District on the permit application. There are, however, exceptions to the exhaustion requirement. The applicant is advised to consult the case law as to the requirements of exhaustion exceptions.

JMP
04
09
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03
03

LIMITING CONDITIONS

1. THE PERMITTEE SHALL PROSECUTE THE WORK AUTHORIZED IN A MANNER SO AS TO MINIMIZE ANY ADVERSE IMPACT OF THE WORKS ON FISH, WILDLIFE, NATURAL ENVIRONMENTAL VALUES, AND WATER QUALITY. THE PERMITTEE SHALL INSTITUTE NECESSARY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING FULL COMPACTION OF ANY FILL MATERIAL PLACED AROUND NEWLY INSTALLED STRUCTURES, TO REDUCE EROSION, TURBIDITY, NUTRIENT LOADING AND SEDIMENTATION IN THE RECEIVING WATERS.
2. WATER QUALITY DATA FOR THE WATER DISCHARGED FROM THE PERMITTEE'S PROPERTY OR INTO SURFACE WATERS OF THE STATE SHALL BE SUBMITTED TO THE DISTRICT AS REQUIRED. PARAMETERS TO BE MONITORED MAY INCLUDE THOSE LISTED IN CHAPTER 17-3. IF WATER QUALITY DATA IS REQUIRED, THE PERMITTEE SHALL PROVIDE DATA AS REQUIRED, ON VOLUMES OF WATER DISCHARGED, INCLUDING TOTAL VOLUME DISCHARGED DURING THE DAYS OF SAMPLING AND TOTAL MONTHLY DISCHARGES FROM THE PROPERTY OR INTO SURFACE WATERS OF THE STATE.
3. THE PERMITTEE SHALL COMPLY WITH ALL APPLICABLE LOCAL SUBDIVISION REGULATIONS AND OTHER LOCAL REQUIREMENTS. IN ADDITION THE PERMITTEE SHALL OBTAIN ALL NECESSARY FEDERAL, STATE, LOCAL AND SPECIAL DISTRICT AUTHORIZATIONS PRIOR TO THE START OF ANY CONSTRUCTION OR ALTERATION OF WORKS AUTHORIZED BY THIS PERMIT.
4. THE OPERATION PHASE OF THIS PERMIT SHALL NOT BECOME EFFECTIVE UNTIL A FLORIDA REGISTERED PROFESSIONAL ENGINEER CERTIFIES THAT ALL FACILITIES HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE DESIGN APPROVED BY THE DISTRICT. WITHIN 30 DAYS AFTER COMPLETION OF CONSTRUCTION OF THE SURFACE WATER MANAGEMENT SYSTEM, THE PERMITTEE SHALL SUBMIT THE CERTIFICATION AND NOTIFY THE DISTRICT THAT THE FACILITIES ARE READY FOR INSPECTION AND APPROVAL. UPON APPROVAL OF THE COMPLETED SURFACE WATER MANAGEMENT SYSTEM, THE PERMITTEE SHALL REQUEST TRANSFER OF THE PERMIT TO THE RESPONSIBLE ENTITY APPROVED BY THE DISTRICT.
5. ALL ROADS SHALL BE SET AT OR ABOVE ELEVATIONS REQUIRED BY THE APPLICABLE LOCAL GOVERNMENT FLOOD CRITERIA.
6. ALL BUILDING FLOORS SHALL BE SET AT OR ABOVE ELEVATIONS ACCEPTABLE TO THE APPLICABLE LOCAL GOVERNMENT.
7. OFF-SITE DISCHARGES DURING CONSTRUCTION AND DEVELOPMENT SHALL BE MADE ONLY THROUGH THE FACILITIES AUTHORIZED BY THIS PERMIT. NO ROADWAY OR BUILDING CONSTRUCTION SHALL COMMENCE ON-SITE UNTIL COMPLETION OF THE PERMITTED DISCHARGE STRUCTURE AND DETENTION AREAS. WATER DISCHARGED FROM THE PROJECT SHALL BE THROUGH STRUCTURES HAVING A MECHANISM SUITABLE FOR REGULATING UPSTREAM WATER STAGES. STAGES MAY BE SUBJECT TO OPERATING SCHEDULES SATISFACTORY TO THE DISTRICT.
8. NO CONSTRUCTION AUTHORIZED HEREIN SHALL COMMENCE UNTIL A RESPONSIBLE ENTITY ACCEPTABLE TO THE DISTRICT HAS BEEN ESTABLISHED AND HAS AGREED TO OPERATE AND MAINTAIN THE SYSTEM. THE ENTITY MUST BE PROVIDED WITH SUFFICIENT OWNERSHIP SO THAT IT HAS CONTROL OVER ALL WATER MANAGEMENT FACILITIES AUTHORIZED HEREIN. UPON RECEIPT OF WRITTEN EVIDENCE OF THE SATISFACTION OF THIS CONDITION, THE DISTRICT WILL ISSUE AN AUTHORIZATION TO COMMENCE CONSTRUCTION.
9. THE PERMIT DOES NOT CONVEY TO THE PERMITTEE ANY PROPERTY RIGHT NOR ANY RIGHTS OR PRIVILEGES OTHER THAN THOSE SPECIFIED IN THE PERMIT AND CHAPTER 40E-4, FAC.
10. THE PERMITTEE SHALL HOLD AND SAVE THE DISTRICT HARMLESS FROM ANY AND ALL DAMAGES, CLAIMS, OR LIABILITIES WHICH MAY ARISE BY REASON OF THE CONSTRUCTION, OPERATION, MAINTENANCE OR USE OF ANY FACILITY AUTHORIZED BY THE PERMIT.
11. THIS PERMIT IS ISSUED BASED ON THE APPLICANT'S SUBMITTED INFORMATION WHICH REASONABLY DEMONSTRATES THAT ADVERSE OFF-SITE WATER RESOURCE RELATED IMPACTS WILL NOT BE CAUSED BY THE COMPLETED PERMIT ACTIVITY. IT IS ALSO THE RESPONSIBILITY OF THE PERMITTEE TO INSURE THAT ADVERSE OFF-SITE WATER RESOURCE RELATED IMPACTS DO NOT OCCUR DURING CONSTRUCTION.
12. PRIOR TO DEWATERING, PLANS SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL. INFORMATION SHALL INCLUDE AS A MINIMUM: PUMP SIZES, LOCATIONS AND HOURS OF OPERATION FOR EACH PUMP. IF OFF-SITE DISCHARGE IS PROPOSED, OR OFF-SITE ADVERSE IMPACTS ARE EVIDENT, AN INDIVIDUAL WATER USE PERMIT MAY BE REQUIRED. THE PERMITTEE IS CAUTIONED THAT SEVERAL MONTHS MAY BE REQUIRED FOR CONSIDERATION OF THE WATER USE PERMIT APPLICATION.

05118-B

SPECIAL CONDITIONS
(This Phase)

1. MINIMUM BUILDING FLOOR ELEVATION 107.0 FEET NGVD.
2. MINIMUM ROAD CROWN ELEVATION 103.7 FEET NGVD.
3. DISCHARGE FACILITIES:

DESCRIPTION: **POND 1:** 1-2.0' BY 3.1' SPECIAL INLET WITH A GRATE AT ELEVATION 108.0' NGVD DISCHARGING INTO LAKE NO. 7, SYSTEM 1 OF THE CAMINO REAL MASTER SYSTEM.

POND 2: 1-2.0' BY 3.1' SPECIAL INLET WITH A GRATE AT ELEVATION 108.8' NGVD DISCHARGING INTO LAKE NO. 6, SYSTEM 1 OF THE CAMINO REAL MASTER SYSTEM.

RECEIVING WATER: **POND 1:** CAMINO REAL MASTER SYSTEM LAKE 7 (SYSTEM 1).

POND 2: CAMINO REAL MASTER SYSTEM LAKE 6 (SYSTEM 2).

CONTROL ELEVATION: **LAKE 6:** 102.5 FEET NGVD.

LAKE 7: 103.0 FEET NGVD.

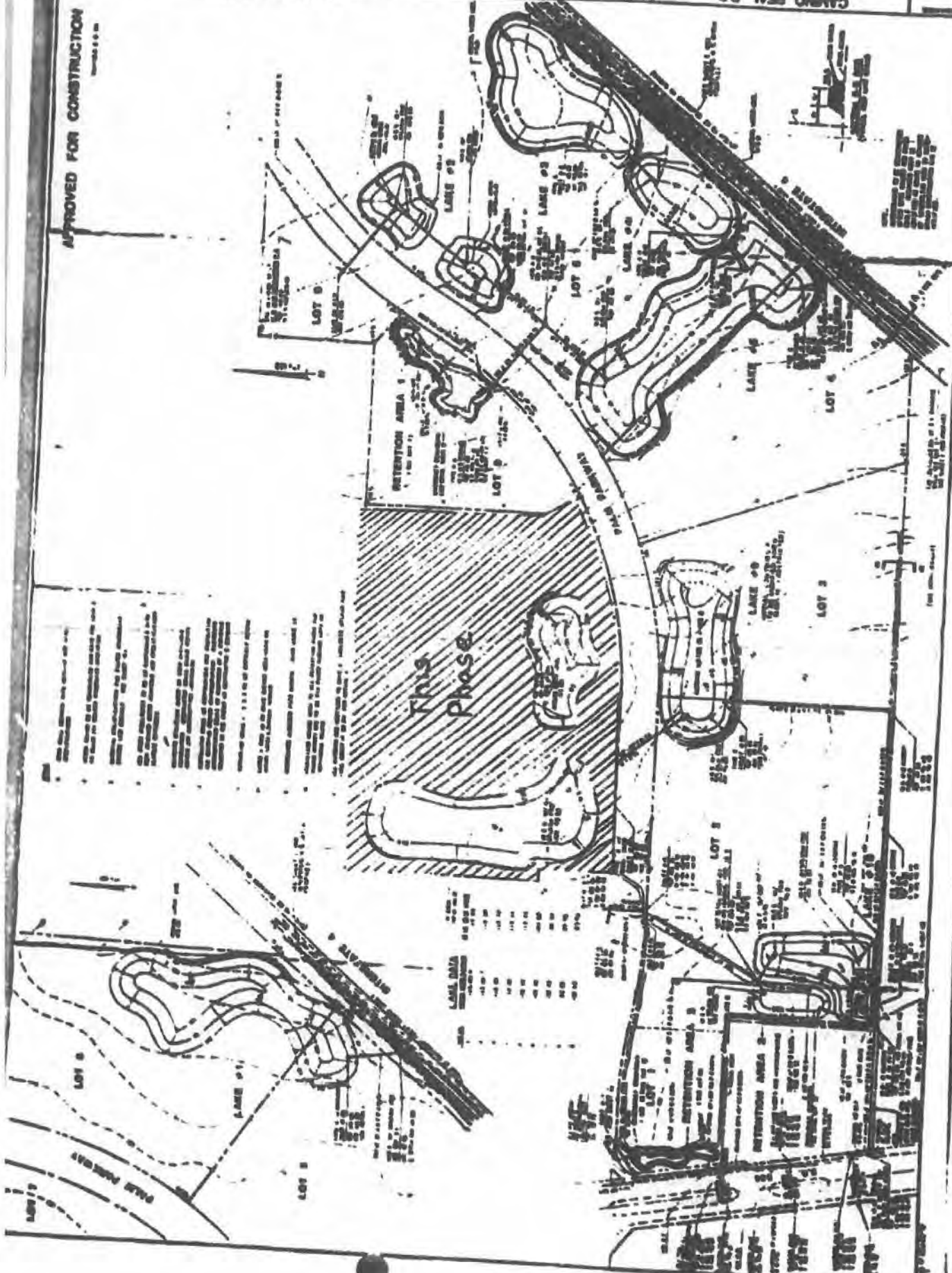
4. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY EROSION OR SHOALING PROBLEMS THAT RESULT FROM THE CONSTRUCTION OR OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM.
5. MEASURES SHALL BE TAKEN DURING CONSTRUCTION TO INSURE THAT SEDIMENTATION AND/OR TURBIDITY PROBLEMS ARE NOT CREATED IN THE RECEIVING WATER.
6. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY WATER QUALITY PROBLEMS THAT RESULT FROM THE CONSTRUCTION OR OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM.
7. THE DISTRICT RESERVES THE RIGHT TO REQUIRE THAT WATER QUALITY TREATMENT METHODS BE INCORPORATED INTO THE DRAINAGE SYSTEM IF SUCH MEASURES ARE SHOWN TO BE NECESSARY.
8. OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM SHALL BE THE RESPONSIBILITY OF VISTA CENTER MANAGEMENT ASSOCIATES, INC.
9. LAKE SIDE SLOPES SHALL BE 4:1 (HORIZONTAL:VERTICAL) TO A DEPTH OF TWO FEET BELOW THE CONTROL ELEVATION. SIDE SLOPES SHALL BE NURTURED OR PLANTED FROM 2 FEET BELOW TO 1 FOOT ABOVE CONTROL ELEVATION TO INSURE VEGETATIVE GROWTH.
10. **PRIOR TO THE INITIATION OF ANY WITHDRAWAL OF WATER (IRRIGATION, DEWATERING, PUBLIC WATER SUPPLY, ETC.), IT WILL BE NECESSARY TO APPLY FOR A WATER USE PERMIT. THE PERMITTEE IS CAUTIONED THAT A MINIMUM OF 90 DAYS IS REQUIRED FOR CONSIDERATION OF THE WATER USE PERMIT APPLICATION. THE PERMITTEE IS CAUTIONED THAT THE ISSUANCE OF A SURFACE WATER MANAGEMENT PERMIT SHALL NOT BE CONSTRUED TO BE A GUARANTEE THAT WATER WILL BE AVAILABLE.**

APPROVED FOR CONSTRUCTION

CASINO REAL P.D.
INFRASTRUCTURE PLANS
GRAND COUNTY, MONTANA

DONALD W. MCINTOSH ASSOCIATES, INC.
REGISTERED PROFESSIONAL ENGINEER
MONTANA LICENSE NO. 10000

NO.	DATE	DESCRIPTION
1	10/1/00	PRELIMINARY
2	10/15/00	REVISED
3	11/1/00	REVISED
4	11/15/00	REVISED
5	12/1/00	REVISED
6	12/15/00	REVISED
7	1/1/01	REVISED
8	1/15/01	REVISED
9	2/1/01	REVISED
10	2/15/01	REVISED
11	3/1/01	REVISED
12	3/15/01	REVISED
13	4/1/01	REVISED
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104	1/15/05	REVISED
105	2/1/05	REVISED
106	2/15/05	REVISED
107	3/1/05	REVISED
108	3/15/05	RETAINED



This Phase

LAKE NO.	AREA (SQ. FT.)	VOLUME (CU. FT.)	DEPTH (FT.)	PERCENT FULL
1	1000	10000	10	100
2	1200	12000	10	100
3	1500	15000	10	100
4	1800	18000	10	100
5	2000	20000	10	100
6	2200	22000	10	100
7	2500	25000	10	100
8	2800	28000	10	100
9	3000	30000	10	100
10	3200	32000	10	100

EXHIBIT 2

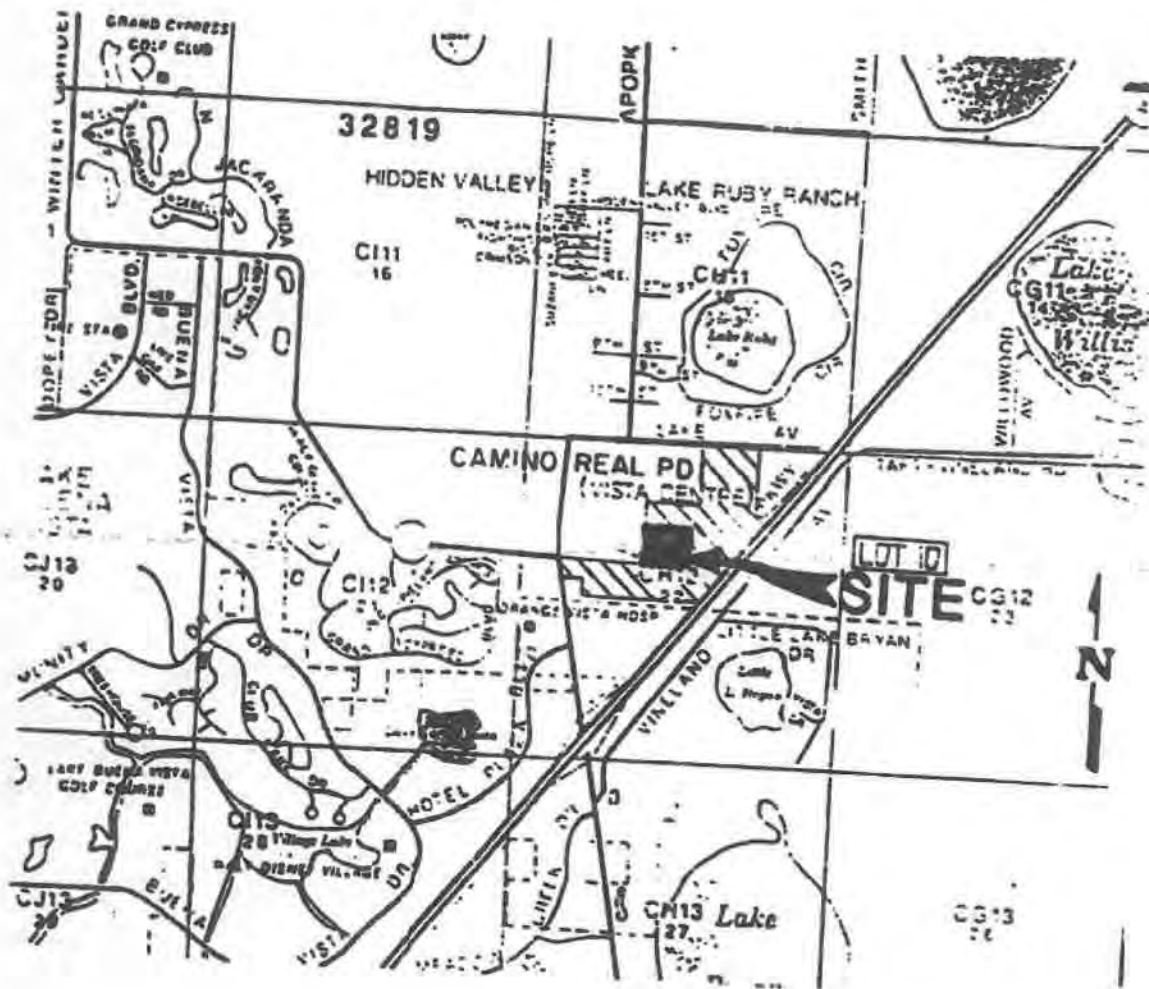


EXHIBIT 1

NO. 09-04. IMF

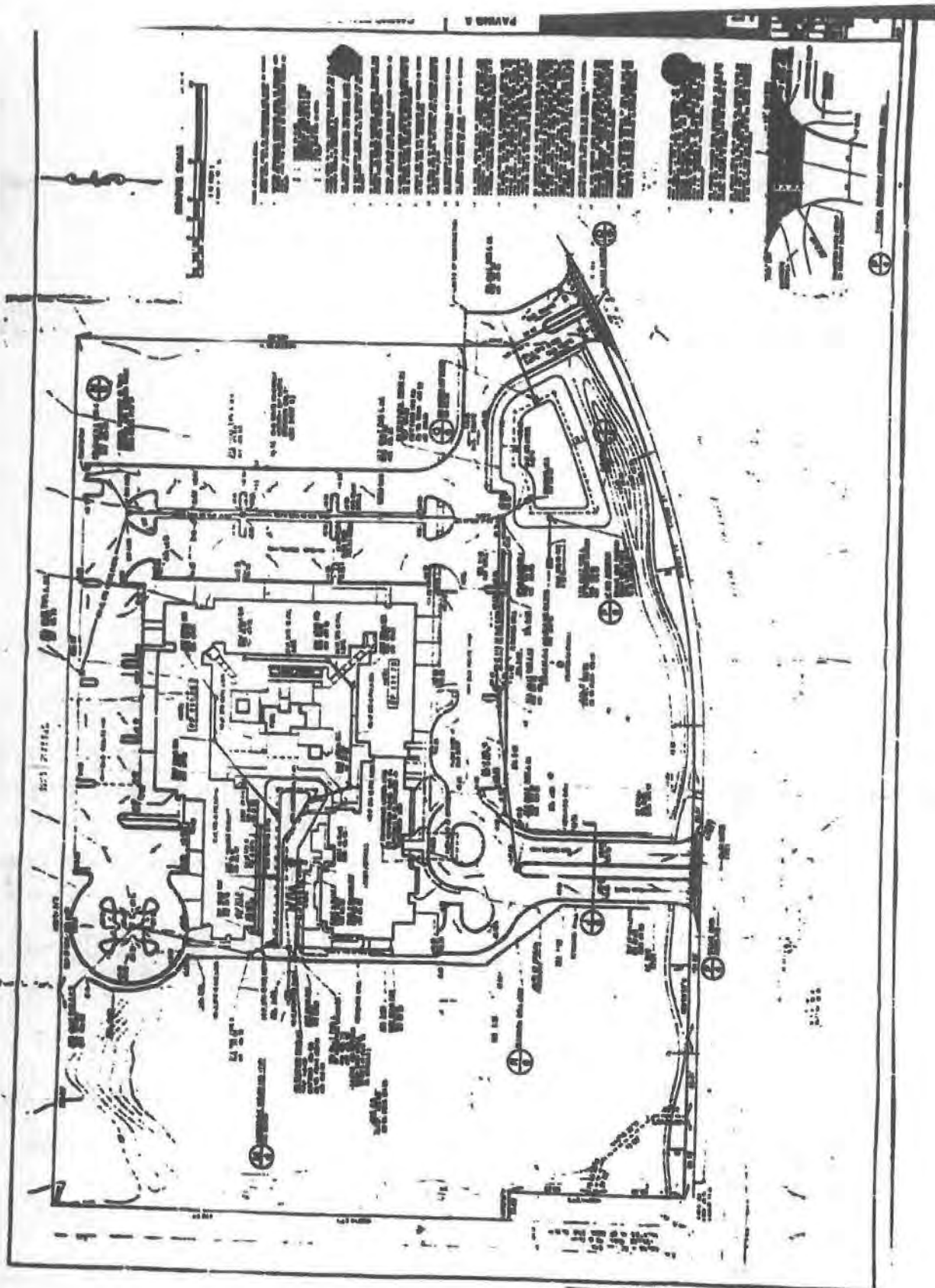


EXHIBIT 3

<p>①</p>	<p>②</p>	<p>③</p>	<p>④</p>	<p>⑤</p>	<p>⑥</p>
<p>⑦</p>	<p>⑧</p>	<p>⑨</p>	<p>⑩</p>	<p>⑪</p>	<p>⑫</p>
<p>⑬</p>	<p>⑭</p>	<p>⑮</p>	<p>⑯</p>	<p>⑰</p>	<p>⑱</p>
<p>⑲</p>	<p>⑳</p>	<p>㉑</p>	<p>㉒</p>	<p>㉓</p>	<p>㉔</p>

EXHIBIT 4



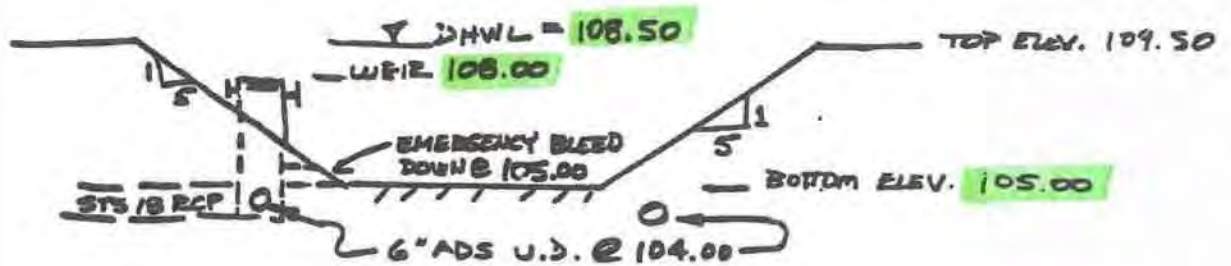
HOLLIS ENGINEERING, INC.

Civil & Environmental Engineers
Land Surveyors
Orlando • Sarasota

BY _____ DATE _____ SUBJECT PARK SQUARE INN SHEET NO. _____ OF _____
CHKD. BY _____ DATE _____ POND K-SECTIONS JOB NO. _____

EXHIBIT A

POND #1
(DRY BOTTOM POND)



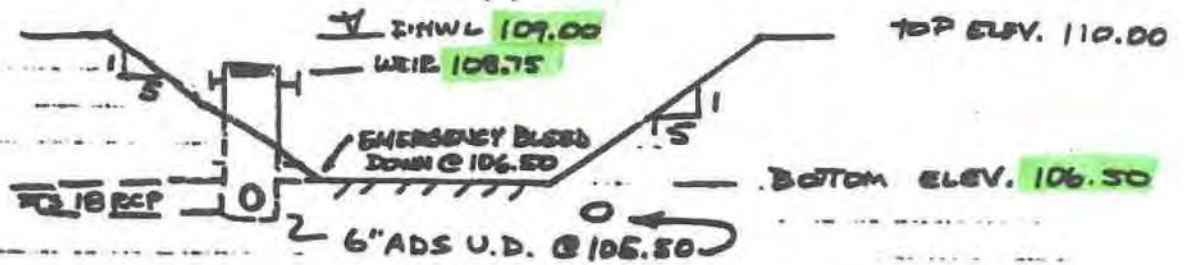
1' FREEBOARD

POND #2
(DRY BOTTOM POND)

RECEIVED

SEP 27 1985

RESOURCE CONTROL DEPT. - 405



1' FREEBOARD

W. E. Baker

EXHIBIT 5

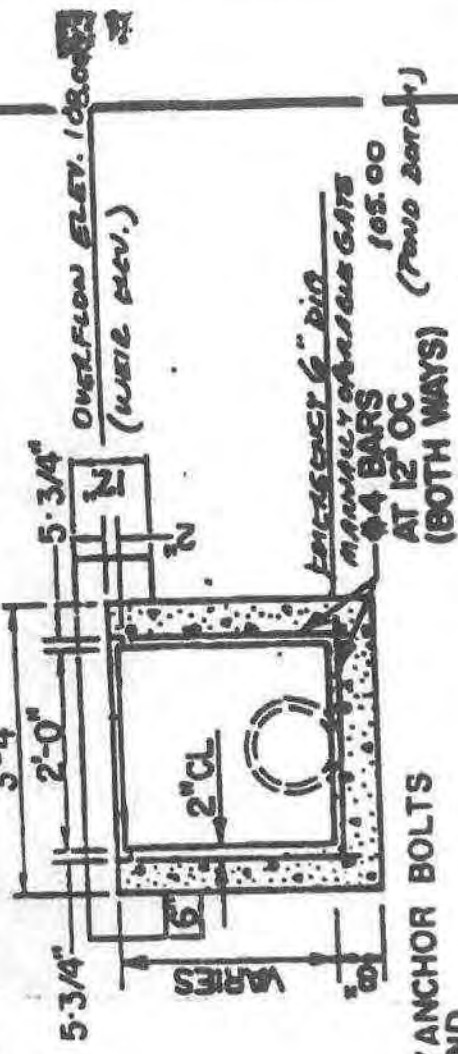
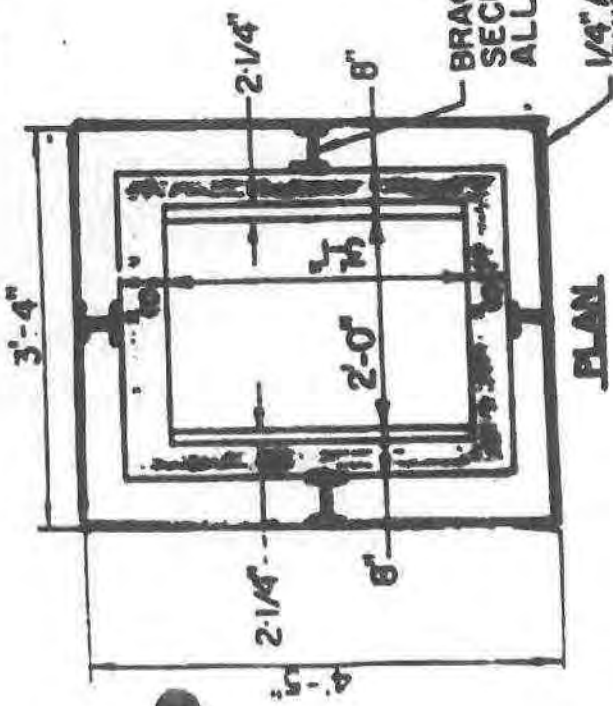
9/26/85

POND #1

OUTFALL STRUCTURE

(PROPOSED RETENTION POND ROUTING INTO EXISTING DETENTION POND)

- NOTES:**
1. ALL EXPOSED CORNERS & EDGES ARE TO BE CHAMFERED 3/4".
 2. CONCRETE SHALL BE CLASS 3000 MIN.



BRACKET: SECURE W/ ANCHOR BOLTS ALL AROUND

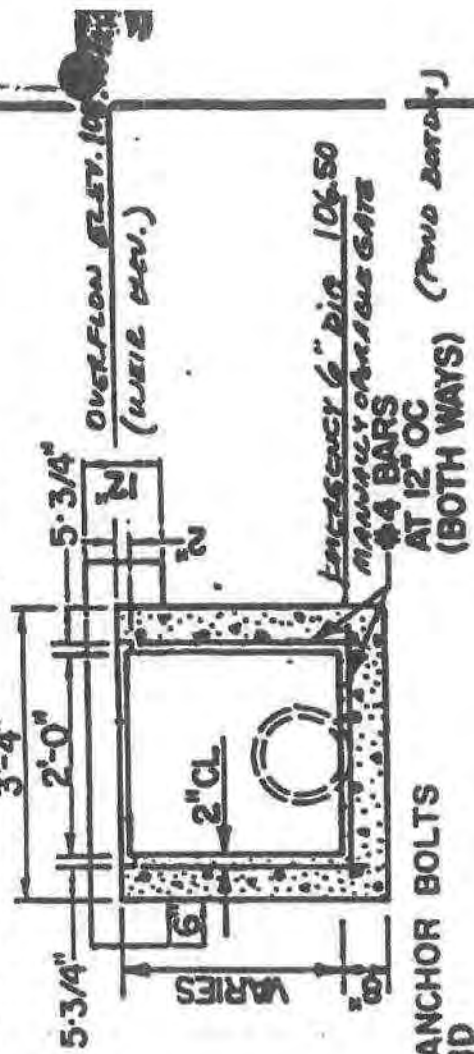
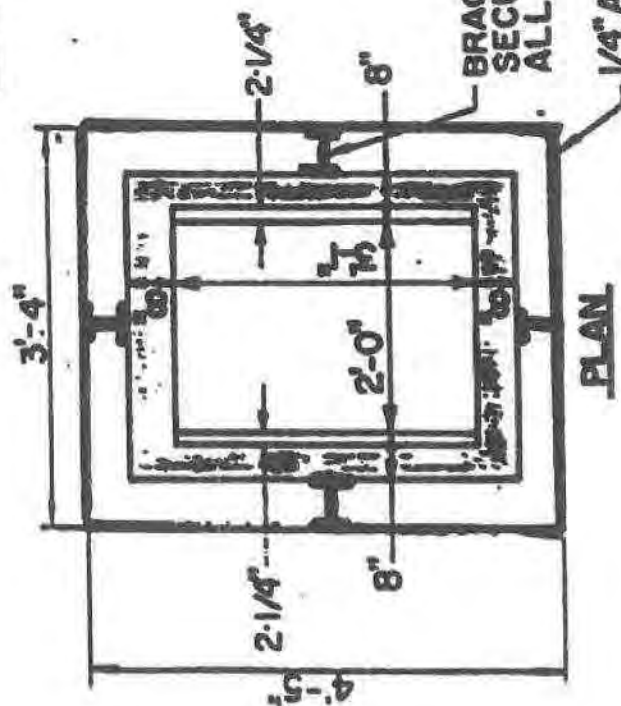
1/4" ALUM. SKIMMER (12" WIDE)

I INLET TYPE C (MODIFIED)
- OUTFALL STRUCTURE

OUTFALL STRUCTURE
 (PROPOSED RETENTION POND ROUTING INTO EXISTING DETENTION POND)

POND #2

- NOTES:
1. ALL EXPOSED CORNERS & EDGES ARE TO BE CHAMFERED 3/4".
 2. CONCRETE SHALL BE CLASS 3000 MIN.



BRACKET:
 SECURE W/ANCHOR BOLTS
 ALL AROUND

1/4" ALUM.
 SKIMMER
 (12" WIDE)

INLET TYPE C (MODIFIED)
 OUTFALL STRUCTURE

EXHIBIT 7

Howard Johnson Park Square

PERMIT SUMMARY SHEET

APPLICATION NO. 05118-B

LOCATION Orange County S22/T24S/R28E

PROJECT AREA 13.7 ACRES

BASIN AREA 47.1 ACRES

PROJECT USE Commercial

FACILITIES:

1. **EXISTING:** The site contains two existing lakes totaling approximately 3.4 acres. The remainder of the site is currently undeveloped. 370' *A*
2. **PROPOSED:** A surface water management system consisting of a series of inlets and culverts directing runoff into two dry retention areas totaling approximately 0.16 acres. Discharge from Area 1 (0.13 acre) is via a control structure consisting of 1-2' by 3.1' special inlet with a grate at elevation 108' NGVD and 40 LF of 18" diameter RCP culvert into Camino Real master system Lake No. 7. Discharge from retention area 2 is via 1-2' by 3.1' special inlet with a grate at elevation 108.8' NGVD and 45 LF of 18" diameter RCP culvert into Camino Real Master system Lake 6.

APPLICABLE LAND USE

TOTAL	<u>110.1</u> ACRES;	<u>92.47</u> ACRES;	<u>13.7</u> ACRES
WATER MANAGEMENT	<u>15.2</u> ACRES;	<u>15.50</u> ACRES;	<u>0.16</u> ACRES
IMPERVIOUS	<u>62.21</u> ACRES;	<u>44.88</u> ACRES;	<u>6.92</u> ACRES
DWELLING	<u>1416</u> UNITS;	<u>1007</u> UNITS;	<u>240</u> UNITS
COMMERCIAL	<u>150,000</u> SQ.FT.;	<u>127,188</u> SQ.FT.;	<u>0</u> ACRES

DRAINAGE BASIN Upper Kissimmee

RECEIVING BODY Camino Real Master System

COMMENTS:

1. On May 11, 1988 plans were submitted to the District for construction and operation of a 13.7-acre tract known as Howard Johnson Park Square Hotel located within the Camino Real P.D.
2. **Water Quality:** All water quality for this site will be provided in the two retention areas. Retention will be provided in excess of 1/2" over the project site.
3. **Environmental:** No adverse impacts are expected as a result of this project.

EXHIBIT 8

STAFF REPORT DISTRIBUTION LIST

PROJECT: Howard Johnson Park Square, Camino Real P.D. APPLICATION NUMBER: 05118-B

PERMIT (MOD) NO.: 48-00271-S-08

INTERNAL DISTRIBUTION

X Reviewer: S. McNabb

- X S. Anderson
- X B. Colavecchio
- X C. de Rojas
- X K. Dickson
- X C. Drew
- X M. Johnson
- X V. Katilius
- X S. Lamb
- X J. M. Hiscock
- X C. McCray
- X P. Hillar
- X J. Morgan
- X C. Padera
- X P. Rhoads
- X H. Schloss
- X J. Show
- X M. Slayton
- X G. Gcforth
- X W. Stimmel
- X P. Walker
- X T. Waterhouse
- X J. Wodraska
- X E. Yaun
- X Area Engineer
- X Enforcement
- X Field Representative
- X Office of Counsel
- X Permit File

GOVERNING BOARD MEMBERS

- Mr. Oscar M. Corbin
- Mr. James F. Garner
- Mr. Doran A. Jason
- Mr. Arsenio Milian
- Mr. Nathaniel P. Reed
- Ms. Nancy H. Roen
- Mr. Fritz Stein
- Mr. Mike Stout
- Mr. J.D. York

EXTERNAL DISTRIBUTION

DEPT. OF ENVIRONMENTAL
REGULATION:

- X Ft. Myers
- X Orlando
- X Port St. Lucie
- X Tallahassee
- X West Palm Beach

EXTERNAL DISTRIBUTION CONTINUED

- X Applicant:
Austin Vista Limited
- X Applicant's Consultant:
Hollis Engineering, Inc.
Applicant's Agent
- X Engineer, County of:
Orange
- X Engineer, City of:
- X Local Drainage District:
Reedy Creek

BUILDING AND ZONING

- Boca Raton
- Boynton Beach
- Royal Palm Beach
- Tequesta
- West Palm Beach

COUNTY

- Broward -Director, Water Mgmt Division
-BCEQB
- Collier -Agricultural Agent
- Dade -DERM
- Lee -Long Range Planning
-Mosquito Control
-E.P.S.
- Palm Beach -Building Department
-School Brd., Plant Planning
- Polk -Water Resources Department

OTHER

- Fred Vidzes, Big Cypress Basin
- Kissimmee River Coordinating Council
- Fish & Game Commission, Okeechobee
- X Fish & Game Commission, Kissimmee
- X Sierra Club-Central Florida Group
- X Vista Center Management Associates, Inc.

EXHIBIT 9



HOLLIS ENGINEERING, INC.

505 E. Palmetto St. Suite 203
Orlando, FL 32807-2911

(407) 422-1118

77001

September 21, 1988

**HOWARD JOHNSON PARK SQUARE INN
ADD'L. DRAINAGE INFORMATION
FOR
SO. FLA. WATER MGT. DISTRICT**



HOLLIS ENGINEERING, INC.

10/11/88 118

September 21, 1988

Mr. Scott McNabb
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
3301 Gun Club Road
West Palm Beach, Florida 33406

HOWARD JOHNSON PARK SQUARE INN - SPWMD GENERAL PERMIT
APPLICATION - ADDITIONAL REQUESTED INFORMATION

Scott, in accordance with your previous letter from your office, we have attached the additional drainage information that was requested pertaining to the above stated project. We have completed the drainage worksheet in accordance with the directions provided therein. As shown in the attached documentation, the proposed retention volume on-site exceeds the required retention volume as computed on the worksheet.

We have also attached a copy of our land use breakdown along with the requested retention pond cross-sections. Also, please find the necessary legal documentation that was requested.

Scott, it is the owner's desire to obtain an early work permit. Please find attached a copy of the "Notice of Intent to Conduct Pre-Permit Work", along with a letter from Mr. Al Baerenklau of the Florida Hospitality Group regarding this application.

If there is anything that we can do in order to assist you in your review, please do not hesitate to call. Once again, we appreciate your assistance on this subject property.

Sincerely,

HOLLIS ENGINEERING, INC.,

William B. Burns,
Project Engineer

WBB/DR

Enclosure:

cc: Mr. Al Baerenklau, Florida Hospitality Group

77001



HOLLIS ENGINEERING, INC.

Civil & Environmental Engineers
Land Surveyors
Orlando • Sarasota

BY BB DATE 4/18/88 SUBJECT PARK SQUARE INN SHEET NO. 1 OF
CHKD. BY WEB DATE 4/21/88 DRAINAGE CALCULATIONS JOB NO. 77001
PROPOSED RETENTION VOLUME

RETENTION POND #1

BOTTOM 105.00
WEIR ELEVATION @ 108.00

AREA @ 105.00 = 5500 SF (BOTTOM SURFACE AREA)
AREA @ 108.00 = 9760 SF

$$\text{VOLUME OF RETENTION} = \frac{5500 + 9760}{2} \times 3' = 22,890 \text{ CF}$$

RETENTION POND #2

BOTTOM 106.50
WEIR ELEVATION 108.75

AREA @ 106.50 = 1280 SF (BOTTOM SURFACE AREA)
AREA @ 108.75 = 4800 SF

$$\text{VOLUME OF RETENTION} = \left(\frac{1280 + 4800}{2} \right) \times 2.25' = 6840 \text{ CF}$$

$$\therefore \text{TOTAL RETENTION VOLUME ON SITE} = \begin{array}{r} 22,890 \text{ CF} \\ 6,840 \text{ CF} \\ \hline \end{array}$$

29,730 CF

2. Please complete the following. (Use additional sheets for individual basins or phases as necessary.)

a. For Basin number 130 of the Camino Real P.D. or Phase number _____

(i) Compute the first inch of runoff from entire site.

$$1 \text{ inch} \times \frac{13.70}{\text{project area, acres}} \times 1 \text{ ft}/12 \text{ inches} = \underline{1.14} \text{ ac-ft}$$

(ii) Compute 2.5 inches times the percentage of imperviousness for water quality. (All units of area should be in acres.)

$$(a) \text{ Site area } \frac{13.70}{\text{project area}} - \left(\frac{3.41}{\text{lakes}} + \frac{1.26}{\text{roofs}} \right) = \underline{9.03} \text{ acres}$$

undisturbed area

$$(b) \text{ Impervious area} = \frac{9.03}{\text{site area}} - \frac{3.37}{\text{pervious area}} = \underline{5.66} \text{ acres}$$

$$(c) \text{ Percentage of imperviousness} = \frac{\text{impervious area}}{\text{site area}} \left(\frac{5.66}{9.03} \right) \times 100\% = \underline{62.7\%}$$

$$(d) (2.5 \text{ inches}) \times (\% \text{ impervious}) = 2.5 \text{ inches} \times \frac{0.627}{\% \text{ imp.}} = \underline{1.57} \text{ inches to be treated.}$$

(iii) Wet detention volume required for quality detention =

$$\frac{1.57}{\text{inches to be treated}} \times \left(\frac{13.70}{\text{project area}} - \frac{2.21 + 1.20}{\text{lakes}} \right) \times 1 \text{ ft}/12 \text{ inches} = \underline{\hspace{2cm}} \text{ ac-ft.}$$

The larger of item (i) or (iii) above is to be used in items (iv) and (v) below.

(iv) Volume reductions due to a dry detention/retention system.

$$(a) \text{ If dry detention: } 0.75 \times \frac{\text{wet detention required for quality}}{\text{wet detention required for quality}} = \underline{\hspace{2cm}} \text{ ac-ft required.}$$

$$(b) \text{ If retention: } 0.50 \times \frac{1.34}{\text{wet detention volume for quality}} = \underline{0.673} \text{ ac-ft required.}$$

(v) Required detention/retention = 0.673 ac-ft = 29,321 CF
 Detention/retention method
 Wet detention Dry detention Retention
 Detention/retention provided at elevation _____ ft., NGVD =
 _____ ac-ft.

PLEASE SEE ATTACHED EXHIBIT A



HOLLIS ENGINEERING, INC.

Civil & Environmental Engineers
Land Surveyors
Orlando • Sarasota

BY BB DATE 8-21-88 SUBJECT PARK SQUARE INN SHEET NO. OF
CHKD. BY DATE LAND USE BREAKDOWN JOB NO.

AREA TO TOP OF BANK

LAKE #6	1.82 AC
LAKE #7	0.39 AC
TOTAL	= <u>2.21 AC</u>

UNDISTURBED AREA (EAST PORTION OF SITE) = 1.20 AC

TOTAL BUILDING FOOTPRINT = 55,200 SF = 1.26 AC

TOTAL LOT AREA = 13.70 AC (LOT 10 CANNING REAL P. D.)

TOTAL SITE AREA = 13.70 - 1.20 - 2.21 = 10.29 AC

TOTAL IMPERVIOUS AREA = 5.66 AC (EXCLUSIVE OF BUILDING ROOFS)
(INCLUSIVE OF POOL, DECK AREA)

% BLDG FOOTPRINT AREA = $1.26 \text{ AC} / 13.70 \text{ AC} = 9.2\%$

% PARKING LOT, SWALK, CURBING, POOL, DECK AREA = $5.66 / 13.70$
 $= 0.41 = 41\%$

∴ TOTAL IMPERVIOUS AREA OF LOT 10 = $(5.66 + 1.26) / 13.70 = 50.5\%$

∴ TOTAL PERVIOUS AREA OF LOT 10 = 33.3%

∴ TOTAL LAKES LOT 10 = $2.21 / 13.70 = 16.2\%$



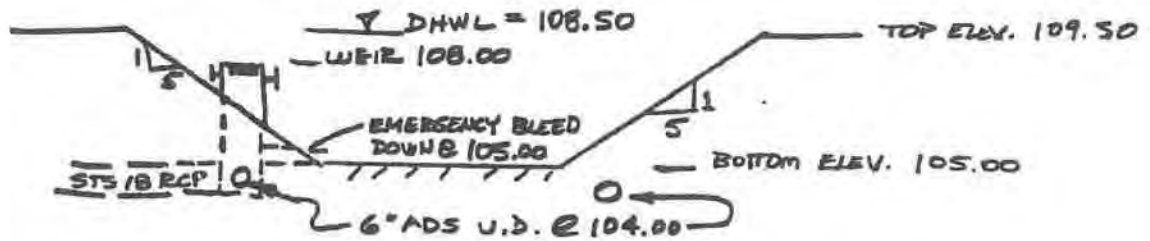
HOLLIS ENGINEERING, INC.

Civil & Environmental Engineers
Land Surveyors
Orlando • Sarasota

BY _____ DATE _____ SUBJECT PARK SQUARE INN SHEET NO. _____ OF _____
CHKD. BY _____ DATE _____ POND X-SECTIONS JOB NO. _____

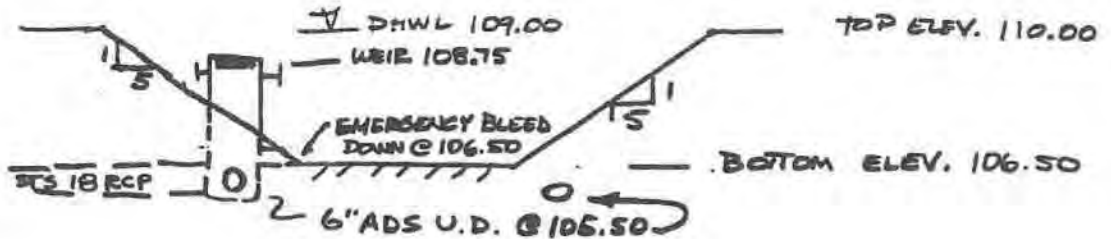
EXHIBIT A

POND #1
(DRY BOTTOM POND)



1' FREEBOARD

POND #2
(DRY BOTTOM POND)



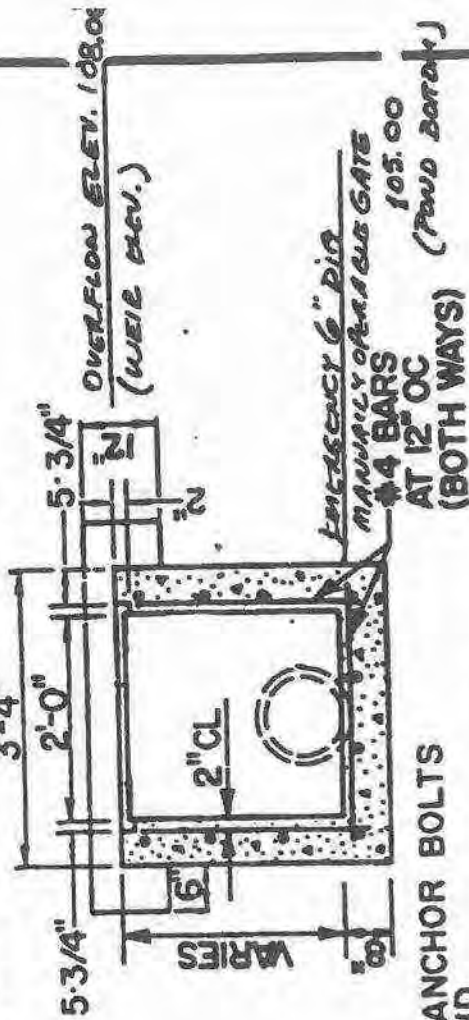
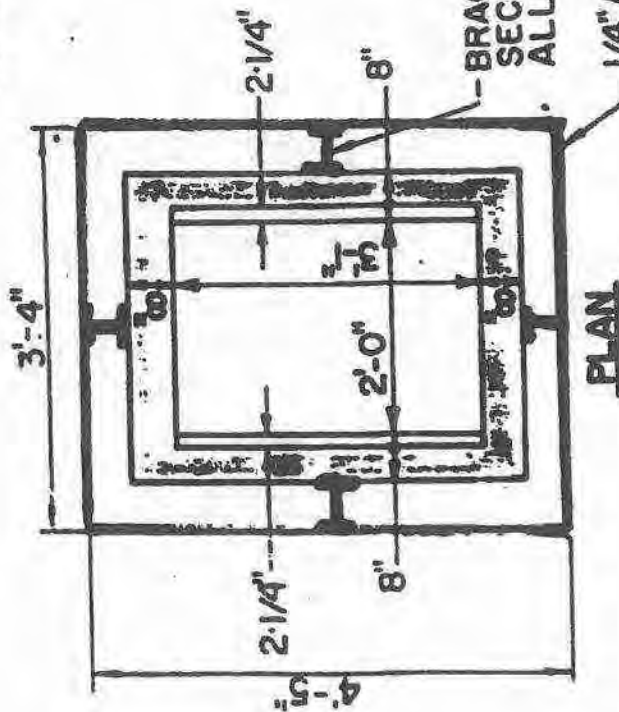
1' FREEBOARD

POND #1

OUTFALL STRUCTURE

(PROPOSED RETENTION POND ROUTING INTO EXISTING DETENTION POND)

- NOTES:**
1. ALL EXPOSED CORNERS & EDGES ARE TO BE CHAMFERED 3/4".
 2. CONCRETE SHALL BE CLASS 3000 MIN.

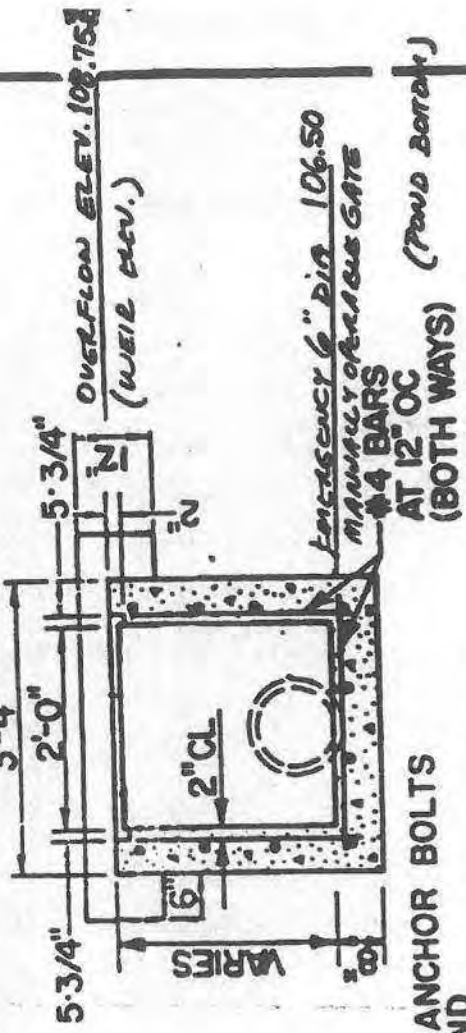
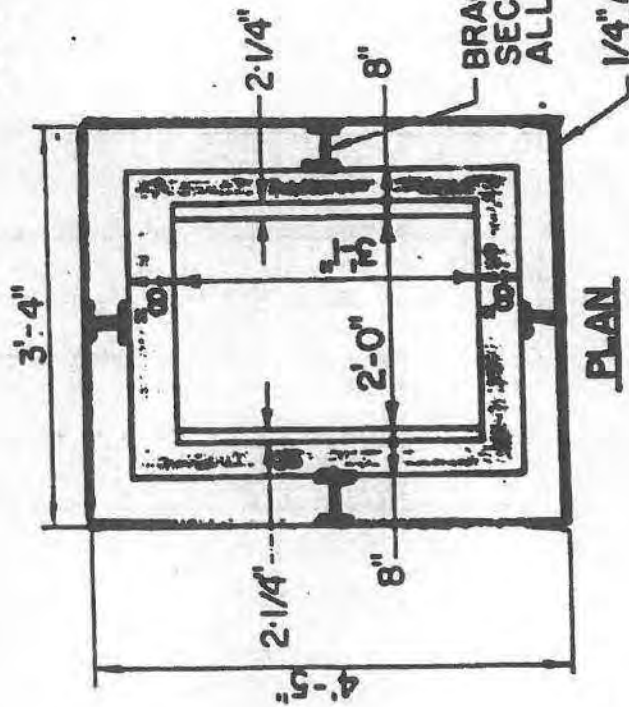


INLET TYPE C (MODIFIED)
OUTFALL STRUCTURE

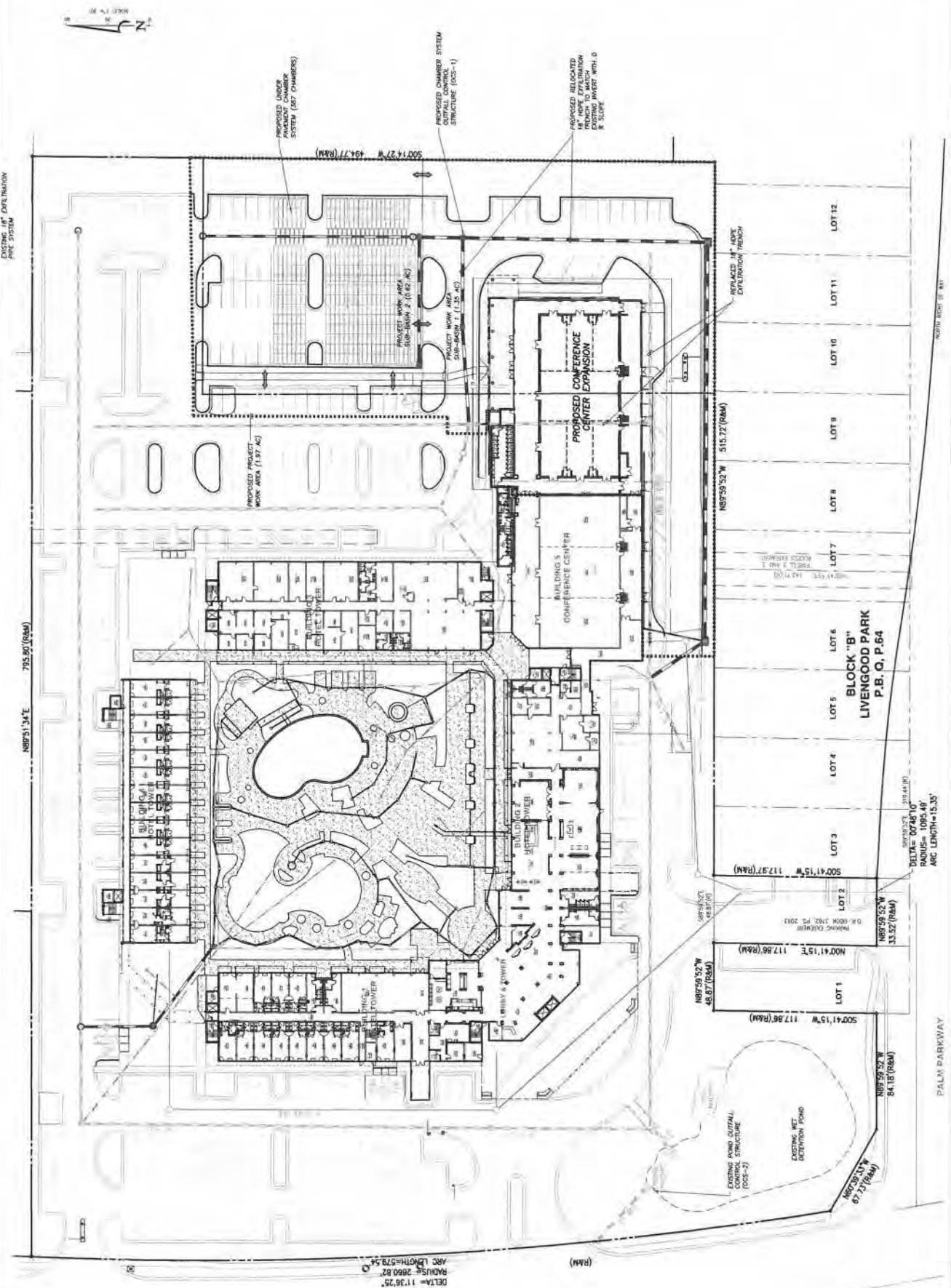
POND #2

OUTFALL STRUCTURE
(PROPOSED RETENTION POND ROUTING INTO EXISTING DETENTION POND)

- NOTES:
1. ALL EXPOSED CORNERS & EDGES ARE TO BE CHAMFERED 3/4".
 2. CONCRETE SHALL BE CLASS 3000 MIN.



INLET TYPE C (MODIFIED)
OUTFALL STRUCTURE



Permit No. 48-00271-S-07

Application No. 100326-8

Vista Center Lot 5 – Comfort Inn



South Florida Water Management District

Handwritten: File
John R. Wodraska, Executive Director
Tilford C. Creel, Deputy Executive Director
QUAD 4 & 5
17 AM 109 & 61
POSTED

Post Office Box 24680 3301 Gun Club Road
West Palm Beach, Florida 33416-4680
Telephone (407) 686-8800
Florida WATS Line 1-800-432-2045

IN REPLY REFER TO:
CERTIFIED MAIL NO. P 670 649 533
Resource Control Department
Application No.: 05118-3

APP# 1 00326-8

August 12, 1988

ORIGINAL SUBMITTAL

Vista Hotel Partners
7600 International Drive
Orlando, Florida 32819

MAR 25 2010

Dear Sir or Madam:

ORLANDO SERVICE CENTER

Subject: Notice of Intent to Construct Works
Modification to Permit No.: 48-00271-S-07
Permittee: Vista Hotel Partners
Project : Comfort Suites Hotel
Location : Orange County, S22/T24S/R28E

This letter is to notify you of the District's agency action concerning your request of May 11, 1988, to modify the above reference permit. This action is taken pursuant to Rule 40E.1.606 and Chapter 40E-40, Florida Administrative Code.

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

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing,
2. the attached 12 Standard Limiting Conditions, and
3. 10 Special Conditions.

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

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the addressee (and the persons listed in the attached distribution list) not later than 5:00 P.M., this 12th day of August, 1988, in accordance with Section 120.60(3), F.S.

Sincerely,

Handwritten Signature
Anthony M. Waterhouse, P.E.
Supervising Professional
Water Management Division

AMW/kw
Enclosures

Nathan H. Reet Hope Springs	Nancy H. Roen Chairman - Plantation	Arsenio Milan Miami	Ed. Yarr Vice Chairman - Palm City	Fritz Stein Belle Glade	James F. Jarne Ft. Myers	Mike Stout Windermere	Doran A. Jason Ker Biscayne
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APP# 100326-8

ORIGINAL SUBMITTAL

MAR 26 2010

DAVIDSON DESIGN GROUP, INC.

ORLANDO SERVICE CENTER

LETTER OF TRANSMITTAL

Date: March 25, 2010	To: South Florida Water Mgmt. District
DDG Number: 0858	1707 Orlando Central Parkway
Project Name: Comfort Inn Splash Pad	Orlando, Florida 32809
Vista Centre Lot 5	Attn: Ed Yaun

We are sending you:

Courier Hand Delivery Attached Under separate cover via

Shop Drawings Specifications

Prints Change Order

Originals Copy of Letter

Permits Other

RECEIVED

MAR 26 2010

ORLANDO SERVICE CENTER

Copies	Date	Description
1		Request for Letter Modification to permit # 48-00271-S
1		Application Fee: \$250.00 DDG Check # 3829
1		Calculations
1		Existing Permit Copy
1		Engineering Plans for proposed addition of Splash Pad area

Remarks:

Ed, Please find the attached request for your review, please contact us if you have any questions or require further information at this time.

Signed: _____

Rick Ortiz, P.E.

President

cc:

APP# 100326-8

CRITERIA	PREVIOUSLY APPROVED	PROPOSED MODIFICATION	NOTES
Project Area Phase 2 (Acres)	6.11	6.11	No change is proposed.
Designated Basin	System 2 Lake 3	System 2 Lake 3	No change is proposed to the existing drainage flow patterns or treatment systems.
Water Management Area (Ac)			This reduction represents the minimal impact to the pond from the splash pad area (2,430 sf) being constructed along the pond bank.
Pond Volume (Ac-Ft)	Required: 0.47 Provided: 0.82	0.65	This represents a net decrease of 0.17 ac-ft of storage, however there is still an excess of 0.18 ac-ft of storage volume available.
Required Water Quality Volume (cf)	Required:: 20,509 cf Provided: 35,698 cf	28,170 cf	This reduction in volume represents the proposed fill impact of 7,528 cf to the dry retention pond. The reduction of volume still leaves 7,699 cf of excess storage volume within the pond.
Impervious Area (Acres)	3.55	3.61	This represents a net increase of 0.06 acres (2,430 sf) of impervious area.
Pollution Abatement Weir Elevation (Ft)	119.00	119.00	No changes are proposed to the outfall control structure or the weir elevations.
Outfall Control Structure Top Elevation (Ft)	119.00	119.00	No changes are proposed to the outfall control structure or the weir elevations.
Retention Pond Top Elevation (Ft)	121.00	121.00	No changes are proposed to the pond elevations.
Minimum Road Crown Elevation (Ft)	N/A ¹	N/A	No changes are proposed
Minimum Building Floor Elevation (Ft)	108.0	108.0	No changes are proposed.
Minimum Floor Elevation	91.30	91.30	No changes are proposed.

RECEIVED

MAR 26 2010

ORLANDO SERVICE CENTER

ORIGINAL SUBMITTAL

MAR 26 2010

ORLANDO SERVICE CENTER



Ricardo A. Ortiz, P.E.
FL Registration No. 58129

3/24/10

¹ Per the Special Conditions of the Permit there is no minimum road elevation.

Permit No. 48-00271-S-10
Application No. 12168-S, 970326-2
Vista Center



FORM 0499
5/87

South Florida Water Management District

BEG. PERMIT

NUMBER 48-00271-S

VOL. 1 OF 3

COMFORT INN
(PHASE 1)

APPROVED FOR CONSTRUCTION
REVISED 2-14-88

DATE: 1-17-88
BY: [Signature]
CHECKED: [Signature]
DESIGNED: [Signature]
DRAWN: [Signature]
SCALE: AS SHOWN
PROJECT NO.: 88-001
SHEET NO.: 1 OF 1

DONALD W. MCINTOSH ASSOCIATES, INC.
PLANNERS
1200 N. W. 10th Street, Suite 1000
Fort Lauderdale, Florida 33304
TELEPHONE: (305) 463-1100

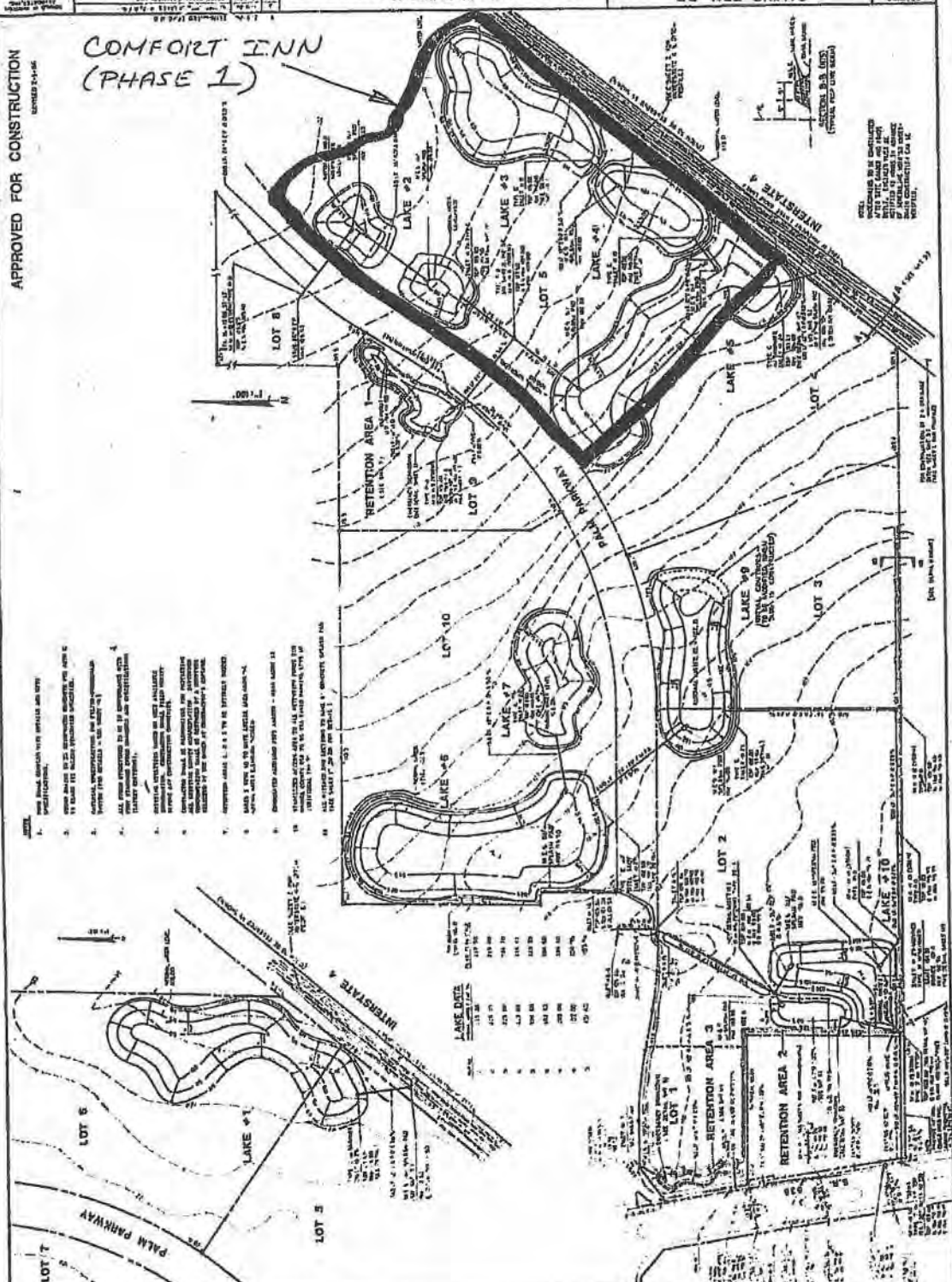
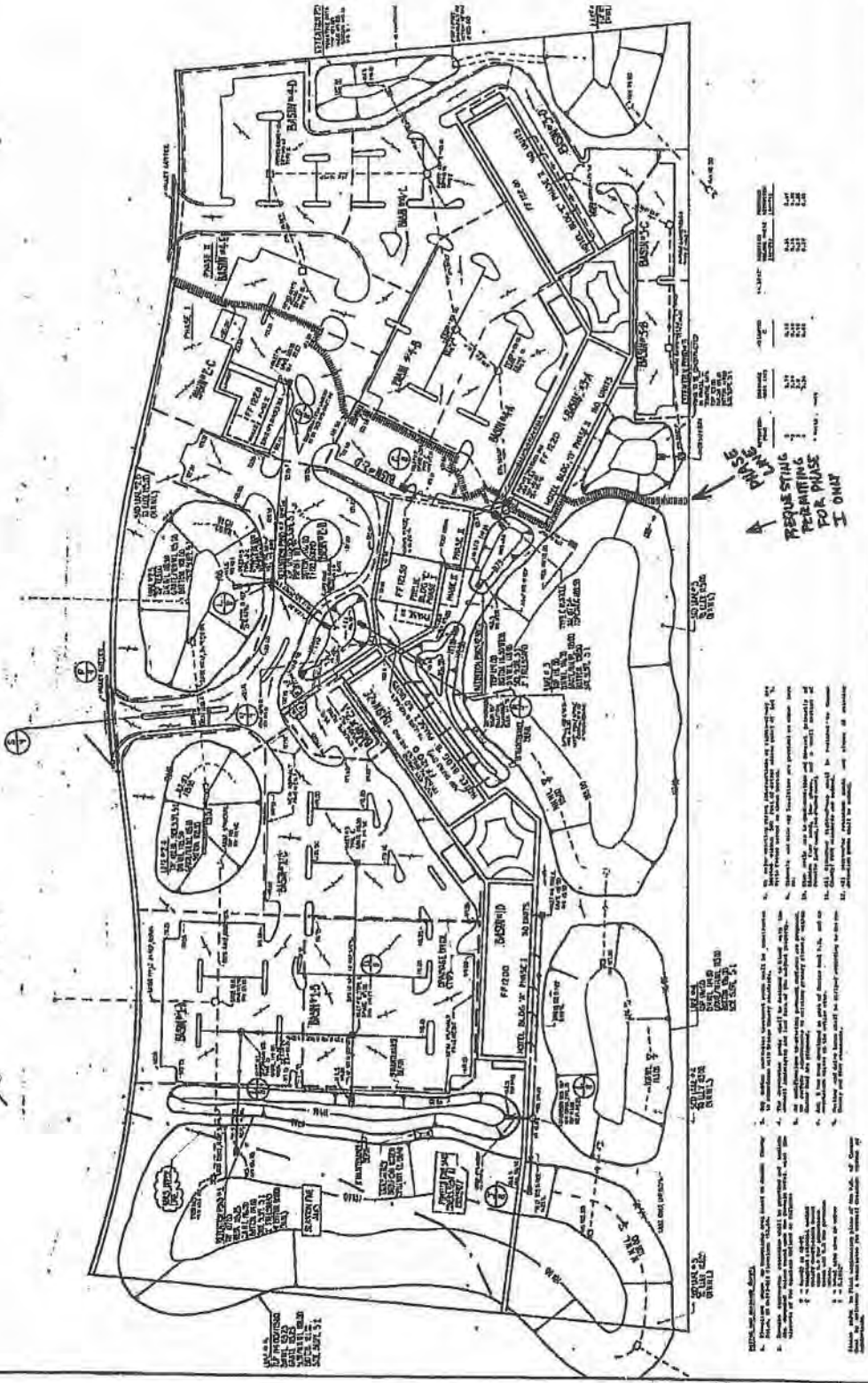


EXHIBIT 2

POOR COPY



NO.	DESCRIPTION	AREA	PERCENTAGE	DATE
1	PHASE I	100	100	1954
2	PHASE II	100	100	1954
3	PHASE III	100	100	1954
4	PHASE IV	100	100	1954
5	PHASE V	100	100	1954
6	PHASE VI	100	100	1954
7	PHASE VII	100	100	1954
8	PHASE VIII	100	100	1954
9	PHASE IX	100	100	1954
10	PHASE X	100	100	1954

1. This plan is a preliminary plan and is subject to change without notice.
2. The plan is based on the information furnished by the applicant and is not a guarantee of accuracy.
3. The plan is subject to the approval of the local health department.
4. The plan is subject to the approval of the local fire department.
5. The plan is subject to the approval of the local police department.
6. The plan is subject to the approval of the local planning commission.
7. The plan is subject to the approval of the local zoning board.
8. The plan is subject to the approval of the local building department.
9. The plan is subject to the approval of the local engineering department.
10. The plan is subject to the approval of the local surveying department.

EXHIBIT 3

POOR COPY

South Florida Water Management District

**BEG. PERMIT
NUMBER** 48-00271-S-10

APPLICATION NO.

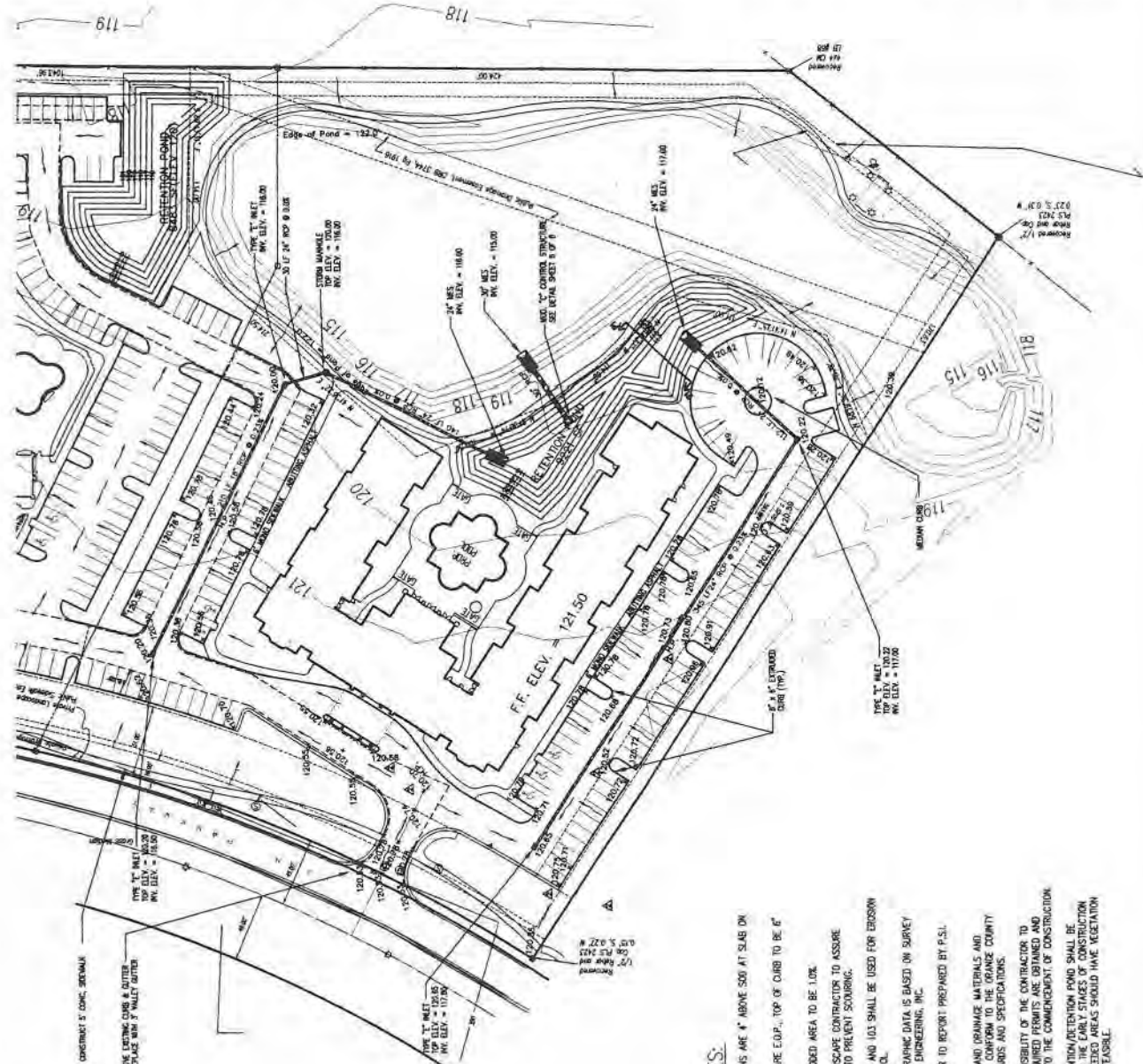
970326-2

RECEIVED
MAY 12 1998
ORLANDO SERVICE CENTER

GENERAL NOTES:

1. PRIOR TO COMMENCEMENT, CONTRACTOR SHALL PROVIDE HOLLIS ENGINEERING, INC. WITH CONSTRUCTION SCHEDULE FOR VARIOUS SITE ACTIVITIES. SCHEDULE SHALL BE REVIEWED AND APPROVED TO AVOID DELAYS IN ASSURANCE OF OCCUPANCY.
2. CONTRACTOR SHALL MAINTAIN A SET OF PLANS ACCURATELY MARKED-UP WITH AS-BUILT INFORMATION ON RM AND INVERT ELEVATIONS.
3. REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO FINAL INSPECTION OF PAVING AND DRAINAGE IMPROVEMENTS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SURVEY MONUMENTATION. DISTURBED MONUMENTATION SHALL BE RELOCATED TO THE PROPERTY LINE AND SURVEYOR SELECTED BY THE OWNER AT CONTRACTOR'S EXPENSE.
5. CONTRACTOR IS RESPONSIBLE FOR GRADING ALL ROADWAYS TO DRAIN POSITIVELY. INTERSECTIONS SHALL BE TRANSITIONED TO PROVIDE SMOOTH DRIVING SURFACE WHILE MAINTAINING POSITIVE DRAINAGE. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE THROUGHOUT THE PROJECT. PRIOR TO PLACING BASE SO THAT RECOMMENDATIONS FOR CORRECTION MAY BE MADE.
6. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OF ANY DISCREPANCIES FOUND BETWEEN THESE PLANS AND THE FIELD CONDITIONS PRIOR TO CONSTRUCTION.
7. CHAPTER 17-13 OF THE FLORIDA STATUTES REQUIRES THAT AN EXCAVATOR NOTIFY ALL GAS UTILITIES A MINIMUM OF 48 HOURS PRIOR TO THE LOCATION OF GAS MAINS AND DO NOT SHOW SERVICE LINES. THE ONLY SAFE AND PROPER WAY TO LOCATE EITHER MAIN OR SERVICE LINES IS BY ON-SITE INSPECTION BY GAS COMPANY PERSONNEL. THEREFORE, EXCAVATORS ARE INSTRUCTED TO TELEPHONE THE GAS COMPANY TWO WORKING DAYS BEFORE ENTERING A NEW CONSTRUCTION AREA.
8. ALL MEDIANS AND ISLANDS TO BE FILLED WITH CLEAN SOIL.
9. ALL PAVEMENT RETURN RAILS SHALL BE MEASURED FROM THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
10. ALL DISTURBED AREAS IN RIGHT OF WAY SHALL BE SOOLED.

11. ALL PAVEMENT MARKERS, STIRRING, SIGNAGE, AND OTHER TRAFFIC CONTROL DEVICES TO BE INSTALLED BY CONTRACTOR TEN (10) HOURS PRIOR TO BEGINNING CONSTRUCTION.
12. THE FOLLOWING AGENCIES AND COMPANIES SHALL BE NOTIFIED 48 HOURS PRIOR TO BEGINNING CONSTRUCTION:
 - A. ORANGE COUNTY ENGINEERING DEPARTMENT 632-7000
 - B. ORANGE COUNTY PUBLIC UTILITIES DEPT. 632-7200
 - C. ORANGE COUNTY WASTEWATER DEPARTMENT 632-7200
 - D. PEOPLES GAS SYSTEM 425-4661
 - E. SOUTHERN BELL TELEPHONE 841-2071
 - F. CABLEVISION OF CENTRAL FLORIDA 285-9119
 - G. ORLANDO UTILITIES COMMISSION ELEC. DEPT. 423-9100
13. CONTRACTOR TO BE EXTREMELY CAUTIOUS WHEN WORKING NEAR TREES WHICH ARE TO BE SAVED. IF THERE IS A QUESTION AS TO WHETHER A PARTICULAR AREA SHOULD BE CLEARED, THE CONTRACTOR SHALL CONTACT THE OWNER FOR FURTHER INSTRUCTIONS.
14. TREE REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE LOCAL ORDINANCES.
15. SEE ARCHITECTURAL DETAILS FOR EXACT DIMENSIONS OF DUMPSTER ENCLOSURES.
16. SEE STRUCTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS.
17. CURRENT ZONING CLASSIFICATION IS CS-1.
18. SETBACKS FOR CS-1 ZONING:
 - FRONT: 15 FEET (ARBITRARY RESIDENTIAL)
 - REAR: 20 FEET



GENERAL NOTES:

1. FINISH FLOOR ELEVATIONS ARE 4" ABOVE 500 AT SLAB ON ALL SIZES.
2. ELEVATIONS AT CURB ARE E.O.P., TOP OF CURB TO BE 6" ABOVE E.O.P.
3. MINIMUM GRADE OF SOOLED AREA TO BE 1.0%.
4. COORDINATE WITH LANDSCAPE CONTRACTOR TO ASSURE PONDS ARE SOOLED TO PREVENT SOODING.
5. F.D.O.T. INDEX NO. 102 AND 103 SHALL BE USED FOR EROSION AND SEDIMENT CONTROL.
6. BOUNDARY AND TOPOGRAPHIC DATA IS BASED ON SURVEY PREPARED BY HOLLIS ENGINEERING, INC.
7. FOR SOILS DATA, REFER TO REPORT PREPARED BY P.S.I. (M TD APRIL 1996).
8. SITE GRADING, PAVING AND DRAINAGE MATERIALS AND DEVELOPMENT STANDARDS AND SPECIFICATIONS TO BE OBTAINED FROM THE ORANGE COUNTY DEVELOPMENT STANDARDS AND SPECIFICATIONS.
9. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND ARE IN HAND PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
10. THE STORMWATER RETENTION/RETENTION POND SHALL BE CONSTRUCTED DURING THE EARLY STAGES OF CONSTRUCTION SOOLED AND / OR SOOLED AREAS SHOULD HAVE VEGETATION ADDED AS SOON AS FEASIBLE.



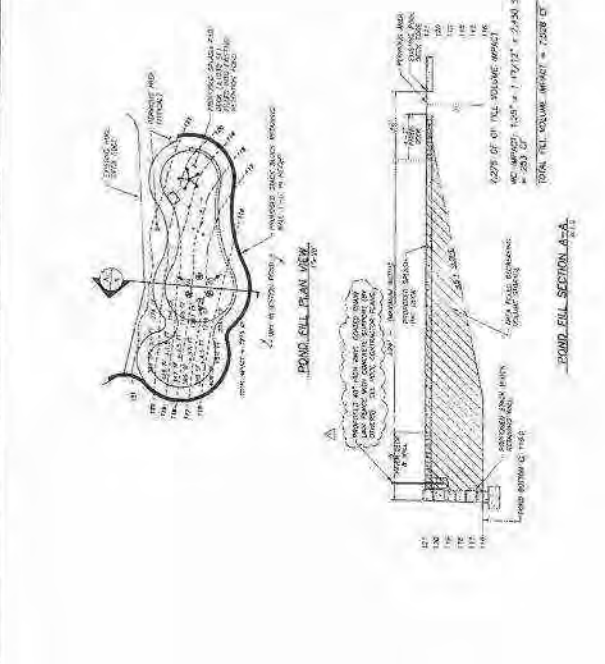
DAVIDSON DESIGN GROUP, INC.
 Civil Engineering & Development Services
 4821 N. Phoenix Ave
 Suite 100
 Phoenix, AZ 85018
 Tel: (602) 998-1100
 Fax: (602) 998-1893

NO.	DATE	DESCRIPTION

COMFORT INN SPLASH PAD - 8442 PALM PARKWAY
 ORANGE COUNTY, FLORIDA
DRAINAGE DETAILS

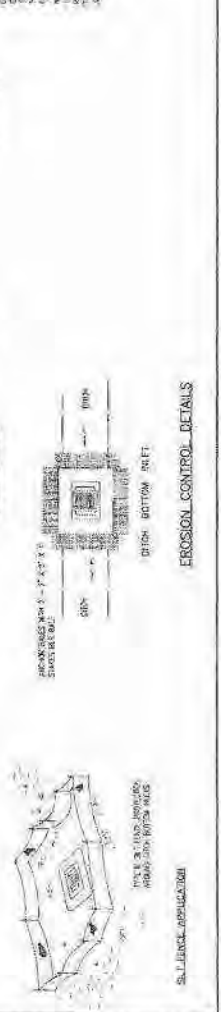
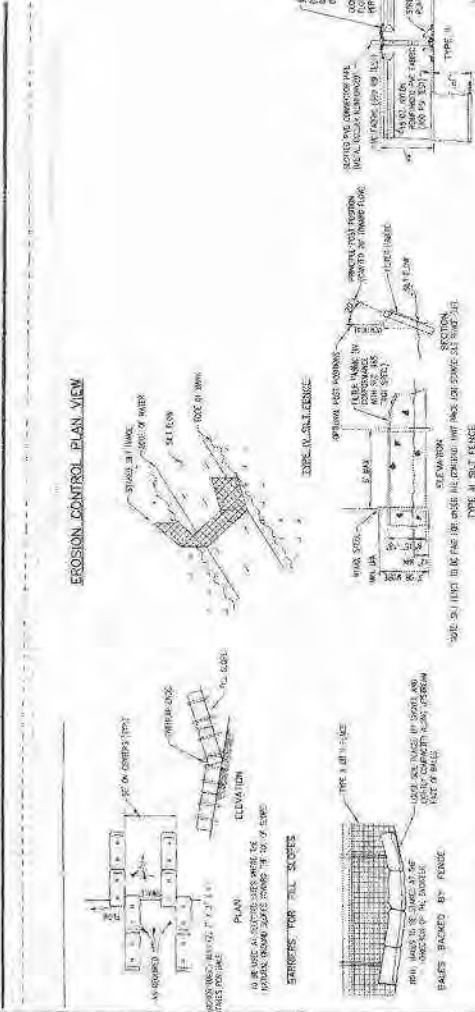
DATE	MARCH 2010
SCALE	1" = 20'
DRAWN BY	DRS/BCU
PROJECT NO.	10080004
DATE	

4774 10 0123 - J
 APPROVED FOR CONSTRUCTION
 APR 23 2010
 BOARD APPROVAL



RECEIVED
 APR 23 2010
 DRAINAGE/ENGINEERING

APR 9 2010
 RECEIVED
 CIVIL ENGINEERING



Permit No. 48-00467-S

Application No. 970714-11

Apopka-Vineland Road

(Lake Ave. to South of Darlene Dr.)

ORIGINAL SUBMITTAL

JUL 14 1997

**WILBUR
SMITH
ASSOCIATES**
ENGINEERS • PLANNERS

APP # 970714-11

ORLANDO SERVICE CENTER

3535 LAWTON ROAD, SUITE 100 • ORLANDO, FL 32803-3729 • (407) 896-5651 • FAX (407) 896-9165

July 10, 1997

Mr. Edward W. Yaun, P.E.
Supervising Professional
South Florida Water Management District
7335 Lake Ellenor Drive
Orlando, Florida 32809

970714-11

RECEIVED

JUL 14 1997

ORLANDO SERVICE CENTER

RE: Apopka-Vineland Road (Lake Ave. to South of Darlene Drive)
County Project No. YC-806A (Phase 3)
District No. 1
Orange County, Florida
Request to Modify Permit No. 48-00467-S

Dear Mr. Yaun:

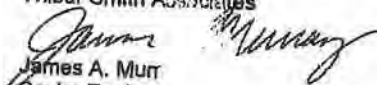
At the request of Orange County, Pond No. 1 has been revised as shown in the attached construction plans. The proposed revision shifts the pond envelope to the North allowing future commercial development at the corner of Apopka-Vineland Road and Lake Avenue.

During the design phase of this revision, we discussed the various impacts to the permitting process with Alan Leavens. It is our understanding that the revisions performed will qualify for the requested letter modification.

The proposed revision includes modifying the pond envelope, the storm sewer system, and the outfall system. The control structure weirs with permitted elevations and the normal water level in the pond remain the same. The maintenance berm on the pond was reduced to fifteen feet and elevated to 104.125 feet.

The result is that the pond meets or exceeds the criteria specified under the previously modified permit. If you have any questions or need additional information, please call.

Very truly yours,
Wilbur Smith Associates


James A. Murr
Senior Engineer

Enclosure

cc: Diana Almodovar, P.E., Bill Stone, P.E.

drainage/mkcolapvnmmod

ACCRA GHANA • ALBANY, NY • ANAHEIM, CA • ATLANTA, GA • BALTIMORE, MD • BANGKOK, THAILAND • CARACAS, VENEZUELA • CHARLESTON, SC • CHICAGO, IL
CLEVELAND, OH • COLUMBIA, SC • COLUMBUS, OH • DES MOINES, IA • FALLS CHURCH, VA • HONOLULU, HI • HONG KONG • HOUSTON, TX • KUWAIT • KNOXVILLE, TN
LEXINGTON, KY • LONDON, ENGLAND • MILWAUKEE, WI • NEW HAVEN, CT • ORLANDO, FL • PHILADELPHIA, PA • PITTSBURGH, PA • RALEIGH, NC
RICHMOND, VA • SALT LAKE CITY, UTAH • SAN FRANCISCO, CA • SAN JOSE, CA • TALLAHASSEE, FL • TAMPA, FL • TORONTO, CANADA • WASHINGTON, DC

EMPLOYEE-OWNED COMPANY



WILBUR SMITH ASSOCIATES

ORIGINATOR WEN DATE 4/2/97 INCORPORATION _____ DATE _____ SHEET NO. 1 OF 1
 CHECKER MLS DATE 4/21/97 VERIFICATION _____ DATE _____ PROJECT NO. _____
 CONCURRENCE _____ DATE _____

Revised Pond #1 Apopka - Vineland Road APP # 970714-11

ORIGINAL SUBMITTAL

From CADD

JUL 14 1997

ORLANDO SERVICE CENTER

STAGE (ft.)	Area (ac.)	Storage (ac-ft)
101.4	2.45	0
104.125	2.86	7.235
106.0	3.47	13.188

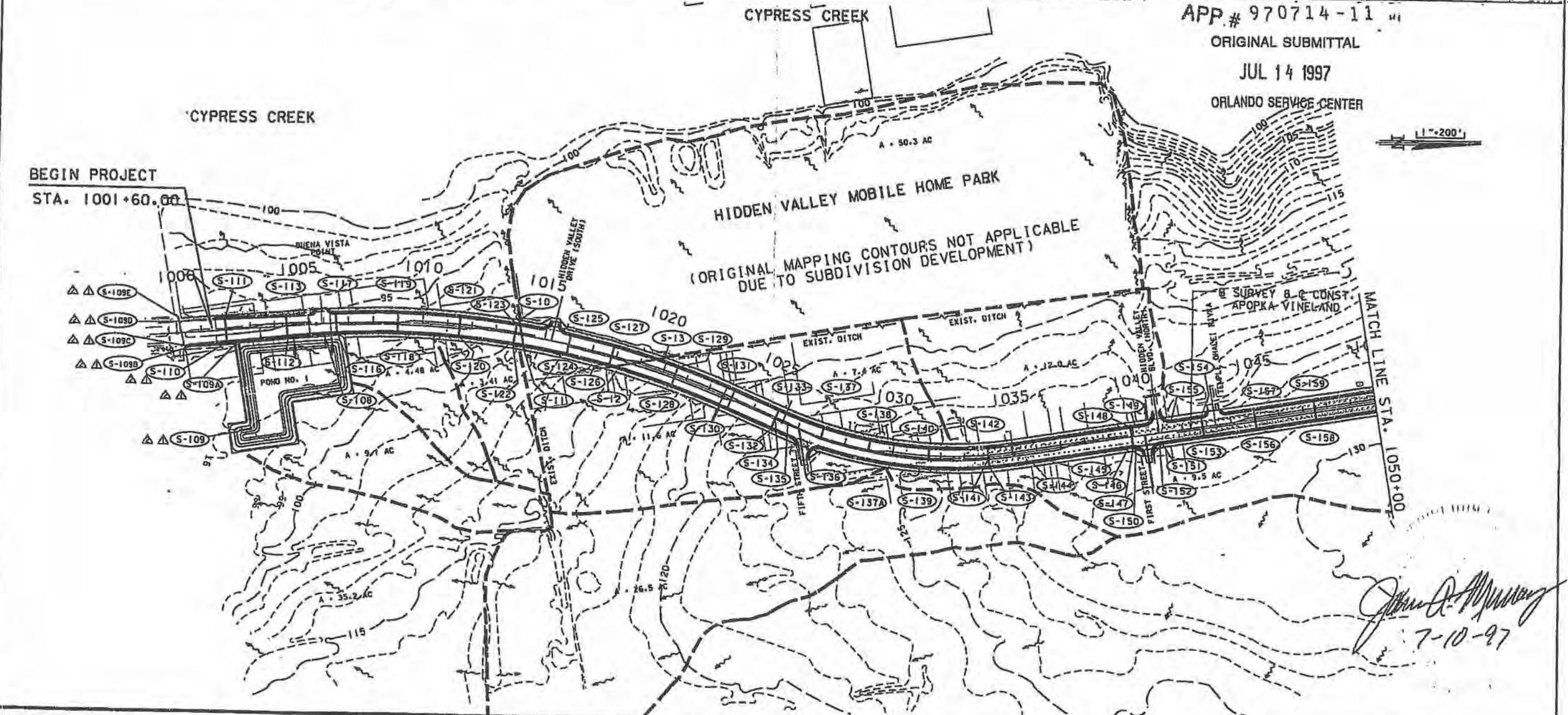
FIND WATER QUALITY TOP ELEVATION

STAGE (ft.)	Storage (ac-ft)	
101.40	0	
101.49	0.235	— 1/2 TREATMENT Vol
101.58	0.47	— TOTAL TREATMENT Vol.
104.1	7.235	

ONE HALF THE TREATMENT VOLUME (0.235 ac-ft) WILL BLEED-DOWN IN 8.0 HRS; THE REMAINING HALF OF THE TREATMENT VOLUME (0.47 ac-ft) WILL BLEED DOWN IN 68.0 HRS. THIS POND MEETS CRITERIA

John A. Munday
7-10-97

BEGIN PROJECT		END LT & RT PGL		COUNTY PROJ. NO.		SHEET NO.	
130	BEGIN PGL LT & RT	STA. 1004+00.00		YO-806A		4	
120	ELEV. 107.26 LT	ELEV. 107.88					
110	ELEV. 107.29 RT						
100					SCALE: 1"=200' Horiz. 1"=10' Vert.		



APP.# 970714-11
 ORIGINAL SUBMITTAL
 JUL 14 1997
 ORLANDO SERVICE CENTER

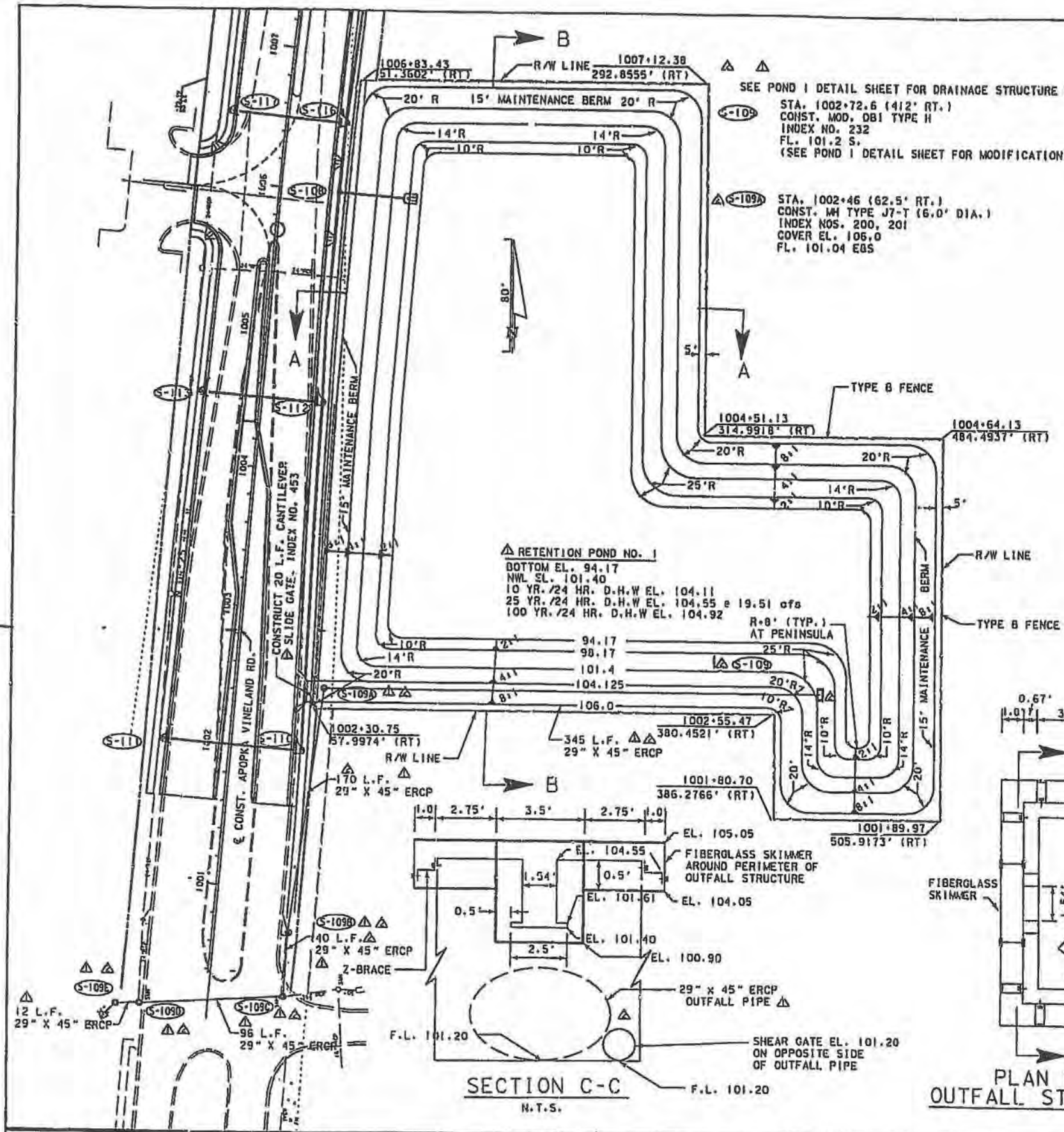
1"=200'

John A. Murray
 7-10-97

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
04/18/97	JAC	ADDED DRAINAGE OUTFALL STRUCTURES FOR POND 1. REMOVED DRAIN. STRUCTURE NO. S-108.	06/13/97	RWF	REVISED DRAINAGE OUTFALL STRUCTURES FOR POND 1.						

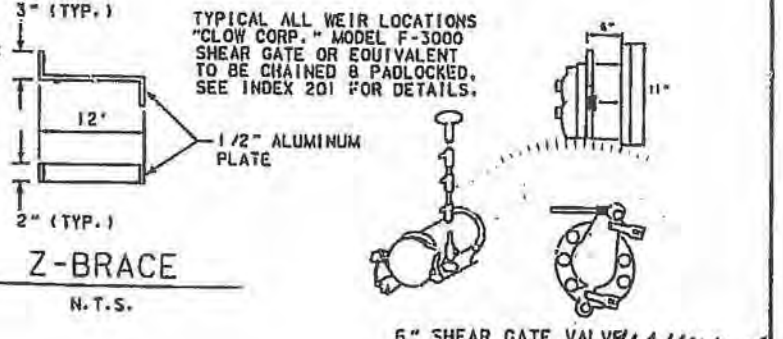
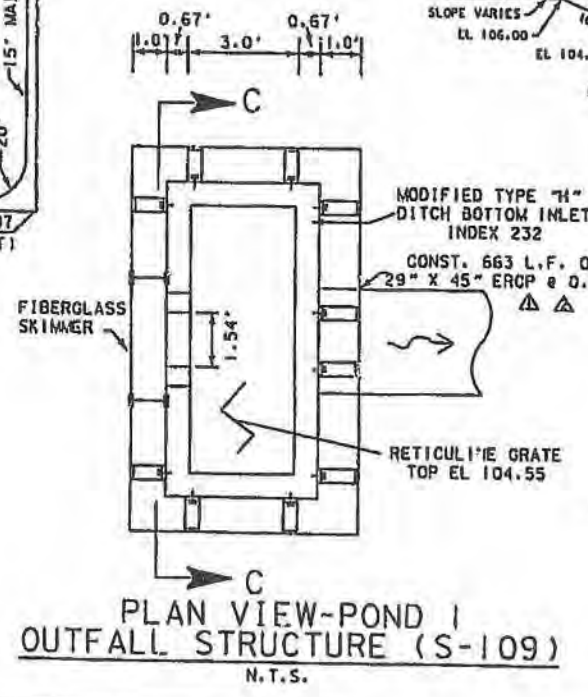
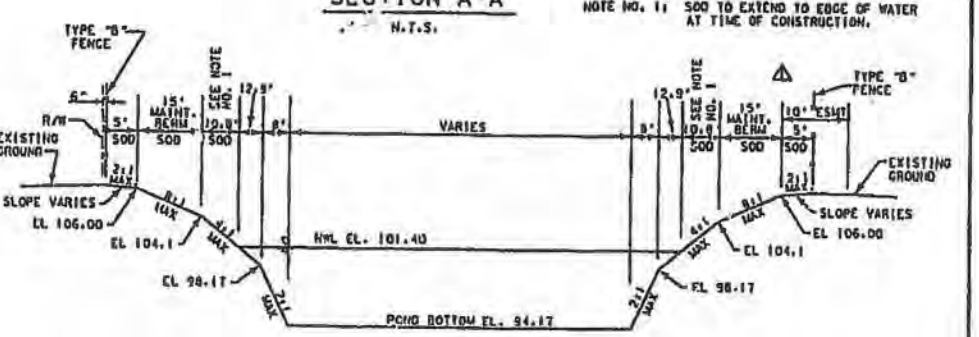
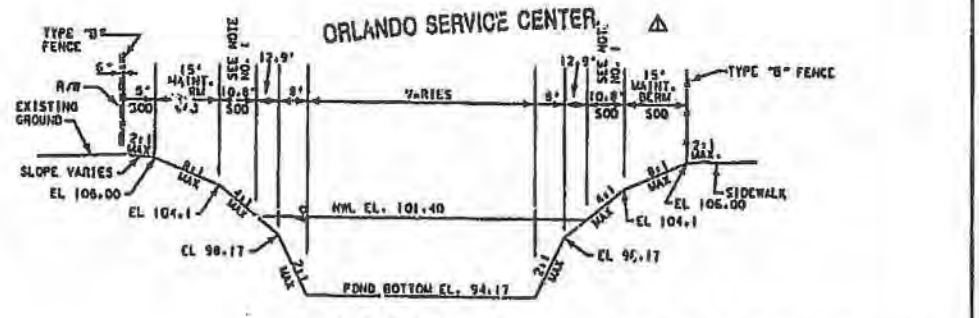


48-00467-5
 DRAINAGE MAP
 APOPKA - VINELAND ROAD



- SEE POND 1 DETAIL SHEET FOR DRAINAGE STRUCTURE ORIENTATION.
- △ S-109 STA. 1002+72.6 (412' RT.)
CONST. MOD. DBI TYPE H
INDEX NOS. 232
FL. 101.2 S.
(SEE POND 1 DETAIL SHEET FOR MODIFICATION)
 - △ S-109 STA. 1002+46 (62.5' RT.)
CONST. MH TYPE J7-T (6.0' DIA.)
INDEX NOS. 200, 201
COVER EL. 106.0
FL. 101.04 EGS
 - △ S-109B STA. 1000+71 (53' RT.)
REMOVE EXISTING P-1 INLET
CONST. INLET TYPE J-1 (6.0' DIA.)
INDEX NOS. 200, 210
MATCH EXISTING GUTTER ELEVATION
FL 100.97 NBS
 - △ S-109C STA. 1000+24 (53' RT.)
REMOVE EXISTING MANHOLE
CONST. MH TYPE J7-T (6.0' DIA.)
COVER TO MATCH FINAL GRADE, 106.2;
INDEX NOS. 207, 201
RECONNECT EXISTING 36" RCP FL. 101.50 E
FL 100.95 N&W
 - △ S-109D STA. 1000+13 (46' LT.)
REMOVE EXISTING MANHOLE
CONST. MH TYPE J7-T (6.0' DIA.)
COVER TO MATCH FINAL GRADE, 106.2;
INDEX NOS. 200, 201
RECONNECT EXISTING 24" RCP FL. 101.55 N
FL 100.91 E&W
 - △ S-109E STA. 1000+09 (64.9' LT.)
REMOVE EXISTING MANHOLE
CONST. MH TYPE J7-T (6.0' DIA.)
COVER TO MATCH FINAL GRADE, 105.90
INDEX NOS. 200, 201
RECONNECT EXISTING 36" RCP FL. 100.90 N
FL 100.90 E

ORIGINAL SUBMITTAL
JUL 14 1997



6" SHEAR GATE VALVE
7-10-97

DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION	
04/26/97	JAC	Δ	REVISED	POND 1 & OUTFALL SYSTEM	6/3/97	PH	Δ	REVISED	POND 1 & OUTFALL SYSTEM		

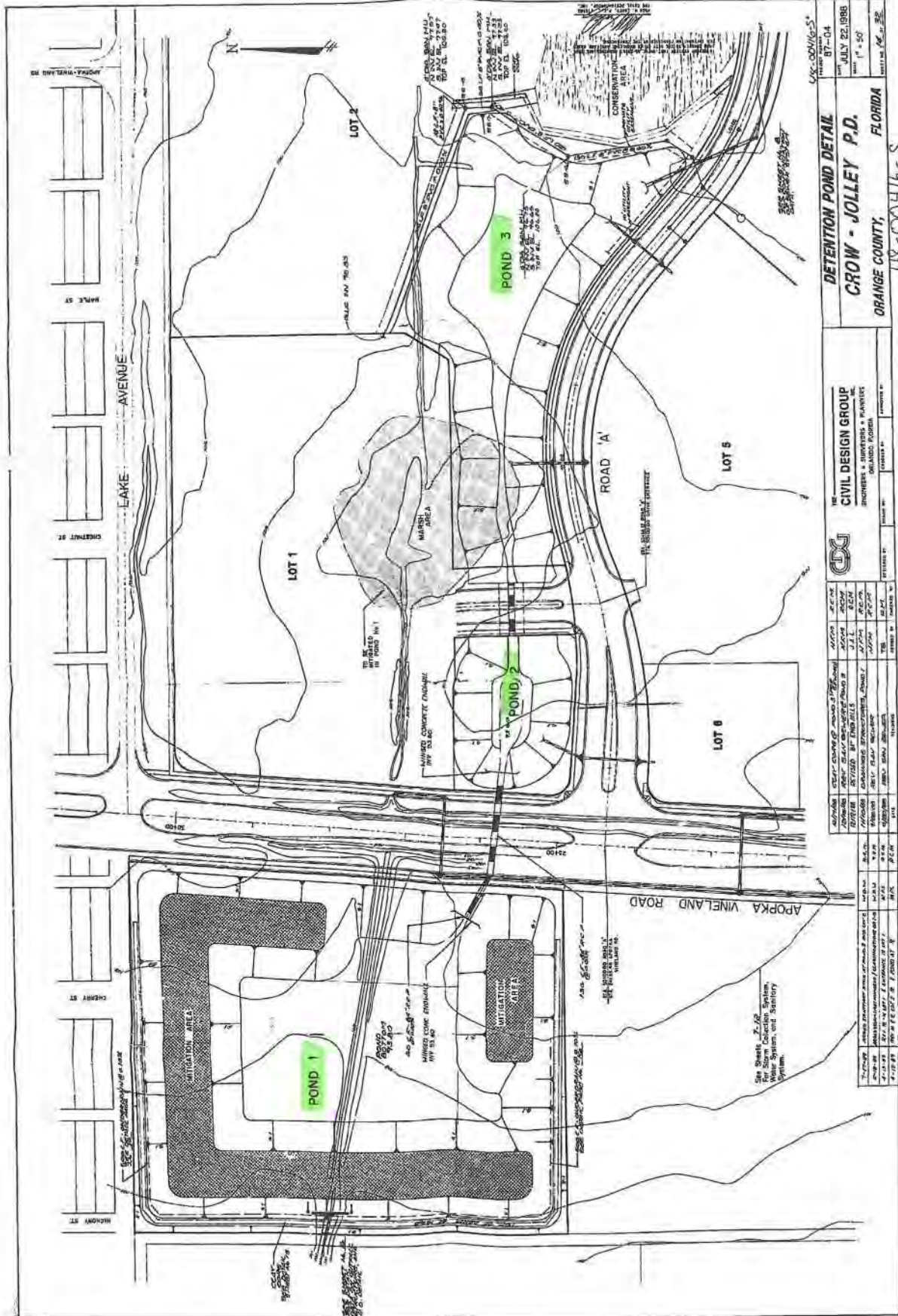
APPROVED BY:

DATE: _____

W&A
WILBUR SMITH ASSOCIATES

POND NO. 1
APOPKA - VINELAND ROAD

48-00467-5

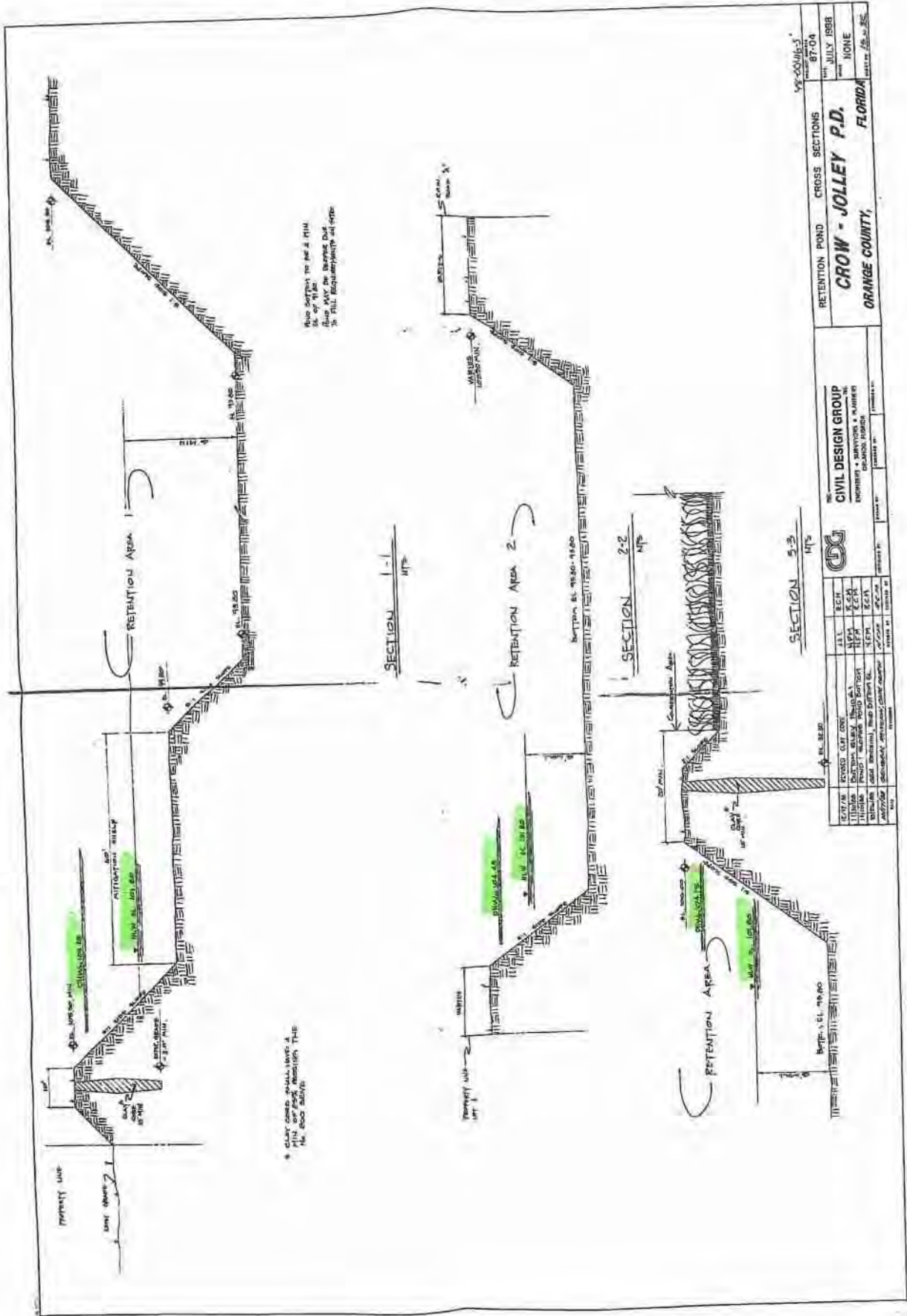


DETENTION POND DETAIL
 CROW - JOLLEY P.D.
 ORANGE COUNTY, FLORIDA
 48-00416-S

CIVIL DESIGN GROUP
 ENGINEERS & SURVEYORS & PLANNERS
 ORLANDO, FLORIDA

NO.	DATE	DESCRIPTION	BY	CHECKED
1	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
2	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
3	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
4	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
5	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
6	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
7	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
8	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
9	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.
10	7/22/88	ISSUED FOR PERMITTING	J.J.L.	J.J.L.

See Sheet 7-102
 for Storm Collection System,
 Storm System, and Sanitary
 System.



THIS SECTION TO BE A MIN
 2% OF 1%
 FROM ANY OF THE
 2% FILL REQUIREMENTS AND OTHER

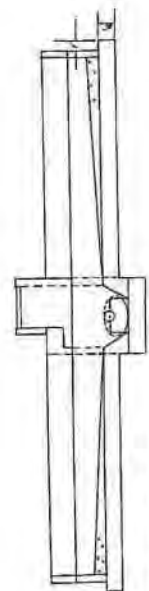
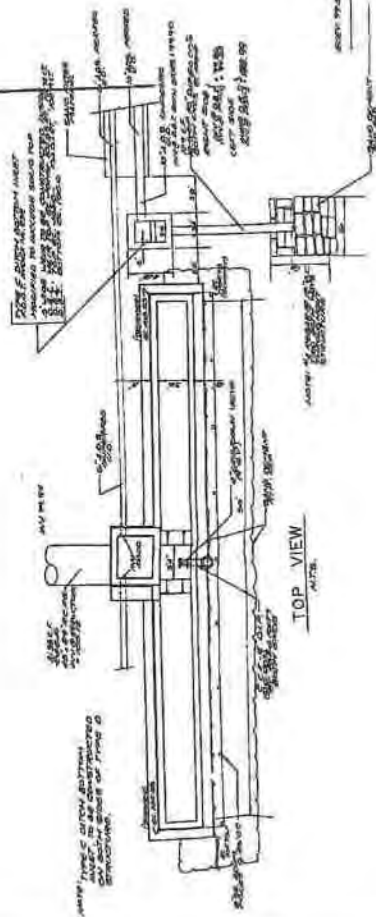
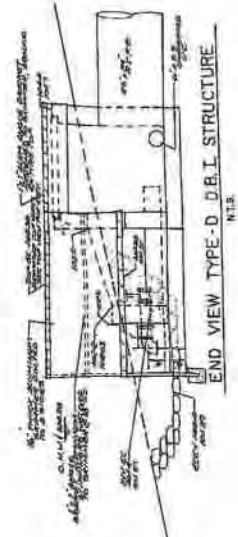
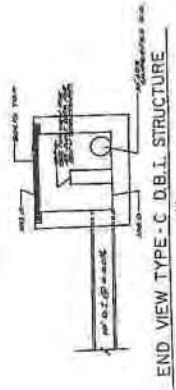
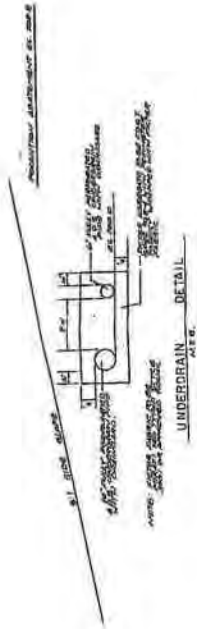
ALL OTHER AREAS SHALL HAVE A
 MIN OF 2% MINIMUM THE
 1% FOR SEALS

VP-CO-016-3
 87-04
 JULY 1988
 NONE

RETENTION POND CROSS SECTIONS
CROW - JOLLEY P.D.
 FLORIDA
 ORANGE COUNTY

THE CIVIL DESIGN GROUP
 ENGINEERS, ARCHITECTS & SURVEYORS
 10000 W. BOCA RATON BLVD.
 BOCA RATON, FL 33433

NO.	DATE	DESCRIPTION	BY	CHKD
1	7/1/88	ISSUED FOR PERMITS	MD	MD
2	7/1/88	REVISED PERMITS	MD	MD
3	7/1/88	REVISED PERMITS	MD	MD
4	7/1/88	REVISED PERMITS	MD	MD
5	7/1/88	REVISED PERMITS	MD	MD
6	7/1/88	REVISED PERMITS	MD	MD
7	7/1/88	REVISED PERMITS	MD	MD
8	7/1/88	REVISED PERMITS	MD	MD
9	7/1/88	REVISED PERMITS	MD	MD
10	7/1/88	REVISED PERMITS	MD	MD



DATE: JULY 22, 1988
 SHEET NO: 04
 PROJECT: NONE
 DRAWN BY: [Signature]

14-00110-5
 14-00110-5
 14-00110-5

OUTFALL STRUCTURE DETAIL
 CROW - JOLLEY P.D.
 ORANGE COUNTY, FLORIDA

CIVIL DESIGN GROUP
 ENGINEERS, ARCHITECTS & PLANNERS
 1111 N. UNIVERSITY AVENUE
 SUITE 100
 ORLANDO, FLORIDA 32811
 PHONE: (407) 226-1111
 FAX: (407) 226-1112

END VIEW BOTH STRUCTURES
 N.T.S.

FRONT VIEW
 N.T.S.

SPECIAL CONDITIONS

1. MINIMUM BUILDING FLOOR ELEVATION: 107.5' NGVD.

2. MINIMUM ROAD CROWN ELEVATION: 105.3' NGVD.

3. DISCHARGE FACILITIES:

DESCRIPTION: 1 - 50' WIDE WEIR WITH CREST AT ELEVATION 102.2' NGVD. 1 - 2.0' WIDE BLEEDER WITH AN INVERT AT ELEVATION 101.6' NGVD. THE BLEEDER WATER IS DIRECTED INTO A FILTER AGGREGATE VIA 10" PERFORATED UNDERDRAINS.

RECEIVING WATER: CYPRESS CREEK

CONTROL ELEVATION: 101.6' NGVD (INVERT OF BLEEDER)

4. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY EROSION OR SHOALING PROBLEMS THAT RESULT FROM THE CONSTRUCTION OR OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM.
5. MEASURES SHALL BE TAKEN DURING CONSTRUCTION TO INSURE THAT SEDIMENTATION AND/OR TURBIDITY PROBLEMS ARE NOT CREATED IN THE RECEIVING WATER.
6. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY WATER QUALITY PROBLEMS THAT RESULT FROM THE CONSTRUCTION OR OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM.
7. THE DISTRICT RESERVES THE RIGHT TO REQUIRE THAT WATER QUALITY TREATMENT METHODS BE INCORPORATED INTO THE DRAINAGE SYSTEM IF SUCH MEASURES ARE SHOWN TO BE NECESSARY.
8. OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM SHALL BE THE RESPONSIBILITY OF ORANGE COUNTY.
9. PRIOR TO THE INITIATION OF ANY WITHDRAWAL OF WATER (IRRIGATION, DEWATERING, PUBLIC WATER SUPPLY, ETC.), IT WILL BE NECESSARY TO APPLY FOR A WATER USE PERMIT. THE PERMITTEE IS CAUTIONED THAT A MINIMUM OF 90 DAYS IS REQUIRED FOR CONSIDERATION OF THE WATER USE PERMIT APPLICATION. THE PERMITTEE IS CAUTIONED THAT THE ISSUANCE OF A SURFACE WATER MANAGEMENT PERMIT SHALL NOT BE CONSTRUED TO BE A GUARANTEE THAT WATER WILL BE AVAILABLE.
10. THE PERMITTEE IS RESPONSIBLE FOR COMPLYING WITH LOCAL COMPREHENSIVE PLAN, ZONING AND SUBDIVISION REQUIREMENTS. ISSUANCE OF THIS PERMIT DOES NOT REPRESENT THAT THE PERMITTED PROJECT IS COMPATIBLE WITH LOCAL LAND USE REQUIREMENTS. ANY CHANGE IN THE PERMITTED PROJECT IN ORDER TO COMPLY WITH LOCAL LAND USE REQUIREMENTS, WHICH IMPACTS THE SURFACE WATER MANAGEMENT SYSTEM DESIGN, WILL REQUIRE MODIFICATION OF THIS PERMIT.

11. THE MITIGATION AREA SHALL BE CREATED ALONG WITH THE CONSTRUCTION OF THE PROJECT SITE AND THE MONITORING/MAINTENANCE PROGRAM SHALL BE IMPLEMENTED FOR 3 YEARS FOLLOWING THE CREATION OF THE WETLAND. THE MONITORING/MAINTENANCE SHALL PROVIDE SEMI-ANNUAL REPORTS, BASELINE VEGETATION SURVEY, FIXED-POINT PANORAMIC PHOTOGRAPHS, STAFF GAUGE, OBSERVED WILDLIFE UTILIZATION AND THE ASSURANCE THAT 80% SURVIVAL FOR THE PLANTED TREES AND 80% PLANT COVER IN 2 YEARS FOR THE HERBACEOUS PLANTS.
12. THE SURFACE WATER IN THE PROTECTED CYPRESS DOME WILL BE MONITORED FOR 3 YEARS AND BE INCLUDED WITH THE MONITORING/MAINTENANCE SEMI-ANNUAL REPORTS. IF THE REPORTS INDICATE THAT THE WETLANDS HYDROLOGICAL REGIME HAS BEEN ALTERED AND IMPACTED, A PLAN DESIGNED TO RESTORE THE WETLANDS WATER TABLE SHALL BE SUBMITTED WITHIN 90 DAYS FOR DISTRICT STAFF REVIEW AND APPROVAL.
13. PRIOR TO CONSTRUCTION, THE PERMITTEE SHALL SUBMIT DOCUMENTATION WHICH LEGALLY RESERVES THE CYPRESS DOME AND A 25 FOOT MINIMUM BUFFER FOR CONSERVATION PURPOSES.
14. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION OF INDIVIDUAL PARCELS WITHIN CROW/JOLLEY P.D., PAVING, GRADING, AND DRAINAGE PLANS SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL. INDIVIDUAL COMMERCIAL PARCELS WILL BE REQUIRED TO PROVIDE ON-HALF INCH OF DRY RETENTION/DETENTION PRETREATMENT PRIOR TO DISCHARGE INTO THE MASTER SURFACE WATER MANAGEMENT SYSTEM.
15. LAKE SIDE SLOPES SHALL BE A MINIMUM 4:1 (HORIZONTAL: VERTICAL) TO A DEPTH OF TWO FEET BELOW THE CONTROL ELEVATION. SIDE SLOPES SHALL BE NURTURED OR PLANTED FROM 2 FEET BELOW TO 1 FOOT ABOVE THE CONTROL ELEVATION TO INSURE VEGETATIVE GROWTH.
16. THE VERTICAL EXTENT OF THE PROPOSED CLAY CORE (LOCATED BETWEEN CYPRESS DOME AND POND #3) SHALL BE CONSTRUCTED TO A MINIMUM (DEPTH) ELEVATION OF 93.80' NGVD.



South Florida Water Management District

Chet Adena
John R. Wobraske, Executive Director
Tilford C. Creel, Deputy Executive Director

Post Office Box 24680 3301 Gun Club Road
West Palm Beach, Florida 33416-4680
Telephone (407) 686-8800
Florida WATS Line 1-800-432-2045

80 South Airport Road
Kissimmee, Florida 32741
Telephone (407) 846-1113

IN REPLY REFER TO:
Our Application No. 890118-6
Resource Control Department

February 10, 1989

Mr. Jim Wood
Trammel Crow Residential
380 S. North Lake Boulevard, Suite 1012
Altamonte Springs, FL 32701

*Mr. Johnson
file -
Lisa*

Dear Mr. Wood:

Crow Jolly

Subject: Notice of Intent to Construct Works
Modification to Permit No. 48-00416-S
Permittee: Trammel Crow Residential
Project: The Vinings @ Cypress Run and Cypress Ridge
Location: Orange County, S22/T24S/R28E

This letter is to notify you of the District's agency action concerning your request of January 18, 1989, to modify the above referenced permit, Crow/Jolly PUD. This action is taken pursuant to Rule 40E1.606 and Chapter 40E-40, Florida Administrative Code.

Based on the information provided, District rules have been adhered to and a General Permit is in effect for this project subject to: (1) Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing, (2) the attached 12 Standard Limiting Conditions, and (3) 16 Special Conditions.

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

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the addressee (and the persons listed in the attached distribution list) not later than 5:00 P.M., this Tenth day of February, 1989, in accordance with Section 120.60(3), F.S.

Sincerely,

James T. Show
James T. Show, P.E.
Kissimmee Area Office

JTS/pgk
attachments
CERTIFIED MAIL NO. P 858 952 616

Nancy H. Roen J.D. York
Chairman - Plantation Vice Chairman - Palm City

Nathaniel P. Reed
Hobe Sound

Oscar M. Corbin, Jr.
Ft. Myers

Arsenio Millan
Miami

Fritz Stein
Belle Glade

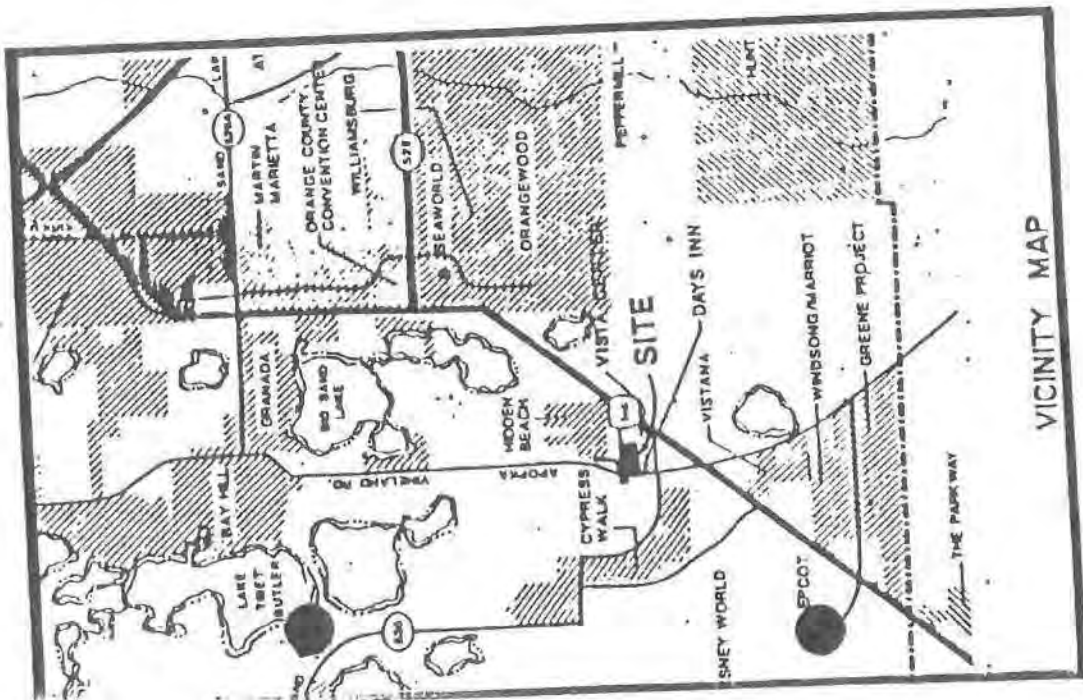
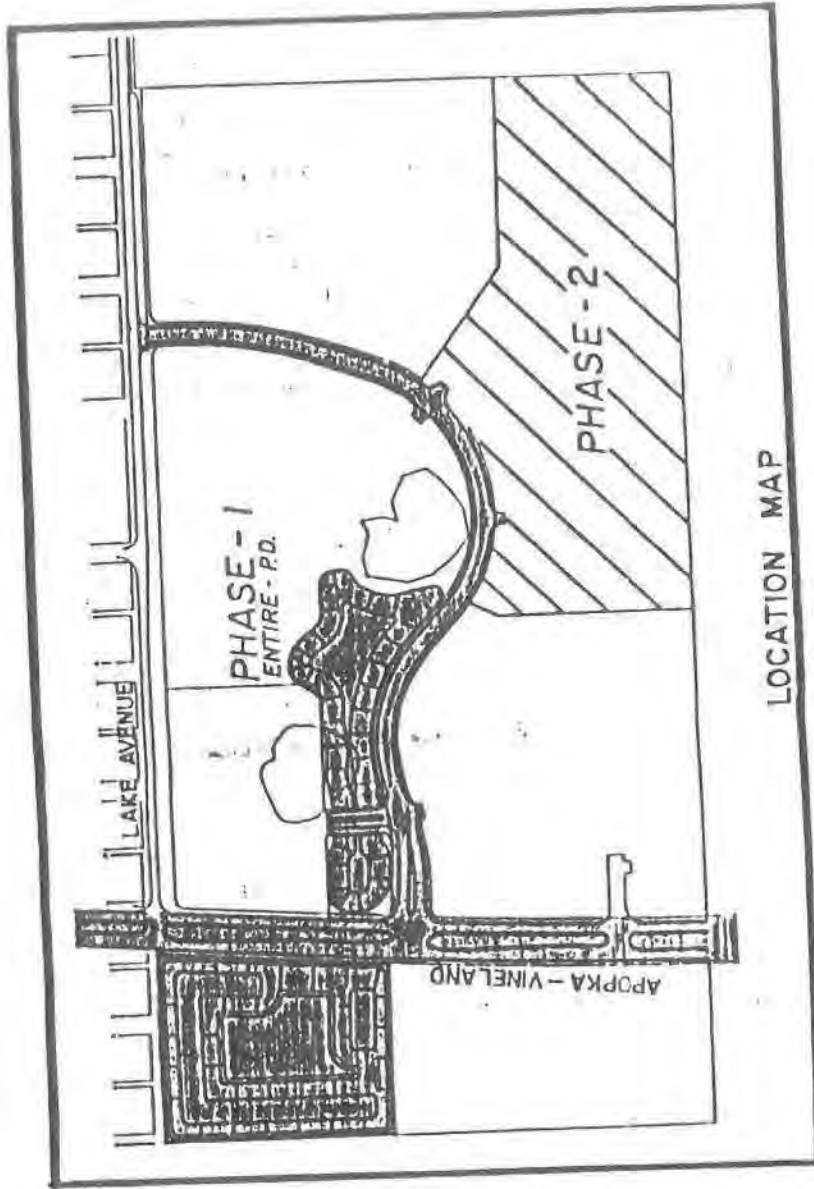
James F. Garner
Ft. Myers

Mike Stout
Windermere

Doran A. Jason
KISSIMMEE

LIMITING CONDITIONS

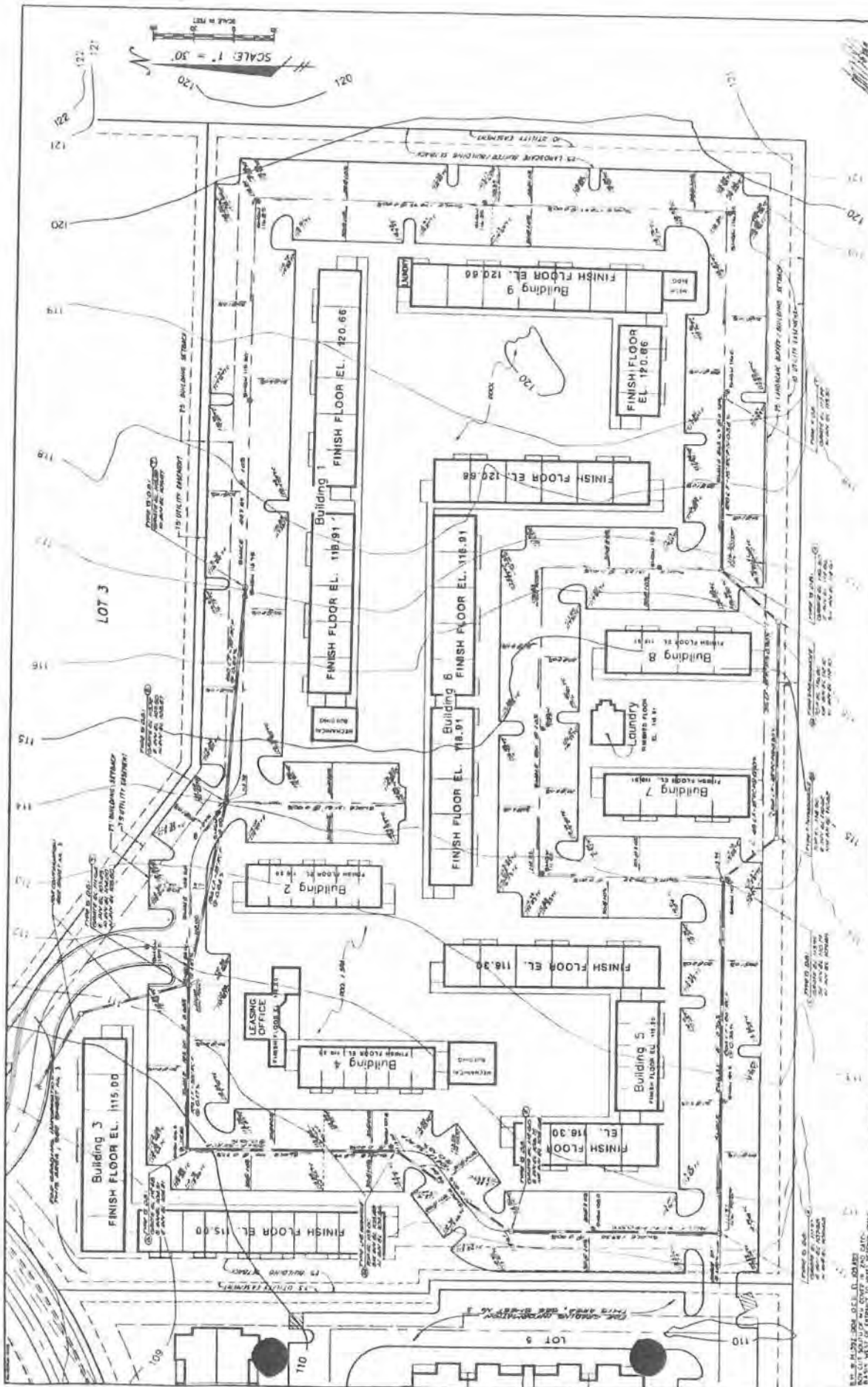
1. THE PERMITTEE SHALL PROSECUTE THE WORK AUTHORIZED IN A MANNER SO AS TO MINIMIZE ANY ADVERSE IMPACT OF THE WORKS ON FISH, WILDLIFE, NATURAL ENVIRONMENTAL VALUES, AND WATER QUALITY. THE PERMITTEE SHALL INSTITUTE NECESSARY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING FULL COMPACTION OF ANY FILL MATERIAL PLACED AROUND NEWLY INSTALLED STRUCTURES, TO REDUCE EROSION, TURBIDITY, NUTRIENT LOADING AND SEDIMENTATION IN THE RECEIVING WATERS.
2. WATER QUALITY DATA FOR THE WATER DISCHARGED FROM THE PERMITTEE'S PROPERTY OR INTO SURFACE WATERS OF THE STATE SHALL BE SUBMITTED TO THE DISTRICT AS REQUIRED. PARAMETERS TO BE MONITORED MAY INCLUDE THOSE LISTED IN CHAPTER 17-3. IF WATER QUALITY DATA IS REQUIRED, THE PERMITTEE SHALL PROVIDE DATA AS REQUIRED, ON VOLUMES OF WATER DISCHARGED, INCLUDING TOTAL VOLUME DISCHARGED DURING THE DAYS OF SAMPLING AND TOTAL MONTHLY DISCHARGES FROM THE PROPERTY OR INTO SURFACE WATERS OF THE STATE.
3. THE PERMITTEE SHALL COMPLY WITH ALL APPLICABLE LOCAL SUBDIVISION REGULATIONS AND OTHER LOCAL REQUIREMENTS. IN ADDITION THE PERMITTEE SHALL OBTAIN ALL NECESSARY FEDERAL, STATE, LOCAL AND SPECIAL DISTRICT AUTHORIZATIONS PRIOR TO THE START OF ANY CONSTRUCTION OR ALTERATION OF WORKS AUTHORIZED BY THIS PERMIT.
4. THE OPERATION PHASE OF THIS PERMIT SHALL NOT BECOME EFFECTIVE UNTIL A FLORIDA REGISTERED PROFESSIONAL ENGINEER CERTIFIES THAT ALL FACILITIES HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE DESIGN APPROVED BY THE DISTRICT. WITHIN 30 DAYS AFTER COMPLETION OF CONSTRUCTION OF THE SURFACE WATER MANAGEMENT SYSTEM, THE PERMITTEE SHALL SUBMIT THE CERTIFICATION AND NOTIFY THE DISTRICT THAT THE FACILITIES ARE READY FOR INSPECTION AND APPROVAL. UPON APPROVAL OF THE COMPLETED SURFACE WATER MANAGEMENT SYSTEM, THE PERMITTEE SHALL REQUEST TRANSFER OF THE PERMIT TO THE RESPONSIBLE ENTITY APPROVED BY THE DISTRICT.
5. ALL ROADS SHALL BE SET AT OR ABOVE ELEVATIONS REQUIRED BY THE APPLICABLE LOCAL GOVERNMENT FLOOD CRITERIA.
6. ALL BUILDING FLOORS SHALL BE SET AT OR ABOVE ELEVATIONS ACCEPTABLE TO THE APPLICABLE LOCAL GOVERNMENT.
7. OFF-SITE DISCHARGES DURING CONSTRUCTION AND DEVELOPMENT SHALL BE MADE ONLY THROUGH THE FACILITIES AUTHORIZED BY THIS PERMIT. NO ROADWAY OR BUILDING CONSTRUCTION SHALL COMMENCE ON-SITE UNTIL COMPLETION OF THE PERMITTED DISCHARGE STRUCTURE AND DETENTION AREAS. WATER DISCHARGED FROM THE PROJECT SHALL BE THROUGH STRUCTURES HAVING A MECHANISM SUITABLE FOR REGULATING UPSTREAM WATER STAGES. STAGES MAY BE SUBJECT TO OPERATING SCHEDULES SATISFACTORY TO THE DISTRICT.
8. NO CONSTRUCTION AUTHORIZED HEREIN SHALL COMMENCE UNTIL A RESPONSIBLE ENTITY ACCEPTABLE TO THE DISTRICT HAS BEEN ESTABLISHED AND HAS AGREED TO OPERATE AND MAINTAIN THE SYSTEM. THE ENTITY MUST BE PROVIDED WITH SUFFICIENT OWNERSHIP SO THAT IT HAS CONTROL OVER ALL WATER MANAGEMENT FACILITIES AUTHORIZED HEREIN. UPON RECEIPT OF WRITTEN EVIDENCE OF THE SATISFACTION OF THIS CONDITION, THE DISTRICT WILL ISSUE AN AUTHORIZATION TO COMMENCE CONSTRUCTION.
9. THE PERMIT DOES NOT CONVEY TO THE PERMITTEE ANY PROPERTY RIGHT NOR ANY RIGHTS OR PRIVILEGES OTHER THAN THOSE SPECIFIED IN THE PERMIT AND CHAPTER 40E-4, FAC.
10. THE PERMITTEE SHALL HOLD AND SAVE THE DISTRICT HARMLESS FROM ANY AND ALL DAMAGES, CLAIMS, OR LIABILITIES WHICH MAY ARISE BY REASON OF THE CONSTRUCTION, OPERATION, MAINTENANCE OR USE OF ANY FACILITY AUTHORIZED BY THE PERMIT.
11. THIS PERMIT IS ISSUED BASED ON THE APPLICANT'S SUBMITTED INFORMATION WHICH REASONABLY DEMONSTRATES THAT ADVERSE OFF-SITE WATER RESOURCE RELATED IMPACTS WILL NOT BE CAUSED BY THE COMPLETED PERMIT ACTIVITY. IT IS ALSO THE RESPONSIBILITY OF THE PERMITTEE TO INSURE THAT ADVERSE OFF-SITE WATER RESOURCE RELATED IMPACTS DO NOT OCCUR DURING CONSTRUCTION.
12. PRIOR TO DEWATERING, PLANS SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL. INFORMATION SHALL INCLUDE AS A MINIMUM: PUMP SIZES, LOCATIONS AND HOURS OF OPERATION FOR EACH PUMP. IF OFF-SITE DISCHARGE IS PROPOSED, OR OFF-SITE ADVERSE IMPACTS ARE EVIDENT, AN INDIVIDUAL WATER USE PERMIT MAY BE REQUIRED. THE PERMITTEE IS CAUTIONED THAT SEVERAL MONTHS MAY BE REQUIRED FOR CONSIDERATION OF THE WATER USE PERMIT APPLICATION.



INDEX OF SHEETS
DESCRIPTION

No.

1 — COVER SHEET
2 — CAPITAL CONTROL



GRADING AND DRAINAGE PLAN (LOT 4)

THE VINGINGS AT CYPRESS RUN

THE VINGINGS AT CYPRESS RIDGE

ORANGE COUNTY, FLORIDA

DATE: 06-24-17
 EXCEEDING: 24,000
 SCALE: 1" = 30'

CIVIL DESIGN GROUP

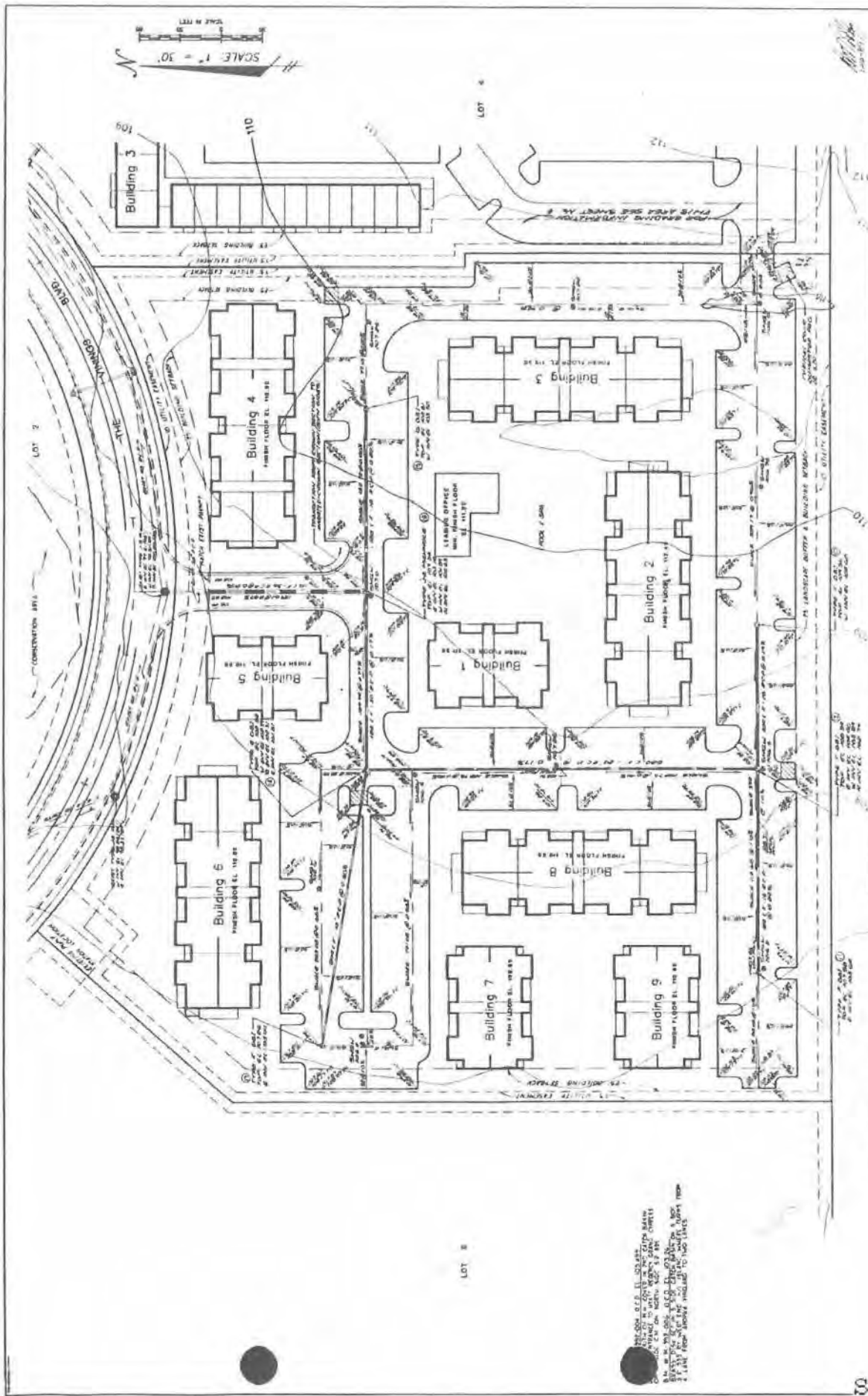
REGISTERED PROFESSIONAL ENGINEERS & ARCHITECTS

ORANGE COUNTY, FLORIDA

Professional Seal and Registration Information

THE VINGINGS AT CYPRESS RIDGE
 (LOT 4 - THE VINGINGS AT CYPRESS POINT)

DATE: 06-24-17
 EXCEEDING: 24,000
 SCALE: 1" = 30'



GRADING AND DRAINAGE PLAN (LOT 5)
 86-54 (F)
 RECORDED 23 MAR 2010
 1" = 30'
 THE VINGINGS AT CYPRESS RUN
 THE VINGINGS AT CYPRESS RIDGE
 ORLANDO, FLORIDA

CIVIL DESIGN GROUP
 ORLANDO, FLORIDA

THE VINGINGS AT CYPRESS RUN
 (LOT 5 - THE VINGINGS AT CYPRESS POINTE)
 8-1742
 10/10/10

THIS PLAN IS THE PROPERTY OF CIVIL DESIGN GROUP, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF CIVIL DESIGN GROUP, INC.

THE VININGS at CYPRESS RIDGE
&
THE VININGS at CYPRESS RUN
PERMIT SUMMARY SHEET

APPLICATION NO. 890118-6 LOCATION Orange County S22/T24S/R28E

PROJECT AREA 16.88 ACRES BASIN AREA 16.88 ACRES

PROJECT USE Multi-family Residential

FACILITIES:

1. EXISTING: On January 12, 1989, the Governing Board issued a surface water management permit, No. 48-00416, for the Crow/Jolly PD. These lots are located within that development. The water management system and major entrance road are under construction.
2. PROPOSED: A system of inlets and storm sewers which discharge to the master water management system for the project. This modification conforms with the Conceptual Approval, and there is no environmental impact.

APPLICABLE LAND USE

TOTAL	<u>16.88</u>	ACRES
WATER MANAGMENT	<u>-0-</u>	ACRES
IMPERVIOUS	<u>7.38</u>	ACRES
DWELLING UNITS	<u>398</u>	UNITS

DRAINAGE BASIN Upper Kissimmee

RECEIVING BODY Cypress Creek

EXHIBIT 5

GENERAL PERMIT DISTRIBUTION LIST

PROJECT: The Vinings @ Cypress Run &
Cypress Ridge

APPLICATION NUMBER: 890118-6

INTERNAL DISTRIBUTION

- X Reviewer: _____
- X B. Colavecchio
- X M. Cruz
- X C. DeRojas
- K. Dickson
- X G. Goforth
- JM Hiscock
- X M. Johnson
- X C. McCray (letter only)
- X C. Padera
- X P. Rhoads
- H. Schloss
- X W. Stimmel
- T. Waterhouse
- E. Yaun
- X Permit File

EXTERNAL DISTRIBUTION CONT'D

COUNTY

- X Orange - Environmental Protection Dept.
- Public Utilities
- Polk - Water Resources Dept.

OTHER

- X Sierra Club, Central Florida Group

EXTERNAL DISTRIBUTION

- X Applicant:
 Trammel Crow Residential
- X Applicant's Consultant:
 The Civil Design Group
- X Engineer, County of:
 Orange
- Engineer, City of:

- Local Drainage District:
X Reedy Creek Improvement Dist.

DEPT. OF ENVIRONMENTAL REGULATION:

- X Orlando
- Tampa

THE VININGS AT CYPRESS POINTE

LOT 6 DRI

Project Synopsis

Prepared For:

TCR ORLANDO II LIMITED PARTNERSHIP

Prepared By:

**J. Brailey Odham/Joe Nisbett
1020 N. Orlando Avenue, Suite A
Winter Park, Florida 32789**

SCANNED

J. BRAILEY ODHAM

Registered Real Estate Broker

Corporate Square Building
Suite A
1020 N Orlando Avenue
WINTER PARK, FLORIDA 32789

Telephones: Office: 407-628-2600
Res: 407-647-6565

February 6, 1992

Mr. Greg Golgowski
Chief Project Review Committee
East Central Florida Regional
Planning Council

1011 Wymore Road, Suite 105
Winter Park, FL 32789

RE: The Vinings at Cypress Pointe/Lot 6 DRI.

Dear Greg:

On behalf of TCR Orlando II Limited Partnership, applicant for the subject property, we are pleased to submit with this letter 55 copies of the Project Synopsis for the Vinings at Cypress Pointe/Lot 6 DRI along with the required application deposit of \$15,000.00.

We look forward to working with you and the Regional Planning Council staff during your review of this project.

If you have any questions or need any additional information please do not hesitate to call.

Regards,


J. Brailey Odham

cc: Doug Hoeksema, TCR Orlando II Limited Partnership

CONSULTANT TEAM

AUTHORIZED AGENTS

J. Brailey Odham
Joe Nisbett
Agents for TCR Orlando II, Ltd. Partnership
1020 N. Orlando Avenue, Suite A
Winter Park, FL 32789
(407) 628-2600

ENGINEERING CONSULTANT

The Civil Design Group, Inc.
401 South Rosalind Avenue
Orlando, FL 32801
(407) 843-4140

Mr. Hugh M. Lokey

TRAFFIC CONSULTANT

Traffic Planning and Design, Inc.
385 Whooping Loop, Suite 1333
Altamonte Springs, FL 32701
(407) 339-5368

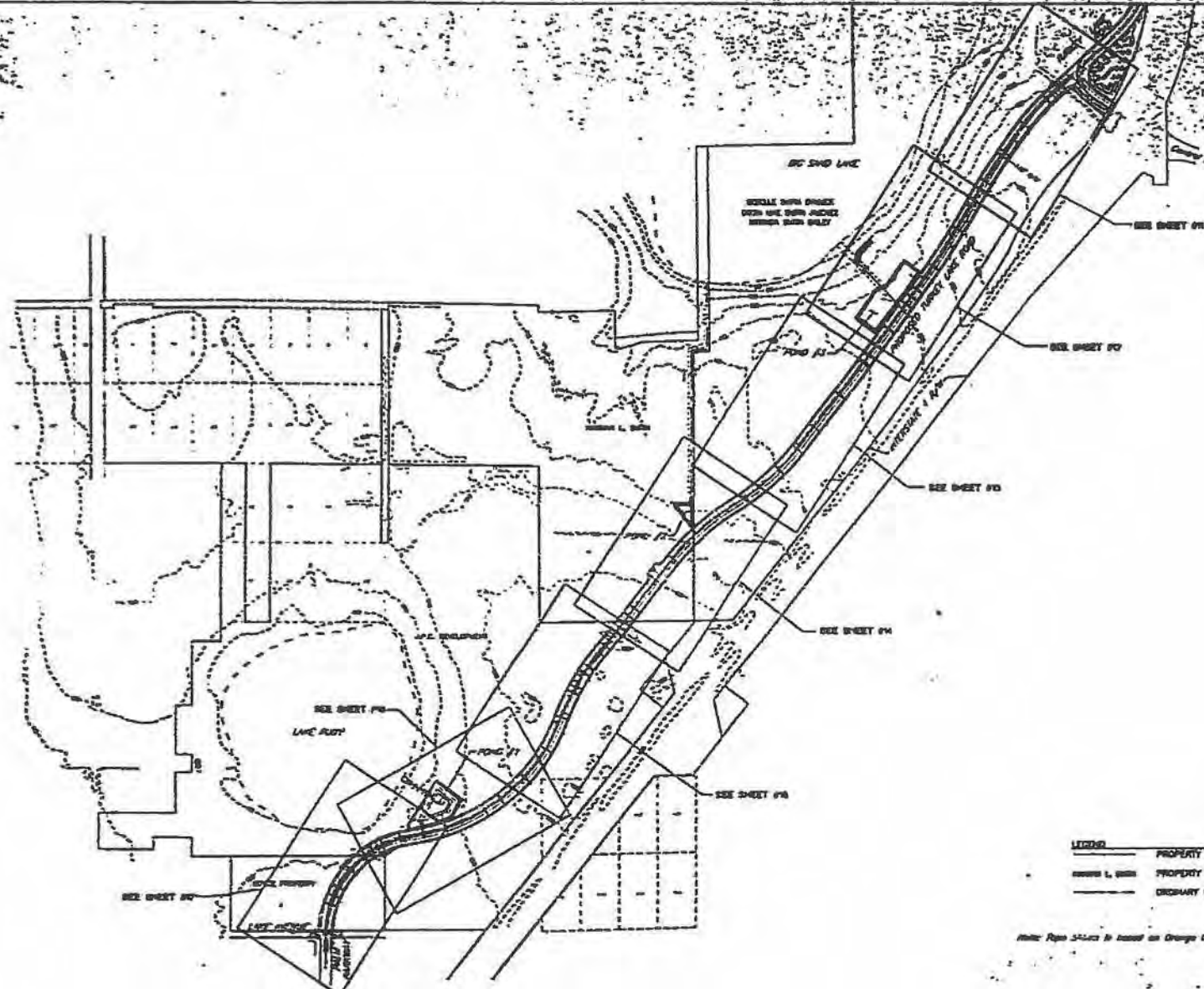
Mr. Turgut Dervish

ENVIRONMENTAL CONSULTANT

Breedlove, Dennis & Associates, Inc.
4301 Metric Drive
Winter Park, FL 32792
(407) 677-1882

Dr. William Grey

EXHIBIT 3



LEGEND
 --- PROPERTY LINES
 --- PROPERTY OWNER
 --- ORDINARY HIGH WATER LINE

Note: This plan is based on Orange County Aerial Photography, dated 1982.

NO.	DATE	BY	DESCRIPTION
01	01/20/97	AR	PRELIMINARY PLAN
02	02/14/97	AR	REVISED PLAN
03	03/14/97	AR	REVISED PLAN
04	04/14/97	AR	REVISED PLAN
05	05/14/97	AR	REVISED PLAN
06	06/14/97	AR	REVISED PLAN
07	07/14/97	AR	REVISED PLAN
08	08/14/97	AR	REVISED PLAN
09	09/14/97	AR	REVISED PLAN
10	10/14/97	AR	REVISED PLAN

MSA
 MILLER - SELLEN ASSOCIATES, INC.
 201 East Lake Road - Orlando, Florida 32801-1000
 (407) 851-1000
 URBAN PLANNERS & ENGINEERS

MASTER SITE PLAN & KEY MAP
 TURKEY LAKE ROAD EXTENSION
 ORANGE COUNTY, FLORIDA
 96102-30
 JUL 97 4-400
 18-28

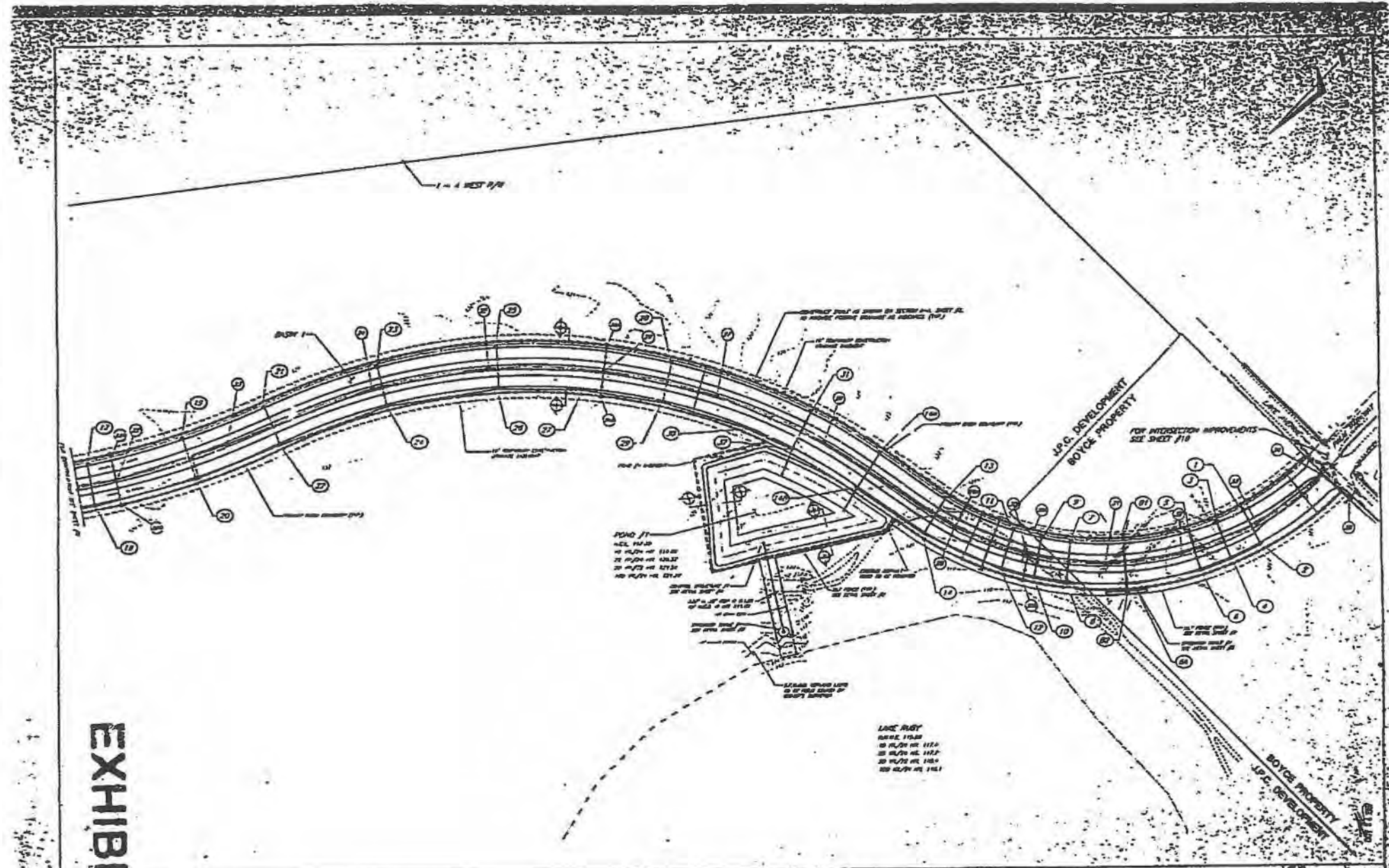


EXHIBIT 6

NO.	DESCRIPTION	DATE	BY	CHECKED
1	ISSUED FOR PERMIT			
2	REVISED FOR FIELD CONDITIONS			
3	REVISED FOR UTILITY LOCATIONS			
4	REVISED FOR PAVING DETAILS			
5	REVISED FOR DRAINAGE DETAILS			
6	REVISED FOR UTILITY DETAILS			
7	REVISED FOR PAVING DETAILS			
8	REVISED FOR DRAINAGE DETAILS			
9	REVISED FOR UTILITY DETAILS			
10	REVISED FOR PAVING DETAILS			
11	REVISED FOR DRAINAGE DETAILS			
12	REVISED FOR UTILITY DETAILS			
13	REVISED FOR PAVING DETAILS			
14	REVISED FOR DRAINAGE DETAILS			
15	REVISED FOR UTILITY DETAILS			
16	REVISED FOR PAVING DETAILS			
17	REVISED FOR DRAINAGE DETAILS			
18	REVISED FOR UTILITY DETAILS			
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23	REVISED FOR DRAINAGE DETAILS			
24	REVISED FOR UTILITY DETAILS			
25	REVISED FOR PAVING DETAILS			
26	REVISED FOR DRAINAGE DETAILS			
27	REVISED FOR UTILITY DETAILS			
28	REVISED FOR PAVING DETAILS			
29	REVISED FOR DRAINAGE DETAILS			
30	REVISED FOR UTILITY DETAILS			

MSA
 MILLER - SELLEN ASSOCIATES, INC.
 134 1/2 East Orange Street, Orange, Florida 32801 (407) 455-2000
 LAND PLANNERS & ENGINEERS

PAVING, DRAINAGE & UTILITY PLAN	96102.30
TURKEY LAKE ROAD EXTENSION	JUL 97 11-100
ORANGE COUNTY, FLORIDA	9-28

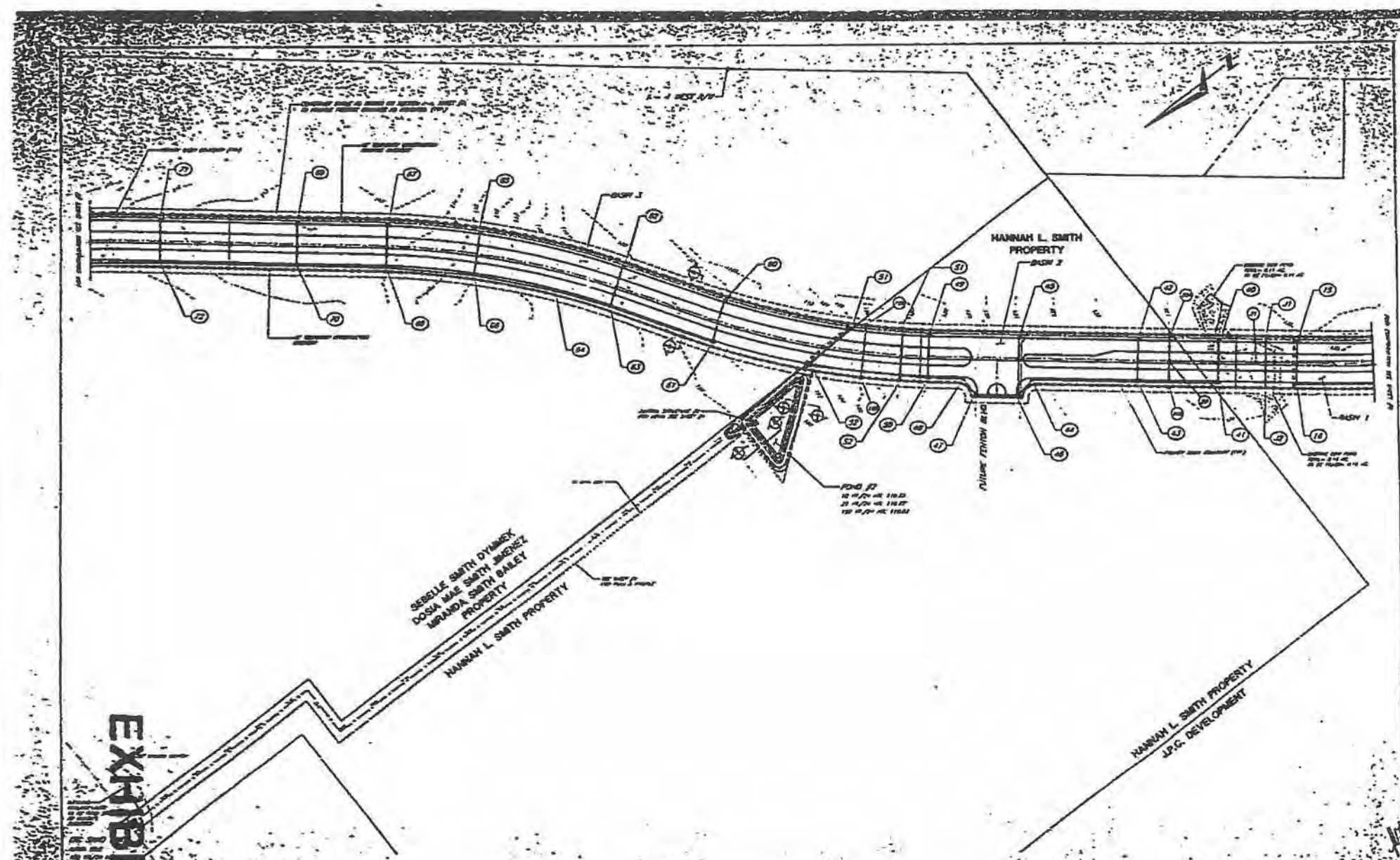


EXHIBIT 5

DATE	DESCRIPTION	BY	CHECKED

ASA
 MILLER - SOLLEN ASSOCIATES, INC.
 200 East Broadway Street - Orlando, Florida 32801 (407) 421-1100
 LAND PLANNING & DESIGN

PAVING, DRAINAGE & UTILITY PLAN
 TURKEY LAKE ROAD EXTENSION
 ORANGE COUNTY, FLORIDA

96102.30
 JUL 97 100
 B 28

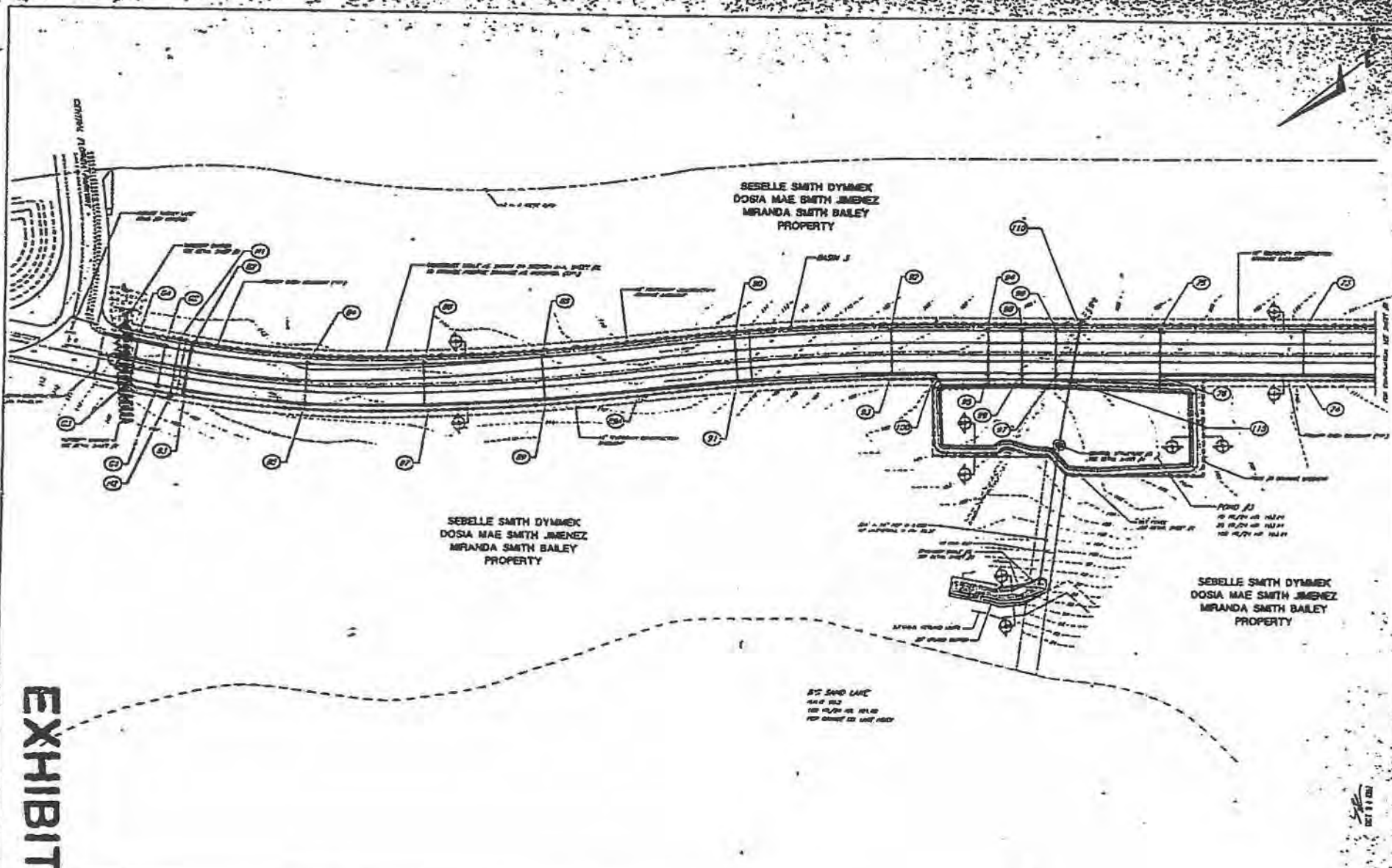


EXHIBIT 4

NO.	DATE	DESCRIPTION
1	7/27/97	PRELIMINARY PLAN
2	8/1/97	REVISED PLAN
3	8/1/97	REVISED PLAN
4	8/1/97	REVISED PLAN
5	8/1/97	REVISED PLAN
6	8/1/97	REVISED PLAN
7	8/1/97	REVISED PLAN
8	8/1/97	REVISED PLAN
9	8/1/97	REVISED PLAN
10	8/1/97	REVISED PLAN

MSA
MILLER - SELLEN ASSOCIATES, INC.
 2700 East Colonial Drive, Suite 2000, Orlando, Florida 32803
 (407) 241-1100
 CIVIL ENGINEERS & ARCHITECTS

PAVING, DRAINAGE & UTILITY PLAN
 TURKEY LAKE ROAD EXTENSION
 ORANGE COUNTY, FLORIDA

DATE: 96102.30
 JUL 97 V-100
 7/28

Permit No. 48-00537-S
Application No. 990125-6
Embassy Suites Addition



South Florida Water Management District

Orlando Service Center • 7335 Lake Ellenor Drive • Orlando, FL 32809
(407) 858-6100 • Fax (407) 858-6121 • 1-800-250-4250 • Suncom 358-6100

CON 24-06

Regulation Department
Application No. 990125-6

February 23, 1999

Mr. Jim Burr, Vice President
Strategic Hotel Capital, Inc.
2237 Baesel View Drive, Suite 200
Orlando, Florida 32835

Subject: Surface Water Management General Permit No. 48-00537-S-02
Permittee: Strategic Hotel Capital, Inc.
Project: Embassy Suites Addition
Location: Orange County, S22/T24S/R28E

Dear Permittee:

Enclosed please find notification and conditions of the South Florida Water Management District Surface Water Management General Permit No. 48-00527-S-02 issued February 23, 1999 for the Embassy Suites Addition application. If you have questions please do not hesitate to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Stimmel".

William C. Stimmel
Service Center Director
Orlando Service Center

WCS/jrr

Enclosures

jrr156

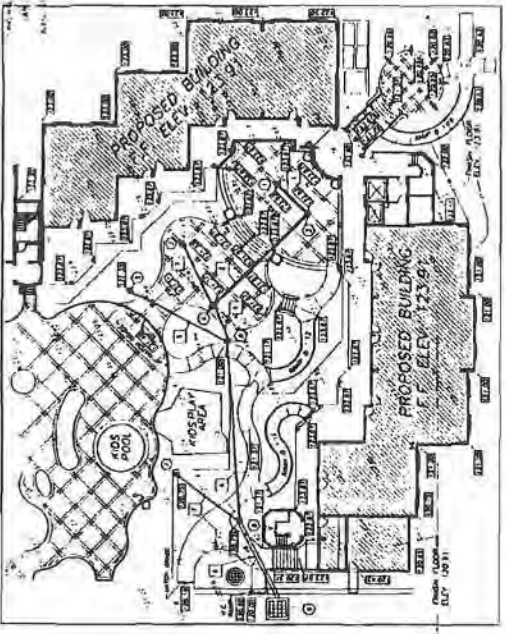
Governing Board:

Frank Williamson, Jr., Chairman
Eugene K. Pertis, Vice Chairman
Mitchell W. Berger

Vera M. Carter
William E. Graham
William Hammond

Richard A. Machek
Michael D. Minton
Miriam Singer

Samuel E. Poole III, Executive Director
Michael Slayton, Deputy Executive Director
William C. Stimmel, Orlando Service Center Director



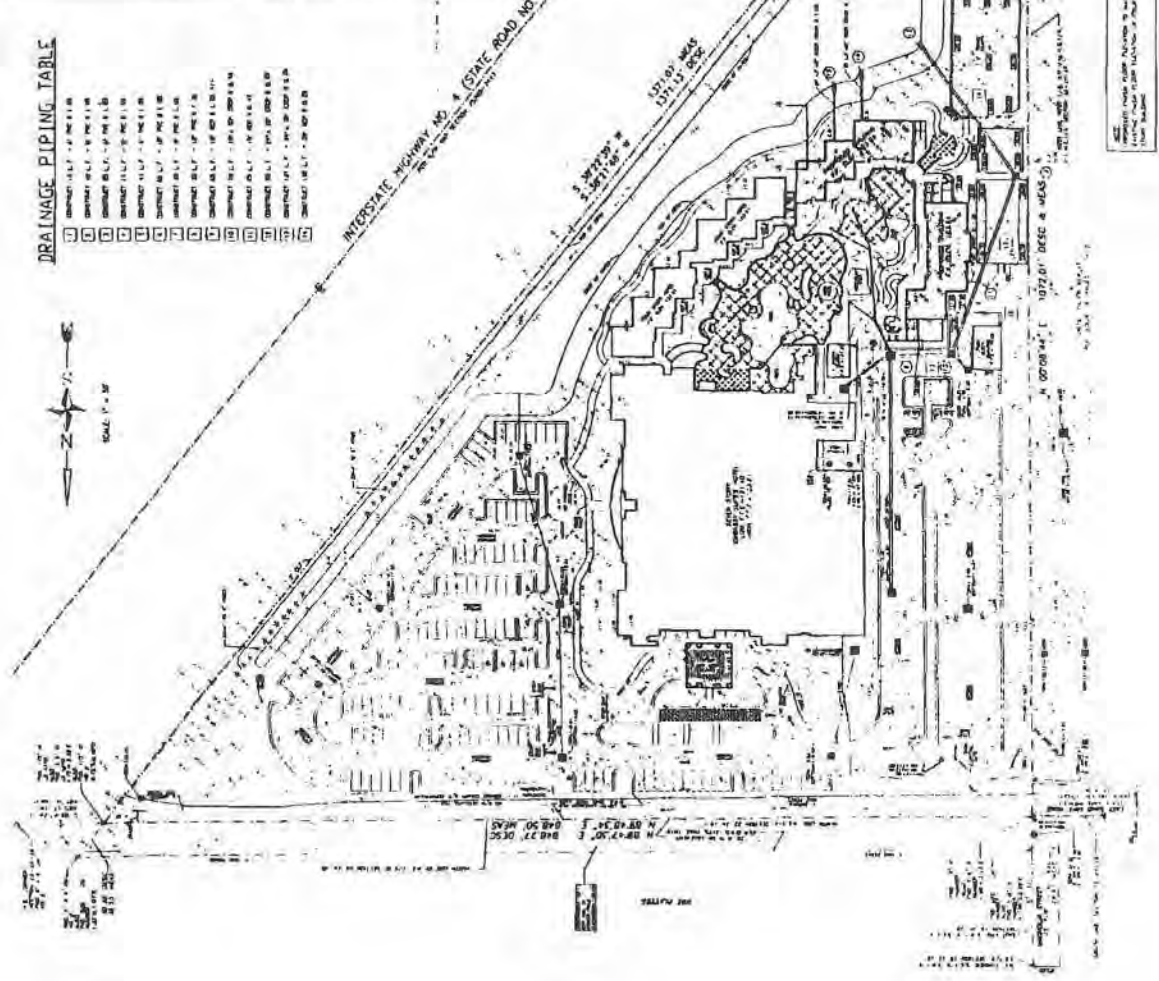
POOL AREA PLAN
 SCALE: 1" = 30'

DRAINAGE STRUCTURE TABLE

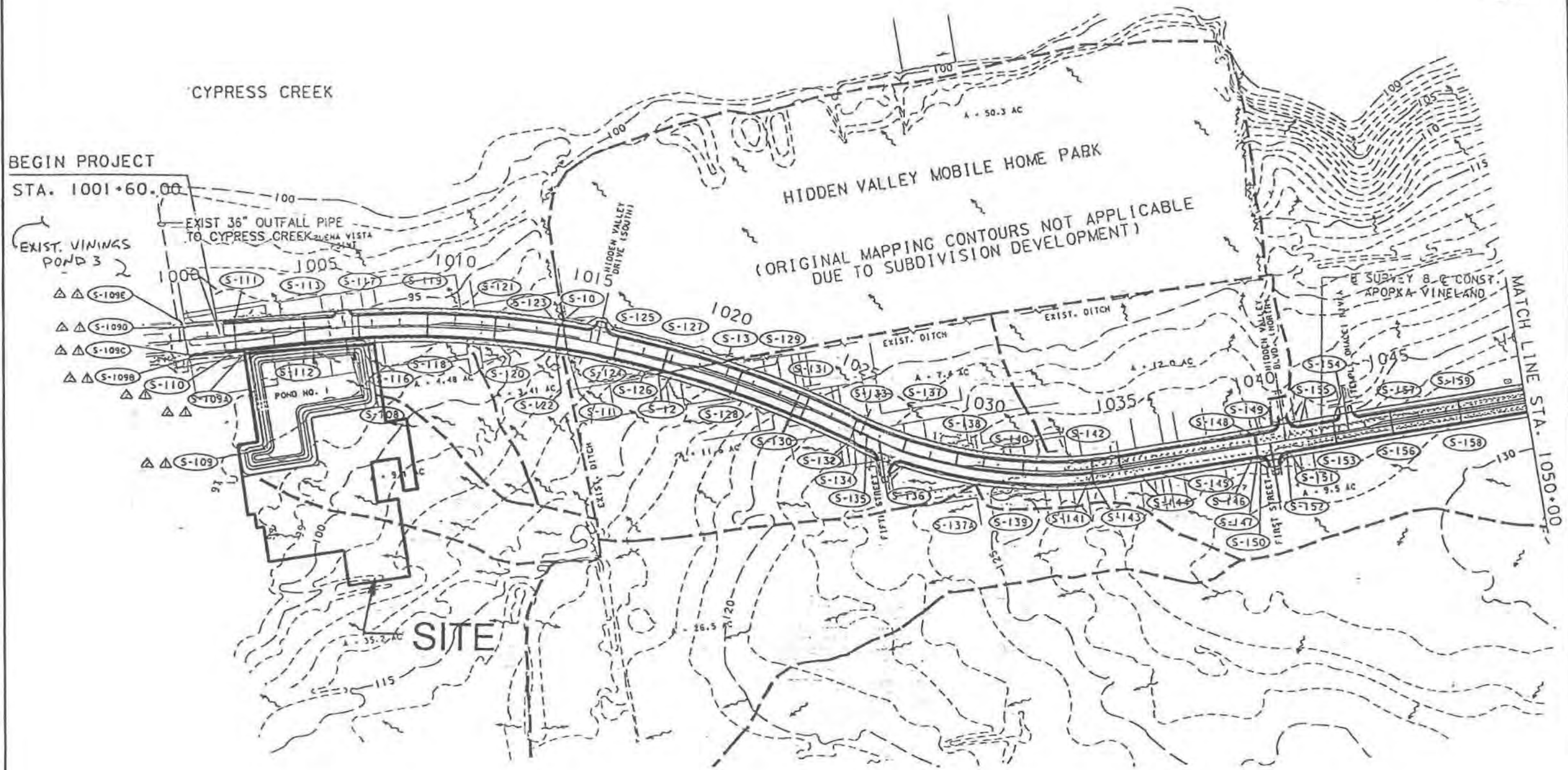
NO.	STRUCTURE TYPE	SIZE	DEPTH	INVERT ELEV.	MANHOLE ELEV.	FLOW CAPACITY (GPM)
1	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
2	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
3	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
4	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
5	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
6	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
7	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
8	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
9	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
10	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
11	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
12	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
13	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
14	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
15	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
16	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
17	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
18	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
19	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100
20	18" DIA. RCP	10' x 10'	1.5'	100.00	101.50	100

DRAINAGE PIPING TABLE

NO.	PIPE SIZE	DEPTH	INVERT ELEV.	MANHOLE ELEV.	FLOW CAPACITY (GPM)
1	18" DIA. RCP	1.5'	100.00	101.50	100
2	18" DIA. RCP	1.5'	100.00	101.50	100
3	18" DIA. RCP	1.5'	100.00	101.50	100
4	18" DIA. RCP	1.5'	100.00	101.50	100
5	18" DIA. RCP	1.5'	100.00	101.50	100
6	18" DIA. RCP	1.5'	100.00	101.50	100
7	18" DIA. RCP	1.5'	100.00	101.50	100
8	18" DIA. RCP	1.5'	100.00	101.50	100
9	18" DIA. RCP	1.5'	100.00	101.50	100
10	18" DIA. RCP	1.5'	100.00	101.50	100
11	18" DIA. RCP	1.5'	100.00	101.50	100
12	18" DIA. RCP	1.5'	100.00	101.50	100
13	18" DIA. RCP	1.5'	100.00	101.50	100
14	18" DIA. RCP	1.5'	100.00	101.50	100
15	18" DIA. RCP	1.5'	100.00	101.50	100
16	18" DIA. RCP	1.5'	100.00	101.50	100
17	18" DIA. RCP	1.5'	100.00	101.50	100
18	18" DIA. RCP	1.5'	100.00	101.50	100
19	18" DIA. RCP	1.5'	100.00	101.50	100
20	18" DIA. RCP	1.5'	100.00	101.50	100



Permit No. 48-00576-S
The Shops of Lake Avenue



LEGEND

BASIN BOUNDARY

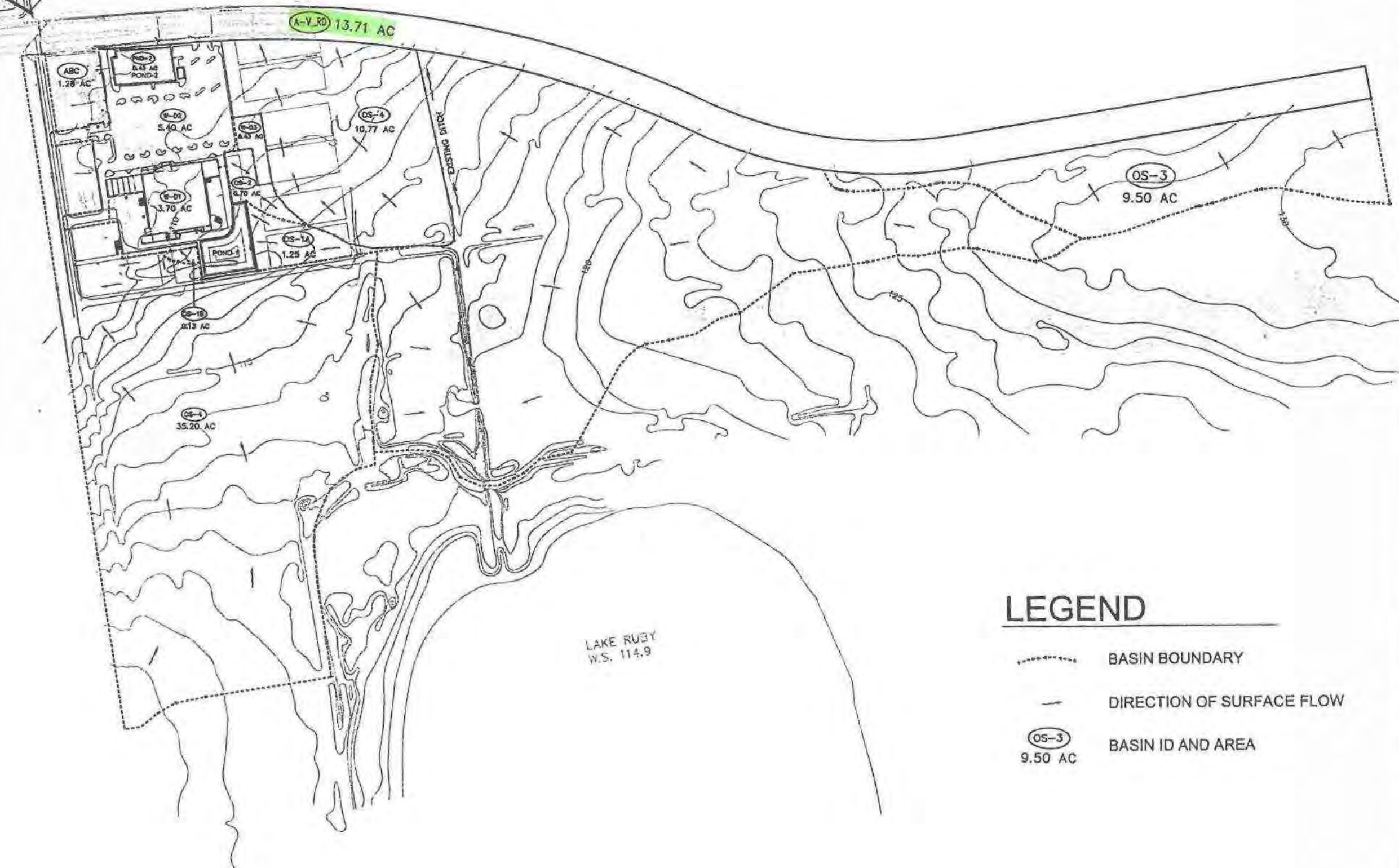
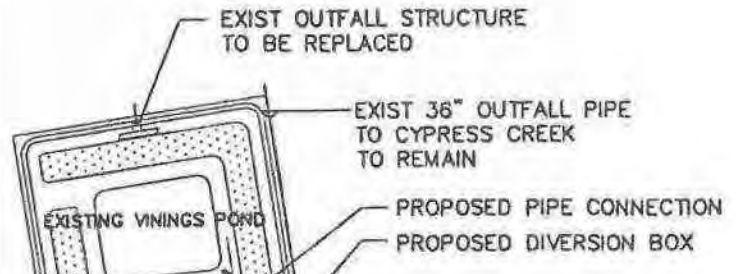
PERMIT # 48-00576-S

Miller Einhouse Rymer & Associates, Inc.
 Planners • Engineers • Landscape Architects
 918 Lucerne Terrace
 Orlando, Florida 32806
 Tel: (407) 244-8333
 Fax: (407) 244-8333
 E-mail: merr@mler.com

THE SHOPS OF LAKE AVENUE
 ORANGE COUNTY, FLORIDA
EXISTING CONDITIONS
DRAINAGE BASIN MAP

DATE:	4/21/00
SCALE:	N.T.S.
PROJECT NO.:	00046.02
DESIGNED BY:	JDE
DRAWN BY:	JDT
CHECKED BY:	JDE

FIGURE 1



LEGEND

- BASIN BOUNDARY
- DIRECTION OF SURFACE FLOW
- BASIN ID AND AREA
OS-3
9.50 AC

SHOPPES OF LAKE AVENUE
ORANGE COUNTY, FLORIDA

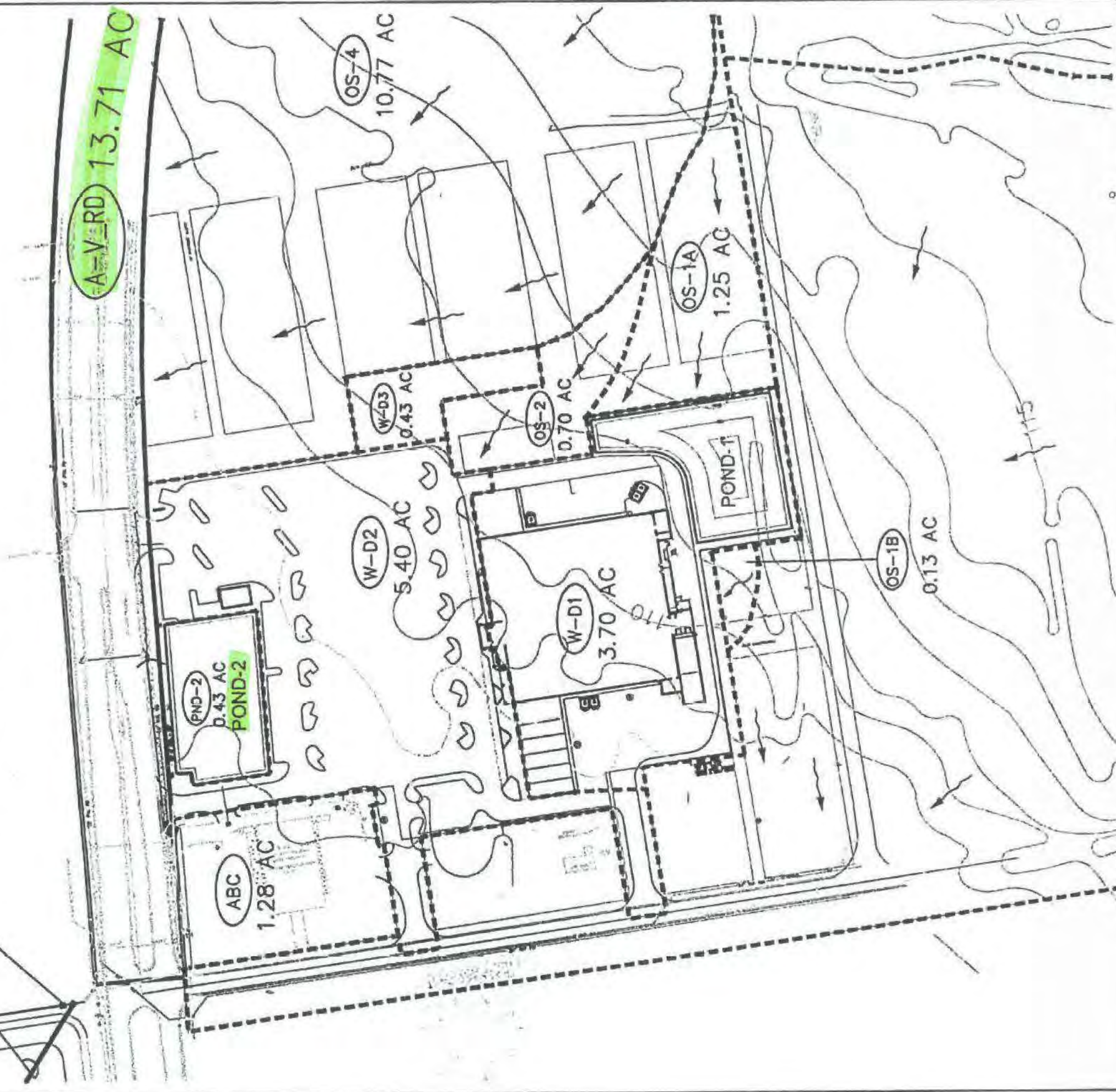
POST-DEVELOPMENT
DRAINAGE BASIN MAP

Miller Einhouse Rymel & Associates, Inc.
 Planners • Engineers • Landscape Architects
 911 Lorraine Terrace
 Orlando, Florida 32806
 P: (407) 246-0033
 Fax: (407) 246-0033
 E-mail: mear@mler.net

DATE:	9/1/00
SCALE:	N.T.S.
PROJECT NO.:	00046.04
DESIGNED BY:	JDE
DRAWN BY:	JDT
CHECKED BY:	JDE

FIGURE 2
SCANNED

PROPOSED PIPE CONNECTION
 PROPOSED DIVERSION BOX



SHOPPES OF LAKE AVENUE
 ORANGE COUNTY, FLORIDA
 ON-SITE POST-DEVELOPMENT
 DRAINAGE BASIN MAP

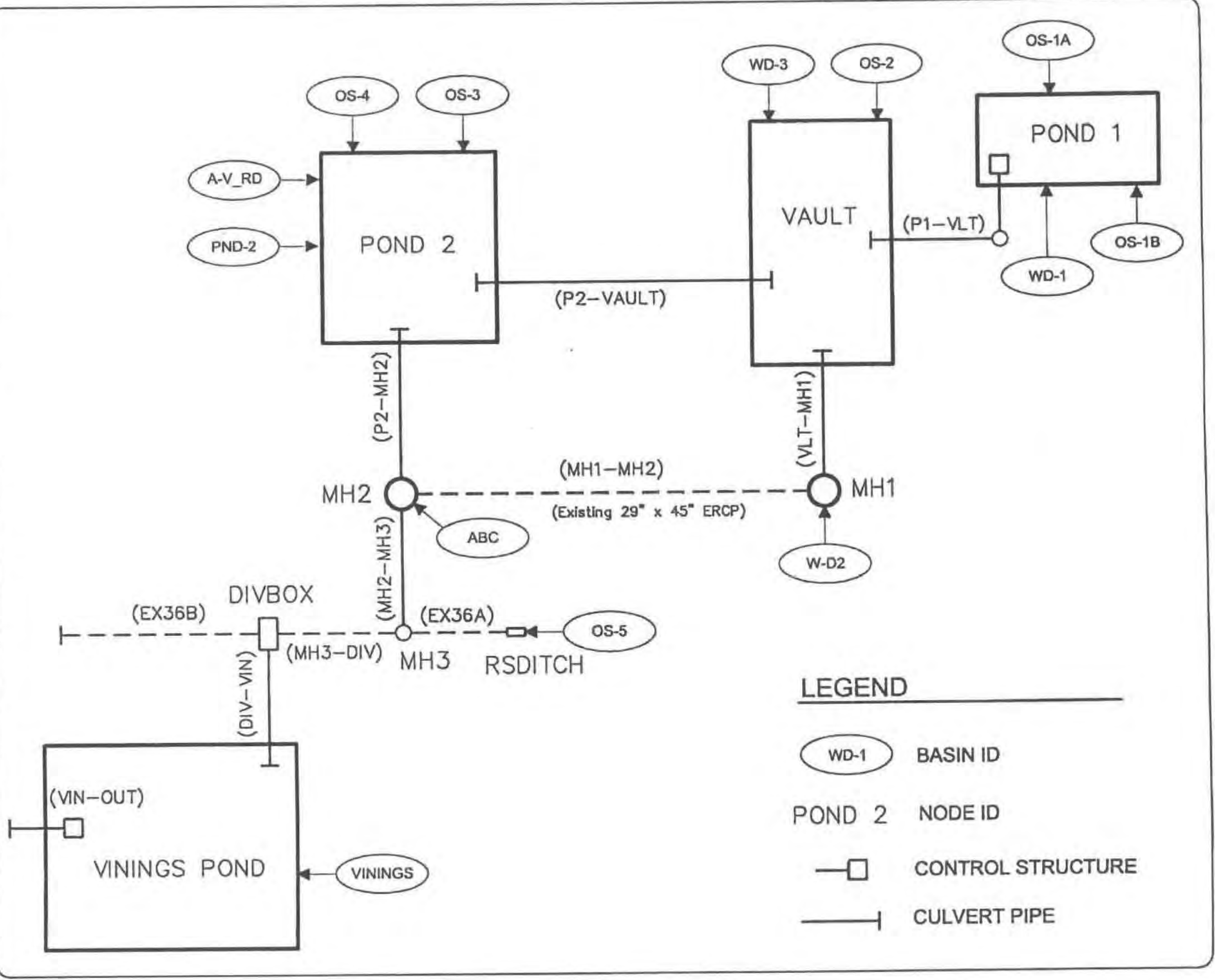
DATE: 9/1/00
 PROJECT NO.: 00046.04
 FIGURE 2A

Miller Einhouse Rymer
 & Associates, Inc.
 Planners • Engineers • Landscape Architects

100 Avenue of the Americas
 Suite 1000
 New York, NY 10013-2478
 Tel: 212-693-6000
 Fax: 212-693-6001
 Email: info@mer.com

THE SHOPS OF LAKE AVENUE
 ORANGE COUNTY, FLORIDA
 NETWORK NODAL DIAGRAM

DATE: 4/27/00
 PROJECT NO.: 00046.04
 FIGURE 4



SCANNED

Winn-Dixie - South Apopka-Vineland Road - Master Stormwater Plan

Post-Development Sub-Basin Hydrologic Data & Treatment Volume Calculations

BASIN ID	A	B	C	D	E	F	G	H	I		K	L	RUNOFF CURVE NUMBER (CN)	TIME OF CONCENTRATION (Tc) (min)	
	Total Drainage Area (Ac)	TOTAL IMPERVIOUS	POND WATER SURFACE AREA	BUILDING ROOF AREA	TOTAL PERVIOUS AREA	BASIN AREA FOR WATER QUALITY	IMPERVIOUS AREA FOR WATER QUALITY	% IMPERVIOUS FOR WATER QUALITY	WATER QUALITY VOLUME FOR 2.5" x % IMP		WATER QUALITY FOR 1" OF RUNOFF				REQUIRED WATER QUALITY TREATMENT VOLUME (acre-feet)
	(Ac)	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	%	(inches)	(ac-ft)	(ac-ft)				
POND-1	W-D1	3.70	2.59	0.58	1.47	0.53	-	-	-	-	-	-	92.87	15.00	
	OS-1A	1.25	0.00	0.00	0.00	1.25	-	-	-	-	-	-	70.00	15.00	
	OS-1B	0.13	0.00	0.00	0.00	0.13	-	-	-	-	-	-	70.00	10.00	
	Totals	5.08	2.59	0.58	1.47	1.91	3.03	1.12	36.94	0.92	0.35	0.42	0.42		
Water Quality Recovery Volume = 0.19 AF (.5"x{Total Area - Pond Water Surface Area})															
POND-2	A-V_RD	13.71	10.01	0.00	n/a	3.70	n/a	n/a	n/a	n/a	-	-	88.98	40	
	OS-3	9.50	0.00	0.00	n/a	9.50	n/a	n/a	n/a	n/a	-	-	54.00	70	
	OS-4	10.77	0.00	0.00	n/a	10.77	n/a	n/a	n/a	n/a	-	-	70.00	30	
	PND-2	0.67	0.00	0.53	n/a	0.14	n/a	n/a	n/a	n/a	-	-	93.80	10	
	ABC	1.28	0.90	0.00	n/a	0.38	n/a	n/a	n/a	n/a	-	-	88.20	15	
	Totals	35.93	10.91	0.53	n/a	n/a	n/a	n/a	n/a	n/a	-	-	0.47		
Water Quality Recovery Volume = 0.235 AF (Per Existing SFWMD Permit #48-00467-S)															
VININGS POND	W-D2	4.72	3.30	0.00	0.02	1.42	-	-	-	-	-	-	88.20	15.00	
	W-D3	0.43	0.00	0.00	0.00	0.43	-	-	-	-	-	-	70.00	15.00	
	OS-2	0.70	0.00	0.00	0.00	0.70	-	-	-	-	-	-	70.00	15.00	
	Sub-Total	5.85	3.30	0.00	0.02	2.55	5.83	3.28	56.31	1.41	0.69	0.49	0.69		
	Vinings	72.48	n/a	6.28	n/a	n/a	n/a	n/a	n/a	n/a	-	-	3.00	79.62	30.00
	OS-5	35.20	1.40	0.00	0.00	33.80	35.20	1.40	3.98	0.10	0.29	2.93	2.93	62.00	90.00
	Totals	113.53	n/a	6.28	n/a	n/a	n/a	n/a	n/a	n/a	0.69	0.49	6.62		
Water Quality Recovery Volume = 4.47 AF (.5"x{Total Area - Pond Water Surface Area})															

SCANNED

Winn-Dixie - South Apopka-Vineland Road - Master Stormwater Plan

Post-Development Sub-Basin Hydrologic Data & Treatment Volume Calculations

Pond 1		Avg.	Inc.	Cum.
	Elev	Area (ac)	Area (ac)	Vol (af)
	106.50	0.58	-	-
	107.50	0.69	0.63	0.63
	110.00	0.69	0.69	1.72

Vining's Pond		Avg.	Inc.	Cum.
	Elev	Area (ac)	Area (ac)	Vol (af)
	101.80	6.28	-	-
	103.00	6.78	6.53	7.84
	105.00	7.50	7.14	14.28

Pond 2		Avg.	Inc.	Cum.
	Elev	Area (ac)	Area (ac)	Vol (af)
	101.80	0.53	-	-
	103.00	0.62	0.58	0.69
	106.00	0.62	0.62	1.87

Vault	22	Bays at	17.5	feet =	390	feet Wide
				By	165	feet Long
						64,350 SF

		Avg.	Inc.	Cum.
Elev	Area (ac)	Area (ac)	Vol (af)	Vol (af)
101.80	1.48	-	-	0
106.00	1.48	1.48	6.20	6.20

Pond Node ID	NCL or TOB	Elev. (ft)	Area (ac)	Volume (ac-ft)	Required Treatment Volume (ac-ft)	Minimum Overflow Elevation (ft)	Overflow Weir Elevation (ft)	Treatment Volume Provided (ac-ft)	Recovery Volume (ac-ft)	Minimum Recovery Stage Elevation (ft)
POND-1	NCL	106.50	0.58							
		107.50	0.69	0.63	0.42	107.17	107.20	0.44	0.19	106.90
POND-2	NCL	101.80	0.53							
		103.00	0.62	0.69	0.47	102.61	102.81	0.58	0.235	
VININGS PONDS	NCL	101.80	6.28							
		103.00	6.78	7.84	6.62	102.81	102.81	6.62	4.47	
POND-2 + VININGS PONDS	NCL	101.80								
		103.00		8.53	7.09		102.81	7.20	4.70	102.15

SCANNED

Permit No. 48-00592-S
Application No. 9001113-1
SR 535 from SR 536 to I-4



South Florida Water Management District

Kissimmee Area Office • 701 East Oak Street • Kissimmee, FL 32743 • (407) 840-1113

LON 24-06-02

Regulation Department
Application No.: 9001113-1
November 30, 1990

Florida Department of Transportation
719 South Woodland Boulevard
DeLand, FL 32720

Dear Sir or Madam:

Subject: Notice of Intent to Construct Works
General Highway Permit and
Stormwater Discharge Certification No: 48-00592-S
Permittee: Florida Department of Transportation
Project : SR 535 from SR 536 to I-4
Location : Orange County, S27,34/T24S/R28E

This letter is to notify you of the District's agency action concerning your Notice of Intent to Construct Works. This action is taken pursuant to Rule 40E-1.606 and Chapter 40E-40, Florida Administrative Code.

Based on the information provided, District rules have been adhered to and a General Highway Permit and Stormwater Discharge Certification is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing, and
2. the attached 12 Special Conditions.

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

Governing Board

James F. Garner, Chairman - Fort Myers
Doran A. Jones, Vice Chairman - Kissimmee
J.D. York - Palm Bay

Arsenio Milton - Miami
Fritz Stein - Belle Glade
Mike Stout - Windermere

Ken Adams - West Palm Beach
Valerie Boyd - Naples
James E. Nall - Fort Lauderdale

John R. Wodraska, Executive Director
Tilford C. Creel, Deputy Executive Director

District Headquarters, P.O. Box 24880 • 3501 Golf Club Road • West Palm Beach, FL 33416-4880 • (407) 686-8800 • Florida WATS 1-800-452-2045

STORM WATER MANAGEMENT ANALYSIS

During early discussion with Mr. Allen Leavens, with SFWMD, on April 14, 1987 and again via telephone on April 2, 1992, it was agreed that retention/detention of 1" of runoff from the proposed new paved area (or equivalent existing pavement) be provided for in the southeast quadrant. The new paved area proposed is 7.97 acres. One inch of runoff from this area is 0.67 acre feet.

Pond storage will be provided inside Loop Ramp E with a pond bottom at EL. 106.0. Outlet control is provided by a weir in the ditch along Ramp C at STA. 25+30. Two 29" x 45" equalization pipes are proposed under SR 535 to connect this ditch with the major detention area inside the loop and provide for drainage from west to east across SR 535.

Although all areas of new pavement cannot be directed to the detention pond, other compensating existing paved area can be. The total area draining to the pond is 39.17 acres, which contains 12.09 acres of impervious surfaces. Groundwater elevations in the area of the proposed pond, as determined by FDOT's soil survey, range from elevation 107 to 109, although some readings as low as 104 to 105 were noted within approximately 1,000'. Since these levels indicate that the exfiltration rate would probably be rather low, a "wet" detention pond is proposed and is conceptually shown on Exhibit IV-1. This pond provides 8.49 acre feet of retention storage for water quality mitigation. It also provides detention. For the 25 year-24 hour storm, it provides 9.68 acre feet of detention storage over and above the retention volume. Projected runoff through the ditch at the control point was calculated for existing conditions (i.e. historic discharge) and proposed conditions. Routing of storms through the detention pond indicates a reduction of projected runoff through the control point for proposed conditions, when compared to existing conditions. A summary of various calculations and projections follows.

■	New impervious area added to Interchange	7.97 acres
■	Total area draining into retention/detention	39.17 acres
■	Impervious area draining into retention/detention	12.09 acres
■	Existing area draining to control weir	18.62 acres
■	Projected Q_{25} (existing conditions)	39.10 cfs
■	Projected Q_{25} from retention/detention	27.64 cfs

The following pages comprise an appendix of support calculations and data used in this analysis. Routing was done using Hydro/Plus software. This program produces hydrographs by the methods of the U.S. Department of Agriculture, Soil conservation Service (SCS). The Hydro/Plus software program was developed by Hydro/Plus Software, Inc., Atlanta, Georgia. Although routing procedures for the 2, 5, 10, 25, 50 and 100 year storms were run, only the routing data for the 25 year storm is included as an example. Other storm results are shown in summary format on Page 35.

ITEM VI-1

PROJECT DESCRIPTION

The proposed project is a modification to the existing I-4/SR 535 Interchange. The modification is to widen SR 535 to six (6) lanes through the interchange, add a loop ramp in southwest quadrant to serve as access for southbound SR 535 to eastbound I-4, reconstruct I-4 bridges over SR 535 and widen westbound I-4 off-ramp to SR 535 to create a two (2) lane off-ramp.

DHA

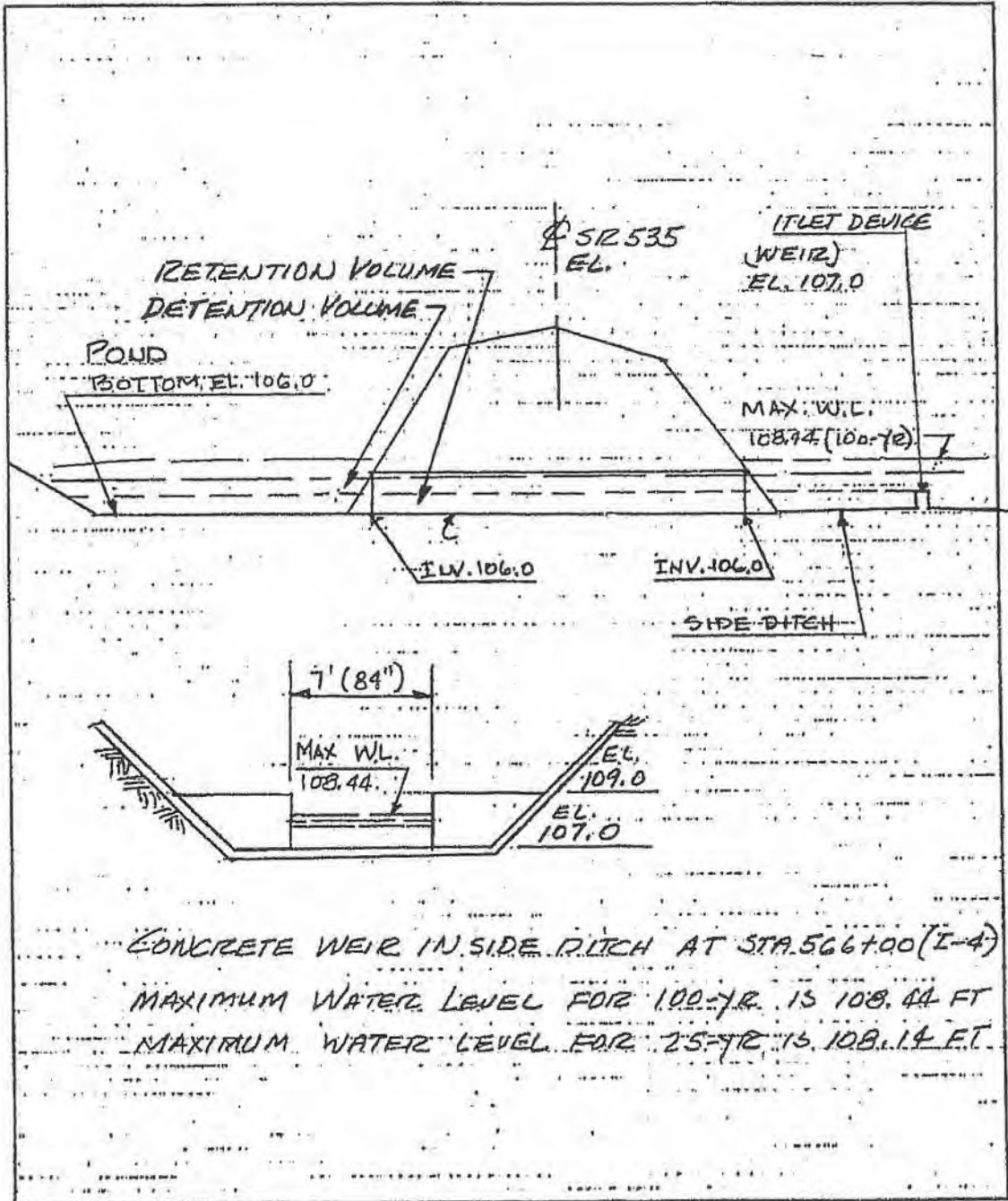
DELON HAMPTON & ASSOCIATES, Chartered
Consulting Engineers - Planners

SHEET NO. 1 OF 1

PROJECT SR 535 / I-4 INTERCHANGE WIDENING JOB NO. 360

SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE MAY 27, 92 CHECKED BY _____ DATE _____



DHA

DELON HAMPTON & ASSOCIATES, Chartered
Consulting Engineers - Planners

SHEET NO. ___ OF ___

1

PROJECT SR 535/I-4 INTERCHANGE WIDENING JOB NO. 360

SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE MAY 15, 92 CHECKED BY [Signature] DATE 5/92

EXISTING CONDITIONS

(SEE PAGE 5 FOR LOCATION)

AREA DESIGNATION	ACREAGE (ACRE)	ACREAGE PAVT (.95)	ACREAGE GRASS (.30)	"C"	"C" X A
A1	0.55	0.55	—	0.95	0.52
A2	1.01	—	1.01	0.30	0.30
A3	0.31	0.31	—	0.95	0.29
A4	7.82	—	7.82	0.30	2.35
A5	1.49	1.44	0.25	0.84	1.25
A6	0.87	0.87	—	0.95	0.83
A7	2.25	—	2.25	0.30	0.67
A8	0.46	0.46	—	0.95	0.44
A9	3.76	0.59	3.17	0.40	1.51
A10	0.10	—	0.10	0.30	0.03
TOTALS	18.62	4.02	14.6	—	8.15

By RATIONAL $CW = 8.15 / 18.62 = 0.44$ $CW = 0.44$

PROJECT SR 535 / I-8 INTERCHANGE IMPROVING JOB NO. 360

SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE JUNE 3, 92 CHECKED BY _____ DATE _____

EXISTING CONDITIONS

TOTAL WATERSHED AREA = 18.62 ACRES

RATIONAL "C_w" = $\frac{8.15}{18.62} = 0.44$ C_w = 0.44

SCS (CN)

LAND USE	AREA	% OF TOTAL AREA	CN	Wt. x CN
IMPERVIOUS	4.02	.21	98	20.58
PERVIOUS	14.60	.79	69	54.51

CN = 75.09

CN = 75

RAINFALL

THE SCS METHODS ARE BASED ON A 24 HOUR STORM EVENT WHICH HAS A TYPE II TIME DISTRIBUTION. FOR ORANGE COUNTY, THE 24 HOUR RAINFALL FOR VARIOUS FREQUENCY STORM IS GIVEN AS FOLLOWS: (SEE FIG. 5-13)

24 HOUR RAINFALL

- 2-YEAR FREQUENCY STORM = 4.7 INCHES
- 5-YEAR FREQUENCY STORM = 6.3 INCHES
- 10-YEAR FREQUENCY STORM = 7.5 INCHES
- 25-YEAR FREQUENCY STORM = 8.6 INCHES
- 50-YEAR FREQUENCY STORM = 9.5 INCHES
- 100-YEAR FREQUENCY STORM = 10.5 INCHES

PROJECT SR 535 / I-4 INTERCHANGE WIDENING JOB NO. 360

SUBJECT DRAINAGE

DESIGNED BY F. G. GARCIA DATE JUNE 3, 92 CHECKED BY _____ DATE _____

EXISTING CONDITIONS (CONT.)

THE SCS HAS DEVELOPED A RAINFALL-RUNOFF EQUATION WHICH PREDICTS PRECIPITATION EXCESS (DIRECT RUNOFF) FROM RAINFALL AND WATERSHED DATA USING FIGURE 4-1

GIVEN: $CH = 75$

	<u>RAINFALL</u>	<u>DIRECT RUNOFF @ IN INCHES</u>
2-yr	4.7 IN	2.3 IN
5-yr	6.3 IN	3.5 "
10-yr	7.5 IN	4.55 "
25-yr	8.6 IN	5.6 "
50-yr	9.5 IN	6.45 "
100-yr	10.5 IN	7.30 "

TIME OF CONCENTRATION (TC)

THE TIME REQUIRED FOR WATER TO TRAVEL FROM THE MOST HYDRAULICALLY DISTANT POINT IN THE WATERSHED TO THE OUTLET.

$100' @ .2 FT/SEC = 50 MIN$

$1500' @ .5 FT/SEC = 43 MIN$

USE $TC = 1.5 HR$

USING FIG - 1 (PEAK DISCHARGE IN CSM PER INCH OF RUNOFF VERSUS TIME OF CONCENTRATION (TC) FOR 24-HOUR, TYPE-II STORM DISTRIBUTION)

PEAK DISCHARGE CSM/INCH IS

$Q_p = 240 CFS / 50 MI / INCH (PEAK RATE OF RUNOFF), FOR 1.5 HR$

PROJECT SE 535/I-4 INTERCHANGE WIDENING JOB NO. 360

SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE JUN 3, 92 CHECKED BY _____ DATE _____

PEAK RATE OF RUNOFF

FOUR TC = 1.5 Hours AREA = 18.62 AC

$Q_p = 240 \text{ cfs/sq. mi. / INCH}$

$Q_2 = 240 \times \frac{18.62}{640} \text{ sq. mi.} \times 2.3 \text{ INCHES OF RUNOFF} = 16.06 \text{ CFS}$

$Q_5 = 240 \times 18.62/640 \text{ sq. mi.} \times 3.50 \text{ INCHES} = 24.44 \text{ CFS}$

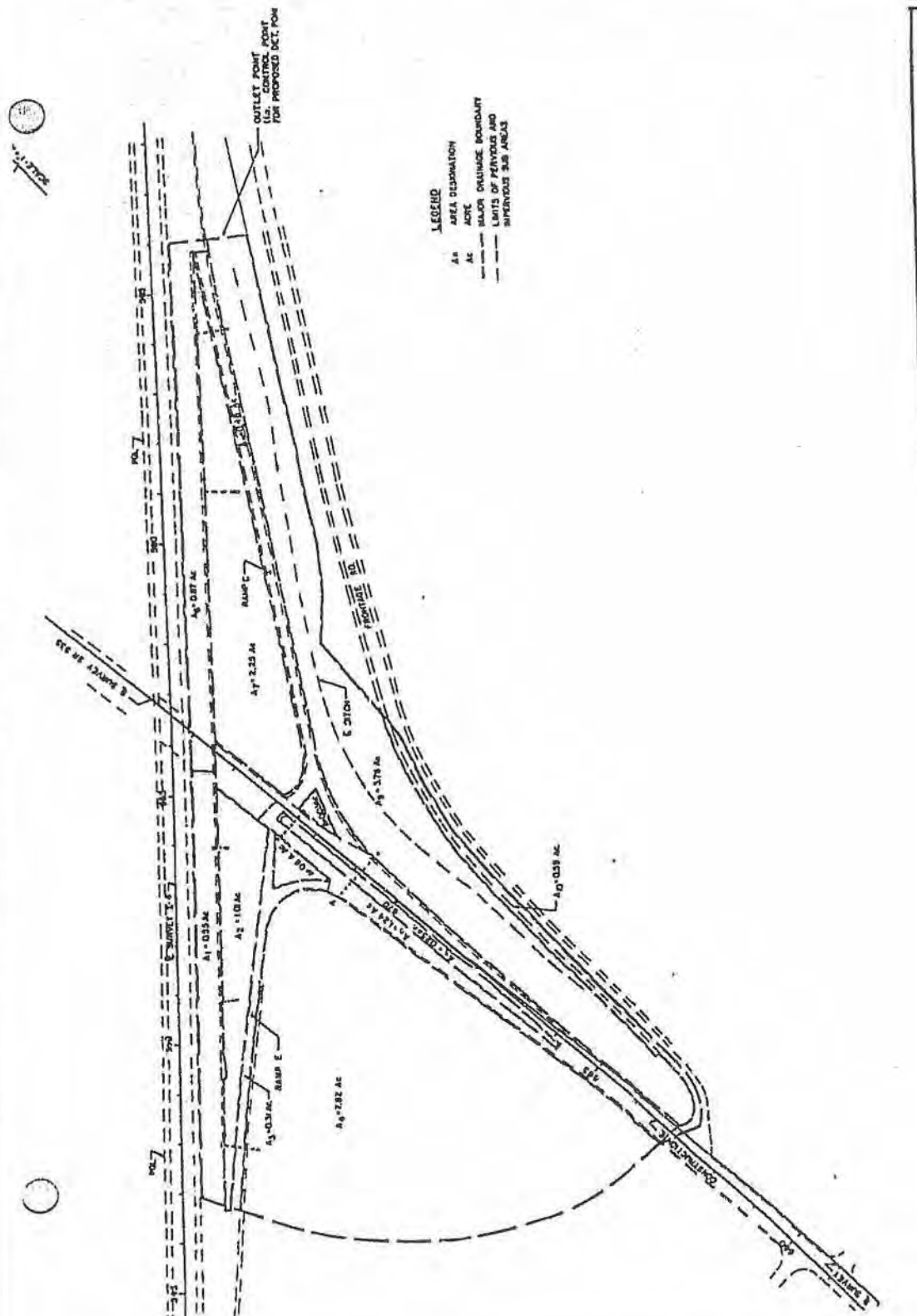
$Q_{10} = 240 \times 18.62/640 \text{ sq. mi.} \times 4.55 \text{ INCHES} = 31.77 \text{ CFS}$

$Q_{25} = 240 \times 18.62/640 \text{ sq. mi.} \times 5.60 \text{ INCHES} = 39.10 \text{ CFS}$

$Q_{50} = 240 \times 18.62/640 \text{ sq. mi.} \times 6.45 \text{ INCHES} = 45.84 \text{ CFS}$

$Q_{100} = 240 \times 18.62/640 \text{ sq. mi.} \times 7.3 \text{ INCHES} = 50.97 \text{ CFS}$

EXISTING CONDITIONS
DRAINAGE MAP
SR 400 (I-4) SR 535



LEGEND

- AREA DELINEATION
- AC ACRE
- - - HALF-DASHED BOUNDARY
- DASHED BOUNDARY

DHA

DELON HAMPTON & ASSOCIATES, Chartered
Consulting Engineers - Planners

SHEET NO. 2 OF

PROJECT SR 535 / I-4 INTERCHANGE JOB NO. _____

SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE MAY 15/92 CHECKED BY [Signature] DATE 5/92

PROPOSED CONDITIONS
(SEE EXHIBIT III-2 FOR LOCATIONS)

AREA DESIGNATION	ACREAGE (ACRE)	ACREAGE 0.95 (PAV'T)	ACREAGE 0.30 (GRASS)	"C.W"	C * A
A1	0.51	0.51	-	0.95	0.48
A2	0.30	0.30	-	0.95	0.28
A3	0.75	0.23	0.52	0.50	0.37
A4	0.46	0.46	-	0.95	0.44
A5	0.26	0.26	-	0.95	0.25
A6	0.43	0.43	-	0.95	0.41
A7	0.50	0.50	-	0.95	0.47
A8	0.62	0.62	-	0.95	0.59
A9	0.34	0.34	-	0.95	0.32
A10	0.52	0.52	-	0.95	0.49
A11	0.31	0.31	-	0.95	0.29
A12	0.94	0.28	0.66	0.49	0.46
A13	0.44	0.44	-	0.95	0.42
A14	0.26	0.26	-	0.95	0.25
A15	0.22	0.21	0.01	0.92	0.20
A16	1.52	0.04	1.48	0.93	1.42
A17	4.16	0.53	3.63	0.38	1.58
A18	0.85	0.68	0.17	0.82	0.70
A19	0.49	0.39	0.10	0.83	0.41
A20	0.26	0.19	0.07	0.78	0.20
A21	0.26	0.35	0.01	0.93	0.33
A22	0.29	0.23	0.07	0.80	0.24
A23	0.34	0.29	0.05	0.85	0.29

DHA

DELON HAMPTON & ASSOCIATES, Chartered
Consulting Engineers - Planners

SHEET NO. 3 OF

7

PROJECT SR 535 / I-4 INTERCHANGE JOB NO. _____

SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE MAY 15, 92 CHECKED BY _____ DATE _____

PROPOSED CONDITIONS (CONT.)

AREA DESIGNATION	ACREAGE (ACRE)	ACREAGE 0.95 (PAV)	ACREAGE 0.30 (GRASS)	"CW"	C * A
A24	12.64	1.42	11.22	0.37	4.72
A25	1.49	0.07	1.42	0.33	0.49
A26	3.52	0.77	2.75	0.44	1.55
A27	6.38	1.46	4.92	0.45	2.87
TOTALS	39.17	12.09	27.08	-	20.52

$$"CW" = \frac{20.52}{39.17} = 0.52 \quad \therefore \quad CW = 0.52$$

TIME OF CONCENTRATION (TC)

TC SAME AS EXISTING - 1.5 HRS

THEREFORE,

$$LAG = (0.6)(1.5) = 0.9 \text{ HRS.}$$

PROJECT SR 535 / I-4 INTERCHANGE WIDENING JOB NO. 360

SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE MAY 16, 92 CHECKED BY _____ DATE _____

PROPOSED CONDITIONS (CONT.)

TOTAL WATERSHED AREA = 39.17 ACRES

THE WEIGHTED RUNOFF COEFFICIENT CW BY THE RATIONAL METHOD IS

$CW = 0.52$

RUNOFF FACTOR (CN)

THE SCS USES A COMBINATION OF SOIL CONDITIONS AND LAND-USE GROUND COVER TO ASSIGN A RUNOFF FACTOR TO AN AREA. (SEE TABLE 4-3, RUNOFF CURVE NUMBERS FOR AGRICULTURAL SUPERVISAL, AND URBAN LAND USE).

PREDOMINANT SOIL TYPES FOR OPEN SPACES, FAIR CONDITION, GRASS/BUSH COVER ON 50% TO 75% OF THE AREA.

HYDROLOGIC SOIL GROUP B

LAND-USE	AREA (AC)	% OF TOTAL AREA	CN*	% x CN
IMPERVIOUS	12.09	.31	98	30.38
PERVIOUS	27.08	.69	69	47.61
				77.99

* VALUES SELECTED FROM TABLE 4-3

$CN = 78$

DHA

DELON HAMPTON & ASSOCIATES, Chartered
Consulting Engineers - Planners

SHEET NO. ___ OF ___

PROJECT SR 535 / I-4 INTERCHANGE WIDENING JOB NO. 360

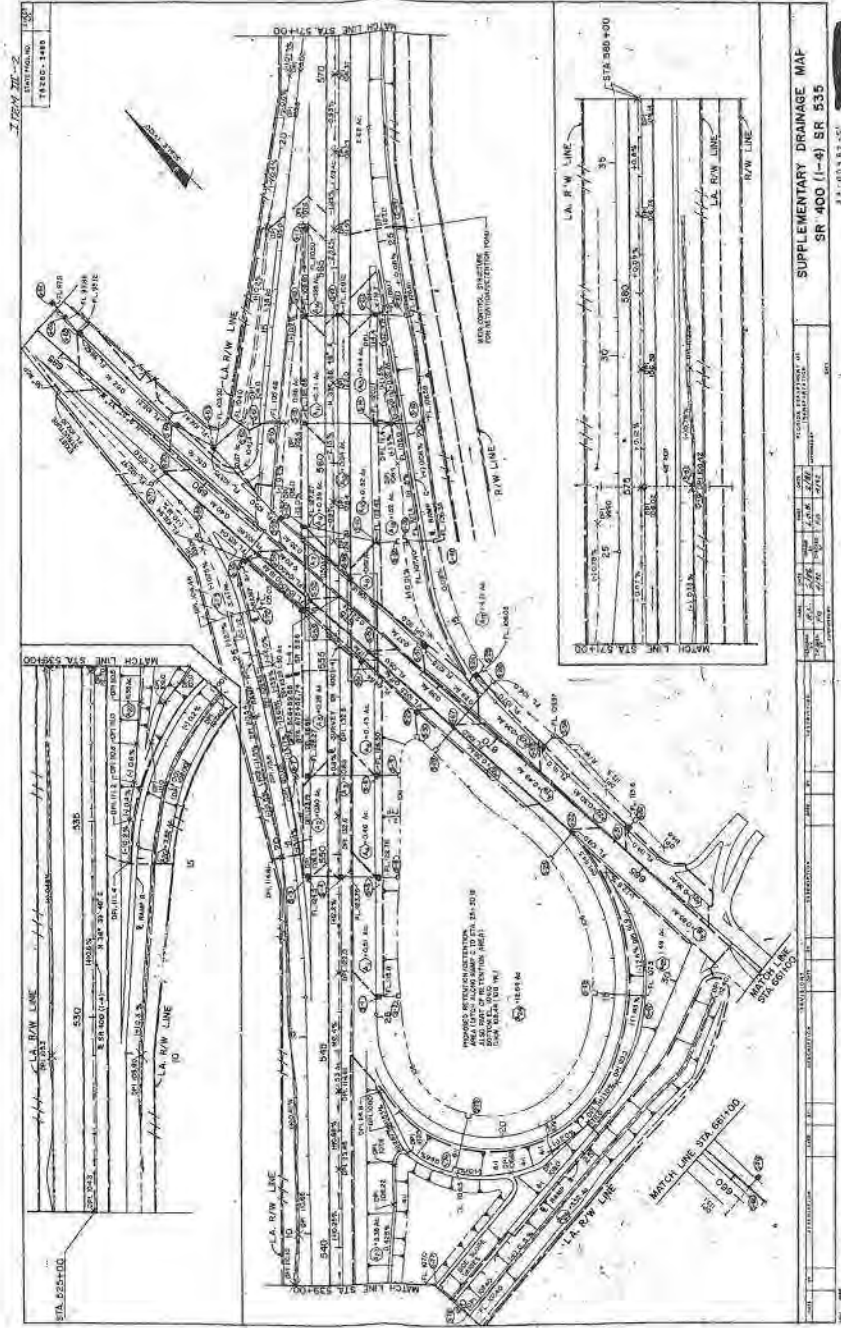
SUBJECT DRAINAGE

DESIGNED BY F. GARCIA DATE MAY 18, 92 CHECKED BY _____ DATE _____

RETENTION / DETENTION POND

BASIN AREA = 39,17 ACRES

STAGE (ELEV.)	AREA (FT ²)	IN VOLUME (FT ³)	CUMULATIVE VOLUME (FT ³)
107.0	364,026	0	0
107.5	369,876	183,476	183,476
108.0	375,726	186,400	369,876
108.5	381,616	189,336	559,212
109.0	387,506	192,281	751,493
109.5	393,436	195,236	946,729
110.0	399,366	198,200	1,144,929



SUPPLEMENTARY DRAINAGE MAP
 SR 400 (1-4) SR 535

NO.	DATE	BY	CHKD.	DESCRIPTION
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Permit No. 48-00714-P

Application No. 131119-15

BVD Corridor Stormwater Project Modification

Edmund, Carol

To: COMPLIANCEPERMITS@DOS.STATE.FL.US; LISA.PRATHER@DEP.STATE.FL.US;
FWCCONSERVATIONPLANNINGSERVICES@MYFWC.COM
Subject: SFWMD New Application / WPB Application 131119-15 Orange County

The South Florida Water Management District has received a permit application for the project listed below. A Notice Letter, the application and supporting documents can be viewed by clicking on the Application Details link below.

APPLICATION: # 131119-15
PERMIT: # n/a
APPLICANT: WALT DISNEY PARKS & RESORTS U.S, INC
PROJECT: B V D CORRIDOR STORMWATER PROJECT MODIFICATION
LOCATION: Orange County, S 28 \ T 24 \ R 28
CITY: Lake Buena Vista
DESCRIPTION: Modify the stormwater system approved under application 130215-8.
ACREAGE: 291.54

If you have any questions, please feel free to contact our office.
Note: The application documents may not currently be available but will be scanned and posted to ePermitting by the close of business today.

Responses should be submitted through ePermitting or may be emailed to epermits@sfwmd.gov.

[Application Details](#)



FLORIDA DEPARTMENT OF STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

RECEIVED

DEC 19 2013

December 11, 2013

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

WATER RESOURCE REGULATION

Re: Projects Reviewed by the Florida State Historic Preservation Office
No Historic Properties Likely Affected – See Page 2

To Whom It May Concern:

Our office received and reviewed the referenced projects in accordance with Chapters 267 and 373, Florida Statutes, Florida's Coastal Management Program, and implementing state regulations, for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical, architectural, or archaeological value. The State Historic Preservation Officer is to advise and assist state and federal agencies when identifying historic properties, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

A review of the Florida Master Site File data indicated that no significant archaeological or historical resources are recorded within these project areas. However, due to environmental conditions consistent with those found at other archaeological sites in Florida and lack of professional archaeological or historical investigation, there is some potential for undiscovered archaeological sites to occur. Therefore, it is the opinion of this agency that, in addition to the standard permitting condition, these permits, if issued, should include the following special condition regarding unexpected discoveries during ground disturbing activities on the property:

If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at 850.245.6333 or 800.847.7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, *Florida Statutes*.



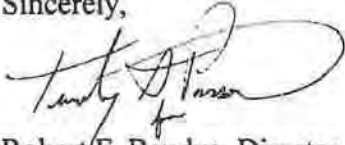
DIVISION OF HISTORICAL RESOURCES
R. A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250
Telephone: 850.245.6300 • www.flheritage.com
Commemorating 500 years of Florida history • www.vivaflorida.com



SCANNED BY MS 10/19/2013 10:54

For any questions concerning our comments, please contact Desiree Estabrook, Historic Sites Specialist, by email at Desiree.Estabrook@dos.myflorida.com, or by phone at 850.245.6333.

Sincerely,



Robert F. Bendus, Director
Division of Historical Resources
and State Historic Preservation Officer

DHR No.	App. No.	Project Name	County
2013-5363	131119-1	Renaissance Center	Lee
2013-5364	131118-8	Entry Grove	Okeechobee
2013-5365	131120-8	The Preserve at St. Andrews	St. Lucie
2013-5366	131119-20	Mc Donalds – 6405 Nova Road	Broward
2013-5367	131119-16	Pollo Tropical Restaurant	Palm Beach
2013-5368	131119-15	BVD Corridor Stormwater Project Mod	Orange
2013-5369	131119-10	WRO Site Demucking and Earthwork	Palm Beach
2013-5370	131121-7	La Vina Tract G Commercial	Orange
2013-5371	131121-2	Palm Beach Gardens Tennis Center	Palm Beach
2013-5372	131120-7	Sun Terra West Phase 2	Osceola

Permit No. 48-00714-S
Application No. 930203-2
Osceola Parkway Phase 4

SFILMD 1P 930203-2
(NG029)



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

ORLANDO SERVICE CENTER 7335 Lake Ellenor Drive, Orlando, FL 32809
(407) 858-6100 • FL WATS 1-800-250-4250 • Suncom 358-6100 • Fax (407) 858-6121 • www.sfwmd.gov/org/exo/orlsc/index.html

ON 24-05
May 18, 2001

Mr. Timothy Holton
Reedy Creek Improvement District
P.O. Box 10170
Lake Buena Vista, FL 32830-0170

Dear Mr. Holton:

**Subject: Construction Completion / Construction Certification,
Surface Water Management Permit No. 48-00714-S, Application No. 930203-2,
OSCEOLA PARKWAY, PHASE 4, Orange & Osceola Counties,
Sections 31, 32, 36, 5 & 6, Townships 24 & 25 South, Ranges 27 & 28 East**

This letter is to acknowledge receipt of your consulting engineer's construction completion / construction certification and the record drawings pertaining to the subject parcel's surface water management system. District staff has reviewed the submitted information and it has been incorporated into the permit file.

By accepting the engineer's certification, District staff considers the surface water management system (permitted under the above listed application number(s)) to be constructed in substantial conformance with the plans and specifications approved by the District. This satisfies your permit's conditions regarding submittal of an engineer's certification for construction completion of the permitted drainage facilities and the above referenced permit is hereby converted from the construction phase to the operation phase.

Please call me at (407) 858-6100 (ext. 3828) at the Orlando Service Center, if you have any questions.

Sincerely,

Elaine C. Akers
Staff Environmental Analyst
Orlando Service Center

eca

c: David V. Nichols, P.E., Transportation Consulting Group
Osceola County Engineer
Orange County Engineer

GOVERNING BOARD

Nicolás J. Gutiérrez, Jr., Esq., *Chairman*
Trudi K. Williams, *Vice-Chair*
Pamela Brooks-Thomas

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Hugh M. English
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Patrick J. Gleason
Lennart E. Lindahl
Harkley R. Thornton

EXECUTIVE OFFICE

Frank R. Finch, P.E.,
Executive Director

SERVICE CENTER

William C. Stimmel,
Director

DISTRICT HEADQUARTERS: 3301 Gun Club Road, P.O. Box 24680, West Palm Beach, FL 33416-4680 • (561) 686-8800 • FL WATS 1-800-432-2045 F-184

11/19/2012 10:43 CMW
SCANNED

Handwritten initials and date: DS 3/02

A. Leavens

DRAFT
Subject to Governing
Board Approval

LAST DATE FOR GOVERNING BOARD ACTION:
JULY 15, 1993

SURFACE WATER MANAGEMENT STAFF REVIEW SUMMARY

I. ADMINISTRATIVE

APPLICATION NUMBER: 930203-2

PERMIT MODIFICATION NUMBER: 48-00714-S

PROJECT NAME: OSCEOLA PARKWAY PHASE 4

LOCATION: ORANGE COUNTY, OSCEOLA COUNTY
S31,32,36,5,6/T24,25S/R28,27E

APPLICANT'S NAME: REEDY CREEK IMPROVEMENT DISTRICT

OWNERS NAME AND ADDRESS: REEDY CREEK IMPROVEMENT DISTRICT
P.O BOX 10170
LAKE BUENA VISTA, FL 32830

DEVELOPER: REEDY CREEK IMPROVEMENT DISTRICT

ENGINEER: TRANSPORTATION CONSULTING GROUP

RECEIVED
JUN 28 1993
ORLANDO SERVICE
CENTER

II. PROJECT DESCRIPTION

PROJECT AREA: 50.1 acres DRAINAGE AREA: 50.1 acres

DISTRICT DRAINAGE BASIN: REEDY CREEK

RECEIVING BODY: REEDY CREEK VIA EXISTING WETLANDS AND MASTER DRAINAGE SYSTEM

CLASSIFICATION: CLASS III

SPECIAL DRAINAGE DISTRICT: REEDY CREEK IMPROVEMENT DIST.

PURPOSE:

The purpose of this application is to obtain authorization for construction and operation of a surface water management system to serve a 50.10 acre highway project. Staff's recommendation is for approval.

*6/5
9/2002
LMC*

SCANNED 11/19/2012 10:43 AM CMW

BACKGROUND:

This portion of Osceola Parkway is included in the conceptual approval for the Disney Master Development (Permit No. 48-00714-S) which was approved by the Governing Board on September 10, 1992. The entire roadway alignment extends from World Drive east to the Florida Turnpike and will be 12.4 miles long upon completion.

There is a 1.0 acre wetland impact associated with this phase of construction. Mitigation for 0.66 acres wetland impacts are offset by the Disney Master Mitigation Plan. The 0.34 acres of impact within wetland number 2.3 did not require mitigation since this wetland is below the size threshold established in Appendix 7 (Isolated Wetlands Rule).

The interchange with World Drive was approved for construction on April 9, 1992, under Permit No. 48-00009-S, the original Reedy Creek Improvement District Permit.

EXISTING FACILITIES:

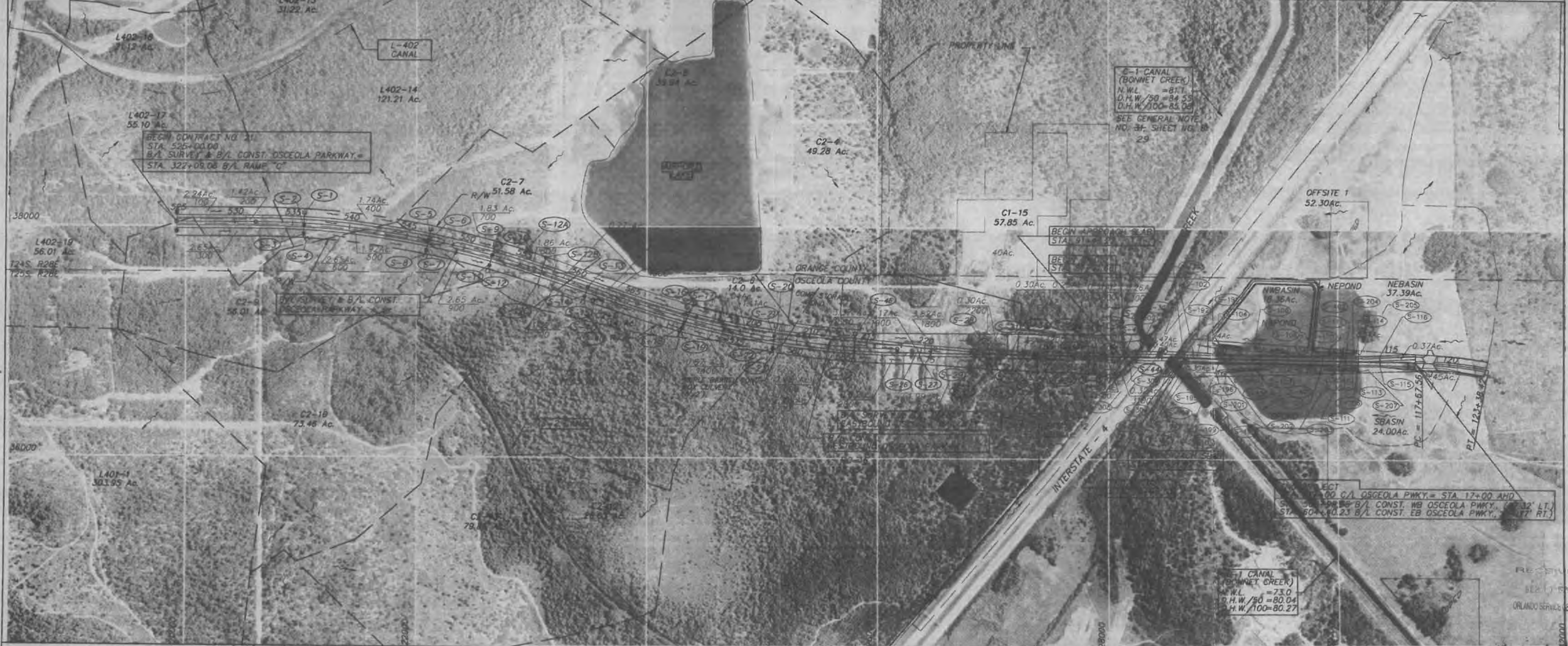
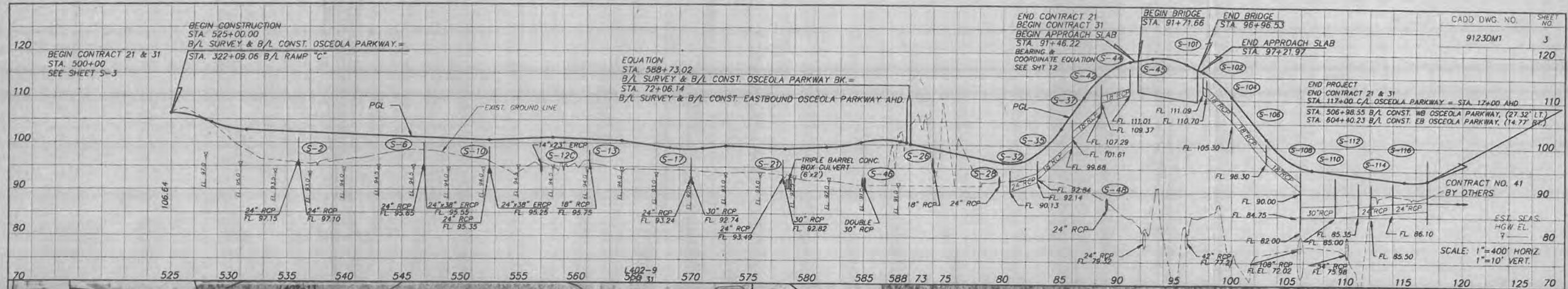
This section of the roadway begins at the interchange with World Drive and continues easterly to I-4. The existing land is undeveloped uplands, a large existing borrow pit is located north of this section, but will not be a part of the water management system. There are wetland areas located south of the roadway alignment.

PROPOSED FACILITIES:

This portion of Osceola Parkway was conceptually approved as Section 2. The water management system for this section will consist of roadside swales with ditch blocks and bleeder orifices providing dry detention storage. These swales will then overflow to conveyance swales which sheet flow to the adjacent wetlands. The wetlands eventually discharge to the Reedy Creek Improvement District's (R.C.I.D.) Canals C-1 or C-2 which are to the south and east of the existing wetlands. A lake will be constructed on the north side of the road which provides compensating storage for the flood plain encroachment of the roadway. There is no drainage from the roadway going to this lake.

BASIN INFORMATION:

Basin	Area Acres	WSWT Elev (ft, NGVD)	Normal/Dry Ctrl Elev (ft, NGVD)	Method of Determination
BASIN 100,200,300	6.31	95.50	96.9/96.9	SOIL BORINGS
BASIN 400,500,600	6.31	94.50	95.8/95.8	SOIL BORINGS
BASIN 700,800,900	6.34	93.75	93.75/93.75	SOIL BORINGS
BASIN 1100,1200	1.59	94.00	95.5/95.5	SOIL BORINGS



CADD DWG. NO.	SHEET NO.
9123DM1	3
	120

REVISIONS		DESCRIPTION	
DATE	BY	DATE	BY
12/8/93	DYN		

REEDY CREEK IMPROVEMENT DISTRICT

NOTE: The data in this document incorporates proprietary rights of REEDY CREEK IMPROVEMENT DISTRICT. Any party accepting this document does so in confidence and agrees that it shall not be duplicated, in whole or in part, nor disclosed to others, without the consent of REEDY CREEK IMPROVEMENT DISTRICT.

DESIGNED BY	DATE	DRAWN BY	DATE	APPROVED BY
CTM	6/24/93	CTM	6/24/93	<i>David V. Nichols</i>
CHECKED BY		CHECKED BY		
WVA	6/24/93	WVA	6/24/93	

TRANSPORTATION CONSULTING GROUP

OSCEOLA PARKWAY DRAINAGE MAP

RECEIVED
JUL 1 1993
ORLANDO SERVICE CENTER

Permit No. 48-01008-P

Application No. 980715-3

Osceola Parkway/I-4 Interchange

South Florida Water Management District

**BEG. PERMIT
NUMBER** 48-01008-P

APPLICATION NO.
980715-3

48-01008-P
-

E1

**PERMIT AND AS-BUILT CONDITIONS MODELS FOR NWPOND FROM INITIAL OSCEOLA
PARKWAY PROJECT, SFWMD PERMIT NUMBER 930209-3**

During construction of Osceola Parkway, a portion of a borrow pit was converted to serve as the stormwater treatment and attenuation pond. As part of this interchange project, it is proposed to modify the remaining borrow pits and to expand the stormwater pond.

In order to demonstrate these activities will not impact the adjacent property owners, and to assess existing conditions, the permit and as-built conditions were analyzed as existing conditions. Permit #930209-3 provided a BRN model for the current stormwater pond (NWPOND). Because this project was to make use of the adICPR software, a verification model was prepared using the exact design input as shown the permit documentation. Then, the as-built survey conditions were modeled to justify that the construction did not significantly differ from the design specified. The two models are provided in this section along with excerpts from the previous permit application relative to the previous design and the allowable discharge. This serves as the documentation for existing conditions.

CH2MHILL

SUBJECT UPITT
MODEL VERIFICATION

BY AW
SHEET NO. 3 of 7 DATE 9/19/97
PROJECT NO. 137270.02.02 E4

NW BASIN
18.34 AC
CN = 94.77
TC = 6.32 HRS
= 19.2 MIN



NW POND
83 9.17
84 9.41
85 9.64
86 9.98
87 10.32
87K 10.47

BOUNNET CREEK
(BOUNDARY)
EL 80.0



38LF OF 30" RCP
US INV 72.0
DS INV 71.2



DROP STRUCTURE
CREST EL 83.00
LENGTH 3 FT
HEIGHT 3" (83.25)



CREST EL 87.0
LENGTH 15'
C = 8.13

148LF OF 18" RCP
US INV 80.0
DS INV 79.93

M#4



400LF OF 30" RCP
US INV 78.26
DS INV 77.90



M#1



513LF OF 30" RCP
US INV 78.73
DS INV 78.26

M#5



← SHEET 2

ALS
5/18/08
AS-20-08

BY
DATE
CHECKED

CH2MHILL
SUBJECT Treatment Calculations for Pond D

Basin Identification	Description	Total Area		Pre-Developed Impervious (Treatment Not Required)		New Impervious		Total Impervious Required		Total Impervious Used		Post-Developed	
		Acres	Acres	To Remain	To Be Removed	Total	Acres	Acres	Treatment Calculation (Note)	Treatment Calculation (Note)	Acres	Acres	Total Impervious
400	Pond D & E - Imp C1 thru C4 208+00 to 223+00 Ramp C2 8+00 to 15+00 Ramp C1 211+00 to 223+00 Ramp C4 300+00 to 302+00 Ramp C3	19.18		0.00	0.00	2.48		2.48		2.48		2.48	2.48
401	Ramp D2 & WBCC from Bonnet Creek to Pipe Access 14 (422+400) WBCC from Pipe Access 14 (422+400) to Ramp Brails	2.16		0.00	0.00	2.16		2.16		2.16		2.16	2.16
402	1+22+00 to 1+39+50 WBCC Ramp D1 from WB14 Gore to Bridge	1.75		0.00	0.00	1.75		1.75		1.75		1.75	1.75
403	899+00 to 712+00 Ramp D1 Enclosure 14 & Infield 14/EBCC/C2 416+00 to 442+00 14	1.32		0.40	0.00	0.92		0.92		1.32		1.32	1.32
404	EBCC from Bonnet Creek to Ramp Brails	7.64		2.92	0.00	2.92	1.19	1.19		4.11		4.11	4.11
405	1410+00 to 1433+00 EBCC Median 14	3.51		0.61	0.00	0.61	1.83	1.83		2.43		2.43	2.43
406	410+00 to 429+00 14 Median 14	2.89		0.89	0.00	0.89	3.00	3.00		0.89		0.89	0.89
407	429+00 to 452+00 14 Chevela Pkwy from 14 Bridge to Ramp C2	2.39		0.94	0.00	0.94	0.00	0.00		0.94		0.94	0.94
408	93+50 to 105+00 ESOP	5.01		1.94	0.00	1.94	0.00	0.00		1.84		1.84	1.84
409	CP East from C2 to End of Project Total to Pond D	5.65		0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00
600	WB14 & Shoulder of D1	7.70		7.70	0.00	0.00	10.33	10.33		15.03		15.03	15.03
601	Infield of D1 & WBCC	7.09		1.71	0.00	1.71	0.00	0.00		0.00		0.00	0.00
602	Infield of D1, 14 & WBCC, Shoulder of D1	1.66		0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00
603	Infield of D1 & WBCC, South of Pond F Total NE of CP/Bonnet Creek	7.01		2.50	0.00	2.50	0.31	0.31		0.31		0.31	0.31
		66.96		11.90	0.00	11.90	10.97	10.97		10.97		10.97	22.88

- Note 1 Because 14 was in place prior to SFVMD permits in this area, only impervious placed after permitting is required for treatment calculations.
- Note 2 Part of 14 was added to a treatment system in lieu of new impervious. Therefore, the total impervious area was used for treatment calculations below. The actual impervious runoff to the pond (11.03) ac is greater than to the total new impervious (10.97) ac.

Wet Pond Criteria:

1 One inch Runoff from the Total Basin Area
 $1" / (12" / 1 ft) * (TOTAL AREA) = 4.36 \text{ ac-ft}$
 $1" / (12" / 1 ft) * (62.50 \text{ ac}) =$

2 2.5 1-in Runoff from the New Impervious Area
 $2.5" / (12" / 1 ft) * (IMP. A. AREA) = 3.76 \text{ ac-ft}$
 $2.5" / (12" / 1 ft) * (18.03) =$

The height of the live volumes control

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CH2MHILL

SUBJECT

Pond D Bleed Down Weir

BY ALS

DATE 5/18/98

ck 95.5-27-98

Detention Type =	Wet	81.00	Area (ft ²) =	416,685
C =	3	86.00	Area (ft ²) =	506,641
Weir Length (ft) =	2	83.00	Area (ft ²) =	452,867
Basin Area (ac) =	52.30	83.48	Area (ft ²) =	460,983
New Impervious (ac) =	18.03	Total Treatment Volume (ft ³) =	Greater Than Required =	189,854
		1/2" Treatment Volume (ft ³) =	Has Recovery Time (Hr) =	23.31
		From Top to Elevation =	Volume Provided (ft ³) =	96,406

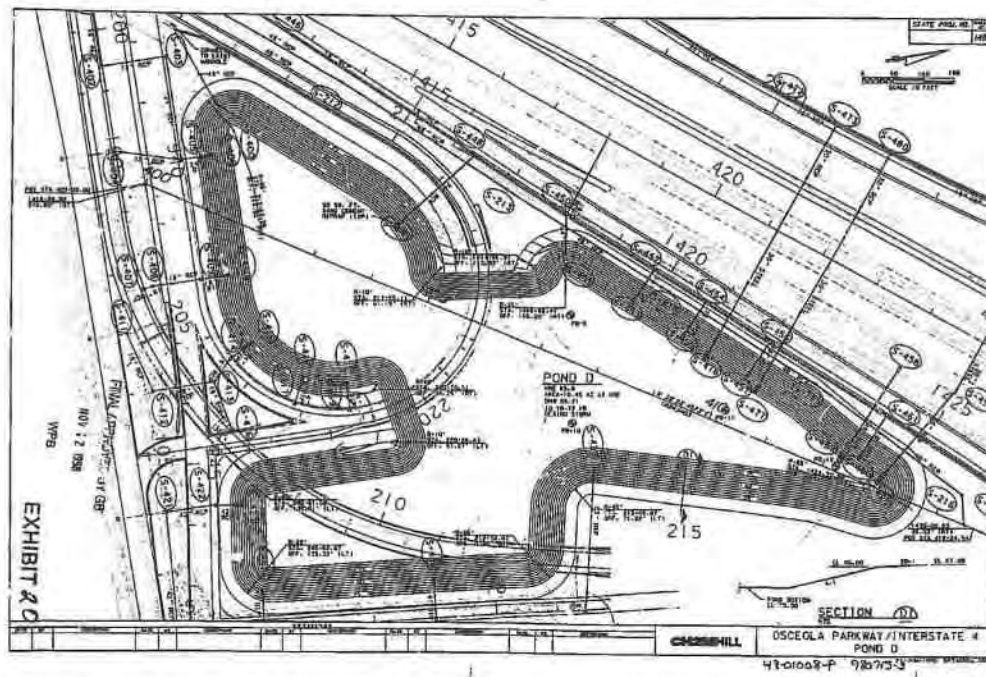
Stage (ft)	Head (ft)	Area (ft ²)	Vol (ft ³)	Depth Stage (ft)	Q (cfs)	Q ₁ (cfs)	Delta Time (hr)	Total Time (hr)
83.4500	0.4500	460963			1.811			0.00
			16122.70	0.0350		1.708	2.62	
83.4150	0.4150	460334			1.604			2.62
			16100.66	0.0350		1.505	2.97	
83.3800	0.3800	459704			1.405			5.59
			16079.62	0.0350		1.311	3.41	
83.3450	0.3450	459074			1.216			9.00
			16056.58	0.0350		1.126	3.96	
83.3100	0.3100	458445			1.036			12.96
			16034.54	0.0350		0.950	4.69	
83.2750	0.2750	457815			0.865			17.65
			16012.50	0.0350		0.785	5.66	
83.2400	0.2400	457185			0.705			23.31
		Volume	96,406	ft ³				

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Advanced Interconnected Channel & Pond Routing (adiCPR Ver 1.40)
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10YR 72HR, OP/I4 NE QUADRANT, POND D
 2/10/98 REV 3/15/98

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
PONDD	AREA	83.000	.000	.000	.000	81.000	9.730
						86.000	11.630
MH1	AREA	78.620	.000	.000	.000	78.620	.001
						85.500	.001
						86.000	.001
MH2	AREA	78.430	.000	.000	.000	78.430	.001
						85.000	.001
						86.000	.001
MH3	AREA	78.230	.000	.000	.000	78.230	.001
						93.000	.001
MH4	AREA	71.860	.000	.000	.000	71.860	.001
						89.000	.001
						90.000	.001
BC	TIME	80.000	.000	.000	.000	80.000	.000
						80.000	72.000
NEPOND	AREA	83.350	.000	.000	.000	75.000	.001
						83.000	4.080
						84.000	4.260
						85.000	4.440
						86.000	4.630
						87.000	4.870
SPOND	AREA	83.350	.000	.000	.000	75.000	.001
						82.000	10.090
						84.000	10.400
						85.000	10.700
						86.000	11.070
						87.000	11.260
MH5	AREA	79.790	.000	.000	.000	79.790	.001
						86.400	.001
						88.000	.001



South Florida Water Management District

**BEG. PERMIT
NUMBER** 48-00714-S

APPLICATION NO.
980715-1

(NGVD 29)

48-00714-S

STATE PROJ. NO.
144

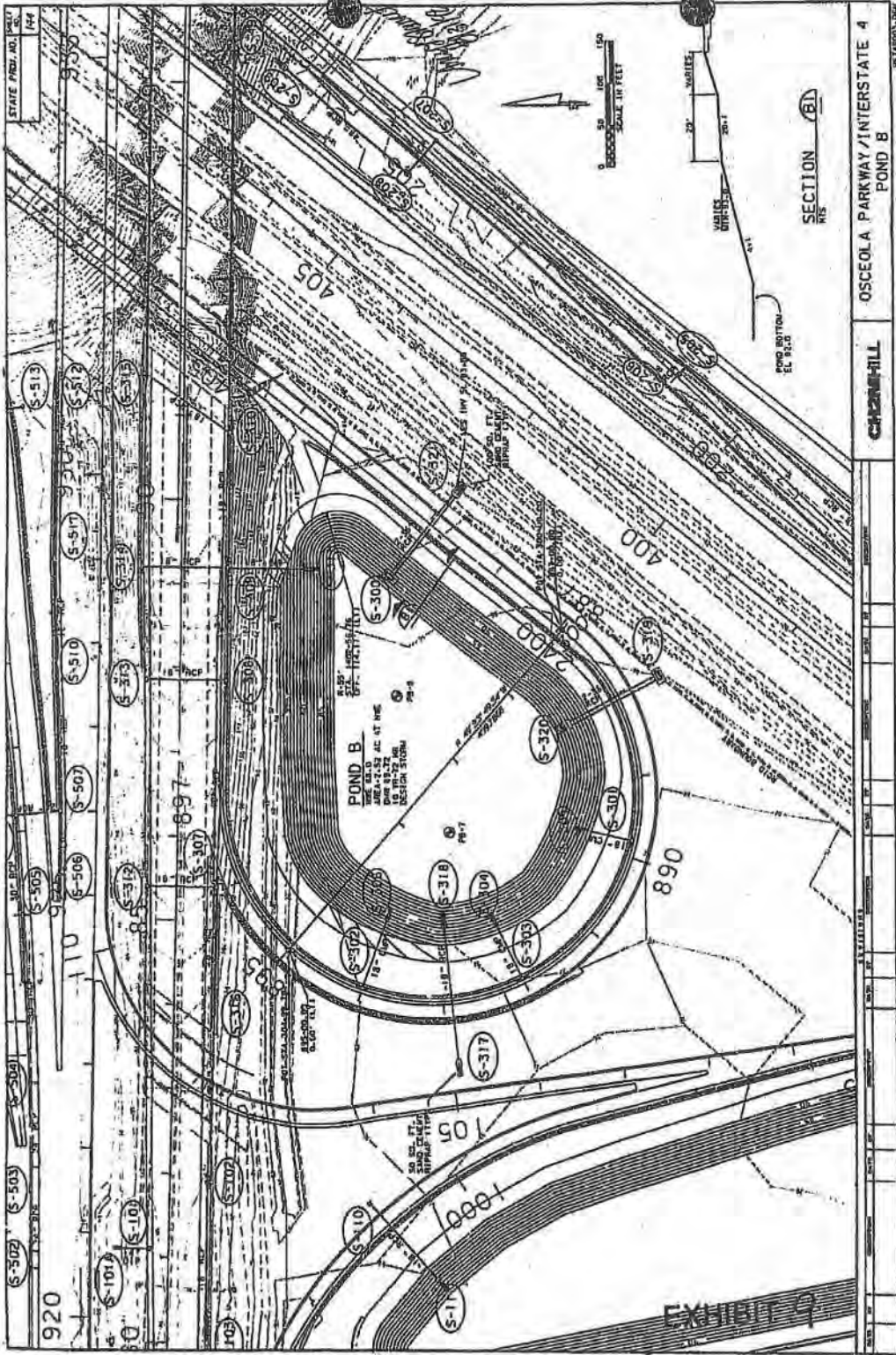


EXHIBIT 9

OSCEOLA PARKWAY / INTERSTATE 4
POND B
SECTION (A)

SECTION 2

Project Description

This project includes the area along I-4 from the westbound U.S. 192 off-ramp to just north of the westbound S.R. 536 overpass. The project limits along Osceola Parkway extend from Victory Way to the International Drive Extension.

The proposed Osceola Parkway/I-4 interchange, including modifications to the U.S. 192/I-4 and the S.R. 536/I-4 interchanges, was included in the Interchange Justification Report: Interstate 4 from South of US 192 to North of SR 536, Federal Aid Project Number SA-4-2(154), (Greiner, Inc., 1993) (IJR), which was approved by the Federal Highway Administration (FHWA) in November 1993. FDOT has also undertaken preparation of the I-4 Multi-Modal Master Plan (I-4 MMMP) to identify the improvement needed on I-4 through the year 2020. The FDOT I-4 MMMP study included the concepts from the IJR for the Osceola Parkway/I-4 interchange, including the modifications to the U.S. 192/I-4 and S.R. 536/I-4 interchanges.

The improvements for this segment of I-4 (U.S. 192 to S.R. 536) are planned to be implemented in three principal stages: construction of the Osceola Parkway/I-4 interchange, reconstruction of the U.S. 192/I-4 interchange, and construction of the I-4 MMMP improvements.

The Osceola Parkway/I-4 interchange will reduce traffic impacts at the U.S. 192 and S.R. 536 interchanges and offer an improved access balance in this segment of I-4. The improvements will involve construction of ramps between the two highways, including adding merging lanes. Ramps include to and from the east lane of I-4, with ramp braids to the S.R. 536 westbound on-ramp and eastbound off-ramp. The Osceola Parkway ramps to and from the west will tie into the mainline of the interstate with auxiliary lanes connecting to the westbound U.S. 192 off-ramp and the eastbound U.S. 192 on-ramp. The Osceola Parkway bridge over I-4 will have the westbound lane widened to accommodate traffic access and merging for the new interchange ramps.

Two separate SFWMD Permit Applications will be required for this project because of current and future property ownership requirements. One application is for Osceola Parkway and the proposed interchange from the beginning of the project on Osceola Parkway to the existing I-4 right-of-way, which is also the boundary of RCID. The applicant will be the land owner, RCID, who are expected to transfer ownership to FDOT after the project is completed. Wetland impacts have already been identified and have planned mitigation as part of the RCID Long Term Permit with the Army Corps of Engineers (ACOE), the Florida Department of Environmental Protection, and the South Florida Water Management District. There are no deviations from the Long Term Permit for the RCID permit.

The second permit application is for the project area outside RCID that is within FDOT right-of-way. Wetlands were flagged and reviewed with RCID staff last fall. The ACOE has provided written approval of these delineations. Impacts are documented on the Stormwater Pollution Prevention Plans. Mitigation will be through a mitigation bank.

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SECTION 3

Existing and Proposed Site Conditions

This section discusses the existing and proposed site conditions for the project area including land use, drainage patterns, floodplain, and cross drains. These conditions were based on the available sources previously listed and field observations made since March 1997.

3.1 Land Use

The land use within and around the project is mostly undeveloped properties adjacent to I-4 and the Osceola Parkway. Development has occurred near the I-4/536 and I-4/192 interchanges. These developments are commercial buildings (primarily hotels and time share facilities), except for two features. Immediately southeast of the intersection of I-4 and the Osceola Parkway, a residential apartment complex (Parkway Village Apartments) exists. Also, a privately owned wastewater treatment plant (WWTP) is located northeast of the I-4/192 Interchange which serves Hyatt Resort Inn. This project will not effect the WWTP. The eastbound entrance ramp from I-4 to the Osceola Parkway will be adjacent to this development, but there is sufficient room for this project.

Extensive developments are planned for much of the land surrounding the project area. These developments include resort/hotel, commercial, office space, and residential land uses. However, since these are preliminary plans for development, they should not significantly affect the project implementation.

3.2 Drainage Patterns

The southwestern portion of Orange County and the northwestern portion of Osceola County drain predominantly into Reedy Creek, Boggy Creek, and canals in the upper Kissimmee River Basin. In the overall project area, there are two surface water systems that receive surface runoff : the C-2 Canal and Bonnet Creek. The existing facilities associated with these features are:

1. The C-2 Canal traverses I-4 via double box culverts along the northside of the U.S. 192 interchange.
2. Bonnet Creek (also referred to as the C-1 Canal) flows under I-4 bridges at Osceola Parkway.

The drainage areas for these two surface water systems include portions of I-4, Osceola Parkway, and the lands adjacent to these roadways. Surface water runoff from I-4 is routed to swales located along either side of I-4. From a high point on I-4, approximately 5,800 ft south of Osceola Parkway to the U.S. 192 interchange, the roadside swales drain to the C-2 Canal. North of this point to another high point, approximately 7,300 ft north of Osceola Parkway, the I-4 swales drain directly to Bonnet Creek. From this area to north of the S.R. 536 interchange, runoff is directed to a low slough system that discharges into Bonnet Creek. The existing I-4 interchanges were in-place prior to the beginning of stormwater

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permitting through South Florida Water Management District (SFWMD) in this area, and are thus subject to grandfather provisions in the rules.

Designed in 1993, the Osceola Parkway development was required to meet SFWMD criteria for runoff water quality. However, water quantity requirements were required only for areas outside of the Reedy Creek Improvement District (roughly east of I-4). Therefore, on the west side of I-4, runoff from Osceola Parkway is routed through storm drains or by direct runoff to treatment swales on both sides of the roadway. The swales discharge to the adjacent land that ultimately flow to the C-2 Canal or Bonnet Creek.

On the east side of I-4, a portion of a borrow pit was converted into a wet stormwater pond to provide both treatment and peak storm runoff volume attenuation. Osceola Parkway east of I-4 is drained via a closed storm drain system. Off-site runoff is routed to the remaining two segments of the borrow pit. These two segments are not part of a permitted SFWMD stormwater system at this time. These borrow pits drain to Bonnet Creek during high runoff events.

The previous design was part of SFWMD permit applications #930203-2 and #930205-3.

Existing and proposed stormwater models are provided in Section 4 of this report.

3.3 Floodplain

The floodplains in the project area were determined by information from the Federal Emergency Management Agency (FEMA) and RCID. The FEMA Flood Insurance Rate Maps for Orange and Osceola County (FEMA, 1981 and 1996) showed floodplains in the vicinity of I-4 and Bonnet Creek. The systems have not been modeled by FEMA to establish specific floodplain elevations. However, the Reedy Creek system, which includes the C-2 Canal and Bonnet Creek, has been modeled by RCID. Therefore, the most relevant flood elevations are from the RCID model. The RCID 100-year flood elevation is just under 85.1 ft for Bonnet Creek at the Osceola Parkway overpass. Upstream of the project beginning at the Section 29/32 line, the model results show an elevation of approximately 85.8 ft. Flood elevations are linearly interpolated between the two data points. Refer to Appendix F for correspondence verifying the floodplain levels by RCID as described above. In addition, a Bridge Hydraulic Report has been submitted to justify zero rise in the floodplain for the proposed project.

Although floodplains were also reported along the C-2 Canal and the Osceola Parkway floodplain compensation pond, alterations in these areas are not expected to encroach onto the floodplain.

Construction of the Osceola Parkway/I-4 Interchange is expected to affect the 100-year floodplain by approximately 5.02 ac-ft. SFWMD, RCID, Orange County, and Osceola County each require 1:1 volume mitigation to offset such impacts. Therefore, compensation was identified in conjunction with the Pond C design. For this pond the normal water elevation will be maintained at the normal water of Bonnet Creek in this vicinity (81.1). Approximately 5.89 ac-ft of storage is available between this normal water elevation and the 100-year floodplain (85.1). Computations are provided in Appendix F.

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3.4 Cross Drains

There are six existing cross drains within the project area that accommodate existing drainage patterns or floodplain connections. Structure 47 on the FDOT Drainage Map is west of I-4 along Osceola Parkway at STA 578+50. This triple 6-ft by 2-ft box culvert provides conveyance from the north to south side of Osceola Parkway. Structure 48 just east of 47 at STA 585+00 along Osceola Parkway is a double 30-in structure. This culvert directs runoff from the south side of Osceola Parkway into a floodplain compensation storage pond built as part of the original Osceola Parkway project. Structure 67 is just west of I-4 near the Osceola Parkway overpass. Runoff from the southwest quadrant of Osceola Parkway/I-4 is directed to this 24-in pipe at STA 605+67 via an adjacent ditch, which will be eliminated as part of this project. Structure 1 is a double 7-ft by 5-ft box culvert at I-4 STA 357+00. Located on the north side of the U.S. 192 interchange, this culvert is part of the C-2 Canal system. Structure 9 is at I-4 STA 456+00, which is just south of the S.R. 536 overpass. This cross drain was part of the original I-4 plans to maintain conveyance for the slough system that drains Bonnet Creek. Structure 103 is east of I-4 along Osceola Parkway at STA 110+00. This double 54-in pipe connects two off-site borrow pits.

Modifications to Structure 1, 9 and 103 are proposed as part of this project. The cross-drain extension procedure was used to evaluate the two I-4 cross drains (1 and 9) and are found in Appendix C and Appendix E, respectively. Structure 103 was modeled in adICPR in conjunction with the on-site stormwater system because of the shared discharge stormdrain network. The analysis is presented in Appendix E.

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SECTION 4

Stormwater Design

Wet detention stormwater ponds (Ponds A through F) and dry detention treatment swales are presented for this project. These facilities are designed to meet the appropriate SFWMD, RCID, Orange County, Osceola County, and FDOT criteria.

Hydrologic and hydraulic models for the stormwater ponds were prepared for this design using the adICPR computer software. Hydrologic modeling used the SCS Unit Hydrograph Method. The input parameters are basin area, curve number (a function of land use and soil type), and time of concentration.

For existing conditions, each curve numbers were weighted average of the various land uses. The existing land uses are

- impervious pavement for the I-4 roadway,
- woods for the wetlands, and
- grass for the remaining right-of-way and adjacent undeveloped pasture.

Time of concentrations for the existing system were assessed for overland flow, shallow concentrated flow, and channel flow per the FDOT drainage manual.

In the area of the borrow pit, information from the previous SFWMD permit for Osceola Parkway was verified and used for this project.

For proposed conditions, the land uses are

- impervious pavement for I-4, Osceola Parkway and associated ramps,
- impervious open water for wet ponds, and
- grass for the remaining right-of-way and swales.

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Ditch, stormdrain and inlet spread calculations used the rational method. The ditch and stormdrain calculations are for the 10-year return frequency. Spread calculations are based on a 4 in/hr intensity. The time of concentration for each basin in the adICPR model is based on values from the ditch flow or stormtab worksheets included herein.

The pond calculations are discussed in the four regions within the overall project - West of the Interchange, South of Interchange, Northwest Quadrant, and North of the Interchange.

4.1 West of the Interchange

For Osceola Parkway west of the proposed interchange, all impervious areas will drain to existing or modified roadside treatment systems to meet SFWMD requirements. However, attenuation is not required because this area is part of the RCID master drainage plan.

From the beginning of the project on Osceola Parkway to approximately STA 578+00, the current roadside systems will be used to accommodate treatment for runoff from the additional lanes to be added in the median. These systems were previously permitted by Transportation Consulting Group (TCG) and were sized for the ultimate six-lane configuration. However, design modifications to the ramps since the TCG work will require minor modifications to the grading and discharge structures along the north side ditches from STA 570+00 through 578+00. In addition, the median capacity will be eliminated as part of the new median lanes. Therefore, the median drains are proposed to convey the runoff from the north side ditches with sufficient treatment capacity. Refer to Appendix B for a summary table of the status of the TCG systems as well as excerpts from the TCG application package.

4.2 South of the Interchange

South of Osceola Parkway, the proposed work is to be on land owned by RCID and FDOT. Therefore, SFWMD water quantity and quality requirements must be met. The ponds will ultimately be transferred into this permit.

The quantity requirement is to meet existing peak discharge for the 10-year, 72-hour design storm, which is the SFWMD requirement for Osceola County. As shown on the existing drainage map, there are two discharge points for runoff south of Osceola Parkway. A small portion of the southwest quadrant (Basin A) drains overland to the C-2 canal. The remainder of the southwest quadrant (Basins B1 and B2) drains to Bonnet Creek via a cross-drain under Osceola Parkway and to the westbound I-4 ditch. Similarly, the southeast quadrant drains to the eastbound I-4 ditch, which drains to Bonnet Creek. In addition to the I-4 pavement, pre-developed land covers are woods and grass within the right-of-way.

As shown on the Proposed Drainage Map, there are two stormwater ponds proposed in the southeast quadrant. Runoff from Ramp A1 (Basin 100), a small portion of eastbound Osceola Parkway (Basins 101 and 103), and Osceola Parkway median (Basin 103) will drain to Pond A. This pond is a wet pond with an orifice and weir discharge structure to the southwest, which discharges via overland flow to the C2 Canal. The seasonal high ground water level estimated by PSI was used to establish the normal water elevation of the pond. Because the ground elevation is higher than the adjacent wetland, the ground elevation (90.0) was used as the tailwater for the pond routing calculations.

Runoff from westbound I-4 (Basins 200 and 201), Ramp A2 (Basin 301), Ramp A3 (Basin 300), eastbound Osceola Parkway (Basin 301), and Osceola Parkway median (Basin 302) will be routed to Pond B. This pond is a wet pond with an orifice and weir drop structure and twin pipe discharge structure to the westbound I-4 ditch to Bonnet Creek. The seasonal high ground water level estimated by PSI was used to establish the normal water elevation of the pond. Because this control elevation is higher than the 100-year flood elevation for Bonnet Creek, the 100-year flood elevation (85.1) was used as the tailwater for the pond routing calculations.

The water quality requirement is to provide stormwater treatment for new impervious areas. For this project, the new impervious areas include the roadway constructed after SFWMD permitting, which includes Osceola Parkway and the proposed ramps. I-4 existed prior to SFWMD permit requirements and treatment for runoff from I-4 is not required.

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Because of right-of-way and grading constraints, the ramps in the southeast quadrant, the new gore pavement at US 192, and the southeast quadrant ramp cannot be routed to treatment systems. Therefore, this portion of westbound I-4 will be routed to Pond B as a trade-off.

Peak discharge meets pre-developed rates for the 10-year, 72-hour design storm for each pond as follows:

- Pond A: 33 cfs = 33 cfs
- Pond B: 45 cfs < 52 cfs

The design documentation is found in Appendix C. Also, included are the 50-year, 72-hour and 100-year, 72-hour storms requested by RCID.

4.3 Northwest Quadrant of the Interchange

The northwest quadrant is within RCID and Osceola County. However, ownership will ultimately be transferred to FDOT. Therefore, the water quantity and water quality requirements must be met as discussed in Section 4.2. In addition, the calculations are relevant to this permit application because of the expected future transfer.

This area currently drains to Bonnet Creek. Pre-developed land cover includes woods and grass areas.

For this project westbound Osceola Parkway and Ramp D1 from approximately STA 918+00 to I-4/Bonnet Creek will drain to Pond C. Pond C is a wet detention pond and floodplain compensation pond. The pond will be lined to allow for a control elevation of 81.1 to be maintained, which is the normal water level of Bonnet Creek in this region. The 10-year canal level (83.9) was used as the tailwater for the 10-year, 72-hour design storm.

Peak discharge meets pre-developed rates for the 10-year, 72-hour design storm for each pond as follows:

- Pond C: 18 cfs < 25 cfs

The design documentation is found in Appendix D. Also, included are the 50-year, 72-hour (using the 50-year canal elevation, 84.8, as tailwater) and 100-year, 72-hour (using an the 100-year canal elevation 85.1, as tailwater) storms requested by RCID.

4.4 North of the Interchange

This area is outside of RCID north of Osceola Parkway in Osceola and Orange. The proposed work is to be on land owned by FDOT. Therefore, SFWMD water quantity and quality requirements must be met.

There are essentially two discharge points for runoff from the area north of Osceola Parkway - downstream and upstream of the RCID control structure. The borrow pit/pond system discharge downstream of the RCID structure, which is in Osceola County. Therefore, the 10-year, 72-hour design storm is required.

When Osceola Parkway was developed the existing borrow pit was divided with a portion used to meet the stormwater pond requirements for the new Osceola Parkway pavement.

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FROM SHEET 1

DROP STRUCTURE
TOP OF INLET: EL 88
L = 19 FT
2 - 36 IN RCP

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BASIN 300
A = 6.44 AC
CN = 90.7
Tc = 10 MIN

BASIN 301
A = 1.40 AC
CN = 83.0
Tc = 10 MIN

BASIN 302
A = 3.18 AC
CN = 94.0
Tc = 15 MIN
(STORM SEWER)

POND B
STAGE
81
87
93

DROP STRUCTURE
5 IN ORF L/S
EL 88.0
TOP OF INLET
EL 88.65
L = 19 FT
2 - 24 IN RCP

BASIN 303
A = 1.67 AC
CN = 86.6
Tc = 10 MIN

TAWB DITCH
STAGE AREA
81 0.001 AC
83 0.009 AC
85 0.063 AC
87 0.308 AC
89 0.623 AC
(EXISTING DITCH)

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EXISTING PIPE
42 IN DIA
US. INV 81.0
DS INV 76.0
L = 167 FT

BONNET CREEK

ALLOWABLE
DISCHARGE
10-YR 72 HR
= 52 CFS

NOTE: TW SET AT CONSTANT 85.0 ELEVATION FOR ALL STORMS BECAUSE NWE RECOMMENDED BY PSI IS ABOVE THE 100-YR FLOODPLAIN OF DISCHARGE POINT (BONNET CREEK 100-YR STAGE ~ 85.0 - 85.1)

SUMMARY OF RESULTS

SHEET NO. 3 of DATE 5/12/98
 PROJECT NO. 1-3-993.01.02
 CHECKED BY E.S. 5-20-98

APP # 980715-1 'M4

PEAK STAGES 10-YR 72HR DESIGN STORM

NODE	DELIVERED STAGE	ALLOWABLE STAGE	COMMENT
POND A	90.96	92.94 LOW PGL @ STA 993+00 RAMP A1	OK
POND B	89.72	RAMP A3 ALL ABOVE EL 97	OK
IAWB-DT	85.96	EXISTING IA ABOVE EL 90	OK
IAWB-D1	91.59	91.64 PGL LOW @ STA 991+00 RAMP L1	OK
IAWB-D2	89.89	EXISTING IA ABOVE EL 90	OK

PEAK DISCHARGE

	EXISTING	PROPOSED
C2 (C2 CANAL @ US 192)	33.2 cfs	> 32.8 cfs OK
BC-B (BONNET CREEK)	42.4 cfs	
B1 (PREVIOUS OSCEOLA PARKWAY CROSS DRAIN TO BONNET CREEK)	10.5 cfs	52.9 cfs > 48.1 cfs OK

ORIGINAL SUBMITTAL
 JUL 15 1998
 ORLANDO SERVICE CENTER

CH2MHILL

SUBJECT Existing Curve Numbers

BY ALS
 DATE 5/18/98
 CHECKED *[Signature]* 5-20-98

Basin Identification	Description	Total Area		ImperVIOUS Area		Woods Area		Grass Area		Composite CN	Time of Concentration Min
		Acres	Acres	Acres	CN	Acres	CN	Acres	CN		
A	Basin to the C-2 Canal	8.96	0.00	98	77	0.00	80	77.00	5.71		
B1	Basin to OP Cross-chain To Be Removed	2.75	0.00	98	77	2.75	80	80.00	6.67		
B2	Basin to WB14 Ditch	17.48	4.20	98	77	5.04	80	82.91	29.58		
	Sub-total	29.19									

Time of Concentration for A calculated using TR-55 shallow concentrated flow graph for pervious area. Velocity 1.4 fps.
 Minimum Tc of 10 minutes used for all calculations.
 Time of Concentration for B1 and B2 calculated using 2 fps ditch velocity. Minimum Tc of 10 minutes used for all calculations.

APP # 98 07 15 - 1 204

ORIGINAL SUBMITTAL
 JUL 15 1998
 ORLANDO SERVICE CENTER

FILE: cn.xls, CN for Existing SW Quadrant

44

C9

CH2MHILL

SUBJECT Pond B Bleed Down Orifices

BY ALS
 DATE 5/18/98
 ck 9.5. 5-27-98

Detention Type =	Wet	Bottom of Treatment El. =	87.00	Area (ft ²) =	104,518
C =	0.6	Top of Treatment El. =	89.00	Area (ft ²) =	114,877
Orifice L:1 (In) =	5	Total Treatment Volume (ft ³) =	89,416	Area (ft ²) =	109,898
Basin Area (ac) =	22.73	1/2" Treatment Volume (ft ³) =	41,268	Area (ft ²) =	113,841
New Impervious (ac) =	9.47	From Top to Elevation =	88.43	Greater Than Required =	85,971
				Head Recovery Time (Hr) :	22.80
				Volume Provided (ft ³) =	41,767

Stage (ft)	Head (ft)	Area (ft ²)	Vol (ft ³)	Delta Stage (ft)	Q (cfs)	D ₅₀ (cfs)	Delta Time (hr)	Total Time (hr)
88.8000	0.800	113841			0.587			0.00
			7010.36	0.0617		0.575	3.38	
88.7383	0.738	113522			0.564			3.38
			6990.67	0.0617		0.552	3.52	
88.6767	0.677	113202			0.540			6.90
			6970.97	0.0617		0.527	3.67	
88.6150	0.615	112883			0.515			10.58
			6951.28	0.0617		0.501	3.85	
88.5533	0.553	112564			0.488			14.43
			6931.58	0.0617		0.474	4.06	
88.4917	0.492	112244			0.460			18.49
			6911.89	0.0617		0.445	4.31	
88.4300	0.430	111925			0.430			22.80
		Volume	41,767	ft ³				

APP # 980715-1

ORIGINAL SUBMITTAL
 JUL 15 1998
 ORLANDO SERVICE CENTER

As part of that permitting process it was determined that the allowable peak discharge rate from the stormwater pond was to be 16.4 cfs. The other two portions of the previous borrow pit were interconnected to maintain the off-site drainage pattern. Both pond systems discharge to Bonnet Creek downstream of the RCID control structure. Verification and as-built models were prepared using the permit application information and the as-built survey. The results correlated well with the permit information as follows:

- NWPOND (Existing Pond D): Original Permit Stage 83.94, As Built Stage 84.12
- NEPOND (Borrow pit north of Osceola Parkway): Original Permit Stage 85.98; As-Built Stage 85.92
- SPOND (Borrow pit south of Osceola Parkway): Original Permit Stage 85.97; As-Built Stage 85.92

Therefore the as-built model was used as a basis for the expansion of the stormwater pond for this project (Pond D).

Existing and proposed Osceola Parkway east of I-4 will drain to Pond D. From north of the Osceola Parkway overpass to approximate I-4 STA 439+00 the following travel lanes are routed to Pond D -- Eastbound I-4 (Basin 404) and ramps for the Eastbound Collector Distributor (EBCD) (Basin 405), the Westbound Collector Distributor (WBCD) (Basin 401 and 402), Ramp C1 (Basin 409), C2 (Basin 409), C3 (Basin 408), C4 (Basin 408), D1 (Basin 403), and the I-4 median (Basins 406 and 407). Basins 401, 402 and 403 currently drain to the westside of I-4. However there will not be an increase in the allowable peak discharge from the proposed pond (previous borrow pit).

The stage storage was changed for the NEPOND to reflect the minor alterations required as part of this project, which resulted in less than an inch difference in stage.

Peak discharge meets pre-developed rates for the 10-year, 72-hour design storm for each pond as follows:

- Pond D: 12 cfs < 16 cfs

The design documentation is found in Appendix E1. Also, included are the 50-year, 72-hour and 100-year, 72-hour storms requested by RCID.

The remainder of the project discharges upstream of the RCID control structure via existing roadside ditches and culverts, which is in Orange County. Therefore, the 25-year, 24-hour design storm using the Orange County distribution is required by SFWMD. In addition to I-4 pavement, land covers in this area are grassed right-of-way and wooded wetlands. Four reference points have been identified to determine the existing conditions peak discharge upstream of Bonnet Creek. Basin E is the area west of I-4 from the ramp braid to SR536. Basin E1 is from the braided ramp south and discharges to Bonnet Creek via the westbound I-4 ditch. The third reference point is Basin F, which is the small area that the project covers that currently drains to the twin 36" cross drains. The last reference point is the existing discharge from the interior of the east-side of the 536 interchange. The infield of the ramps are detention ponds to match an existing discharge rate that were constructed prior to SFWMD permitting requirements. Using Orange County aerial topography in conjunction with field survey information, the existing conditions were modeled.

From STA 439+00 to the 536 flyover ramp (Basins 800, 801, 802, 803, 804, 900, 902, and 903), runoff will be routed to infield ponds on either side of I-4 (Ponds E and F). Ponds E and F are interconnected wet detention ponds. The 86.0 normal water level set in conjunction with the seasonal high groundwater information by PSI. This is consistent with the adjacent ground elevations of approximately 85 to 85.5 at the discharge point and with the 100-year flood elevation of 85.5 +/- in the area. Discharge from the pond will flow overland to the Bonnet Creek wetland system. Therefore, tailwater was considered at the 100-year flood elevation for Bonnet Creek, elevation 85.5. Because the tailwater was below the normal water level of the pond, further refinements were not made. Also, variations for the different design storms were not made.

Modifications to the existing detention system for the eastside of 536 interchange will be made to maintain the flow patterns and the existing peak discharge rates.

For this project, the new impervious areas include the roadway constructed after SFWMD permitting, which includes the proposed ramps. I-4 existed prior to SFWMD permit requirements and treatment for runoff from I-4 is not required.

Because of right-of-way, grading, and ponding constraints, all of the new impervious areas cannot be routed to a treatment system. However, there is existing I-4 pavement currently not routed to a treatment system that routed to a treatment system or removed. This will offset the pavement that cannot be routed to a treatment system. The peak discharge rates to each reference point are similar for the 25-year, 24-hour Orange County design storm as follows:

- Location A (Discharge from Pond E and adjacent basins): 38 cfs < 39 cfs
- Location F (Discharge from basins adjacent to Pond F): 11 cfs < 14 cfs
- Location E1 (Westbound I-4 ditch south to Bonnet Creek): 11 cfs < 15 cfs
- Discharge from inside 536 interchange: 34 cfs = 34 cfs

The design documentation is found in Appendix E2 and E3. Also, included are the 50-year, 72-hour and 100-year, 72-hour storms requested by RCID.

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CH2MHILL

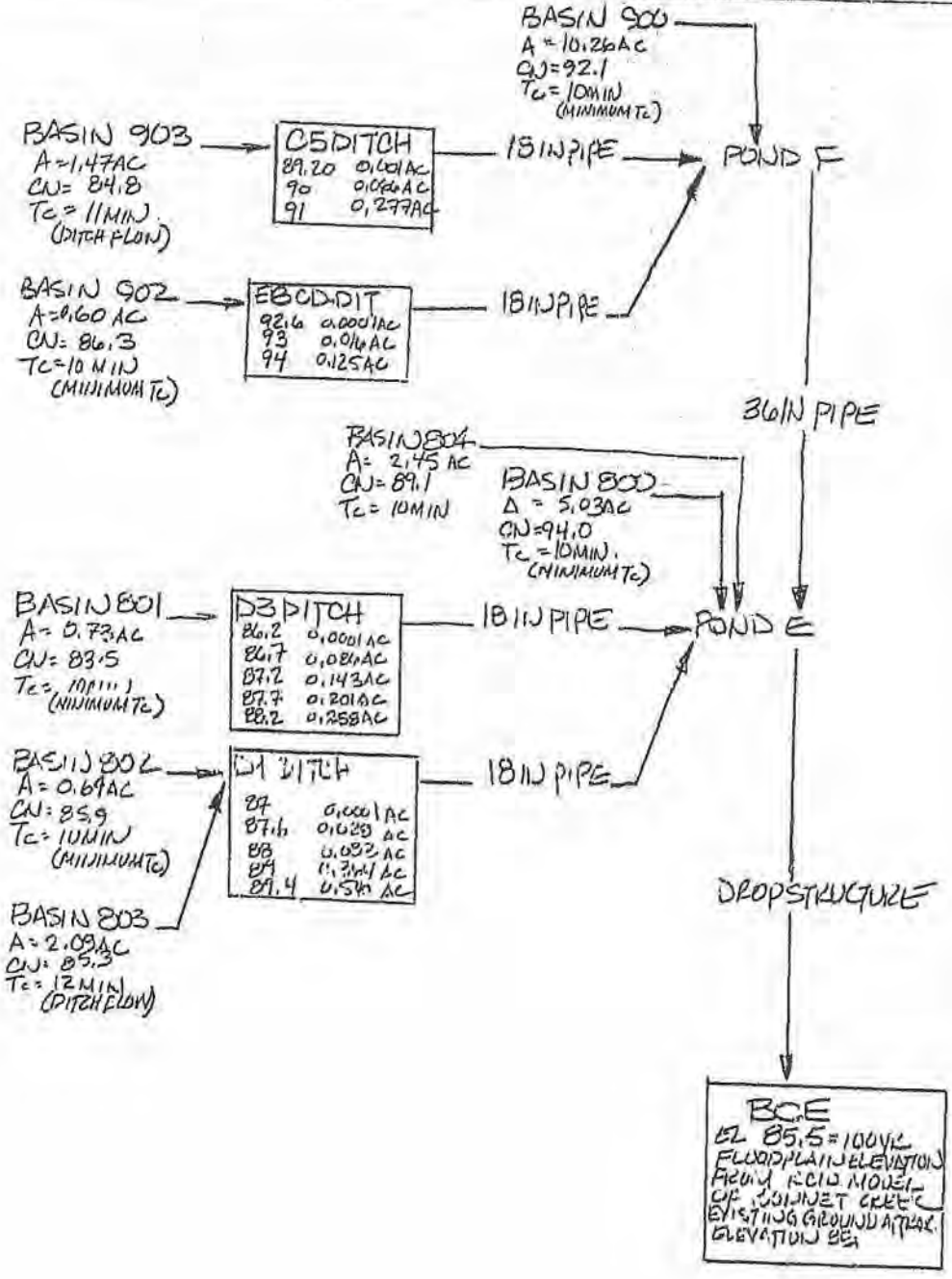
SUBJECT

Ponds E and F Bleed Down Weir In Pond E

BY ALS
 DATE 5/18/98
 CK J.S. 5-23-98

Detention Type =	Weir	Bottom of Treatment El. =	84.00	Area (ft ²) =	157,757
C =	3	Top of Treatment El. =	88.00	Area (ft ²) =	258,180
Weir Length (ft) =	2.5	Total Treatment Volume (ft ³) =	86.00	Area (ft ²) =	182,161
Basin Area (ac) =	23.27	1/2" Treatment Volume (ft ³) =	86.42	Area (ft ²) =	207,015
New Impervious (ac) =	8.60	From Top to Elevation =	89,014	Greater Than Required =	84,485
			42,242	Has Recovery Time (Hr) =	24.92
			86.24	Volume Provided (ft ³) =	42,745

Stage (ft)	Head (ft)	Area (ft ²)	Vol (ft ³)	Delta Stage (ft)	Q (cfs)	Q _{avg} (cfs)	Delta Time (hr)	Total Time (hr)
86.4500	0.450	207015			0.550			0.00
			7225.30	0.0350		0.539	3.72	
86.4150	0.415	205860			0.528			3.72
			7184.87	0.0350		0.517	3.86	
86.3800	0.380	204704			0.506			7.58
			7144.43	0.0350		0.494	4.02	
86.3450	0.345	203549			0.482			11.60
			7103.99	0.0350		0.469	4.21	
86.3100	0.310	202394			0.457			15.17
			7063.55	0.0350		0.443	4.42	
86.2750	0.275	201238			0.430			20.23
			7023.12	0.0350		0.416	4.69	
86.2400	0.240	200083			0.402			24.92
		Volume	42,745	ft ³				



CH2MHILL

SUBJECT SDICPR INPVI

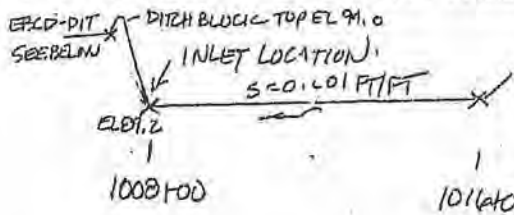
BY ALS

SHEET NO. _____ of _____ DATE 5/15/98

PROJECT NO. 143593.01.02

Checked by: GS-5-20-98

DITCH STORAGE - SDICPR NODE CSDITCH

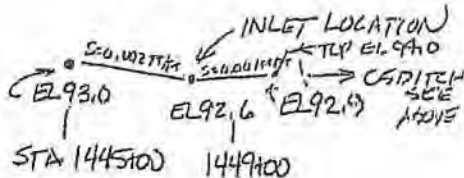


SCHEMATIC DITCH PROFILE
NTS

DITCH CROSS SECTION
NTS

EL	AREA (FT ²)	ΔV (FT ³)	TOTAL VOL (ACFT)
89.2	0		0
90	$(\frac{5+13}{2})(800) = 7200$	> 2880 FT ³	0
91	$(\frac{5+23}{2})(800) = 11200$	> 9200 FT ³	0.066
			0.277

DITCH STORAGE - SDICPR NODE ERCD-DIT.



SCHEMATIC DITCH PROFILE
NTS

DITCH CROSS SECTION
NTS

EL	AREA (FT ²)	ΔV (FT ³)	TOTAL VOL (ACFT)
92.6	0		0
93	$(\frac{5+9}{2})(500) = 3500$	> 700 FT ³	0.016 ACFT
94	$(\frac{5+19}{2})(500) = 6000$	> 4750 FT ³	0.125 ACFT

CH2M HILL

SUBJECT SDICPR INFU

BY ALS

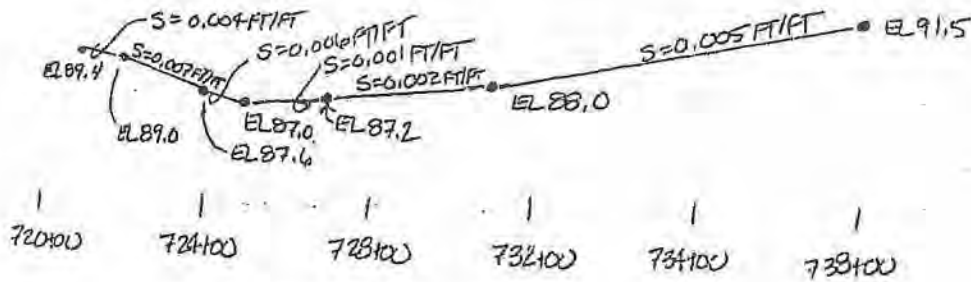
E01

SHEET NO. _____ of _____ DATE 5/15/98

PROJECT NO. 143593.01.02

Checked by: GS-5-20-98

DITCH STORAGE - SDICPR NOISE DITCH



SCHEMATIC DITCH PROFILE
10'S



DITCH CROSS SECTION
10'S

EL	AREA (FT ²)	ΔV (FT ³)	TOTAL VOL (AC-FT)
87	0		0
87.6	$(\frac{5+11}{2})(200) = 4000$	1,200 FT ³	0.028
88	$(\frac{5+15}{2})(200) = 8000$	2,400 FT ³	0.083
89	$(\frac{5+25}{2})(1100) = 14500$	12,250 FT ³	0.364
89.4	$(\frac{5+29}{2})(1200) = 21700$	7,652 FT ³	0.540

BASIN 602
A = 7.01 AC
CN = 86.5
Tc = 10 MIN
(DITCH FLOW)

BCE3
85.2 0.001
87.2 0.1631

2-18IN RCP
US = 85.2
DS = 85.0
L = 125 FT

x-----x
710150 1440100 1450700
85.2 85.3 87.2

SCHEMATIC FOR 5 FT
WIDE DITCH PROFILE

BASIN 601P
A = 1.66 AC
CN = 80
Tc = 10 MIN
(DITCH FLOW)

BCE2
84.6 0.001
85 0.072
86 0.124

x-----x
84.6 85.0
STA STA
705700 710150

SCHEMATIC FOR
5 FT WIDE DITCH
PROFILE

BASIN 600
A = 7.08 AC
CN = 85.1
Tc = 32 MIN
(DITCH FLOW)

BCE1 ALLOWABLE

1-24IN RCP
US = 84.6
DS = 84.3
L = 125 FT

BASIN 603
A = 0.91
CN = 86.2
Tc = 10 MIN
(DITCH FLOW)

BCE4
85.7 0.001
85.9 0.028
86.7 0.034
87.7 0.069

1-18IN RCP
US 85.7
DS 85.5
L = 110 FT

BCE
ON
SHEET
1.

CH2MHILL

SUBJECT

SUMMARY OF RESULTS

BY

ALD

SHEET NO. _____ of _____

DATE 5/15/98

PROJECT NO. _____

ALLOWABLE STAGES

NODE	PEAK STAGE CLF TH	ALLOWABLE PEAK STAGE	
PONDE		88.4	E/S SHOULDER @ LOW POINT STA 1434+00 WBCC.
PONLF	87.31	87.2 (2-LANE) 87.5 (1-LANE)	E/S SHOULDER @ LOW POINT STA 234+00 RAMP C2. 1-LANE FUTURE; 2-LANE POSSIBLE IN FUTURE
CSDPCH	90.10	90.9	E/S SHOULDER @ LOW POINT STA 1011+00. RAMP C5.
EBLD-DIT	93.17	93.7	E/S SHOULDER @ LOW POINT STA 1450+00 EBLO
D3DRA	87.11	89.1	E/S SHOULDER @ LOW POINT STA 211+00 RAMP D3
D1DTC	88.32	88.5	E/S SHOULDER @ LOW POINT STA 727+00 RAMP D1.

E124

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WB CD/RAMP AND EB CD/RAMP, POND E&F
 3/15/98 REV. THRU 5/18/98

BASIN NAME	EXISTE1	EXISTE	EXISTE	800	900
NODE NAME	EXISTBCE	EXISTBCE	EXISTBCF	PONDE	PONDF
UNIT HYDROGRAPH	UH323	UH323	UH323	UH323	UH323
PEAKING FACTOR	323.	323.	323.	323.	323.
RAINFALL FILE	SFWM72	SFWM72	SFWM72	SFWM72	SFWM72
RAIN AMOUNT (in)	13.00	13.00	13.00	13.00	13.00
STORM DURATION (hrs)	72.00	72.00	72.00	72.00	72.00
AREA (ac)	9.55	24.38	8.55	5.03	10.26
CURVE NUMBER	83.50	83.20	83.00	94.00	92.10
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	24.00	10.00	10.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
BASIN QMX (cfs)	TMX (hrs)	VOL (in)	NOTES		
EXISTE1	42.80	60.11	10.96		
EXISTE	145.37	60.00	10.86		
EXISTF	50.93	60.00	10.83		
800	31.10	60.00	12.27		
900	63.19	60.00	12.03		

BASIN NAME	901	904	905	801	802
NODE NAME	JUNCTION	JUNCTION	BCF	D3DITCH	D1DITCH
UNIT HYDROGRAPH	UH323	UH323	UH323	UH323	UH323
PEAKING FACTOR	323.	323.	323.	323.	323.
RAINFALL FILE	SFWM72	SFWM72	SFWM72	SFWM72	SFWM72
RAIN AMOUNT (in)	13.00	13.00	13.00	13.00	13.00
STORM DURATION (hr.)	72.00	72.00	72.00	72.00	72.00
AREA (ac)	1.43	.97	1.37	.73	.64
CURVE NUMBER	89.03	91.60	84.90	83.50	85.90
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	10.00	10.00	10.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
BASIN QMX (cfs)	TMX (hrs)	VOL (in)	NOTES		
901	8.85	60.00	11.63		
904	5.97	60.00	11.97		
905	8.24	60.00	11.09		
801	4.36	60.00	10.90		
802	3.86	60.00	11.22		

E125

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WBCD/RAMP AND EBCD/RAMP, POND B&F
 3/15/98 REV. THRU 5/18/98

BASIN NAME	803	804	805	600	601
NODE NAME	D1DITCH	PONDE	BCE	BCE1	BCE2
UNIT HYDROGRAPH	UH323	UH323	UH323	UH323	UH323
PEAKING FACTOR	323.	323.	323.	323.	323.
RAINFALL FILE	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
RAIN AMOUNT (in)	13.00	13.00	13.00	13.00	13.00
STORM DURATION (hrs)	72.00	72.00	72.00	72.00	72.00
AREA (ac)	2.09	2.45	.23	7.08	1.66
CURVE NUMBER	85.30	89.10	98.00	85.10	80.00
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	12.00	12.00	10.00	32.00	14.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
803	12.09	60.03	11.14
804	14.38	60.03	11.64
805	1.43	60.00	12.76
600	27.72	60.16	11.11
601	8.91	60.04	10.42

BASIN NAME	602	603	902	903	906
NODE NAME	BCE3	BCE4	EBCD-DIT	C5DITCH	BCF
UNIT HYDROGRAPH	UH323	UH323	UH323	UH323	UH323
PEAKING FACTOR	323.	323.	323.	323.	323.
RAINFALL FILE	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
RAIN AMOUNT (in)	13.00	13.00	13.00	13.00	13.00
STORM DURATION (hrs)	72.00	72.00	72.00	72.00	72.00
AREA (ac)	7.01	.91	.60	1.47	.61
CURVE NUMBER	86.50	80.00	86.30	84.80	87.60
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	10.00	10.00	10.00	11.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
602	42.43	60.00	11.30
603	5.33	60.00	10.42
902	3.63	60.00	11.28
903	8.64	60.01	11.08
906	3.71	60.00	11.45

E124

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/14 ALONG WBCD/RAMP AND EBCD/RAMP, POND E&F
3/15/98 REV, THRU 5/18/98

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
PONDE	STAGE (ft):	86.00	2.00	87.72	60.67
	VOLUME (af):	9.20	2.00	12.10	60.67
	RUNOFF (cfs):	.00	2.00	45.42	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-.21	16.50	21.75	60.75
	OUTFLOW (cfs):	.00	2.00	30.66	60.67
BCE	STAGE (ft):	85.50	72.00	85.50	72.00
	VOLUME (af):	-.16	3.50	29.65	72.00
	RUNOFF (cfs):	.00	.50	1.43	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-3.56	.00	54.44	60.25
	OUTFLOW (cfs):	.00	72.00	.00	72.00
PONDF	STAGE (ft):	86.00	2.50	87.97	60.75
	VOLUME (af):	17.10	2.50	22.07	60.75
	RUNOFF (cfs):	.00	2.50	63.19	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	53.50	8.71	60.17
	OUTFLOW (cfs):	-.21	16.50	15.07	62.42
BCF	STAGE (ft):	73.05	72.00	88.30	10.50
	VOLUME (af):	.00	3.50	4.21	72.00
	RUNOFF (cfs):	.00	4.50	11.94	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-16.51	8.50	14.82	60.00
	OUTFLOW (cfs):	.00	72.00	.00	72.00
JUNCTION	STAGE (ft):	84.79	25.00	87.60	10.50
	VOLUME (af):	.00	25.00	.01	10.50
	RUNOFF (cfs):	.00	3.00	14.82	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	-16.51	8.50	14.82	60.00

E125

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WECD/RAMP AND EB CD/RAMP, POND E&F
 3/15/98 REV. THRU 5/18/98

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
D3DITCH	STAGE (ft):	86.20	22.50	87.73	60.67
	VOLUME (af):	.00	7.00	.17	60.67
	RUNOFF (cfs):	.00	6.50	4.36	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	22.50	1.59	59.83
BCE1	STAGE (ft):	85.00	72.00	85.00	72.00
	VOLUME (af):	.00	5.50	6.51	72.00
	RUNOFF (cfs):	.00	5.50	27.65	60.17
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	72.00	.00	72.00
BCE2	STAGE (ft):	84.60	.00	88.36	60.33
	VOLUME (af):	.00	.00	.37	60.33
	RUNOFF (cfs):	.00	8.50	8.83	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-.45	.50	16.82	60.33
	OUTFLOW (cfs):	-3.71	.00	21.52	60.33
BCE3	STAGE (ft):	85.20	.00	89.69	60.33
	VOLUME (af):	.00	.00	1.43	60.33
	RUNOFF (cfs):	.00	5.00	42.42	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	-.45	.50	16.82	60.33
BCE4	STAGE (ft):	85.70	57.67	87.11	60.08
	VOLUME (af):	.00	9.00	.05	60.08
	RUNOFF (cfs):	.00	8.50	5.33	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	57.67	4.87	60.08

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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WBCD/RAMP AND EBCD/RAMP, POND E&F
3/15/98 REV. THRU 5/18/98

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
D1DITCH	STAGE (ft):	87.00	35.50	89.28	60.25
	VOLUME (af):	.00	6.00	.39	60.25
	RUNOFF (cfs):	.00	5.50	15.90	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	35.50	7.78	60.25
C5DITCH	STAGE (ft):	89.20	53.50	90.83	60.17
	VOLUME (af):	.00	9.	.17	60.17
	RUNOFF (cfs):	.00	6.00	8.63	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	53.50	5.82	60.17
EBCD-DIT	STAGE (ft):	92.60	58.50	93.67	60.08
	VOLUME (af):	.00	6.00	.05	60.08
	RUNOFF (cfs):	.00	5.00	3.63	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	58.50	3.01	60.08

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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/14 ALONG WBCD/RAMP AND EBCD/RAMP, POND E&I
 3/15/98 REV. THRU 5/18/98

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: BCE

TIME (hrs)	STAGE (ft)	VOLUME (aE)	←----- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	-----> OTHER (cfs)	OUTFLOW (cfs)
.00	85.50	.00	.00	.00		
.50	85.50	-.08	.00	.00	-3.56	.00
1.00	85.50	-.09	.00	.00	-.45	.00
1.50	85.50	-.11	.00	.00	-.45	.00
2.00	85.50	-.12	.00	.00	-.45	.00
2.50	85.50	-.13	.01	.00	-.45	.00
3.00	85.50	-.15	.01	.00	-.37	.00
3.50	85.50	-.16	.01	.00	-.17	.00
4.00	85.50	-.16	.01	.00	.00	.00
4.50	85.50	-.16	.01	.00	.00	.00
5.00	85.50	-.16	.01	.00	.00	.00
5.50	85.50	-.16	.01	.00	.00	.00
6.00	85.50	-.16	.01	.00	.01	.00
6.50	85.50	-.16	.01	.00	.02	.00
7.00	85.50	-.15	.01	.00	.04	.00
7.50	85.50	-.15	.01	.00	.06	.00
8.00	85.50	-.15	.01	.00	.08	.00
8.50	85.50	-.14	.01	.00	.10	.00
9.00	85.50	-.14	.01	.00	.12	.00
9.50	85.50	-.13	.01	.00	.14	.00
10.00	85.50	-.12	.01	.00	.16	.00
10.50	85.50	-.11	.01	.00	.19	.00
11.00	85.50	-.10	.01	.00	.21	.00
11.50	85.50	-.09	.01	.00	.24	.00
12.00	85.50	-.08	.01	.00	.26	.00
12.50	85.50	-.07	.01	.00	.29	.00
13.00	85.50	-.05	.01	.00	.32	.00
13.50	85.50	-.04	.01	.00	.35	.00
14.00	85.50	-.02	.01	.00	.37	.00
14.50	85.50	.00	.01	.00	.40	.00
15.00	85.50	.02	.01	.00	1.04	.00
15.50	85.50	.04	.01	.00	.46	.00
16.00	85.50	.06	.01	.00	.49	.00
16.50	85.50	.08	.01	.00	.52	.00
17.00	85.50	.11	.01	.00	.55	.00
17.50	85.50	.13	.01	.00	.58	.00
18.00	85.50	.16	.01	.00	.61	.00
18.50	85.50	.19	.01	.00	.64	.00
19.00	85.50	.22	.01	.00	.67	.00
19.50	85.50	.25	.01	.00	.70	.00
20.00	85.50	.28	.01	.00	.72	.00
20.50	85.50	.32	.01	.00	.75	.00
21.00	85.50	.35	.01	.00	.78	.00
21.50	85.50	.38	.01	.00	.81	.00
				.00	.83	.00

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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WBOD/RAMP AND EBOD/RAMP, POND E&F
 3/15/98 REV. THRU 5/18/98

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: BCE

TIME (hrs)	STAGE (ft)	VOLUME (af)	←----- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	-----> OTHER (cfs)	OUTFLOW (cfs)
22.00	85.50	.42	.01	.00	.86	.00
22.50	85.50	.46	.01	.00	.89	.00
23.00	85.50	.50	.01	.00	.91	.00
23.50	85.50	.54	.01	.00	.94	.00
24.00	85.50	.58	.01	.00	.96	.00
24.50	85.50	.62	.02	.00	1.07	.00
25.00	85.50	.67	.02	.00	1.16	.00
25.50	85.50	.72	.02	.00	1.23	.00
26.00	85.50	.78	.02	.00	1.28	.00
26.50	85.50	.83	.02	.00	1.33	.00
27.00	85.50	.89	.02	.00	1.38	.00
27.50	85.50	.95	.02	.00	1.43	.00
28.00	85.50	1.01	.02	.00	1.47	.00
28.50	85.50	1.08	.02	.00	1.51	.00
29.00	85.50	1.14	.02	.00	1.56	.00
29.50	85.50	1.21	.02	.00	1.60	.00
30.00	85.50	1.28	.02	.00	2.25	.00
30.50	85.50	1.35	.02	.00	1.67	.00
31.00	85.50	1.42	.02	.00	1.71	.00
31.50	85.50	1.50	.02	.00	1.75	.00
32.00	85.50	1.57	.02	.00	1.78	.00
32.50	85.50	1.65	.02	.00	1.81	.00
33.00	85.50	1.73	.02	.00	1.85	.00
33.50	85.50	1.81	.02	.00	1.88	.00
34.00	85.50	1.89	.02	.00	1.91	.00
34.50	85.50	1.97	.02	.00	1.93	.00
35.00	85.50	2.06	.02	.00	1.96	.00
35.50	85.50	2.14	.02	.00	1.99	.00
36.00	85.50	2.23	.02	.00	2.01	.00
36.50	85.50	2.31	.02	.00	2.69	.00
37.00	85.50	2.40	.02	.00	2.06	.00
37.50	85.50	2.49	.02	.00	2.09	.00
38.00	85.50	2.58	.02	.00	2.11	.00
38.50	85.50	2.67	.02	.00	2.13	.00
39.00	85.50	2.76	.02	.00	2.15	.00
39.50	85.50	2.85	.02	.00	2.17	.00
40.00	85.50	2.95	.02	.00	2.19	.00
40.50	85.50	3.04	.02	.00	2.21	.00
41.00	85.50	3.14	.02	.00	2.22	.00
41.50	85.50	3.23	.02	.00	2.24	.00
42.00	85.50	3.33	.02	.00	2.26	.00
42.50	85.50	3.42	.02	.00	2.27	.00
43.00	85.50	3.52	.02	.00	2.29	.00
43.50	85.50	3.62	.02	.00	2.30	.00

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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/14 ALONG WBCD/RAMP AND EBCD/RAMP, POND B&F
 3/15/98 REV. THRU 5/18/98

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: ECE

TIME (hrs)	STAGE (ft)	VOLUME (af)	←----- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	-----> OTHER (cfs)	OUTFLOW (cfs)
44.00	85.50	3.72	.02	.00	2.31	.00
44.50	85.50	3.82	.02	.00	2.33	.00
45.00	85.50	3.92	.02	.00	2.34	.00
45.50	85.50	4.02	.02	.00	2.35	.00
46.00	85.50	4.12	.02	.00	2.36	.00
46.50	85.50	4.22	.02	.00	2.37	.00
47.00	85.50	4.32	.02	.00	2.38	.00
47.50	85.50	4.42	.02	.00	2.39	.00
48.00	85.50	4.53	.02	.00	2.40	.00
48.50	85.50	4.63	.02	.00	3.07	.00
49.00	85.50	4.74	.02	.00	2.50	.00
49.50	85.50	4.84	.02	.00	2.54	.00
50.00	85.50	4.95	.02	.00	3.57	.00
50.50	85.50	5.06	.03	.00	2.66	.00
51.00	85.50	5.18	.03	.00	2.75	.00
51.50	85.50	5.30	.03	.00	2.86	.00
52.00	85.50	5.43	.03	.00	2.98	.00
52.50	85.50	5.56	.04	.00	3.17	.00
53.00	85.50	5.70	.04	.00	3.38	.00
53.50	85.50	5.85	.05	.00	3.73	.00
54.00	85.50	6.02	.05	.00	4.21	.00
54.50	85.50	6.22	.05	.00	5.46	.00
55.00	85.50	6.44	.06	.00	6.05	.00
55.08	85.50	6.48	.06	.00	5.52	.00
55.17	85.50	6.52	.06	.00	5.63	.00
55.25	85.50	6.57	.06	.00	5.76	.00
55.33	85.50	6.61	.06	.00	6.52	.00
55.42	85.50	6.65	.06	.00	6.65	.00
55.50	85.50	6.69	.06	.00	6.78	.00
55.58	85.50	6.74	.06	.00	6.91	.00
55.67	85.50	6.78	.06	.00	7.04	.00
55.75	85.50	6.83	.06	.00	7.16	.00
55.83	85.50	6.88	.06	.00	7.27	.00
55.92	85.50	6.93	.06	.00	6.76	.00
56.00	85.50	6.98	.06	.00	6.86	.00
56.08	85.50	7.02	.07	.00	6.96	.00
56.17	85.50	7.08	.07	.00	7.69	.00
56.25	85.50	7.13	.07	.00	7.83	.00
56.33	85.50	7.18	.07	.00	7.98	.00
56.42	85.50	7.23	.07	.00	8.13	.00
56.50	85.50	7.29	.07	.00	7.66	.00
56.58	85.50	7.34	.07	.00	7.80	.00
56.67	85.50	7.40	.08	.00	8.55	.00
56.75	85.50	7.46	.08	.00	8.06	.00

E132

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WBCD/RAMP AND EBCD/RAMP, POND E&F
 3/15/98 REV. THRU 5/18/98

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: BCE

TIME (hrs)	STAGE (ft)	VOLUME (af)	←----- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	-----→ OTHER (cfs)	OUTFLOW (cfs)
56.83	85.50	7.51	.08	.00	8.18	.00
56.92	85.50	7.57	.08	.00	8.91	.00
57.00	85.50	7.63	.08	.00	8.40	.00
57.08	85.50	7.69	.08	.00	9.12	.00
57.17	85.50	7.75	.08	.00	9.25	.00
57.25	85.50	7.82	.08	.00	8.80	.00
57.33	85.50	7.88	.09	.00	9.59	.00
57.42	85.50	7.95	.09	.00	9.16	.00
57.50	85.50	8.01	.09	.00	9.33	.00
57.58	85.50	8.08	.09	.00	9.51	.00
57.67	85.50	8.15	.09	.00	9.69	.00
57.75	85.50	8.22	.09	.00	9.92	.00
57.83	85.50	8.29	.10	.00	10.21	.00
57.92	85.50	8.36	.10	.00	10.45	.00
58.00	85.50	8.43	.10	.00	10.67	.00
58.08	85.50	8.51	.10	.00	10.88	.00
58.17	85.50	8.58	.10	.00	11.10	.00
58.25	85.50	8.66	.10	.00	11.33	.00
58.33	85.50	8.74	.11	.00	11.56	.00
58.42	85.50	8.82	.11	.00	11.78	.00
58.50	85.50	8.91	.11	.00	12.00	.00
58.58	85.50	8.99	.11	.00	12.22	.00
58.67	85.50	9.08	.13	.00	12.53	.00
58.75	85.50	9.16	.13	.00	12.92	.00
58.83	85.50	9.26	.14	.00	13.35	.00
58.92	85.50	9.35	.14	.00	13.79	.00
59.00	85.50	9.45	.14	.00	14.21	.00
59.08	85.50	9.55	.16	.00	14.68	.00
59.17	85.50	9.65	.18	.00	15.35	.00
59.25	85.50	9.76	.20	.00	16.22	.00
59.33	85.50	9.88	.21	.00	17.18	.00
59.42	85.50	10.00	.21	.00	18.14	.00
59.50	85.50	10.13	.22	.00	19.10	.00
59.58	85.50	10.27	.44	.00	21.20	.00
59.67	85.50	10.44	.87	.00	26.94	.00
59.75	85.50	10.66	1.13	.00	35.26	.00
59.83	85.50	10.93	1.27	.00	41.30	.00
59.92	85.50	11.24	1.37	.00	46.18	.00
60.00	85.50	11.58	1.43	.00	49.94	.00
60.08	85.50	11.94	1.25	.00	52.52	.00
60.17	85.50	12.32	.88	.00	54.05	.00
60.25	85.50	12.69	.66	.00	54.44	.00
60.33	85.50	13.07	.53	.00	54.32	.00
60.42	85.50	13.45	.44	.00	53.84	.00

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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/14 ALONG WBCE/RAMP AND EBCE/RAMP, POND E&F
 3/15/98 REV. THRU 5/18/98

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: BCE

TIME (hrs)	STAGE (ft)	VOLUME (af)	←----- RUNOFF (cfs)	INFLOW ----- OFFSITE (cfs)	----- OTHER (cfs)	----- OUTFLOW (cfs)
60.50	85.50	13.82	.39	.00	53.37	.00
60.58	85.50	14.19	.33	.00	52.87	.00
60.67	85.50	14.55	.26	.00	52.16	.00
60.75	85.50	14.91	.22	.00	51.32	.00
60.83	85.50	15.26	.20	.00	50.43	.00
60.92	85.50	15.61	.19	.00	49.53	.00
61.00	85.50	15.95	.18	.00	48.66	.00
61.08	85.50	16.28	.17	.00	47.80	.00
61.17	85.50	16.61	.15	.00	46.91	.00
61.25	85.50	16.93	.14	.00	45.94	.00
61.33	85.50	17.25	.13	.00	44.88	.00
61.42	85.50	17.55	.13	.00	43.82	.00
61.50	85.50	17.85	.13	.00	42.80	.00
61.58	85.50	18.14	.12	.00	41.82	.00
61.67	85.50	18.43	.11	.00	40.87	.00
61.75	85.50	18.71	.11	.00	39.94	.00
61.83	85.50	18.98	.11	.00	39.05	.00
61.92	85.50	19.25	.10	.00	38.24	.00
62.00	85.50	19.51	.10	.00	37.47	.00
62.08	85.50	19.77	.10	.00	36.67	.00
62.17	85.50	20.02	.09	.00	35.88	.00
62.25	85.50	20.26	.08	.00	35.09	.00
62.33	85.50	20.50	.08	.00	34.40	.00
62.42	85.50	20.74	.08	.00	33.76	.00
62.50	85.50	20.97	.08	.00	32.91	.00
62.58	85.50	21.19	.07	.00	32.14	.00
62.67	85.50	21.41	.07	.00	31.45	.00
62.75	85.50	21.63	.07	.00	30.80	.00
62.83	85.50	21.84	.07	.00	30.22	.00
62.92	85.50	22.04	.07	.00	29.56	.00
63.00	85.50	22.24	.07	.00	28.94	.00
63.08	85.50	22.44	.07	.00	28.39	.00
63.17	85.50	22.64	.07	.00	27.79	.00
63.25	85.50	22.83	.07	.00	27.24	.00
63.33	85.50	23.01	.07	.00	26.67	.00
63.42	85.50	23.20	.07	.00	26.13	.00
63.50	85.50	23.37	.07	.00	25.57	.00
63.58	85.50	23.55	.07	.00	25.02	.00
63.67	85.50	23.72	.07	.00	24.45	.00
63.75	85.50	23.89	.07	.00	23.82	.00
63.83	85.50	24.05	.07	.00	23.04	.00
63.92	85.50	24.21	.07	.00	22.26	.00
64.00	85.50	24.36	.07	.00	21.56	.00
64.08	85.50	24.50	.06	.00	20.88	.00

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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WBCD/RAMP AND EBOD/RAMP, POND E&F
 3/15/98 REV, THRU 5/18/98

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: BCE

TIME (hrs)	STAGE (ft)	VOLUME (af)	← RUNOFF (cfs)	INFLOW OFFSITE (cfs)	→ OTHER (cfs)	OUTFLOW (cfs)
64.17	85.50	24.65	.05	.00	20.17	.00
64.25	85.50	24.78	.05	.00	19.41	.00
64.33	85.50	24.91	.04	.00	18.65	.00
64.42	85.50	25.04	.04	.00	17.90	.00
64.50	85.50	25.16	.04	.00	17.18	.00
64.58	85.50	25.28	.04	.00	16.48	.00
64.67	85.50	25.39	.04	.00	15.83	.00
64.75	85.50	25.50	.04	.00	15.23	.00
64.83	85.50	25.60	.04	.00	14.66	.00
64.92	85.50	25.70	.04	.00	14.14	.00
65.00	85.50	25.80	.04	.00	13.65	.00
65.50	85.50	26.31	.04	.00	11.25	.00
66.00	85.50	26.74	.04	.00	9.58	.00
66.50	85.50	27.11	.04	.00	8.42	.00
67.00	85.50	27.44	.04	.00	7.62	.00
67.50	85.50	27.75	.04	.00	7.07	.00
68.00	85.50	28.03	.04	.00	6.68	.00
68.50	85.50	28.30	.03	.00	5.96	.00
69.00	85.50	28.53	.03	.00	5.30	.00
69.50	85.50	28.74	.03	.00	4.89	.00
70.00	85.50	28.94	.03	.00	4.60	.00
70.50	85.50	29.13	.03	.00	4.40	.00
71.00	85.50	29.31	.03	.00	4.26	.00
71.50	85.50	29.48	.03	.00	4.15	.00
72.00	85.50	29.65	.03	.00	4.07	.00

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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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50YR 72HR, OP/I4 ALONG WBCD/RAMP AND EBCD/RAMP, POND E&F
 3/15/98 REV. THRU 5/18/98

NODAL MIN/MAX/TIME CONDITIONS REPORT

NOI	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
PONDE	STAGE (ft):	86.00	2.00	87.72	60.67
	VOLUME (af):	9.20	2.00	12.10	60.67
	RUNOFF (cfs):	.00	2.00	45.42	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-.21	16.50	21.75	60.75
	OUTFLOW (cfs):	.00	2.00	30.66	60.67
BCE	STAGE (ft):	85.50	72.00	85.50	72.00
	VOLUME (af):	-.16	3.50	29.65	72.00
	RUNOFF (cfs):	.00	.50	1.43	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-3.56	.00	54.44	60.25
	OUTFLOW (cfs):	.00	72.00	.00	72.00
PONDF	STAGE (ft):	86.00	2.50	87.97	60.75
	VOLUME (af):	17.10	2.50	22.07	60.75
	RUNOFF (cfs):	.00	2.50	63.19	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	53.50	8.71	60.17
	OUTFLOW (cfs):	-.21	16.50	15.07	62.42
BCF	STAGE (ft):	73.05	72.00	88.30	10.50
	VOLUME (af):	.00	3.50	4.21	72.00
	RUNOFF (cfs):	.00	4.50	11.94	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-16.51	8.50	14.82	60.00
	OUTFLOW (cfs):	.00	72.00	.00	72.00
JUNCTION	STAGE (ft):	84.79	25.00	87.60	10.50
	VOLUME (af):	.00	25.00	.01	10.50
	RUNOFF (cfs):	.00	3.00	14.82	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	-16.51	8.50	14.82	60.00

E136

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

50YR 72HR, OP/I4 ALONG WBCD/RAMP AND EBCD/RAMP, POND E&F
3/15/98 REV. THRU 5/18/98

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
D3DITCH	STAGE (ft):	86.20	22.50	87.73	60.67
	VOLUME (af):	.00	7.00	.17	60.67
	RUNOFF (cfs):	.00	6.50	4.36	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	22.50	1.59	59.83
BCE1	STAGE (ft):	85.00	72.00	85.00	72.00
	VOLUME (af):	.00	5.50	6.51	72.00
	RUNOFF (cfs):	.00	5.50	27.65	60.17
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	72.00	.00	72.00
BCE2	STAGE (ft):	84.60	.00	88.36	60.33
	VOLUME (af):	.00	.00	.37	60.33
	RUNOFF (cfs):	.00	8.50	8.83	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-.45	.50	16.82	60.33
	OUTFLOW (cfs):	-3.56	.00	21.52	60.33
BCE3	STAGE (ft):	85.20	.00	89.69	60.33
	VOLUME (af):	.00	.00	1.43	60.33
	RUNOFF (cfs):	.00	5.00	42.42	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	-.45	.50	16.82	60.33
BCE4	STAGE (ft):	85.70	57.67	87.11	60.08
	VOLUME (af):	.00	9.00	.05	60.08
	RUNOFF (cfs):	.00	8.50	5.33	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	57.67	4.87	60.08

E137

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

50YR 72HR, OP/I4 ALONG WBCD/RAMP AND EB CD/RAMP, POND E&F
3/15/98 REV. THRU 5/18/98

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
D1DITCH	STAGE (ft):	87.00	35.50	89.28	60.25
	VOLUME (af):	.00	6.00	.39	60.25
	RUNOFF (cfs):	.00	5.50	15.90	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	35.50	7.78	60.25
C5DITCH	STAGE (ft):	89.20	53.50	90.83	60.17
	VOLUME (af):	.00	9.00	.17	60.17
	RUNOFF (cfs):	.00	6.00	8.63	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	53.50	5.82	60.17
EB CD-DIT	STAGE (ft):	92.60	58.50	93.67	60.08
	VOLUME (af):	.00	6.00	.05	60.08
	RUNOFF (cfs):	.00	5.00	3.63	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	58.50	3.01	60.08

Permit No. 48-01243-P

Application No. 011109-7, 080205-41

I-4 Auxiliary Lane SR 535 to SR 528

**SOUTH FLORIDA WATER
MANAGEMENT DISTRICT**

BEG. PERMIT NUMBER:

48-01243-P

APPLICATION NUMBER:

0111 09-7

*N6VD29

**Stormwater Analysis and Design
Calculations**

ADDITIONAL INFORMATION

DEC 18 2001

ORLANDO SERVICE CENTER

**I-4 Auxiliary Lane from
SR 535 to SR 528**

Prepared for:
Florida Department of Transportation District Five
and Jones Bros. Construction Company

Prepared by:
HNTB Corporation

November, 2001
Revised: December 18, 2001

1.0 - Introduction

The Florida Department of Transportation (FDOT) proposes to add one eastbound and one westbound Auxiliary Lane on I-4 from SR 535 to SR 528 in Orange County. Also included is the milling and resurfacing of the existing lanes along with cross slope correction. The existing eastbound and westbound rest areas are also being removed as part of this project.

2.0 - Stormwater Management Summary

The project is within the jurisdiction of the South Florida Water Management District (SFWMD) and is subject to the design criteria of the SFWMD and the FDOT. The western portion of the project, from the rest areas to SR 535 is also within the Reedy Creek Improvement District (RCID).

The project is located within three distinct drainage basins. The western portion, from the rest areas to SR 535 drain to the west and is tributary to Reedy Creek. The portion of the project from the rest areas to just west of Central Florida Parkway drains into Big Sand Lake and the section from just west of Central Florida Parkway to SR 528 drains into the Big Sand Lake Outlet, which is adjacent to Central Florida Parkway.

Stormwater treatment and attenuation is being provided through a combination of removing the pavement in the rest areas and constructing detention ponds in the rest areas. The stormwater treatment regulations are based on the total increase in impervious area and credit is given for removal of existing impervious area. The detention ponds are designed to capture the runoff from all four lanes in each direction for the portion of roadway in the vicinity of the ponds. Stormwater treatment and attenuation for the section of the project that drains to the Big Sand Lake Outlet is being provided by redirecting a portion of roadway drainage into the Big Sand Lake Basin. Five ditch blocks were added to the I-4 east bound and westbound ditches between the rest areas and SR 535 at the request of RCID to provide additional treatment.

3.0 - Water Quality Design Criteria

The water quality design criteria is governed by the SFWMD and Reedy Creek Improvement District requirements.

Wet Detention Ponds

Treatment Volume

The greater of:

- One inch of runoff over the entire drainage area - or -
- 2.5 inches of runoff over the impervious drainage area

Recovery Time

Outfall structure should be designed to drawdown one half the required treatment volume in greater than 24 hours.

Pond Depth

Recommended that 25 to 50 percent of the detention area be deeper than 12 feet.

4.0 - Floodplain Impacts

Based on the FEMA Flood Insurance Rate Maps, the only portion of the project area that lies within a designated floodplain is adjacent to Lake Willis along the eastbound roadway. There is no widening or proposed work within this area therefore there are no floodplain impacts.

5.0 - Flood Discharge Attenuation

Flood discharge attenuation is being provided by removing the existing impervious area within the rest areas and by the proposed ponds. Pre- and post-development calculations are provided for 25-year, 24-hour; 25-year, 72-hour; 50-year, 72 hour and 100-year 24-hour storms. These calculations determined that there would be no increase in flood discharges.

The proposed ponds provide substantial volume of flood storage in relation to the contributory drainage areas. These ponds are designed as wet detention ponds with controlled orifices to meet the recovery criteria. They are also designed to store the entire runoff volume for all storms investigated below the weir elevation of the outlet structures.

The FDOT critical storm criteria is met as evidenced by the flood routings for the storms outlined above and by the fact that the overall drainage areas and impervious areas have been reduced over existing conditions.

6.0 - Roadway Drainage

The existing roadway for most of the project area is a rural section with roadside ditches. The proposed widening will require that the ditches be relocated as shown on the typical section. The roadway drainage in the vicinity of the bridge over Central Florida Parkway will consist of shoulder gutter, inlets and piping to adjacent ditches.

HNTB

By: AET Date: 12/4/01 Job No: 34671
 Checked By: KEH Date: 12/4/01 Office No: 159

I-4 SR 535 to SR 528**SFWMD
Orange County**

Basin Totals Drainage Area in Acres

Ready Creek Improvement District

	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Basin 1	10.27	7.86	18.13	6.41	6.34	12.75
Basin 2	11.16	7.81	18.97	8.09	7.79	15.88
Total	21.43	15.67	37.10	14.5	14.13	28.63

Big Sand Lake

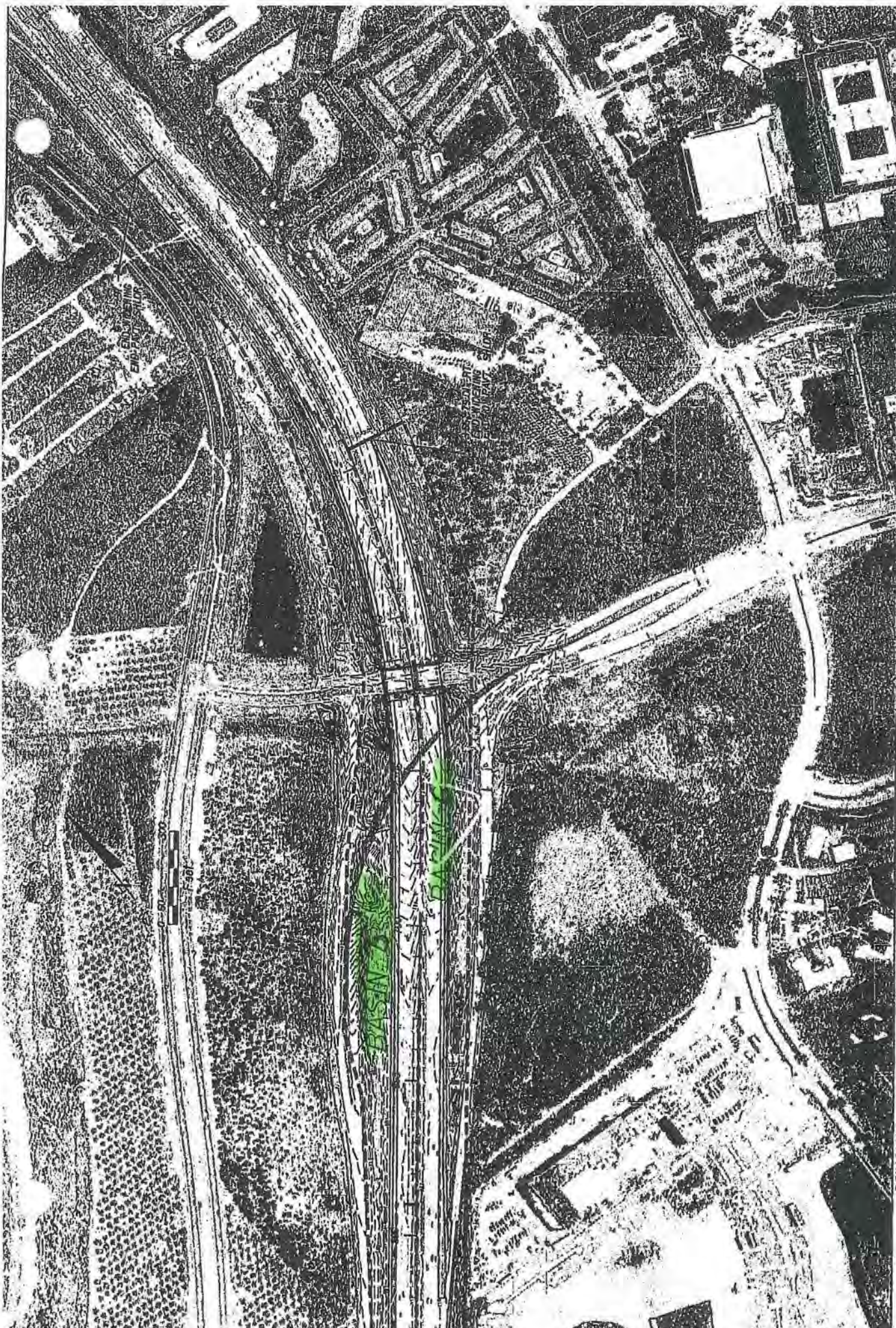
	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Basin 3	6.07	6.07	11.14	4.37	6.2	10.57
Basin 4	7.76	7.79	15.55	4.85	4.94	9.79
Total	12.83	13.86	26.69	9.22	11.14	20.36

Big Sand Lake Outlet

	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Basin 5	9.47	4.78	14.25	6.83	4.09	10.92
Basin 6	5.78	3.51	9.29	5.1	4.19	9.29
Total	15.25	8.29	23.54	11.93	8.28	20.21

Ponds

	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Pond 1				7.39	1.79	9.18
Pond 2				7.00	1.96	8.96
Total				14.39	3.75	18.14



14 AUXILIARY LANES POST DEVELOPMENT DRAINAGE MAP		SHEET NO. 54
STATES OF FLORIDA DEPARTMENT OF TRANSPORTATION	ROAD NO. SR 400	FINANCIAL PROJECT ID 405515-1-52-01
COUNTY ORANGE		FINANCIAL PROJECT ID 405515-1-52-01
JONES BROS.	HITE	
REVISIONS DATE BY DESCRIPTION		



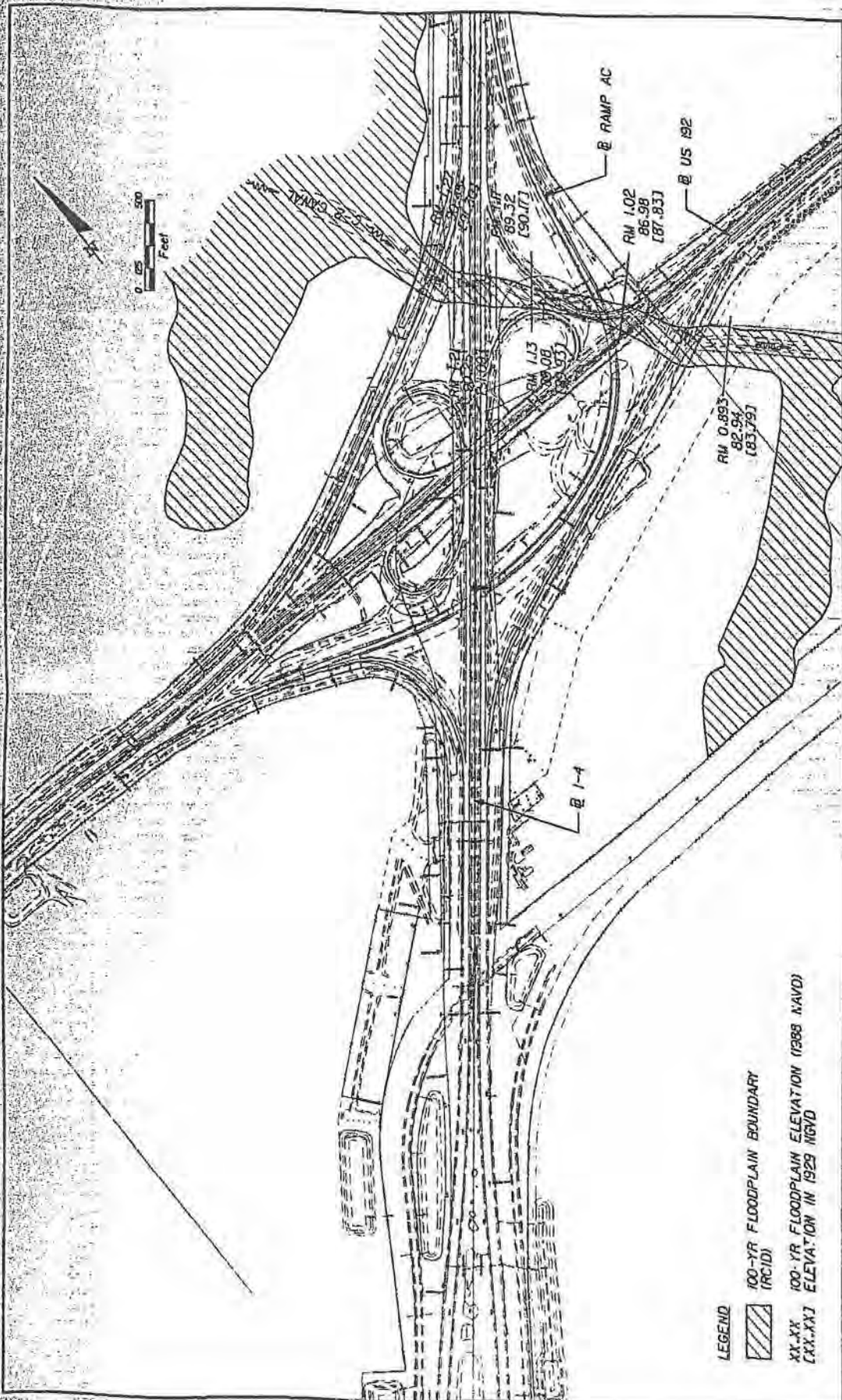
**I-1 AUXILIARY LANES
PRE DEVELOPMENT
DRAINAGE MAP**

STATES OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO. SR 400
COUNTY ORANGE
FINANCIAL PROJECT ID 405515-1-52-01


JONES & BRUSH
HNTB


REVISIONS	DATE	BY	DESCRIPTION


FLOODPLAIN ANALYSIS



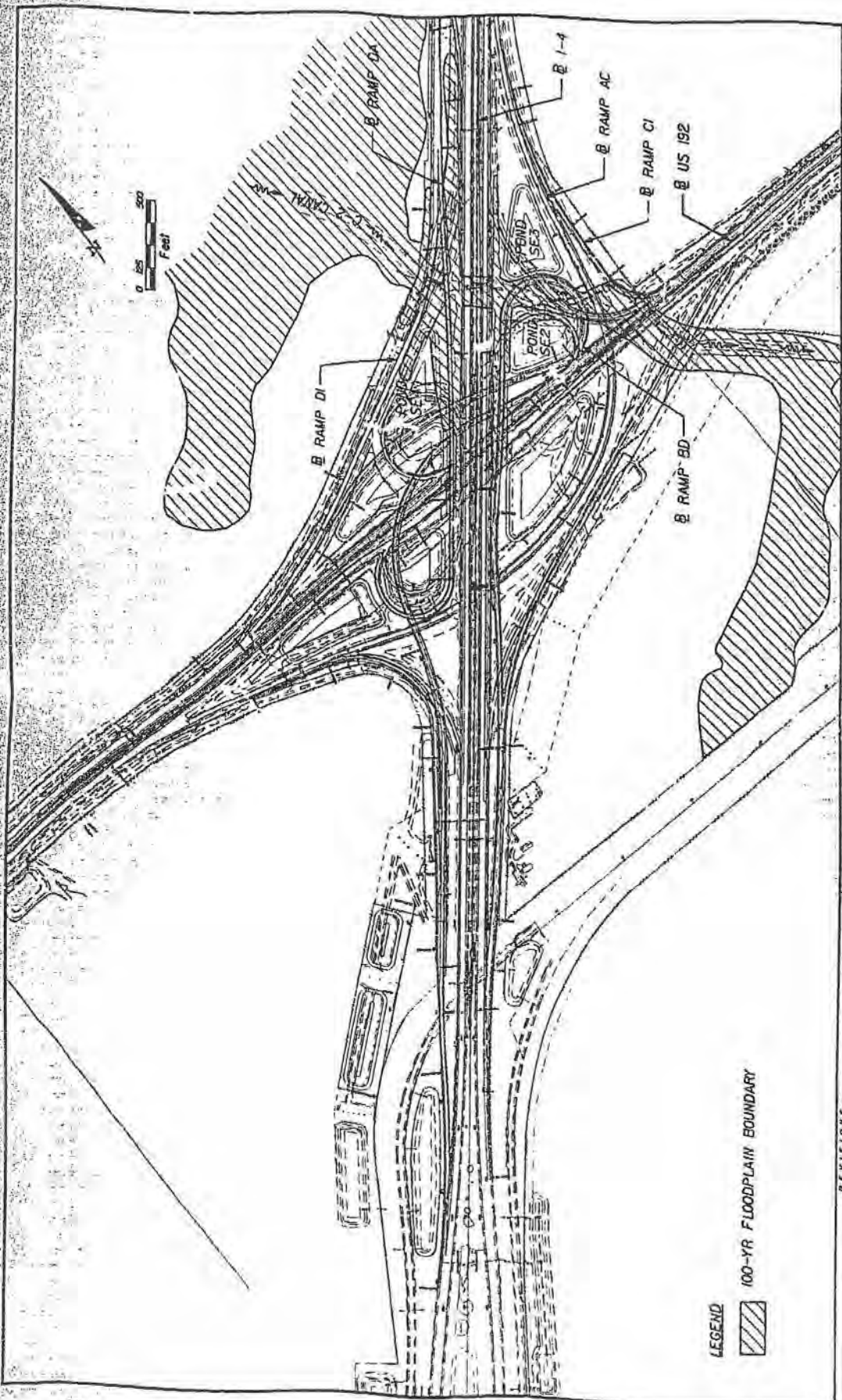
LEGEND

 100-YR FLOODPLAIN BOUNDARY (RCID)

 100-YR FLOODPLAIN ELEVATION (1988 NAVD)

 100-YR FLOODPLAIN ELEVATION IN 1929 NGVD

DATE		REVISIONS		SHEET NO.	
URS 305 E. ROBINSON STREET, SUITE 404 ORLANDO, FL 32801 PH (407) 452-1000 FAX (407) 452-1005 NO. 000000			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. _____ COUNTY _____ DISTRICT _____ PROJECT NO. _____		
EXISTING FLOODPLAIN MAP I-4 / US 192 INTERCHANGE					



LEGEND
 [Hatched Box] 100-YR FLOODPLAIN BOUNDARY

DATE		REVISIONS		URS 30 S. ANDERSON STREET, SUITE 400 ORLANDO, FL 32804-5715 PH (407) 422-0333 FAX (407) 422-3895 MO. 000000		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. 192 COUNTY ORZELA DISTRICT 1-2-41 PROJECT 9 SHEET NO. 41-2-41		PROPOSED FLOODPLAIN MAP 1-4 / US 192 INTERCHANGE		SHEET NO.	

Job I-4 / US 192 INTERCHANGEProject No. V1000385.01Page of Description 100-YEAR FLOODPLAINComputed by RELSheet of Date 9/30/02Checked by CSDDate 10/21/02

Reference

- (1) 100 YEAR FLOODPLAIN ELEVATIONS LEFT OF I-4 AT VICINITY OF C-2 CANAL

WILL USE AVERAGE BETWEEN RM 1.27 AND RM 1.21 (REACH 57)

RM 1.27 \Rightarrow 100yr EL = 90.45 (1988 NAVD)

RM 1.21 \Rightarrow 100yr EL = 90.25 (1988 NAVD)

AVERAGE = 90.35 (1988 NAVD)

- (2) 100 YEAR FLOODPLAIN ELEVATION RIGHT OF I-4 BETWEEN I-4 AND RAMP AC AT VICINITY OF C-2 CANAL

WILL USE ELEV. AT RM 1.13 = 89.08 (1988 NAVD)

- (3) 100 YEAR FLOODPLAIN ELEVATION RIGHT OF RAMP L BETWEEN RAMP AC AND US 192 AT VICINITY OF C-2 CANAL

WILL USE ELEV. AT RM 1.02 = 86.98 (1988 NAVD)

NO FLOODPLAIN IMPACTS RIGHT OF US 192



PROJECT
PROJECT No.

I-4 / US 192 INTERCHANGE
V100000385.01

100-YEAR FLOODPLAIN IMPACTS AND COMPENSATION (C-2 CANAL)
PROVIDED FLOODPLAIN COMPENSATION IN PONDS SE2, SE3 AND SE4

LOCATION	VOLUME (ac-ft)		DESCRIPTION
	Static (cup for cup)	Dynamic (AdICPR)	
Pond SE2	11.69	9.69	Wet Det Pond
Pond SE3	7.77	5.94	Wet Det Pond
Pond SE4	7.67	6.19	Wet Det Pond
Total	27.13	21.82	

TOTAL FLOODPLAIN IMPACTS AND COMPENSATION

LOCATION	FLOODPLAIN IMPACT VOLUME (ac-ft)	COMPENSATION VOLUME IN DITCHES (ac-ft)	COMPENSATION VOLUME IN PONDS (ac-ft)
Left of I-4 (Sta 345+00 to Sta 370+00)	4.87	2.28	
Ramp D1 (Sta 1919+00 to Sta 1932+49.06)	2.68	1.19	
Right of I-4 (Sta 345+00 to 370+00)	0.42	0.66	
Ramp BD (Sta B44+98.13 to Sta 857+00)	2.12	0.00	
Ramp C1 (Sta 1501+00 to Sta 1510+47.38)	0.47	0.00	
Pond SE2			
Pond SE3			9.69
Pond SE4			5.84
Total	10.62	4.14	21.82

Total 100-yr Floodplain impacts (C-2 Canal) = 10.62 ac-ft
Total 100-yr Floodplain compensation (ditches and Ponds) = 25.96 ac-ft

floodplain_rsv

Total floodplain

1/9/2003

URS

B-12

Job I-A / US 192 Interchange

Project No. Y1000385.01

Page of

Description 100-year Floodplain

Computed by REC

Sheet of

Compensation in POND SE2

Checked by CSD

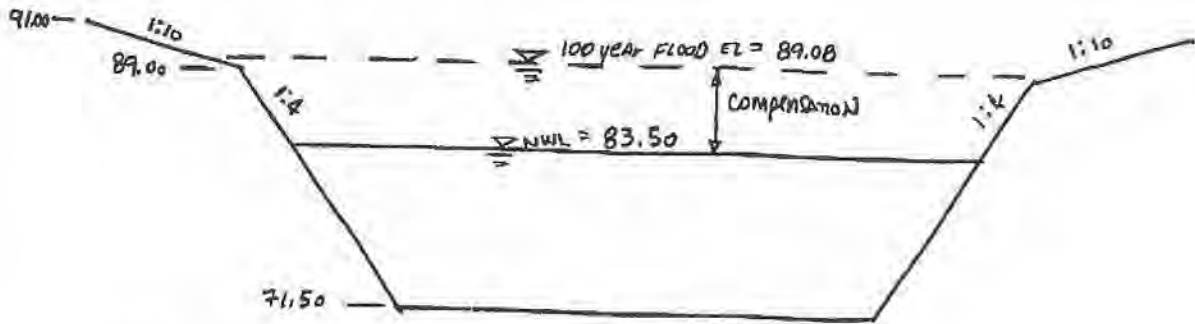
Date 10/2/02

STATIC (cup for cup)

Date 10/21/02

Reference

100-YEAR FLOOD ELEVATION = 89.08 (1988 NAWD)



STAGE (FT)	AREA (AC)	SUM. STORAGE (AC-FT)
91.00	3.02	16.91
89.08	2.42	11.69
89.00	2.40	11.50
83.50	1.78	0

STATIC STORAGE AVAILABLE = 11.69 AC-FT
FOR FLOODPLAIN COMP.

OK

URS

Job T-4 / US 192 Interchange

Description 100-YEAR FLOODPLAIN

COMPENSATION IN POND SE3

STATIC (cup for cup)

Project No. V100385.01

Computed by REC

Checked by CSD

Page of B-13

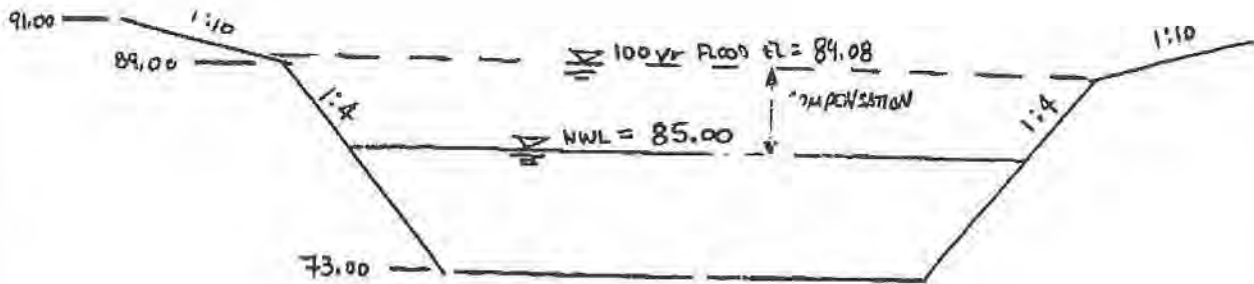
Sheet of

Date 10/11/02

Date 10/21/02

Reference

100-year FLOOD ELEVATION = 89.08 (1988 NAVD)



STAGE (FT)	AREA (AC)	SUM. STORAGE (AC-FT)
91.00	2.77	12.50
89.08	2.16	7.77
89.00	2.13	7.60
85.00	1.67	0

STATIC STORAGE AVAILABLE = 7.77 AC-FT
FOR FLOODPLAIN COMP.

OK

URS

Job I-4 / US 192 Interchange

Description 100-YEAR FLOODPLAIN

COMPENSATION IN POND SEA

STATIC (cup for cup)

Project No. V1000385.01

Computed by REC

Checked by CSD

Page of B-14

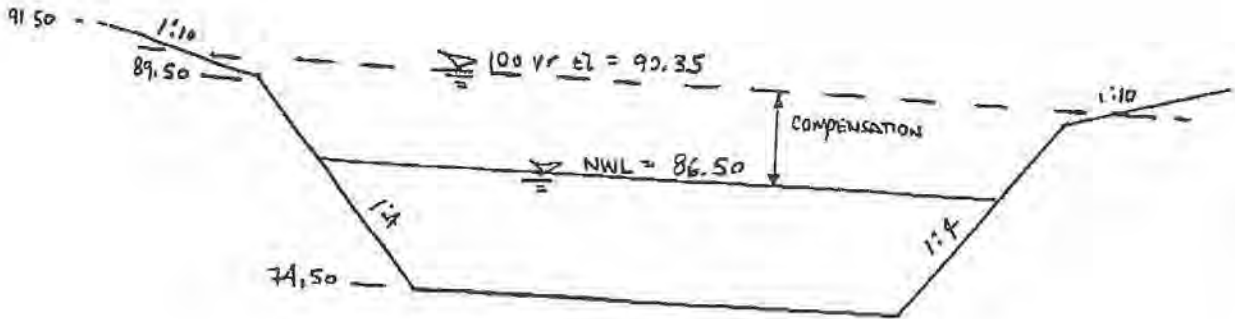
Sheet of

Date 10/1/02

Date 10/21/02

Reference

100-YEAR FLOOD ELEVATION = 90.35 (1988 NAVD)



STAGE (FT)	AREA (AC)	SUM. STORAGE (AC-FT)
91.50	2.81	10.67
90.35	2.4075	7.67
89.50	2.11	5.75
86.50	1.72	∅

STATIC STORAGE AVAILABLE = 7.67 AC-FT
FOR FLOODPLAIN COMP.

OK



PURPOSE: NEW INTERCHANGE
WESTERN BELTWAY (S.R. 429)

DATUM: NAVD88

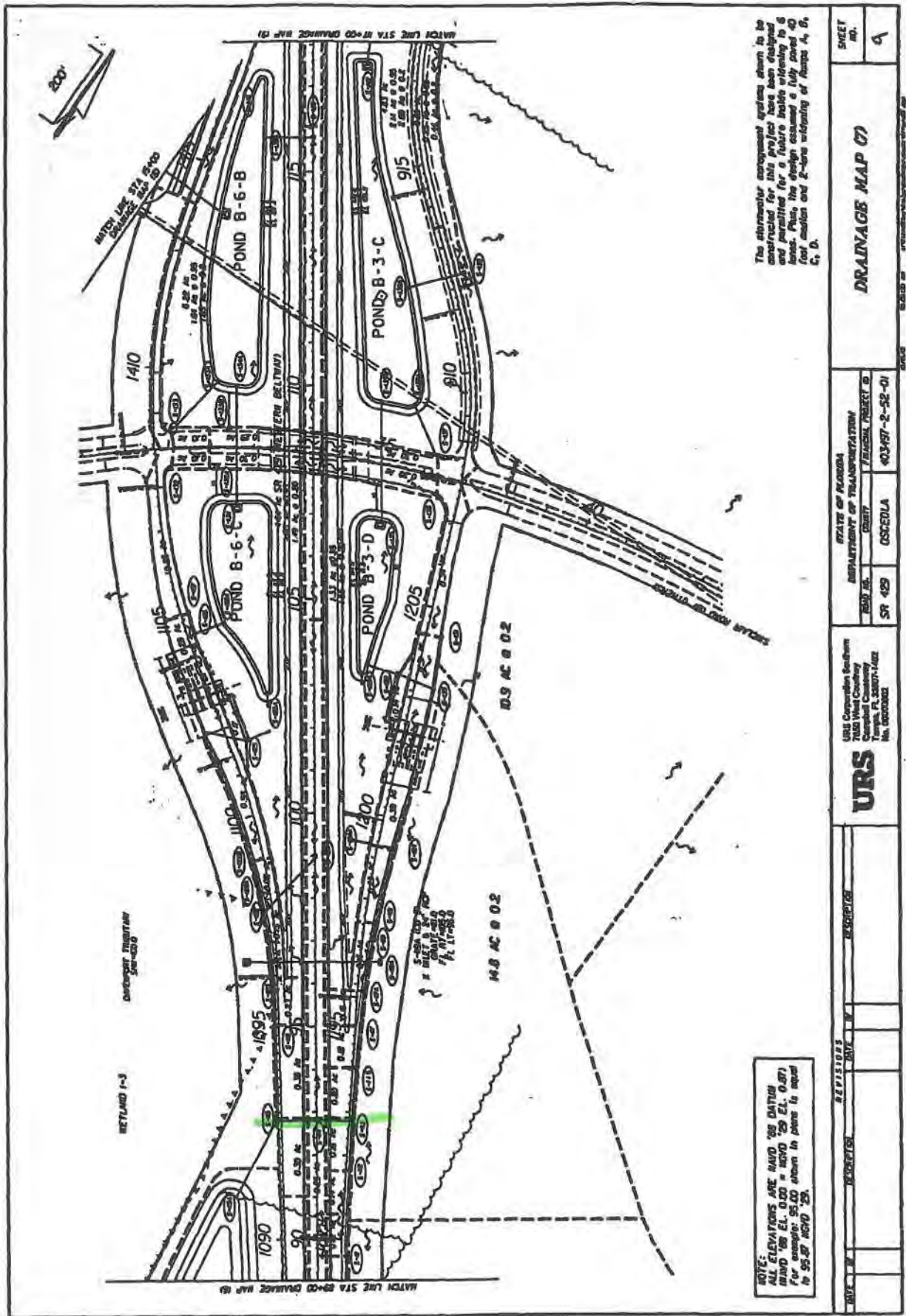
PROJECT ARIAL MAP

IN: REEDY CREEK DRAINAGE BASIN
AT: SR 400 (I-4)
COUNTY: OCEOLA COUNTY
APPLICATION BY: FDOT

STATE OF: FLORIDA
49-187636001

RECEIVED: AUG 15 2001
DATE: JUNE 2001

FILE: \\w:\projects\49187636001\0001\0001.dwg
DATE: 10/24/01 10:27



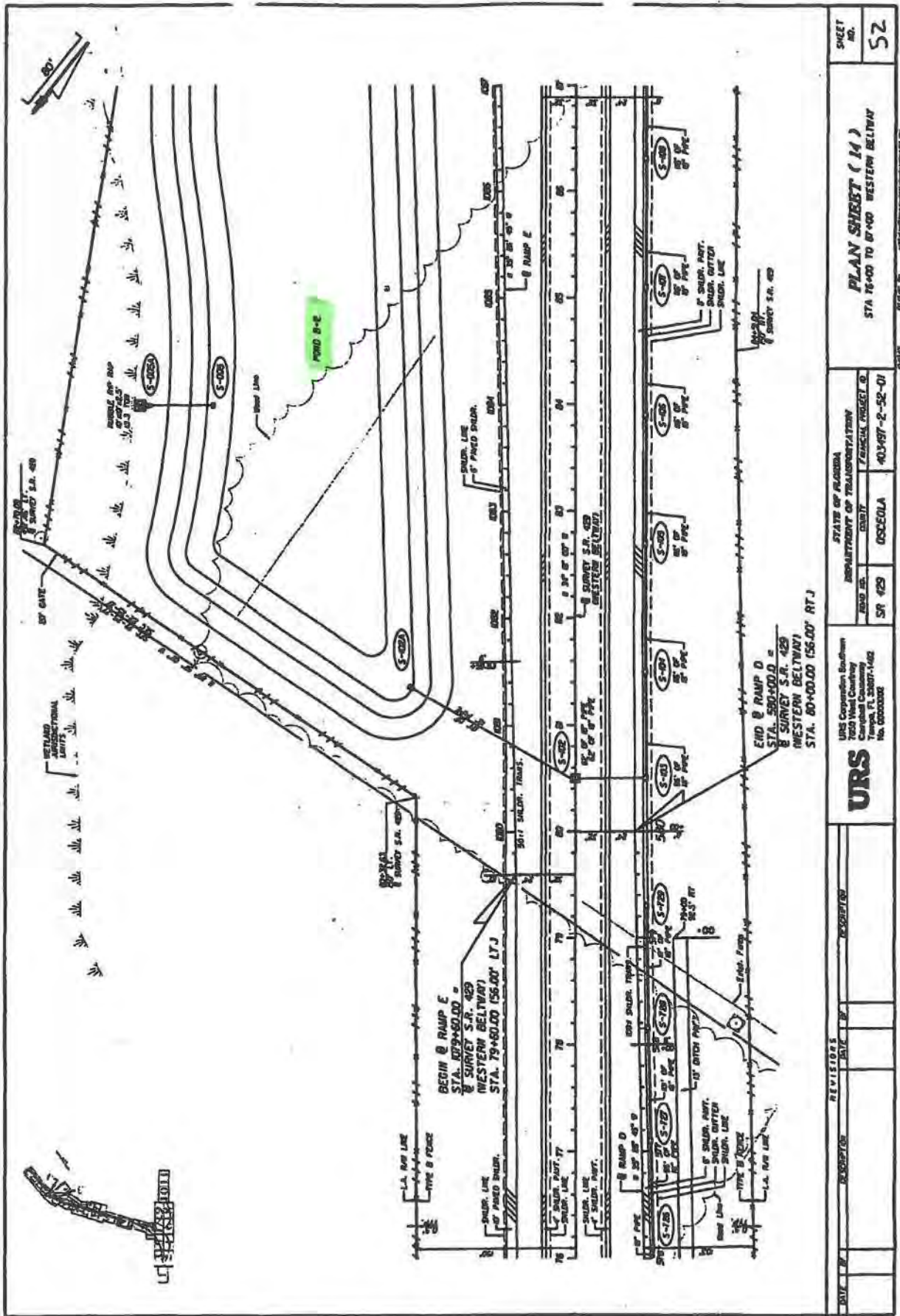
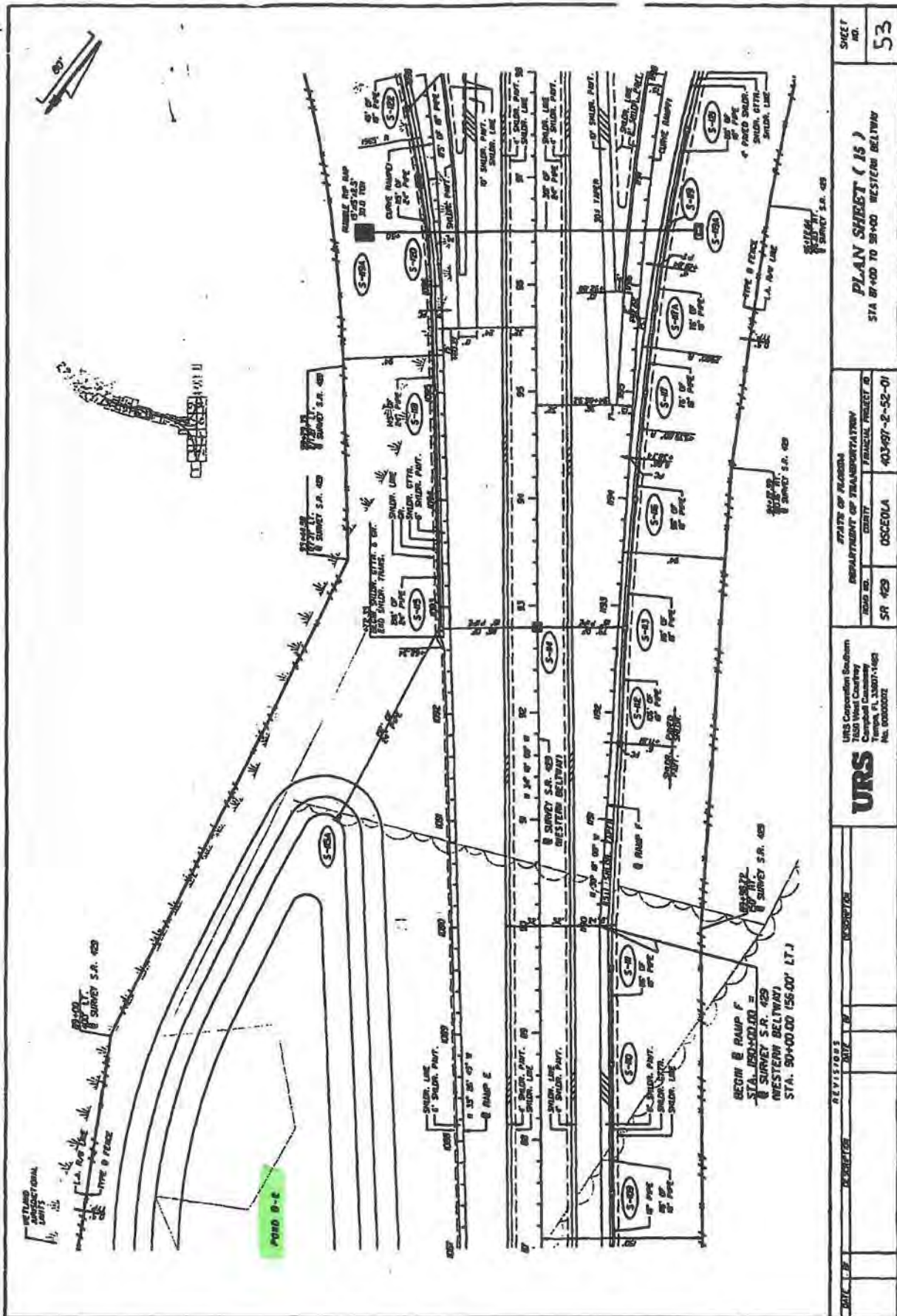


Figure 25



SHEET NO. 53	
PLAN SHEET (15) STA 87+00 TO 90+00 WESTERN BELTWAY	
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. SR 429	FEDERAL PROJECT ID 403-97-2-52-01
COUNTY OSCEOLA	PROJECT NO. 403-97-2-52-01
URS Corporation Southern 7450 West Country Campbell County Tampa, FL 33607-1495 No. 0000002	URS
REVISIONS NO. DESCRIPTION	REVISIONS NO. DESCRIPTION

Figure 26

1.0 - Introduction

The Florida Department of Transportation (FDOT) proposes to add one eastbound and one westbound Auxiliary Lane on I-4 from SR 535 to SR 528 in Orange County. Also included is the milling and resurfacing of the existing lanes along with cross slope correction. The existing eastbound and westbound rest areas are also being removed as part of this project.

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3.0 - Water Quality Design Criteria

The water quality design criteria is governed by the SFWMD and Reedy Creek Improvement District requirements.

Wet Detention Ponds

Treatment Volume

The greater of:

- One inch of runoff over the entire drainage area - or -
- 2.5 inches of runoff over the impervious drainage area

Recovery Time

Outfall structure should be designed to drawdown one half the required treatment volume in greater than 24 hours.

Pond Depth

Recommended that 25 to 50 percent of the detention area be deeper than 12 feet.

4.0 - Floodplain Impacts

Based on the FEMA Flood Insurance Rate Maps, the only portion of the project area that lies within a designated floodplain is adjacent to Lake Willis along the eastbound roadway. There is no widening or proposed work within this area therefore there are no floodplain impacts.

5.0 - Flood Discharge Attenuation

Flood discharge attenuation is being provided by removing the existing impervious area within the rest areas and by the proposed ponds. Pre- and post-development calculations are provided for 25-year, 24-hour; 25-year, 72-hour; 50-year, 72 hour and 100-year 24-hour storms. These calculations determined that there would be no increase in flood discharges.

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6.0 - Roadway Drainage

The existing roadway for most of the project area is a rural section with roadside ditches. The proposed widening will require that the ditches be relocated as shown on the typical section. The roadway drainage in the vicinity of the bridge over Central Florida Parkway will consist of shoulder gutter, inlets and piping to adjacent ditches.

HNTB
 By: AET Date: 12/4/01 Job No: 34671
 Checked By: KEH Date: 12/4/01 Office No: 59

I-4 SR 535 to SR 528

 SFWMD
 Orange County

Basin Totals
 Drainage Area in Acres
Reedy Creek Improvement District

	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Basin 1	10.27	7.86	18.13	6.41	6.34	12.75
Basin 2	11.16	7.01	18.97	8.09	7.79	15.88
Total	21.43	15.67	37.10	14.5	14.13	28.63

Big Sand Lake

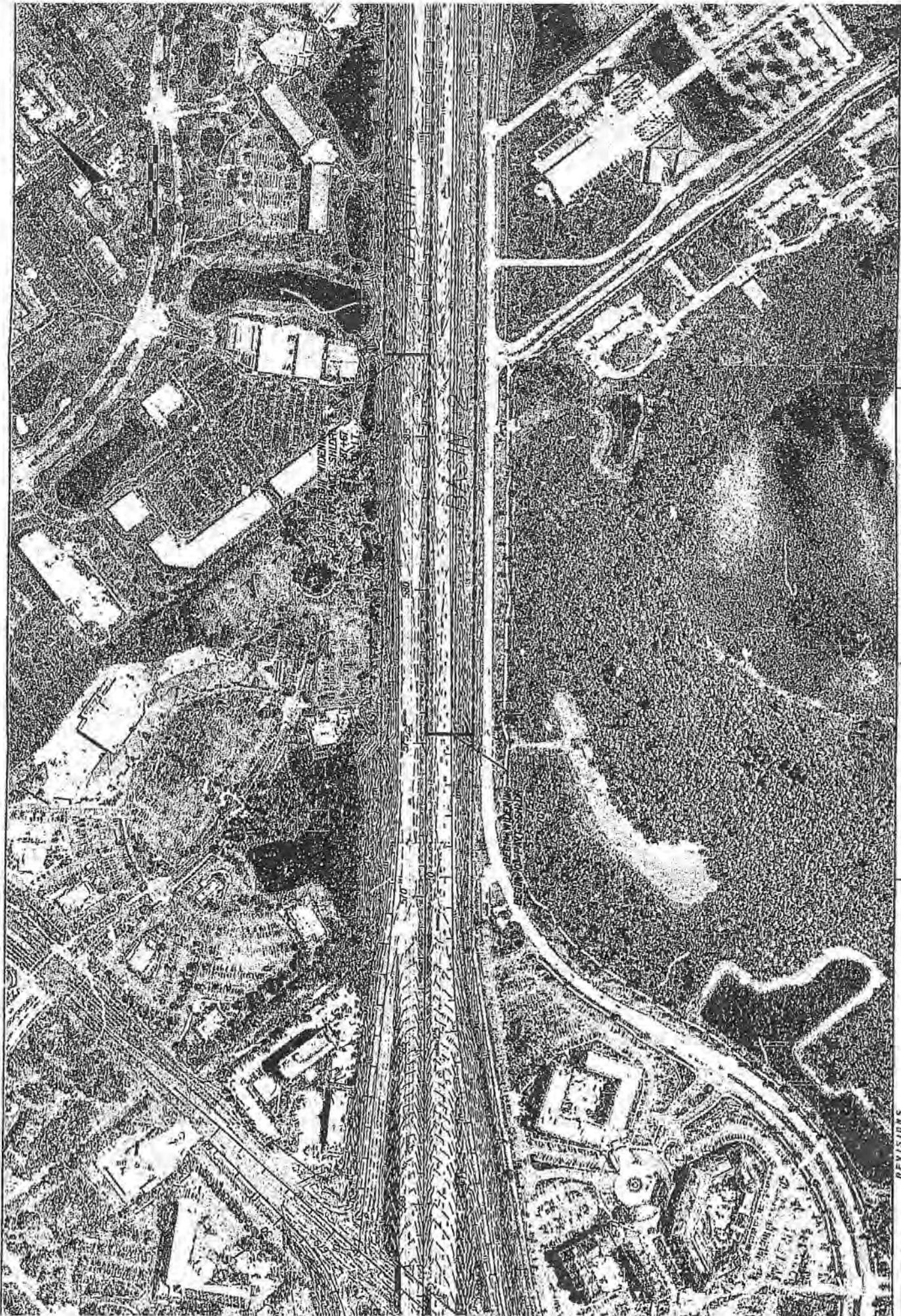
	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Basin 3	5.07	6.07	11.14	4.37	6.2	10.57
Basin 4	7.76	7.79	15.55	4.85	4.94	9.79
Total	12.83	13.86	26.69	9.22	11.14	20.36

Big Sand Lake Outlot

	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Basin 5	9.47	4.78	14.25	6.83	4.09	10.92
Basin 6	5.78	3.51	9.29	5.1	4.19	9.29
Total	15.25	8.29	23.54	11.93	8.28	20.21



Ponds

	Pre-Development			Post-Development		
	Pervious	Impervious	Total	Pervious	Impervious	Total
Pond 1				7.39	1.79	9.18
Pond 2				7.00	1.96	8.96
Total				14.39	3.75	18.14



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		SHEET NO. P1	
ROAD NO. SR 400	COUNTY ORANGE	FINANCIAL PROJECT ID 40E315-1-52-01	
REVISIONS	DATE	BY	DESCRIPTION



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		ROAD NO. SR 400		COUNTY ORANGE	FINANCIAL PROJECT ID 405515-1-52-01						
SHEET NO. P2		JONES BROS.  ENGINEER 									
<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		REVISIONS	DATE	DESCRIPTION				I-4 AUXILIARY LANES PRE DEVELOPMENT DRAINAGE MAP			
REVISIONS	DATE	DESCRIPTION									



REVISIONS DESCRIPTION DATE BY DESCRIPTION		STATES OF FLORIDA DEPARTMENT OF TRANSPORTATION		I-4 AUXILIARY LATHES PRE DEVELOPMENT DRAINAGE MAP		SHEET NO. P3
ROAD NO. SR 400		COUNTY ORANGE		FINITE		JONES BROS.
FINANCIAL PROJECT ID 405515-1-52-01		FINITE		POWER		

6-15-2018 10:52 AM
 C:\Users\jones\Documents\I-4\I-4_Auxiliary_Lanes_Prep_Development_Drainage_Map\I-4_Auxiliary_Lanes_Prep_Development_Drainage_Map.dwg



SHEET NO. **P4**

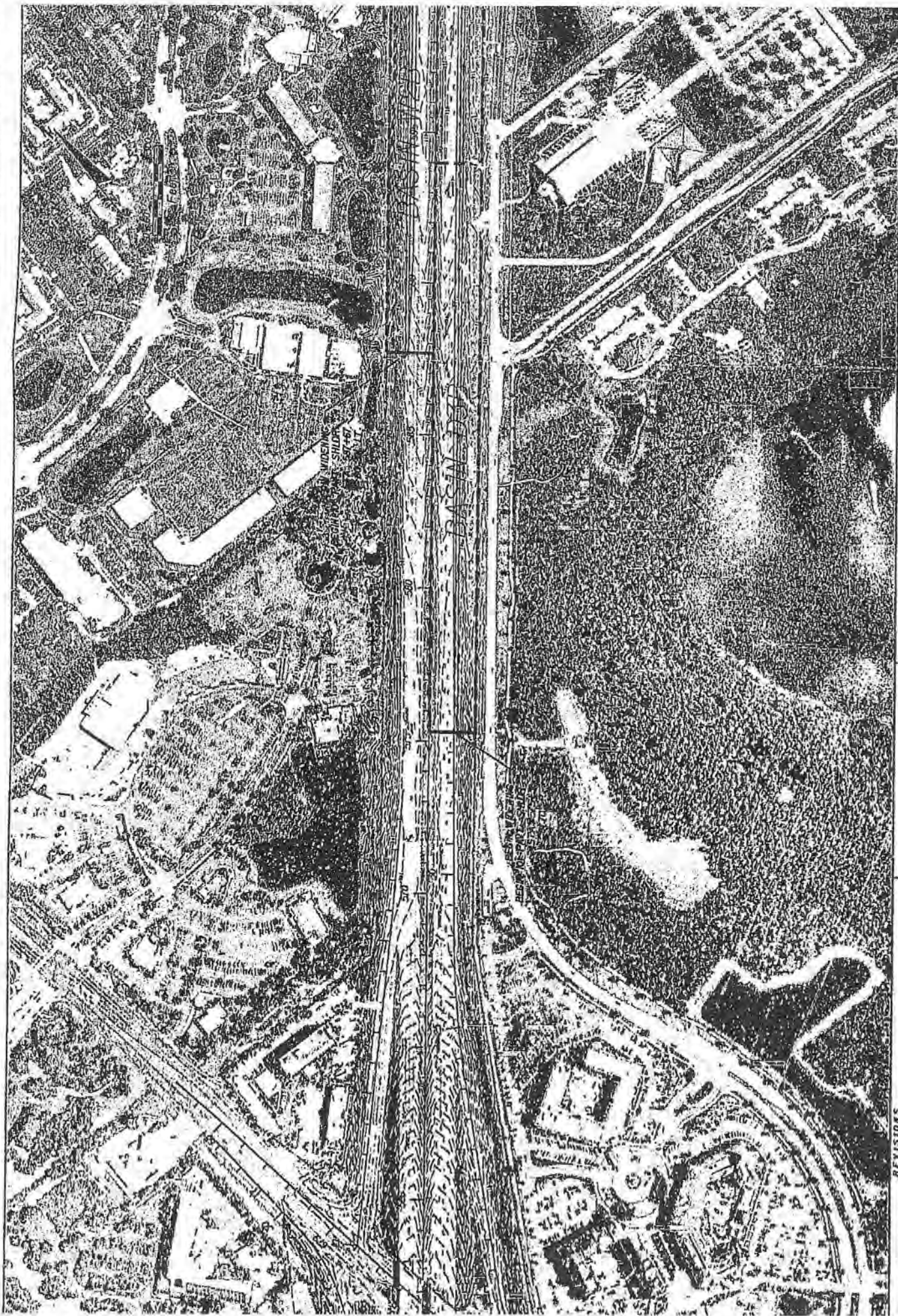
**I-1 AUXILIARY LANES
PRE DEVELOPMENT
DRAINAGE MAP**

STATE OF FLORIDA	
DEPARTMENT OF TRANSPORTATION	
ROAD NO.	FINANCIAL PROJECT ID
SR 400	405515-1-52-01
COUNTY	RANGE

JONES
ROADS

HNTB


REVISIONS	DATE	DESCRIPTION




SHEET NO. 51

**I-4 AUXILIARY LANES
POST DEVELOPMENT
DRAINAGE MAP**

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	
ROAD NO. SR 400	FINANCIAL PROJECT ID 4055/5-1-52-01
COUNTY ORANGE	


**JONES
BROS.**


HNTB

REVISOR'S	DATE	DESCRIPTION

F-261

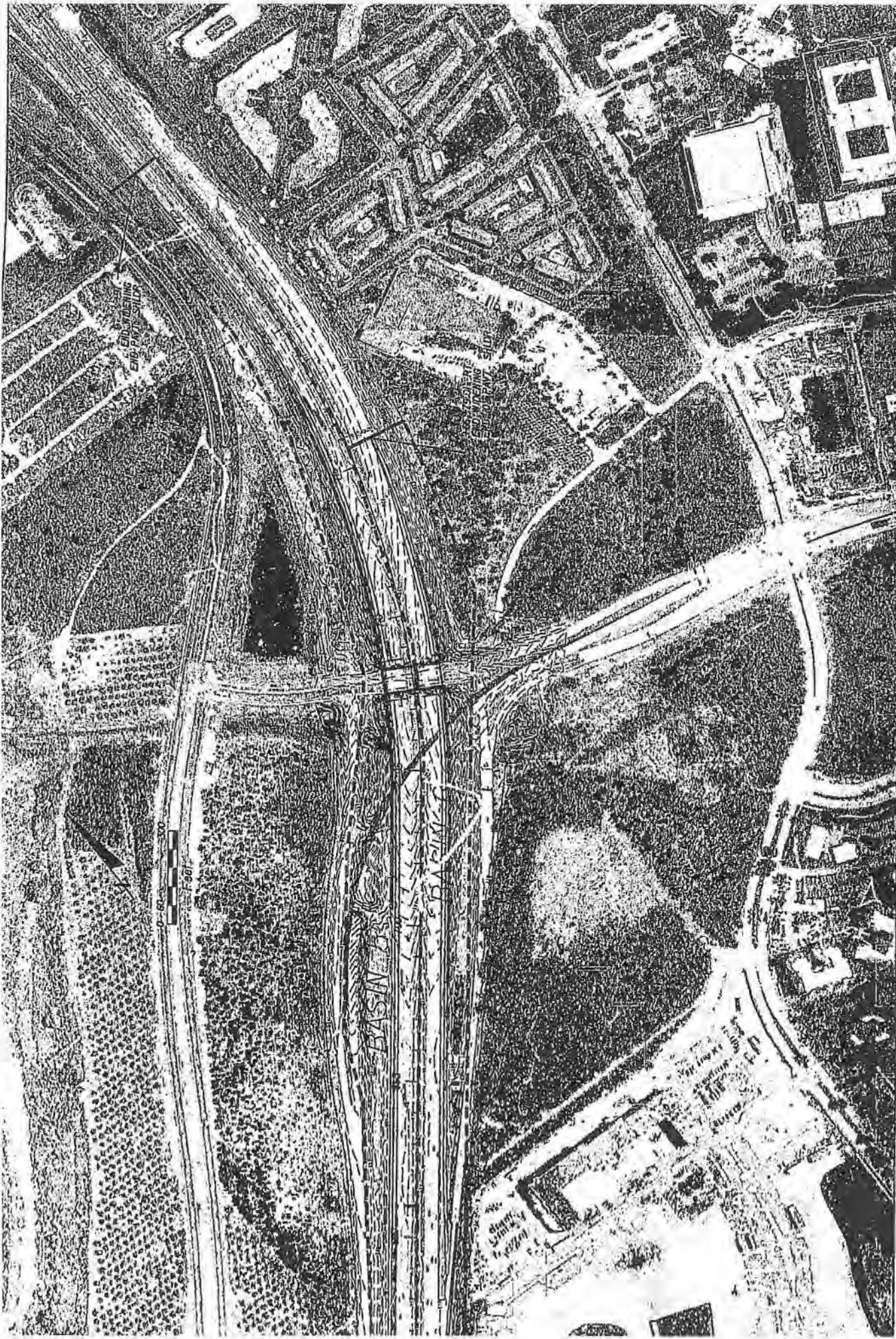


STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		FINITE	
ROAD NO. SR 400	COUNTY ORANGE	FINANCIAL PROJECT ID 405515-1-52-01	JONES BROS.
REVISIONS		DATE BY DESCRIPTION	

**I-4 AUXILIARY LANES
POST DEVELOPMENT
DRAINAGE MAP**

SHEET NO. 33

11-DEC-2009 10:56 AM
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SHEET NO. 54	
1-4 AUXILIARY LANES POST DEVELOPMENT DRAINAGE MAP	
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	FINANCIAL PROJECT ID 405515-1-52-01
ROAD NO. SR 400	COUNTY ORANGE
REVISIONS DATE BY DESCRIPTION	

PERMIT APPLICATION ROUTING
Environmental Resource Regulation

Application Number: **080205-41** Permit Number: **48-01243-P**
 Related Application Number:
 Applicant: **FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT 5**
 Project: **WILDWOOD AREA ROADWAY NETWORK - PHASE 2**
 County: **Orange** Permit Type: **ERP-GP-MOD** Land Use Type: **GOV**

- Copy of application **was not** sent to the ACOE, if determined there is wetland activity please route a copy of the application back to the ADMIN staff.
 Copy of application was sent to the ACOE on -08.

30 Day Deadline: **03/06/08**
 No Fee Required: **\$0.00**
 Fee Received: **\$0.00** Fee Due: **\$1000.00**
 (Do Not Issue Permit)

	DATE RECEIVED	DATE OUT
PROCESSED BY: <u>Johnella Kilo</u>	<u>02/05/08</u> (02/07/08)	<u>02/08/08</u>
<u>Alan Leavens</u>	_____	_____
<u>Nicole Simotes</u>	_____	_____
<u>BACK-UP</u>		
SHAKIR AHMED – MSC 4241		

COMMENTS: CONCURRENT ERP 070307-6. PLEASE CHECK WATER BODY. 02/08/08-LEFT VOICE MESSAGE FOR ENGINEER THAT FEE IS DUE.

Application Submittal Included:
 Application Form: 5 Plans: 5 Aerials: 5 Engineer Reports: 5 Adjacent Property Owners Lists

Scanned by: _____ Date: _____

Kimley-Horn

AND ASSOCIATES, Inc.
3560 Maguire Blvd., Suite 200
Orlando, Florida 32803

Made by HDT CH'd by _____
Date January 2 2008 Time 9:32 AM
KHA Project Number 049280002

PROJECT Street 'B' & I-4 Overpass
BASIN NAME Basin 1 WB
NODE NAME Pond 1

PRE - DEVELOPED CONDITION

AREA	BASIN DESCRIPTION	BASIN FLOWS TO...
11.75 ac.	EXISTING ROADWAY & OFFSITE AREA	Ex Pond 1 WB
11.75 ac.	TOTAL BASIN AREAS	

EXISTING ROADWAY AREA

STATION LIMITS		ROADWAY LENGTH	R/W Width	Width(s)	No. of Travel Lanes	Impervious Width(s)
634+10.00	648+35.00	1,425.00 ft.	120.00 ft.			
AREA impervious =	2.06 ac.		Average Travel Lane	12.00 ft.	3	36.00 ft.
AREA pervious =	6.94 ac.		Inside Curb & Gutter	2.25 ft.	0	0.00 ft.
AREA POND =	2.75 ac.		Outside Curb & Gutter	2.00 ft.	0	0.00 ft.
AREA Total =	11.75 ac.		Paved Shoulder(s)	22.00 ft.	1	22.00 ft.
			Sidewalk(s)	6.00 ft.	0	0.00 ft.
						Total Width: 58.00 ft.
						Add'l Pav't: 0.16 ac.

EXISTING ROADWAY & OFFSITE AREA

BASIN NAME: EXISTING ROADWAY & OFFSITE AREA

NODE NAME	Ex Pond 1 WB	LAND USE DESCRIPTION	% Impervious	SOILS TYPE	Percent of Area
AREApervious	2.06 ac.	Impervious areas (Dirt including R/W)	100.00%	—	17.51%
AREApervious	0.00 ac.	Open Space (Grass cover 50% to 75%)		A	0.00%
AREApervious	3.94 ac.	Open Space (Grass cover 50% to 75%)		C	33.53%
AREApervious	3.00 ac.	Woods-grass combination (Fair cover)		C	25.55%
AREApervious	0.00 ac.	Woods-grass combination (Fair cover)		B/D	0.00%
AREAwater surf.	2.75 ac.	Pond Water Surface		—	23.40%
TOTAL AREA =	11.75 ac.				100.00%
Weighted CN =	80.30		Tc = 10.00	minutes	
RUNOFF VOLUME =	6.10 ac.-ft.	25YR-24HR			

POST - DEVELOPED CONDITION

PROPOSED AREA	BASIN BREAKDOWN	BASIN FLOWS TO...
12.12 ac.	PROPOSED ROADWAY	Pond 1
12.12 ac.	Basin 1 WB	

BASIN NAME: Basin 1 WB
NODE NAME: Pond 1

STATION LIMITS		ROADWAY LENGTH	R/W Width	Width(s)	No. of Travel Lanes	Impervious Width(s)
634+10.00	648+35.00	1,425.00 ft.	120.00 ft.			
AREA impervious =	3.21 ac.		Average Travel Lane	12.00 ft.	3	36.00 ft.
AREA pervious =	6.28 ac.		Bike Lane	4.00 ft.	0	0.00 ft.
AREA POND =	2.63 ac.		Inside Curb & Gutter	2.25 ft.	0	0.00 ft.
AREA Total =	12.12 ac.		Outside Curb & Gutter	2.00 ft.	0	0.00 ft.
			Paved Shoulder	22.00 ft.	1	22.00 ft.
			Sidewalk	5.00 ft.	0	0.00 ft.
						Total Width: 58.00 ft.
						Add'l Pav't: 1.31 ac.

PROPOSED ROADWAY

BASIN NAME: Basin 1 WB

NODE NAME	Pond 1	LAND USE	% Impervious	SOILS TYPE	Percent of Area
AREApervious	3.21 ac.	Impervious areas (Dirt including R/W)		—	26.46%
AREApervious	3.11 ac.	Open Space (Grass cover 50% to 75%)		C	25.70%
AREApervious	0.00 ac.	Open Space (Grass cover 50% to 75%)		B/D	0.00%
AREApervious	3.00 ac.	Woods-grass combination (Fair cover)		C	24.77%
AREApervious	0.00 ac.	Woods-grass combination (Fair cover)		B/D	0.00%
AREAwater surf.	2.80 ac.	Pond Water Surface		—	23.07%
TOTAL AREA =	12.12 ac.				100.00%
Weighted CN =	85.70		Tc = 10.00	minutes	
RUNOFF VOLUME =	6.95 ac.-ft.	25YR-24HR			

Kimley-Horn

AND ASSOCIATES, Inc.
3660 Maguire Blvd., Suite 200
Orlando, Florida 32803

Made by: HDT Checked by: _____
DATE: January 2 2008 TIME: 9:32 AM
KHA Project Number: 049280002

PROJECT: **Street 'B' & I-4 Overpass**

POND DESIGN CALCULATIONS

BASIN NAME: **Basin 1 WB**
NODE NAME: **Pond 1**

WATER QUALITY CALCULATIONS

AREA CALCULATIONS:

Basin Designation	AREA TOTAL	AREA Imperv.	AREA perv.	AREA ws
Basin 1 WB	12.12 ac.	3.21 ac.	6.12 ac.	2.80 ac.
POND SITE	0.00 ac.	0.00 ac.	0.00 ac.	0.00 ac.
AREA SITE	0.00 ac.	0.00 ac.	0.00 ac.	0.00 ac.
TOTALS =	12.12 ac.	3.21 ac.	6.12 ac.	2.80 ac.

% Impervious = 26.46% % Pond R/W Area = 0.01%

WET-DETENTION TREATMENT VOLUME: 2.5" x AREA_{Impervious} or 1" x AREA_{Total}

2.50 inch VOLUME = 0.67 ac.-ft.
1 inch VOLUME = 1.01 ac.-ft.

USE V_{treatment} = **1.01 ac.-ft.**

USE A WET-BOTTOM DETENTION POND FOR Pond 1

STORAGE VOLUME REQUIREMENTS

Actual Q_{pre} = **89.06 cfs** as per the 25YR-24HR PRE-DEVELOPMENT HYDROGRAPH(S).
Q_{pre} = **66.80 cfs** PRE-DEVELOPMENT HYDROGRAPH(S) USING 75% OF Q_{pre}.
Q_{post} = **127.95 cfs** as per the 25YR-24HR POST-DEVELOPMENT HYDROGRAPH(S).
Q_{pre}/Q_{post} = 0.52
V_s/V_r = 0.27 (for the TYPE II & III, TR-55, 1986)
V_r = 6.95 ac.-ft.
V_s = (V_s/V_r) * V_r = 1.86 ac.-ft.
USE Volume = **1.90 ac.-ft.**

Permitted STAGE-STORAGE CALCULATIONS

STAGE (ft. NGVD)	AREA (ac.)	AVERAGE AREA (ac.)	INCRE DEPTH (ft.)	INCRE STORAGE (ac.-ft.)	TOTAL STORAGE (ac.-ft.)
NWL → 128.00	2.90	--	--	--	0.00
128.75	3.03	2.97	0.75	2.22	2.22
129.50	3.17	3.10	0.75	2.32	4.55
130.25	3.30	3.23	0.75	2.42	6.97
BANK → 131.00	3.43	3.36	0.75	2.52	9.50
TOP → 131.80	4.18	3.81	0.80	3.04	12.54

POND DESIGN

USE A WET-BOTTOM DETENTION POND FOR Pond 1

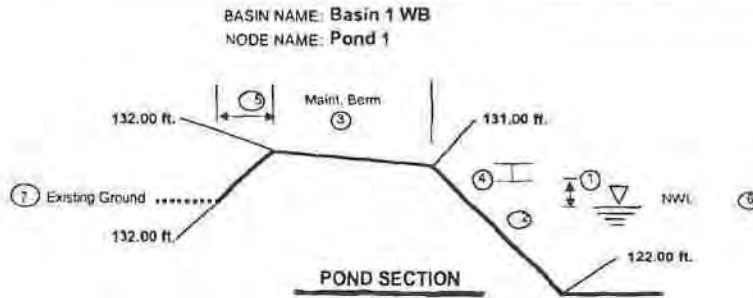
RAINFALL DEPTH: 8.60 in. for the 25YR-24HR Orange County
Water Management District: SFWM (SJRWMD, SFWMD, SWFWMD)
Zone: 7

①	MAXIMUM STORAGE DEPTH =	2.00 ft.				
②	POND SIDE-SLOPE RATIO =	4.00 : 1				
③	MAINTENANCE AREA WIDTH =	15.00 ft.	@ 15: 1			
④	MINIMUM FREEBOARD =	1.00 ft.				
⑤	POND TIE-IN WIDTH =	0.00 ft.	@ 2: 1			
⑥	INITIAL STAGE ELEVATION =	128.00 ft.				Treatment Stage = 128.40 ft.
⑦	EXISTING GROUND ELEVATION =	132.00 ft.				Required Treatment Volume = 1.01 ac.-ft.
	PROPOSED POND SHAPE =	3	IRREGULAR POND SHAPE			Required Attenuation Volume = 2.00 ac.-ft.
						Attenuation Stage = 128.70 ft.

STAGE	DESCRIPTION	AREA	DIMENSIONS		STORAGE
			Length	Width	
132.00 ft.	POND R/W Area =	3.89 ac.			
132.00 ft.	Back of Maint. Berm =	3.89 ac.			12.56 ac.-ft.
131.00 ft.	Front of Maint. Berm =	3.26 ac.			9.09 ac.-ft.
130.00 ft.	Treat/Storage Stage =	3.11 ac.			5.90 ac.-ft.
128.00 ft.	Initial Water Area =	2.80 ac.			0.00 ac.-ft.
126.00 ft.		2.50 ac.			
122.00 ft.	Pond Bottom =	2.08 ac.			

PROJECT: **Street 'B' & I-4 Overpass**

POND DESIGN CALCULATIONS



STAGE-STORAGE CALCULATIONS					
STAGE (ft. NGVD)	AREA (ac.)	AVERAGE AREA (ac.)	INCRE DEPTH (ft.)	INCRE STORAGE (ac.-ft.)	TOTAL STORAGE (ac.-ft.)
NWL → 128.00	2.80	-	-	-	0.00
128.67	2.90	2.85	0.67	1.90	1.90
129.33	3.00	2.95	0.67	1.97	3.87
130.00	3.11	3.05	0.67	2.04	5.90
BANK → 131.00	3.26	3.16	1.00	3.18	9.09
TOP → 132.00	3.89	3.58	1.00	3.58	12.66

REQUIRED TREATMENT VOLUME = 1.01 ac.-ft.
 REQUIRED TREATMENT STAGE = 128.35 ft.
 PROVIDED TREATMENT STAGE = 128.40 ft.
 PROVIDED TREATMENT VOLUME = 1.14 ac.-ft.

REQUIRED ATTENUATION/TREATMENT VOLUME = 1.90 ac.-ft.
 REQUIRED MAXIMUM STAGE = 128.67 ft. N.G.V.D.
 PROVIDED MAXIMUM STAGE = 128.70 ft. N.G.V.D.
 PROVIDED ATTENUATION/TREATMENT VOLUME = 2.00 ac.-ft.

Kimley-Horn

AND ASSOCIATES, Inc.
3660 Maguire Blvd., Suite 200
Orlando, Florida 32803

Made by HDT Ch'd by: _____
Date January 2 2008 Time 9:32 AM
KHA Project Number 049280002

PROJECT: Street 'B' & I-4 Overpass
BASIN NAME: Basin 2 EB
NODE NAME: Pond 2

PRE - DEVELOPED CONDITION

AREA	BASIN DESCRIPTION	BASIN FLOWS TO...
8.80 ac.	EXISTING ROADWAY & OFFSITE AREA	Ex Pond 2 EB
8.80 ac.	TOTAL BASIN AREAS	

EXISTING ROADWAY AREA

STATION LIMITS		ROADWAY LENGTH	R/W Width	Width(s)	No. of Travel Lanes	Impervious Width(s)	
633+55.50	648+56.41	1,502.91 ft.	120.00 ft.				
AREA impervious =	2.09 ac.		Average Travel Lane	12.00 ft.	3	36.00 ft.	
AREA pervious =	4.74 ac.		Inside Curb & Gutter	2.25 ft.	0	0.00 ft.	
AREA POND =	1.97 ac.		Outside Curb & Gutter	2.00 ft.	0	0.00 ft.	
AREA Total =	8.80 ac.		Paved Shoulder(s)	22.00 ft.	1	22.00 ft.	
			Sidewalk(s)	6.00 ft.	0	0.00 ft.	
						Total Width =	58.00 ft.
						Add'l Pav't.	0.09 ac.

EXISTING ROADWAY & OFFSITE AREA

BASIN NAME: EXISTING ROADWAY & OFFSITE AREA
NODE NAME: Ex Pond 2 EB

NODE NAME	Ex Pond 2 EB	LAND USE DESCRIPTION	% Impervious	SOILS TYPE	Percent of Area
AREApervious	2.09 ac.	Impervious areas (Dirt including R/W)	100.00%	—	23.76%
AREApervious	0.00 ac.	Open Space (Grass cover 50% to 75%)		A	0.00%
AREApervious	4.74 ac.	Open Space (Grass cover 50% to 75%)		C	53.85%
AREApervious	0.00 ac.	Woods-grass combination (Fair cover)		C	0.00%
AREApervious	0.00 ac.	Woods-grass combination (Fair cover)		B/D	0.00%
AREAwater surf	1.97 ac.	Pond Water Surface		—	22.39%
TOTAL AREA =	8.80 ac.				100.00%
Weighted CN =	86.10		Tc = 10.00	minutes.	
RUNOFF VOLUME =	5.01 ac.-ft.	25YR-24HR			

POST - DEVELOPED CONDITION

PROPOSED AREA	BASIN BREAKDOWN	BASIN FLOWS TO...
8.30 ac.	PROPOSED ROADWAY	Pond 2
8.30 ac.	Basin 2 EB	

BASIN NAME: Basin 2 EB
NODE NAME: Pond 2

STATION LIMITS		ROADWAY LENGTH	R/W Width	Width(s)	No. of Travel Lanes	Impervious Width(s)	
633+55.50	649+20.98	1,565.48 ft.	120.00 ft.				
AREA impervious =	2.09 ac.		Average Travel Lane	12.00 ft.	3	36.00 ft.	
AREA pervious =	3.48 ac.		Bike Lane	4.00 ft.	0	0.00 ft.	
AREA POND =	2.73 ac.		Inside Curb & Gutter	2.25 ft.	0	0.00 ft.	
AREA Total =	8.30 ac.		Outside Curb & Gutter	2.00 ft.	0	0.00 ft.	
			Paved Shoulder	22.00 ft.	1	22.00 ft.	
			Sidewalk	5.00 ft.	0	0.00 ft.	
						Total Width =	58.00 ft.
						Add'l Pav't.	0.01 ac.

PROPOSED ROADWAY

BASIN NAME: Basin 2 EB
NODE NAME: Pond 2

NODE NAME	Pond 2	LAND USE	% Impervious	SOILS TYPE	Percent of Area
AREApervious	2.09 ac.	Impervious areas (Dirt including R/W)		—	25.23%
AREApervious	3.48 ac.	Open Space (Grass cover 50% to 75%)		C	41.92%
AREApervious	0.00 ac.	Open Space (Grass cover 50% to 75%)		B/D	0.00%
AREApervious	0.00 ac.	Woods-grass combination (Fair cover)		C	0.00%
AREApervious	0.00 ac.	Woods-grass combination (Fair cover)		B/D	0.00%
AREAwater surf	2.73 ac.	Pond Water Surface		—	32.84%
TOTAL AREA =	8.30 ac.				100.00%
Weighted CN =	88.40		Tc = 10.00	minutes.	
RUNOFF VOLUME =	4.91 ac.-ft.	25YR-24HR			

Kimley-Horn

AND ASSOCIATES, Inc.
3660 Maguire Blvd., Suite 200
Orlando, Florida 32803

Made by: HDT Checked by: _____
DATE: January 2 2008 TIME: 9:32 AM
KHA Project Number: 049280002

PROJECT: **Street 'B' & I-4 Overpass**

POND DESIGN CALCULATIONS

BASIN NAME: **Basin 2 EB**
NODE NAME: **Pond 2**

WATER QUALITY CALCULATIONS

AREA CALCULATIONS:

Basin Designation	AREA TOTAL	AREA Imperv.	AREA perv.	AREA ws
Basin 2 EB	8.30 ac.	2.09 ac.	3.48 ac.	2.73 ac.
POND SITE	0.00 ac.	0.00 ac.	0.00 ac.	0.00 ac.
AREA SITE	0.00 ac.	0.00 ac.	0.00 ac.	0.00 ac.
TOTALS =	8.30 ac.	2.09 ac.	3.48 ac.	2.73 ac.

% Impervious = 25.23% % Pond R/W Area = 0.01%

WET-DETENTION TREATMENT VOLUME: 2.5" x AREA_{Impervious} or 1" x AREA_{Total}

2.50 inch VOLUME = 0.44 ac.-ft.
1 inch VOLUME = 0.69 ac.-ft.

USE V_{treatment} = **0.69** ac.-ft.

USE A WET-BOTTOM DETENTION POND FOR Pond 2

STORAGE VOLUME REQUIREMENTS

Actual Q_{pre} = **89.06 cfs** as per the 25YR-24HR PRE-DEVELOPMENT HYDROGRAPH(S).
Q_{pre} = **66.80 cfs** PRE-DEVELOPMENT HYDROGRAPH(S) USING 75% OF Q_{pre}.
Q_{post} = **127.95 cfs** as per the 25YR-24HR POST-DEVELOPMENT HYDROGRAPH(S).
Q_{pre}/Q_{post} = 0.52
V_s/V_r = 0.27 (for the TYPE II & III, TR-55, 1986)
V_r = 4.92 ac.-ft.
V_s = (V_s/V_r) * V_r = 1.32 ac.-ft.
USE Volume = 1.35 ac.-ft.

Permitted STAGE-STORAGE CALCULATIONS

STAGE (ft. NGVD)	AREA (ac.)	AVERAGE AREA (ac.)	INCRE DEPTH (ft.)	INCRE STORAGE (ac.-ft.)	TOTAL STORAGE (ac.-ft.)
NWL → 128.50	2.38	--	--	--	0.00
129.25	2.50	2.44	0.75	1.83	1.83
130.00	2.61	2.55	0.75	1.91	3.74
130.75	2.73	2.67	0.75	2.00	5.74
BANK → 131.50	2.84	2.78	0.75	2.09	7.83
TOP → 132.50	3.50	3.17	1.00	3.17	11.00

POND DESIGN

USE A WET-BOTTOM DETENTION POND FOR Pond 2

RAINFALL DEPTH: 8.60 in. for the 25YR-24HR Orange County
Water Management District: SFWM (SJRWMD, SFWMD, SWFWMD)
Zone: 7

①	MAXIMUM STORAGE DEPTH =	1.00 ft.	
②	POND SIDE-SLOPE RATIO =	4.00 : 1	
③	MAINTENANCE AREA WIDTH =	20.00 ft.	@ 10 : 1
④	MINIMUM FREEBOARD =	1.00 ft.	
⑤	POND TIE-IN WIDTH =	1.00 ft.	@ 2 : 1
⑥	INITIAL STAGE ELEVATION =	128.50 ft.	
⑦	EXISTING GROUND ELEVATION =	132.00 ft.	
	PROPOSED POND SHAPE =	3	IRREGULAR POND SHAPE

Treatment Stage = 128.80 ft.
Required Treatment Volume = 0.69 ac.-ft.
Required Attenuation Volume = 1.47 ac.-ft.
Attenuation Stage = 129.05 ft.

STAGE	DESCRIPTION	TOTAL POND AREA	AREA		STORAGE
			Pond 2A	Pond 2B	
132.00 ft.	POND R/W Area =	4.58 ac.	2.29 ac.	2.03 ac.	
132.50 ft.	Back of Maint. Berm =	3.29 ac.	1.75 ac.	1.54 ac.	11.84 ac.-ft.
130.50 ft.	Front of Maint. Berm =	2.96 ac.	1.55 ac.	1.41 ac.	5.59 ac.-ft.
129.50 ft.	Treat/Storage Stage =	2.80 ac.	1.45 ac.	1.34 ac.	2.71 ac.-ft.
128.50 ft.	Initial Water Area =	2.63 ac.	1.35 ac.	1.28 ac.	0.00 ac.-ft.
124.50 ft.		1.88 ac.	1.00 ac.	0.88 ac.	
120.00 ft.	Pond Bottom =	1.54 ac.	0.82 ac.	0.72 ac.	

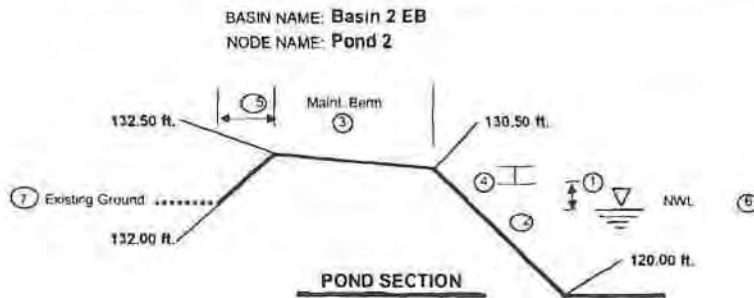
Kimley-Horn

AND ASSOCIATES, Inc.
3650 Maguire Blvd., Suite 200
Orlando, Florida 32803

Made by: HDT Checked by: _____
DATE: January 2 2008 TIME: 9.32 AM
KHA Project Number: 043280002

PROJECT: **Street 'B' & I-4 Overpass**

POND DESIGN CALCULATIONS



STAGE-STORAGE CALCULATIONS					
STAGE (ft. NGVD)	AREA (ac.)	AVERAGE AREA (ac.)	INCRE DEPTH (ft.)	INCRE STORAGE (ac.-ft.)	TOTAL STORAGE (ac.-ft.)
NWL → 128.50	2.63	-	-	-	0.00
128.83	2.69	2.66	0.33	0.89	0.89
129.17	2.74	2.71	0.33	0.90	1.79
129.50	2.80	2.77	0.33	0.92	2.71
BANK → 130.50	2.96	2.86	1.00	2.88	5.59
TOP → 132.50	3.29	3.13	2.00	6.25	11.84

REQUIRED TREATMENT VOLUME = 0.69 ac.-ft.
REQUIRED TREATMENT STAGE = 128.76 ft.
PROVIDED TREATMENT STAGE = 128.80 ft.
PROVIDED TREATMENT VOLUME = 0.80 ac.-ft.

REQUIRED ATTENUATION/TREATMENT VOLUME = 1.35 ac.-ft.
REQUIRED MAXIMUM STAGE = 129.00 ft. N.G.V.D.
PROVIDED MAXIMUM STAGE = 129.05 ft. N.G.V.D.
PROVIDED ATTENUATION/TREATMENT VOLUME = 1.47 ac.-ft.

Jacobs Civil Inc.
Project No. E9X94700

volumes from the adjacent, future I-4 Segment 9 project, which also drains to Wetland 7AS, will be somewhat less than existing (per ERP 44011896.024). The reduced flow from Segment 9 should allow for the small (< 1 cfs) increase from Segment 7.

Pond 7-7 can hold the SWFWMD 100-year 24-hour storm runoff well below the top of the pond embankment.

Closed Basin Retention:

The project has been designed to meet the SWFWMD Closed Basin retention requirements, as shown in Table B.7, Closed Basin Retention Volumes (*not included herein – no change*). The 100-year 24-hour Post-development peak volume totals to be directly released to each Closed Basin are less than the respective Pre-development volumes. The Wetland 7AS basin is, again, the minor exception to the volume reduction trend. However, floodplain compensation is included adjacent to Wetland 7AS to specifically offset the additional 100 yr volume to be released from Segment 7 to Wetland 7AS.

Design Criteria:

Treatment Volume:

Dry Detention/Retention Volume:

Treat one-half inch of runoff from the contributing basin. The total detention/retention volume shall be available again within 72 hours.

Wet Detention Volume:

Treat one inch of runoff from the contributing basin. The treatment volume shall not totally recover in less than 120 hours with no more than half of the total volume being recovered within the first 60 hours. A wet detention pond must include a minimum 35% littoral zone near the outfall.

Attenuation:

A method accepted by SWFWMD for computing runoff hydrology uses the Program ICPR® (Streamline Technologies, Inc.) to determine runoff hydrographs (via NRCS Unit Hydrograph methodology), and to model the effects of changing the runoff characteristics of the improvements and the flow attenuation provided by the designed flow control and treatment facilities.

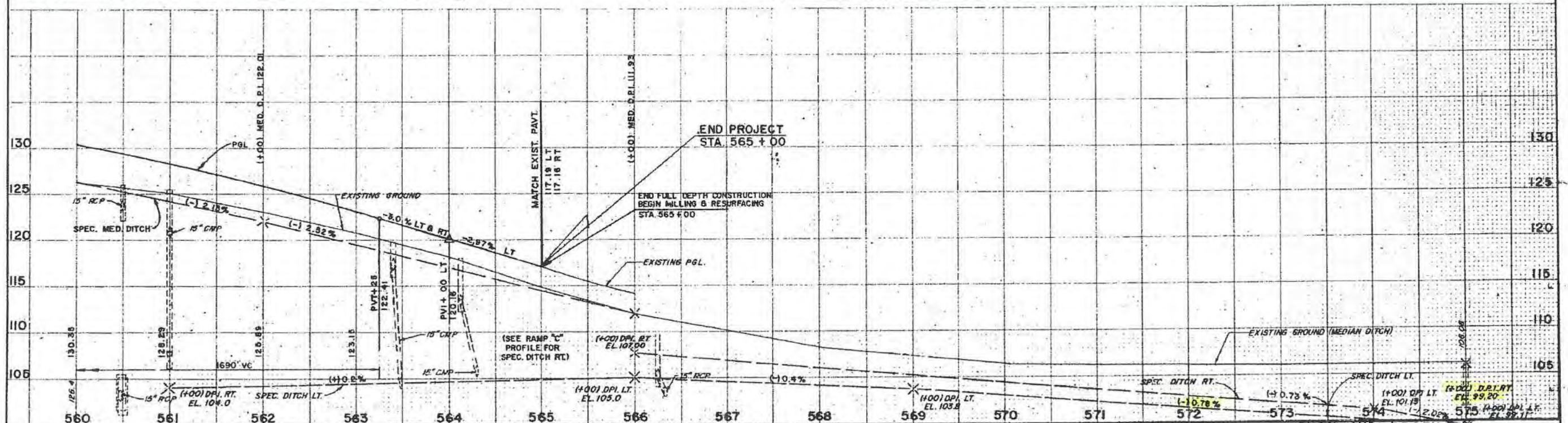
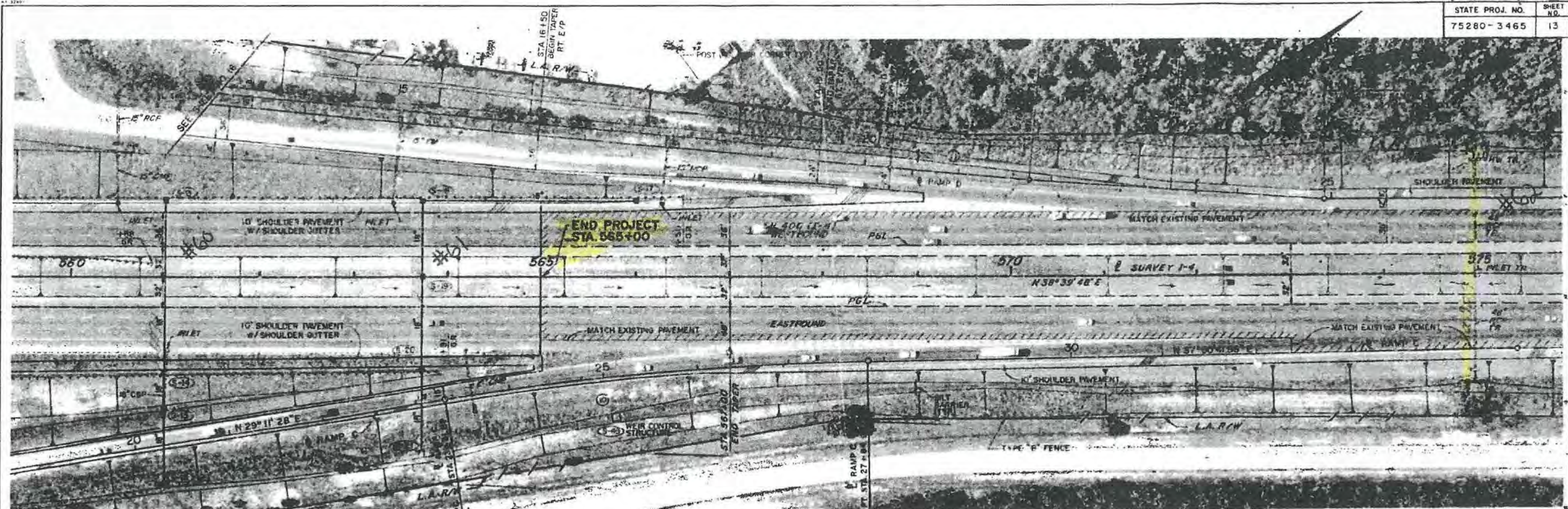
SWFWMD requires that detention systems attenuate the post-development peak rate to the pre-development rate for the 25-year 24-hour storm. The Florida Modified NRCS Type II Rainfall Distribution and Unit Hydrograph methodology are accepted standards for developing detention system inflow hydrographs. The stages in the ponds are also checked for the 100-year 24-hour storm impacts.

FDOT requires a critical duration analysis. For the critical duration analysis, the detention system will attenuate the post-development storms for all frequencies (2-year through 100-year) for the critical duration (1-hour through 10-day) FDOT

SWFWMD
OCT 30 2003
FLORIDA WATER MANAGEMENT DISTRICT
OCT 28 2003
RECEIVED
DON BARTOW

#60 #61 #62

STATE PROJ. NO. 75280-3465 SHEET NO. 13

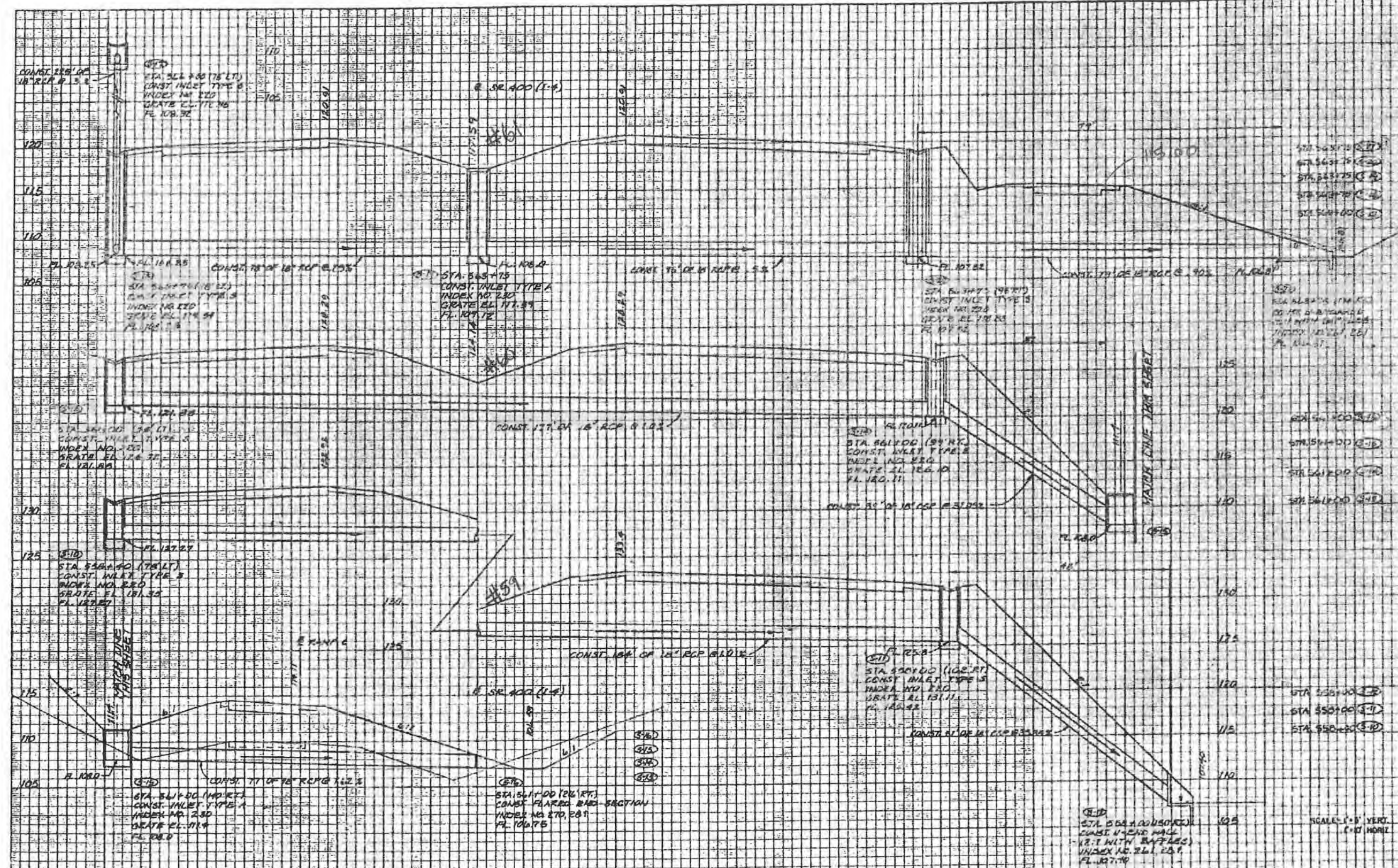


DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
RC	RC	2/86	RC	RC	2/86
CHECKED BY	TH	3/92	CHECKED BY	TH	3/92
SUPERVISED BY			SUPERVISED BY		

FLORIDA DEPARTMENT OF TRANSPORTATION	
APPROVED BY	DATE

PLAN AND PROFILE
 SR. 400 (1-4)
 STA. 560+00 TO STA. 575+00



- STA. 565+75 (S-10)
- STA. 565+75 (S-11)
- STA. 565+75 (S-12)
- STA. 565+75 (S-13)
- STA. 565+75 (S-14)

- STA. 565+100 (S-15)
- STA. 565+100 (S-16)
- STA. 565+100 (S-17)
- STA. 565+100 (S-18)

- STA. 565+100 (S-19)
- STA. 565+100 (S-20)
- STA. 565+100 (S-21)

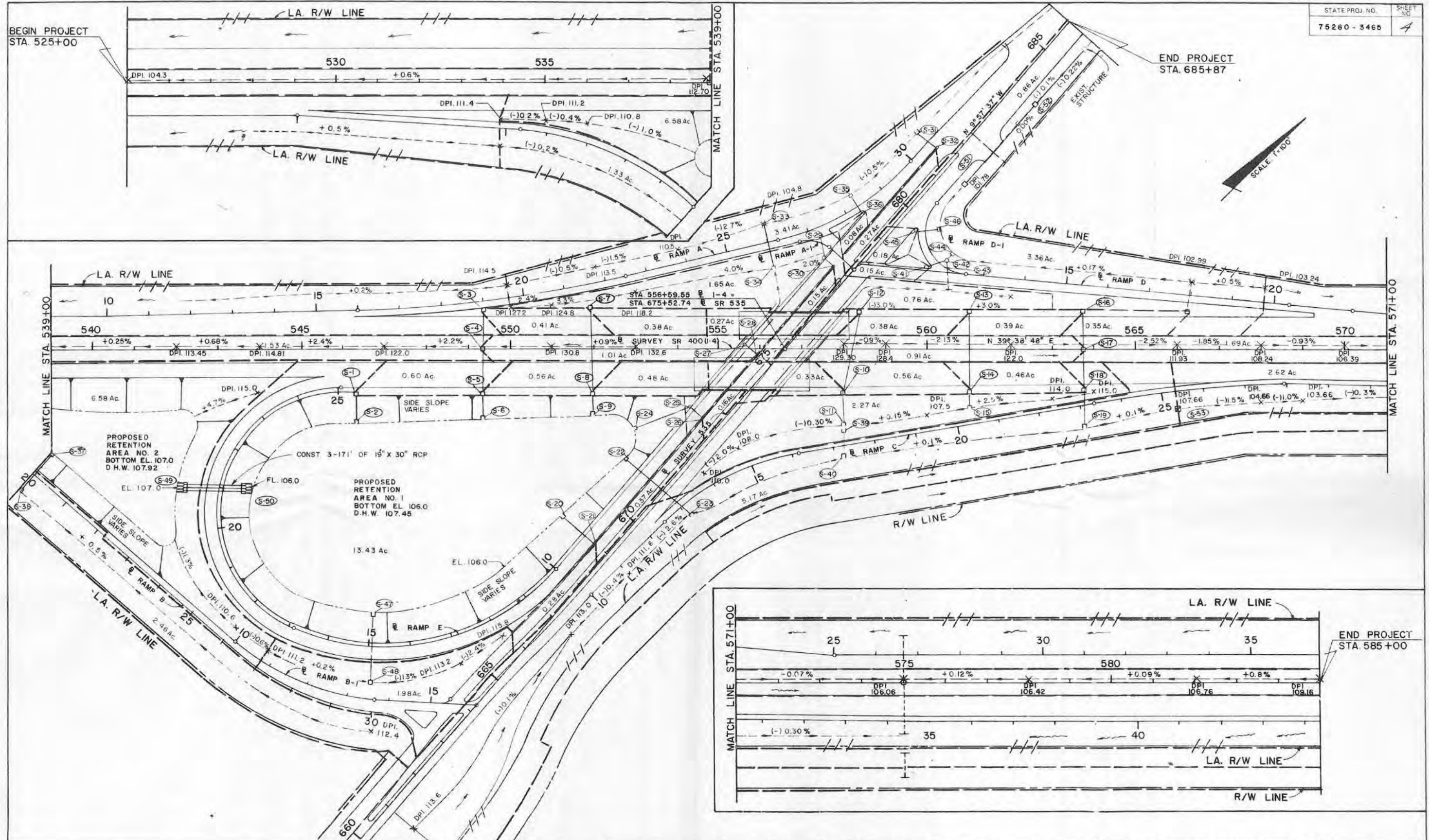
SCALE: 1" = 5' VERT.
1" = 10' HORIZ.

REVISIONS	
DATE	DESCRIPTION

DESIGNED BY	R.C.	DATE	2/86	DRAWN BY	GKM	DATE	4/92
CHECKED BY	FG.	DATE	4/92	FILED BY	FG.	DATE	6/92
SUPERVISED BY							

FLORIDA DEPARTMENT OF TRANSPORTATION

**SR. 400 (I-4)
DRAINAGE STRUCTURES
S-10 TO S-21**



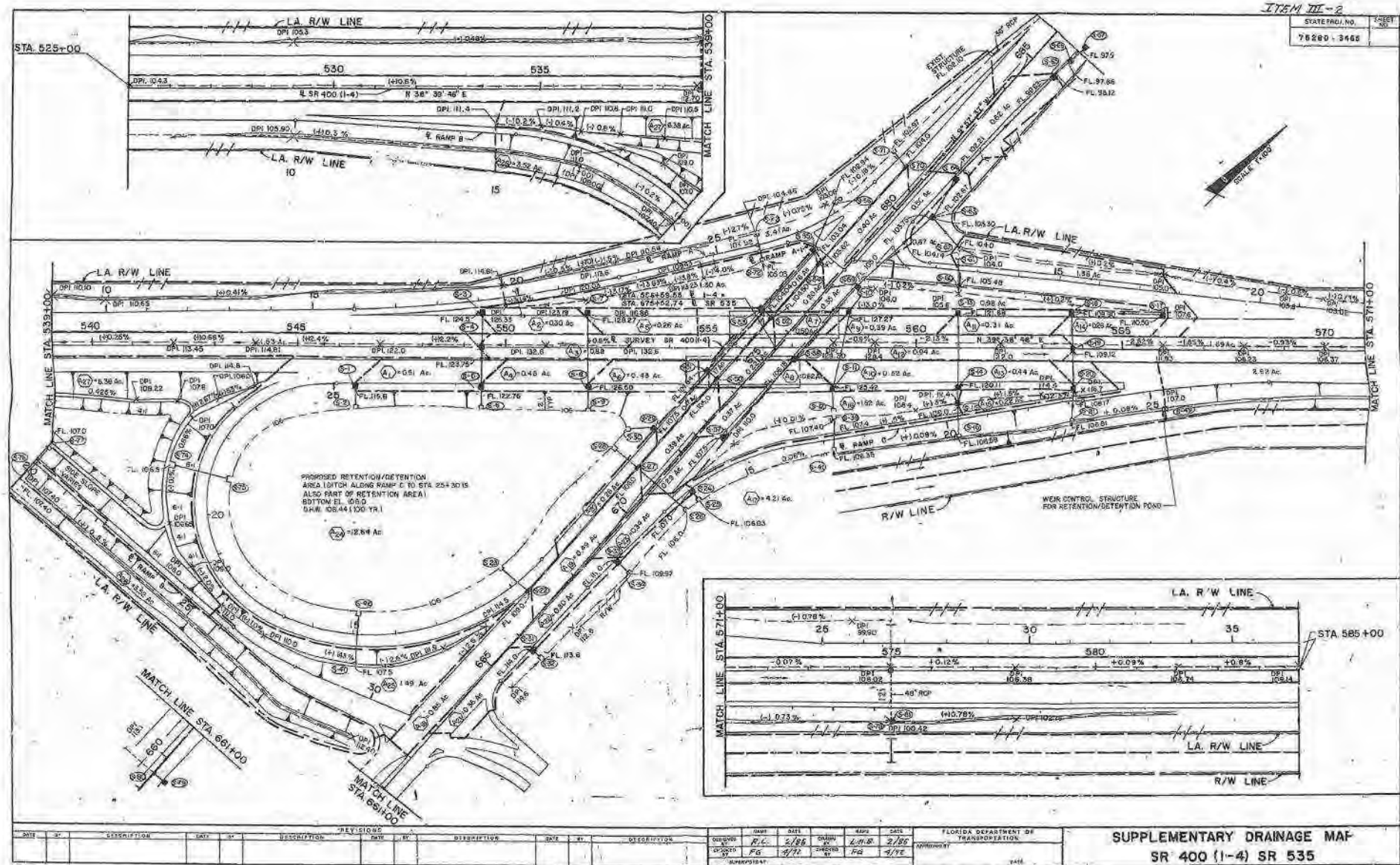
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
CHECKED BY			CHECKED BY		
SUPERVISED BY					

FLORIDA DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY DRAINAGE MAP
SR 400 (I-4) SR 535

APR 0 1988 60% 5/15/87

ITEM III-2
 STATE PROJ. NO. 78280-2466

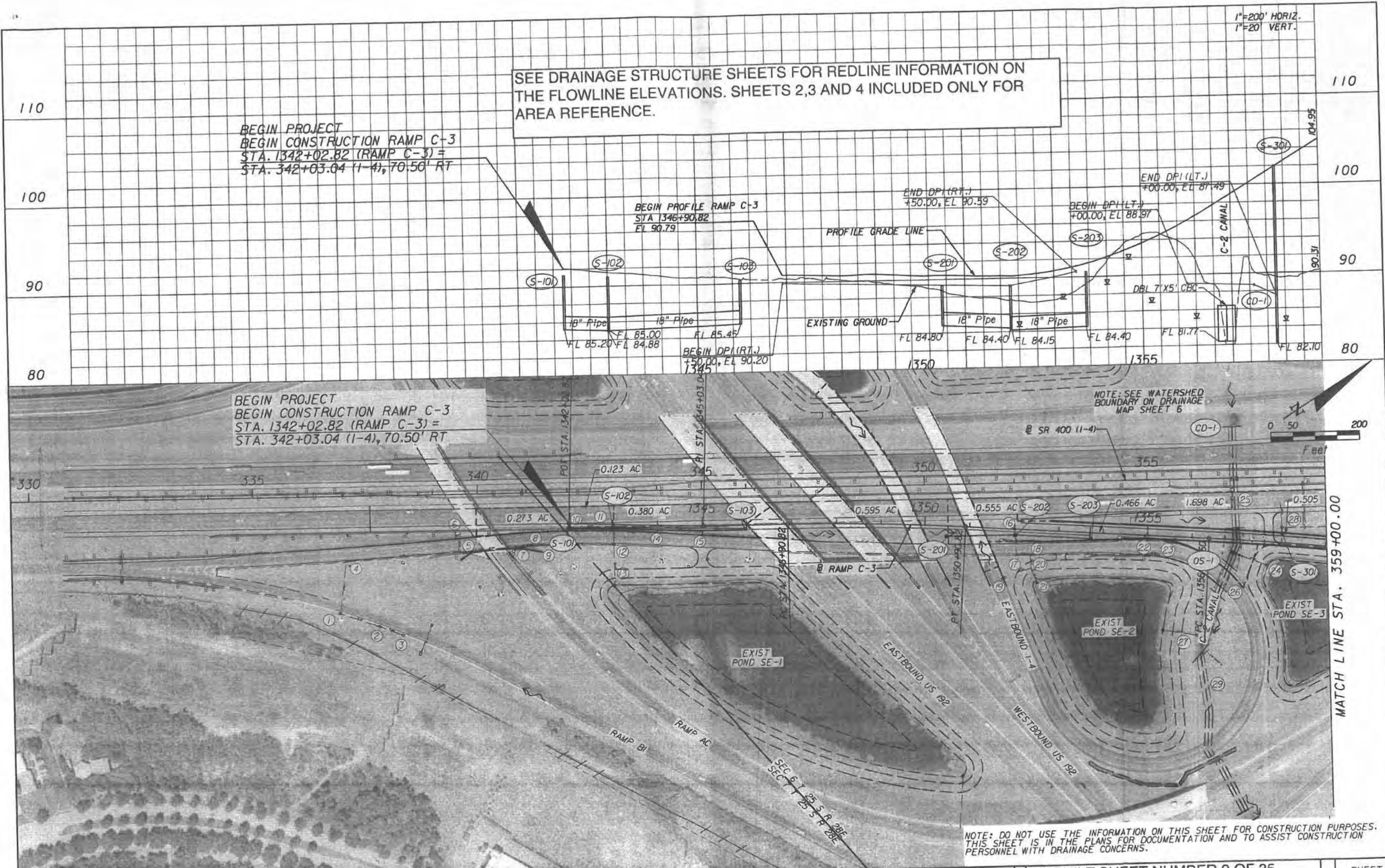


1"=200' HORIZ.
1"=20' VERT.

SEE DRAINAGE STRUCTURE SHEETS FOR REDLINE INFORMATION ON THE FLOWLINE ELEVATIONS. SHEETS 2,3 AND 4 INCLUDED ONLY FOR AREA REFERENCE.

BEGIN PROJECT
BEGIN CONSTRUCTION RAMP C-3
STA. 1342+02.82 (RAMP C-3) =
STA. 342+03.04 (I-4), 70.50' RT

BEGIN PROJECT
BEGIN CONSTRUCTION RAMP C-3
STA. 1342+02.82 (RAMP C-3) =
STA. 342+03.04 (I-4), 70.50' RT



NOTE: SEE WATERSHED BOUNDARY ON DRAINAGE MAP SHEET 6

NOTE: DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

MATCH LINE STA. 359+00.00

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 6615-23.003, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

KCG
KELLY, COLLINS & GENTRY, INC.
 ENGINEERING / PLANNING
 1700 N. ORANGE AVE., SUITE 400 ORLANDO, FL 32804
 407-898-7858 CERT. OF AUTHORIZATION NO. 7350
 ROBERT G. BUTTERFIELD, P.E. LICENSE NO. 44637

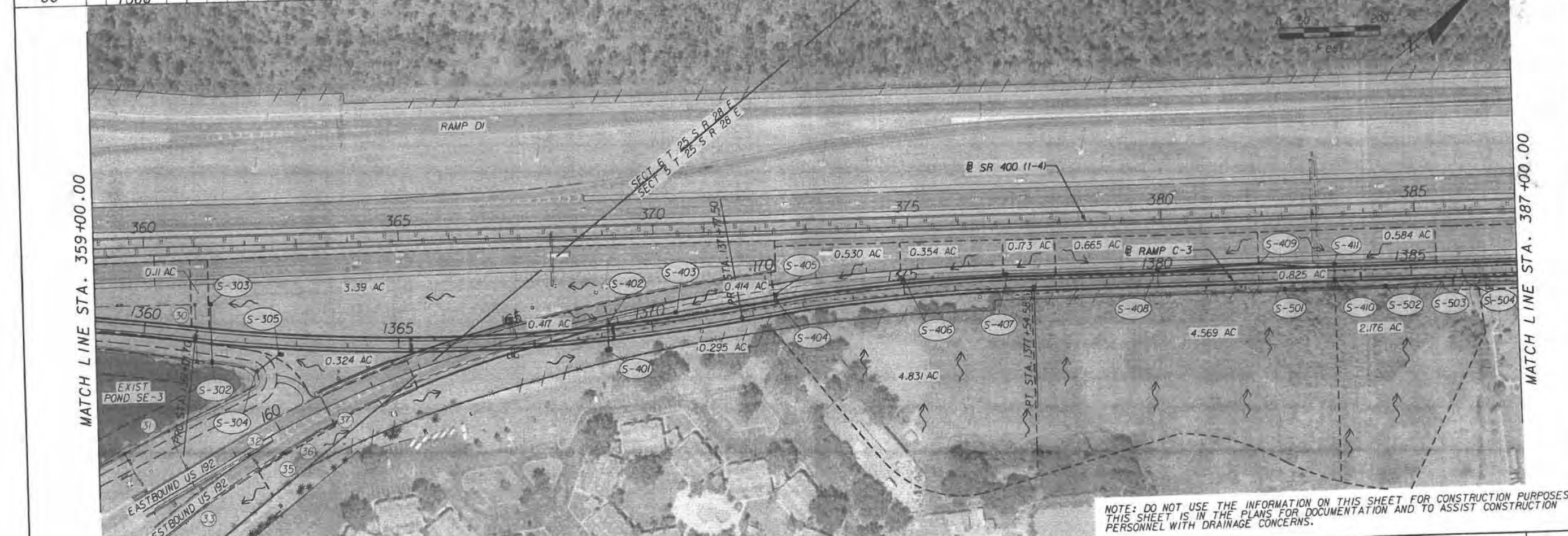
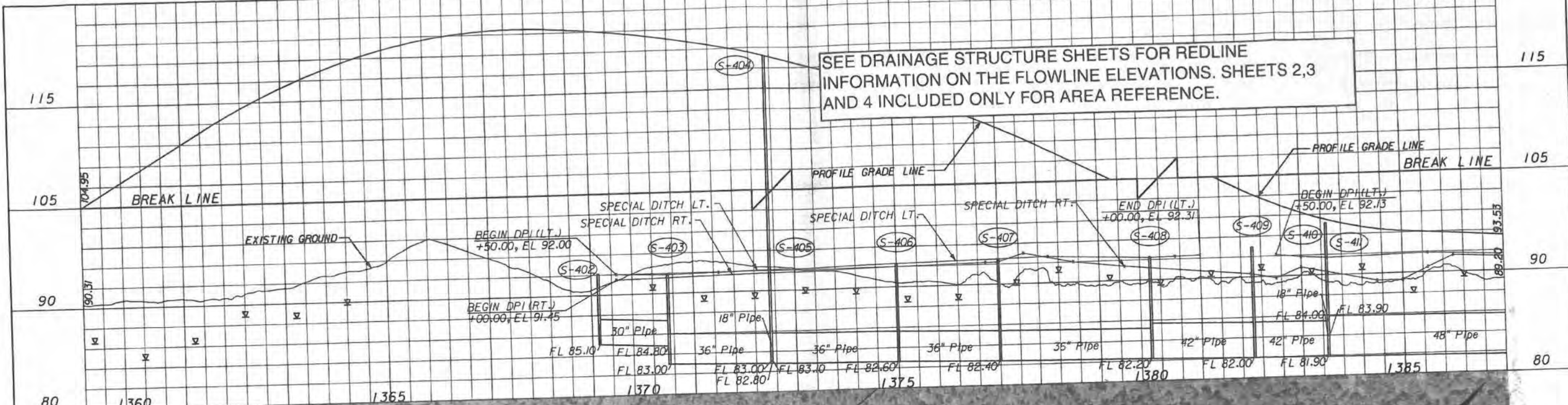
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	416518-1-52-01

AS-BUILT SHEET NUMBER 2 OF 35
DRAINAGE MAP

SHEET NO.
4

1"=200' HORIZ.
1"=20' VERT.

SEE DRAINAGE STRUCTURE SHEETS FOR REDLINE INFORMATION ON THE FLOWLINE ELEVATIONS. SHEETS 2,3 AND 4 INCLUDED ONLY FOR AREA REFERENCE.



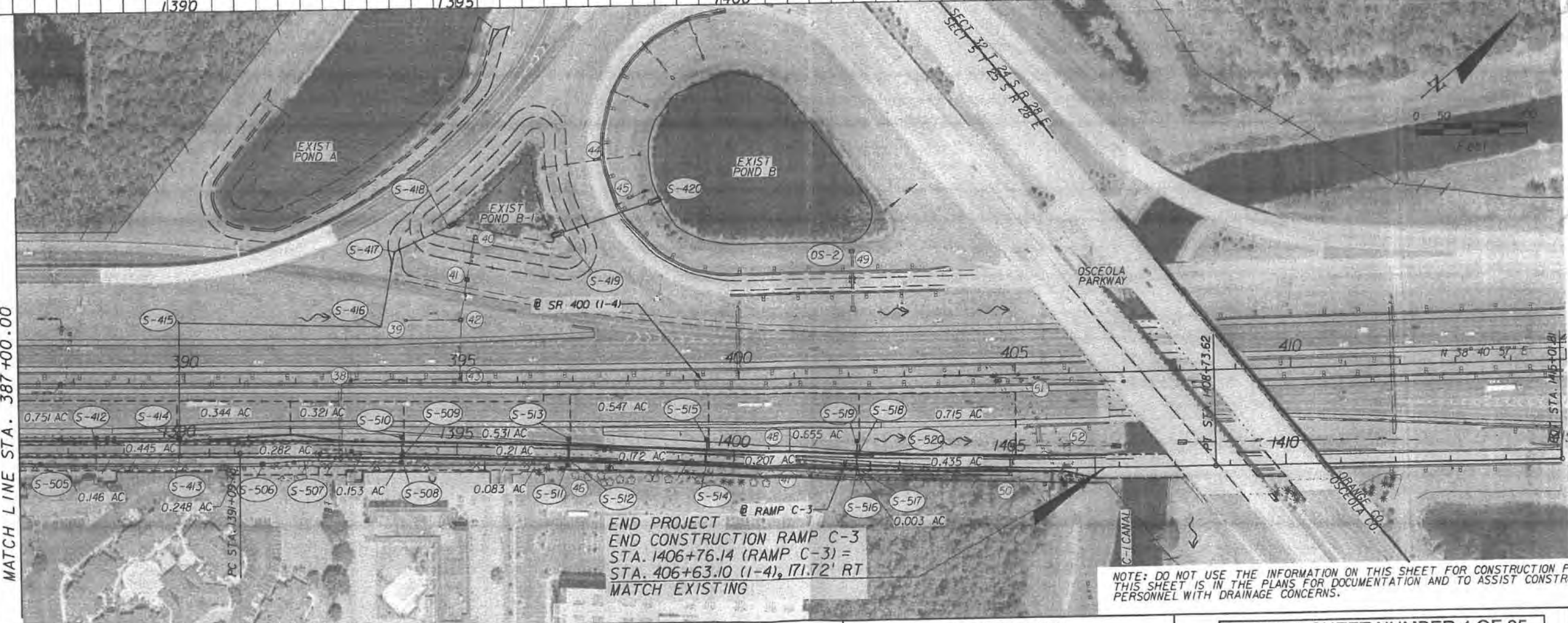
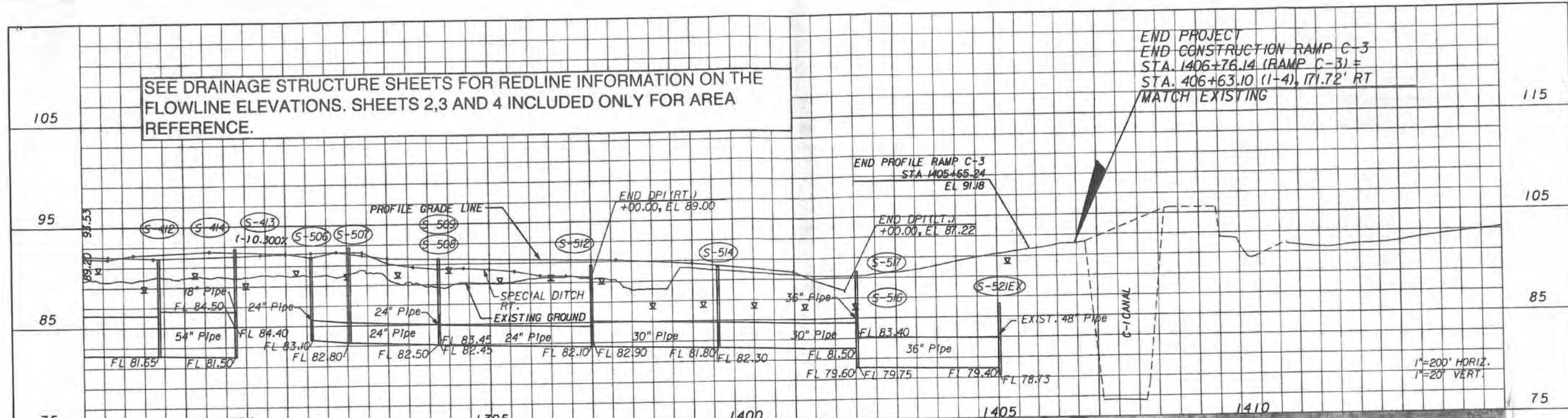
NOTE: DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 68G05-23.003, F.A.C.

<table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> <th colspan="2">DESCRIPTION</th> </tr> <tr> <th>DATE</th> <th>BY</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		REVISIONS		DESCRIPTION		DATE	BY	DATE	BY					<p>KELLY, COLLINS & GENTRY, INC. ENGINEERING / PLANNING 1700 N. ORANGE AVE., SUITE 400 ORLANDO, FL 32804 407-888-7888 CERT. OF AUTHORIZATION NO. 7350 ROBERT G. BUTTERFIELD, P.E. LICENSE NO. 44637</p>	<p>STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION</p> <table border="1"> <tr> <th>ROAD NO.</th> <th>COUNTY</th> <th>FINANCIAL PROJECT ID</th> </tr> <tr> <td>400</td> <td>OSCEOLA</td> <td>416518-1-52-01</td> </tr> </table>		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	400	OSCEOLA	416518-1-52-01	<p>AS-BUILT SHEET NUMBER 3 OF 35</p> <p>DRAINAGE MAP</p>	<p>SHEET NO.</p> <p>5</p>
REVISIONS		DESCRIPTION																						
DATE	BY	DATE	BY																					
ROAD NO.	COUNTY	FINANCIAL PROJECT ID																						
400	OSCEOLA	416518-1-52-01																						
<p>DATE: 7/28/2011 10:25:05 AM</p>		<p>FILE: R:\Highway\work\4-16518\5201\drainage\DRMPDRP29.dgn</p>																						

SEE DRAINAGE STRUCTURE SHEETS FOR REDLINE INFORMATION ON THE FLOWLINE ELEVATIONS. SHEETS 2,3 AND 4 INCLUDED ONLY FOR AREA REFERENCE.

END PROJECT
END CONSTRUCTION RAMP C-3
STA. 1406+76.14 (RAMP C-3) =
STA. 406+63.10 (1-4), 171.72' RT
MATCH EXISTING



MATCH LINE STA. 387+00.00

END PROJECT
END CONSTRUCTION RAMP C-3
STA. 1406+76.14 (RAMP C-3) =
STA. 406+63.10 (1-4), 171.72' RT
MATCH EXISTING

NOTE: DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 6015-23.003, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

KCG KELLY, COLLINS & GENTRY, INC.
ENGINEERING / PLANNING
1700 N. ORANGE AVE., SUITE 400 ORLANDO, FL 32804
407-898-7888 CERT. OF AUTHORIZATION NO. 7350
ROBERT G. BUTTERFIELD, P.E. LICENSE NO. 44637

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	OSCEOLA	416518-1-52-01

AS-BUILT SHEET NUMBER 4 OF 35
DRAINAGE MAP

SHEET NO.
6

Permit No. 48-01583-P
Application No. 090610-12, 080205-41
Wildwood Area Road Network

SFWMD - WATER QUALITY CRITERIA

WET DETENTION POND C

Basin Area = 77.69 acres

Pervious Area = 16.81 acres

Water surface area = 7.05 acres

Roof Area = 0.00 acres

Impervious Area (Excluding water surface/roof area) = 53.83 acres

1. Compute the first 1-inch of runoff from the developed project:

$$\begin{aligned} &= 1 \text{ inch} \times 77.69 \text{ ac.} \times (1\text{ft}/12\text{in}) \\ &= 6.47 \text{ ac-ft. for the first inch of runoff} \end{aligned}$$

2. Compute 2.5-inches times the percentage of imperviousness:

a. Site area for water quality pervious/impervious calculations only:

$$\begin{aligned} &= \text{Total project} - (\text{water surface} + \text{roof}) \\ &= 77.69 \text{ ac.} - (7.05 \text{ ac.} + 0.00 \text{ ac.}) \\ &= 77.69 \text{ ac.} - 7.05 \text{ ac.} \\ &= 70.64 \text{ acres of site area for water quality pervious/impervious} \end{aligned}$$

b. Impervious area for water quality pervious/impervious calculations only:

$$\begin{aligned} &= (\text{Site area for water quality pervious/impervious}) - \text{pervious area} \\ &= 70.64 \text{ ac.} - 16.81 \text{ ac.} \\ &= 53.83 \text{ acres of impervious area for water quality pervious/impervious} \end{aligned}$$

c. Percentage of impervious for water quality:

$$\begin{aligned} &= (\text{Impervious area for water quality}/\text{Site area for water quality}) \times 100\% \\ &= (53.83 \text{ ac.} / 70.64 \text{ ac.}) \times 100\% \\ &= 76.2\% \text{ impervious} \end{aligned}$$

d. For 2.5 inches times the percentage impervious:

$$\begin{aligned} &= 2.5 \text{ in.} \times 0.76 \\ &= 1.91 \text{ inches to be treated} \end{aligned}$$

e. Compute volume required for water quality Wet Detention:

$$\begin{aligned} &= \text{inches to be treated} \times (\text{total site} - \text{lakes}) \\ &= 1.91 \times (77.69 \text{ ac.} - 7.05 \text{ ac.}) \times (1\text{ft}/12\text{in}) \\ &= 11.21 \text{ acre-ft. required wet detention storage} \end{aligned}$$

REQUIRED DETENTION VOLUME = 11.21 ACRE-FT. = 488,507 CF

PROVIDED DETENTION VOLUME = 11.94 ACRE-FT. = 520,106 CF

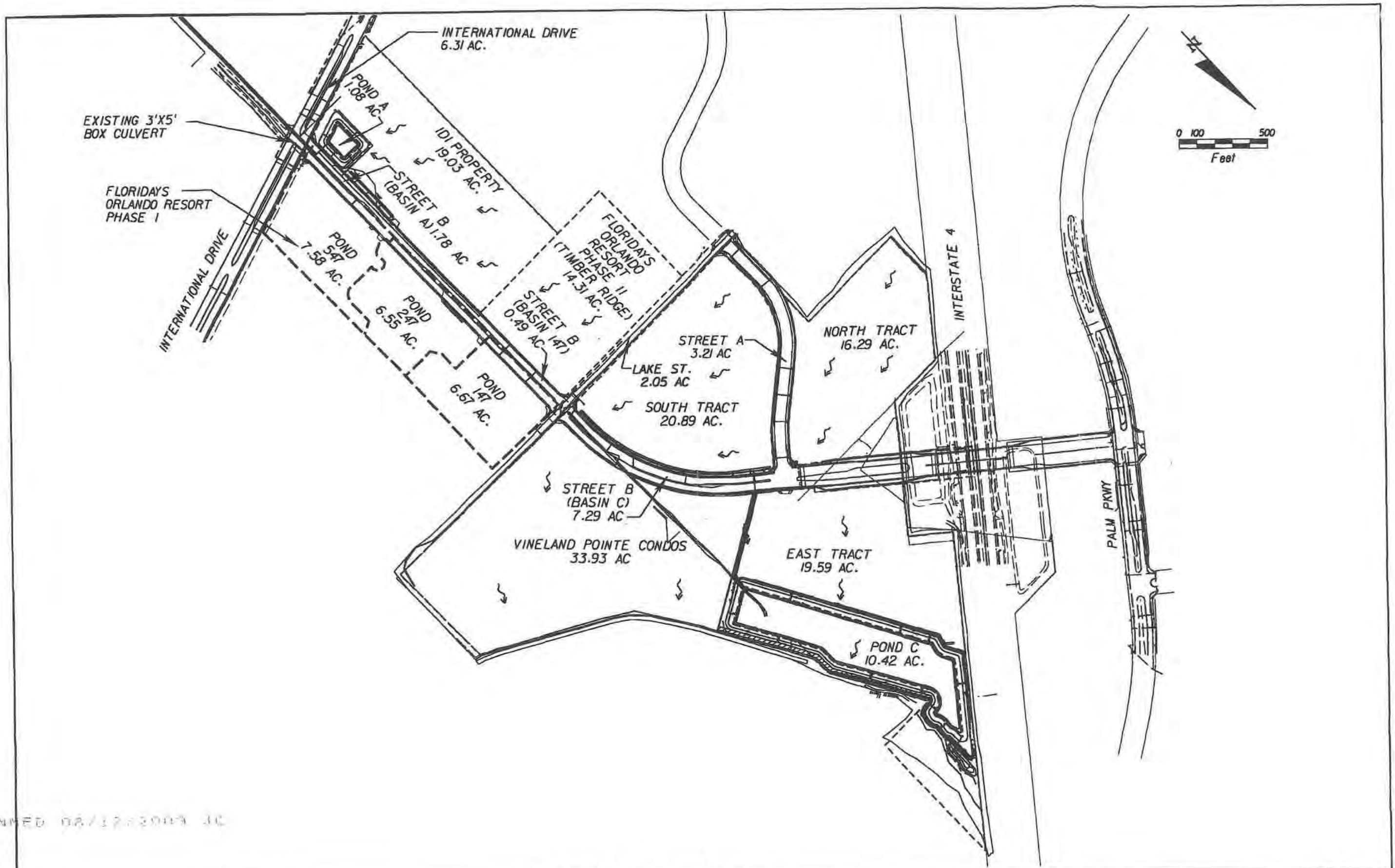
REVISED STORAGE FOR POND C

REVISED WET POND C (PERMIT #48-01583-P)			
Stage	Area (ac.)	Volume (ac.-ft.)	Sum Volume (ac.-ft.)
112.00	7.43	-	-
113.00	7.75	7.5896	7.5896
114.00	8.08	7.9151	15.5048
115.00	8.41	8.2430	23.7477
116.00	8.74	8.5731	32.3209
117.00	9.07	8.9056	41.2265
117.50	9.58	4.6634	45.8899
118.50	10.95	10.2666	56.1565

NWL


TOP

Top of Control Structure:	117.5	FT
Rectangular Weir Elevation:	113.55	FT
Required PAV:	11.52	AC-FT
Provided PAV:	11.94	AC-FT



SCANNED 08/12/2009 JC

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

 Kinley-Horn and Associates, Inc.
 Corporate Registration No. CA 0000686
 Jay R. Jackson, P.E.
 PE Number 54247
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

 ORANGE COUNTY GOVERNMENT
 ORANGE COUNTY DEPARTMENT OF PUBLIC WORKS

PROPOSED DRAINAGE BASINS

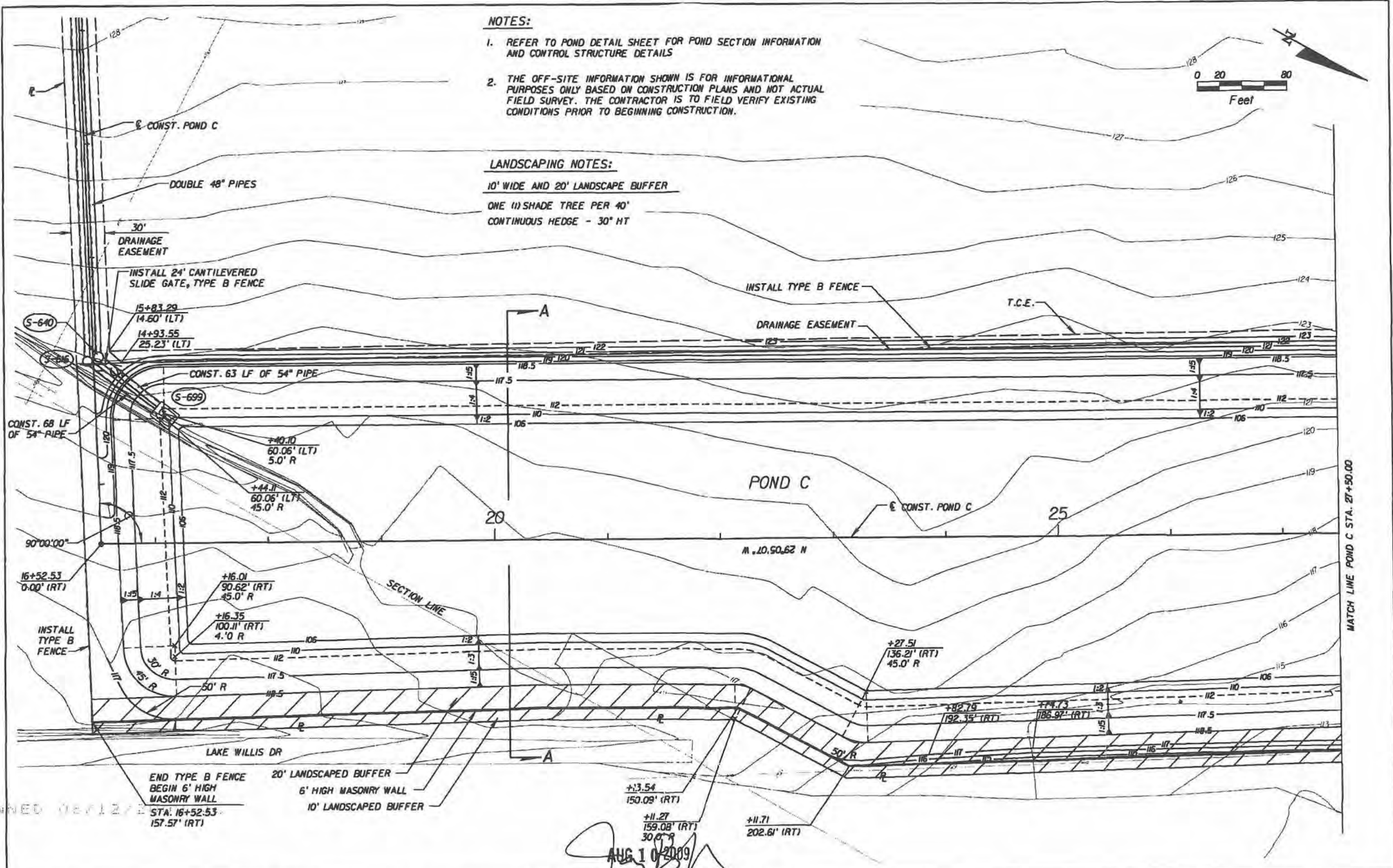
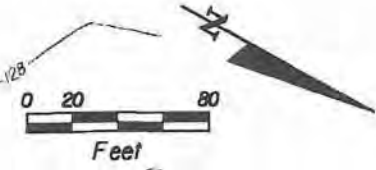
SHEET NO.

NOTES:

1. REFER TO POND DETAIL SHEET FOR POND SECTION INFORMATION AND CONTROL STRUCTURE DETAILS
2. THE OFF-SITE INFORMATION SHOWN IS FOR INFORMATIONAL PURPOSES ONLY BASED ON CONSTRUCTION PLANS AND NOT ACTUAL FIELD SURVEY. THE CONTRACTOR IS TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.

LANDSCAPING NOTES:

- 10' WIDE AND 20' LANDSCAPE BUFFER
- ONE (1) SHADE TREE PER 40' CONTINUOUS HEDGE - 30' HT



END TYPE B FENCE
 BEGIN 6' HIGH MASONRY WALL
 STA. 16+52.53
 157.57' (RT)

20' LANDSCAPED BUFFER
 6' HIGH MASONRY WALL
 10' LANDSCAPED BUFFER

AUG 10 2009

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Kimley-Horn and Associates, Inc.
 Corporate Registration No. CA 0000696
 Jay R. Jackson, P.E.
 PE Number 54247
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

ORANGE COUNTY GOVERNMENT
 ORANGE COUNTY DEPARTMENT OF PUBLIC WORKS

PROPOSED RETENTION POND C

SHEET NO. 39

SCANNED 08/12/09

NOTES:

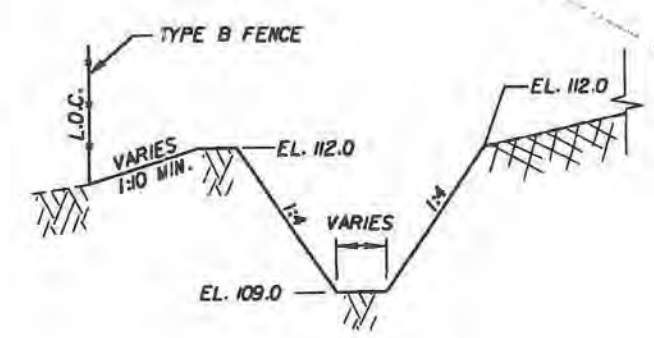
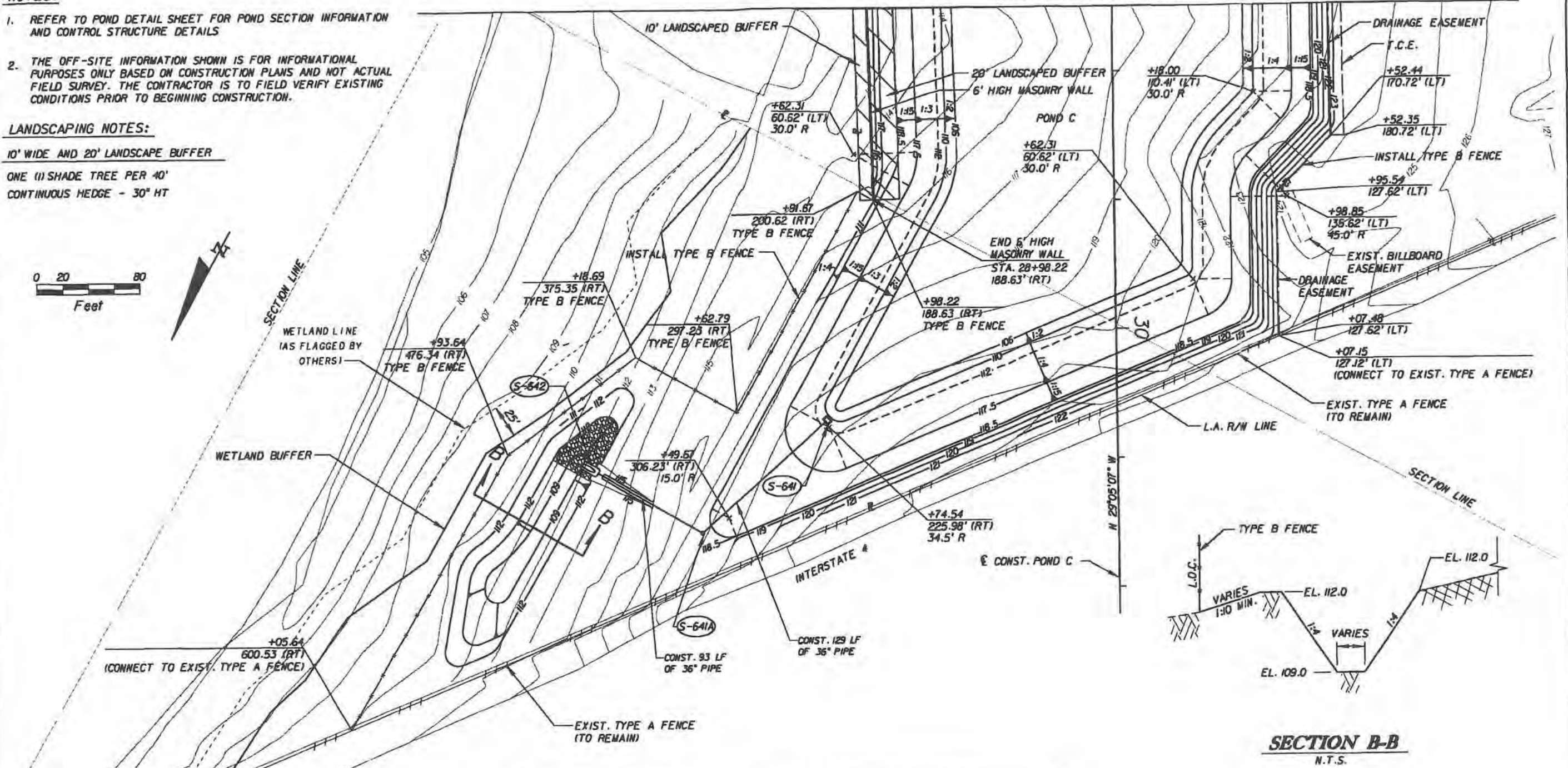
1. REFER TO POND DETAIL SHEET FOR POND SECTION INFORMATION AND CONTROL STRUCTURE DETAILS
2. THE OFF-SITE INFORMATION SHOWN IS FOR INFORMATIONAL PURPOSES ONLY BASED ON CONSTRUCTION PLANS AND NOT ACTUAL FIELD SURVEY. THE CONTRACTOR IS TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.

LANDSCAPING NOTES:

10' WIDE AND 20' LANDSCAPE BUFFER
 ONE (1) SHADE TREE PER 40'
 CONTINUOUS HEDGE - 30" HT



MATCH LINE POND C STA. 27+50.00



PROP. POND C			POND C-STAGE	
	ELEV	ACRE		
TOP POND ELEVATION	118.5	10.06	10 YR-24 HR	116.13
NORMAL WATER ELEVATION	112.0	7.25	25 YR-24 HR	116.76
BOTTOM POND ELEVATION	106.0	6.15	25 YR-72 HR	116.28
SEASONAL HIGH WATERTABLE	112.0	---		
TRACT AREA (ACRES)	---	12.80		

LEGEND

 RUBBLE RIPRAP (BANK AND SHORE PROTECTION) WITH TYPE D-2 FILTER FABRIC (167 SY)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

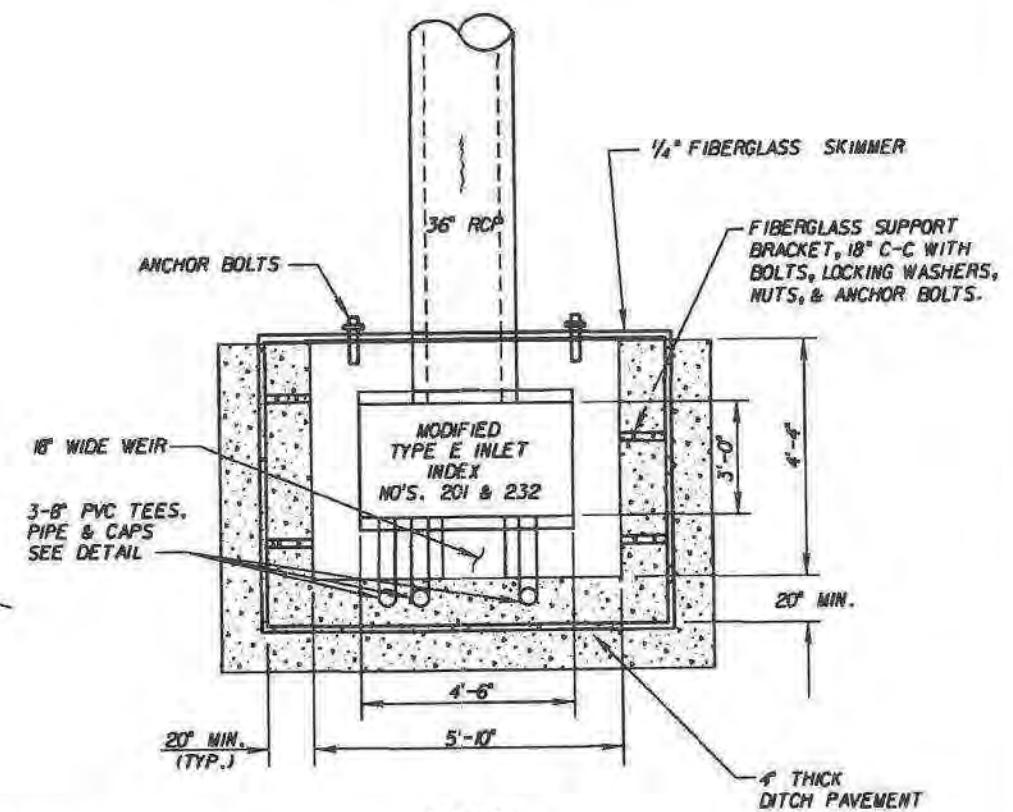
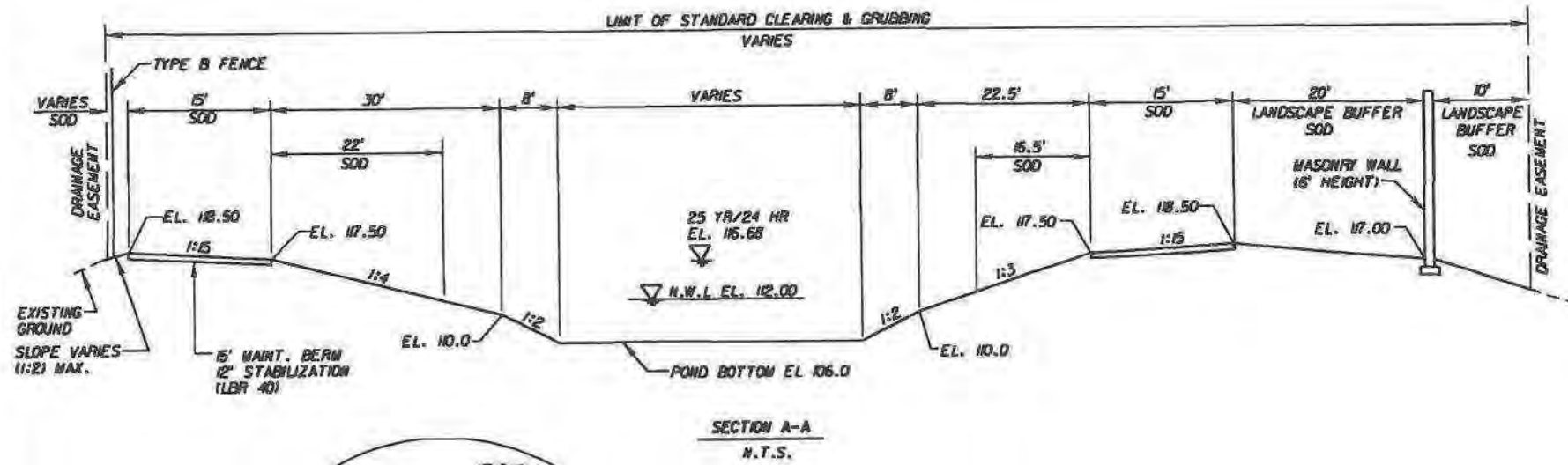
Kimley-Horn and Associates, Inc.
 Corporate Registration No. CA 0000696
 Jay R. Jackson, P.E.
 PE Number 54247
 3660 McGuire Boulevard, Suite 200
 Orlando, Florida 32803

ORANGE COUNTY GOVERNMENT
 ORANGE COUNTY DEPARTMENT OF PUBLIC WORKS

PROPOSED RETENTION POND C
 SHEET NO. 40

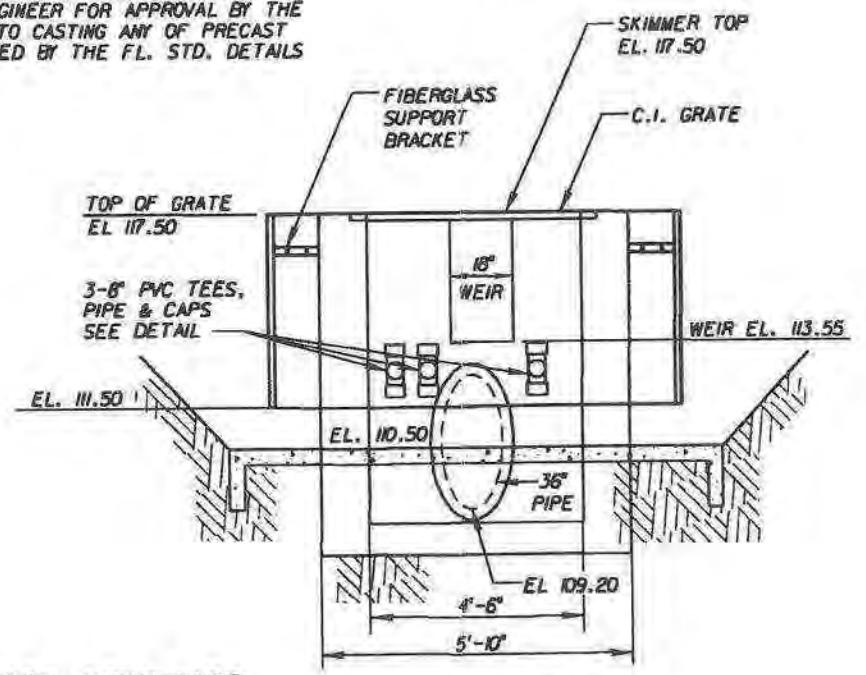
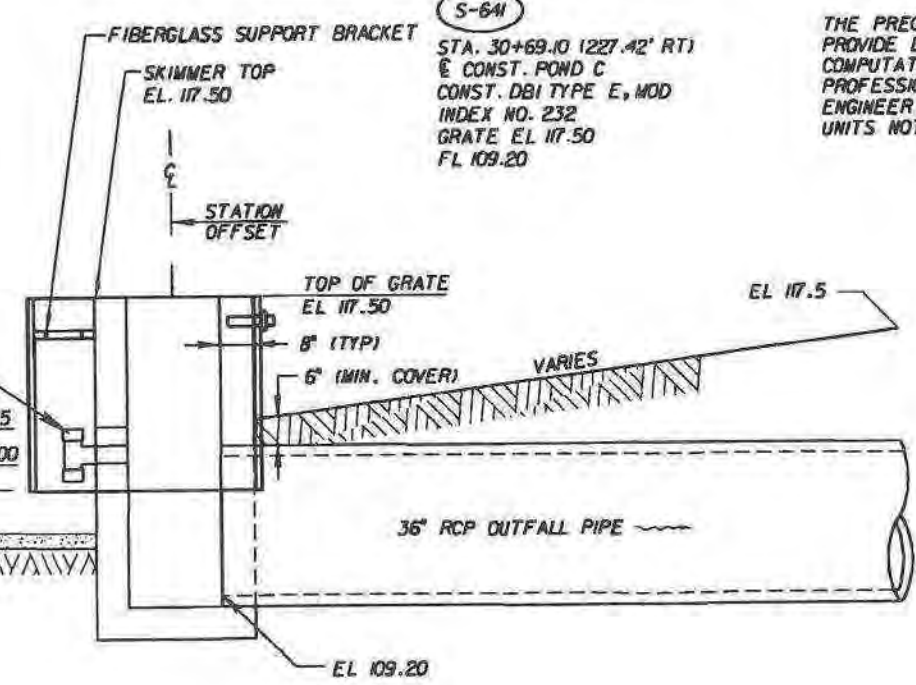
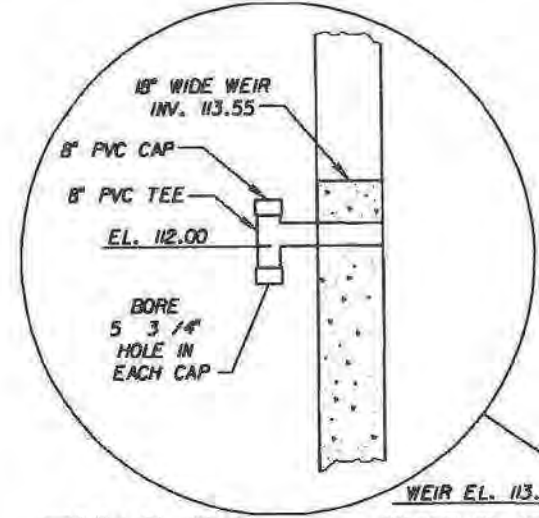
NOTES:

1. ALL NECESSARY GRADING AROUND THE CONTROL STRUCTURE SHALL BE CONSIDERED INCIDENTAL, AND SHALL BE INCLUDED IN THE UNIT PRICE BID 'INLET' (TYPE 'C')
2. ALL STATION AND OFFSETS ARE REFERENCED FROM CENTER LINE CONSTRUCTION STREET 'B', UNLESS OTHERWISE NOTED.



NOTE:

THE PRECAST CONCRETE MANUFACTURER SHALL PROVIDE DETAILED SHOP DRAWINGS AND DESIGN COMPUTATIONS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER FOR APPROVAL BY THE ENGINEER PRIOR TO CASTING ANY OF PRECAST UNITS NOT COVERED BY THE FL. STD. DETAILS



POND CONTROL STRUCTURE DETAIL N.T.S.

SECTION B-B N.T.S.

POND C

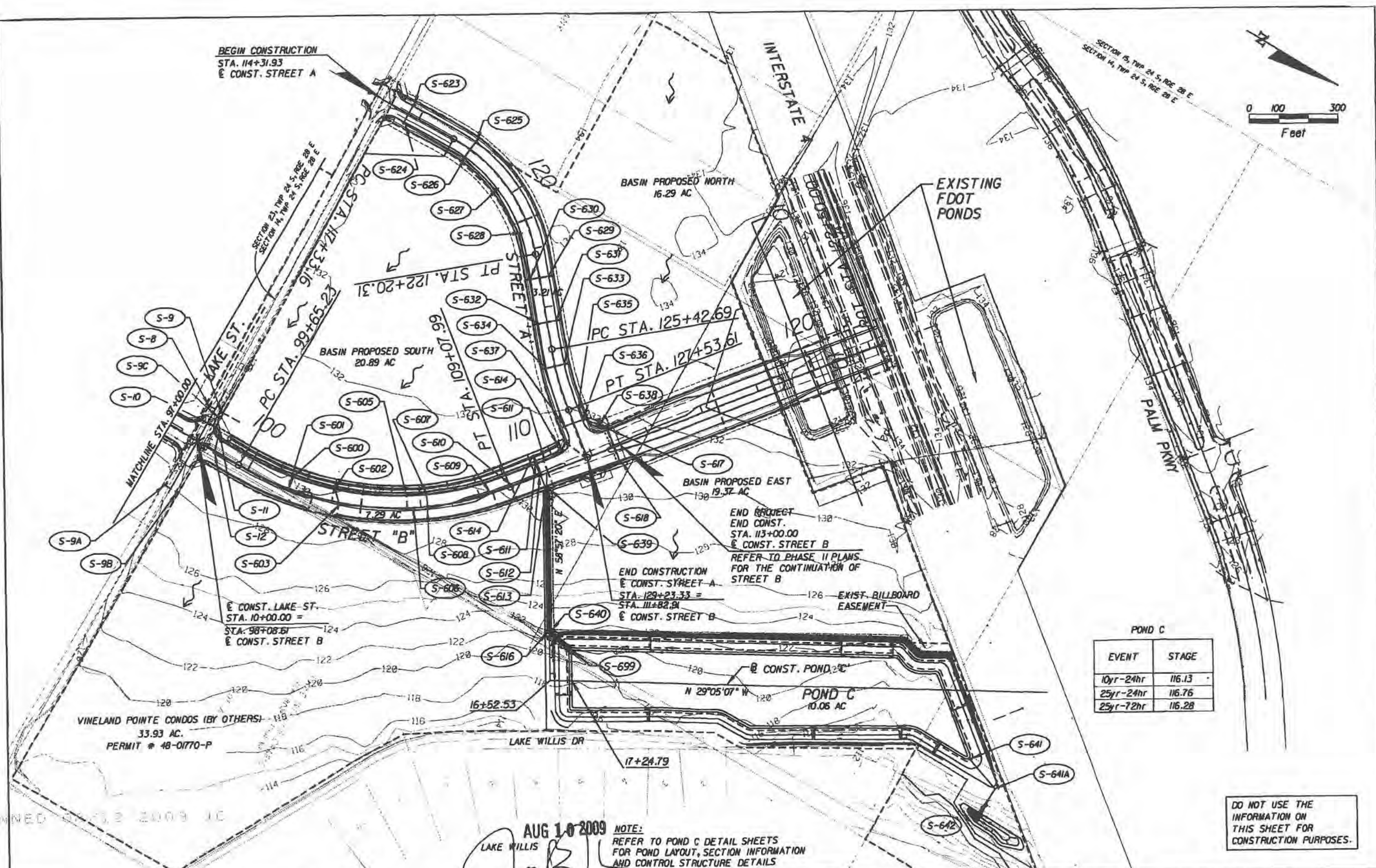
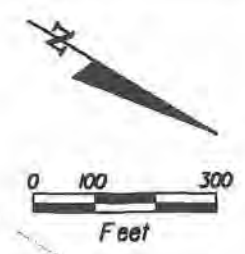
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Kimley-Horn and Associates, Inc.
 Corporate Registration No. CA 0000695
 Jay R. Jackson, P.E.
 PE Number 54247
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

ORANGE COUNTY GOVERNMENT
 ORANGE COUNTY DEPARTMENT OF PUBLIC WORKS

DRAINAGE DETAILS

SHEET NO. 41



POND C

EVENT	STAGE
10yr-24hr	116.13
25yr-24hr	116.76
25yr-72hr	116.28

DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES.

SCANNED 01/03/2009 JC

AUG 10 2009

NOTE:
REFER TO POND C DETAIL SHEETS FOR POND LAYOUT, SECTION INFORMATION AND CONTROL STRUCTURE DETAILS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Kimley-Horn and Associates, Inc.
Corporate Registration No. CA 0000696
Joy R. Jackson, P.E.
PE Number 54247
3660 Maguire Boulevard, Suite 200
Orlando, Florida 32803

ORANGE COUNTY GOVERNMENT
ORANGE COUNTY DEPARTMENT OF PUBLIC WORKS

DRAINAGE MAP

SHEET NO.
3

Permit No. 49-00653-S-02

Application No. 930209-3

Osceola Parkway Phase 5

D. PRE-DEVELOPMENT

The pond created by this project must attenuate the discharge from the post-development basin to a rate not larger than the pre-development runoff from the basin. The pre-development runoff was determined by generating a basin hydrograph using the worst-case (longest) pre-development time of concentration determined for the entire historic basin (see below), appropriate curve number and area equivalent to the post-development area. This section contains the pre-development site data and hydrograph.

In its existing state, the drainage basin encompassed by NWPond, NEPond, SPond, NEBasin, and SBasin is land-locked. This is a man-made condition brought about when the borrow pit was excavated. The original contours of the area sloped toward the C-1 Canal (Bonnet Creek) and was not a land-locked basin. Please refer to page 4-2A of this document for "Today's Conditions".

Through coordination with the South Florida Water Management District (SFWMD) and Dyer, Riddle, Mills and Precourt, it was determined that the drainage basin was part of the Old Little England project that had received conceptual approval. In this SFWMD conceptual approval, the area in question was not land-locked. Therefore, SFWMD allowed the historic pre-development condition of the basin to be used in determining the pre-development runoff flow rate and volume for the basin. Please refer to page 1-37 to 1-39.

10yr-72hr
 HISTORIC BASIN - OSCEOLA P/W - 4 LANE

UNIT HYDROGRAPH FILE..... SCS_256	FILE.... NOPIT
TOTAL DRAINAGE AREA, ACRES... 18.36	INPUT ID 722617100
WEIGHTED SCS CURVE NUMBER.... 84.0	TYPE.... RNF002
INITIAL ABSTRACTION FACTOR... 0.2	RUN, HRS 86.25
TIME OF CONCENTRATION, HOURS. 2.34	DT, HRS. 0.25
	DATA PTS 346
	STORM... SFWMD_72
	DURATION 72.0
	RAINFALL 9.51
	EXCESS.. 7.5531044
	ACREAGE. 18.36
	TC, HRS. 2.34
	TP, HRS. 61.25
	PEAK CFS 16.391222 ←
	ACFT VOL 11.552478
	READY... YES
	CFS TOL. 0.0001
	HRS TOL. 0.01

TITLE DATA STORM EXECUTE REVIEW PLOT DONE

ENTER/EDIT SUBAREA TITLE

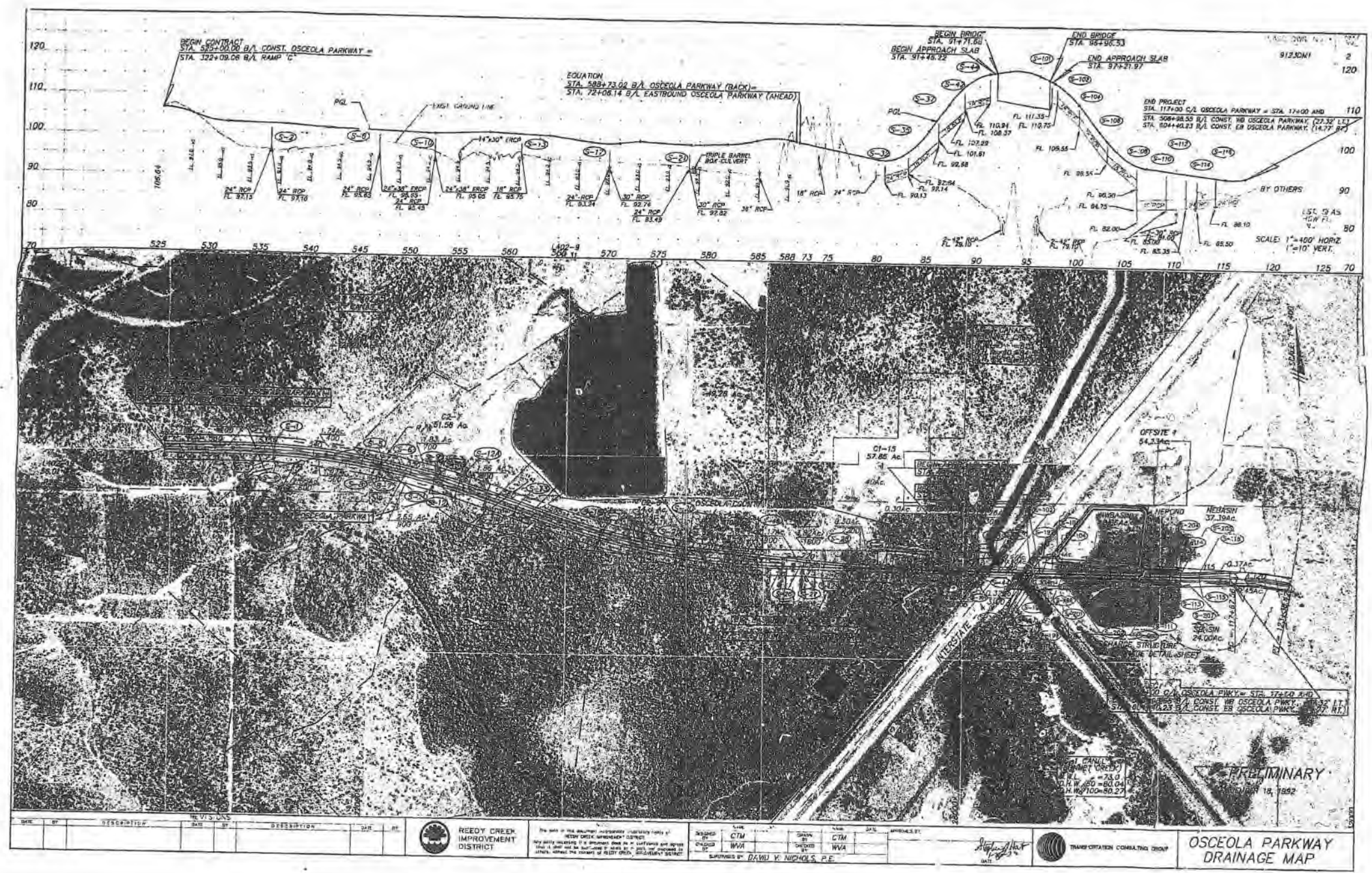
E. POST-DEVELOPMENT

The stormwater model used for this project consists of two separate systems: one to analyze the on-site treatment facility; and the second to analyze the off-site "pass-through" system.

The on-site model includes the northwest remnant (NWPond) of the existing borrow pit. The NWPond receives runoff from NWBasin which consists of the pond site itself and the runoff from the Osceola Parkway (Station 93+75 to Station 123+00). The NWPond will discharge to the C-1 Canal (Bonnet Creek) via a rectangular weir and a storm sewer system. The project's stormwater management system outfalls downstream of the RCID Water Control Structure S-12 to take advantage of the 4.8 feet difference in the water surface profile elevation during the 100-year/3-day storm event. The C-1 Canal was input as a time/stage node to model a constant, worst-case tailwater at the discharge point. The constant elevation tailwater did not cause the weir to submerge for any of the storms. The stormwater management system's weir was designed for the initial four-lane Osceola Parkway mainline only. The weir will lower the control elevation from the existing wet season normal water elevation of 84.0 to 83.0. The lower water surface elevation will be needed for future construction. When the six-lane mainline is constructed in the future, expansion of this pond and modification of the discharge structure without additional lowering of the water surface is a viable option.

The off-site "pass-through" system includes the northeast and south remnants (NEPond and SPond, respectively) of the existing borrow pit. The NEPond received run-off from NEBasin and the SPond received run-off from SBasin. NEPond and SPond will be connected by a cross culvert under Osceola Parkway which is sized at a minimum to maintain the existing condition design high water.

As stated in the Pre-Development description, the borrow pit is a land-locked water body, because of a man made condition. As a part of this project, a control structure will be constructed in SPond. This control structure will lower the control elevation in SPond and NEPond from the existing wet season normal water elevation of 84.0 to 83.35, and will convey the off-site discharge for the 10-year/72-hour design storm event via pipe to a discharge point in the C-1 Canal downstream of Water Control Structure S-12. The lowering of the normal water level by 0.65-foot is necessary to compensate for loss of storage caused by the projects embankment.



BEGIN CONTRACT
STA. 322+09.06 B/L RAMP 'C'
STA. 322+09.06 B/L CONST. OSCEOLA PARKWAY =

EQUATION
STA. 589+73.02 B/L OSCEOLA PARKWAY (BACK)
STA. 72+08.14 B/L EASTBOUND OSCEOLA PARKWAY (AHEAD)

BEGIN BRIDGE
STA. 91+71.66
BEGIN APPROACH SLAB
STA. 91+46.22

END BRIDGE
STA. 95+06.53
END APPROACH SLAB
STA. 97+21.97

END PROJECT
STA. 117+00 C/L OSCEOLA PARKWAY = STA. 17+00 AND
STA. 306+48.55 B/L CONST. NB OSCEOLA PARKWAY (27.32' L.S.)
STA. 304+40.23 B/L CONST. EB OSCEOLA PARKWAY (14.77' R.S.)

SCALE: 1"=400' HORIZ.
1"=10' VERT.

DATE	BY	REVISION	DESCRIPTION	DATE	BY

REEDY CREEK IMPROVEMENT DISTRICT

DESIGNED BY: CTM
CHECKED BY: WVA

APPROVED BY: [Signature]
DATE: 10/10/82

TRANSPORTATION CONSULTING GROUP

OSCEOLA PARKWAY DRAINAGE MAP

PRELIMINARY
OCTOBER 18, 1982

Permit No. 49-00714-S
Application 950124-3, 940315-9, 950426-4
World Drive Extension/I-4 Interchange

SCANNED 11/19/2010 PM

DRAFT
Subject to Governing
Board Approval

**LAST DATE FOR GOVERNING BOARD ACTION:
SEPTEMBER 14, 1995**

SURFACE WATER MANAGEMENT STAFF REVIEW SUMMARY

I. ADMINISTRATIVE

APPLICATION NUMBER: 950124-3

PERMIT MODIFICATION NUMBER: 48-00714-S

PROJECT NAME: WORLD DR EXTENSION/I-4 INTERCHANGE

**LOCATION: OSCEOLA COUNTY
S13,14,23,24/T25S/R27E**

APPLICANT'S NAME: REEDY CREEK IMPROVEMENT DISTRICT

**OWNERS NAME AND ADDRESS: REEDY CREEK IMPROVEMENT DISTRICT
PO BOX 10170
LAKE BUENA VISTA, FL 32830-0170**

DEVELOPER: REEDY CREEK IMPROVEMENT DISTRICT

ENGINEER: HOWARD NEEDLES TAMMEN & BERGENDOFF

II. PROJECT DESCRIPTION

PROJECT AREA: 135.55 acres DRAINAGE AREA: 194.47 acres

DISTRICT DRAINAGE BASIN: REEDY CREEK

RECEIVING BODY: REEDY CREEK

CLASSIFICATION: CLASS III

SPECIAL DRAINAGE DISTRICT: REEDY CREEK IMPROVEMENT DIST.

PURPOSE:

The applicant requests authorization to construct and operate a surface water management system serving a proposed 135.55 acres of road right-of-way construction discharging to Reedy Creek. Staff recommends approval with conditions.

BACKGROUND:

The proposed project involves construction activities within existing lands owned by RCID (135.55 acres) with another 58.92 acres of land owned by FDOT draining through the system. This offsite area will involve construction of works in a separate application (number 940615-9) for the I-4/World Drive Interchange lands owned by FDOT and being presented concurrently with this application for Governing Board consideration.

In addition, a third road project, Application No. 950426-4, is being sent to this Board for concurrent approval. Flood plain compensating storage required by this project will be provided by ponds within the current application.

EXISTING FACILITIES:

World Drive Extension/I-4 Interchange is located approximately 2 miles southwest of the U.S. 192 Highway/I-4 Interchange and just northeast of Reedy Creek.

The existing drainage pattern consists of discharge to Reedy Creek via the I-4 drainage system and the adjacent wetlands and the borrow pit which is located just northeast of the Interchange. Two existing 7' by 4' box culverts cross under I-4 each 180 ft. long with invert elevations of 75.7 ft-NGVD.

The double 7' by 4' box culvert serves two functions. First, it is a drainage facility for existing I-4 (the low point for most of the I-4 ditches) and drains more than one mile of I-4 through the project. Second, the box culverts provide a hydraulic connection between the two Reedy Creek tributaries and to an existing borrow pit.

PROPOSED FACILITIES:

The project consists of four slip-ramps, two loop-ramps, one-at-grade cross-over ramp and one fly over ramp providing full traffic movement for I-4 and World Drive. The project also includes 9400 linear feet along I-4 where auxiliary lanes will be constructed for connection to interchange ramps.

Two independent pond systems consisting of inter-connected pond networks separated by I-4 are proposed for this project. Five inter-connected Ponds A, A2, A3, D2 and D3, all located northwest of and adjacent to I-4 are controlled at Pond A, and serve Basin A. Five inter-connected Ponds B, B1, C, C2 and C3 are located southeast of and adjacent to I-4 are controlled at Pond C, and serve Basin C. An additional 43.12 acres of this project will not drain thru these basins due to topographic and construction considerations. This area will be provided water quality treatment in road side swales within the FDOT portion of the project.

The proposed surface water management system will provide water quality

treatment for this project and for a portion of the FDOT right-of-way being permitted for construction in Application No. 940615-9. Pond A will discharge through Structure S-226 and Pond C will discharge through Structure S-115 (see Exhibit 3A).

The project will encroach into the 100 year flood plain at three areas. Compensating storage will be provided in Ponds MV5A and MV5B. Compensating storage will also be provided in Pond SV6. These ponds will include compensating storage for a third road project under consideration for permit approval, Application No. 950426-4, World Drive Extension between U.S. 192 Highway and this project. As a result, no net encroachment to the 100 year floodplain is proposed.

Operation and maintenance of this system will be turned over to FDOT after construction and certification has been completed, as agreed to by the applicant and FDOT.

BASIN INFORMATION:

Basin	Area Acres	WSWT Elev (ft, NGVD)	Normal/Dry Ctrl Elev (ft, NGVD)	Method of Determination
A	61.57	78.00	78/78	WET SEASON SOIL BORINGS
C	30.86	78.00	78/78	WET SEASON SOIL BORINGS

DISCHARGE STRUCTURE INFORMATION:

Water Quality Structures:

Basin	Str. #	Bleeder Type	Dimensions	Invert Elev. (ft, NGVD)
A	1	V-NOTCH	153 degrees	78.00
C	1	V-NOTCH	119 degrees	78.00

Major Discharge Structures:

Basin	Str. #	Description	Crest Elev. (ft, NGVD)
A	1	5' wide SHARP CRESTED weir	78.60
C	1	5' wide SHARP CRESTED weir	78.85

Discharge Culverts:

Basin	Str. #	Description
A	1	841' long, 5' wide X 3.2' high ARCH
C	1	974' long, 4' dia. RCP

Receiving Body:

Basin	Str. #	Receiving Body
A	1	REEDY CREEK
C	1	REEDY CREEK

III. PROJECT EVALUATION

Discharge Rate:

Discharge attenuation for this project is provided in the master system of the Reedy Creek Improvement District; therefore, the discharge structures have been designed to provide water quality treatment.

WATER QUALITY:

Basin	Treatment Method	Vol Req'd. (ac-ft)	Vol Prov'd (ac-ft)
A	9.58 acres WET DETENTION	5.13	5.75
C	4.37 acres WET DETENTION	4.22	4.49

ROAD DESIGN:

As shown in the following table, minimum road center lines have been set at or above the calculated design storm flood elevation.

Design Storm Freq: 10YR-1DAY

Design Rainfall: 7.00 inches

Basin	Flood Elevation (ft., NGVD)	Minimum Centerline Elevation (ft., NGVD)
A	80.3	81

SCANNED 11/19/2010 PL

Basin	Flood Elevation (ft., NGVD)	Minimum Centerline Elevation (ft., NGVD)
C	80.39	81

IV. ENVIRONMENTAL ASSESSMENT

PROJECT SITE DESCRIPTION:

The 135.55 acre project site contains 17 different wetlands within the Disney property. The general location of these wetlands is shown on the land use map. This site contains 21.23 acres of wetland, 111.63 acres of uplands, and 2.69 acres of open water habitat. A complete breakdown of vegetative cover types for the wetland and upland communities is shown on Exhibit 2. The 2.69 acres of open water is contained within an existing borrow pit.

This FLUCCS map also contains 58.92 acres of land which is owned by FDOT within the existing Interstate 4 Right-Of-Way. Construction within the FDOT portion of the roadway is contained in application number 940615-9.

EXISTING ON SITE WETLAND COMMUNITIES AND OTHER SURFACE WATERS:

ID NO	TOTAL ACREAGE	BIOLOGICAL CONDITION	COMMUNITY TYPE	COMMUNITY ACREAGE
W-01	.79	GOOD/FAIR	MIXED WETLAND HARDWOODS	.79
W-02	.31	GOOD	WETLAND FORESTED MIXED	.31
W-03	.87	FAIR	MIXED WETLAND HARDWOODS	.86
			WET PRAIRIES	.01
W-04	.55	FAIR	WETLAND FORESTED MIXED	.55
W-05	1.05	GOOD/FAIR	FRESHWATER MARSHES	.69
			WET PRAIRIES	.36
W-06	1.31	FAIR	WETLAND FORESTED MIXED	1.31
W-07	1.26	FAIR/POOR	CYPRESS	1.08
			WET PRAIRIES	.18
W-08	1.12	FAIR	WETLAND FORESTED MIXED	1.12
W-09	8.04	FAIR	CYPRESS	8.04
W-10	.91	GOOD/FAIR	WETLAND FORESTED MIXED	.91
W-11	1.39	GOOD/FAIR	CYPRESS	.54
			WET PRAIRIES	.24
			WETLAND FORESTED MIXED	.61
W-12	.22	FAIR	WET PRAIRIES	.08
			WETLAND FORESTED MIXED	.14
W-13	.55	FAIR	CYPRESS	.33
			WET PRAIRIES	.22
W-14	.58	GOOD	FRESHWATER MARSHES	.58
W-15	.03	GOOD/FAIR	WET PRAIRIES	.03
W-16	.75	GOOD	WETLAND FORESTED MIXED	.75
W-17	1.50	GOOD	FRESHWATER MARSHES	.40
			WET PRAIRIES	.94
			WETLAND FORESTED MIXED	.16

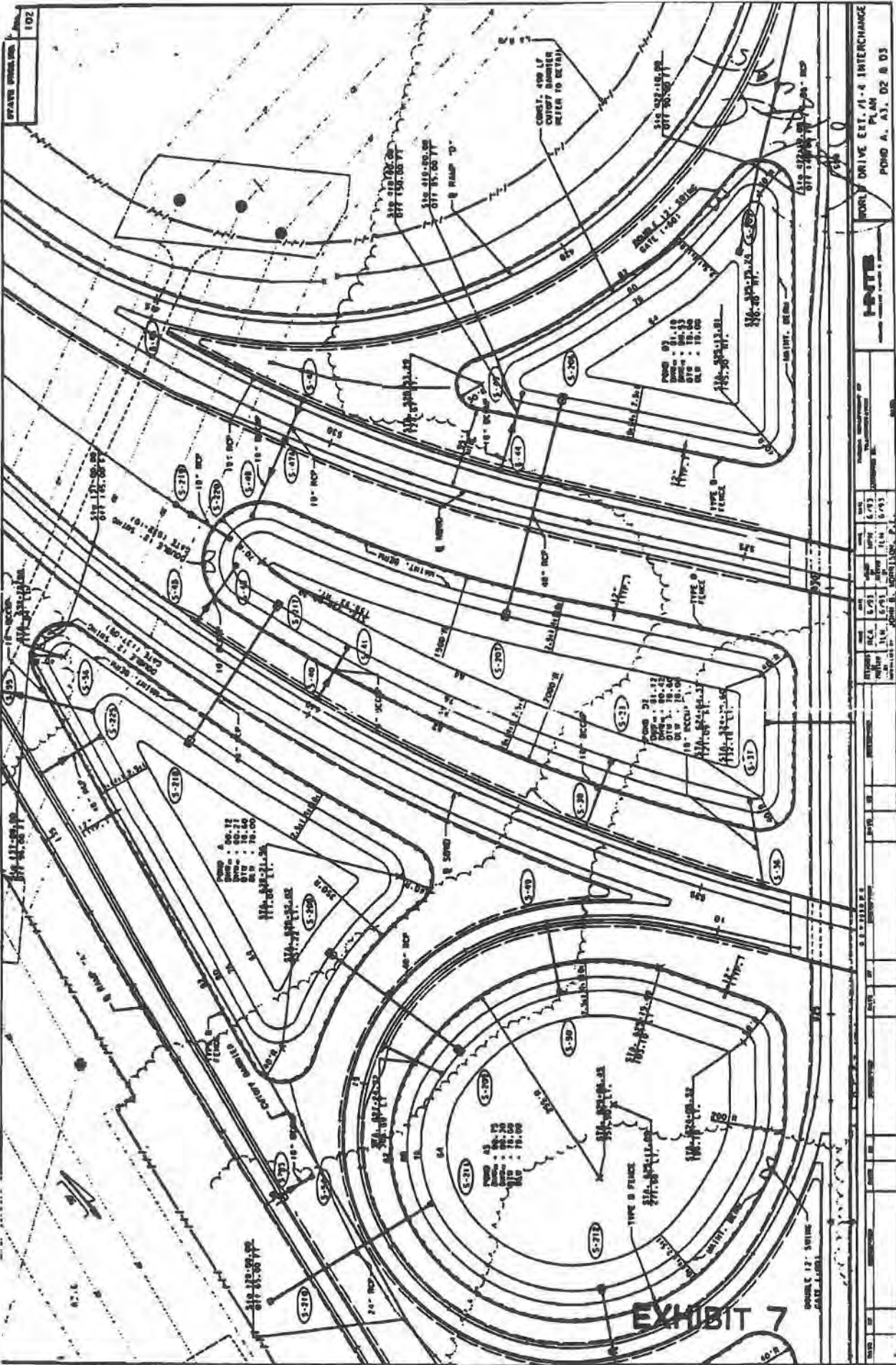


EXHIBIT 7

DATE		BY		CHECKED		APPROVED	
DATE	BY	DATE	BY	DATE	BY	DATE	BY
01.12.00	01.12.00	01.12.00	01.12.00	01.12.00	01.12.00	01.12.00	01.12.00

POND A, A1, D2 & D3
 POND B, A1, D2 & D3
 POND C, A1, D2 & D3

N T B

Made by: TLH

DATE: 23-Aug-94

Ch'd by: _____

DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

STAGE-STORAGE CALCULATIONS

BASIN: BASIN B

POND: POND R

STAGE (FT NGVD)	AREA (ACRES)	AVERAGE AREA (ACRES)	INCRE DEPTH (FT)	INCRE STORAGE (ACRE-FT)	TOTAL STORAGE (ACRE-FT)
78.00	0.76	-	-	-	0.00
80.00	0.91	0.84	2.00	1.67	1.67
82.00	1.40	1.16	2.00	2.31	3.98

RETENTION VOLUME = 0.37 acre-feet.

H N T B

Made by: TLH
Ch'd by: _____

DATE: 23-Aug-94
DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

BASIN B - TIME OF CONCENTRATION CALCULATIONS

OVERLAND FLOW(SHEET FLOW)

$$To = \frac{0.93 * (L^{0.6}) * (n^{0.6})}{(1^{0.4}) * (S^{0.3})} = To(\text{hr. s})$$

L = LENGTH in ft. = 45 ft.
S = SLOPE in ft./ft. = 0.1778 ft/ft
n = SHEET FLOW 'n' = 0.240 DENSE GRASS
Rainfall intensity, i (iterative) = 7.4 in/hr

To = 0.0487 hours = 2.92 minutes.

SHALLOW CONCENTRATED FLOW

Lsh
Tsh = ----- = Tsh(mir -) where:
V Type(1/2) = 60 x V V = Vunpaved OR Vpaved
(1) (2)
Vunpaved = 16.1345 x (S)^0.5; where S = Slope in ft/ft.
Vpaved = 20.3282 x (S)^0.5; where S = Slope in ft/ft.
V Type(1/2) = 1
L = LENGTH in ft. = 65 ft.
S = SLOPE in ft./ft. = 0.0308 ft/ft
V = 2.83 fps Tsh = 0.38 mins.

V Type(1/2) = 1
L = LENGTH in ft. = 20 ft.
S = SLOPE in ft./ft. = 0.1000 ft/ft
V = 5.10 fps Tsh = 0.07 mins.

Tc is 10 minutes MINIMUM. TOTAL Tc = 3.37 minutes.
TOTAL Tc = 10.00 minutes.

N T B

Made by: TLH DATE: 23-Aug-94
Ch'd by: _____ DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

STAGE-STORAGE CALCULATIONS

BASIN: BASIN B1
POND: POND B1

STAGE (FT NGVD)	AREA (ACRES)	AVERAGE AREA (ACRES)	INCRE DEPTH (FT)	INCRE STORAGE (ACRE-FT)	TOTAL STORAGE (ACRE-FT)
78.00	0.21	-	-	-	0.00
80.00	0.29	0.25	2.00	0.50	0.50
82.00	0.66	0.48	2.00	0.95	1.45

RETENTION VOLUME = 0.29 acre-feet.

HNTB A Howard Needles Tammen & Bergendoff Company	Made by <u>TZH</u>	Date <u>5-10-93</u>	Job Number <u>4-185</u> <u>15593</u>
	Checked by <u>...</u>	Date <u>5-11-93</u>	Sheet Number <u>1</u>
Calculations For <u>I-4 / WORLD DRIVE</u>	Backchecked by	Date	

POND CONTOUR AREAS

ALL VALUES
PLANIMETERED

POND B1

TOP OF MAINTENANCE BERM : (82.0 CONTOUR)
 $(34.32 / 3)(50)^2 / 43560 = 0.66 \text{ Ac} \checkmark$

BOTTOM OF MAINTENANCE BERM : (80.0 CONTOUR)
 $(15.27 / 3)(50)^2 / 43560 = 0.29 \text{ Ac} \checkmark$

POND CONTROL - NCL
 $(11.00 / 3)(50)^2 / 43560 = 0.21 \text{ Ac} \checkmark$

BASIN B1

$(179.07 / 3)(50)^2 / 43560 = 3.43 \text{ Ac} \checkmark$

4-186

HNTB The HNTB Companies	Made by TXU	Date 8-22-74	Job Number 15593
	Checked by	Date	Sheet Number
Calculations For I-4/WORLD DRIVE	Backchecked by	Date	

POST DEVELOPMENT AREA BREAKDOWN
BASIN B1

TOTAL BASIN AREA: 3.43 AC. (FROM INTERGRAPH)

TOTAL IMPERVIOUS AREA:

RAMP C-1 (CD ROADS)

STA 38+00 → STA 39+90 @ $36' + 10' + 10' = 56'$
= 10,640 FE^2 OR 0.24 AC

RAMP C-1 (CD ROADS)

STA 36+20 → STA. 38+00 @ $(24+36)/2 + 10' + 10' = 50'$
= 9,000 FE^2 OR 0.20 AC.


RAMP C-1 (CD ROADS)


STA. 30+80 → STA. 36+20 @ $24' + 10' + 10' = 44'$
= 23,760 FE^2 OR 0.55 AC.


SB W/D - CONTRIBUTION DELETED

RAMP B

STA. 222+50 → 227+70 @ $4' + 15' + 2' = 21'$
= 10,920 FE^2 OR 0.25 AC

TOTAL IMPERVIOUS AREA: 54,014 FE^2 OR 1.24 AC. 

TOTAL PERVIOUS AREA: 86,249 FE^2 OR 1.98 AC. 

TOTAL POND AREA: 9,147 FE^2 OR 0.21 AC. 

N T B

Made by: TLH DATE: 23-Aug-94
Ch'd by: DATE:

PROJECT: I-4/WORLD DRIVE INTERCHANGE

SUB-BASIN ANALYSIS & CURVE NUMBER DETERMINATION

BASIN DESIGNATION: BASIN B1
NODE: POND B1
TYPE of EVALUATION: POST - DEVELOPMENT
(PRE- or POST-)
BASIN SIZE: 3.430 acres.
RAINFALL DEPTH: 10.19 inches, (10YR/72HR EVENT).

ESTIMATE RUNOFF VOLUME

Determine Basin Runoff Curve Number: CN

Land Use Description	Soil Name	Soil Group	CN	AREA or %	PRODUCT
IMPERVIOUS AREA	-	-	98.00	1.24	122
POND WATER SURFACE AREA	-	-	100.00	0.21	21
PERVIOUS AREA - (GRASSED EMBANKMENT)	-	D	80.00	1.98	158

				3.43	301

$$\text{WEIGHTED CN} = \frac{(\text{PRODUCT SUM})}{(\text{AREA or } 100\%)} = \frac{301}{3.43} = 87.7$$

Determine Soil Storage: S

$$S = \frac{(1000)}{(\text{CN})} - 10 = \frac{1000}{87.7} - 10 = 1.40 \text{ inches}$$

Determine Soil Storage: S

$$R = \frac{(P - 0.2 * S)^2}{(P + 0.8 * S)} = \frac{(10.19 - 0.2 * 1.40)^2}{(10.19 + 0.8 * 1.40)} = 8.68 \text{ inches}$$

Determine Runoff Volume; Vr

$$Vr = R * \text{AREA} / 12 = 8.68 * 3.43 / 12 = 2.48 \text{ acre-feet}$$

H N T B

Made by: TLH

DATE: 23-Aug-94

Ch'd by: _____

DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

WATER QUALITY CALCULATIONS

BASIN B1

AREAS:

TOTAL AREA - 3.43 acres.
IMPERVIOUS AREAS - 54,014 s.f.
POND AREA " 9,167 s.f.
PERVIOUS AREAS - 86,249 s.f.

TREATMENT VOLUME:

2.50 inch VOLUME - 11,253 c.f.
1 inch VOLUME - 12,453 c.f.

Vtrtmt - 12,453 c.f.

N T B

Made by: TLH
Ch'd by: _____

DATE: 23-Aug-94
DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

BASIN B1 - TIME OF CONCENTRATION CALCULATIONS

OVERLAND FLOW(SHEET FLOW)

$$To = \frac{0.93 * (L^{0.6}) * (n^{0.6})}{(i^{0.4}) * (S^{0.3})} = To(\text{hr. s})$$

L = LENGTH in ft. = 10 ft.
S = SLOPE in ft./ft. = 0.1000 ft/ft
n = SHEET FLOW 'n' = 0.240 DENSE GRASS
Rainfall intensity, i (iterative) = 7.4 in/hr

To = 0.0235 hours = 1.41 minutes.

SHALLOW CONCENTRATED FLOW

Lsh

Tsh = ----- = Tsh(minutes) where:
V Type(1/2) = 60 x V V = Vunpaved OR Vpaved
(1) (2)
Vunpaved = 16.1345 x (S)^{0.5}; where S = Slope in ft/ft.
Vpaved = 20.3282 x (S)^{0.5}; where S = Slope in ft/ft.
V Type(1/2) = 1
L = LENGTH in ft. = 390 ft.
S = SLOPE in ft./ft. = 0.0474 ft/ft
V = 3.51 fps Tsh = 1.85 mins.

V Type(1/2) = 1
L = LENGTH in ft. = 75 ft.
S = SLOPE in ft./ft. = 0.0267 ft/ft
V = 2.64 fps Tsh = 0.47 mins.

Tc is 10 minutes MINIMUM. TOTAL Tc = 3.73 minutes.
TOTAL Tc = 10.00 minutes.

N T B

Made by: TLH

DATE: 01-Sep-94

Ch'd by: _____

DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

=====

STAGE-STORAGE CALCULATIONS

=====

BASIN: BASIN C

POND: POND C

STAGE (FT NGVD)	AREA (ACRES)	AVERAGE AREA (ACRES)	INCRE DEPTH (FT)	INCRE STORAGE (ACRE-FT)	TOTAL STORAGE (ACRE-FT)
78.00	2.26	-	-	-	0.00
80.00	2.48	2.37	2.00	4.74	4.74
82.00	3.09	2.79	2.00	5.57	10.31

RETENTION VOLUME = 0.53 acre-feet.

N T B

Made by: TLH
Ch'd by: _____

DATE: 01-Sep-94
DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

WATER QUALITY CALCULATIONS

BASIN C

AREAS:

TOTAL AREA = 6.46 acres.
IMPERVIOUS AREAS = 77,972 s.f.
POND AREA = 98,445 s.f.
PERVIOUS AREAS = 98,445 s.f.

TREATMENT VOLUME:

2.50 inch VOLUME = 16,244 c.f.
1 inch VOLUME = 22,905 c.f.

Vtrtmt = 22,905 c.f.

HNTB A Howard Needles Tammen & Bergendoff Company Calculations For I-4 / WORLD DRIVE	Made by TLH	Date 5-5-93	Job Number 15593
	Checked by HDT	Date 5-7-93	Sheet Number 1
	Backchecked by	Date	

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POND CONTOUR AREAS

ALL VALUES
PLANIMETERED

POND C

TOP OF MAINTENANCE BERM : (82.0 CONTOUR)
 $(161.64 / 3) (50)^2 / 43560 = 3.09 \text{ AC} \checkmark$

BOTTOM OF MAINTENANCE BERM : (80.0 CONTOUR)
 $(129.36 / 3) (50)^2 / 43560 = 2.48 \text{ AC} \checkmark$

POND CONTROL - NCL : (78.0 CONTOUR)
 $(118.1 / 3) (50)^2 / 43560 = 2.26 \text{ AC} \checkmark$

BASIN C

$(337.68 / 3) (50)^2 / 43560 = 6.46 \text{ AC} \checkmark$

4-196

HNTB The HNTB Companies	Made by <u>TRV</u>	Date <u>8-22-94</u>	Job Number <u>15593</u>
	Checked by	Date	Sheet Number
Calculations For <u>I-4 / WORLD DRIVE</u>	Backchecked by	Date	

POST DEVELOPMENT AREA BREAKDOWN
BASIN C

TOTAL BASIN AREA : 6.46 AC (FROM INTERGRAPH)

TOTAL IMPERVIOUS AREA :

RAMP C-1 (CD ROADS)

STA. 44+80 → 47+35 (PLANIMETERED)
= 16,202 FL² OR 0.37 AC.

RAMP C-1

STA. 47+35 → 58+59 @ 2'+16'+4' = 22'
= 24,728 FL² OR 0.57 AC.

NB W/D

STA. 518+31 → 524+48 @ 10'+36'+10' = 56
= 34,552 FL² OR 0.79 AC.

NB W/D / RAMP C-1 GORE

STA 517+68 → 518+31 @ (24+16)/2+8'+8'+2'+4' = 42'
= 2,646 FL² OR 0.06 AC.

TOTAL IMPERVIOUS AREA: 77,972 FL² OR 1.79 AC. ◁

TOTAL PERVIOUS AREA . 104,980 FL² OR 2.41 AC. ◁

TOTAL POND AREA: 98,445 FL² OR 2.26 AC. ◁

=====

Made by: TLH DATE: 01-Sep-94
Ch'd by: _____ DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

=====

SUB-BASIN ANALYSIS & CURVE NUMBER DETERMINATION

=====

BASIN DESIGNATION: BASIN C

NODE: POND C

TYPE of EVALUATION: POST - DEVELOPMENT

(PRE- or POST-)

BASIN SIZE: 6.460 acres.

RAINFALL DEPTH: 10.19 inches, (10YR/72HR EVENT).

ESTIMATE RUNOFF VOLUME

=====

Determine Basin Runoff Curve Number: CN

Land Use Description	Soil Name	Soil Group	CN	AREA or %	PRODUCT
IMPERVIOUS AREA	-	-	98.00	1.79	175
POND WATER SURFACE AREA	-	-	100.00	2.26	226
PERVIOUS AREA - (GRASSED EMBANKMENT)	-	D	80.00	2.41	193

$$\text{WEIGHTED CN} = \frac{\text{(PRODUCT SUM)}}{\text{(AREA or 100\%)}} = \frac{594}{6.46} = 92.0$$

Determine Soil Storage: S

$$S = \frac{(1000)}{(CN)} - 10 = 0.87 \text{ inches}$$

Determine Soil Storage: S

$$R = \frac{(P-0.2*S)^2}{(P+0.8*S)} = 9.21 \text{ inches}$$

Determine Runoff Volume; Vr

$$Vr = R * \text{AREA}/12 = 4.96 \text{ acre-feet}$$

=====

H N T B

Made by: TLH

DATE: 01-Sep-94

Ch'd by: _____

DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

=====

BASIN C - TIME OF CONCENTRATION CALCULATIONS

=====

OVERLAND FLOW(SHEET FLOW)

=====

$$To = \frac{0.93 * (L^{0.6}) * (n^{0.6})}{(i^{0.4}) * (S^{0.3})} = To(hr.s)$$

L = LENGTH in ft. = 30 ft.
S = SLOPE in ft./ft. = 0.0400 ft/ft

n = SHEET FLOW 'n' = 0.016 PAVEMENT
Rainfall intensity, i (iterative) = 7.4 in/hr

To = 0.0118 hours = 0.71 minutes.

SHALLOW CONCENTRATED FLOW

=====

Lsh

Tsh = ----- = Tsh(minutes) where:

V Type(1/2) = 60 x V V = Vunpaved OR Vpaved

(1) (2)

Vunpaved = 16.1345 x (S)^0.5; where S = Slope in ft/ft.
Vpaved = 20.3282 x (S)^0.5; where S = Slope in ft/ft.

V Type(1/2) = 1

L = LENGTH in ft. = 60 ft.
S = SLOPE in ft./ft. = 0.1000 ft/ft

V = 5.7 fps Tsh = 0.20 MINUTES

Tc is 10 minutes MINIMUM. TOTAL Tc = 0.90 minutes.
TOTAL Tc = 10.00 minutes.

=====

4-205

NTB

Made by: TLH DATE: 09-May-93
Ch'd by: H.L. DATE: 5-12-93

PROJECT: I-4/WORLD DRIVE INTERCHANGE

STAGE-STORAGE CALCULATIONS

BASIN: BASIN C1
POND: POND C1

STAGE (FT NGVD)	AREA (ACRES)	AVERAGE AREA (ACRES)	INCRE DEPTH (FT)	INCRE STORAGE (ACRE-FT)	TOTAL STORAGE (ACRE-FT)
78.00	0.54✓	-	-	-	0.00
80.00	0.67✓	0.61	2.00	1.21	1.21
82.00	1.18✓	0.93	2.00	1.85	3.06

RETENTION VOLUME - 0.24 acre-feet.

4-204

NTB

Made by: TLH

DATE: 24-Aug-93

Ch'd by: DM

DATE: 9-8-93

PROJECT: I-4/WORLD DRIVE INTERCHANGE

WATER QUALITY CALCULATIONS

BASIN C1

AREAS:

TOTAL AREA - 3.39 acres.
IMPERVIOUS AREAS - 35,418 s.f.
POND AREA - 23,733 s.f.
PERVIOUS AREAS - 88,516 s.f.

TREATMENT VOLUME:

2.50 inch VOLUME - 7,379 c.f.
1 inch VOLUME - 12,306 c.f.
Vtrtmt - 12,306 c.f.

HNTB A Howard Needles Tammen & Bergendoff Company	Made by TZH	Date 5-5-93	Job Number 15593
	Checked by HDT	Date 5-7-93	Sheet Number /
Calculations For J-4 / WORLD DRIVE	Backchecked by	Date	

POND CONTOUR AREAS

ALL VALUES
PLANIMETERED

POND C1

TOP OF MAINTENANCE BERM : (82.0 CONTOUR)
 $(61.61 / 3) (50)^2 / 43560 = 1.18 \text{ AC} \checkmark$

BOTTOM OF MAINTENANCE BERM : (80.0 CONTOUR)
 $(34.84 / 3) (50)^2 / 43560 = 0.67 \text{ AC} \checkmark$

POND CONTROL - NCL : (78.0 CONTOUR)
 $(26.48 / 3) (50)^2 / 43560 = 0.54 \text{ AC} \checkmark$


BASIN C1

$$(177.20 / 3) (50)^2 / 43560 = 3.39 \text{ AC} \checkmark$$

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF Calculations For <i>I-4 / W/D</i>	Made by <i>TZH</i>	Date <i>1-13-93</i>	Job Number <i>15573</i>
	Checked by <i>HDT</i>	Date <i>2/4/93</i>	Sheet Number
	Backchecked by	Date	

FEISEL TZH 5-5-93
HDT 5-7-93

POST DEVELOPMENT AREA BREAKDOWN
 BASIN C1

TOTAL BASIN AREA : *3.39* Ac 

(FROM INTERGRAPH)

TOTAL IMPERVIOUS AREA :

RAMP C :


$STA. 304+18 \rightarrow 308+90, 311+38.28 \rightarrow 314+10 @ 2'$
 $STA. 308+90 \rightarrow 311+38.28, @ 2'+15'+4'+3.5' = 24.5'$
 $(743.72)(2) + (248.28)(24.5) = 7570.3 \text{ sq ft OR } 0.17 \text{ AC}$

RAMP C-2 :

$STA. 75+76 \rightarrow 81+00 @ 5'$
 $= 2620 \text{ sq ft OR } 0.06 \text{ AC}$

NB W/D

$STA. 507+21 \rightarrow 515+00 @ 24'+8' = 32'$
 $= 24928 \text{ sq ft OR } 0.57 \text{ AC}$

TOTAL IMPERVIOUS AREA : *35418.3* * sq ft OR *0.81* Ac 

TOTAL PERVIOUS AREA : *2.04* Ac 

TOTAL POOD AREA : *0.54* Ac 

* DUE TO SHOULDER GUTTER, 1.5' MORE IMPERVIOUS

200 L.F. OF SHOULDER GUTTER (STA. 513+00 \rightarrow 515+00)

$(200)(1.5) = 300 \text{ sq ft}$

$35118.3 + 300 = 35418.3 \text{ sq ft}$

N T B

Made by: TLH DATE: 06-May-93
 Ch'd by: HDT DATE: 5-7-93

PROJECT: I-4/WORLD DRIVE INTERCHANGE

 SUB-BASIN ANALYSIS & CURVE NUMBER DETERMINATION

BASIN DESIGNATION: BASIN C1
 NODE: POND C1
 TYPE of EVALUATION: POST - DEVELOPMENT
 (PRE- or POST-)
 BASIN SIZE: 3.390 acres.
 RAINFALL DEPTH: 10.19 inches, (10YR/72HR EVENT).

 ESTIMATE RUNOFF VOLUME

Determine Basin Runoff Curve Number: CN

Land Use Description	Soil Name	Soil Group	CN	AREA or %	PRODUCT
IMPERVIOUS AREA	-	-	98.00	0.81 ✓	79
POND WATER SURFACE AREA	-	-	100.00	0.54 ✓	54
PERVIOUS AREA - (GRASSED EMBANKMENT)	-	D	80.00	2.04 ✓	163

				3.39	297

WEIGHTED CN = $\frac{(\text{PRODUCT SUM})}{(\text{AREA or } 100\%)} = \frac{297}{3.39} = 87.5 \checkmark$

Determine Soil Storage: S

$S = \frac{(1000)}{(\text{CN})} - 10 = \frac{1000}{87.5} - 10 = 1.43 \text{ inches}$

Determine Soil Storage: S

$R = \frac{(P - 0.2 * S)^2}{(P + 0.8 * S)} = \frac{(10.19 - 0.2 * 1.43)^2}{(10.19 + 0.8 * 1.43)} = 8.65 \text{ inches}$

Determine Runoff Volume; Vr

$Vr = R * \text{AREA} / 12 = 8.65 * 3.39 / 12 = 2.44 \text{ acre-feet}$

H N T B

Made by: TLH
Ch'd by: _____

DATE: 26-Aug-94
DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

STAGE-STORAGE CALCULATIONS

BASIN: BASIN C3
POND: POND C3

STAGE (FT NGVD)	AREA (ACRES)	AVERAGE AREA (ACRES)	INCRE DEPTH (FT)	INCRE STORAGE (ACRE-FT)	TOTAL STORAGE (ACRE-FT)
78.00	1.35	-	-	-	0.00
80.00	1.56	1.46	2.00	2.91	2.91
82.00	2.42	1.99	2.00	3.98	6.89

RETENTION VOLUME = 0.50 acre-feet.

NTB

Made by: TLH
Ch'd by: _____

DATE: 26-Aug-94
DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

WATER QUALITY CALCULATIONS

BASIN C3

AREAS:

TOTAL AREA - 6.04 acres.
IMPERVIOUS AREAS - 94,525 s.f.
POND AREA - 58,925 s.f.
PERVIOUS AREAS - 109,771 s.f.

TREATMENT VOLUME:

2.50 inch VOLUME - 19,693 c.f.
1 inch VOLUME - 21,935 c.f.
Vtrtmt - 21,935 c.f.

4-211

HNTB A Howard Needles Tammen & Bergendoff Company	Made by TLH	Date 5-5-93	Job Number 15593
	Checked by HDT	Date 5-7-93	Sheet Number /
Calculations For I-4 / WORLD DRIVE	Backchecked by	Date	

POND CONTOUR AREASALL VALUES
PLANIMETEREDPOND C3

TOP OF MAINTENANCE BERM : (82.0 CONTOUR)
 $(126.53 / 3) (50)^2 / 43560 = 2.42 \text{ Ac } \checkmark$

BOTTOM OF MAINTENANCE BERM : (80.0 CONTOUR)
 $(81.48 / 3) (50)^2 / 43560 = 1.56 \text{ Ac}$

POND CONTECL - NCL : (78.0 CONTOUR)
 $(70.71 / 3) (50)^2 / 43560 = 1.35 \text{ Ac } \checkmark$

BASIN C3
 $(315.72 / 3) (50)^2 / 43560 = 6.04 \text{ Ac } \checkmark$

4-212

HNTB The HNTB Companies Calculations For <u>I-4 / WORLD DRIVE</u>	Made by <u>TXV</u>	Date <u>8-22-94</u>	Job Number <u>15593</u>
	Checked by	Date	Sheet Number
	Backchecked by	Date	

POST DEVELOPMENT AREA BREAKDOWN
 BASIN C3

TOTAL BASIN AREA: 6.04 AC. (FROM INTERGRAPH)

TOTAL IMPERVIOUS AREA:

RAMP C-2: (SHOULDER)

STA. 84+57 → 93+00 @ 10'
 = 8430 FT.² OR 0.19 AC

RAMP C-2

STA. 81+00 → 84+57 @ (36'+10') = 46'
 = 16422 FT.² OR 0.38 AC.

RAMP C

STA. 311+38.28 → 528+80
 $(274)(22') + (380)(22+14)/2 + (787.42)(4)$
 = 16018.9 FT.² OR 0.37 AC.

CD ROADS

STA. 47+35 @ RAMP C-1 → STA. 240+00 @ I-4
 @ 24'+10'+10' = 44'
 = 53,724 FT.² OR 1.23 AC.

TOTAL IMPERVIOUS AREA: 94,525 FT.² OR 2.17 AC. ◁

TOTAL PERVIOUS AREA: 109,771 FT.² OR 2.52 AC. ◁

TOTAL POND AREA: 58806 FT.² OR 1.35 AC. ◁

H N T B

Made by: TLH DATE: 26-Aug-94
Ch'd by: DATE:

PROJECT: I-4/W D DRIVE INTERCHANGE

SUB-BASIN ANALYSIS & CURVE NUMBER DETERMINATION

BASIN DESIGNATION: BASIN C3
NODE: POND C3
TYPE of EVALUATION: POST - DEVELOPMENT
(PRE- or POST-)

BASIN SIZE: 6.040 acres.
RAINFALL DEPTH: 10.19 inches, (10YR/72HR EVENT).

ESTIMATE RUNOFF VOLUME

Determine Basin Runoff Curve Number: CN

Land Use Description	Soil Name	Soil Group	CN	AREA or %	PRODUCT
IMPERVIOUS AREA	-	-	98.00	2.17	213
POND WATER SURFACE AREA	-	-	100.00	1.35	135
IMPERVIOUS AREA - (GRASSED EMBANKMENT)	-	D	80.00	2.52	202

$$\text{WEIGHTED CN} = \frac{(\text{PRODUCT SUM})}{(\text{AREA or } 100\%)} = \frac{549}{6.04} = 90.9$$

Determine Soil Storage: S

$$S = \frac{(1000)}{(CN)} - 10 = 1.00 \text{ inches}$$

Determine Soil Storage: R

$$R = \frac{(P - 0.2 * S)^2}{(P + 0.8 * S)} = 9.08 \text{ inches}$$

Determine Runoff Volume: Vr

$$Vr = R * \text{AREA} / 12 = 4.57 \text{ acre-feet}$$

H N T B

Made by: TLH
Ch'd by: _____

DATE: 26-Aug-94
DATE: _____

PROJECT: I-4/WORLD DRIVE INTERCHANGE

BASIN C3 - TIME OF CONCENTRATION CALCULATIONS

OVERLAND FLOW(SHEET FLOW)

$$To = \frac{0.93 * (L^{0.6}) * (n^{0.6})}{(i^{0.4}) * (S^{0.3})} = To(hr.s)$$

L = LENGTH in ft. = 15 ft.
S = SLOPE in ft./ft. = 0.1000 ft/ft
n = SHEET FLOW 'n' = 0.240 DENSE GRASS
Rainfall intensity, i (iterative) = 7.4 in/hr

To = 0.0300 hours = 1.80 minutes.

SHALLOW CONCENTRATED FLOW

$Tsh = \frac{Lsh}{V}$ where:
V Type(1/2) = 60 x V (1) = Vunpaved OR Vpaved (2)
Vunpaved = 16.1345 x (S)^{0.5}; where S = Slope in ft/ft.
Vpaved = 20.3282 x (S)^{0.5}; where S = Slope in ft/ft.
V Type(1/2) = 1
L = LENGTH in ft. = 410 ft.
S = SLOPE in ft./ft. = 0.0073 ft/ft
V = 1.38 fps Tsh = 4.96 mins.

V Type(1/2) = 1
L = LENGTH in ft. = 130 ft.
S = SLOPE in ft./ft. = 0.0154 ft/ft
V = 2.00 fps Tsh = 1.08 mins.

Tc is 10 minutes MINIMUM. TOTAL Tc = 7.84 minutes.
TOTAL Tc = 10.00 minutes.

HNTB The HNTB Companies Calculations For I-4/WD	Made by TXV	Date 8-22-94	Job Number
	Checked by	Date	15593
	Backchecked by	Date	Sheet Number

TABLE IV-13B3
 I-4/WORLD DRIVE INTERCHANGE
 "SUMMARY OF PROVIDED RETENTION VOLUMES"
 SOUTHEAST SIDE OF I-4

POND ID	NCL (NGVD)	NCL AREA (Ac.)	REQUIRED TRTMT. VOL. (Ac.-Ft.)	WIER ELEVATION (NGVD)	POND AREA @ WIER ELEV. (Ac.)	PROVIDED TRTMT. DTH (Ft.)	PROVIDED TRTMT. VOL. (Ac.-Ft.)
B	77.15 78.0	0.76	0.37	78.85 ⁺	0.82	0.85	0.67
B1	78.0	0.21	0.29	78.85 ⁺	0.25	0.85	0.20
B2 ⁺⁺	—	—	0.35	—	—	—	—
C	78.0	2.26	0.54	78.85	2.36	0.85	1.91
C1	78.0	0.54	0.28	78.85 ⁺	0.60	0.85	0.48
C2 ⁺⁺⁺	—	—	0.22	—	—	—	—
C3	78.0	1.35	0.53	78.85 ⁺	1.44	0.85	1.18
* CULVRT3A*	—	—	0.58	—	—	—	—
* CULVRT2B*	—	—	0.20	—	—	—	—
PD-7A*	—	—	0.17	—	—	—	—
			3.50				4.49

* COMPENSATING TREATMENT AREAS

+ HYDRAULIC CONNECTION TO POND C, TRTMT TO 78.70 DUE TO CONTROL STRUCTURE IN POND C.

++ BASIN WHICH CONTRIBUTES TO POND C1

+++ BASIN WHICH CONTRIBUTES TO POND C

* BASIN WHICH CONTRIBUTES TO POND C3

** BASIN C1 IS MODELED TO POND C, NOT BASIN C2

HNTB The HNTB Companies	Made by <i>TKV</i>	Date <i>8-22-94</i>	Job Number <i>15593</i>
	Checked by	Date	Sheet Number
	Calculations For <i>I-4/WD</i>	Backchecked by	Date

TABLE IV-13B4
 I-4/WORLD DRIVE INTERCHANGE
 "SUMMARY OF PROVIDED RETENTION VOLUMES"
 NORTHWEST SIDE OF I-4

POND ID	NCL (NGVD)	NCL AREA (AC.)	REQUIRED TRTMT VOL (AC-FT.)	WIER ELEVATION (NGVD)	POND AREA @ WIER ELEV. (AC.)	PROVIDED TRTMT DTH (FT.)	PROVIDED TRTMT VOL (AC-FT.)
D ⁺⁺	—	—	0.16	—	—	—	—
D2	78.0	1.92	0.91	78.6 ⁺	2.01	0.60	1.18
D3	78.0	1.06	0.47	78.6 ⁺	1.12	0.60	0.65
A3	78.0	2.70	0.48	78.6 ⁺	2.78	0.60	1.64
A1 ⁺⁺	—	—	0.04	—	—	—	—
A2	78.0	2.16	0.59	78.6 ⁺	2.22	0.60	1.31
A	78.0	1.50	0.56	78.6	1.60	0.60	0.94
PD-16*	—	—	0.73	—	—	—	—
* AZA**	—	—	0.25	—	—	—	—
* CULVRT 1A ⁺⁺⁺	—	—	0.47	—	—	—	—
* CULVRT 1B ⁺⁺⁺	—	—	0.23	—	—	—	—
PD-3 ⁺⁺⁺	—	—	0.27	—	—	—	—
			5.16				5.72

★ COMPENSATING TREATMENT AREAS

* BASIN WHICH DIRECTLY CONTRIBUTES TO POND A3

** BASIN WHICH DIRECTLY CONTRIBUTES TO POND A2

*** BASIN WHICH DIRECTLY CONTRIBUTES TO POND D3

+ HYDR. CONN. TO POND A, TRTMT. TO 78.6 DUE TO C/S, IN POND D

++ BASINS WHICH DIRECTLY CONTRIBUTE TO POND D2

**SUMMARY OF
TREATMENT VOLUMES**

Pond Designation	Required Treatment Volume (Ac-Ft)	Treatment Volume Provided (Ac-Ft)
TP-2	1.35	1.35
TP-3	1.82	1.84
TP-4	2.14	2.14
TP-5	0.37	0.40
TP-6	1.76	1.92
TP7	0.48	0.55

ORIGINAL SUBMITTAL
JUN 21 1996
ORLANDO SERVICE CENTER

WATER QUALITY:

Water quality treatment equal to 2.5 inches times the percentage of impervious coverage is provided in 6 wet detention ponds.

Basin	Treatment Method	Vol Req'd. (ac-ft)	Vol Prov'd (ac-ft)
TP-2	2.6 acres WET DETENTION	1.35	1.35
TP-3A & TP-3B	2 acres WET DETENTION	1.80	1.80
TP-4	3.7 acres WET DETENTION	2.10	2.10
TP-5	.7 acres WET DETENTION	0.37	0.37
TP-6	2.6 acres WET DETENTION	1.76	3.30
TP-7A & TP-7B	1.8 acres WET DETENTION	0.50	0.50

ROAD DESIGN:

As shown in the following table, minimum road center lines have been set at or above the calculated design storm flood elevation.

Design Storm Freq: 10 YR/72 HR

Design Rainfall: 10.20 inches

Basin	Flood Elevation (ft., NGVD)	Minimum Centerline Elevation (ft., NGVD)
TP-2	77.5	80.9
TP-3A & TP-3B	81.8	82.5
TP-4	74.4	84.7
TP-5	85.6	87.7
TP-6	84.9	86.3
TP-7A & TP-7B	86.9	88.9

IV. ENVIRONMENTAL ASSESSMENT

PROJECT SITE DESCRIPTION:

The 82.22 acre project site contains 4.49 acres of wetlands, 4.46 acres of open water habitat within a manmade borrow pond and ditches and 73.27 acres of uplands consisting primarily of flatwoods, hardwood/conifer mixed forests and existing disturbed right-of-way.

The majority of these wetland impacts and associated mitigation were previously permitted under the Disney Master Development Plan permit (#48-00714-S).

A portion (0.75 acre) of Wetland 20.4A lies within the project limits and will

BASIN INFORMATION:

Basin	Area Acres	WSWT Elev (ft, NGVD)	Normal/Dry Ctr1 Elev (ft, NGVD)	Method of Determination
CP-2	.60	75.00	74.5/74.5	WET SEASON SOIL BORINGS
TP-2	12.17	75.60	75.6/75.6	WET SEASON SOIL BORINGS
TP-3A & TP-3B	13.00	80.00	79.5/79.5	WET SEASON SOIL BORINGS
TP-4	15.47	74.00	73/73	WET SEASON SOIL BORINGS
CP-4A & CP-4B	2.87	86.00	83/83	WET SEASON SOIL BORINGS
TP-5	3.17	83.00	83/83	WET SEASON SOIL BORINGS
CP-5	1.48	85.00	83/83	WET SEASON SOIL BORINGS
TP-6	11.85	86.00	82/82	WET SEASON SOIL BORINGS
TP-7A & TP-7B	5.65	87.00	85.5/85.5	WET SEASON SOIL BORINGS

DISCHARGE STRUCTURE INFORMATION:

Water Quality Structures:

Basin	Str. #	Bleeder Type	Dimensions	Invert Elev. (ft, NGVD)
TP-2	1	V-NOTCH	85 degrees	75.60
TP-3A & TP-3B	1	V-NOTCH	26 degrees	79.50
TP-4	1	V-NOTCH	70 degrees	73.00
TP-5	1	V-NOTCH	20 degrees	83.00
TP-6	1	V-NOTCH	40 degrees	82.00
TP-7A & TP-7B	1	V-NOTCH	120 degrees	85.50

Major Discharge Structures:

Basin	Str. #	Description	Crest Elev. (ft, NGVD)
CP-2	1	4.5' wide SHARP CRESTED weir	74.50
CP-2	1	3' wide X 4.5' long drop inlet	75.90
TP-2	1	2' wide SHARP CRESTED weir	76.10
TP-3A & TP-3B	1	2' wide SHARP CRESTED weir	80.35
TP-4	1	7' wide SHARP CRESTED weir	73.57
CP-4A & CP-4B	1	8' wide SHARP CRESTED weir	83.00
TP-5	1	10' wide SHARP CRESTED weir	83.55

Basin	Str. #	Description	Crest Elev. (ft, NGVD)
CP-5	1	8' wide SHARP CRESTED weir	83.00
TP-6	1	6' wide SHARP CRESTED weir	83.25
TP-7A & TP-7B	1	2' wide SHARP CRESTED weir	85.80

Discharge Culverts:

Basin	Str. #	Description
CP-2	1	19' long, 1.5' dia. RCP
TP-2	1	175' long, 2' dia. RCP
TP-3A & TP-3B	1	118' long, 2' dia. RCP
TP-4	1	60' long, 2.5' dia. RCP
CP-4A & CP-4B	1	922' long, 3.5' dia. RCP
TP-5	1	75' long, 1.5' dia. RCP
CP-5	1	160' long, 3.5' dia. RCP
TP-6	1	180' long, 2.5' dia. RCP
TP-7A & TP-7B	1	71' long, 1.5' dia. RCP

Receiving Body:

Basin	Str. #	Receiving Body
CP-2	1	REEDY CREEK VIA SPREADER SWALE
TP-2	1	REEDY CREEK VIA ADJACENT WETLANDS
TP-3A & TP-3B	1	REEDY CREEK VIA ADJACENT WETLANDS
TP-4	1	REEDY CREEK VIA SPREADER SWALE
CP-4A & CP-4B	1	REEDY CREEK VIA ADJACENT WETLANDS
TP-5	1	REEDY CREEK VIA ADJACENT WETLANDS
CP-5	1	REEDY CREEK VIA ADJACENT WETLANDS
TP-6	1	REEDY CREEK VIA ADJACENT WETLANDS
TP-7A & TP-7B	1	REEDY CREEK VIA ADJACENT WETLANDS

III. PROJECT EVALUATION

Discharge Rate:

Discharge attenuation for this project is provided in the master system of the Reedy Creek Improvement District; therefore, the only discharge structures described provide the water quality treatment for the proposed project.

Design Storm Freq: 10 YR/72 HR

Design Rainfall: 10.20 inches

Basin	Flood Elevation (ft., NGVD)	Minimum Centerline Elevation (ft., NGVD)
TP-2	77.5	80.9
TP-3A & TP-3B	81.8	82.5
TP-4	74.4	84.7 <i>83.85</i>
TP-5	85.6	87.7
TP-6	84.9	86.3
TP-7A & TP-7B	86.9	88.9

IV. ENVIRONMENTAL ASSESSMENT

PROJECT SITE DESCRIPTION:

The 68.43 acre project occurs within the existing right-of-way. Land use within the project limits includes wetland cut ditches, remnants of formerly impacted wetlands and existing right-of-way and roadway.

The 39.36 acre offsite mitigation parcel within the Split Oak Forest Mitigation Park includes 20.62 acre of wetlands and 18.74 acres of uplands. The wetland communities include a borrow pond, bay and mixed hardwood swamps, coniferous forest, mixed hardwood and conifer forest, freshwater marsh and wet prairie. The upland communities include grasslands, shrub rangeland, palmetto prairie, pine flatwoods, and hardwood-conifer mixed forests.

EXISTING ON SITE WETLAND COMMUNITIES AND OTHER SURFACE WATERS:

ID NO	TOTAL ACREAGE	BIOLOGICAL CONDITION	COMMUNITY TYPE	COMMUNITY ACREAGE
W1	4.03	FAIR/POOR	MIXED WETLAND HARDWOODS	.67
			WETLAND FORESTED MIXED	3.10
			CYPRESS	.10
			STREAMS AND WATERWAYS	.16

TOTAL ON SITE WETLAND/SURFACE WATER ACREAGE: 4.03

EXISTING ON SITE UPLAND COMMUNITIES:

ID NO	TOTAL ACREAGE	BIOLOGICAL CONDITION	COMMUNITY TYPE	COMMUNITY ACREAGE
U1	64.40	N/A	ROADS AND HIGHWAYS	25.15
			DISTURBED LANDS	39.25

Pervious surfaces (green areas, not including wetlands),

Please see the following Table and the Land Use Map.

Pond No.	Total Basin Area (AC)	Total Pervious	
		Area (ac)	% Total
MV-5A*	3.92	0.77	19.64
TP-2	12.17	3.06	25.14
TP-3	13.00	2.25	17.31
TP-4	15.47	1.53	9.89
TP-5	3.17	0.70	22.08
TP-6	11.85	2.01	16.96
TP-7	5.65	1.54	27.26
Total :	65.23	11.86	18.18

* Area for this project only.

3. Lakes, canals, retention areas, other open water areas,

Please see the following Table and the Land Use Map.

Pond No.	Total Basin Area (AC)	Ponds	
		Area (AC)	% Total
MV-5A*	3.92	-	-
TP-2	12.17	2.63	21.61
TP-3	13.00	2.02	15.54
TP-4	15.47	3.66	23.66
TP-5	3.17	0.70	22.08
TP-6	11.85	1.39	11.73
TP-7	5.65	1.79	31.68
Total:	61.31	12.19	38.93

*This area is excluded from the total since the pond is not considered part of this project

4. Wetlands;

A-2
Rev.
6-13-96

**BASIN 4
POST DEVELOPMENT SUMMARY TABLE**

BASIN VARIABLE	POST-DEV. 10YR/72HR	POST-DEV. 50YR/72HR
STORM INTENSITY (in/hr)	10.19	12.91
BASIN AREA (ac)	15.47	15.47
DISCHARGE (cfs)	16.97	21.21
MAXIMUM STAGE (ngvd)	74.41	74.63
TIME OF CONCENTRATION (min)	44.37	44.37
COMPOSITE CURVE NUMBER	84.00	84.00
ELEVATION @ NWL (ngvd)	73.00 ^{72.15}	73.00
REQUIRED TREATMENT (ac-ft)	2.14	2.14
PROVIDED TREATMENT (ac-ft)	2.14	2.14
RECOVERY VOLUME (ac-ft)	0.64	0.64
REC. V-NOTCH ANGLE (degrees)	70.00	70.00
RECOVERY TIME (hours)	24.00	24.00

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TP-4

GREIMER INC: WATER RESOURCES GROUP
POND STAGE STORAGE CALCULATIONS - POND

PROJECT TITLE:	14-06	FILENAME:	
PROJECT NUMBER:	W100017-20	SCALE (1" =):	200'
BASIN DESIGNATION:	Basin	MADE BY:	
BASIN ANALYSIS (PRE/POST):	Post	CHECKED BY:	
		DATE:	08-Nov-95
			11-21-95

ELEV.	PLAN. VALUE 1 (sl)	PLAN. VALUE 2 (sl)	AREA (ac)	AVE. AREA (ac)	DELTA D (ft)	DELTA STORAGE (ac-ft)	STORAGE P.A.V.* (ac-ft)	ATTENUATION OF PEAK DISCHARGE (ac-ft)
73.00	72.15		3.66				0	0
				3.74	0.5	1.87		
73.50			3.810				1.87	1.87
				3.85	0.25	0.96		
73.75			3.885				2.83	2.83
				3.92	0.25	0.98		
74.00	73.15		3.960				3.81	3.81
				4.00	0.25	1.00		
74.25			4.035				4.81	4.81
				4.07	0.25	1.02		
74.50			4.110				5.83	5.83
				4.15	0.25	1.04		
74.75			4.185				6.86	6.86
				4.22	0.25	1.06		
75.00			4.260				7.92	7.92
				4.30	0.25	1.07		
75.25			4.335				8.99	8.99
				4.37	0.25	1.09		
75.50	74.65		4.41				10.09	10.09
75.51	74.73		4.42	4.45	0.01		10.49	10.49
76.00			4.800		0.5	2.30		
				5.00	0.5	2.57		
76.50			5.19				14.89	14.89

* A.V. = POLLUTION ABATEMENT VOLUME.

NOTE: Area computations associated w/ elevations

FLOOD ELEV. 73.0 - 3.66 Ac
75.5 - 4.41 Ac
76.5 - 5.19 Ac

taken from Micro station / GEOPAK.

FLOOD COMPENSATION VOLUME

1/22/96 HS

Pond TP-4

Pond TP-4 will be a wet bottom pond located right of STA 2245+50. The pond will be used jointly by this project and by Celebration for treatment. The pond will treat runoff from the new pavement and shoulders on the EBCD road (STA 2238+88 to STA 2290+00) and the eastbound slip ramp from its departure from the EBCD to STA 4287+00 and the EBSLP collected by shoulder gutter inlets and barrier wall inlets. The pond will also treat runoff from the existing eastbound I-4 mainline and new lane widening from STA 4276+54 to 4287+00 collected by shoulder gutter inlets. The permit for this pond will be modified in the future to account for the contribution from Celebration. The pond will discharge through a spreader swale located on the southeast side of the pond adjacent to the Wildlife Management Conservation Area.

This pond is larger than necessary to accommodate future development. The discharge structure has been designed to treat and provide bleed-down in 24 hours from this project only. Any future development will necessitate a revision to the discharge.

The pond will have lined sides and bottoms to prevent wasting of fresh water and dewatering wetlands.

This section contains the Santa Barbara worksheet which includes basin area, DCIA (Directly Connected Impervious Areas), water surface area, % DCIA, NDCIA (Non-Directly Connected Impervious Areas) and composite Curve Number (CN). Also included are: the treatment volume calculation worksheet which provides the pollution abatement volume required and provided and recovery time; stage/storage worksheet; pond area calculation; nodal diagram for the AdICPR model; post-development hydrographs for the 10-yr/72-hr and 50-yr/72-hr storm events; and post-development routings for the 10-yr/72-hr and 50-yr/72-hr storm events; and ditch calculations.

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VOLUME CALCULATIONS
USING AVERAGE END AREA

TP-4

Project I-4 C-D Roads

Description PT-4 FLOOD ENCHROACHMENT Computed by: H. Sahebkar
 Project No. V100017.20 CREATED BY: JAY 1-29-96
 Date 22-Jan-96

Station	Area (sf)	Volume (cf)	Acc. Volume (cf)	Volume (cf)
0 10	0.00			
		5,498.20	5,498.20	
0 50	274.91			
		14,910.25	20,408.45	
1 0	321.50			
		19,335.75	39,744.20	
1 50	451.93			
		22,430.00	62,174.20	
2 0	445.27			
		22,852.00	85,026.20	
2 50	468.81			
		23,014.00	108,040.20	
3 0	451.75			
		14,437.50	122,477.70	
3 50	125.75			
		7,671.50	130,149.20	
4 0	181.11			
		11,308.00	141,457.20	
4 50	271.21			
		12,393.00	153,850.20	
5 0	224.51			
		4,490.20	158,340.40	3.63
5 40	0.00			

* PLEASE REFER TO SHEETS 69-81

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Job: I-4 CDRds TP-4
 Project No. V100017.212 Sheet 1 of
 Description: TP-4 Flood Computed By HS Date 1-22-96
impact Checked By JAK Date 1-29-96

Pond TP-4 Flood encroachment is 3.63 AF
 There is 10.49 AF of flood storage capacity
 in TP-4

$$10.49 - 3.63 = \underline{6.86 \text{ AF}}$$

There is 6.86 AF of flood storage is available to
 be used by others.

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14 - CD ROADS
FLOODPLAIN - COMPENSATION

BIFUR
(WEST SIDE 87.34)

WEST BOUND CD
STA: 3279+00 TO 3302+00
100 YR FLOODPLAIN ELEV = 87.34

STATION	COMP. AREA (ft ²)	AVG AREA (ft ²)	INTERVAL LENGTH (ft)	COMP. VOLUME (ft ³)
3279 + 0	0.0			
		43.65	100.0	4365.0
3280 + 0	87.3			
		80.40	100.0	8040.0
3281 + 0	73.5			
		67.50	100.0	6750.0
3282 + 0	61.5			
		49.55	100.0	4855.0
3283 + 0	35.6			
		34.25	100.0	3495.0
3284 + 0	34.3			
		18.05	100.0	1805.0
3285 + 0	1.8			
		2.25	100.0	225.0
3286 + 0	2.7			
		10.40	100.0	1040.0
3287 + 0	18.1			
		31.80	100.0	3180.0
3288 + 0	45.5			
		60.35	100.0	6035.0
3289 + 0	75.2			
		61.05	100.0	6105.0
3290 + 0	46.9			
		56.25	100.0	5625.0
3291 + 0	65.5			
		81.80	100.0	8180.0
3292 + 0	98.2			
		112.50	100.0	11250.0
3293 + 0	126.8			
		157.45	100.0	15745.0
3294 + 0	188.1			
		235.95	100.0	23595.0
3295 + 0	283.8			
		267.55	100.0	26755.0
3296 + 0	251.3			
		217.10	100.0	21710.0
3297 + 0	182.9			
		171.30	100.0	17130.0
3298 + 0	159.7			
PAGE SUB-TOTAL				175895.0

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Pond TP-6

Pond TP-6 will be a wet bottom pond located right from STA 2295+00 to 2306+00. The pond will be created by enlarging the Southern Connector Extension Pond BB in the future high speed rail corridor. The pond will be used jointly by this project and by Celebration. The pond will treat runoff from the new pavement and shoulders on the EBCD road from STA 2290+00 to 2308+00 collected by shoulder inlets and barrier wall inlets. The pond will treat runoff from the existing east and westbound I-4 mainline pavement and the added driving lanes and shoulder from STA 6287+00 to 6319+09 (EB I-4) and from STA 7286+65 to 7319+09 (WB I-4) collected in shoulder gutter inlets. All of the pavement and shoulders originally treated and attenuated by Pond BB will be obliterated or will be reconstructed and drained to Pond TP-6 by this project. The pond will discharge into the roadside swale which will be located between the eastbound I-4 mainline and the EBCD road. **The pond will be owned by Celebration and maintained by Florida's Turnpike.**

The pond will have lined sides and bottoms to prevent wasting of fresh water and dewatering wetlands.

This section contains the Santa Barbara worksheet which includes basin area, DCIA (Directly Connected Impervious Areas), water surface area, % DCIA, NDCIA (Non-Directly Connected Impervious Areas) and composite Curve Number (CN). Also included are: the treatment volume calculation worksheet which provides the pollution abatement volume required and provided and recovery time; stage/storage worksheet; pond area calculations; nodal diagram for the AdICPR model; post-development hydrographs for the 10-yr/72-hr and 50-yr/72-hr storm events; and post-development routings for the 10-yr/72-hr and 50-yr/72-hr storm events.

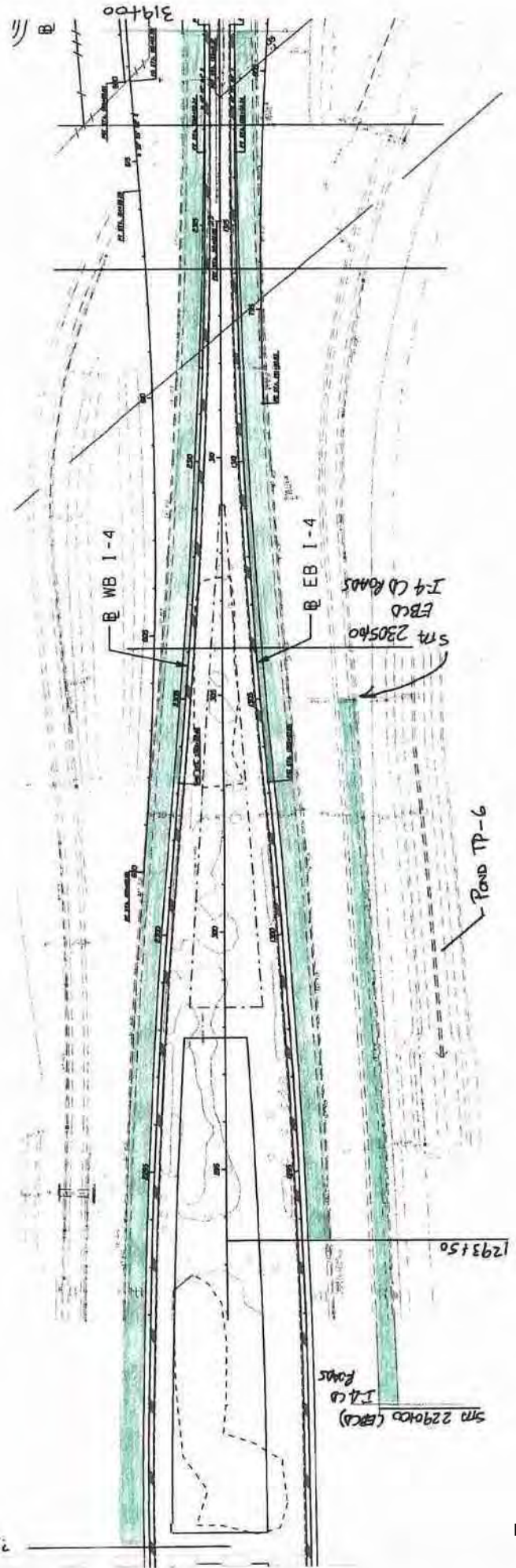
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PRE - DEVELOPMENT (CURRENT) CONDITION



CURRENT PAVEMENT TREATED IN POND TP-6 (B.45AC)

287+00



Post Development (ultimate) condition

Proposed ultimate pavement treated in Pond TP-6 (8.43 AC)

$1" = 200'$

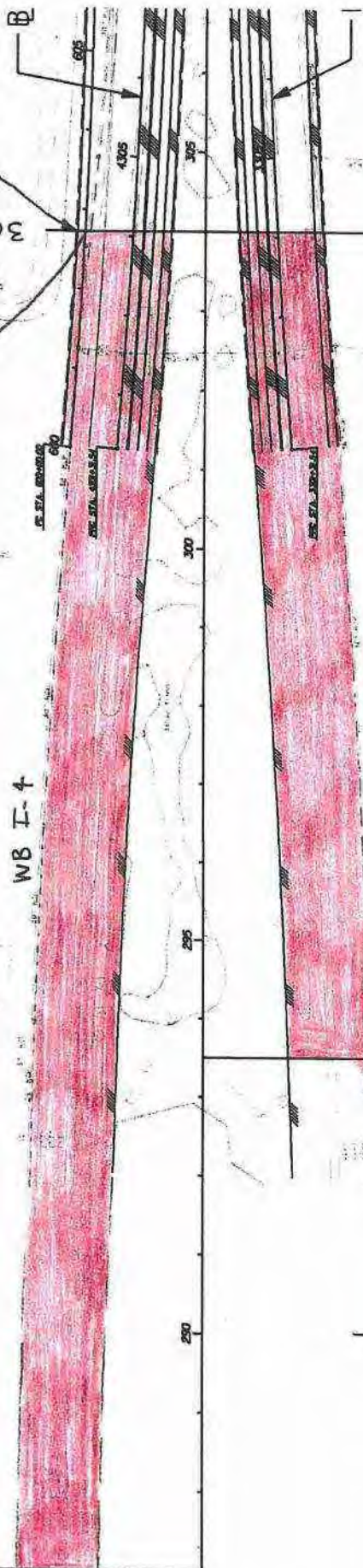
Low gutter el = 84.22

low edge of pmt = 84.95

2287+00 (WB I-4)

30+00

WB I-4



EB I-4

EB CD

POND TP-6

1293+50 (EB I-4)

2290+00 (EB CD I-4 ROAD)

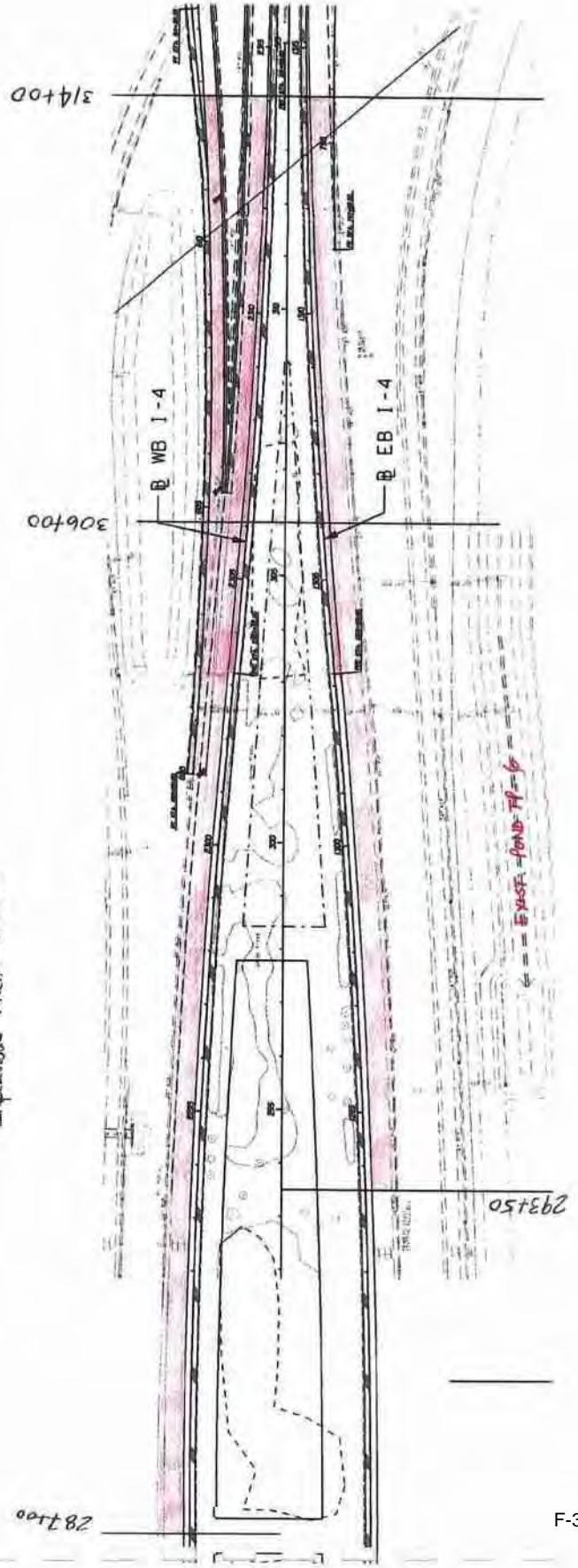
2305+00 (EB CD I-4 ROAD)

BASIN TP-6 Post
INITIAL CONDITION

Impervious Area = 8.36 AC

8.36 AC Impervious pavement
treated in TP-6

1" = 200'



EXIST. POND TP-6

URS

MADE BY: REC DATE: 08/27/02 JOB NO. V100385.01
 CHECKED BY: CSD DATE: 10/21/02 SHEET NO.
 PROJECT: US 192 / I-4 INTERCHANGE POND: EXIST TP-6 BASIN: TP6

Water Quality

Total Basin Area = [redacted] ac
 Paved Area = [redacted] ac
 Pond Area at NWL = [redacted] ac

A. 1.0 " Over Total Basin Area = 0.99 Ac-Ft
 B. 2.5 " Over Paved Area = 1.76 Ac-Ft
 Required PAV = [redacted] Ac-Ft

NAVD

Stage Storage Calculations

Depth (ft)	Area (ac)	AVC AREA (ac)	Depth (ft)	Delta Storage (Ac-Ft)	Sum Storage (Ac-Ft)
87.15	2.78				12.51
		2.66	1.00	2.66	
86.15	2.55				9.85
		2.11	3.75	7.93	
82.40 (PAV)	1.68				1.92
		1.53	1.25	1.92	
81.15 (NWL)	1.39				

Bleed Down Volume
 1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.49 \text{ Ac-Ft}$
 Volume Remaining in Pond after Bleed Down = $\text{PAV} - \text{Bleed Down Volume} = 1.42 \text{ Ac-Ft}$

URS Greiner Woodward Clyde

MADE BY: REC DATE: 10/22/99 JOB NO. V100264.03
 CHECKED BY: MPL DATE: 3/15/2000 SHEET NO.
 CALCULATIONS FOR: I-4 SIX LANING POND: EXIST MV5A BASIN: B6W

Water Quality

Total Basin Area = 14.56 ac
 Paved Area = 11.20 ac
 Pond Area at NWL = 11.07 ac

A. 1.0 " Over Total Basin Area = 2.91 Ac-Ft
 B. 2.5 " Over Paved Area = 3.79 Ac-Ft
 Required PAV = 3.79 Ac-Ft

Stage Storage Calculations

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta H (ft)	Delta Storage (ac-ft)	Sum Storage (ac-ft)
75.65	11.51				16.93
75.15	11.36	11.44	0.50	5.72	11.22
74.55 (PAV)	11.19	11.27	0.60	6.76	4.45
74.15 (NWL)	11.07	11.13	0.40	4.45	

Bleed Down Volume

1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 1.45 \text{ Ac-Ft}$

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 3.00 Ac-Ft

Exist. CONTROL STRUCTURE of POND MV5A
 WILL WORK. NO MODIFICATION NECESSARY

TABLE 4.1
Basin TP-6 Summary

Pre-Development

Basin Information

Total Area (acres)	11.85
Impervious Area (acres)	8.45
Pervious Area (acres)	2.01
Surface Water Area (acres)	1.39
Discharge rate (10-year/72 hour) (cfs)	11.15
Discharge rate (50-year/72 hour) (cfs)	14.76

Existing Pond Information (permitted)

Normal Water Level (NWL) Elevation (ft. NAVD)	81.15
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	
10-year/72 hour Design High Water (DHW) (ft. NAVD)	84.13
50-year/72 hour Design High Water (DHW) (ft. NAVD)	84.66
Top of berm elevation (ft. NAVD)	87.15

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	1.76
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.92
PAV elevation (ft. NAVD)	82.40

Pond Outfall information

Outfall type	drop structure
Weir length (ft)	6'
Outfall pipe diameter (inches)	30"
Receiving Body	Reedy Creek Basin

Treatment Recovery Information

Bleed Down Volume (ac-ft)	0.49
Orifice or V-notch weir size (inches or degrees)	40 degrees
Recovery Time (hours)	23.59

Post-Development

Basin Information

Total Area (acres)	11.85
Impervious Area (acres)	8.45
Pervious Area (acres)	2.01
Surface Water Area (acres)	1.39
Discharge rate (10-year/72 hour) (cfs)	11.15
Discharge rate (50-year/72 hour) (cfs)	14.76

Proposed Pond Information

Normal Water Level (NWL) Elevation (ft. NAVD)	81.15
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	
10-year/72 hour Design High Water (DHW) (ft. NAVD)	84.13
50-year/72 hour Design High Water (DHW) (ft. NAVD)	84.66
Top of berm elevation (ft. NAVD)	87.15

Water Quality Information

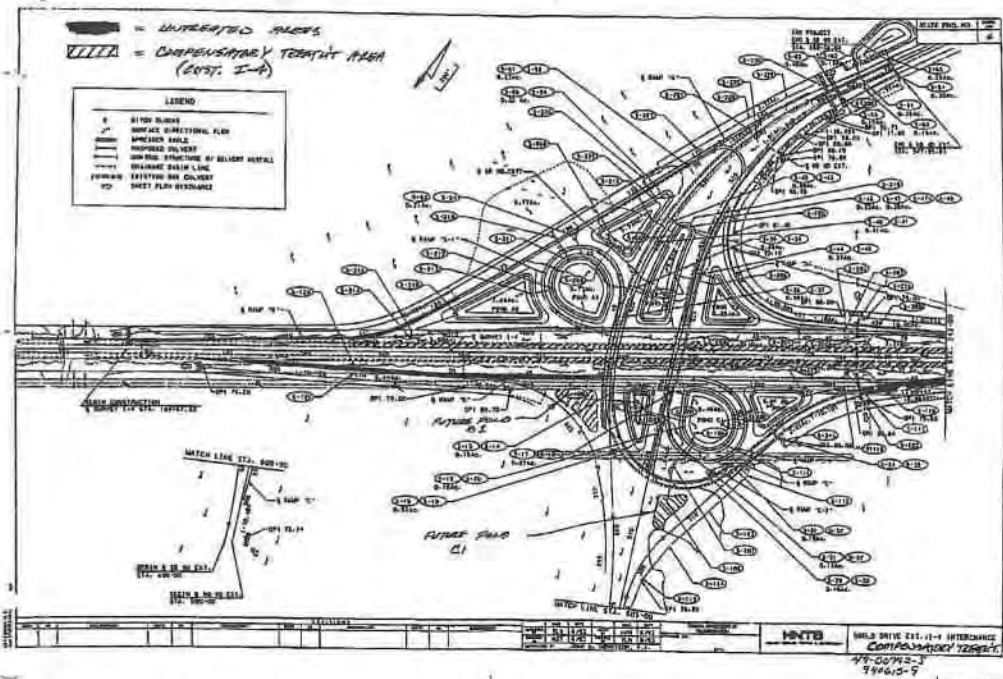
Required Pollution Abatement Volume (PAV) (ac-ft)	1.76
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.92
PAV elevation (ft. NAVD)	82.40

Pond Outfall information

Outfall type	drop structure
Weir length (ft)	6'
Outfall pipe diameter (inches)	30"
Receiving Body	Reedy Creek Basin

Treatment Recovery Information

Bleed Down Volume (ac-ft)	0.49
Orifice or V-notch weir size (inches or degrees)	40 degrees
Recovery Time	23.59





REFERENCE POINT	EBCD	OFF-SET
1	2295-55	83' RT
2	2295-35	103' RT
3	2295-35	163' RT
4	2295-55	183' RT
5	2297-38	183' RT
6	2297-52	178' RT
7	2297-85	165' RT
8	2304-06	151' RT
9	2305-81	161' RT
10	2305-84	116' RT
11	2304-06	106' RT
12	2298-01	120' RT
13	2297-57	94' RT
14	2297-39	83' RT

NOTES:

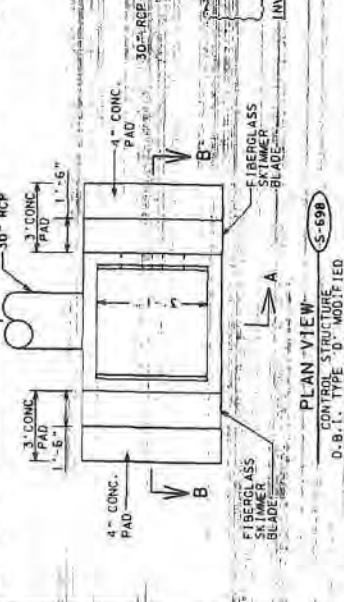
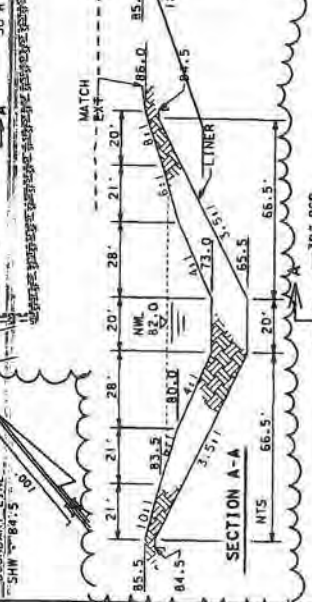
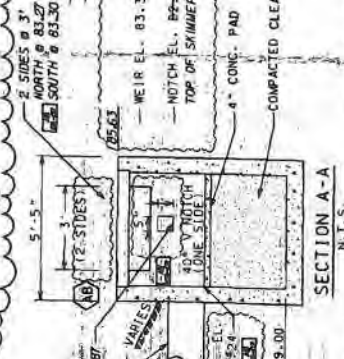
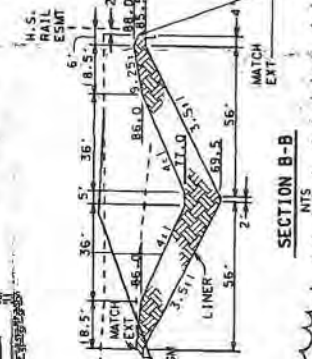
MAINTENANCE DRIVE AND MAINTENANCE BERM SHALL BE SUD ON COMPACTED FILL.

SKIMMERS SHALL BE CONSTRUCTED OF 3/16" FIBERGLASS, STAINLESS STEEL TUBING, REINFORCED PLASTIC PLATES, AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES SHALL BE ATTACHED TO THE CONCRETE WITH TECHNICAL SPECIAL PROVISIONS WORK SHALL CONFORM TO THE ALL MATERIALS, COMPLETE AND LABOR NECESSARY TO CONSTRUCT THE STRUCTURE, COMPLETE AND ACCEPTED SHALL BE INCLUDED IN THE PRICE BID FOR S-698.

MINIMUM RADIUS FOR CURVES AT NORMAL WATER LEVEL (N.W.L.) IS 20 FEET. CURVES ABOVE N.W.L. ARE CONCENTRIC. MINIMUM AN IMPROVED RADIUS FOR CURVES BELOW N.W.L. IS 5 FEET. ALL LIMITS OF CONSTRUCTION REFLECT BUFFER LIMITS FOR ADJACENT WETLAND AND MEET THE COMBINED MINIMUM 15' AVERAGE 25' CRITERIA. NO EROSION CONTROL DEVICES SHOULD BE PLACED WITHIN THESE WETLAND BUFFERS.

LEGEND

- APPROX BORING LOCATION
- STAKED SILT FENCE (TYPE 111)
- FLOATING TURBIDITY BARRIER
- SAVING FENCE



DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
RET 11-4	AM	AS-BUILT			
	AM	REVISED			

TREATMENT POND-6
14 C-D ROADS

Greiner

FLORIDA DEPARTMENT OF
TRANSPORTATION

BASIN TP-6 (ALTERNATIVE 1)

Pond TP-6 is an existing pond located east of I-4 between stations 1295+00 and 1305+00. The pond was built under the I-4 CD Roads project (State Project No. 92130-3420). This pond currently treats the westbound lanes of I-4 from station 2287+00 to 319+00 (centerline of I-4), the eastbound lanes of I-4 from station 1293+50 to 319+00 (centerline of I-4) and the EBCD lane from station 2290+00 to 2305+00. The pond is currently at capacity with no available volume for additional treatment of the proposed pavement; therefore, the limits for the ultimate and interim improvements will be defined by the amount of current existing pavement being treated in this pond.

In the ultimate condition, it was determined that at station 304+00, the amount of ultimate impervious area (8.43 ac) would be at or near the amount of the current existing pavement treated (8.45 ac) in the pond. Therefore, the end basin limit for the ultimate condition is at station 304+00.

In the interim condition, it was determined that at station 314+00, the amount of interim impervious area (8.36 ac) would be at or near the amount of the current existing pavement treated (8.45 ac) in the pond. Therefore, the end basin limit for the interim condition is at station 314+00.

Once the project goes through the ultimate build-out phase, several stormsewer pipes built under the interim phase will have to be abandoned or removed because of the shift in basin limits and the reconstruction of I-4. The extent of this work will be further analyzed during the drainage design.

Following are drainage calculations for this basin which includes: basin delineation, backup drainage calculations taken from the I-4 CD Roads project, CN worksheets, pond calculations and hydraulic calculations.

3.0 PRE-DEVELOPMENT

Most of the existing I-4 and US 192 Interchange was constructed prior to any regulatory stormwater management requirements. As such, runoff from the interchange goes untreated to the outfall points as described in section 2.1. However, recent development near the vicinity of the interchange and within the limits of the project, has occurred over the past years. These developments are described as follows:

- The I-4 CD Roads project just south of the interchange consisted of CD (Collector-Distributor) roads as well as stormwater management facilities to provide treatment of excess runoff.
- The I-4 widening project just south of the interchange. Two proposed stormwater management facilities will occupy the bifurcated area. This project will commence construction in February 2004.
- The Southern Connector Extension (SR 417) just south of the interchange. Two existing stormwater management facilities were built to provide treatment of this road.
- US 192 East widening, east of I-4. An existing pond (EP-5B) was built as part of the Enterprise Park Development and provides treatment of the widening of this portion of US 192.
- North of Interchange, at the Osceola Parkway and I-4 Interchange. Two existing ponds (Ponds A and B) were built to provide treatment and attenuation of this interchange.

A detailed basin analysis is provided in Volume 2, Appendix A.

3.1 Basin TP-6

This existing basin drains to Pond TP-6, which was permitted and constructed as part of the I-4 CD Roads project. This pond is a wet detention pond that discharges to a roadside swale between eastbound I-4 and the CD road. The swale drains south towards the existing ConSpan structure and ultimately discharges to the Reedy Creek Basin. Refer to Volume 2, Appendix A for the pre-development basin map.

Conveyance to the pond is provided in a system of shoulder gutter inlets and pipes along westbound and eastbound I-4, as well as on the CD road. Volume 2, Appendix D, contains existing drainage

I-4 CD ROADS

BASIN 6 POST DEVELOPMENT SUMMARY TABLE

BASIN VARIABLE	POST-DEV. 10YR/72HR	POST-DEV. 50YR/72HR
STORM INTENSITY (in/hr)	10.19	12.91
BASIN AREA (ac)	11.85	11.85
DISCHARGE (cfs)	11.15	14.76
MAXIMUM STAGE (ngvd)	84.98	85.51
TIME OF CONCENTRATION (min)	38.35	31.23
COMPOSITE CURVE NUMBER	80.00	80.00
ELEVATION @ NWL (ngvd)	82.00	82.00
REQUIRED TREATMENT (ac-ft)	1.76	1.76
PROVIDED TREATMENT (ac-ft)	1.92	1.92
RECOVERY VOLUME (ac-ft)	0.49	0.49
REC. V-NOTCH ANGLE (degrees)	40.00	40.00
RECOVEY TIME (hours)	23.59	23.59

12-22-97

Above values based on original (45' open water for 800±) model. This table was not revised when the pond width was increased to 100' of open water. Therefore it is correct with the reduced width as is being built for the I-4 CD Roads.

LJH

I-4 CD ROADS

3-4

GREINER INC: WATER RESOURCES GROUP

PROJECT TITLE:	I-4 CD ROAD			
PROJECT NUMBER:	V100017.20			
FILE NAME:	TP6CNPOS.WK3	SCALE (1" =)	50'	DATE
BASIN NAME:	POND 6	MADE BY:	REC	01-Dec-95
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	JUD	11/20/95

SANTA BARBARA METHOD - PLANIMETER WORKSHEET			
BASIN AREA LAND USE DESCRIPTIONS	PLANIMETER VALUES		AVG AREA (Ac)
	READING 1 (IN ²)	READING 2 (IN ²)	
ENTIRE BASIN			
ALL LAND SURFACES	206.474	206.474	11.85
TOTAL BASIN AREA			11.85
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)			
BUILDING			
DRIVEWAY			
ROADWAY	147.233	147.233	8.45
PAVEMENT (MISC.)			
WATER SURFACE	24.219	24.219	1.39
TOTAL DCIA			9.84
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)			
BUILDING			
DRIVEWAY			
ROADWAY			
PAVEMENT (MISC.)			
TOTAL N - DCIA			
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)		83.04%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)		(Ac) 2.01
CN AREA	(BASIN AREA - DCIA)		(Ac) 2.01

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA	PRODUCT
OPEN SPACE - GOOD	POMPANO DEP	D	80	0.62	49.60
	IMMOKALEE				
	SMYRNA				
POND LOCATION -	BASINGER				
OPEN SPACE - GOOD	IMMOKALEE	B/D	80	1.39	111.20
TOTALS				2.01	160.80

COMPOSITE CN	80.00
---------------------	--------------

NGVD

TP-6

6-9
6-13-95

GREINER INC: WATER RESOURCES GROUP
POND STAGE STORAGE CALCULATIONS - POND

PROJECT TITLE:	4 CD ROAD	FILENAME:	STGST06.WK3
PROJECT NUMBER:	V1001720	SCALE (1" =)	
BASIN DESIGNATION:	POND 6	MADE BY:	REC
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	JMD
			DATE 01-Dec-95 11/20/95

ELEV.	PLAN. VALUE 1 (sf)	PLAN. VALUE 2 (sf)	AREA (ac)	AVG. AREA (ac)	DELTA D (ft)	DELTA STORAGE (ac-ft)	STORAGE P.A.V.* (ac-ft)	ATTENUATION OF PEAK DISCHARGE (ac-ft)
82.00			1.39				0	0
82.95			1.610	1.50	0.95	1.43	1.43	1.43
83.25			1.680	1.64	0.3	0.49	1.92	1.92
84.00			1.853	1.77	0.75	1.32	3.24	3.24
84.75			2.027	1.94	0.75	1.46	4.70	4.70
85.50			2.201	2.11	0.75	1.59	6.28	6.28
86.25			2.375	2.29	0.75	1.72	8.00	8.00
87.00			2.548	2.46	0.75	1.85	9.85	9.85
87.50			2.664	2.61	0.5	1.30	11.15	11.15
88.00			2.78	2.72	0.5	1.36	12.51	12.51

* P.A.V. = POLLUTION ABATEMENT VOLUME.

ORIGINAL SUBMITTAL
JUN 21 1996
ORLANDO SERVICE CENTER

I-4 CD ROAD CALCS.

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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6-13-90.
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POND 6 - POST DEVELOPED - 10YR/72HR

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
POND6	STAGE (ft):	82.00	2.00	84.98	61.25
	VOLUME (af):	.00	2.00	5.19	61.25
	RUNOFF (cfs):	.00	2.00	34.25	60.00
	OFFSITE (cfs):	.00	71.75	.00	71.75
	OTHER (cfs):	.00	71.75	.00	71.75
	OUTFLOW (cfs):	-4.94	59.50	11.15	61.08
DITCH	STAGE (ft):	81.15	.00	84.74	63.00
	VOLUME (af):	.00	2.00	5.38	71.75
	RUNOFF (cfs):	.00	71.75	.00	71.75
	OFFSITE (cfs):	.00	71.75	.00	71.75
	OTHER (cfs):	-4.94	59.50	11.15	61.08
	OUTFLOW (cfs):	.00	71.75	.00	71.75

DHW
 83.93 (1988)

I-4 CD ROAD CALCULATIONS

3-6

6-13-95

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POND 6 - POST DEVELOPED - 10YR/72HR

REACH FLOW/STAGE/VELOCITY REPORT

REACH ID: OUTFALL		FROM NODE ID: POND6		TO NODE ID: DITCH		
TIME (hrs)	FLOW (cfs)	U/S STG (ft)	D/S STG (ft)	U/S VEL (fps)	D/S VEL (fps)	AVG VEL (fps)
59.00	-1.89	83.61	83.65	N/A	N/A	N/A
59.08	-2.65	83.64	83.70	N/A	N/A	N/A
59.17	-3.27	83.67	83.76	N/A	N/A	N/A
59.25	-3.81	83.71	83.81	N/A	N/A	N/A
59.33	-4.28	83.75	83.87	N/A	N/A	N/A
59.42	-4.70	83.79	83.92	N/A	N/A	N/A
59.50	-4.94	83.84	83.98	N/A	N/A	N/A
59.58	-4.78	83.91	84.03	N/A	N/A	N/A
59.67	-3.94	84.00	84.08	N/A	N/A	N/A
59.75	-2.43	84.10	84.14	N/A	N/A	N/A
59.83	1.20	84.21	84.19	N/A	N/A	N/A
59.92	3.79	84.31	84.25	N/A	N/A	N/A
60.00	5.55	84.41	84.30	N/A	N/A	N/A
60.08	6.79	84.51	84.35	N/A	N/A	N/A
60.17	7.58	84.59	84.41	N/A	N/A	N/A
60.25	8.11	84.66	84.46	N/A	N/A	N/A
60.33	8.41	84.73	84.51	N/A	N/A	N/A
60.42	8.48	84.78	84.57	N/A	N/A	N/A
60.50	8.39	84.83	84.62	N/A	N/A	N/A
60.58	9.28	84.87	84.62	N/A	N/A	N/A
60.67	9.91	84.90	84.62	N/A	N/A	N/A
60.75	10.38	84.93	84.63	N/A	N/A	N/A
60.83	10.73	84.95	84.63	N/A	N/A	N/A
60.92	10.99	84.96	84.63	N/A	N/A	N/A
61.00	11.15	84.97	84.63	N/A	N/A	N/A
61.08	11.15	84.98	84.64	N/A	N/A	N/A
61.17	11.10	84.98	84.64	N/A	N/A	N/A
61.25	10.98	84.98	84.65	N/A	N/A	N/A
61.33	10.83	84.98	84.65	N/A	N/A	N/A
61.42	10.64	84.98	84.66	N/A	N/A	N/A
61.50	10.43	84.97	84.67	N/A	N/A	N/A
61.58	10.18	84.97	84.68	N/A	N/A	N/A
61.67	9.92	84.96	84.68	N/A	N/A	N/A
61.75	9.63	84.95	84.69	N/A	N/A	N/A
61.83	9.33	84.95	84.70	N/A	N/A	N/A
61.92	9.02	84.94	84.70	N/A	N/A	N/A
62.00	8.70	84.93	84.71	N/A	N/A	N/A
62.08	8.44	84.92	84.71	N/A	N/A	N/A
62.17	8.17	84.91	84.71	N/A	N/A	N/A
62.25	7.89	84.91	84.72	N/A	N/A	N/A
62.33	7.61	84.90	84.72	N/A	N/A	N/A
62.42	7.32	84.89	84.72	N/A	N/A	N/A
62.50	7.03	84.88	84.72	N/A	N/A	N/A
62.58	6.73	84.87	84.73	N/A	N/A	N/A

12 →

83.36
(1988 NVD)

I.4 CD ROAD CALCS.

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6-13-90

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POND 6 - POST DEVELOPED - 50YR/72HR

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
POND6	STAGE (ft):	82.00	1.00	85.51	61.08
	VOLUME (af):	.00	1.00	6.30	61.08
	RUNOFF (cfs):	.00	1.00	48.25	59.92
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	-5.29	59.42	14.76	60.75
DITCH	STAGE (ft):	81.15	.00	85.09	62.00
	VOLUME (af):	.00	1.00	7.77	72.00
	RUNOFF (cfs):	.00	72.00	.00	72.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-5.29	59.42	14.76	60.75
	OUTFLOW (cfs):	.00	72.00	.00	72.00

DHW
84.46 (1988)

I-4 CD ROADS

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I-4 CD ROADS, POND TP-6, POST DEVELOPMENT 50YR/72HR

REACH FLOW/STAGE/VELOCITY REPORT

=====

REACH ID: OUTFALL	FROM NODE ID: POND6	TO NODE ID: DITCH				
TIME (hrs)	FLOW (cfs)	U/S STG (ft)	D/S STG (ft)	U/S VEL (fps)	D/S VEL (fps)	AVG VEL (fps)
→ 60.00	10.28	84.92	84.62	N/A	N/A	N/A
60.08	11.71	85.03	84.66	N/A	N/A	N/A
60.17	12.66	85.13	84.70	N/A	N/A	N/A
60.25	13.35	85.21	84.74	N/A	N/A	N/A
60.33	13.84	85.27	84.78	N/A	N/A	N/A
60.42	14.16	85.33	84.82	N/A	N/A	N/A
60.50	14.30	85.38	84.86	N/A	N/A	N/A
60.58	14.58	85.42	84.88	N/A	N/A	N/A
60.67	14.72	85.45	84.90	N/A	N/A	N/A
60.75	14.76	85.47	84.92	N/A	N/A	N/A
60.83	14.71	85.49	84.94	N/A	N/A	N/A
60.92	14.58	85.50	84.96	N/A	N/A	N/A
61.00	14.39	85.50	84.98	N/A	N/A	N/A
61.08	14.29	85.51	84.99	N/A	N/A	N/A
61.17	14.13	85.50	85.00	N/A	N/A	N/A
61.25	13.93	85.50	85.01	N/A	N/A	N/A
61.33	13.70	85.49	85.02	N/A	N/A	N/A
61.42	13.43	85.48	85.03	N/A	N/A	N/A
61.50	13.13	85.47	85.04	N/A	N/A	N/A
61.58	12.78	85.46	85.04	N/A	N/A	N/A
61.67	12.40	85.45	85.05	N/A	N/A	N/A
61.75	12.00	85.44	85.06	N/A	N/A	N/A
61.83	11.60	85.42	85.07	N/A	N/A	N/A
61.92	11.19	85.41	85.08	N/A	N/A	N/A
62.00	10.77	85.40	85.09	N/A	N/A	N/A
62.08	10.53	85.39	85.09	N/A	N/A	N/A
62.17	10.28	85.37	85.09	N/A	N/A	N/A
62.25	10.02	85.36	85.09	N/A	N/A	N/A
62.33	9.75	85.35	85.09	N/A	N/A	N/A
62.42	9.46	85.33	85.09	N/A	N/A	N/A
62.50	9.16	85.32	85.09	N/A	N/A	N/A
62.58	8.86	85.30	85.08	N/A	N/A	N/A
62.67	8.57	85.29	85.08	N/A	N/A	N/A
62.75	8.28	85.28	85.08	N/A	N/A	N/A
62.83	7.99	85.26	85.08	N/A	N/A	N/A
62.92	7.71	85.25	85.08	N/A	N/A	N/A
63.00	7.43	85.24	85.08	N/A	N/A	N/A
63.25	6.94	85.21	85.07	N/A	N/A	N/A
63.50	6.50	85.18	85.05	N/A	N/A	N/A
63.75	6.14	85.15	85.04	N/A	N/A	N/A
64.00	5.82	85.13	85.02	N/A	N/A	N/A
64.25	5.49	85.10	85.01	N/A	N/A	N/A
64.50	5.12	85.08	84.99	N/A	N/A	N/A
64.75	4.77	85.05	84.98	N/A	N/A	N/A

84.92 - 1.05'
 = 83.87
 (1988 NAVD)

I-4 CD ROAD CALCULATIONS (1929 NGVD)

3-9

2-13-90

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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POND RECOVERY ANALYSIS ONLY

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
POND6	AREA	83.250	.000	.000	.000	82.000	1.390 ✓
					80.95 ←	84.000	1.853
					82.95 ←	87.000	2.548 ✓
					85.95 ←	88.000	2.780 ✓
					86.95 ←		
DITCH	TIME	81.150	.000	.000	.000	81.150	.000
					81.930	54.000	
					83.000	58.000	
					84.300	60.000	
					84.620	60.500	
					84.630	61.000	
					84.710	62.000	
					84.740	63.000	
84.620	67.000						
84.410	72.000						

Note: 1988 NAVD ELEV. are 1.05' lower than 1929 NGVD elevs.



PROJECT TITLE: US 192 / I-4 INTERCHANGE				
PROJECT NUMBER: V100385.00		DATE:		
BASIN DESIGNATION: TP-6 (Ultimate)		MADE BY: REC		19-Dec-00
BASIN ANALYSIS (PRE/POST): POST		CHECKED BY: SJH		12/20/00

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		8.43
PAVEMENT (MISC.)		
WATER SURFACE		1.39
TOTAL DCIA		9.82
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	85.39%
PERVIOUS AREA	(BASIN AREA - DCIA - ND CIA)	1.68
CN AREA	(BASIN AREA - DCIA)	1.68
TOTAL BASIN AREA		11.50

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open Space - good	Pompano, Immokalee, Smyrna	D	80	0.29	23.20
Pond Pervious - open space - good	Immokalee	D	80	1.39	111.20
TOTALS				1.68	134.40

COMPOSITE CN	78.0
---------------------	-------------

URS

MADE BY: REC DATE: 12/19/00 JOB NO. V100385.00
 CHECKED BY: S-J DATE: 12/20/00 SHEET NO.
 PROJECT: US 192 / I-4 INTERCHANGE POND: BASIN: TP-6 (Ultimate)

Water Quality

Total Basin Area = 11.50 ac
 Paved Area = 8.43 ac
 Pond Area at NWL = 1.39 ac

A. 1.0 " Over Total Basin Area = 0.96 Ac-Ft
 B. 2.5 " Over Paved Area = 1.76 Ac-Ft
 Required PAV = 1.76 Ac-Ft

NAVD

Stage Storage Calculations

ELEV (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
86.95	2.78				12.51
		2.66	1.00	2.66	
85.95	2.55				9.85
		2.11	3.75	7.93	
82.20 (PAV)	1.68				1.92
		1.53	1.25	1.92	
80.95 (NWL)	1.39				

Bleed Down Volume

1/2" of the detention volume = 0.5 *(Basin area)/12 = 0.48 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 1.44 Ac-Ft

Preliminary Bleed Down Calculations

ELEV (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)
82.20 (PAV)	1.68			
		1.65	0.29	0.48
81.91 (at time t)	1.61			

Pond Bleed Down Design

Orifice Design

$t = 1/2 \text{ Detention Volume} / (CF * C * A_o * (2 * g * h)^{0.5})$

Diameter of orifice (do) = in
 Recovery time (t) = #DIV/0! hrs
 Orifice coefficient (C) = 0.60
 1/2 Detention Volume = 20,872.50 ft^3
 Depth from PAV Elev. to orifice flow line (h1) = 1.250 ft
 Depth from Water Elev. at time t to orifice flow line (h2) = 0.959 ft
 Average depth (h) = (h1+h2) / 2 = 1.104 ft
 Area of orifice (Ao) = 0.00000 ft^2
 Gravitational constant (g) = 32.20 ft/sec^2
 Conversion Factor (CF) = 3,600 sec/hr

V-notch Design

$\text{Theta} = 2 * \text{atan}(0.492 * V_{det} / H^{2.5})$

Vdet = 0.48 Ac-Ft
 H = 1.250 ft
 Theta = 15.371 deg
 b = 0.337 ft



MADE BY: REC
 CHECKED BY: SUP DATE: 12/04/00 JOB NO. V100385.00
 PROJECT: US 192 / I-4 INTERCHANGE DATE: 12/20/00 SHEET NO.
 BASIN: TP-6 (Ultimate)

WEIR ELEVATION CHECK

Low Edge of Pavement = 84.95 ft
 Pavement Depth = 1.25 ft
 Minimum Base Clearance = 3.00 ft
 Max. Desirable Weir El = 80.70 ft

Existing Weir El = 82.20 ft
 Status Check = **RETRY**

** Note: Does not apply, ditch separates roadway and the pond*

FREEBOARD CHECK

DHW = Design High Water

SFWM/DHW (10yr/72hr) = 83.93 ft (From I-4 CD Road calculations)
 RCID/DHW (50yr/72hr) = 84.46 ft (From I-4 CD Road calculations)

Pond outside berm el = 86.95 ft

Freeboard provided = 3.02 ft (10yr/72hr)
 2.49 ft (50yr/72hr)

Status
 OK
 OK

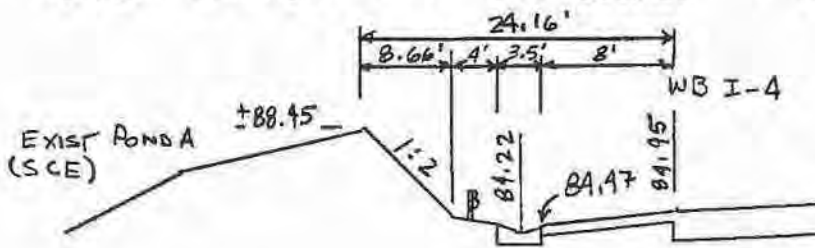
Job <u>I-4 / US 192 Int.</u>	Project No. <u>V100 385,00</u>	Page <u> </u> of <u> </u>
Description <u>BASIN TP-6 ALT. 1</u>	Computed by <u>REL</u>	Sheet <u> </u> of <u> </u>
<u>CHECK FOR THE 50yr STORM</u> <u>(STORM DRAIN ANALYSIS)</u>	Checked by <u>SJH</u>	Date <u>12/4/00</u>
		Date <u>12/20/00</u>

Reference

From the I-4 CD-ROAD CALCULATIONS :

DHW (50yr/72hr) = 84.46 (1988 NAVD)

STATION 306+00 I-4 (WESTBOUND) ≈ 2306+00 WB I-4



THE EXISTING PROFILE OF WB I-4 IS FLAT THROUGH THIS AREA. THEREFORE, A SAWTOOTH SHOULDER GUTTER PROFILE WILL BE DEVELOPED.

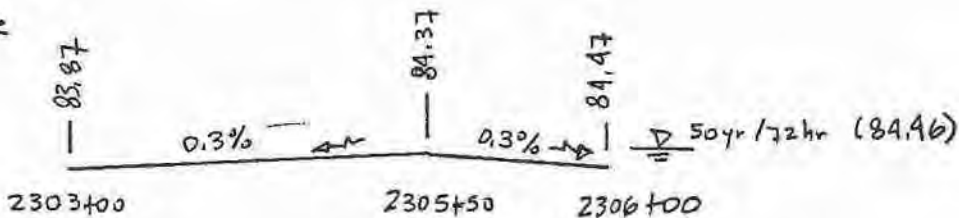
Assume that Low gutter at 2306+00, HIGH point gutter at 2305+50 and Low point at 2303+00

Assume gutter profile of min 0.30%

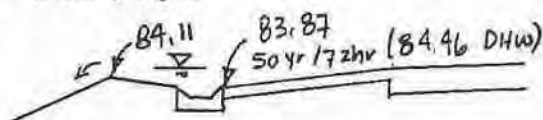
$$84.47 + 50(0.003) - 250(0.003) = 83.87 \quad (\text{Edge of shoulder at } 2303+00)$$

2306+00 2305+50 2303+00

Profile



STATION 2303+00



STORM SEWER TO BE DESIGNED FOR THE 10yr STORM. THE 50yr STORM WILL NOT ENCRONCH INTO THE ROADWAY AND WILL SPILL OUT AT STATION 2303+00 TO THE ROADSIDE DITCH.

Greiner

Job T-4 (D) ROAD

Description POND 6

Project No. V100017.20

Sheet of

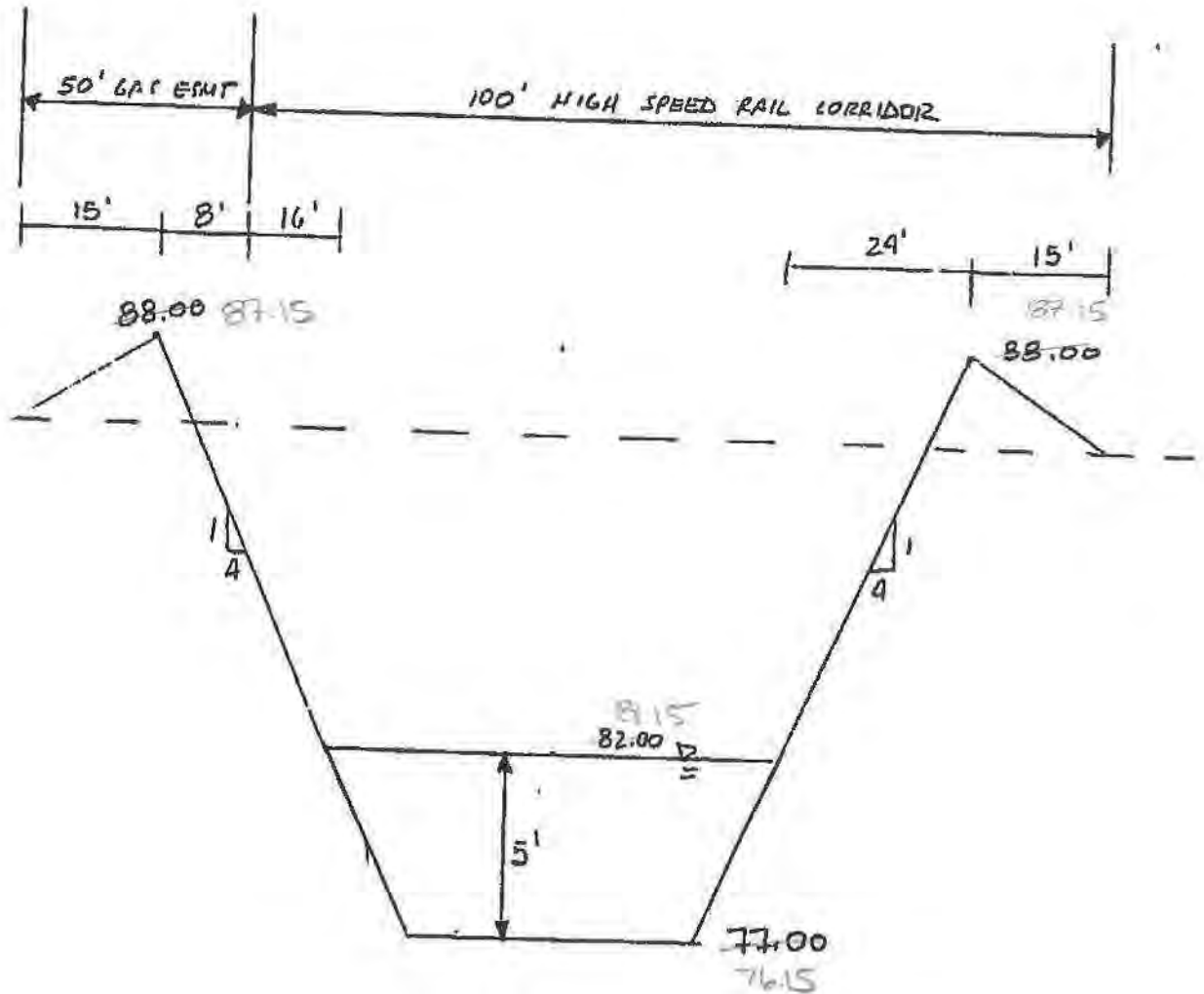
Computed By REC

Date 11/8/95

Checked By Smz

Date 11/20/95

6-1
6-13



STAGE

STORAGE

(NWL) 82.00
81.15

1.39 AC

ORIGINAL SUBMITTAL

JUN 21 1996

ORLANDO SERVICE CENTER

F-374

Pond 108

4.0 POST-DEVELOPMENT

The post-development conditions consist of new wet detention stormwater runoff as well as several existing ponds. The project will also accommodate the ultimate configuration of the interchange. In cases where treatment of proposed new impervious is difficult due to hydraulic reasons, pavement compensation will be provided. This would consist of treating existing impervious that was not treated before, to compensate for the new impervious that would go untreated.

The proposed project will impact the 100-year floodplain at the vicinity of the C-2 Canal. Compensation will be provided in the proposed roadside swales as well as in the stormwater treatment ponds. Section 5.0 of this report goes into more detail regarding the 100-year floodplain analysis.

The drainage criteria used for stormwater treatment and attenuation follows SFWMD, RCID and FDOT regulations. Section 6.0 of this report contains the drainage criteria and references used for the design of the drainage systems.

A detailed basin analysis is provided in Volume 2, Appendix A, which includes post-development basin maps, hydrology calculations, pond design calculations and routing models. It also includes the 100-year floodplain analysis calculations (Appendix B), the "BIGONE" model for the pre and post development conditions (Appendix C) and existing drainage calculations for projects that will be impacted as part of the interchange construction (Appendix D).

4.1 Basin TP-6

Since the existing pond does not provide additional storage for the excess runoff from the new construction, the approach would be to modify the proposed basin to match the existing conditions, thereby, providing the same level of treatment as before. In the pre-development condition, the total contributing area draining to the pond is 11.85 acres with 8.45 acres being impervious. In the post-development condition, the same 11.85 acres of total area and 8.45 acres of impervious are maintained. No modifications to the existing pond are necessary.

Pavement compensation is required in this basin. The total impervious area to be compensated is

BASIN 9

The limits of Basin 9 extend from station 2287+00 (WB) and station 1287+00 (EB) to station 318+00. I-4 will be widened to the inside with the new lanes sloping towards the median through stations 2303+22.66 (WB) and 1303+22.66 (EB). These stations coincide with the end of the pavement cross slope transition as well as the beginning of the final taper to existing I-4 mainline.

EXISTING (PRE-DEVELOPMENT) CONDITIONS

In the existing condition, the inside shoulders of the eastbound and westbound I-4 slopes toward the median which drains toward the existing double 7 ft by 4 ft box culvert located under I-4 at station 1287+00. This box culvert discharges to the east into a wetland system hydraulically connected to Reedy Creek.

PROPOSED (POST-DEVELOPMENT) CONDITIONS

I-4 will be widened to the inside and drain to the median. The proposed widening will increase runoff over the existing condition and will be treated in a new pond (Pond 9) located within the bifurcated median. The pond will discharge into a ditch system that connects the existing double 7' by 4' box culverts located under the eastbound and westbound lanes of I-4.

As previously discussed, the cross slope transition of the new pavement ends at stations 2303+22.66 (WB) and 1303+22.66 (EB). This runoff from the additional pavement will adversely impact the capacity of the existing storm drain system that currently conveys runoff into the existing pond TP-6. Existing pond TP-6 has no available excess capacity to accommodate these improvements; therefore, basin trading is proposed.

The additional area that will drain into existing Pond TP-6 as a result of this project is 0.55 acres. To offset this volume of water, it is recommended to divert an equivalent area of pavement that currently discharges into Pond TP-6 and convey it into the proposed Pond 9. To accomplish this, it is proposed to reroute the storm drain which collects runoff from between stations 1287+50 and 1293+54.81, and discharge into Pond 9 instead of existing Pond TP-6. The area of pavement to be diverted into Pond 9 is 0.69 acres, which is greater than the additional pavement draining to existing Pond TP-6.

Pond 9 will provide floodplain compensation as well as treatment and attenuation. Based on the offsite model (Refer to Volume IV, "Offsite Analysis for Basins 8 and 9") for the 100 year storm, the 100-year floodplain elevation was determined to be at 84.71. The volume of floodplain impacts are 2.65 acre-feet. It will be demonstrated that water from the 100-year storm event stages into Pond 9.

Wetland #14 will be removed by the construction of Pond 9 and Wetland #15 will be partially impacted by the construction of ditches adjacent to the westbound and eastbound lanes of I-4. These wetland impacts will be mitigated for under the Senate Bill 1986.

POND 9 DESIGN

Pond 9 is a wet detention system. In accordance with SFWMD criteria, the pond provides water quality detention (or pollution abatement) of the first 1" of runoff from the total contributing area or 2.5" of runoff from the impervious area, whichever is greater. The pond also provides floodplain compensation to impacts to the 100-year floodplain.

The pond geometry was designed to accommodate future widening of I-4 based on the I-4 Master Plan. A buffer was considered between the pond and the mainline on the eastbound side for a future 44 ft rail corridor.

The control structure of this pond has been designed such that the post-development peak rate of discharge does not exceed the pre-development peak rate of discharge for the 10 year / 72 hour storm (per SFWMD criteria). The 50 year / 72 hour storm is also routed through the pond to determine the discharge rate for the impact fee as imposed by the Reedy Creek Improvement District (RCID) for systems discharging into RCID fee collection boundary.

The orifice has been designed as to recover ½" of the detention volume in 24 hours (per SFWMD criteria).

SECTION INFORMATION

This section contains the pre-development and post-development basin maps, basin area calculations which include the Santa Barbara worksheet, DCIA (Directly Connected Impervious

1.16 acres. Compensation is provided by treating existing impervious on the west side of the interchange that was not treated previously. Table 4.1 summarizes Basin TP-6 information.

Refer to Volume 2, Appendix A for the post-development basin map delineating the new contributing basin area as well as the proposed impervious that could not be treated.

4.2 Basin 1

The total contributing area for this basin is 11.51 acres, 5.54 acres of which are impervious. The basin limits are shown on the post-development basin map in Volume 2, Appendix A. The contributing basin area will be draining to two proposed wet detention ponds (Ponds 1A and 1B) that will be located in the overhead electric power easement just north of existing pond CP-5.

Wetland impacts are anticipated with the construction of the roadway and the proposed ponds within this basin. The impacts will affect two Long Term Permit (LTP) wetlands, part of which was already slated for taking. Mitigation of the wetlands will be through Senate Bill 1986.

Pond 1A and 1B Design

The proposed ponds will be interconnected to provide the required storage capacity to treat and attenuate stormwater runoff. The areas at the Normal Water Level (NWL) are 1.16 acres and 0.61 acres for Ponds 1A and 1B, respectively. In accordance with SFWMD criteria, the pond system provides water quality detention of the first 1" of runoff from the total contributing area or 2.5" of runoff from the impervious, whichever is greater. Discharge from the pond will be via a control structure located in Pond 1A that will discharge to the roadside swale along Southern Connector Extension (SCE) and ultimately to the Reedy Creek Basin.

The 10-year/72 hour storm was routed through the pond to determine tailwater conditions for the proposed storm sewer system. This storm event is the design storm per SFWMD regulations. The 50-year/72hr storm was also routed through the pond to demonstrate that 1' of freeboard is provided as well as for determination of discharge rates for the outside drainage fee for system discharging into the RCID fee collection boundary.

The bleed down orifice structure has been designed to release no more than 1/2" of the detention



TABLE 4.4
Basin SE Summary

Pre-Development
Basin Information

Total Area (acres)	89.87
Impervious Area (acres)	11.19
Permeable Area (acres)	78.68
Surface Water Area (acres)	0.95
Discharge rate (10-year/72 hour) (cfs)	143.05
Discharge rate (50-year/72 hour) (cfs)	188.08

Post-Development
Basin Information

Total Area (acres)	86.71
Impervious Area (acres)	21.34
Permeable Area (acres)	65.35
Surface Water Area (acres)	3.85
Pond SE1	1.78
Pond SE2	1.87
Pond SE3	1.72
Discharge rate (10-year/72 hour) (cfs)	60.71
Discharge rate (50-year/72 hour) (cfs)	76.75

Proposed Pond Information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Normal Water Level (NWL) Elevation (ft. NAVD)	85.80	83.80	85.00	86.80
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	85.10	83.17	85.27	86.67
Design High Water (DHW) (10-year/72hr) (ft. NAVD)	87.39	85.39	86.32	87.63
Design High Water (DHW) (50-year/72hr) (ft. NAVD)	87.78	85.78	86.09	88.11
Top of berm elevation (ft. NAVD)	91.50	91.00	91.00	91.50

Water Quality Information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Required Pollution Abatement Volume (PAV) (ac-ft)	1.98	0.83	1.65	0.57
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.62	0.80	1.55	0.51
PAV elevation (ft. NAVD)	85.95	84.00	85.90	86.85

Pond Outfall Information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Outfall type	Drop structure	Drop Structure	Drop Structure	Drop Structure
Wall length (ft)	2'	2'	2'	2'
Over * pipe diameter (inches)	24"	18"	18"	18"
Run Body	C-2 Canal	C-2 Canal	C-2 Canal	C-2 Canal

Treatment R -very information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Blind Down Volume (ac-ft)	0.73	0.41	0.77	0.28
Outfall or V-notch weir size (inches or degrees)	5.00"	3.75"	4.25"	3.60"
Recovery Time (hours)	22.75	22.00	24.00	20.25

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TABLE 4.5
Basin EP-5.3 Summary

Pre-Development

Basin Information

Total Roadway Area (acres)	5.38
Impervious Roadway Area (acres)	4.32
PerVIOUS Roadway Area (acres)	1.06
Pollution Abatement Volume in Pond EP-5B (ac-ft)	0.82

Post-Development

Basin Information

Total Roadway Area (acres)	5.09
Impervious Roadway Area (acres)	4.16
PerVIOUS Roadway Area (acres)	0.94
Pollution Abatement Volume in Pond EP-6B (ac-ft)	0.79



TABLE 4.6
Basin A Summary

Pre-Development
Basin Information

Total Area (acres)	19.68
Impervious Area (acres)	2.65
PerVIOUS Area (acres)	7.55
Surface Water Area (acres)	3.45
Discharge rate (10-year/72 hour) (cfs)	32.78
Discharge rate (50-year/72 hour) (cfs)	48.85

Existing Pond Information (permitted)

Normal Water Level (NWL) Elevation (ft. NAVD)	89.15
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	
10-year/72 hour Design High Water (DHW) (ft. NAVD)	90.11
50-year/72 hour Design High Water (DHW) (ft. NAVD)	90.28
Top of berm elevation (ft. NAVD)	91.15

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	1.14
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.22
PAV elevation (ft. NAVD)	89.50

Pond Outfall Information

Outfall type	Spreader Swale
Weir length (ft)	20'
Outfall pipe diameter (inches)	N/A
Receiving Body	Wetland

Treatment Recovery Information

Bleed Down Volume (ac-ft)	0.57
Orifice or V-notch weir size (inches or degrees)	4.75
Recovery Time (hours)	23.78

Post-Development
Basin Information

Total Area (acres)	14.58
Impervious Area (acres)	3.28
PerVIOUS Area (acres)	7.34
Surface Water Area (acres)	3.88
Discharge rate (10-year/72 hour) (cfs)	32.78
Discharge rate (50-year/72 hour) (cfs)	44.05

Proposed Pond Information

Normal Water Level (NWL) Elevation (ft. NAVD)	89.15
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	
10-year/72 hour Design High Water (DHW) (ft. NAVD)	90.15
50-year/72 hour Design High Water (DHW) (ft. NAVD)	90.28
Top of berm elevation (ft. NAVD)	91.15

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	1.22
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.40
PAV elevation (ft. NAVD)	89.50

Pond Outfall Information

Outfall type	Spreader Swale
Weir length (ft)	20'
Outfall pipe diameter (inches)	N/A
Receiving Body	Wetland

Treatment Recovery Information

Bleed Down Volume (ac-ft)	0.81
Orifice or V-notch weir size	4.75
Recovery Time	23.75



TABLE 4.7
Basin B Summary

Pre-Development
Basin Information

Total Area (acres)	22.79
Impervious Area (acres)	8.68
Permeable Area (acres)	11.50
Surface Water Area (acres)	2.54
Existing Pond B	
Discharge rate (10-year/72 hour) (cfs)	49.05
Discharge rate (50-year/72 hour) (cfs)	55.38

Existing Pond Information (permitted)

Existing Pond B	
Normal Water Level (NWL) Elevation (ft. NAVD)	87.15
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	
10-year/72 hour Design High Water (DHW) (ft. NAVD)	88.27
50-year/72 hour Design High Water (DHW) (ft. NAVD)	89.28
Top of berm elevation (ft. NAVD)	93.15

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	1.87
Provided Pollution Abatement Volume (PAV) (ac-ft)	2.51
PAV elevation (ft. NAVD)	87.55

Pond Outfall information

Outfall type	Drop Structure
Weir length (ft)	19'
Outfall pipe diameter (inches)	2-24"
Receiving Body	Bonnets Creek

Treatment Recovery Information

Blow Down Volume (ac-ft)	0.85
Orifice or V-notch weir size (inches or degrees)	5.00
Recovery Time (hours)	22.60

Post-Development
Basin Information

Total Area (acres)	30.14
Impervious Area (acres)	12.45
Permeable Area (acres)	14.46
Surface Water Area (acres)	
Existing Pond B	2.54
Proposed Pond B1	0.89
Discharge rate (10-year/72 hour) (cfs)	41.93
Discharge rate (50-year/72 hour) (cfs)	48.28

Proposed Pond Information

Existing Pond B Pond B1	
Normal Water Level (NWL) Elevation (ft. NAVD)	87.15
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	
10-year/72 hour Design High Water (DHW) (ft. NAVD)	88.74
50-year/72 hour Design High Water (DHW) (ft. NAVD)	89.85
Top of berm elevation (ft. NAVD)	93.15

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	2.59
Provided Pollution Abatement Volume (PAV) (ac-ft)	2.85
PAV elevation (ft. NAVD)	87.55

Pond Outfall information

Outfall type	Drop Structure
Weir length (ft)	19'
Outfall pipe diameter (inches)	2-24"
Receiving Body	Bonnets Creek

Treatment Recovery Information

Blow Down Volume (ac-ft)	1.26
Orifice or V-notch weir size	5.75
Recovery Time	22.75

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TABLE 4.1

Basin TP-8 Summary ✓

Pre-Development

Basin Information

Total Area (acres)	11.85
Impervious Area (acres)	8.45
Permeous Area (acres)	2.01
Surface Water Area (acres)	1.29
Discharge rate (10-year/72 hour) (cfs)	11.15
Discharge rate (50-year/72 hour) (cfs)	14.76

Existing Pond Information (permitted)

Normal Water Level (NWL) Elevation (ft, NAVD)	81.15
Avg. Wet Season Water Table (AWSWT) (ft, NAVD)	
10-year/72 hour Design High Water (DHW) (ft, NAVD)	84.13
50-year/72 hour Design High Water (DHW) (ft, NAVD)	84.85
Top of berm elevation (ft, NAVD)	87.15

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	1.76
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.82
PAV elevation (ft, NAVD)	82.40

Pond Outfall Information

Outfall type	drop structure
Weir length (ft)	3'
Outfall pipe diameter (inches)	36"
Receiving Body	Reedy Creek Basin

Treatment Recovery Information

Bleed Down Volume (ac-ft)	0.49
Orifice or V-notch weir size (inches or degrees)	40 degrees
Recovery Time (hours)	23.58

Post-Development

Basin Information

Total Area (acres)	11.85
Impervious Area (acres)	8.45
Permeous Area (acres)	2.01
Surface Water Area (acres)	1.29
Discharge rate (10-year/72 hour) (cfs)	11.15
Discharge rate (50-year/72 hour) (cfs)	14.76

Proposed Pond Information

Normal Water Level (NWL) Elevation (ft, NAVD)	81.15
Avg. Wet Season Water Table (AWSWT) (ft, NAVD)	
10-year/72 hour Design High Water (DHW) (ft, NAVD)	84.13
50-year/72 hour Design High Water (DHW) (ft, NAVD)	84.85
Top of berm elevation (ft, NAVD)	87.15

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	1.76
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.82
PAV elevation (ft, NAVD)	82.40

Pond Outfall Information

Outfall type	drop structure
Weir length (ft)	6'
Outfall pipe diameter (inches)	36"
Receiving Body	Reedy Creek Basin

Treatment Recovery Information

Bleed Down Volume (ac-ft)	0.49
Orifice or V-notch weir size (inches or degrees)	40 degrees
Recovery Time (hours)	23.58

TABLE 4.2

Basin 1 Summary

Pre-Development

Basin Information

Total Area (acres)	11.51
Impervious Area (acres)	2.40
Pervious Area (acres)	8.72
Surface Water Area (acres)	0.39
Discharge rate (10-year/72 hour) (cfs)	155.11*
Discharge rate (50-year/72 hour) (cfs)	212.09*

Post-Development

Basin Information

Total Area (acres)	11.51
Impervious Area (acres)	5.54
Pervious Area (acres)	4.20
Surface Water Area (acres)	1.77
Discharge rate (10-year/72 hour) (cfs)	123.97*
Discharge rate (50-year/72 hour) (cfs)	165.46*

Proposed Pond Information

	Pond 1A	Pond 1B
Normal Water Level (NWL) Elevation (ft. NAVD)	85.50	85.50
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	83.00	83.00
Design High Water (DHW) (10-year/72hr) (ft. NAVD)	87.84	87.72
Design High Water (DHW) (50-year/72hr) (ft. NAVD)	88.05	88.16
Top of berm elevation (ft. NAVD)	89.00	89.00

Water Quality Information

Required Pollution Abatement Volume (PAV) (ac-ft)	1.15
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.23
PAV elevation (ft. NAVD)	86.20

Pond Outfall Information

Outfall type	Drop structure in Pond 1A
Wet length (ft)	2'
Outfall pipe diameter (inches)	4"
Receiving Body	Reedy Creek Basin

Treatment Recovery Information

Bleed Down Volume (ac-ft)	0.48
Orifice or V-notch weir size (inches or degrees)	3.75"
Recovery Time (hours)	21.00

* Note: Discharges were obtained from the pre and post development "BIGONE" model (Volume 2, Appendix C) for node 2.

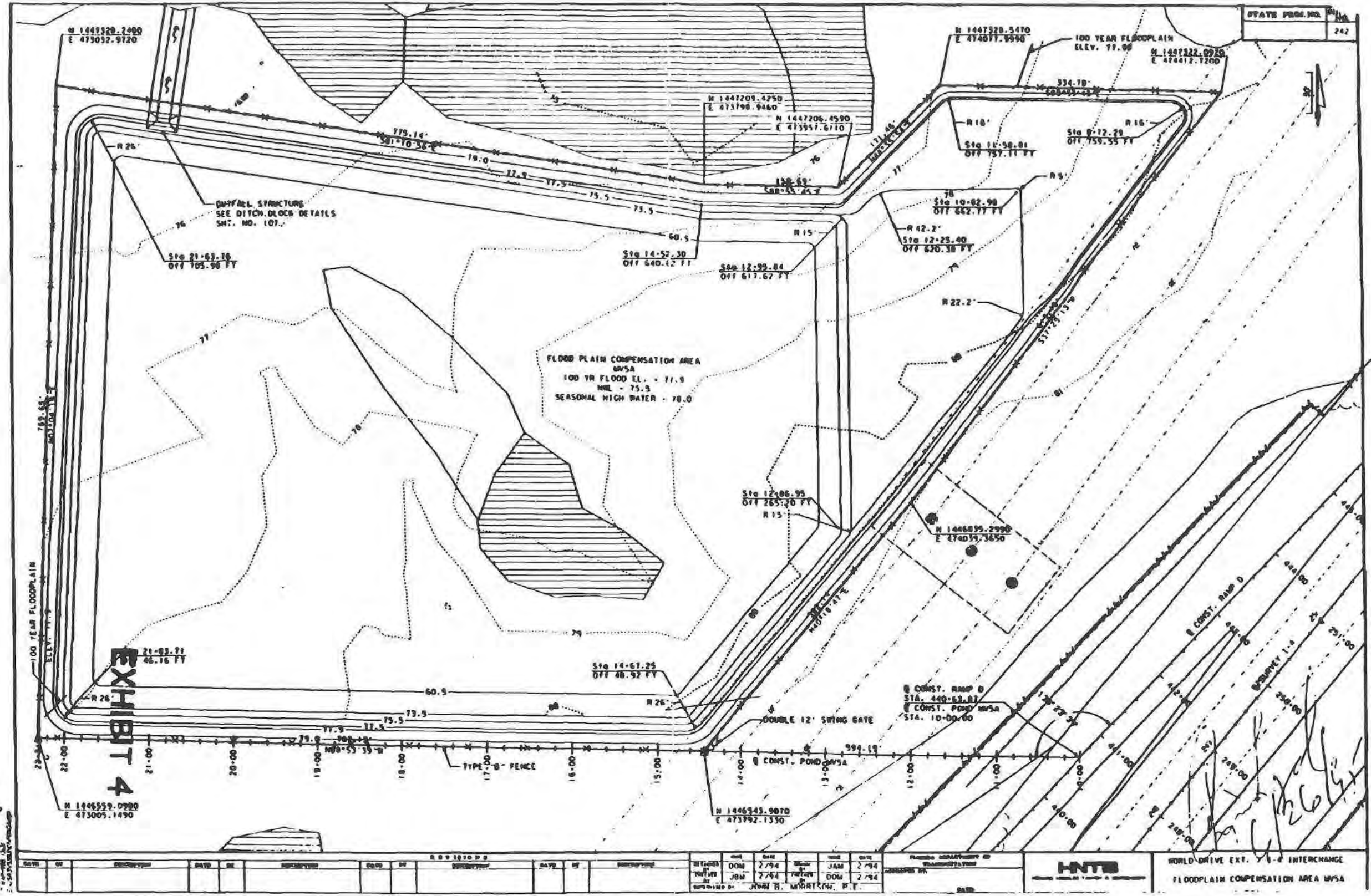
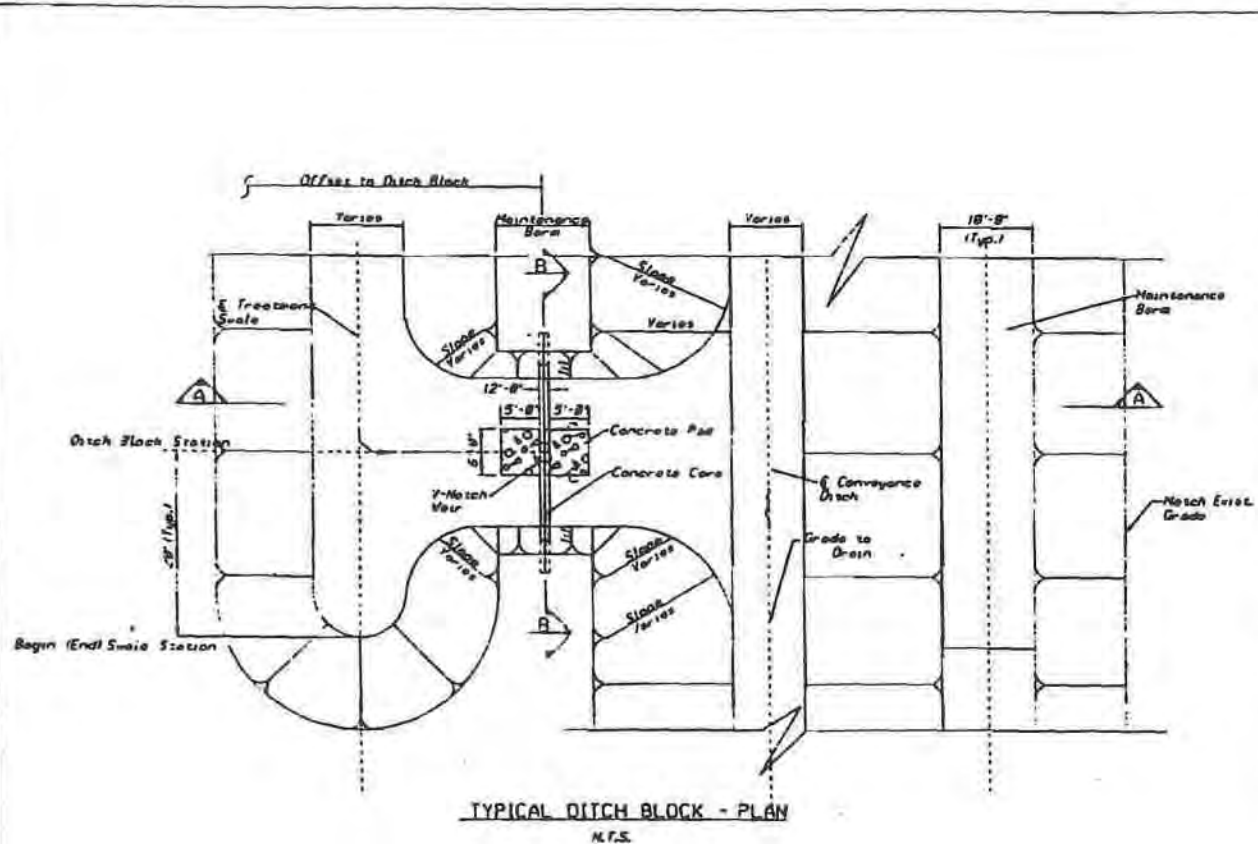


EXHIBIT 4

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HNTB
 WORLD DRIVE EXT. I-4 INTERCHANGE
 FLOODPLAIN COMPENSATION AREA MWSA

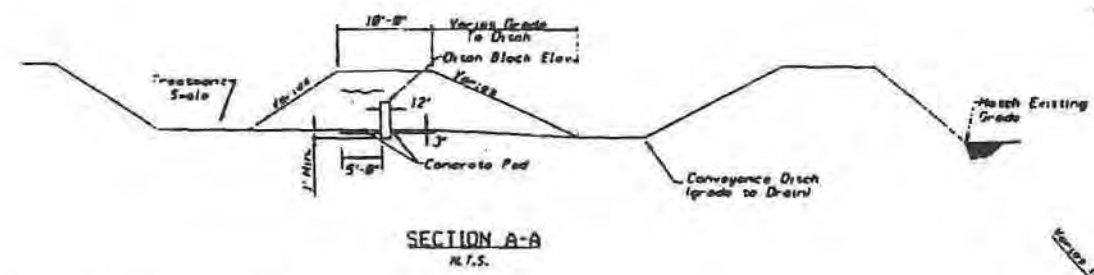
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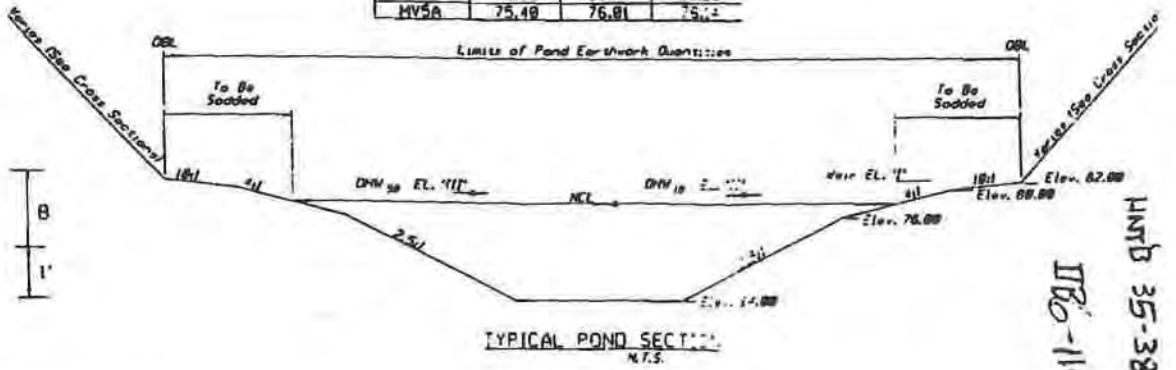
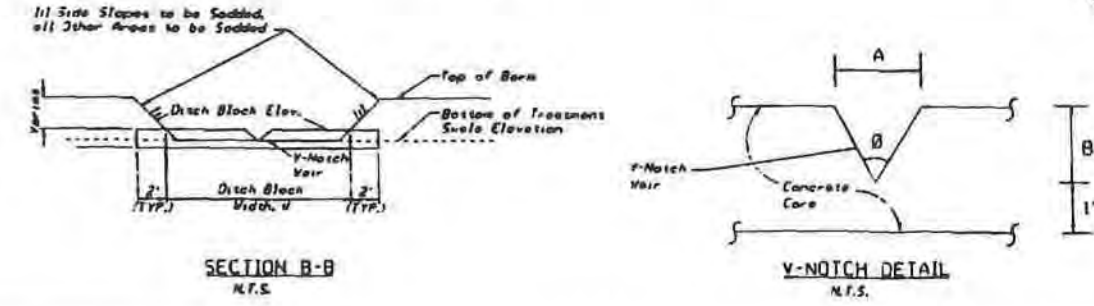
DITCH BLOCK INFORMATION										
STATION	BASELINE	OFFSET	DITCH BLOCK EL. (NGVD)	DITCH BLOCK WIDTH, FT	TOP OF BERM EL. (NGVD)	BOTTOM OF TREAT. SLOPE EL. (NGVD)	ANGLE OF BLEEDDOWN V-NOTCH	W. EL. BLEEDDOWN V-NOTCH (NGVD)	2' V-NOTCH WIDTH (FT)	3' V-NOTCH DEPTH (FT)
424+25	RAMP D	47.1 (L.T.)	79.93	45.6	91.50	79.00	30°	79.00	0.50	0.93
41+45	RAMP C2	79.7 (R.T.)	79.73	49.6	91.50	79.00	30°	79.00	0.50	0.73
537+50	NBVD	79.9 (R.T.)	82.17	19.9	93.25	90.75	20°	90.75	0.50	1.42
539+63	NBVD	76.9 (R.T.)	81.10	17.7	92.50	90.00	20°	90.00	0.40	1.10
541+00	NBVD	76.9 (R.T.)	80.26	20.2	81.31	78.21	20°	78.01	0.51	1.45
304+70	RAMP C	41.3 (R.T.)	78.67	18.3	79.00	77.82	20°	77.82	0.31	0.85
302+20	RAMP E	45.1 (R.T.)	78.16	18.5	79.30	77.25	20°	77.25	0.32	0.90
502+70	NBVD	50.3 (R.T.)	76.37	18.1	77.00	75.75	20°	75.75	0.29	0.81
501+30	NBVD	56.9 (R.T.)	76.20	18.5	77.31	75.11	20°	75.11	0.31	0.84
607+20	SBVD	70.6 (L.T.)	80.15	19.1	81.30	79.30	30°	79.30	1.60	0.85
603+20	SBVD	30.9 (L.T.)	78.86	19.7	79.10	77.11	20°	77.11	0.34	0.95
601+20	SBVD	95.7 (L.T.)	75.71	19.7	76.00	74.75	20°	74.75	0.34	0.95
201+65	RAMP A	133.2 (L.T.)	75.4	20.0	76.5	-	30°	75.00	0.00	0.40
25+40	RAMP D	89.0 (L.T.)	76.44	20.0	79.0	-	30°	75.50	0.24	0.94
301+50	RAMP C	95.8 (R.T.)	73.96	20.0	76.50	-	30°	73.50	2.72	0.46
302+64	RAMP C	120 (R.T.)	73.96	20.0	76.50	-	30°	73.50	2.72	0.46

NOTE: Ditch Blocks for Ponds MYSB, MYSB and SYB were designed by PBS&J as shown in the Cooperation Development Stormwater Master Plans dated 26 July 1993. Ditch Block for Pond MYSB was modified for future requirements.

* Structure MYSB has three (3) V-notches for a total width of 2.64'



ELEVATIONS			
POND	I	II	III
A	78.60	80.27	80.75
A2	78.60	80.31	80.75
A3	78.60	80.30	80.75
B	78.05	80.40	80.75
C	78.05	80.39	80.75
C3	78.05	80.50	80.75
D2	78.60	80.42	81.10
D3	78.60	80.53	81.10
B1	78.05	80.40	80.75
C1	78.05	80.41	80.75
MYSB	75.40	76.01	75.40



Normal 15513-102 DIT IN L.DWG REV. 8-10-93

DATE	BY	DESCRIPTION	SITE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

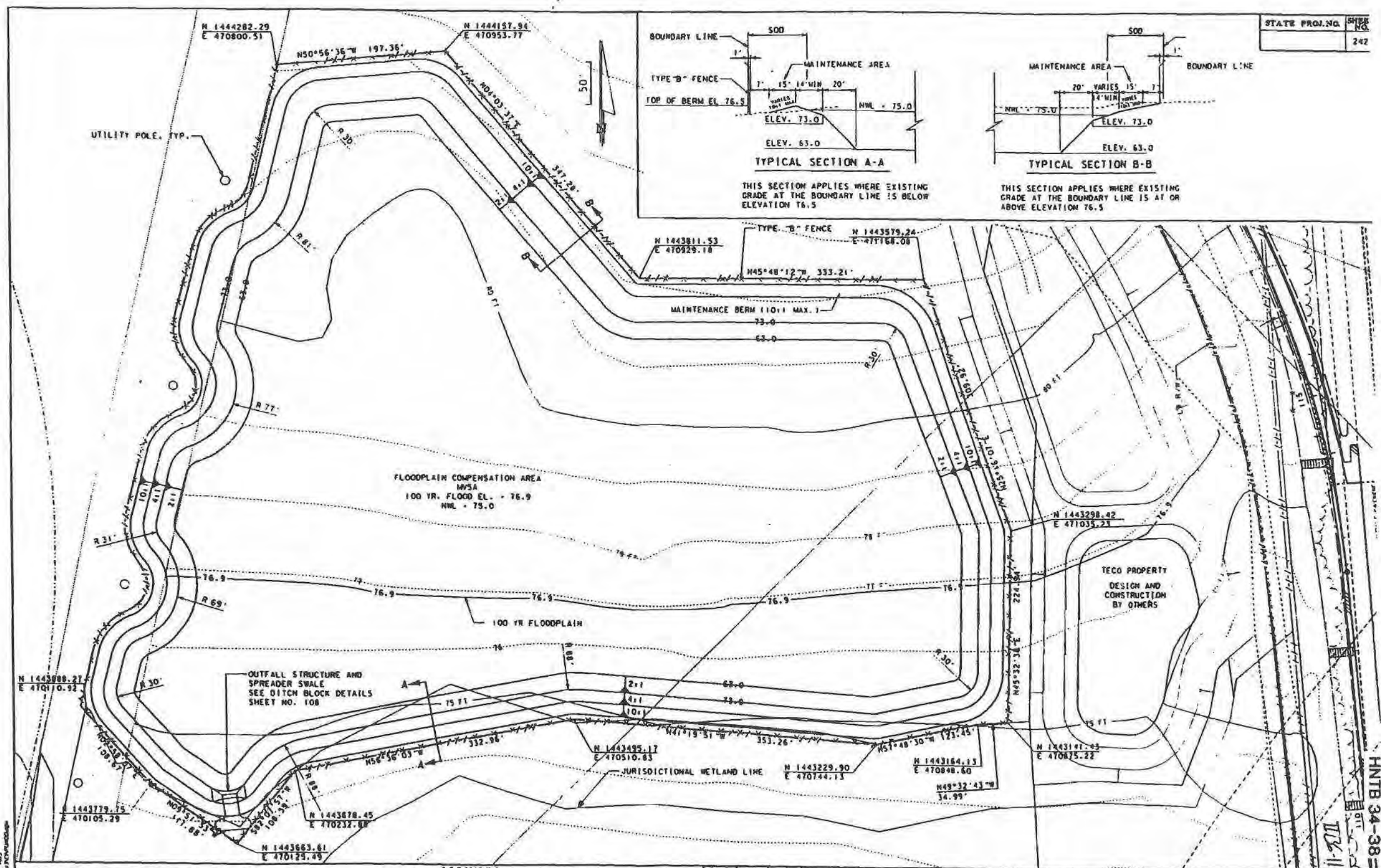
REVISIONS

DATE	BY	DESCRIPTION
8-93	FLM	FLM
8-93	RCA	RCA

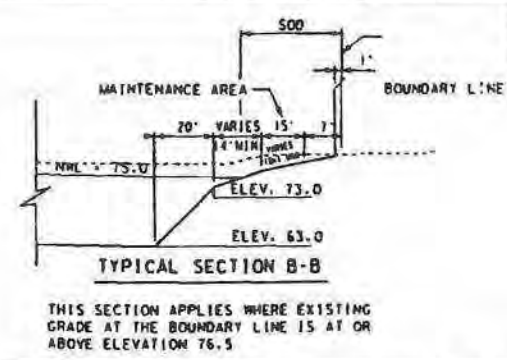
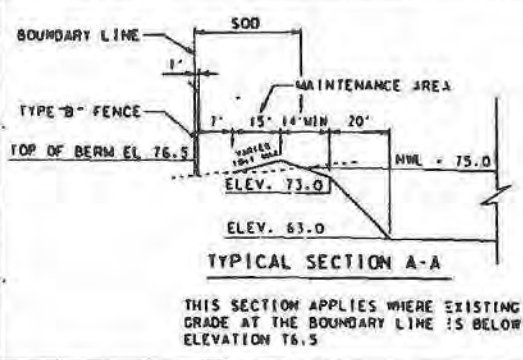
FLORIDA DEPARTMENT OF TRANSPORTATION

HNTB

W.C. DRIVE EXT. / I-4 ICHG DRAINAGE DETAILS



STATE PROJ. NO.	SHEET NO.
	242



DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

REVISIONS: CL 12/95, LAR 12/95, SEH 12/95, LPM 12/95
 FLORIDA DEPARTMENT OF TRANSPORTATION
 APPROVED BY: [Signature]
HNTB WORLD DRIVE, ETC. - I-4 INTERCHANGE

Permit No. 49-00792-S
Application No. 960621-12, 13, 15
I-4 Collector Distributor Road

Permit No. 49-00782-S
 Project Name SR 400 / I-4 Widening
 Location / County Polk and Osceola Counties
 SEC/TWP/RGE SEC 4,5,7,8 TWP 26S RGE 27E
 SEC 12,13,14,23,24,26,33,34 TWP 25S RGE 27E & SEC 7 TWP 25S RGE 28E

Structure Description	Location Description	Plan Width (W) x Length (L)	Actual Width (W) x Length (L)	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
RETENTION POND NO. 2								
D. B. I. Type E - Modified	Inside Dimensions	3.00' x 4.50'	3.01' x 4.50'	N/A	N/A	N/A	N/A	N/A
Same	Grate or Top of Str.	N/A	N/A	111.10	111.30	111.95	112.15	0.20
Same	Orifice	5.00'	5.00'	107.50	107.86	108.35	108.71	0.36
Same	Weir Notch	2.00' L	2.00' L	108.50	108.70	109.35	109.55	0.20
Same	Top of Skimmer	1.50' W x 5.83' L	1.50' W x 5.58' L	111.10	111.30	111.95	112.15	0.20
Same	Bottom of Skimmer	1.50' W x 5.83' L	1.50' W x 5.58' L	108.00	108.20	108.85	109.05	0.20
Same	Incoming Pipe	18" Diameter	18" Diameter	105.50	105.68	106.35	106.53	0.18

Plan Weir Elev. - Plan Orifice Elev. 11.00
 Actual Weir Elev. - Actual Orifice Elev. 0.84
 Actual Variance - Plan Variance -0.16

Structure Description	Location Description	Plan Width (W) x Length (L)	Actual Width (W) x Length (L)	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
RETENTION POND NO. 3								
D. B. I. Type E - Modified	Inside Dimensions	3.00' x 4.50'	3.00' x 4.48'	N/A	N/A	N/A	N/A	N/A
Same	Grate or Top of Str.	N/A	N/A	95.20	95.16	96.05	96.01	-0.04
Same	Orifice	3.75"	4.00"	92.50	92.32	93.35	93.17	-0.18
Same	Weir Notch	2.00' L	1.98' L	93.95	93.83	94.70	94.58	-0.02
Same	Top of Skimmer	1.50' W x 5.83' L	1.51' W x 5.55' L	95.20	95.16	96.05	96.01	-0.04
Same	Bottom of Skimmer	1.50' W x 5.83' L	1.50' W x 5.58' L	92.00	91.91	92.85	92.76	-0.09
Same	Incoming Pipe	18" Diameter	18" Diameter	89.80	89.83	90.65	90.68	0.03

Plan Weir Elev. - Plan Orifice Elev. 1.35
 Actual Weir Elev. - Actual Orifice Elev. 1.51
 Actual Variance - Plan Variance 0.16

Structure Description	Location Description	Plan Width (W) x Length (L)	Actual Width (W) x Length (L)	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
RETENTION POND NO. 4								
D. B. I. Type E - Modified	Inside Dimensions	3.00' x 4.50'	3.00' x 4.50'	N/A	N/A	N/A	N/A	N/A
Same	Grate or Top of Str.	N/A	N/A	97.00	97.03	97.85	97.86	0.03
Same	Orifice	3.5"	3.5" Dia.	93.20	93.32	94.05	94.17	0.12
Same	Weir Notch	1.00' L	1.04' L	94.00	94.03	94.85	94.88	0.03
Same	Top of Skimmer	1.50' W x 5.83' L	1.57' W x 5.54' L	97.00	96.98	97.85	97.83	-0.02
Same	Bottom of Skimmer	1.50' W x 5.83' L	1.56' W x 5.58' L	93.50	93.48	94.35	94.33	-0.02
Same	Incoming Pipe	24" Diameter	24" Diameter	92.00	92.03	92.85	92.88	0.03

Plan Weir Elev. - Plan Orifice Elev. 0.80
 Actual Weir Elev. - Actual Orifice Elev. 0.71
 Actual Variance - Plan Variance -0.09

Structure Description	Location Description	Plan Width (W) x Length (L)	Actual Width (W) x Length (L)	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
RETENTION POND NO. 5B								
D. B. I. Type E - Modified	Inside Dimensions	3.00' x 4.50'	3.02' x 4.50'	N/A	N/A	N/A	N/A	N/A
Same	Grate or Top of Str.	N/A	N/A	85.00	85.20	85.95	86.05	0.20
Same	Orifice	4.25" Dia.	4.25" Dia.	82.00	82.20	82.85	83.05	0.20
Same	Weir Notch	1.00' L	1.00' L	82.40	82.64	83.25	83.49	0.24
Same	Top of Skimmer	1.50' W x 5.83' L	1.34' W x 5.55' L	86.00	86.20	86.95	86.05	0.20
Same	Bottom of Skimmer	1.50' W x 5.83' L	1.36' W x 5.52' L	81.90	82.10	82.75	82.95	0.20
Same	Incoming Pipe	24" Diameter	24" Diameter	76.00	76.10	76.95	76.95	0.10

NOTES:
 The plan vertical datum (elevations) are based on NAVD - 1988
 The permit vertical datum (elevations) are based on NGVD - 1929
 Datum adjustment = NAVD -0.85 = NGVD



DATE		BY		DESCRIPTION	

LOCHNER CA. 974
 H. W. LOCHNER, INC.
 CONSULTING ENGINEERS AND PLANNERS
 880 T. G. LEE BLVD, SUITE 200
 ORLANDO, FLORIDA 32822

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION
 ROAD NO. 400 COUNTY OSCEOLA FINANCIAL PROJECT ID 242523-1-52-1

AS-BUILT POND STR'S.

SHEET NO.

115A

Permit No. 49-00782-S
 Project Name SR 400 / I-4 Widening
 Location / County Polk and Osceola Counties
 SEC/TWP/RGE SEC 4,5,7,8 TWP 26S RGE 27E
 SEC 12,13,14,23,24,26,33,34 TWP 25S RGE 27E & SEC 7,TWP 25S RGE 28E

Structure Description	Location Description	Plan Width (W) x Length (L)	Actual Width (W) x Length (L)	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
RETENTION POND NO. 8								
D. B. I. Type E - Modified	Inside Dimensions	3.00' x 4.50'	3.00' X 4.50'	N/A	N/A	N/A	N/A	N/A
Same	Grate or Top of Str.	N/A	N/A	85.00	85.09	85.85	85.94	0.08
Same	Orifice	4.50" Dia.	4.50" Dia.	81.00	80.88	81.85	81.71	-0.14
Same	Weir Notch	2.00' L	2.00' L	81.60	81.88	82.45	82.54	0.09
Same	Top of Skimmer	1.50' W x 5.83' L	1.54' X 5.54'	85.00	85.09	85.85	85.94	0.09
Same	Bottom of Skimmer	1.50' W x 5.83' L	1.56' X 5.55'	80.50	80.59	81.35	81.44	0.09
Same	Incoming Pipe	24" Diameter	24" Diameter	78.60	78.80	78.45	79.65	0.20

Plan Weir Elev. - Plan Office Elev. 0.80
 Actual Weir Elev. - Actual Office Elev. 0.83
 Actual Variance - Plan Variance 0.23

Structure Description	Location Description	Plan Width (W) x Length (L)	Actual Width (W) x Length (L)	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
RETENTION POND NO. 9								
D. B. I. Type E - Modified	Inside Dimensions	3.00' x 4.50'	3.00' X 4.50'	N/A	N/A	N/A	N/A	N/A
Same	Grate or Top of Str.	N/A	N/A	85.00	85.47	85.85	86.32	0.47
Same	Orifice	4.50" Dia.	4.50" Dia.	81.00	81.25	81.85	82.10	0.25
Same	Weir Notch	2.00' L	1.98' L	81.55	81.97	82.40	82.82	0.42
Same	Top of Skimmer	1.50' W x 5.83' L	1.53' X 5.57'	85.00	85.47	85.85	86.32	0.47
Same	Bottom of Skimmer	1.50' W x 5.83' L	1.55' X 5.51'	80.50	80.97	81.35	81.82	0.47
Same	Incoming Pipe	18" Diameter	18" Diameter	78.60	78.88	78.45	79.51	0.08

Plan Weir Elev. - Plan Office Elev. 0.55
 Actual Weir Elev. - Actual Office Elev. 0.72
 Actual Variance - Plan Variance 0.17

NOTES:
 The plan vertical datum (elevations) are based on NAVD - 1988
 The permit vertical datum (elevations) are based on NGVD - 1929
 Datum adjustment = NAVD +0.85 = NGVD

Structure Description	Location Description	Plan Dimension	Actual Dimension	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
EXISTING POND 1A								
Existing D. B. Type C Partial	Orifice Elevation		2.36' X 3.06' Exst.	112.15	112.18°			0.03
Same	Bottom of Skimmer		4.33' X 6.33' Av.	111.65	111.33°			-0.32
Same	Top of Skimmer Blade		4.31' X 6.36' Av.	115.15	114.83°			-0.32
Same	Grate Elevation			113.35	Given			
Same	Plate Size	1.25' X 1.25'	1.25' X 1.25'	NA				
Same	Plate Hole Diameter	3.5"		112.15	112.18°			0.03

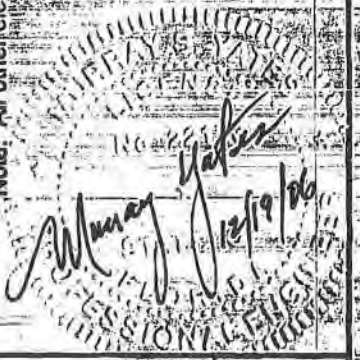
Note: All other elevations are shown as existing and were not disturbed or changed.

Structure Description	Location Description	Plan Dimension	Actual Dimension	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
EXISTING POND 2								
D. B. Type D Partial	Grate Elevation			77.05	Given			
Same	Bottom of Skimmer			74.23	74.18°			-0.05
Same	Top of Skimmer Blade			77.05	77.05			
Same	Plate Size	3.00' X 1.20'	3.01' X 1.25'					
Same	Top of Plate Weir			75.50	75.51°			0.01
Same	Top of Notch			75.25	75.26°			0.01
Same	1st Step in Notch			75.10	75.08°			-0.02
Same	Bottom of Notch			74.90	74.88°			-0.02

*Elevations determined by measuring from given existing grate elevation.

Structure Description	Location Description	Plan Dimension	Actual Dimension	Plan Elevation	As-Built Elevation	Permit Elevation	As-Built Elevation	Elevation Variance
EXISTING POND 3								
Existing D. B. Type D Partial	Top of new Skimmer		6.64' X 9.16'	80.41	80.22°			-0.19
Same	Grate Elevation			79.91	Given			
Same	Bottom of new Skimmer			76.65	76.40°			-0.25
Same	Plate Size	1.42' X 1.33'	1.42' X 1.33'	Top 78.00	78.00°			

Note: All other elevations are shown as existing and were not disturbed or changed.



REVISIONS	
DATE	DESCRIPTION

LOCHNER CA 04
 H. W. LOCHNER, INC.
 CONSULTING ENGINEERS AND PLANNERS
 5650 T. G. LEE BLVD, SUITE 200
 ORLANDO, FLORIDA 32822

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION
 ROAD NO. 400 COUNTY OSCEOLA FINANCIAL PROJECT ID 242523-1-52-01

AS-BUILT POND STR'S.
 SHEET NO. 115B

**INTERSTATE 4 COLLECTOR-DISTRIBUTOR ROADS
OFF SITE CONVEYANCE MODELING**

The Interstate 4 Collector - Distributor (I-4 CD) Roads Project located from south of Reedy Creek to the I-4/US 192 interchange is crossed by a large conveyance system which transports runoff from 723 acres of improved and unimproved land located north and west of the I-4 bifurcation (STA 287+00). The existing roadside ditch will be placed in the infield between the CD roads and the I-4 mainline in order to avoid impacting jurisdictional wetlands adjacent to the bifurcation. The ditch will cross under the westbound CD road (WBCD) at STA 3294+67 and flow in the infield between the WBCD and the I-4 mainline to the cross drain at STA 287+00. The ditch crosses under both mainline roadways in the existing double seven-foot horizontal by four-foot concrete box culverts. The ditch then flows southwest between the mainline and the EBCD to the entrance of a 16-foot horizontal by five-foot arch culvert which discharges right of STA 2272+25. The conveyance ditch interconnects hydraulically to wetlands, treatment ponds and compensation ponds.

This system has been modeled previously in the design of the Southern Connector Extension. That previous model has been recreated for this design effort and used to determine the existing conditions. The recreated model was then modified to simulate the proposed conditions. Because the stage in the conveyance ditch affects the performance of the proposed treatment ponds (TP-5, TP-6 and TP-7), the modified model is the only accurate method available to determine the treatment ponds' stage and discharge during design events.

The following schematics demonstrate the interconnection between the various elements of the two models. It should be noted that the tailwater for the models are represented by a stage - time node downstream of an existing ninety-six inch (96") diameter CMP located well downstream of the project. This terminal node was chosen to eliminate the effect of tailwater assumptions on the model.

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JUN 21 1996

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5/1/96

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Pond TP-2

Pond TP-2 will be a wet bottom pond located southeast of the I-4/World Drive Extension Interchange, adjacent to the EBCD in the remnant of an existing borrow pit 234 feet right of STA 719+20. The pond will treat and attenuate runoff from the new pavement on the EBCD from STA 713+80 to 723+00 collected in shoulder gutter inlets. The pond will also treat and attenuate runoff from the existing I-4 mainline from STA 185+90 to 215+00 and from the existing EB I-4 to SB WDE ramp from its departure from the EBCD STA 222+92 collected in roadside swales and conveyed to Pond TP-2 through ditch bottom inlets. The pond will discharge into an existing roadside ditch which conveys stormwater along the EBCD to discharge 40 feet right of STA 200+00 (EBCD) into the Reedy Creek floodplain.

This section contains the post-development basin areas including impervious and pervious areas and the Santa Barbara worksheet which includes basin area, DCIA (Directly Connected Impervious Areas), water surface area, % DCIA, NDCIA (Non-Directly Connected Impervious Areas) and composite Curve Number (CN). Also included are: the treatment volume calculation worksheet which provides the pollution abatement volume required and provided and recovery time; stage/storage worksheet; pond area calculations; nodal diagram for the AdICPR model; post-development hydrographs for the 10-yr/72-hr and 50-yr/72-hr storm events; post-development routings for the 10-yr/72-hr and 50-yr/72-hr storm events; and ditch calculations.

2-00

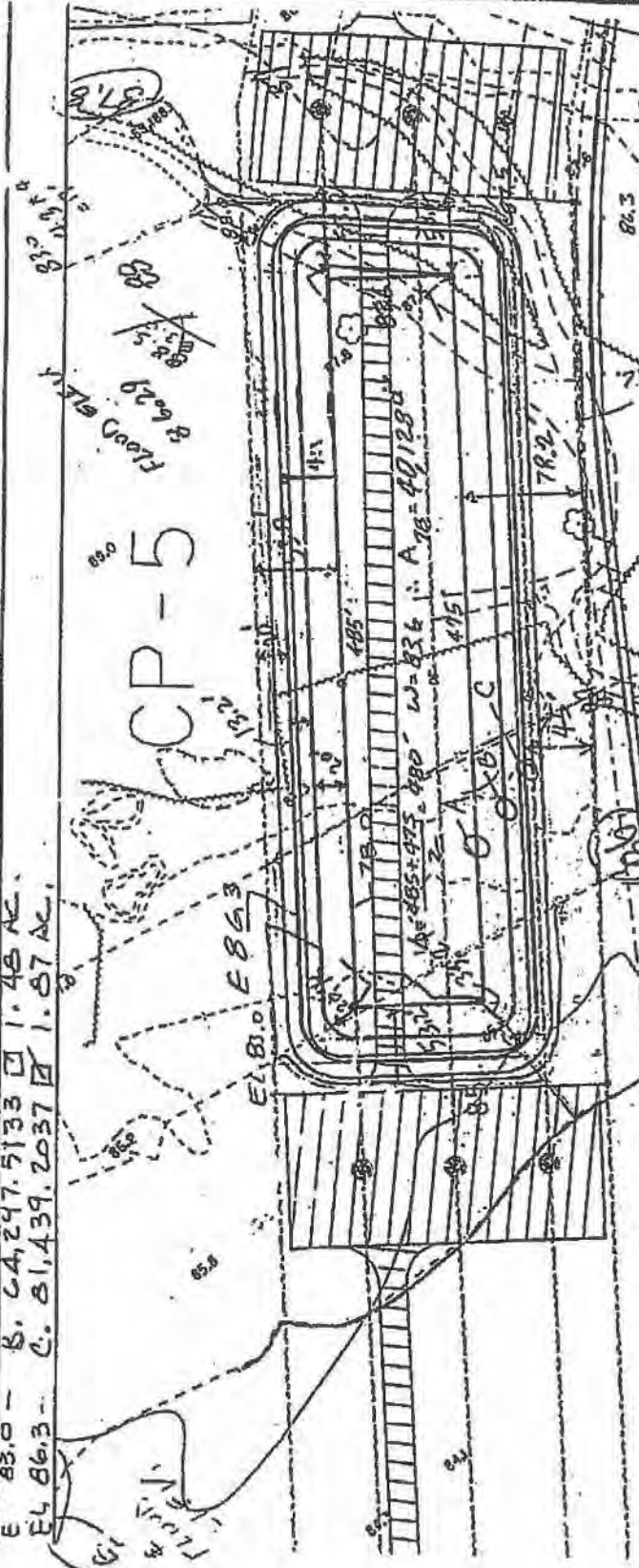
Active Page 1				
NODE NAME	NODE TYPE	INITIAL EL (ft)	ELEVATION (ft)	AR/TH/STOR (ac/hr/af)
POND5	1.	83.	83.	0.7
			83.55	0.755
X COORDINATE	0.		83.75	0.775
Y COORDINATE	0.		83.9	0.79
LENGTH (ft)	0.		84.0	0.805
			84.2	0.82
TYPE 1 ELEV. vs. AREA			84.35	0.835
			84.4	0.84
TYPE 2 ELEV. vs. TIME			84.5	0.85
			86.5	1.23
TYPE 3 ELEV. vs. STOR.				

Last Page 1300

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JUN 21 1996
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Treatment Pond 5
Stags vs Area
Made BY: RC 11/95
Checked by: (RC) 11/95

EL 81.0 - A. 40,402.6054 @ .75 AC.
 E 83.0 - B. 64,297.5133 @ 1.48 AC.
 E 86.3 - C. 81,439.2037 @ 1.87 AC.



Greiner

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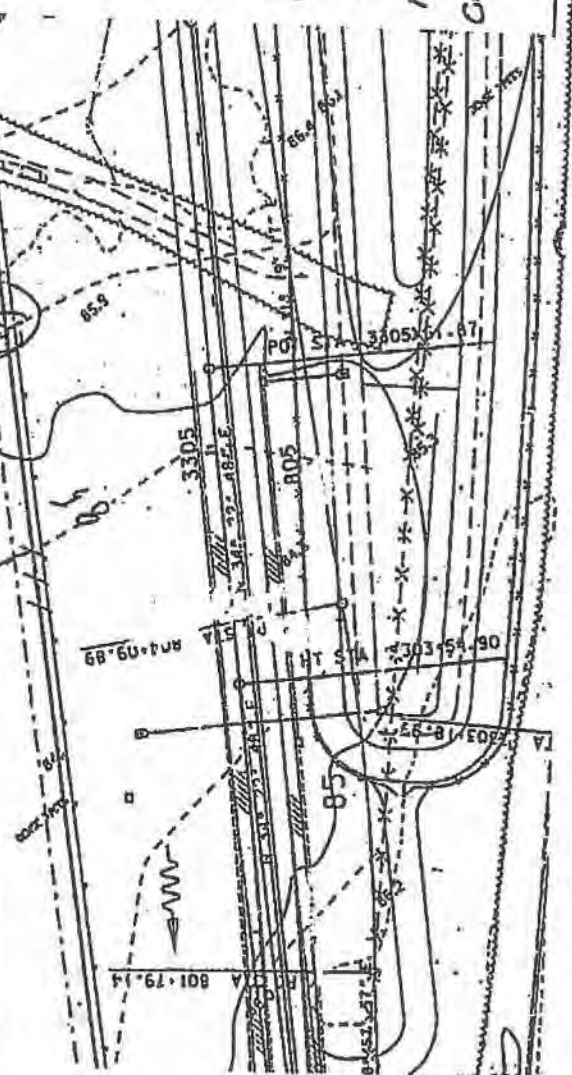
ORLANDO SERVICE CENTER
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 JUN 21 1996

100 Year
 COMPENSATION
 POND 5

STAGE - vs - Area

MADE BY: HS 11/95
 CHECKED BY: RLS 11/95

1-59



Pond TP-5

Pond TP-5 will be a wet bottom pond located left of STA 3295+00. The pond will be created by reshaping and enlarging the existing Southern Connector Extension Pond AA. The pond will treat and attenuate runoff from the new pavement and shoulders of the WBCD road from STA 3270+00 to 3304+44 collected by shoulder gutter inlets and barrier wall inlets. All of the pavement and shoulders originally treated and attenuated in Pond AA will be obliterated or will be reconstructed and drained to Pond TP-5 by this project. The pond will discharge into the conveyance system which passes water from west of the I-4/US 192 Interchange southward along the west side of I-4 to the bifurcation, across the bifurcation at STA 287+00 and southward along the east side of I-4 to its outfall at STA 270+40. The pond will be owned and maintained by Florida's Turnpike.

The pond will have lined sides and bottoms to prevent wasting of fresh water and dewatering wetlands

This section contains the Santa Barbara worksheet which includes basin area, DCIA (Directly Connected Impervious Areas), water surface area, % DCIA, NDCIA (Non-Directly Connected Impervious Areas) and composite Curve Number (CN). Also included are: the treatment volume calculation worksheet which provides the pollution abatement volume required and provided and recovery time; stage/storage worksheet; pond area calculations; nodal diagram for the A-ICPR model; post-development hydrographs for the 10-yr/72-hr and 50-yr/72-hr storm events; and post-development routings for the 10-yr/72-hr and 50-yr/72-hr storm events.

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JUN 21 1996

6/13/96

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I-f CD Floodplain
 Bifurcation (Big One)
IMPACTS

West Bound CD 3279+00 to 3302+00
 (87.34) 466,630 - 205,180 = 261,450 = 6.00 Ac-ft

West Bound CD 3279+00 to 3302+00
 (85.24) 209,100 - 161,300 = 47,800 = 1.10 - Ac-ft

East Bound CD 2260+00 to 2277+00
 (85.24) 788,140 - 85,170 = 702,950 = 16.14 Ac-ft

Flood plain Impacts @ Big One (85.24 both sides) = 17.24 Ac-ft

Flood plain Impacts @ Big One (85.24 Rt & 87.34 LT) = 22.14 Ac-ft

COMPENSATION

	VOLBIG 1 85.24 RT		VOLBIG 2 85.24 RT & 87.34 LT	
CP4A (COMP4)	6.80	85.00	15.47	87.34
CP4B				
CP5 (COMP5)	3.33	84.98	7.11	87.04
TP-5 (POND 5)	1.66	84.98	4.04	87.15
TP-6 (POND 6)	6.75	85.24	6.75	85.24
TP-7 (POND 7)		85.50	3.20	87.04
	<u>18.14</u>		<u>36.57</u>	

ORIGINAL SUBMITTAL

JUN 21 1996

ORLANDO SERVICE CENTER

**BASIN 5
POST DEVELOPMENT SUMMARY TABLE**

BASIN VARIABLE	POST-DEV. 10YR/72HR	POST-DEV. 50YR/72HR
STORM INTENSITY (in/hr)	10.19	12.91
BASIN AREA (ac)	3.17	3.17
DISCHARGE (cfs)	3.72	4.81
MAXIMUM STAGE (ngvd)	85.63	85.72
TIME OF CONCENTRATION (min)	15.71	15.71
COMPOSITE CURVE NUMBER	80.00	80.00
ELEVATION @ NWL (ngvd)	83.00	83.00
REQUIRED TREATMENT (ac-ft)	0.37	0.37
PROVIDED TREATMENT (ac-ft)	0.40	0.40
RECOVERY VOLUME (ac-ft)	0.13	0.13
REC V NOTCH ANGLE (degrees)	20.00	20.00
RECOVEY TIME (hours)	22.08	22.08

ORIGINAL SUBMITTAL
JUN 21 1996
ORLANDO SERVICE CENTER

GREYER INC: WATER RESOURCES GROUP				
PROJECT TITLE:	RACE ROAD			
PROJECT NUMBER:	V.1000.17.20			
FILE NAME:	TP5CNPOS.WK3	SCALE (1" =)	50	DATE
BASIN NAME:	POND 5	MADE BY:	REC	07-Nov-95
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	JHD	11/20/95

SANTA BARBARA METHOD - PLANIMETER WORKSHEET			
BASIN AREA LAND USE DESCRIPTIONS	PLANIMETER VALUES		AVG AREA (Ac)
	READING 1 (IN ²)	READING 2 (IN ²)	
ENTIRE BASIN			
ALL LAND SURFACES	55,234	55,234	3.17
TOTAL BASIN AREA			3.17
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)			
BUILDING			
DRIVEWAY			
ROADWAY	30,840	30,840	1.77
PAVEMENT (MISC.)			
WATER SURFACE	12,197	12,197	0.70
TOTAL DCIA			2.47
NON - DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)			
BUILDING			
DRIVEWAY			
ROADWAY			
PAVEMENT (MISC.)			
TOTAL N - DCIA			
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)		77.52%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)		(Ac) 0.70
CN AREA	(BASIN AREA - DCIA)		(Ac) 0.70

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA	PRODUCT
OPEN SPACE - GOOD	IMMOKALEE	B/D	80	0.09	7.20
	POMPAHO, DEP	D	80	0.08	6.40
POND LOCATION					
OPEN SPACE - GOOD	IMMOKALEE	B/D	80	0.53	42.40
TOTALS				0.70	56.00

ORIGINAL SUBMITTAL

JUN 21 1996

ORLANDO SERV. CENTER

COMPOSITE CN	0.70
--------------	------

5-4

ENGLISH WORKSHEET

REV. 6-13-96

Greiner

MADE BY: ccb DATE: 06/11/96 JOB NO. V100017.00
CHECKED BY: S.J.H. DATE: 6-11-96 SHEET NO.
CALCULATIONS FOR: I-4 CD ROAD POND 5

Water Quality

Total Basin Area = 3.17 ac.
*Paved Area = 1.77 ac. *Proposed
Pond Area at NWL = 0.70 ac.

- A. 1.0" Over Total Basin Area 0.26 ac-ft
- B. 2.5" Over Paved Area = 0.37 ac-ft
 Required PAV 0.37 ac-ft

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
86.50	1.23				
84.50	0.85				
83.55 (PAV)	0.76				0.40
83.00 (NWL)	0.70	0.73	0.55	0.40	

Bleed Down Volume
0.5 Over Total Basin Area = 0.13 ac-ft

ORIGINAL SUBMITTAL
JUN 21 1996
ORLANDO SERVICE CENTER

5.4a
6-13-96

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

POND RECOVERY ANALYSIS ONLY

CONTROL PARAMETERS

START TIME: .00
END TIME: 30.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
22.00	30.00	15.00
26.00	5.00	5.00
30.00	15.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

✓ SJW 6-13-96

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5-4b
6-13-96

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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POND RECOVERY ANALYSIS ONLY

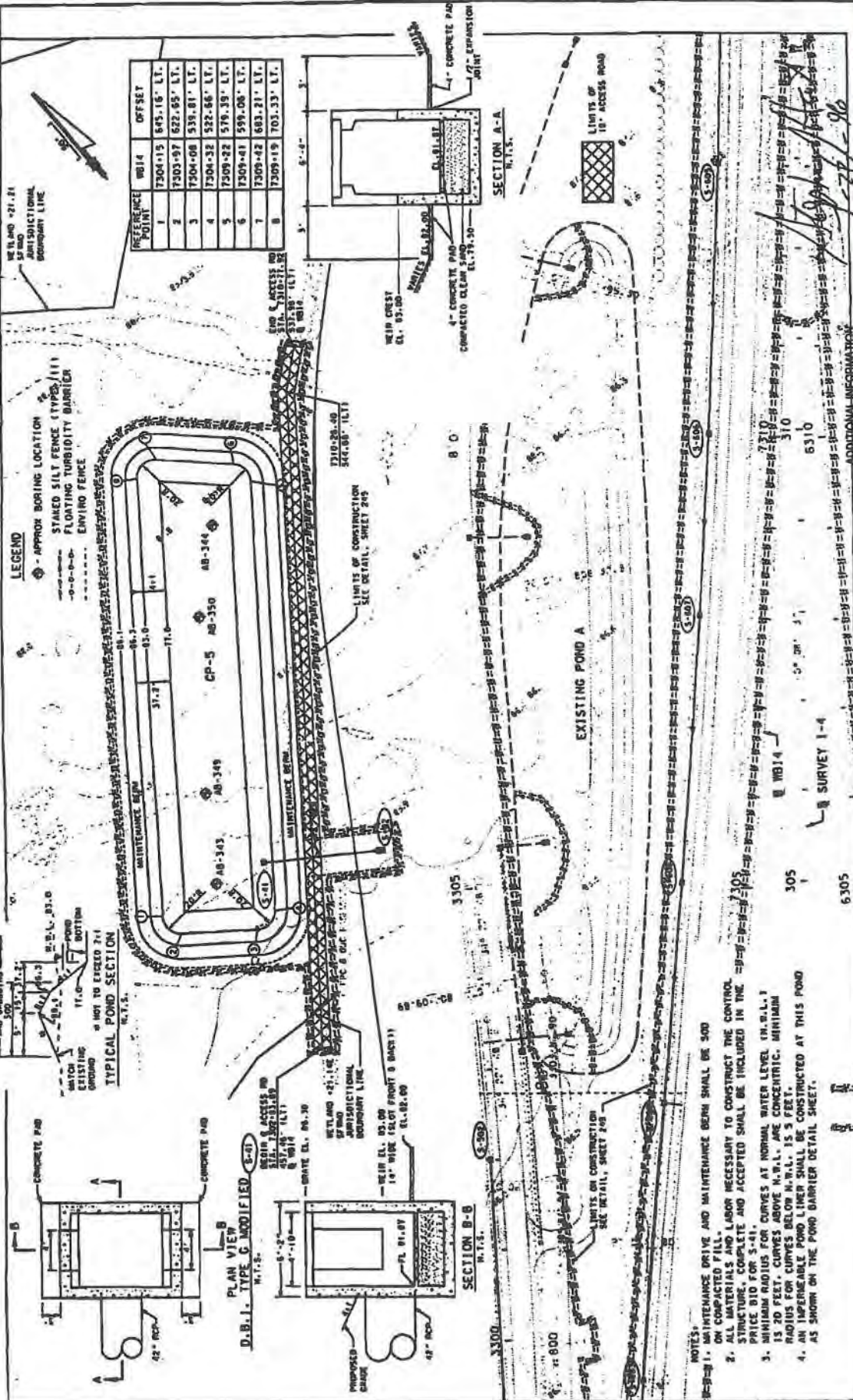
NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/cf)
POND5	AREA	83.550	.000	.000	.000	83.000	.700
						83.550	.755
						83.750	.775
						83.900	.790
						84.050	.805
						84.200	.820
						84.350	.835
						84.400	.840
						84.500	.850
						86.500	1.230
DITCH	TIME	80.460	.000	.000	.000	80.460	.000
						80.730	25.000
						81.410	45.000
						85.720	62.000
						85.680	63.000
						85.670	63.500
						85.660	64.000
						85.610	65.000
						85.500	67.000
						85.420	72.000

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JUN 21 1996

ORLANDO SERVICE CENTER

STATE PROJ. NO. 92130-3420 B3



DATE OF SURVEY 1-4
WB14
310
6310
6305

ADDITIONAL INFORMATION

DATE OF DESIGN
DATE OF CONSTRUCTION
DATE OF AS-BUILT

COMPENSATION POND-5
14 C-D ROADS

Greiner
OFFSHORE SERVICE CENTER

DATE: 11/2/1996
PROJECT: COMPENSATION POND-5

EXHIBIT 14

Pond TP-6

Pond TP-6 will be a wet bottom pond located right from STA 2295+00 to 2306+00. The pond will be created by enlarging the Southern Connector Extension Pond BB in the future high speed rail corridor. The pond will be used jointly by this project and by Celebration. The pond will treat runoff from the new pavement and shoulders on the **EBCD road from STA 2290+00 to 2308+00** collected by shoulder inlets and barrier wall inlets. The pond will treat runoff from the existing east and westbound I-4 mainline pavement and the added driving lanes and shoulder from **STA 6287+00 to 6319+09 (EB14)** and from **STA 7286+65 to 7319+09 (WB I-4)** collected in shoulder gutter inlets. All of the pavement and shoulders originally treated and attenuated by Pond BB will be obliterated or will be reconstructed and drained to Pond TP-6 by this project. The pond will discharge into the roadside swale which will be located between the eastbound I-4 mainline and the EBCD road. The pond will be owned by Celebration and maintained by Florida's Turnpike.

32551

1800
5200

The pond will have lined sides and bottoms to prevent wasting of fresh water and dewatering wetlands.

This section contains the Santa Barbara worksheet which includes basin area, DCIA (Directly Connected Impervious Areas), water surface area, % DCIA, NDCIA (Non-Directly Connected Impervious Areas) and composite Curve Number (CN). Also included are: the treatment volume calculation worksheet which provides the pollution abatement volume required and provided and recovery time; stage/storage worksheet; pond area calculations; nodal diagram for the AdICPR model; post-development hydrographs for the 10-yr/72-hr and 50-yr/72-hr storm events; and post-development routings for the 10-yr/72-hr and 50-yr/72-hr storm events.

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**BASIN 6
POST DEVELOPMENT SUMMARY TABLE**

BASIN VARIABLE	POST-DEV. 10YR/72HR	POST-DEV. 50YR/72HR
STORM INTENSITY (in/hr)	10.19	12.91
BASIN AREA (ac)	11.85	11.85
DISCHARGE (cfs)	11.15	14.76
MAXIMUM STAGE (ngvd)	84.98	85.51
TIME OF CONCENTRATION (min)	38.35	31.23
COMPOSITE CURVE NUMBER	80.00	80.00
ELEVATION @ NWL (ngvd)	82.00	82.00
REQUIRED TREATMENT (ac-ft)	1.76	1.76
PROVIDED TREATMENT (ac-ft)	1.92	1.92
RECOVERY VOLUME (ac-ft)	0.49	0.49
REC. V-NOTCH ANGLE (degrees)	40.00	40.00
RECOVEY TIME (hours)	23.59	23.59

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GREINER INC: WATER RESOURCES GROUP

PROJECT TITLE:	14 CD ROAD			SCALE (1" =)	50	DATE	
PROJECT NUMBER:	V10001725			MADE BY:	REC	01-Dec-95	
FILE NAME:	TR6CNPOS.WKS			CHECKED BY:	KMD	11/20/95	
BASIN NAME:	POND 6						
BASIN ANALYSIS (PRE/POST):	POST						

SANTA BARBARA METHOD - PLANIMETER WORKSHEET			
BASIN AREA LAND USE DESCRIPTIONS	PLANIMETER VALUES		AVG AREA (Ac)
	READING 1 (IN ²)	READING 2 (IN ²)	
ENTIRE BASIN			
ALL LAND SURFACES	206,474	206,474	11.85
TOTAL BASIN AREA			11.85
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)			
BUILDING			
DRIVEWAY			
ROADWAY	147,233	147,233	8.45
PAVEMENT (MISC.)			
WATER SURFACE	24,219	24,219	1.39
TOTAL DCIA			9.84
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)			
BUILDING			
DRIVEWAY			
ROADWAY			
PAVEMENT (MISC.)			
TOTAL N - DCIA			
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)		83.04%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)		(Ac) 2.01
CN AREA	(BASIN AREA - DCIA)		(Ac) 2.01

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LAND USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA	PRODUCT
OPEN SPACE - GOOD	POMPANO DEP	D	80	0.62	49.60
	IMMOKALEE				
	SMYRNA				
POND LOCATION	BASINGER				
OPEN SPACE - GOOD	IMMOKALEE	B/D	80	1.39	111.20
TOTALS				2.01	160.80

COMPOSITE CN	80.00
--------------	-------

REV. 6-13-96

Greiner

MADE BY: ccb
CHECKED BY: SJH
CALCULATIONS FOR: I-4 CD ROAD

DATE: 06/11/96 JOB NO. V100017.00
DATE: 6-11-96 SHEET NO. POND 6

Water Quality

Total Basin Area = 11.85 ac.
*Paved Area = 8.45 ac.
Pond Area at NWL = 1.39 ac.

* Existing and Proposed

A. 1.0" Over Total Basin Area 0.99 ac-ft
B. 2.5" Over Paved Area = 1.76 ac-ft
Required PAV 1.76 ac-ft

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
88.00	2.78				
83.25 (PAV)	1.68				1.92
82.00 (NWL)	1.39	1.53	1.25	1.92	

Bleed Down Volume

0.5" Over Total Basin Area = 0.49 ac-ft

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STATE PROJ. NO. 92130-3420 75

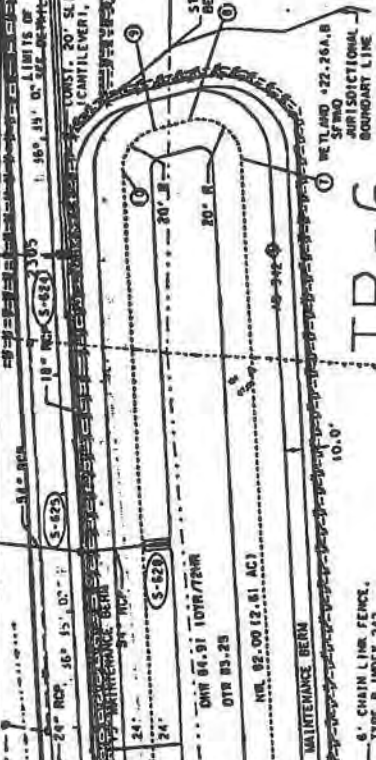
LIMITS OF CONSTRUCTION
CONST. 20' SLIDING GATE
CANTILEVER, TYPE B

50' EMBANK
EASEMENT

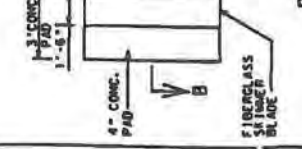
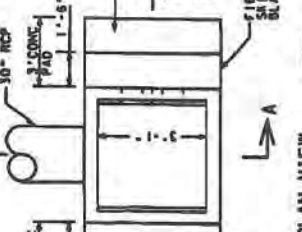
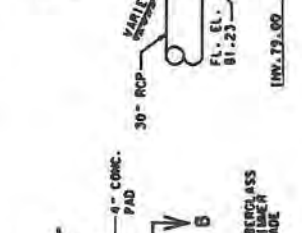
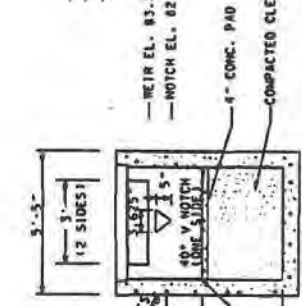
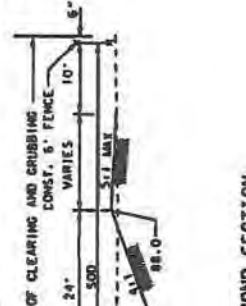
STA 2306+00
BEGIN EMBANK-FEM
100' HIGH
SPEED RAIL
CORRIDOR

REFERENCE POINT	EBCD	OFFSET
1	2294+94	60' RT
2	2294+74	80' RT
3	2294+74	115' RT
4	2294+19	121' RT
5	2294+95	152' RT
6	2295+11	160' RT
7	2305+74	183' RT
8	2306+09	121' RT
9	2306+03	91' RT
10	2305+68	63' RT

TP-6



- NOTES:
1. MAINTENANCE DRIVE AND MAINTENANCE BERM SHALL BE 500' ON COMPACTED FILL.
 2. SWIMERS SHALL BE CONSTRUCTED OF 3/16" FIBERGLASS, 3/8" THICK PLASTIC PLATES AND ANGES CONNECTED BY EPDM GASKETS. METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES SHALL BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS. ALL WORK SHALL CONFORM TO THE TECHNICAL SPECIAL PROVISIONS.
 3. ALL MATERIALS AND LABOR NECESSARY TO CONSTRUCT THE CONTROL STRUCTURE SHALL BE INCLUDED IN THE PRICE FOR THIS ITEM AND ACCEPTED SHALL BE INCLUDED IN THE PRICE FOR THIS ITEM.
 4. MINIMUM RADIUS FOR CURVES AT NORMAL WATER LEVEL (N.W.L.) IS 20 FEET. CURVES ABOVE N.W.L. ARE CONCENTRIC. MINIMUM RADIUS FOR CURVES ABOVE N.W.L. IS 5 FEET.
 5. AN IMPERMEABLE POND LINER SHALL BE CONSTRUCTED AT THIS POND AS SHOWN ON THE POND BARRIER DETAIL SHEET.
 6. ALL CONTROL STRUCTURE BUFFERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONCRETE MANUAL. ALL CONTROL STRUCTURE BUFFERS SHOULD BE PLACED WITHIN THESE UPLAND BUFFERS.



LEGEND

- ⊙ APPROX BORING LOCATION
- STAKED SILT FENCE (TYPE III) FLOATING TURBIDITY BARRIER
- - - - ENVIRO FENCE

ADDITIONAL INFORMATION

JUL 2 1996

ORLANDO SERVICE CENTER

Stephen Hart
7-22-96

Pond TP-7

Pond TP-7 will be a system of two interconnected wet bottom ponds located left from STA 322+00 to 330+79. The pond system will treat and attenuate runoff from the existing east and westbound mainline pavement as well as the additional driving lanes and shoulders from STA 319+00 to STA 329+36 WB I-4 and STA 319+00 to STA 329+29 EB I-4 collected in shoulder gutter inlets. The pond system will discharge into the roadside swale on the west side of I-4.

The ponds will have lined sides and bottoms to prevent wasting of fresh water and dewatering wetlands.

This section contains the following information: post-development basin areas including impervious and pervious areas; and the Santa Barbara worksheet which includes basin area, DCIA (Directly Connected Impervious Areas), water surface area, % DCIA, NDCIA (Non-Directly Connected Impervious Areas) and composite Curve Number (CN). Also included are the treatment volume calculation worksheet which provides the pollution abatement volume required and provided and recovery time; stage/storage worksheet; pond area calculations; nodal diagram for the AdICPR model; post-development hydrographs for the 10-yr/72-hr and 50-yr/72-hr storm events; and post-development routings for the 10-yr/72-hr and 50-yr/72-hr storm events. The recovery device has been refined to reflect actual required bleed-down and is different than the pond routing reach. This difference is insignificant compared to the total pond design and has not been reflected in the pond routing.

I:\V\001700\report\ponddesc.wpd

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JUN 21 1996

6/13/96

ORLANDO SERVICE CENTER

POND A

V. Stormwater Management Criteria (see Exhibit 6, 7, and 8)

A. Quantity -- SCS Method

SBUH Method (RCID Areas Only)

Other methods may be used as appropriate.

1. Orange County Rainfall Distributions (see Exhibit 6).

2. Peak Rate Factor for SCS Method:

256 - Pre

323 - Post

Other factors may be used as appropriate.

<u>Frequency</u> <u>(Yrs.)</u>	<u>Duration</u> <u>Hrs.</u>	<u>P (in)</u>	<u>Comments</u>
10	24	7.50	TW - HGL Computations (as appropriate)
25	24	8.60	Pond Routing - SFWMD, 40E-4
100	24	10.60	Compensating Floodplain Storage and Land-locked Basins.

3. Time of Concentration -- Overland Flow (see Exhibits 7 and 8).

Sheet Flow \geq 0.5% - FDOT Nomograph

Sheet Flow < 0.5% - Kinematic Wave Equation

4. Assume Antecedent Moisture Condition II

5. RCID -- See Exhibit 12.

B. Quality: 17-3 Classification for Discharge -- Class III

1. Wet detention shall be provided for the first inch of run-off from the developed project, or the total run-off of 2.5 inches times the percentage of imperviousness, whichever is greater.

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INTERSTATE 4 SYSTEM

JAN 27 1992

The model for this system utilized thirty-nine nodes and forty-five paths. Refer to "Post-Development Nodal Diagram I-4 System."

This model includes Pond A (located in the infield bounded by Ramp A from right Station 802+75 to 813+50 and by I-4), Pond AA (located west (left) of Ramp A from Station 794+00 to 796+50), Pond B (located in the infield bounded by Ramp A, Ramp B, and I-4), Pond BB (located east (right) of Ramp B Station 696+00), and cross culverts under I-4 and Ramp B (S-11, -12, -14).

Pond A receives run-off collected in storm sewer from: Ramp A Station 803+00 to 822+70 and from the slopes between Ramp A and the pond berm. Computations included here demonstrate that Pond A will treat and attenuate only those areas mentioned above which will be built during this project.

*Nothing
From I-4*

Pond AA receives run-off collected in storm sewer from both Ramp A and existing I-4 from: I-4 Station 7287+50 to Ramp A Station 794+70; and from Ramp A and the Collector/Distributor stub-out from Ramp A Station 794+70 to 803+00. Computations included here demonstrate that Pond AA will treat and attenuate only those areas mentioned above which will be built during this project. It should be noted that 10,978 square feet (0.2520 Ac.) of new impervious area (roadway and paved shoulder) will not be treated nor attenuated along Ramp A from Station 777+00 to 787+50. In order to compensate for this above described untreated area, Pond AA has been designed to treat and attenuate existing westbound I-4 pavement from I-4

Station 7287+50 to 7292+45 which has never before been treated. The area of westbound I-4 pavement treated and attenuated in Pond AA is 16,830 square feet (0.3864 Ac.). The net increase in existing impervious area to be treated and attenuated is 5,852 square feet (0.1343 Ac.).

Pond B receives run-off collected in storm sewer from: Ramp A Station 822+70 to 831+18; Ramp B Station 708+00 to 727+30; and the infield area bounded by the ramps and east of the pond. Calculations included here demonstrate that Pond B will treat and attenuate only those areas mentioned above which will be built along this project.

Pond BB receives run-off collected in storm sewer from both Ramp B and existing I-4 from: I-4 Station 6284+50 to Ramp B Station 700+00; and from Ramp B and the Collector/Distributor stub-out from Ramp B Station 700+00 to 708+00. Computations included here demonstrate that Pond BB will treat and attenuate only those area mentioned above which will be built during this project. It should be noted that 16,800 square feet (0.3857 Ac.) of new impervious area (roadway and paved shoulder) will not be treated nor attenuated along Ramp B from Station 6269+00 to 6284+50. In order to compensate for this above described untreated area, Pond BB has been designed to treat and attenuate existing eastbound I-4 pavement (from I-4 Station 6285+50 to 6300+00) which has never before been treated. The area of eastbound I-4 pavement treated and attenuated in Pond BB is 52,700 square feet (1.2098 Ac.). The net increase in existing impervious area to be treated and attenuated is 35,900 square feet (0.8242 Ac.).

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10/28/82

85.12

Pond A design low water (DLW) elevation is 86.00 NGVD which is the estimated seasonal high groundwater (ESHG) elevation. Pond AA DLW is 83.00 which is two feet below the ESHG of 85.00. The inflow of 0.34 Ac.-Ft. over 14 days (0.01 cfs) as computed by Jammal was not included in the attenuation model, but it was included in the treatment computations. Lowering the DLW in Pond AA two feet below the ESHG is possible because positive drainage exists along the paths described later. The low DLW is necessary because the widening to existing I-4 is too low to be handled in a pond at or above the ESHG.

86.12 NAVD

Pond B design low water (DLW) elevation is 87.00 NGVD which is the estimated seasonal high groundwater (ESHG) elevation. Pond BB DLW is 82.00 which is 4.5 feet below the ESHG of 86.5. The inflow of 0.86 Ac.-Ft. over 14 days (0.03 cfs) as computed by Jammal was not included in the attenuation model, but it was included in the treatment computations. Lowering the DLW in Pond BB four and one-half feet below the ESHG is possible because positive drainage exists along the paths described later. The low DLW is necessary because the widening to existing I-4 is too low to be handled in a pond at or above the ESHG.

Each control structure's treatment orifice extends at least six inches below DLW and a fiberglass skimmer extends from six inches below weir crest to top of structure.

The control structures from Pond A and Pond AA outfall into the right-of-way ditch along the west (left) side of westbound I-4. Also contributing to

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this ditch is an area of 701.6 acres in five basins (I-4 Median DBI Station 318+00, Off-site Basin Trib 20, Basin RC-6 East, Basin RC-6 West, and Basin RC-16) extending from north of U.S. 192. The ditch crosses westbound I-4 at Station 7287+00 through double seven feet by four feet reinforced concrete box culverts, flows across a widened median (Basin Infield), and crosses eastbound I-4 at Station 6287+00 through double seven feet by four feet reinforced concrete box culverts. This discharge from the culverts under eastbound I-4 turns southwesterly to run parallel to I-4 in a right-of-way ditch which is to be improved during this project along the east (right) side of eastbound I-4. Also contributing to the right-of-way ditch is an area of 89.36 acres (S.E. Basin) located off-site on the east (right) side and the right-of-way ditch upstream.

The downstream end of the improved right-of-way ditch discharges into an existing ditch which is east (right) of Station 6272+40 and which flows southeasterly.

The existing ditch flows to an existing 96-inch diameter corrugated metal pipe. The downstream end of this CMP is the terminus of the model. Note that the tailwater used at this point was represented by a stage-time relationship. The stage peaked two hours after the maximum storm intensity (ninth hour for the Orange County distribution).

The right-of-way ditch along the east (right) side of eastbound I-4, upstream of the double seven feet by four feet culverts, is being improved from right Station 320+50 to the Ramp B cross culvert at Station 705+00 to

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 JAN 27 1992

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 JAN 27 1992

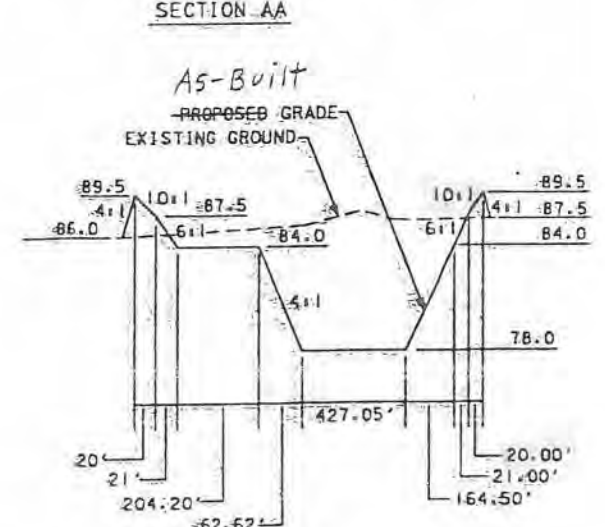
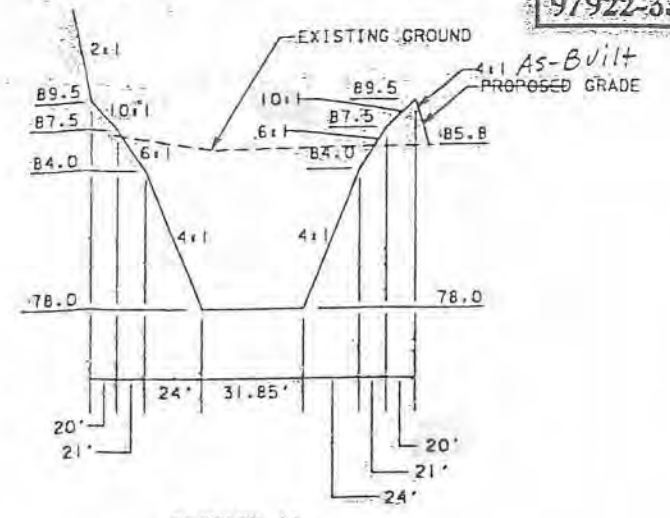
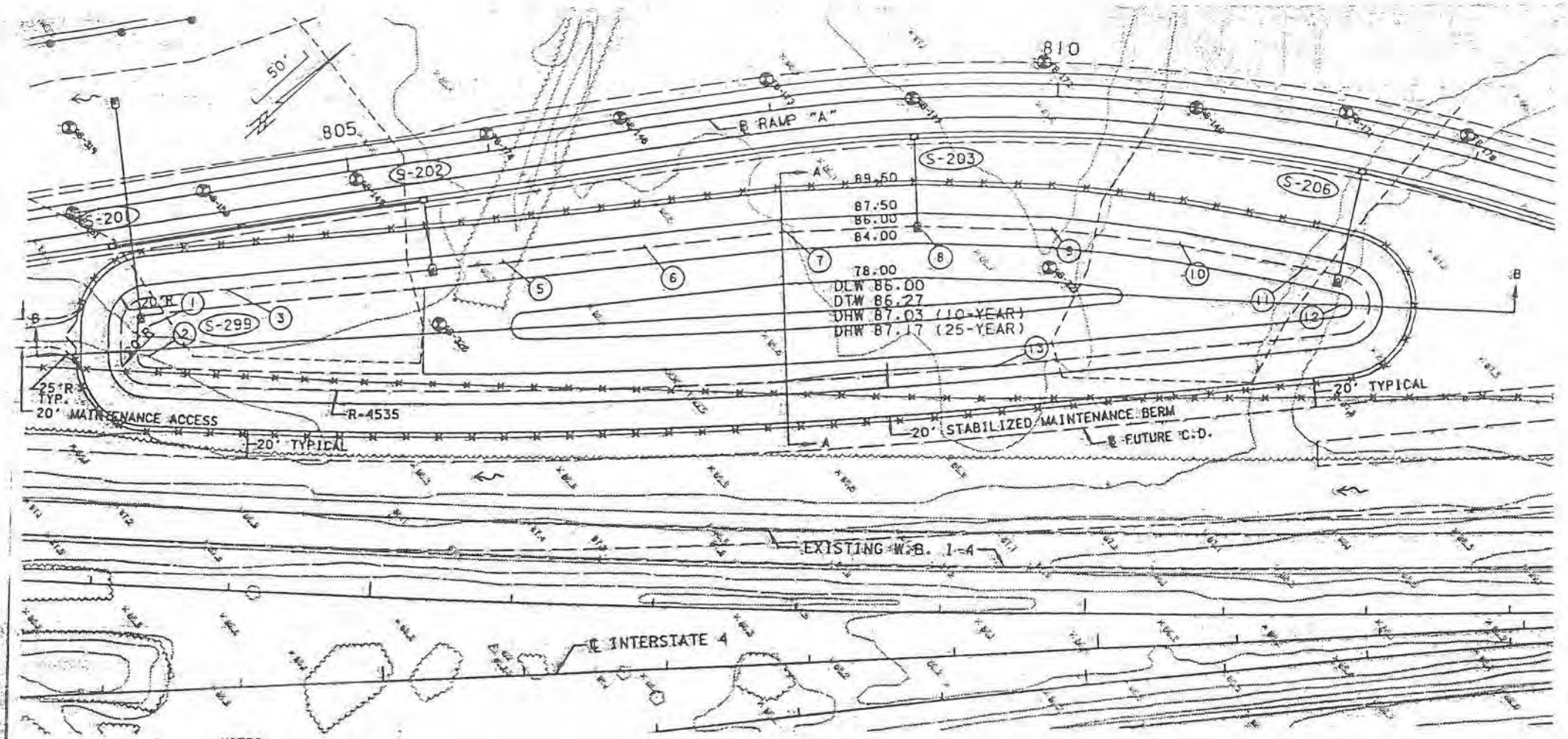
the discharge point of the double culverts. Run-off is received at the upstream end of this ditch from an off-site area of 18.21 acres (Off-site Basin N.E.) bounded by I-4 and Ramp B. Pond B's control structure outfalls into this ditch right Station 6318+70. This location was chosen over an outfall under Ramp B because the alternative outfall pipe would have been much longer, under ± 20 feet of fill, and would be a potential short circuiting hazard.

The ditch also receives untreated run-off from existing I-4 pavement and paved shoulders and from the pervious infield area between I-4 and Ramp B and between I-4 and Pond B, an area of 10.71 acres (I-4 R/W Basin).

The ditch flow crosses under Ramp B and then flows southwesterly along the east (right) side of Ramp B. Pond BB discharges into the ditch right Station 695+60. The ditch flows to the downstream end of the double seven feet by four feet culverts under eastbound I-4, as described above.

The seasonal high water elevation as determined by biological indicators in the existing ditch right of Station 6273+00 is 81.7 NGVD. This will provide for positive drainage from each of the four ponds in this system since the lowest Design Low Water elevation of 82.0 NGVD in Pond BB is above the seasonal high water elevation of 81.7.

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JAN 27 1992

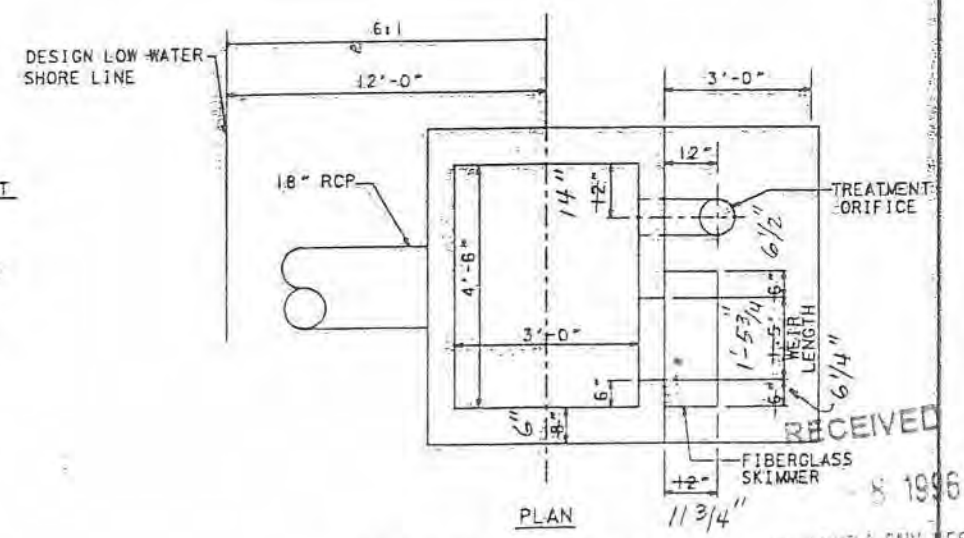
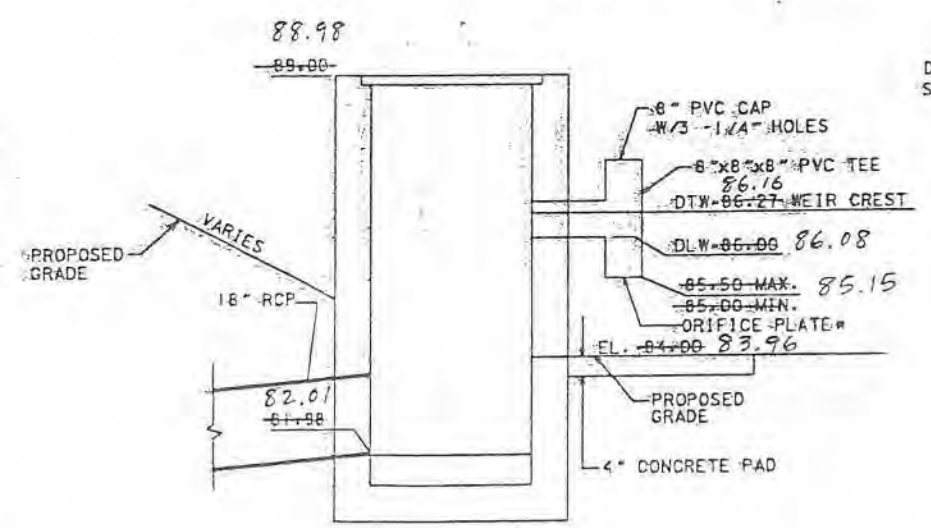


AS-BUILT

NOTES:

- MINIMUM RADIUS FOR CURVES AT DESIGN LOW WATER (D.L.W.) EL. 86.0 IS 20 FEET. CURVES ABOVE D.L.W. ARE CONCENTRIC.
- MINIMUM RADIUS FOR CURVES BELOW D.L.W. IS 5 FEET.
- AT THE CONTRACTOR'S OPTION THIS POND MAY BE EXCAVATED TO A MAXIMUM DEPTH OF 12.00 FEET BELOW THE D.L.W. ELEVATION 86.0 SHOWN HEREON TO OBTAIN SUITABLE FILL MATERIAL. NO CHANGES ARE ALLOWED IN SHAPE OR SLOPES ABOVE THE BOTTOM ELEVATION SHOWN HEREON. FINISH SLOPES OF ANY ADDITIONAL EXCAVATION SHALL NOT EXCEED 4:1.
- MAINTENANCE ACCESS AND MAINTENANCE BERM SHALL BE 500' ON 12" STABILIZED SUBGRADE TYPE "B" (LBR40).
- SKIMMERS SHALL BE CONSTRUCTED OF 3/16" FIBERGLASS REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES SHALL BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS. ALL WORK SHALL CONFORM TO THE TECHNICAL SPECIAL PROVISIONS.
- SKIMMER NOT SHOWN IN ELEVATION VIEW.
- SKIMMER SHALL EXTEND FROM 6" BELOW WEIR CREST TO TOP OF BOX.
- ALL OUTFALL CULVERTS SHALL BE REINFORCED CONCRETE PIPE, CLASS III.
- MAINTENANCE BERM SURROUNDING ALL PONDS SHALL BE GRADED TO PROVIDE MINIMUM 1.0 FOOT COVER ABOVE CROWN OF PIPE WITHIN LIMITS OF MAINTENANCE BERM.

REFERENCE POINT	STATION	OFFSET
1	803+44.30	86.56' RT.
2	803+41.72	107.40' RT.
3	804+00.00	88.95' RT.
4	805+00.00	74.29' RT.
5	806+00.00	79.15' RT.
6	807+00.00	83.13' RT.
7	808+00.00	86.19' RT.
8	809+00.00	89.99' RT.
9	810+00.00	93.93' RT.
10	811+00.00	97.57' RT.
11	812+31.23	100.89' RT.
12	812+31.23	121.64' RT.
13	809+59.42	189.22' RT.



- SKIMMER BLADE, WEIR, DRIFICE CONCRETE PAD, ETC. TO BE INCLUDED IN CONTRACT UNIT PRICE FOR CONTROL STRUCTURE.
- EXCAVATION QUANTITY OF 9359 C.Y. INCLUDES 1162 C.Y. OF A-B (MUCK) ROADWAY EXCAVATION.

*8" PVC CAP W/ HOLE DRILLED TO 3.375" AND SOLVENT WELDED TO TEE PER MANUFACTURER'S RECOMMENDATIONS.

POND B

V. Stormwater Management Criteria (see Exhibit 6, 7, and 8)

A. Quantity -- SCS Method

SBUH Method (RCID Areas Only)

Other methods may be used as appropriate.

1. Orange County Rainfall Distributions (see Exhibit 6).

2. Peak Rate Factor for SCS Method:

256 - Pre

323 - Post

Other factors may be used as appropriate.

<u>Frequency</u> <u>(Yrs.)</u>	<u>Duration</u> <u>Hrs.</u>	<u>P (in)</u>	<u>Comments</u>
10	24	7.50	TW - HGL Computations (as appropriate)
25	24	8.60	Pond Routing - SFWMD, 40E-4
100	24	10.60	Compensating Floodplain Storage and Land-locked Basins.

3. Time of Concentration -- Overland Flow (see Exhibits 7 and 8).

Sheet Flow \geq 0.5% - FDOT Nomograph

Sheet Flow < 0.5% - Kinematic Wave Equation

4. Assume Antecedent Moisture Condition II

5. RCID -- See Exhibit 12.

B. Quality: 17-3 Classification for Discharge -- Class III

1. Wet detention shall be provided for the first inch of run-off from the developed project, or the total run-off of 2.5 inches times the percentage of imperviousness, whichever is greater.

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MET. RES. MGT.

INTERSTATE 4 SYSTEM

JAN 27 1992

The model for this system utilized thirty-nine nodes and forty-five paths. Refer to "Post-Development Nodal Diagram I-4 System."

This model includes Pond A (located in the infield bounded by Ramp A from right Station 802+75 to 813+50 and by I-4), Pond AA (located west (left) of Ramp A from Station 794+00 to 796+50), Pond B (located in the infield bounded by Ramp A, Ramp B, and I-4), Pond BB (located east (right) of Ramp B Station 696+00), and cross culverts under I-4 and Ramp B (S-11, -12, -14).

Pond A receives run-off collected in storm sewer from: Ramp A Station 803+00 to 822+70 and from the slopes between Ramp A and the pond berm. Computations included here demonstrate that Pond A will treat and attenuate only those areas mentioned above which will be built during this project. *Nothing from I-4*

Pond AA receives run-off collected in storm sewer from both Ramp A and existing I-4 from: I-4 Station 7287+50 to Ramp A Station 794+70; and from Ramp A and the Collector/Distributor stub-out from Ramp A Station 794+70 to 803+00. Computations included here demonstrate that Pond AA will treat and attenuate only those areas mentioned above which will be built during this project. It should be noted that 10,978 square feet (0.2520 Ac.) of new impervious area (roadway and paved shoulder) will not be treated nor attenuated along Ramp A from Station 777+00 to 787+50. In order to compensate for this above described untreated area, Pond AA has been designed to treat and attenuate existing westbound I-4 pavement from I-4

Station 7287+50 to 7292+45 which has never before been treated. The area of westbound I-4 pavement treated and attenuated in Pond AA is 16,830 square feet (0.3864 Ac.). The net increase in existing impervious area to be treated and attenuated is 5,852 square feet (0.1343 Ac.).

Pond B receives run-off collected in storm sewer from: Ramp A Station 822+70 to 831+18; Ramp B Station 708+00 to 727+30; and the infield area bounded by the ramps and east of the pond. Calculations included here demonstrate that Pond B will treat and attenuate only those areas mentioned above which will be built along this project.

Pond BB receives run-off collected in storm sewer from both Ramp B and existing I-4 from: I-4 Station 6284+50 to Ramp B Station 700+00; and from Ramp B and the Collector/Distributor stub-out from Ramp B Station 700+00 to 708+00. Computations included here demonstrate that Pond BB will treat and attenuate only those area mentioned above which will be built during this project. It should be noted that 16,800 square feet (0.3857 Ac.) of new impervious area (roadway and paved shoulder) will not be treated nor attenuated along Ramp B from Station 6269+00 to 6284+50. In order to compensate for this above described untreated area, Pond BB has been designed to treat and attenuate existing eastbound I-4 pavement (from I-4 Station 6285+50 to 6300+00) which has never before been treated. The area of eastbound I-4 pavement treated and attenuated in Pond BB is 52,700 square feet (1.2098 Ac.). The net increase in existing impervious area to be treated and attenuated is 35,900 square feet (0.8242 Ac.).

REVISED
RES. MGR.

JAN

85.12

Pond A design low water (DLW) elevation is 86.00 NGVD which is the estimated seasonal high groundwater (ESHG) elevation. Pond AA DLW is 83.00 which is two feet below the ESHG of 85.00. The inflow of 0.34 Ac.-Ft. over 14 days (0.01 cfs) as computed by Jammal was not included in the attenuation model, but it was included in the treatment computations. Lowering the DLW in Pond AA two feet below the ESHG is possible because positive drainage exists along the paths described later. The low DLW is necessary because the widening to existing I-4 is too low to be handled in a pond at or above the ESHG.

86.12 NAVD

Pond B design low water (DLW) elevation is 87.00 NGVD which is the estimated seasonal high groundwater (ESHG) elevation. Pond BB DLW is 82.00 which is 4.5 feet below the ESHG of 86.5. The inflow of 0.86 Ac.-Ft. over 14 days (0.03 cfs) as computed by Jammal was not included in the attenuation model, but it was included in the treatment computations. Lowering the DLW in Pond BB four and one-half feet below the ESHG is possible because positive drainage exists along the paths described later. The low DLW is necessary because the widening to existing I-4 is too low to be handled in a pond at or above the ESHG.

Each control structure's treatment orifice extends at least six inches below DLW and a fiberglass skimmer extends from six inches below weir crest to top of structure.

The control structures from Pond A and Pond AA outfall into the right-of-way ditch along the west (left) side of westbound I-4. Also contributing to

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RESOURCES

JAN 27 1992

this ditch is an area of 701.6 acres in five basins (I-4 Median DBI Station 318+00, Off-site Basin Trib 20, Basin RC-6 East, Basin RC-6 West, and Basin RC-16) extending from north of U.S. 192. The ditch crosses westbound I-4 at Station 7287+00 through double seven feet by four feet reinforced concrete box culverts, flows across a widened median (Basin Infield), and crosses eastbound I-4 at Station 6287+00 through double seven feet by four feet reinforced concrete box culverts. This discharge from the culverts under eastbound I-4 turns southwesterly to run parallel to I-4 in a right-of-way ditch which is to be improved during this project along the east (right) side of eastbound I-4. Also contributing to the right-of-way ditch is an area of 89.36 acres (S.E. Basin) located off-site on the east (right) side and the right-of-way ditch upstream.

The downstream end of the improved right-of-way ditch discharges into an existing ditch which is east (right) of Station 6272+40 and which flows southeasterly.

The existing ditch flows to an existing 96-inch diameter corrugated metal pipe. The downstream end of this CMP is the terminus of the model. Note that the tailwater used at this point was represented by a stage-time relationship. The stage peaked two hours after the maximum storm intensity (ninth hour for the Orange County distribution).

The right-of-way ditch along the east (right) side of eastbound I-4, upstream of the double seven feet by four feet culverts, is being improved from right Station 320+50 to the Ramp B cross culvert at Station 705+00 to

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 ENGINEERING
 DEPARTMENT

JAN 27 1992

the discharge point of the double culverts. Run-off is received at the upstream end of this ditch from an off-site area of 18.21 acres (Off-site Basin N.E.) bounded by I-4 and Ramp B. Pond B's control structure outfalls into this ditch right Station 6318+70. This location was chosen over an outfall under Ramp B because the alternative outfall pipe would have been much longer, under ± 20 feet of fill, and would be a potential short circuiting hazard.

The ditch also receives untreated run-off from existing I-4 pavement and paved shoulders and from the pervious infield area between I-4 and Ramp B and between I-4 and Pond B, an area of 10.71 acres (I-4 R/W Basin).

The ditch flow crosses under Ramp B and then flows southwesterly along the east (right) side of Ramp B. Pond BB discharges into the ditch right Station 695+60. The ditch flows to the downstream end of the double seven feet by four feet culverts under eastbound I-4, as described above.

The seasonal high water elevation as determined by biological indicators in the existing ditch right of Station 6273+00 is ^{800.82 NAVD} 81.7 NGVD. This will provide for positive drainage from each of the four ponds in this system since the lowest Design Low Water elevation of 82.0 NGVD in Pond BB is above the seasonal high water elevation of 81.7.

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L. RES. MGT.
JAN 27 1992

PROJECT SCE Sec 1

PROJECT NO. V0113.05

STORMWATER MANAGEMENT FACILITY

MADE BY SJH

DATE 9-17-91

POND B

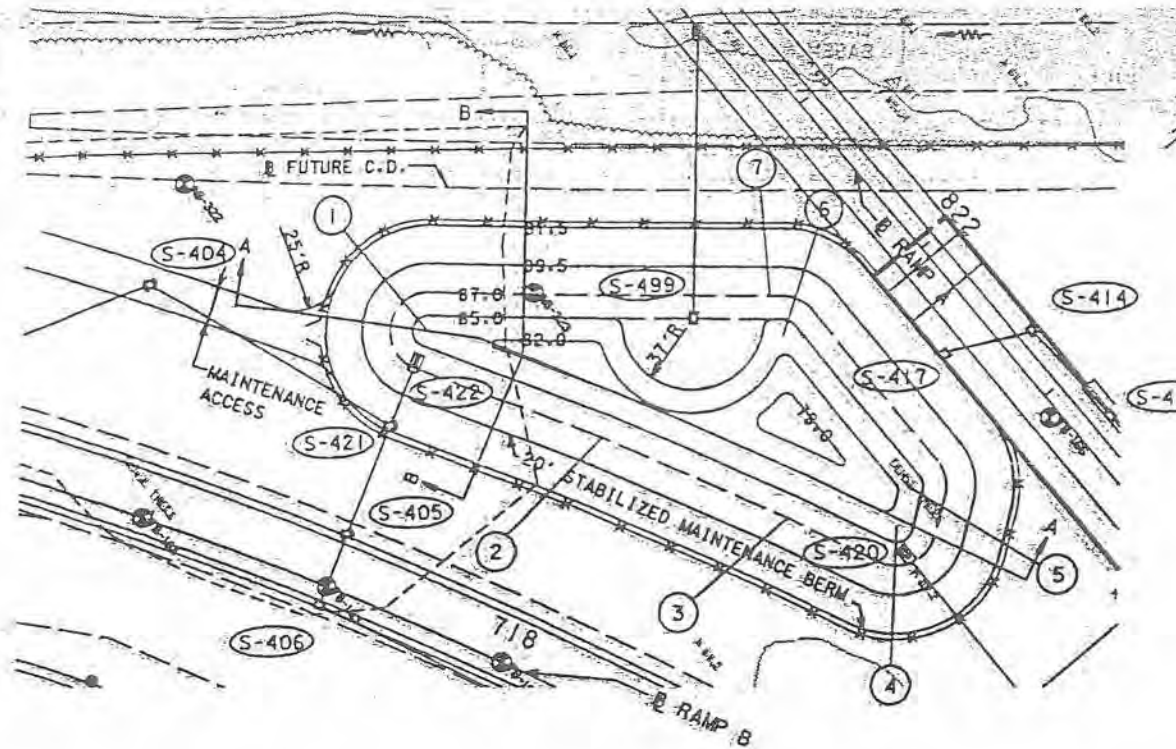
CHECKED BY CCB

DATE 2/2/92

POND STAGE STORAGE CALCULATIONS

ELEV. (NGVD)	h (Ft)	Area (Ac)	Avg. Area (Ac)	Increm. Volume (AcFt)	Total Volume (AcFt)
87.0		0.68			0
89.5	2.5	0.98	0.83	2.075	2.075
91.5	2.0	1.43	1.205	2.41	4.485

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NOTES:

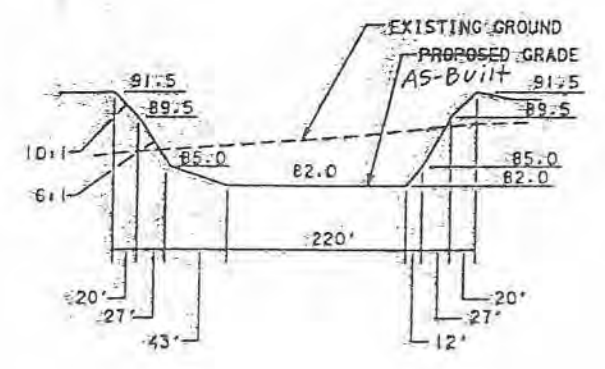
1. SKIMMERS SHALL BE CONSTRUCTED OF 3/16" FIBERGLASS, REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES SHALL BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS. ALL WORK SHALL CONFORM TO THE TECHNICAL SPECIAL PROVISIONS.
2. SKIMMER NOT SHOWN IN ELEVATION VIEW.
3. SKIMMER SHALL EXTEND FROM 6" BELOW WEIR CREST TO TOP OF BOX.
4. ALL OUTFALL CULVERTS SHALL BE REINFORCED CONCRETE PIPE, CLASS III.
5. MAINTENANCE BERM SURROUNDING ALL PONDS SHALL BE GRADED TO PROVIDE MINIMUM 1.0 FOOT COVER ABOVE CROWN OF PIPE WITHIN LIMITS OF MAINTENANCE BERM.
6. MINIMUM RADIUS FOR CURVES AT DESIGN LOW WATER (D.L.W.) EL. 87.0 IS 20 FEET. CURVES ABOVE D.L.W. ARE CONCENTRIC.
7. MINIMUM RADIUS FOR CURVES BELOW D.L.W. IS 5 FEET.
8. AT THE CONTRACTOR'S OPTION THIS POND MAY BE EXCAVATED TO A MAXIMUM DEPTH OF 9.75 FEET BELOW THE D.L.W. ELEVATION 87.0 SHOWN HEREON TO OBTAIN SUITABLE FILL MATERIAL. NO CHANGES ARE ALLOWED IN SHAPE OR SLOPES ABOVE THE BOTTOM ELEVATION SHOWN HEREON. FINISH SLOPES OF ANY ADDITIONAL EXCAVATION SHALL NOT EXCEED 4:1.
9. MAINTENANCE ACCESS AND MAINTENANCE BERM SHALL BE SOD ON 12" STABILIZED SUBGRADE TYPE "B" (LBR40)
10. SKIMMER BLADE, WEIR, ORIFICE, CONCRETE PAD, ETC. TO BE INCLUDED IN CONTRACT UNIT PRICE FOR CONTROL STRUCTURE.
11. EXCAVATION QUANTITY OF 4141 C.Y. INCLUDES 388 C.Y. OF A-B (MUCK) ROADWAY EXCAVATION.

* 8" PVC CAP W/ HOLE DRILLED TO 3.00" AND SOLVENT WELDED TO TEE PER MANUFACTURER'S RECOMMENDATIONS.

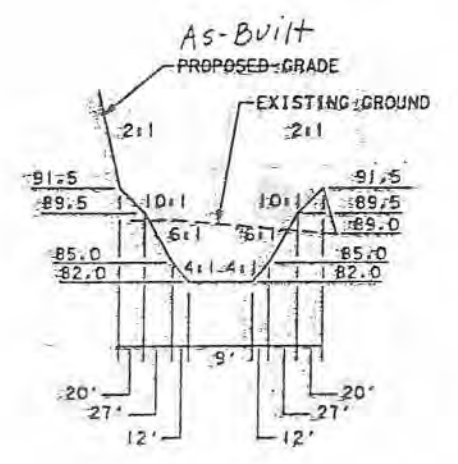
D.L.W. 87.00
 D.T.W. 88.12
 D.H.W. 89.66 (10-YEAR)
 D.H.W. 89.91 (25-YEAR)

REFERENCE POINT	STATION	OFFSET
1	717+00.00	141.28' LT.
2	718+00.00	126.20' LT.
3	719+00.00	130.36' LT.
4	719+53.04	152.25' LT.
5	719+48.28	173.23' LT.
6	718+58.30	213.13' LT.
7	718+50.61	231.20' LT.

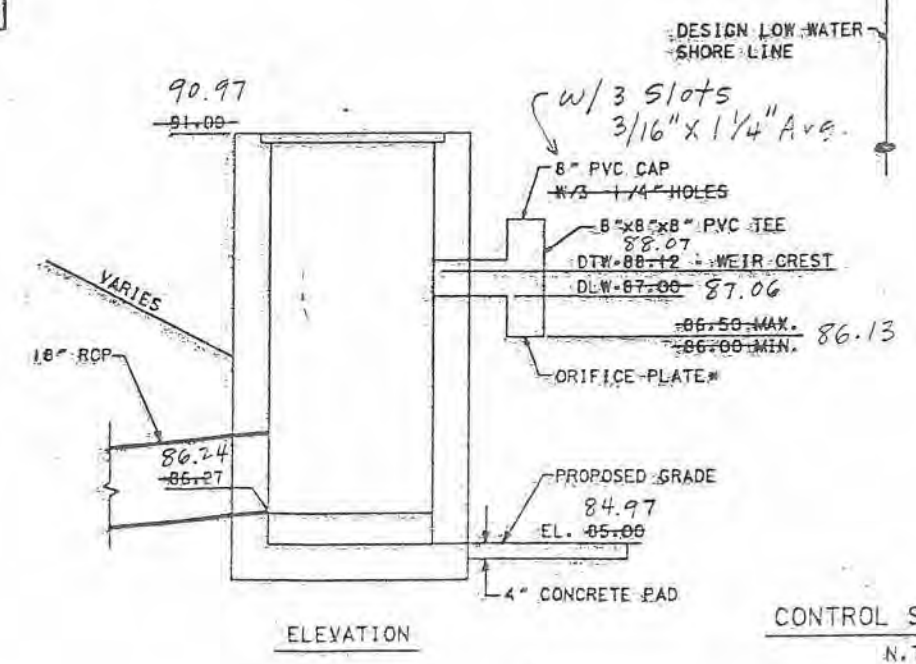
AS-BUILT



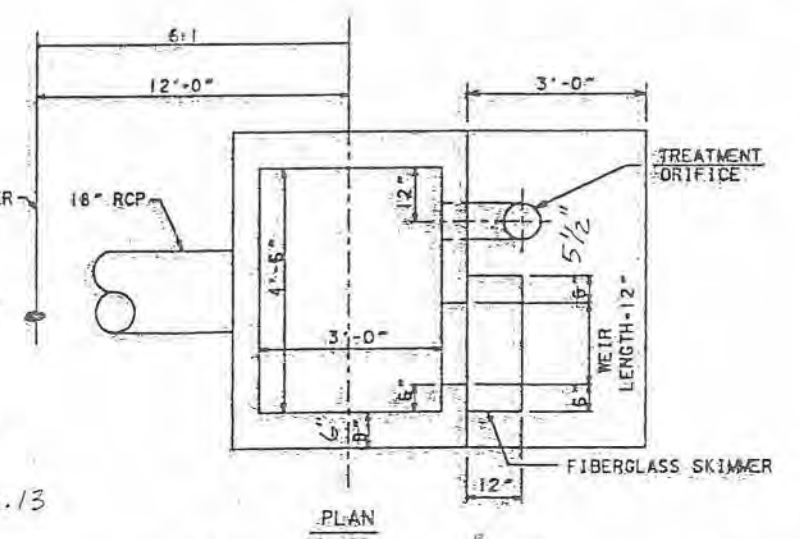
SECTION AA



SECTION BB



ELEVATION



PLAN

CONTROL STRUCTURE S-499 N.T.S.

RECEIVED
 MAY 27
 SUB LANDS & ENV. RES.

REVISIONS				APPROVED BY:				SOUTHERN CONNECTOR EXTENSION	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE

URS Greiner Woodward Clyde

MADE BY: MPL DATE: 02/07/00 JOB NO: V100264 03
 CHECKED BY: PEC DATE: 2/8/00 SHEET NO:
 CALCULATIONS FOR: 1-4 SIX LANE POND EXIST TP-2 BASIN: B6E

Water Quality

Total Basin Area = 12.43 ac
 Paved Area = 7.14 ac
 Pond Area at NWL = 2.63 ac

A. 1.0 " Over Total Basin Area = 1.04 Ac-Ft
 B. 2.5 " Over Paved Area = 1.49 Ac-Ft
 Required PAV = 1.49 Ac-Ft

Stage Storage Calculations

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
77.15	3.23				6.59
		3.01	1.65	4.97	
75.50 (PAV)	2.79				1.63
		2.71	0.60	1.63	
74.90 (NWL)	2.63				

Bleed Down Volume
 1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.52 \text{ Ac-Ft}$
 Volume Remaining in Pond after Bleed Down = $\text{PAV} - \text{Bleed Down Volume} = 1.11 \text{ Ac-Ft}$

1929 NGVD

REV. 6-13-96

Greiner

MADE BY: CCB
 CHECKED BY: SJM
 CALCULATIONS FOR: I-4 CD ROADS

DATE: 06/12/96 JOB NO. VI00017.00
 DATE: 6-13-96 SHEET NO.
 PONDTP-2

Water Quality

Total Basin Area = 12.17 ac.
 New Paved Area = 6.47 ac.
 Pond Area at NWL = 2.63 ac.

A. 1.0" Over Total Basin Area 1.01 ac-ft
 B. 2.5" Over New Paved Area 1.35 ac-ft
 Required PAV 1.35 ac-ft

Bleed Down Volume

0.5" Over Total Basin Area = 0.51 ac-ft

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
78:00 <i>77.15</i>	3.23				
76:10 (PAV) <i>75.75</i>	2.76				1.35
75:80 (NWL) <i>74.75</i>	2.63	2.69	0.50	1.35	

CLARENCE 09/17/2011 PL

URS Greiner Woodward Clyde

BASIN 6E AND 6W SUMMARY

BASIN: 6E & 6W	AREA (ac)		DISCHARGE (cfs) 10yr/72hr		DISCHARGE (cfs) 50yr/72hr	
	PRE	POST	PRE	POST	PRE	POST
* B6E	15.33	12.43	47.22		61.41	
B6MED	4.25	4.25	8.41	13.49	10.96	17.83
B6W	22.06	34.86 **	67.69	44.15	88.84	58.96
Total	41.64	51.54	123.32	57.64	161.21	76.79

Note:

* In the existing condition, pond TP-2 is a landlocked borrow pit, therefore, it is not included in the B6E basin area for the pre development.

** The post development area is larger since it includes future Celebration Development.

BASIN 6E

Required Treatment Volume	1.49 ac-ft
Provided Treatment Volume	1.63 ac-ft
Existing Pond TP-2	74.90 ft
Pollution Abatement Volume el	75.50 ft
Design High Water el (10yr/72hr)	
Ex Pond TP-2	76.84 ft
Design High Water el (50yr/72hr)	
Ex Pond TP-2	77.19 ft
V-notch Angle	See Page IIB6-26
Recovery Volume	0.52 ac-ft
Recovery Time	22.25 hrs

BASIN 6W

Required Treatment Volume	3.79 ac-ft
Provided Treatment Volume	4.45 ac-ft
Existing Pond MV-5A	74.15 ft
Pollution Abatement Volume el	74.55 ft
Design High Water el (10yr/72hr)	
Ex Pond MV-5A	75.17 ft
Design High Water el (50yr/72hr)	
Ex Pond MV-5A	75.29 ft
V-notch Angle (existing)	3 @ 99 deg
Recovery Volume	1.45 ac-ft
Recovery Time	25.50 hrs

100 yr Floodplain Elevation	75.50 ft
Floodplain impacts	None
Volume Available in pond for floodplain compensation	N/A

Proposed Pavement Untreated	0.80 ac
Existing Pavement Treated	0.00 ac
Existing Treated > Proposed Untreated?	No

SPECIAL CONDITIONS

1. MINIMUM ROAD CROWN ELEVATION: BASIN: TP-2 - 77.50 FEET NGVD.
BASIN: TP-3A & TP-3B - 82.50 FEET NGVD.
BASIN: TP-4 - 84.70 FEET NGVD.
BASIN: TP-5 - 87.70 FEET NGVD.
BASIN: TP-6 - 86.30 FEET NGVD.
BASIN: TP-7A & TP-7B - 88.90 FEET NGVD.

2. DISCHARGE FACILITIES:

BASIN: CP-2:

1-4.5' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 74.5' NGVD.
19 LF OF 1.5' DIA. RCP CULVERT.
1-3' W X 4.5' L DROP INLET WITH CREST AT ELEV. 75.9' NGVD.

RECEIVING BODY : REEDY CREEK VIA SPREADER SWALE

CONTROL ELEV : 74.5 FEET NGVD. /74.5 FEET NGVD DRY SEASON.

BASIN: TP-2:

1-2' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 76.1' NGVD.
1-85 DEG. V-NOTCH WITH INVERT AT ELEV. 75.6' NGVD.
175 LF OF 2' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA ADJACENT WETLANDS

CONTROL ELEV : 75.6 FEET NGVD. /75.6 FEET NGVD DRY SEASON.

BASIN: TP-3A & TP-3B:

1-2' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 80.35' NGVD.
1-26 DEG. V-NOTCH WITH INVERT AT ELEV. 79.5' NGVD.
118 LF OF 2' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA ADJACENT WETLANDS

CONTROL ELEV : 79.5 FEET NGVD. /79.5 FEET NGVD DRY SEASON.

BASIN: TP-4:

1-7' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 73.57' NGVD.
1-70 DEG. V-NOTCH WITH INVERT AT ELEV. 73' NGVD.
60 LF OF 2.5' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA SPREADER SWALE

URS Greiner Woodward Clyde				
PROJECT TITLE:	I-4 SIX LANING			
PROJECT NUMBER:	V100264.03			DATE
BASIN DESIGNATION:	B5B	MADE BY:	REC	09-Oct-01
BASIN ANALYSIS (PRE/POST):	PRE	CHECKED BY:		

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		3.91
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		3.91
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	24.36%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	12.14
CN AREA	(BASIN AREA - DCIA)	12.14
TOTAL BASIN AREA		16.05

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open Space - good	Samsula, Myakka, Riviera	D	80	5.46	436.80
		A	39	5.46	212.94
		C	74	1.22	90.28
TOTALS				12.14	740.02

COMPOSITE CN	61.0
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URS Greiner Woodward Clyde				
PROJECT TITLE:	I-4 SIX LANING			
PROJECT NUMBER:	V100264.03			DATE
BASIN DESIGNATION:	B5BOFFWB	MADE BY:	REC	30-Jun-00
BASIN ANALYSIS (PRE/POST):	PRE	CHECKED BY:	JH	6/31/00

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		2.43
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		2.43
NON - DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	72.75%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	0.91
CN AREA	(BASIN AREA - DCIA)	0.91
TOTAL BASIN AREA		3.34

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open Space - good	Samsula, Myakka, Riviera	D	80	0.91	72.80
TOTALS				0.91	72.80

COMPOSITE CN	86.9
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URS Greiner Woodward Clyde				
PROJECT TITLE:	I-4 SIX LANING			DATE
PROJECT NUMBER:	V100264.03			09-Oct-01
BASIN DESIGNATION:	B5B	MADE BY:	REC	
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:		

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		3.73
PAVEMENT (MISC.)		
WATER SURFACE		2.90
TOTAL DCIA		6.63
NON - DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	55.02%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	5.42
CN AREA	(BASIN AREA - DCIA)	5.42
TOTAL BASIN AREA		12.05

LAND-USE/DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space - good	Samsula, Myakka, Riviera	D	80	2.47	197.60
		A	39	2.41	93.99
		C	74	0.54	39.96
TOTALS				5.42	331.55

COMPOSITE CN	51.2
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PROJECT TITLE: I-4 SIX LANING				
PROJECT NUMBER:	V100264.03			DATE
BASIN DESIGNATION:	B5BOFFWB	MADE BY:	REC	06-Jul-00
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	SW#	8/31/01

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		3.2
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		3.20
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	95.81%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	0.14
CN AREA	(BASIN AREA - DCIA)	0.14
TOTAL BASIN AREA		3.34

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space - good	Samsula, Myakka, Riviera	D	80	0.14	11.20
TOTALS				0.14	11.20

COMPOSITE CN	80
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URS Greiner Woodward Clyde				
PROJECT TITLE:	I-4 SIX LANING			
PROJECT NUMBER:	V100264.03			DATE
BASIN DESIGNATION:	B6E (ultimate)	MADE BY:	REC	31-Mar-00
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	SJH	4/03/00

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		11.03 ✓
PAVEMENT (MISC.)		
WATER SURFACE		2.63 ✓
TOTAL DCIA		13.66
NON - DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	70.81% ✓
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	5.63
CN AREA	(BASIN AREA - DCIA)	5.63
TOTAL BASIN AREA		19.29

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Embankment - grass (good)	Riviera	D	80	5.63	450.40
TOTALS				5.63	450.40

COMPOSITE CN	80.0
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Job I-4 Six Laning
 Description Basin 6E (POND TP-2)
POST DEVELOPMENT (ULTIMATE)

Project No. V100264.03
 Computed by REC
 Checked by SWH

Sheet ___ of ___
 Date 03/29/00
 Date 3-31-00

Reference

TOTAL BASIN AREA (B6E)
 ↳ POND TP-2

ULT. TOTAL = 15.12 + 4.17 = 19.29 AC (Limits from STA 185+90 TO 215+00, INCLUDES MEDIAN AND EB I-4 AND EB RAMP)

ULT. PAVED = 11.03 AC

ULT. PERVIOUS = 19.29 - 11.03 - 2.63 = 5.63 AC (FUTURE BALLAST IN MEDIAN ASSUMED AS PERVIOUS)

POND TP-2 EXIST NWL = 2.63 AC

SOIL TYPES: SOILS CONSIST OF HONTON MUCK, RUIPRA, AND IMMOKALEE. ALL OF THESE ARE "A/D" OR "B/D" SOILS, CN = 80.

T_c : In the ultimate condition, a CLOSED DRAINAGE system will be designed.

PIPE flow @ 2.5 fps for $L = (21500 - 20000) = 1500'$

$$T_c = \frac{1500'}{2.5 \text{ fps}} = 600 \text{ sec} = 10 \text{ min}$$

T_c TO Inlet = 10 min

TOTAL $T_c = 10 + 10 = \underline{20 \text{ min}}$

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BASIN 5B, PRE DEVELOPMENT, 50YR/72HR
 02/19/01

BASIN NAME	B5B	B5BMED	B5BOFFWB	B5BOFFEB
NODE NAME	BNDRY1	BNDRY1	BNDRY2	BNDRY3
TIME INCREMENT (min)	5.00	5.00	5.00	5.00
RAINFALL FILE	SFWMD72	SFWMD72	SFWMD72	SFWMD72
RAIN AMOUNT (in)	12.91	12.91	12.91	12.91
STORM DURATION (hrs)	72.00	72.00	72.00	72.00
AREA (ac)	16.05	4.11	3.34	3.35
CURVE NUMBER	61.00	80.00	80.00	80.00
DCIA (%)	24.36	19.95	72.75	72.84
TC (mins)	26.60	91.90	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
B5B	58.57	59.92	8.80	
B5BMED	8.53	60.00	10.82	
B5BOFFWB	20.13	59.92	12.13	
B5BOFFEB	20.19	59.92	12.14	

Job I-4 SIX LANE
 Description BASIN 5B
PAVEMENT COMPENSATION

Project No. V100264.03
 Computed by REC
 Checked by SJH

Page of
 Sheet of
 Date 02/16/01
 Date 8/9/01

Reference

EXIST PAVT TREATED :

- (i) WESTBOUND I-4 (STA 134+00 TO 148+00)
 $(14800 - 13400)(24 + 10) / 43560 = 1.09 \text{ AC}$ ✓
- (ii) EASTBOUND I-4 (STA 138+00 TO 148+00)
 $(14800 - 13800)(24 + 10) / 43560 = 0.78 \text{ AC}$ ✓
- (iii) MEDIAN (134+00 TO 148+00)
 $(14800 - 13400)(4 + 4) / 43560 = 0.26 \text{ AC}$ ✓

TOTAL EXIST PAVT TREATED = 2.13 AC ✓

PROPOSED PAVT TO BE UNTREATED :

- (i) MEDIAN (STA 118+50 TO 134+00)
 AREA = 0.44 AC
- (ii) EASTBOUND I-4 (STA 119+50 TO 138+00)
 AREA = 0.50 AC
- (iii) EASTBOUND AND WESTBOUND I-4 from 148+00 TO 185+90
 $(18590 - 14800)(12 + 12) / 43560 = 2.09 \text{ AC}$ ✓
- (iv) MEDIAN from 148+00 TO 175+00
 $(17500 - 14800)(6 + 6) / 43560 = 0.74 \text{ AC}$ ✓
- TOTAL PROPOSED PAVT UNTREATED = 4.51 AC** ✓

(v) WESTBOUND I-4 from 121+00 TO 134+00
 AREA = 0.74 AC

3.0 REVISED PLANS AND CROSS SECTIONS DUE TO ELIMINATION OF FLOODPLAIN IMPACTS IN BASIN 5B

The original 100-year floodplain impacts of 1.47 ac-ft in Basin 5B have been eliminated by modifying the outside roadway widening side slopes from 1:6 to 1:2 with guardrail. By eliminating these impacts, compensation in the existing Pond MV5A is no longer needed.

The 100-year floodplain elevation was determined to be 75.50. This section contains updated construction plan sheets and cross sections reflecting the proposed 1:2 side slopes and guardrail. Also, wetland impacts to Wetlands #9 and #10 have been reduced due to revisions to the side slopes.

URS Greiner Woodward Clyde

IIB6-19

Job I-4 Six LANEProject No. V100264.03

Page ___ of ___

Description BASIN 6EComputed by REC

Sheet ___ of ___

UNTREATED VS TREATED PAVEMENTChecked by MPLDate 10/10/99Date 3/15/2000

Reference

JACK AND BORING for the purpose of treating additional shoulder pavement in the median is not feasible. Therefore, the shoulder widening from 4' to 10' will be left untreated and compensated elsewhere.

Limits of basin within median: 186+00 to 215+00 (2900 ft)

Proposed new pavement that will be untreated:

$$(2900)(6+6) = 34,800 \text{ ft}^2 \quad (0.80 \text{ AC})$$

REFER to VOLUME I of DRAINAGE CALCULATIONS (TABLE 3) FOR UNTREATED VS TREATED PAVEMENT.

URS Greiner Woodward Clyde

IB6-26

Job I-4 Six LANE

Project No. V100264.03

Page of

Description Pond TP-2, BASIN 6E

Computed by REC

Sheet of

V-NOTCH WEIR

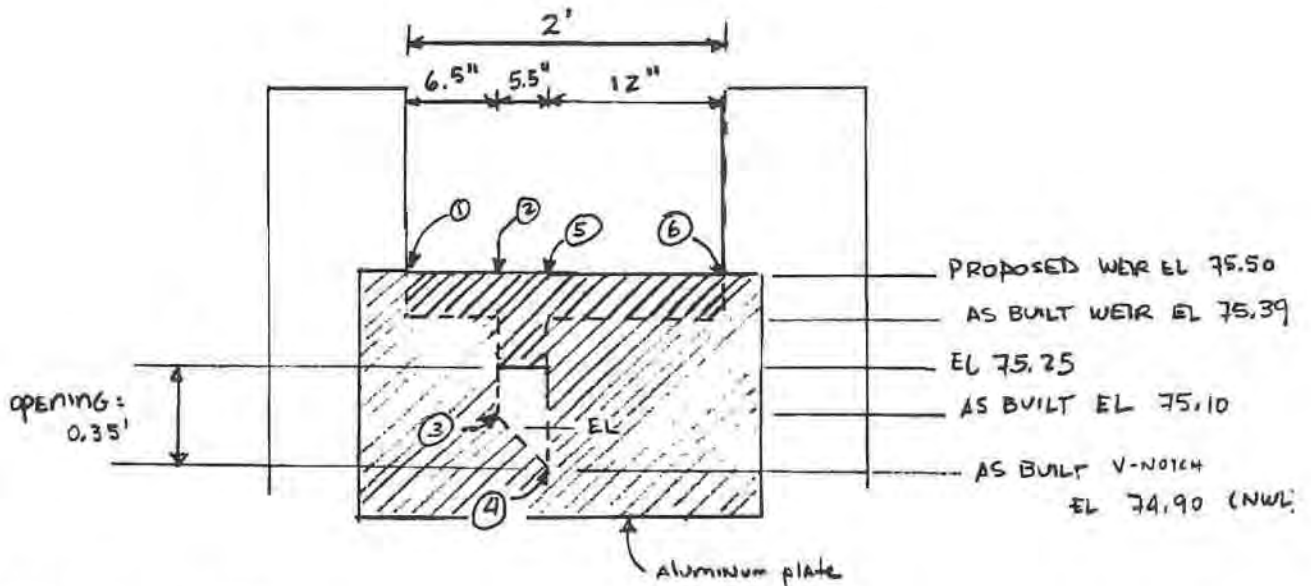
Checked by MPL

Date 02/7/00

Date 3/15/2000

Reference

MODIFICATION TO CONTROL STRUCTURE OF POND TP-2



ADICPR Input

X Y

- | | | |
|---|-------|-------|
| ① | 0 | 75.50 |
| ② | 0.542 | 75.50 |
| ③ | 0.542 | 75.10 |
| ④ | 1.0 | 74.90 |
| ⑤ | 1.0 | 75.50 |
| ⑥ | 2.0 | 75.50 |

Job I-4 Six LANE

Project No. V100264.03

Page ___ of ___

Description BLEED DOWN OF 1/2" OF

Computed by REC

Sheet ___ of ___

RETENTION VOLUME IN 24 HRS
POND TP-2 (NEW CONTROL STRUCTURE)

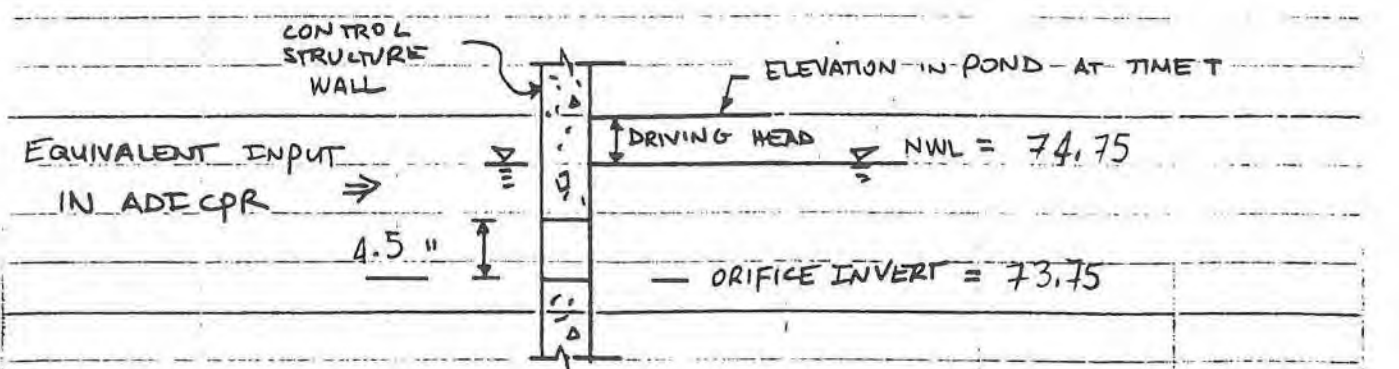
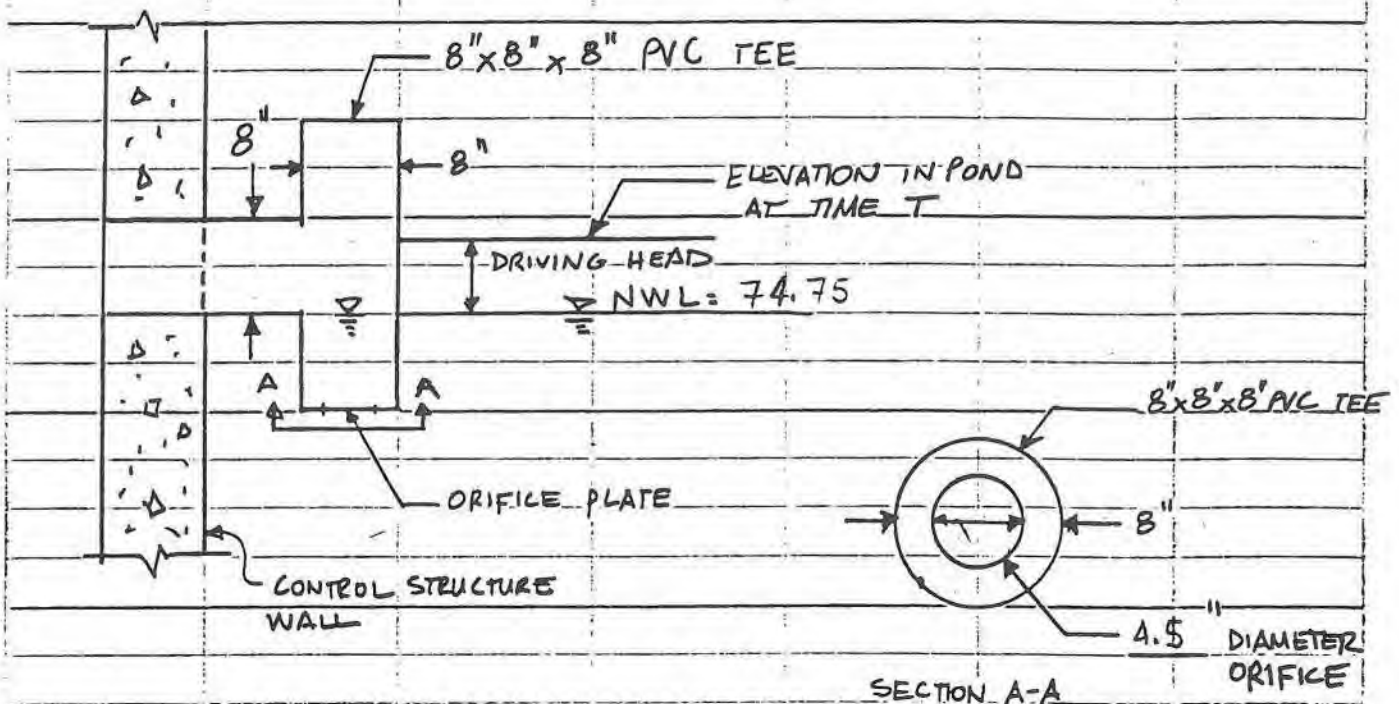
Checked by SJH

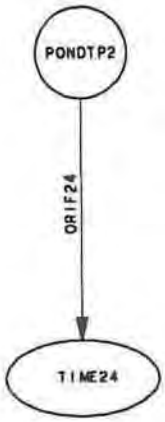
Date 03/30/00

Date 3-31-00

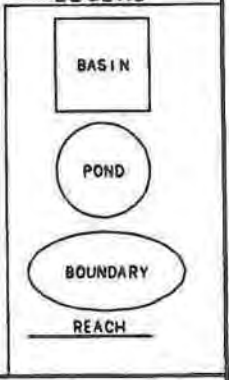
Reference

FLOW THROUGH ORIFICE OCCURS IN SUBMERGED CONDITIONS. TO MODEL IN ADICPR, THE INPUT WAS REVISED TO SIMULATE A SUBMERGED ORIFICE IN THE WALL OF THE CONTROL STRUCTURE (CREST OF ORIFICE IS PLACED BELOW NORMAL WATER LEVEL. THE TAILWATER IS SET AT THE NORMAL WATER LEVEL SINCE FLOW THROUGH THE ORIFICE TERMINATES WHEN ELEVATION IN THE POND RECOVERS TO NWL.





LEGEND



Mon Apr 3 13:58:18 2000
 H:\V1026403\Drawn\Nodal_Diagrams\b6EU_REC.dgn
 H:\V1026403\Drawn\Nodal_Diagrams\b6EU_REC.pr7
 V1017_MANDISE
 F:\TABLE\1\Drawn.tbl

S.R. 400 (1-4) Polk County Line to SR 530 (US 192)

DRAWN BY: REC
 CHECKED BY:

URS Greiner Woodward Clyde

BASIN 6E-447
 RECOVERY OF 1/2" IN 24 HOURS
 NODAL DIAGRAM

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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BASIN 6E, RECOVERY OF 1/2" DETENTION VOLUME IN 24 HRS (ULT.)
 03/30/00

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: PONDTP2

TIME (hrs)	STAGE (ft)	VOLUME (af)	←----- RUNOFF (cfs)	INFLOW ----- OFFSITE (cfs)	----- OTHER (cfs)	----- OUTFLOW (cfs)
.00	75.60	2.32	.00	.00	.00	.49
.25	75.60	2.31	.00	.00	.00	.49
.50	75.59	2.30	.00	.00	.00	.49
.75	75.59	2.29	.00	.00	.00	.49
1.00	75.59	2.28	.00	.00	.00	.49
1.25	75.58	2.27	.00	.00	.00	.48
1.50	75.58	2.26	.00	.00	.00	.48
1.75	75.57	2.25	.00	.00	.00	.48
2.00	75.57	2.24	.00	.00	.00	.48
2.25	75.57	2.23	.00	.00	.00	.48
2.50	75.56	2.22	.00	.00	.00	.48
2.75	75.56	2.21	.00	.00	.00	.48
3.00	75.56	2.20	.00	.00	.00	.48
3.25	75.55	2.19	.00	.00	.00	.48
3.50	75.55	2.18	.00	.00	.00	.48
3.75	75.55	2.17	.00	.00	.00	.47
4.00	75.54	2.16	.00	.00	.00	.47
4.25	75.54	2.15	.00	.00	.00	.47
4.50	75.54	2.14	.00	.00	.00	.47
4.75	75.53	2.13	.00	.00	.00	.47
5.00	75.53	2.12	.00	.00	.00	.47
5.25	75.53	2.11	.00	.00	.00	.47
5.50	75.52	2.10	.00	.00	.00	.47
5.75	75.52	2.09	.00	.00	.00	.47
6.00	75.52	2.08	.00	.00	.00	.47
6.25	75.51	2.07	.00	.00	.00	.46
6.50	75.51	2.06	.00	.00	.00	.46
6.75	75.51	2.05	.00	.00	.00	.46
7.00	75.50	2.04	.00	.00	.00	.46
7.25	75.50	2.03	.00	.00	.00	.46
7.50	75.50	2.03	.00	.00	.00	.46
7.75	75.49	2.02	.00	.00	.00	.46
8.00	75.49	2.01	.00	.00	.00	.46
8.25	75.49	2.00	.00	.00	.00	.46
8.50	75.48	1.99	.00	.00	.00	.45
8.75	75.48	1.98	.00	.00	.00	.45
9.00	75.47	1.97	.00	.00	.00	.45
9.25	75.47	1.96	.00	.00	.00	.45
9.50	75.47	1.95	.00	.00	.00	.45
9.75	75.46	1.94	.00	.00	.00	.45
10.00	75.46	1.93	.00	.00	.00	.45
10.25	75.46	1.92	.00	.00	.00	.45
10.50	75.45	1.91	.00	.00	.00	.45
10.75	75.45	1.90	.00	.00	.00	.45

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BASIN 6E, RECOVERY OF 1/2" DETENTION VOLUME IN 24 HRS (ULT.)
 03/30/00

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: PONDTP2

TIME (hrs)	STAGE (ft)	VOLUME (af)	INFLOW			OUTFLOW (cfs)
			RUNOFF (cfs)	OFFSITE (cfs)	OTHER (cfs)	
11.00	75.45	1.89	.00	.00	.00	.44
11.25	75.44	1.89	.00	.00	.00	.44
11.50	75.44	1.88	.00	.00	.00	.44
11.75	75.44	1.87	.00	.00	.00	.44
12.00	75.43	1.86	.00	.00	.00	.44
12.25	75.43	1.85	.00	.00	.00	.44
12.50	75.43	1.84	.00	.00	.00	.44
12.75	75.43	1.83	.00	.00	.00	.44
13.00	75.42	1.82	.00	.00	.00	.44
13.25	75.42	1.81	.00	.00	.00	.43
13.50	75.42	1.80	.00	.00	.00	.43
13.75	75.41	1.79	.00	.00	.00	.43
14.00	75.41	1.79	.00	.00	.00	.43
14.25	75.41	1.78	.00	.00	.00	.43
14.50	75.40	1.77	.00	.00	.00	.43
14.75	75.40	1.76	.00	.00	.00	.43
15.00	75.40	1.75	.00	.00	.00	.43
15.25	75.39	1.74	.00	.00	.00	.43
15.50	75.39	1.73	.00	.00	.00	.43
15.75	75.39	1.72	.00	.00	.00	.42
16.00	75.38	1.72	.00	.00	.00	.42
16.25	75.38	1.71	.00	.00	.00	.42
16.50	75.38	1.70	.00	.00	.00	.42
16.75	75.37	1.69	.00	.00	.00	.42
17.00	75.37	1.68	.00	.00	.00	.42
17.25	75.37	1.67	.00	.00	.00	.42
17.50	75.36	1.66	.00	.00	.00	.42
17.75	75.36	1.65	.00	.00	.00	.42
18.00	75.36	1.65	.00	.00	.00	.41
18.25	75.36	1.64	.00	.00	.00	.41
18.50	75.35	1.63	.00	.00	.00	.41
18.75	75.35	1.62	.00	.00	.00	.41
19.00	75.35	1.61	.00	.00	.00	.41
19.25	75.34	1.60	.00	.00	.00	.41
19.50	75.34	1.60	.00	.00	.00	.41
19.75	75.34	1.59	.00	.00	.00	.41
20.00	75.33	1.58	.00	.00	.00	.41
20.25	75.33	1.57	.00	.00	.00	.41
20.50	75.33	1.56	.00	.00	.00	.40
20.75	75.32	1.55	.00	.00	.00	.40
21.00	75.32	1.54	.00	.00	.00	.40
21.25	75.32	1.54	.00	.00	.00	.40
21.50	75.32	1.53	.00	.00	.00	.40
21.75	75.31	1.52	.00	.00	.00	.40

← Recovery
 t = 21.75 hrs

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BASIN 6E, RECOVERY OF 1/2" DETENTION VOLUME IN 24 HRS (ULT.)
03/30/00

CONTROL PARAMETERS

=====

START TIME: .00
END TIME: 30.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
----- 30.00	----- 15.00	----- 15.00

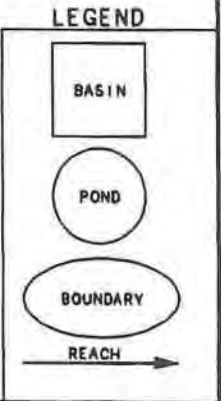
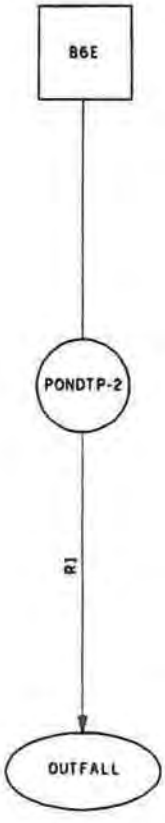
RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

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BASIN 6E, RECOVERY OF 1/2" DETENTION VOLUME IN 24 HRS (ULT.)
 03/30/00

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
PONDTP2	AREA	75.600	.000	.000	.000	74.750	2.630 ✓
						75.200	2.740 ✓
						75.500	2.790 ✓
						75.600	2.840 ✓
						76.150	2.980 ✓
						76.650	3.110 ✓
						77.150	3.230 ✓
						78.150	4.170 ✓
TIME24	TIME	74.750	.000	.000	.000	74.750	.000
						74.750	72.000



Mon Apr 3 13:55:25 2000
 H: \\V1026403\Drawn\Nodal_Diagrams\66EUP05TN00.dgn
 H: \\V1026403\Drawn\Nodal_Diagrams\66EUP05TN00.pr
 V: 017_MANGESE
 F: \TABLE\frame1.tbl

S.R. 400 (1-4) Polk County Line to SR 530 (US 192)

F-452

DRAWN BY: REC
 CHECKED BY:

URS Greiner Woodward Clyde

BASIN 6E POND TP-2
 POST-DEVELOPMENT
 HYDROLOGIC DIAGRAM

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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BASIN 6E, POST DEVELOPMENT, ULTIMATE CONDITION (10YR/72HR)
03/30/00

NODAL MIN/MAX/TIME CONDITIONS REPORT

```

=====
|<-- MINIMUMS -->| |<-- MAXIMUMS -->|
NODE ID      PARAMETER      VALUE TIME (hr)    VALUE TIME (hr)
-----
PONDTP-2     STAGE (ft):          74.75      2.00      76.63      60.50
              VOLUME (af):          .00        2.00      5.38       60.50
              RUNOFF (cfs):         .00       76.00     71.14      60.00
              OFFSITE (cfs):        .00       76.00      .00       76.00
              OTHER (cfs):       .00       76.00      .00       76.00
              OUTFLOW (cfs):     .00        2.00     29.62      60.50

OUTFALL      STAGE (ft):          74.22     76.00     74.22     76.00
              VOLUME (af):          .00        2.00     12.77     76.00
              RUNOFF (cfs):         .00       76.00      .00       76.00
              OFFSITE (cfs):        .00       76.00      .00       76.00
              OTHER (cfs):       .00        2.00     29.62     60.50
              OUTFLOW (cfs):     .00       76.00      .00       76.00

```

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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BASIN 6E, POST DEVELOPMENT, ULTIMATE CONDITION, (50YR/72HR)
 03/30/00

BASIN NAME	B6E
NODE NAME	PONDTP-2
TIME INCREMENT (min)	5.00
RAINFALL FILE	SFWMD72
RAIN AMOUNT (in)	12.91
STORM DURATION (hrs)	72.00
AREA (ac)	19.29
CURVE NUMBER	80.00
DCIA (%)	70.81
TC (mins)	20.00
LAG TIME (hrs)	.00
BASIN STATUS	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
B6E	95.73	59.92	12.09	I-4 MASTERPLAN

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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BASIN 6E, POST DEVELOPMENT, ULTIMATE CONDITION, (50YR/72HR)
03/30/00

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
PONDTP-2	STAGE (ft):	74.75	1.50	76.94	60.50
	VOLUME (af):	.00	1.50	6.37	60.50
	RUNOFF (cfs):	.00	76.00	90.85	60.00
	OFFSITE (cfs):	.00	76.00	.00	76.00
	OTHER (cfs):	.00	76.00	.00	76.00
	OUTFLOW (cfs):	.00	1.50	35.07	60.50
OUTFALL	STAGE (ft):	74.22	76.00	74.22	76.00
	VOLUME (af):	.00	1.50	17.08	76.00
	RUNOFF (cfs):	.00	76.00	.00	76.00
	OFFSITE (cfs):	.00	76.00	.00	76.00
	OTHER (cfs):	.00	1.50	35.07	60.50
	OUTFLOW (cfs):	.00	76.00	.00	76.00

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BASIN 6E, POST DEVELOPMENT, ULTIMATE CONDITION (10YR/72HR)
 03/30/00

CONTROL PARAMETERS

=====

START TIME: .00
 END TIME: 76.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
60.00	15.00	15.00
76.00	5.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
 OFFSITE HYDROGRAPH FILE: DEFAULT
 BOUNDARY DATABASE FILE: NONE

NOTE:

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BASIN 6E, POST DEVELOPMENT, ULTIMATE CONDITION (10YR/72HR)
 03/30/00

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
PONDTP-2	AREA	74.750	.000	.000	.000	74.750	2.630
						75.200	2.740
						75.650	2.860
						76.150	2.980
						76.650	3.110
						77.150	3.230
						78.150	4.170
OUTFALL	TIME	74.220	.000	.000	.000	74.220	.000
						74.220	72.000

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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BASIN 6E, POST DEVELOPMENT, ULTIMATE CONDITION (10YR/72HR)
 03/30/00

```
>>REACH NAME      : R1
FROM NODE        : PONDTP-2
TO NODE          : OUTFALL
REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH     : OFF
```

```
CULVERT DATA   :
  SPAN (in) : 42.000      RISE (in) : 42.000      LENGTH (ft) : 575.000
  U/S INVERT (ft) : 73.650  D/S INVERT (ft) : 73.300      MANNING N : .013
  ENTRNC LOSS : .500      # OF CULVERTS : 1.000
```

```
POSITION A      : CIRCULAR RISER SLOT
  INVERT EL. (ft) : 74.750      SPAN (in) : 4.500      RISE (in) : 4.500
  WEIR COEF. : 3.200      GATE COEF. : .600      NUMBER OF ELEM. : 1.000
```

```
POSITION B      : RECTANGULAR RISER SLOT
  CREST EL. (ft) : 75.600      CREST LN. (ft) : 25.000      OPENING (ft) : 999.000
  WEIR COEF. : 3.200      GATE COEF. : .600      NUMBER OF ELEM. : 1.000
```

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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BASIN 6E, POST DEVELOPMENT, ULTIMATE CONDITION (10YR/72HR)
 03/30/00

REACH SUMMARY
 =====

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	R1	PONDTP-2	OUTFALL	DROP STRUCTURE w/ CIRC. CULVERT

Job I-4 SIX LANE
 Description BASIN 6E (POND TP-2)
HGL CALCULATIONS (ultimate)

Project No. V100 264.03
 Computed by REC
 Checked by SWH

Page of
 Sheet of
 Date 03/30/00
 Date 8/17/00

Reference

$T_w 10/72 = 76.36$ (Assume T_w for storm drain design is a peak inflow)

$T_w 50/72 = 76.58$ " " "

From Preliminary I-4 Masterplan:

Low point STA = 61+37.92 (METRIC)
 201+37.53 (English)

Low point EL = 25.00 (METRIC)
 82.02 (English - 1929 NGVD)
 81.17 (English - 1988 NAVD)

Low gutter EL = $81.17 - 12(0.02) - 12(0.06) = 80.21$ (H.O.V. Lane)

MAINLINE DRAINS INTO A DITCH BETWEEN CD ROADS AND MAINLINE.
 (ponding ACCURABLE for Ditch Bottom inlets, thus, it will be assumed that the H.O.V. low point is the critical point)

$Q_{50} = 95.73 \times \left(\frac{2.40}{11.03}\right) = 20.83 \text{ cfs}$ $\Rightarrow \frac{2.40}{11.03} = \text{ratio of H.O.V. impervious and total impervious}$

Try 30" PIPE

minor losses: $K = 1.36 + 1 = 2.36$

$h_L = \frac{KV^2}{2g} = \frac{2.36(4.24)^2}{64.4}$ $V = \frac{Q}{A} = \frac{20.83}{4.939} = 4.24 \text{ fps}$

$h_L = 0.66'$

$80.21 - 0.66 = 79.55$

URS Greiner Woodward Clyde

VI 4-28

Job I-4 Six LANE
Description BASIN 6E POND TP-2
"ULTIMATE"

Project No. V100264.03
Computed by REC
Checked by SR

Page ___ of ___
Sheet ___ of ___
Date 03/31/00
Date 8/31/01

Reference

$$\begin{aligned} \text{DHW}_{10/72} &= 76.63 & \text{outside BERM} &= 78.15 & (1.52' \text{ freeboard}) \\ \text{DSH}_{50/72} &= 76.94 & & & (1.21' \text{ freeboard}) \end{aligned}$$

$$Q_{10/72} \text{ (Pre)} = 30.12 \text{ cfs}$$

$$Q_{10/72} \text{ (Post)} = 29.62 \text{ cfs}$$

$$Q_{50/72} \text{ (Pre)} = 39.15 \text{ cfs}$$

$$Q_{50/72} \text{ (Post)} = 35.07 \text{ cfs}$$

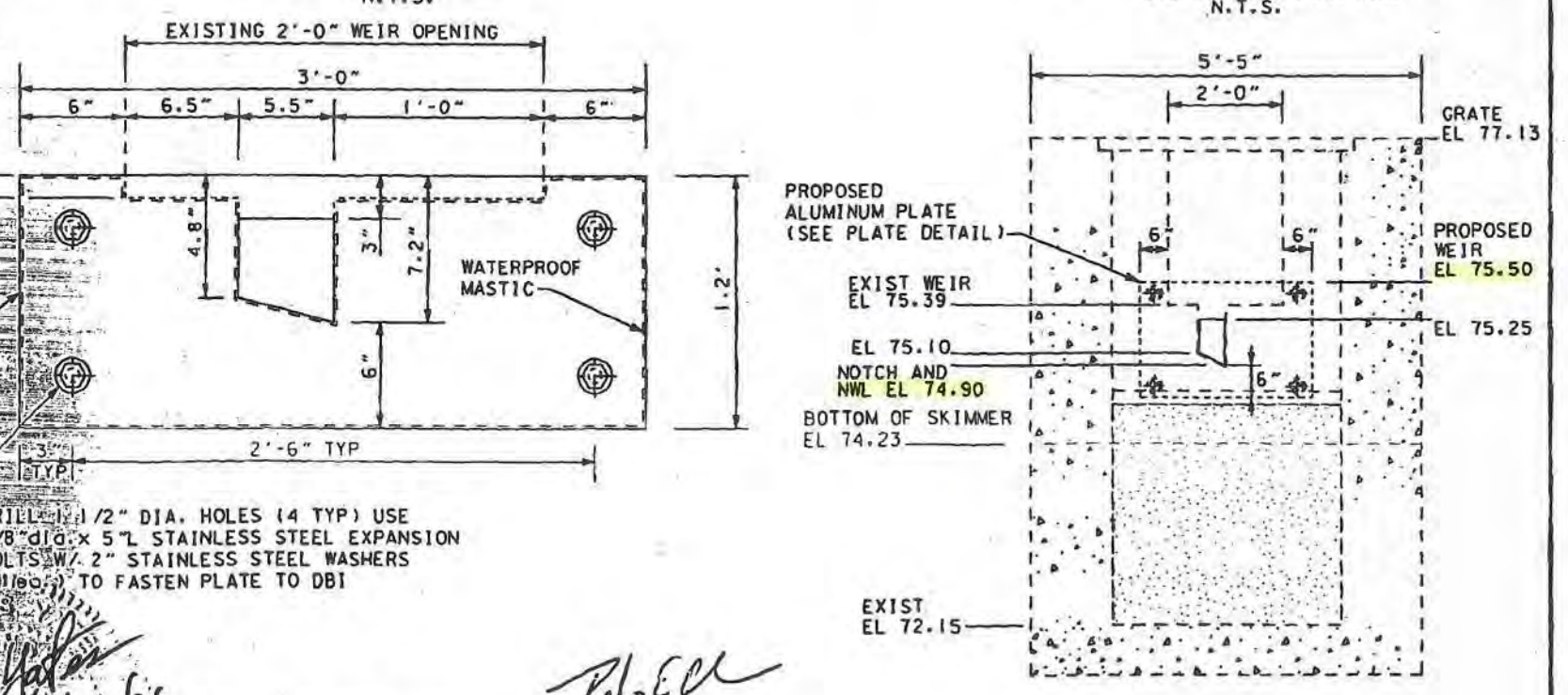
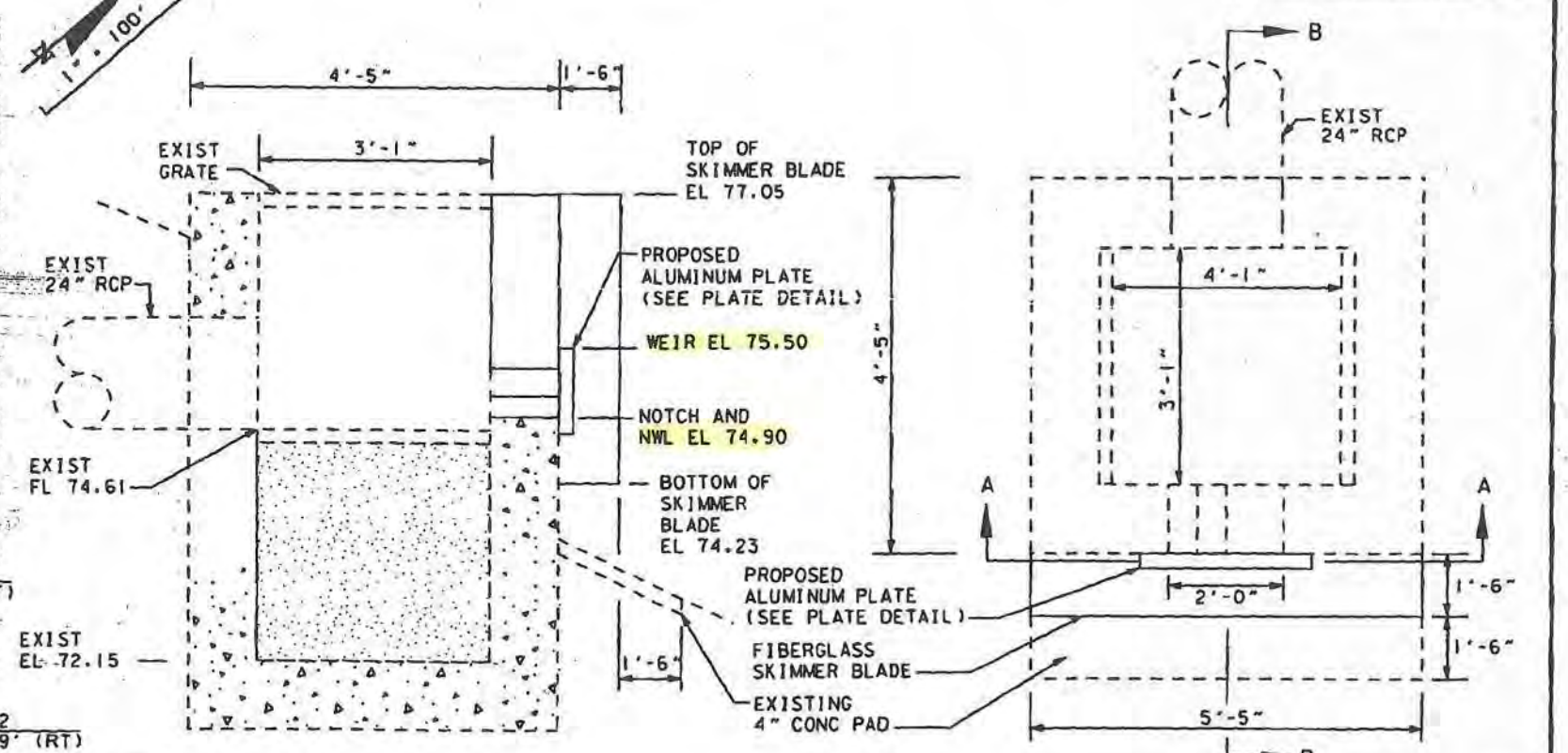
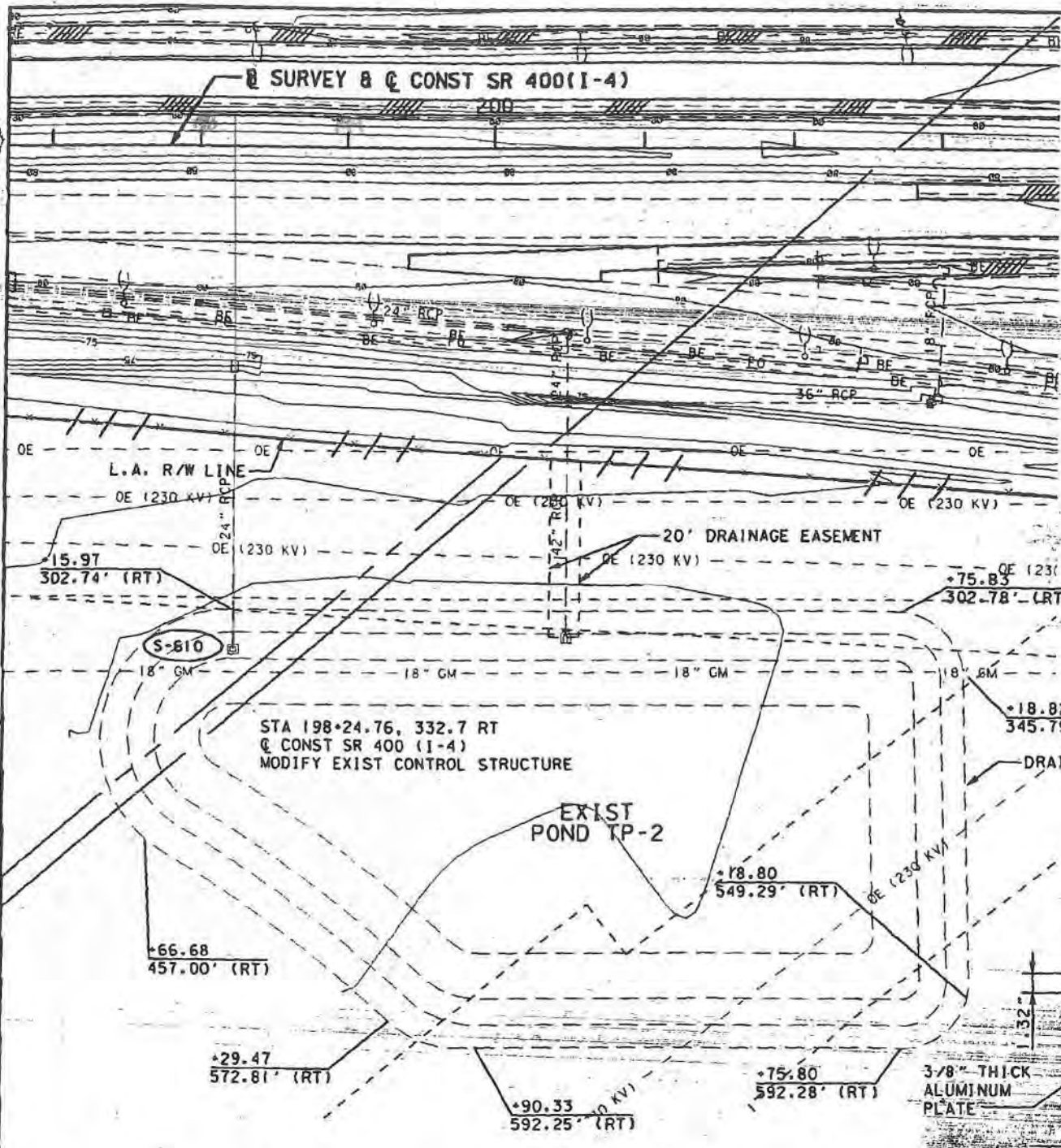
Tailwater in Pond for storm drain design:

$$T_w_{10/72} = 76.36 \quad (\text{STAGE AT PEAK INFLOW})$$

$$T_w_{50/72} = 76.58 \quad " \quad " \quad "$$

Pond TP-2 will require for I-4 masterplan:

42" outfall pipe (24" existing)
25' wide weir



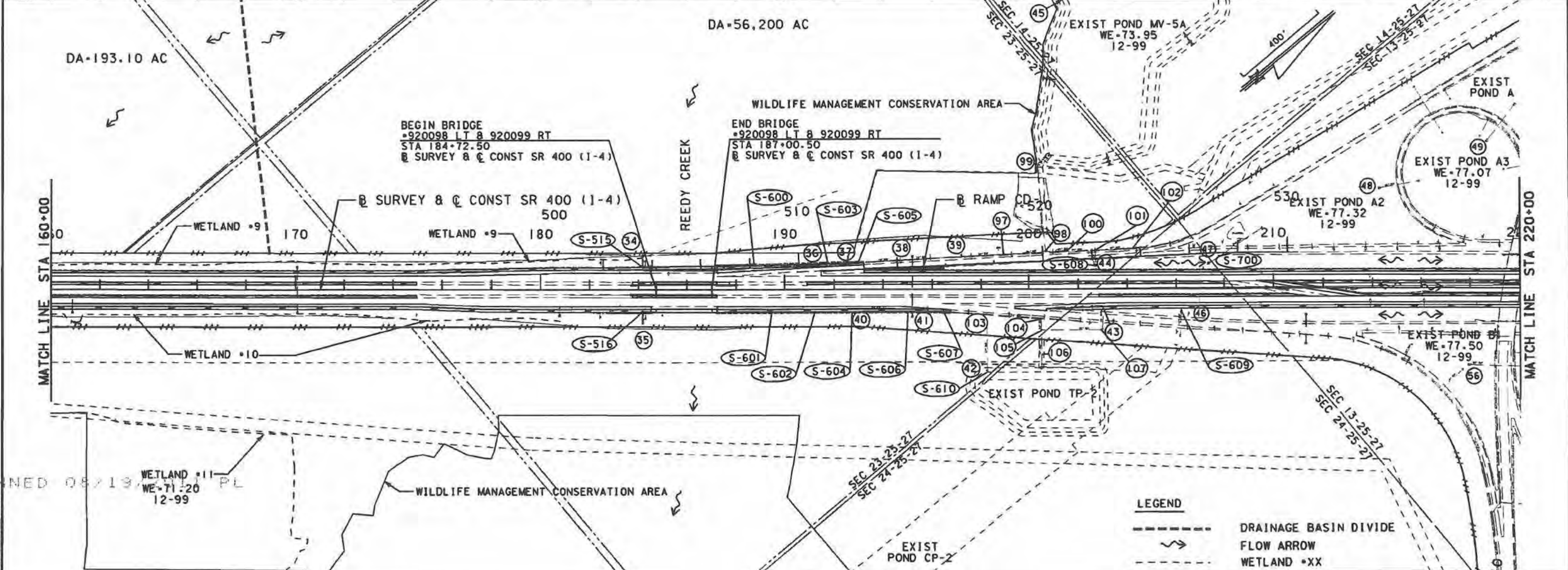
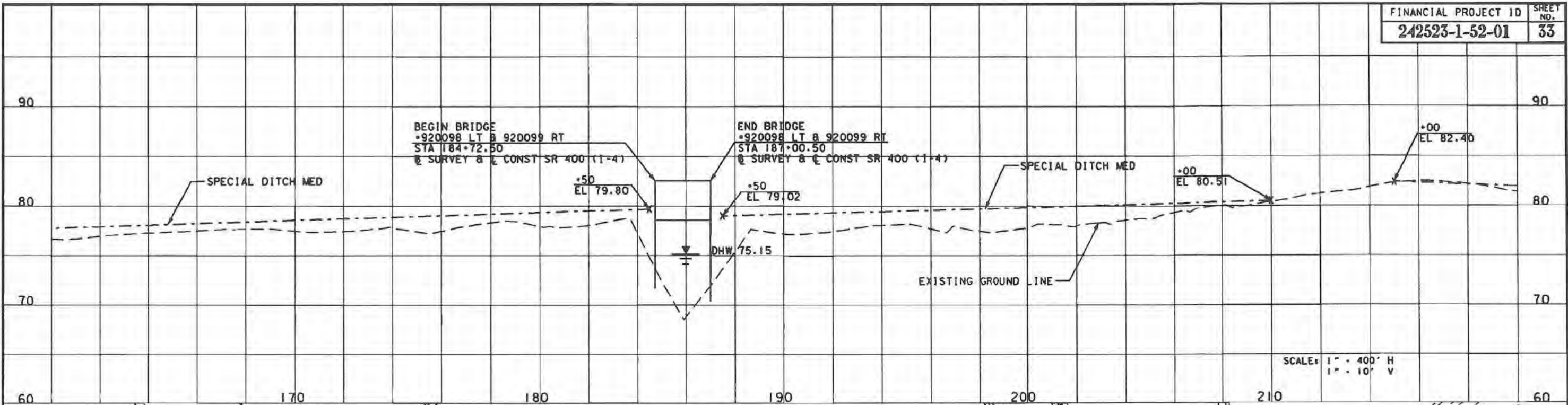
- CONTROL STRUCTURE NOTES:**
1. REMOVE EXISTING SKIMMER BLADE PRIOR TO PLACEMENT OF PROPOSED ALUMINUM PLATE.
 2. PROPOSED SKIMMER TO BE CONSTRUCTED OF 3/16" FIBERGLASS, REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES TO BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS.
 3. SKIMMER BLADE FASTENERS, ALUMINUM PLATE AND ALL NECESSARY HARDWARE TO BE INCLUDED IN CONTRACT UNIT PRICE FOR CONSTRUCTING INLET (PARTIAL).

4. See plan sheet 115B for as-built data.
5. See plan sheet 115C for bench mark data.

Murray
9/26/06

Relo E Pl
11/1/02

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



LEGEND

----- DRAINAGE BASIN DIVIDE

→ FLOW ARROW

- - - - - WETLAND *XX

SCANNED 08/19/99 PL

REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

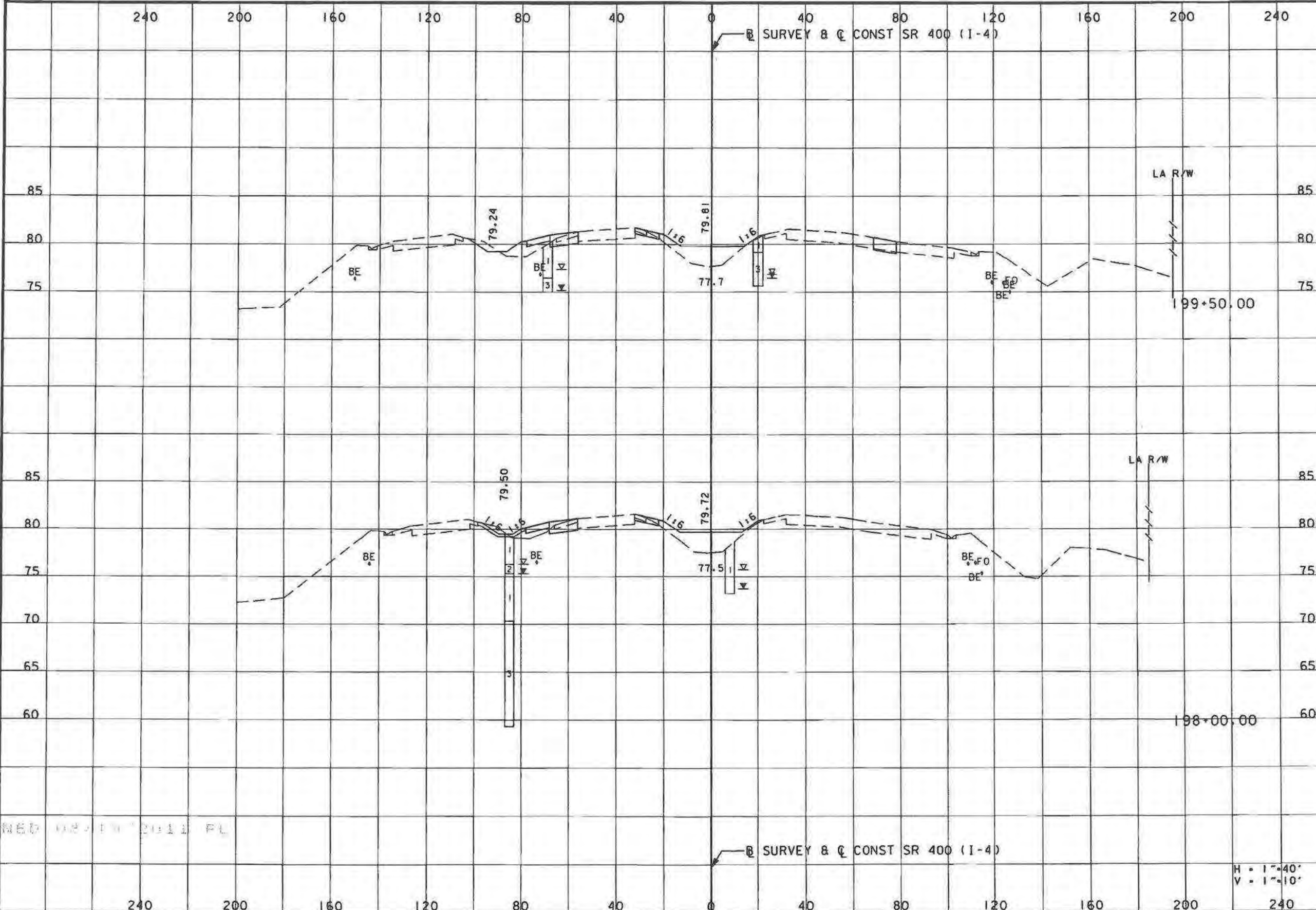
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1915
PH (407) 422-0353 FAX (407) 423-2696
NO. 000002

DRAINAGE MAP F-463

I.L.Y. 29 1999
N:\1026403\DRAIN\DRMP\PRD4.DGN

Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V



0.0	34.4	66.6			
0	164	355			
0.0	24.6	61.3			
0	148	366			

H = 1"=40'
V = 1"=10'

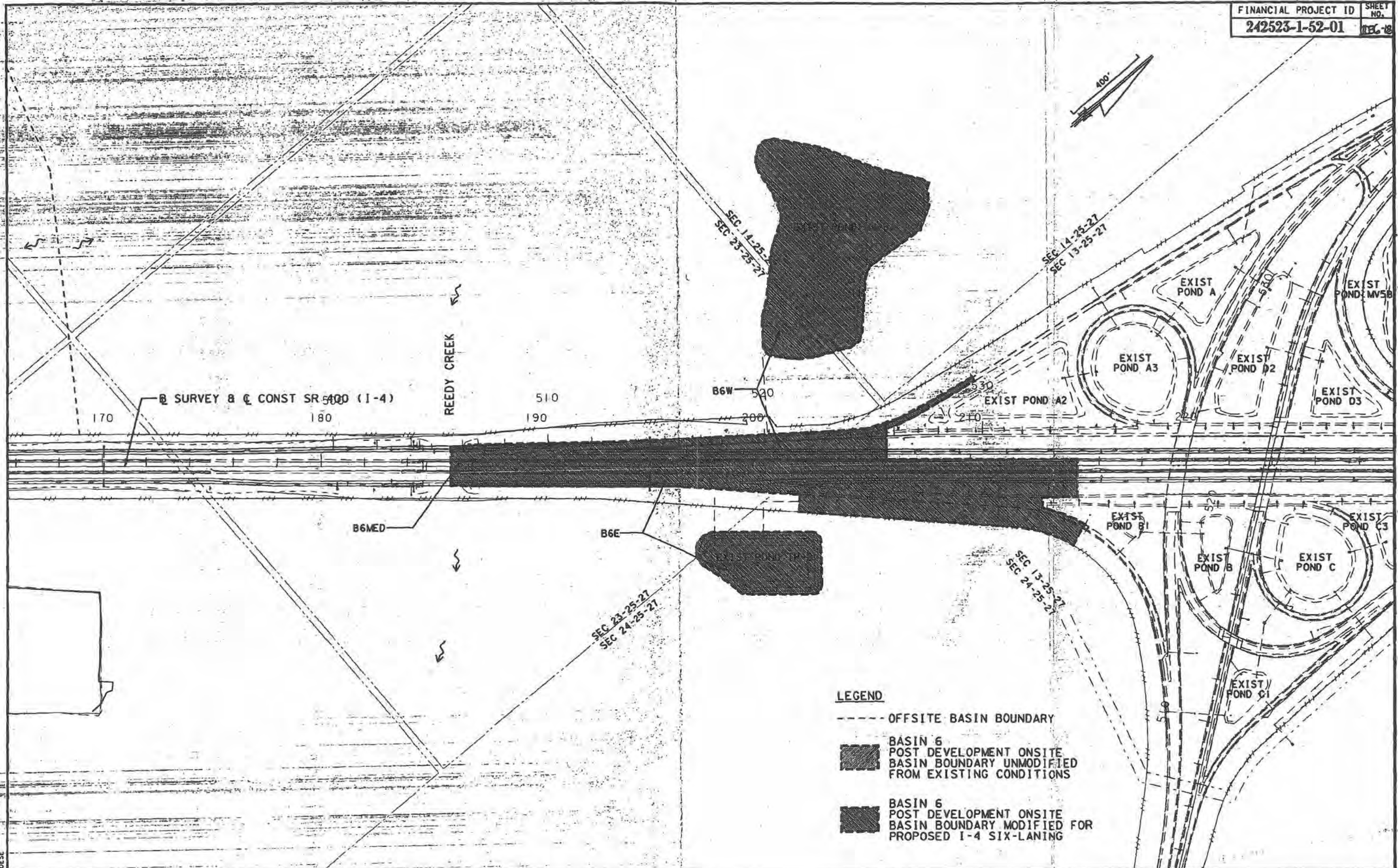
REVISIONS							
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1975
PH (407) 422-0353 FAX (407) 423-2695
NO. 000002

SR 400 (I-4)
CROSS SECTIONS 464

Mon Oct 29 10:15:00
H:\1026403\XSEC
SAND\INT\SP00L\PL\011\crossdgt.plt
F:\TABLE\Vir\ref.tbl



LEGEND

- OFFSITE BASIN BOUNDARY
- BASIN 6 POST DEVELOPMENT ONSITE BASIN BOUNDARY UNMODIFIED FROM EXISTING CONDITIONS
- BASIN 6 POST DEVELOPMENT ONSITE BASIN BOUNDARY MODIFIED FOR PROPOSED I-4 SIX-LANING

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

BASIN 6W & 6E
POST DEVELOPMENT BASIN

Mon Mar 13 15:20:00 2000
 PLANT 025403 ORC
 V:\01\LANDUSE

Permit No. 49-00792-S

Application No. 020204-8, 14

SR 400 (I-4) Widening
Polk County Line to SR 530 (US 192)

SR 400 (I-4) Widening
Polk County Line to SR 530 (US 192)

State Project No. 92130-1406
Federal Project No. 0042 165 I
SFWMD Permit No. 49-00782-S
SFWMD Application No. 020204-8
RAI No. 1 Comment No. 7

Conversion Table for Pertinent Pond Information in 1929 NGVD

Exist Pond 1A	1	112.15	114.62	115.31	104.15	115.15	116.15
Exist Pond 1B	1	112.15	114.50	115.00	104.15	115.15	116.15
Pond 2	2	107.50	108.79	109.09	95.50	112.00	114.00
Pond 3	3	92.50	94.68	95.30	80.50	96.75	98.75
Pond 4	4	93.20	95.00	95.53	87.20	98.20	100.20
Pond 5B	5B	82.00	83.59	83.99	70.00	86.00	88.00
Exist Pond A	7	77.15	79.33	79.75	83.15	79.15	81.15
Exist Pond C	7	77.15	79.63	80.00	63.15	79.15	81.15
Pond 8	8	81.00	84.40	85.06	69.00	84.00	85.50
Pond 9	9	81.00	84.44	85.06	69.00	84.00	85.50

Exist Pond 1A	1	113.35	112.15	115.15	111.65	113.35	110.55	110.55
Exist Pond 1B	1							
Pond 2	2	108.50	107.50	111.10	108.00	111.10	105.50	103.50
Pond 3	3	93.85	92.50	95.20	92.00	95.20	89.80	88.00
Pond 4	4	94.00	93.20	97.00	93.50	97.00	92.00	90.00
Pond 5B	5B	82.40	82.00	85.00	81.90	85.00	78.00	76.00
Exist Pond A	7	77.75	77.15	80.37	76.65	79.87	75.15	71.85
Exist Pond C	7	78.00	77.15	80.41	76.65	79.91	72.15	72.15
Pond 8	8	81.80	81.00	85.00	80.50	85.00	78.80	77.00
Pond 9	9	81.55	81.00	85.00	80.50	85.00	78.60	77.00

Note: Conversion from 1988 NAVD to 1929 NGVD is by a difference of 0.88 ft. The 1929 NGVD elevations are higher than the 1988 NAVD elevations

**SOUTH FLORIDA WATER
MANAGEMENT DISTRICT**

BEG. PERMIT NUMBER:

49-00792-5

APPLICATION NUMBER:

030115-14

permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

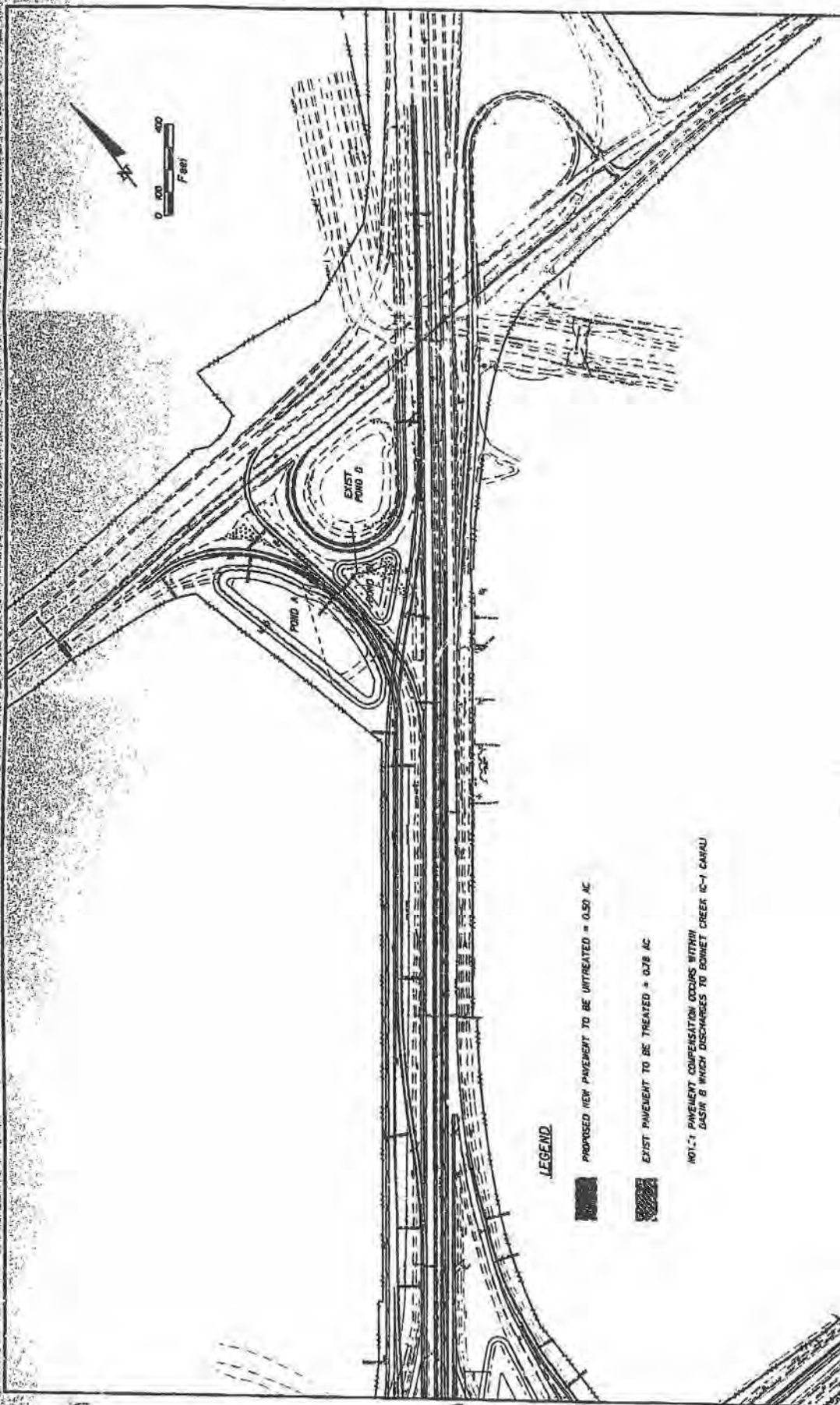
13. Mitigation to offset the proposed 5.48 acres of direct and 1.22 acres of secondary impact has been provided through Chapter 373.4137 F.S. The Final order was issued by FDEP on March 11, 1999, under WPI# 2425311 Mitigation ID# SF10, for an anticipated 2.3 acres of herbaceous impact. Mitigation to offset the impacts was originally approved to be through the acquisition of 5.0 herbaceous bank credits from an appropriate mitigation bank. The 5.0 herbaceous mitigation bank credits have been purchased from the Florida Mitigation Bank and are held by the District.

However, there are no herbaceous impacts proposed under this application. The proposed project will use an excess 12.18 freshwater forested credits from the Florida Mitigation Bank to offset the 5.48 acres of direct forested impacts and 1.22 acres of secondary impacts. A total of 11.16 credits from WPI# 5147265 and 1.02 credits from WPI# 5147325 are proposed to compensate for the proposed wetland impacts. The originally approved 5.0 herbaceous credits will be held by the District for future use to offset appropriate DOT wetland impacts.

14. Prior to commencement of dewatering activities, a Water Use Permit shall be obtained from the District.


15. Minimum road crown elevation:
- Basin: Basin 1 - 88.20 feet NGVD.
 - Basin: Basin NW1-2 - 88.50 feet NGVD.
 - Basin: Basin SE1 - 87.80 feet NGVD.
 - Basin: Basin A - 90.30 feet NGVD.
 - Basin: Basin B - 90.80 feet NGVD.
 - Basin: Basin NW3 - 88.70 feet NGVD.
 - Basin: Basin SE2 - 85.80 feet NGVD.
 - Basin: Basin SE3 - 89.10 feet NGVD.
 - Basin: Basin SE4 - 88.10 feet NGVD.

16. All special conditions and exhibits previously stipulated by Permit Number 49-00792-S remain in effect unless otherwise revised and shall apply to this modification.



LEGEND

 PROPOSED NEW PAVEMENT TO BE UNTREATED = 0.50 AC

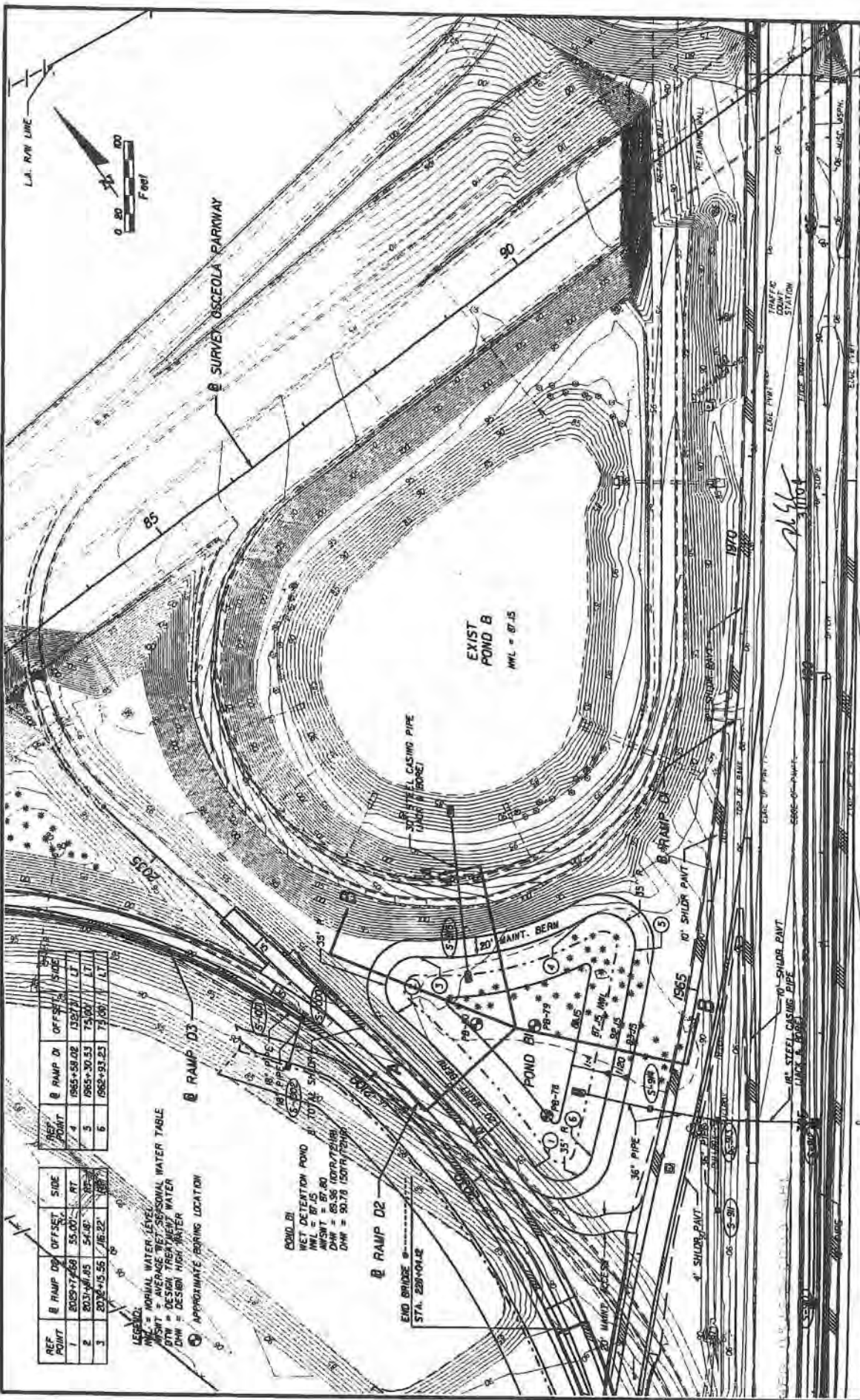
 EXIST PAVEMENT TO BE TREATED = 0.78 AC

NOTE: PAVEMENT COMPENSATION OCCURS WITHIN BASIN B WHICH DISCHARGES TO BONNET CREEK (C-1 CANAL)

REVISIONS		DESCRIPTION		DATE		BY	

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN SECTION TALLAHASSEE, FLORIDA		PROJECT NO. 1-236 SHEET NO. 1-236	
PROJECT TITLE: POST DEVELOPMENT BASIN B PAVEMENT COMPENSATION		DRAWN BY: [Name] CHECKED BY: [Name]	

URS
 515 S. ROBINSON STREET, SUITE 200
 ORLANDO, FL 32804-3975
 PH: (407) 425-0333 FAX: (407) 425-0335
 WWW.URS-CORP.COM



REF. POINT	B RAMP D2 OFFSET	SIDE
1	203+17.69	RT
2	203+14.85	RT
3	203+15.56	RT

REF. POINT	B RAMP D3 OFFSET	SIDE
4	1985+59.02	LT
5	1985+30.53	LT
6	1982+93.23	LT

LEGEND:
 MWL = NORMAL WATER LEVEL
 AWT = AVERAGE WET SEASONAL WATER TABLE
 DWT = DESIGN TREATMENT WATER
 DWH = DESIGN HIGH WATER
 (C) APPROXIMATE BORING LOCATION

END BRIDGE # _____
 STA. 228+04.42

COND. B1
 WET DETENTION POND B1 TOTAL SLOPE
 MWL = 87.15
 AWT = 87.80
 DWT = 89.56 (100% TYPICAL)
 DWH = 90.78 (150% TYPICAL)

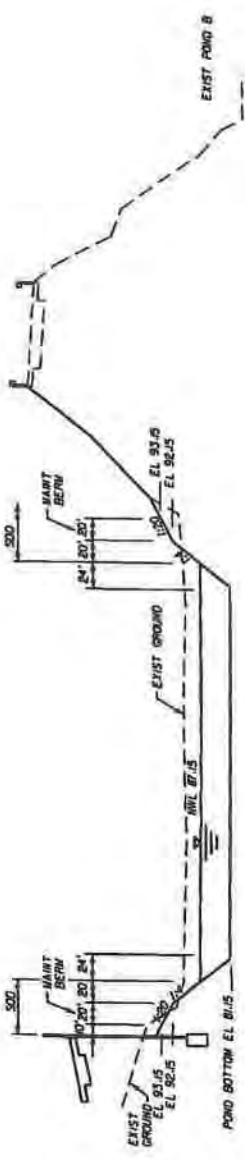
DATE	DESCRIPTION	REVISIONS	DATE	BY	DESCRIPTION

STATE OF FLORIDA	OSCEOLA	24253-1-52-01
DEPARTMENT OF TRANSPORTATION	SR 400	OSCEOLA
PROJECT NO.	SR 400	OSCEOLA
FINANCIAL PROJECT ID	24253-1-52-01	OSCEOLA

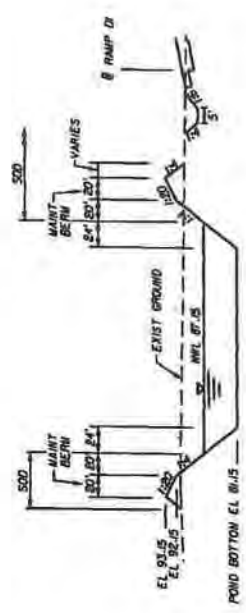
REWALD E. GAW	OSCEOLA
P.E. LICENSE NO. 50050	OSCEOLA
ONE CORPORATION	OSCEOLA
10000 W. UNIVERSITY STREET, SUITE 245	OSCEOLA
ORLANDO, FL 32803-895	OSCEOLA
PH 407-482-0333 FAX 407-482-8895	OSCEOLA
CERTIFICATE OF AUTHORIZATION NO. 00000000	OSCEOLA

**POND B
DETAIL SHEET**

SHEET NO. 181



POND BI SECTION A-A
N.T.S.



POND BI SECTION B-B
N.T.S.

- NOTES:
1. NOT USED.
 2. MINIMUM RADII FOR CURVES AT THE INSIDE BERM OF THE POND IS 35 FEET. CURVES ABOVE AND BELOW THE INSIDE BERM OF THE POND ARE CONCENTRIC. MINIMUM RADII FOR CURVES BELOW THE INSIDE BERM OF THE POND IS 3 FEET.
 3. POND B IS INTERCONNECTED WITH EXISTING POND B WITH A 30" PIPE (5-BS).

Pl. C
3/1/04

REVISIONS		STATE OF FLORIDA		POND BI		SHEET	
DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSPORTATION	FRANKEL PROJECT ID	NO.	NO.	NO.
			SR 400	OSCEOLA	242531-1-52-01		182

REYNOLDS & CHURCH
P.L.L.C. LICENSE NO. 36000
315 E. FORBES STREET, SUITE 245
ORLANDO, FL 32801-8755
PH 407-481-0353 FAX 407-481-3605
CERTIFICATE OF AUTHORIZATION NO. 00000008

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
FRANKEL PROJECT ID
SR 400 OSCEOLA 242531-1-52-01

POND BI
DETAIL SHEET

SHEET NO. 182

MADE BY: REC
 CHECKED BY: CSD
 PROJECT: US 192 / I-4 INTERCHANGE
 DATE: 09/05/02
 POND: 10/24/02
 JOB NO: V100385.01
 SHEET NO:
 Ponds B & B1 BASIN: 200,300,301,302

Water Quality

Total Basin Area = ac
 Paved Area = ac
 Pond Area at NWL = ac

A. 1.0 * Over Total Basin Area = 2.51 Ac-Ft
 B. 2.5 * Over Paved Area = 2.39 Ac-Ft
 Required PAV = 2.39 Ac-Ft

Stage Storage Calculations

Stage (ft)	Area (sq ft)	PAV (sq ft)	Depth (ft)	Volume (cu ft)	Volume (Ac-Ft)
93.15 out. Berm					
92.15 in. berm	4.24	2.12	1.00	2.12	18.68
87.95 (ea. PAV)	3.39	3.82	4.20	16.03	2.65
87.15 (NWL)	3.23	3.31	0.80	2.65	
81.15 Bottom	2.27				

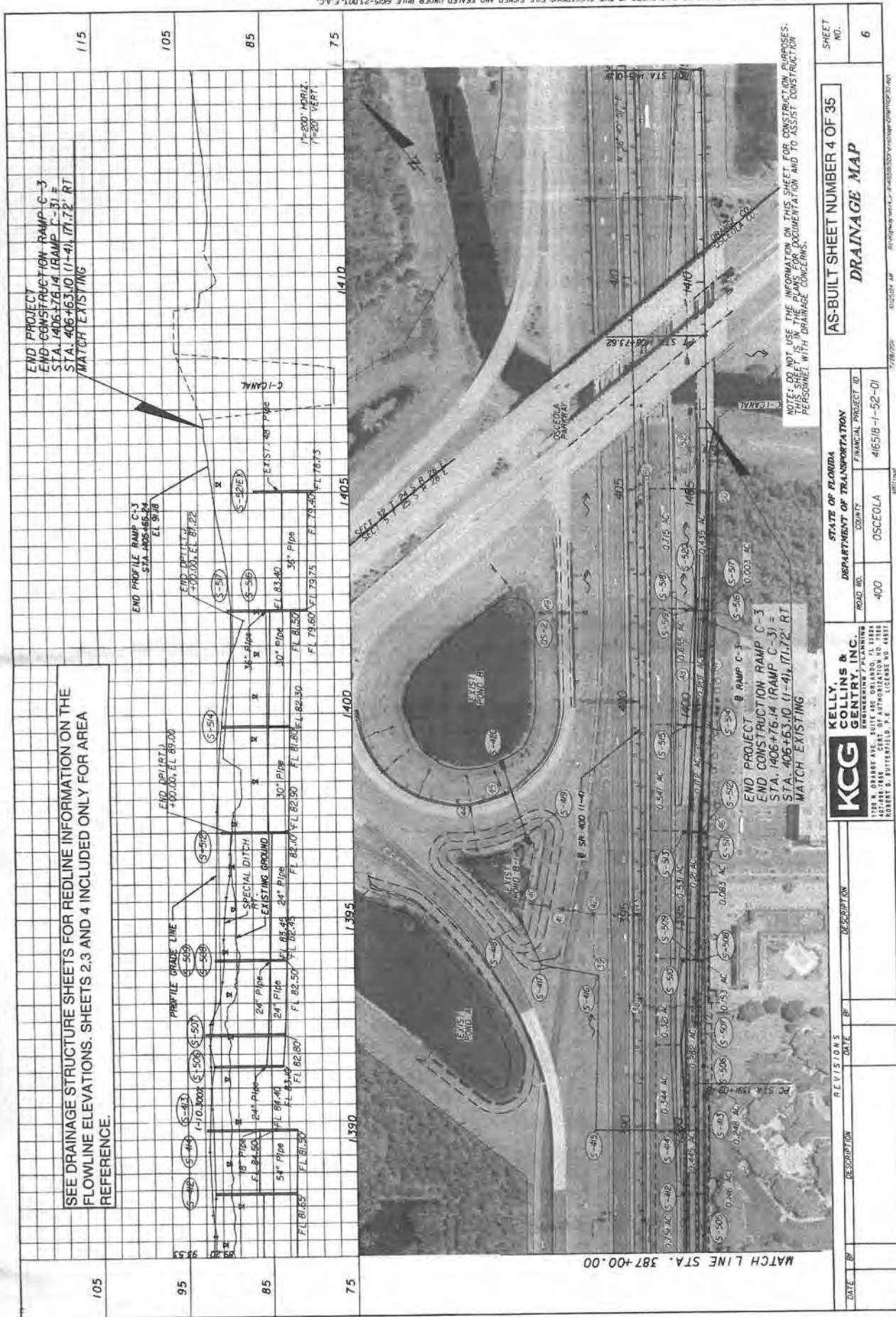
Bleed Down Volume
 1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 1.26 \text{ Ac-Ft}$
 Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 1.39 Ac-Ft

Note: Proposed Pond B1 will be interconnected with Existing Pond B

Proposed Pond B1		Existing Pond B	
Elev (ft)	Area (sq)	Elev (ft)	Area (sq)
93.15	1.52	93.15	
92.15	1.08	92.15	3.16
87.15	0.69	87.15	2.34
81.15	0.31	81.15	1.96

The existing control structure in Pond B has the crest/elevation (PAV) set at 88.80 (1929 NGVD). This translates to a converted elevation of 87.95 (1984 NAVD)

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 605-23.003, F.A.C.



END PROJECT
END CONSTRUCTION RAMP C-3
STA. 1406+76.14 (RAMP C-3) =
STA. 406+163.00 (1-4), (71,72) RT
MATCH EXISTING

SEE DRAINAGE STRUCTURE SHEETS FOR RELINE INFORMATION ON THE FLOWLINE ELEVATIONS. SHEETS 2,3 AND 4 INCLUDED ONLY FOR AREA REFERENCE.

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

END PROFILE RAMP C-3
STA. 1406+76.14
EL 91.18

END (RT) (RT)
1400.00, EL 89.00

105

95

85

75

115

105

85

75

SHEET NO. 6

AS-BUILT SHEET NUMBER 4 OF 35
DRAINAGE MAP

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO. 400
COUNTY OSCEOLA

KELLY COLLINS & ASSOCIATES, INC.
ENGINEERS & PLANNERS
1700 N. ORANGE AVE., SUITE 400 ORLANDO, FL 32814
CERT. OF AUTHORIZATION 11-11884
ROBERT E. THURTELL, P.E. LICENSE NO. 44317

DATE	BY	DESCRIPTION

APPROVED BY VS 01/30/2014 10:59

POND 3A+3B

BASIN 1

POST DEVELOPMENT HYDROLOGY

URS

PROJECT TITLE:	US 192/I-4 INTERCHANGE		
PROJECT NUMBER:	V100385.01		DATE
BASIN DESIGNATION:	BASIN 1	MADE BY:	DTL 13-Jul-02
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	CSD 10/21/02

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA
BUILDING		
DRIVEWAY		
ROADWAY		5.54
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		AREA
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	66.67%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	2.77
CN AREA	(BASIN AREA - DCIA)	2.77
TOTAL BASIN AREA		4.14

LAND USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CS	CA	AREA
Open Spaces - Good Conditions	Arents	A/D	80	2.77	221.60
TOTALS					221.60

COMPOSITE CN 80.0



PROJECT TITLE:	US 192/1-4 INTERCHANGE			
PROJECT NUMBER:	V100385.01			DATE
BASIN DESIGNATION:	BASIN 1A	MADE BY:	DTL	13-Jul-02
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	CSO	10/21/02

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
WATER SURFACE		1.16
TOTAL DCIA		
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	56.86%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	0.88
CN AREA	(BASIN AREA - DCIA)	0.88
TOTAL BASIN AREA		

LAND USE DESCRIPTION (PERVIOUS AREA)	SOIL TYPE	SOIL GROUP	CN	AREA	PERCENT
Open Spaces - Good Conditions	Placid / Smyrna	A/D	80	0.88	70.40
TOTALS					

COMPOSITE CN



PROJECT TITLE:	US 192 / I-4 INTERCHANGE		
PROJECT NUMBER:	V100385.01		DATE
BASIN DESIGNATION:	BASIN 1B	MADE BY:	DTL 13-Jul-02
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	CSD 10/21/02

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
WATER SURFACE		0.61
TOTAL DCIA		
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	52.59%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	0.55
CN AREA	(BASIN AREA - DCIA)	0.55
TOTAL BASIN AREA		

LAND USE DESCRIPTION (PERVIOUS AREA)	SOIL TYPE	NO. OF GROUP	AREA	PERCENT	PERCENT
Open Spaces - Good Conditions	Immokalee / Placid	A/D	80	0.55	44.00

COMPOSITE

Job US 192 / I-4

Project No. V100385.00

Page of

Description Basin 1 Ditch

Computed by NTL

Sheet of

Time of Concentration

Checked by CSD

Date 6/27/01

Date 10/21/02

Reference

$$T_{c_{total}} = T_{c_{Ditch}} + T_{c_{pipe}}$$

$$T_{c_{Ditch}} = 47.38 \text{ min}$$

* See Spreadsheet

* Path A → B see Basin Map

$$T_{c_{pipe}} = \frac{\text{Pipe Length}}{\text{Aver. Velocity}}$$

* Path B → C

$$= \frac{782 \text{ ft}}{2.5 \text{ ft/s}} = 312.8 \text{ sec} = 5.21 \text{ min}$$

$$T_{c_{total}} = 47.38 + 5.21$$

$$= \underline{\underline{52.59 \text{ min}}}$$

URS

Project US 1921 SR 480 (P-4)
BASIN 1 DITCH (P-4RT)

Design by: DTL
Checked by: C&D

Date: 09/25/2002
Date: 10/21/02

Zone: Design Event: 7
10 Yr

Max Vel: 4.00 fps

Station	Type	0.10		0.13		0.16		0.20		0.25		0.30		0.35		0.40		Remarks
		Flow	Vel	Flow	Vel	Flow	Vel	Flow	Vel	Flow	Vel	Flow	Vel	Flow	Vel			
33150	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33200	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33250	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33300	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33350	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33400	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33450	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33500	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33550	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33600	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33650	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33700	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33750	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33800	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33850	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33900	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
33950	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34000	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34050	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34100	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34150	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34200	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34250	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34300	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34350	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34400	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34450	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34500	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34550	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34600	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34650	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34700	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34750	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34800	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34850	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34900	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
34950	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	
35000	RT	0.10	0.11	0.13	0.13	0.16	0.16	0.20	0.20	0.25	0.25	0.30	0.30	0.35	0.35	0.40	0.40	

BASIN 1

PONDS 1A & 1B DESIGN

URS

MADE BY: DTL DATE: 07/13/02 JOB NO. V100385.01
 CHECKED BY: OSD DATE: 10/21/02 SHEET NO.
 PROJECT: US 192 / I-4 INTERCHANGE POND: 1A & 1B BASIN: BASIN 1 (totals)

Water Quality

Total Basin Area = [redacted] ac
 Paved Area = [redacted] ac
 Pond Area at NWL = [redacted] ac

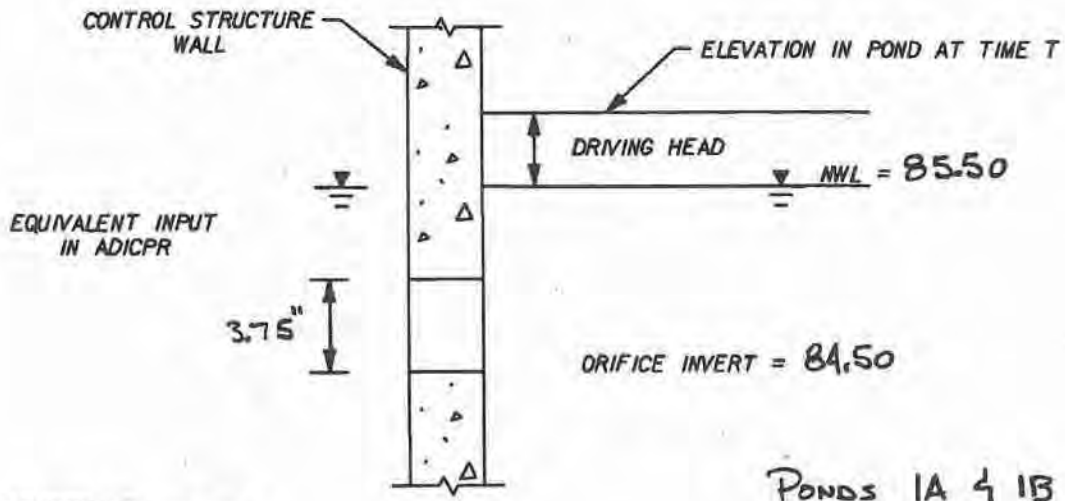
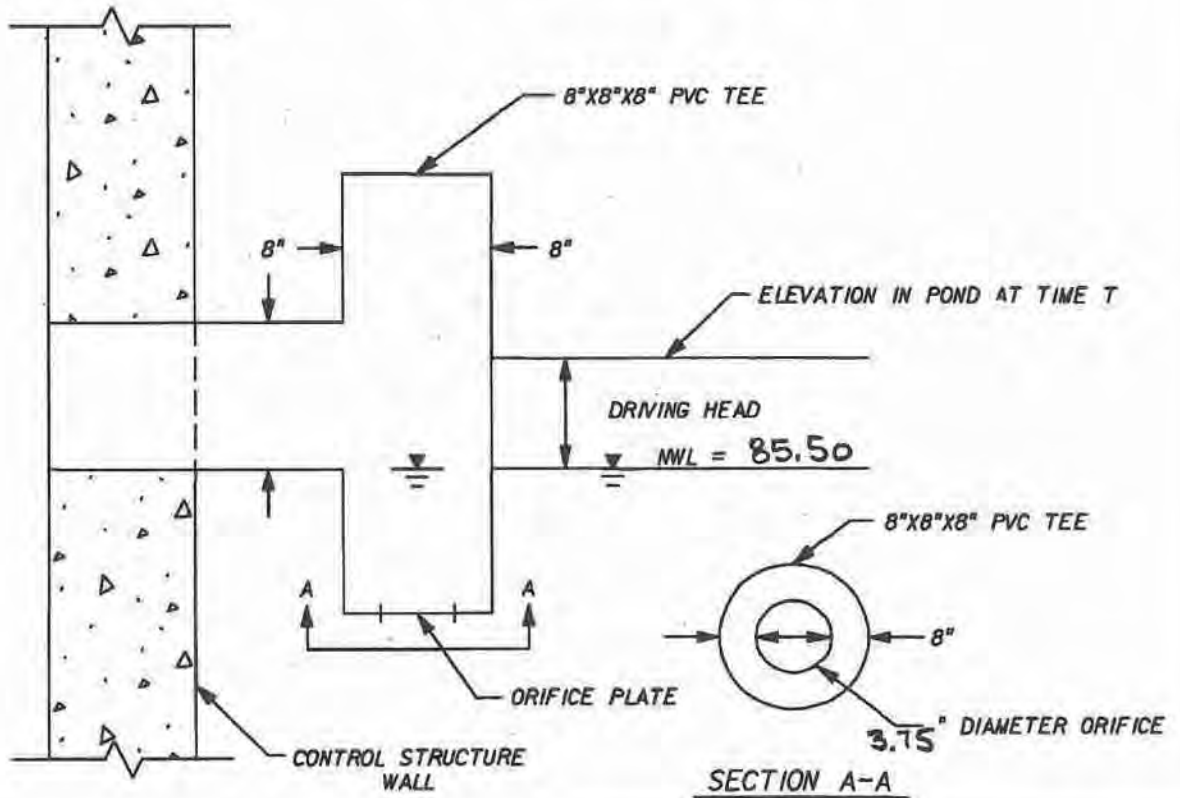
A. [redacted] 1.0 " Over Total Basin Area = 0.96 Ac-Ft
 B. [redacted] 2.5 " Over Paved Area = 1.15 Ac-Ft
 Required PAV = [redacted] Ac-Ft

Stage Storage Calculations

Depth (ft)	Area (ft ²)	Avg Area (ft ²)	Det. (ft)	Det. Volume (Ac-Ft)	Stage Storage (Ac-Ft)
89.00	3.20	2.71	1.00	2.71	7.70
88.00	2.22	2.06	1.80	3.70	4.99
86.20 (PAV)	1.90	1.83	0.70	1.28	1.28
85.50 (NWL)	1.77				

Bleed Down Volume
 1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.48 \text{ Ac-Ft}$
 Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 0.80 Ac-Ft

FLOW THROUGH ORIFICE OCCURS IN SUBMERGED CONDITIONS. TO MODEL IN ADICPR, THE INPUT WAS REVISED TO SIMULATE A SUBMERGED ORIFICE IN THE WALL OF THE CONTROL STRUCTURE (CREST OF ORIFICE IS PLACED BELOW NORMAL WATER LEVEL. THE TAILWATER IS SET AT THE NORMAL WATER LEVEL SINCE FLOW THROUGH THE ORIFICE TERMINATES WHEN ELEVATION IN THE POND RECOVERS TO MWL.



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 PLEE
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Ponds 1A & 1B

1-4 / US 192 INTERCHANGE

DRAWN BY: DTL

CHECKED BY: REC

URS

BLEED DOWN OF 1/2" OF
 DETENTION VOLUME IN 24 HRS

URS Greiner Woodward Clyde

MADE BY: REC DATE: 10/22/99 JOB NO. V100264.03
 CHECKED BY: MPL DATE: 10/24/99 SHEET NO.
 CALCULATIONS FOR: I-4 SIX LANING POND: EX POND 1 BASIN: BASIN 1

Water Quality

Total Basin Area = 15.70 ac
 Paved Area = 4.41 ac
 Pond Area at NWL = 1.22 ac

A. 1.0 " Over Total Basin Area = 1.31 Ac-Ft
 B. 2.5 " Over Paved Area = 0.92 Ac-Ft
Required PAV = 1.31 Ac-Ft

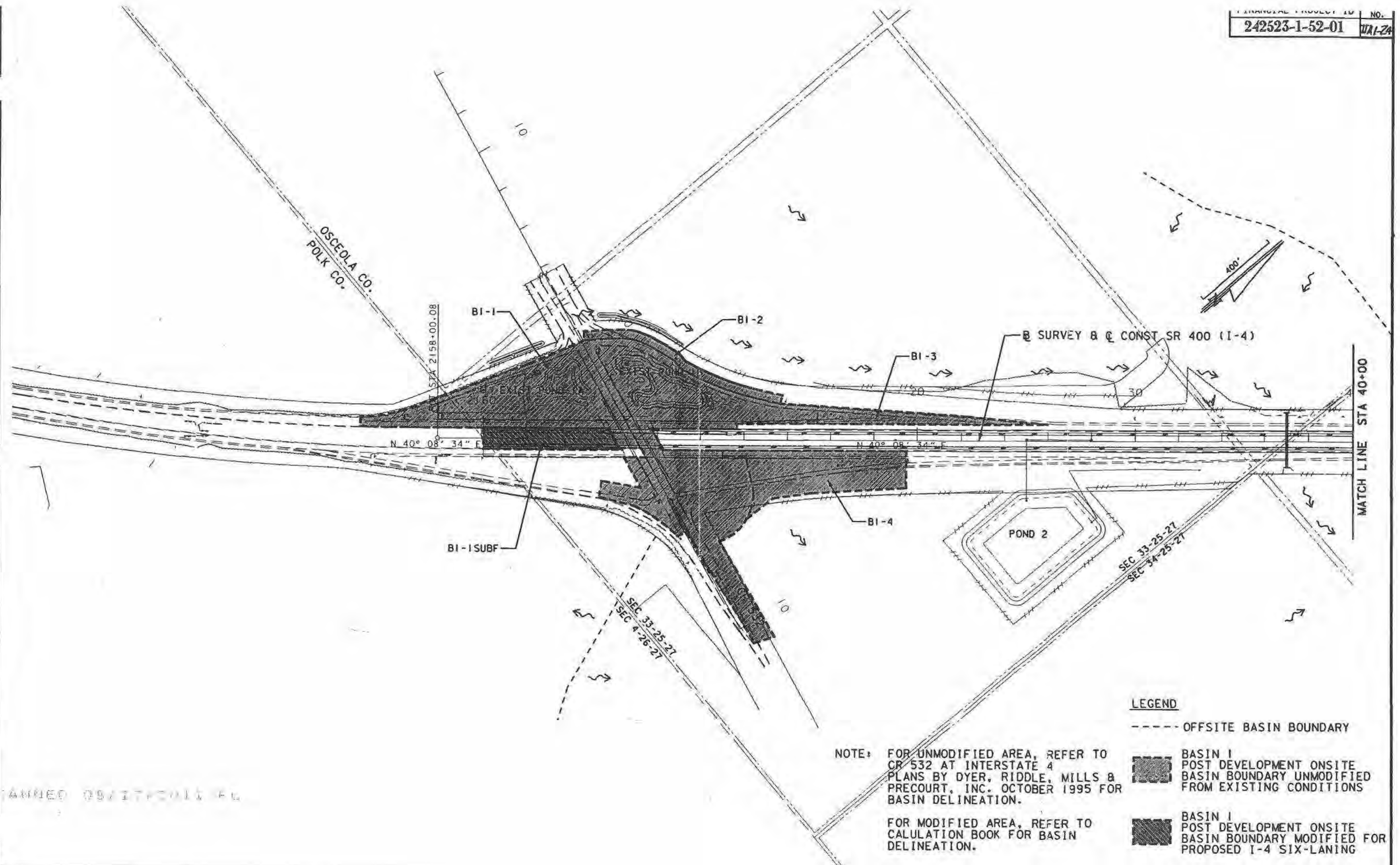
Stage Storage Calculations

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta Storage (ac-ft)	Sum Storage (ac-ft)
116.15	2.17				6.50
115.15	1.79	1.98	1.00	1.98	4.52
113.35 (PAV)	1.45	1.62	1.80	2.91	1.60
112.15 (NWL)	1.22	1.33	1.20	1.60	

Bleed Down Volume

1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.65 \text{ Ac-Ft}$

Volume Remaining in Pond after Bleed Down = $\text{PAV} - \text{Bleed Down Volume} = 0.95 \text{ Ac-Ft}$



- LEGEND**
- OFFSITE BASIN BOUNDARY
 - BASIN I POST DEVELOPMENT ONSITE BASIN BOUNDARY UNMODIFIED FROM EXISTING CONDITIONS
 - BASIN I POST DEVELOPMENT ONSITE BASIN BOUNDARY MODIFIED FOR PROPOSED I-4 SIX-LANING

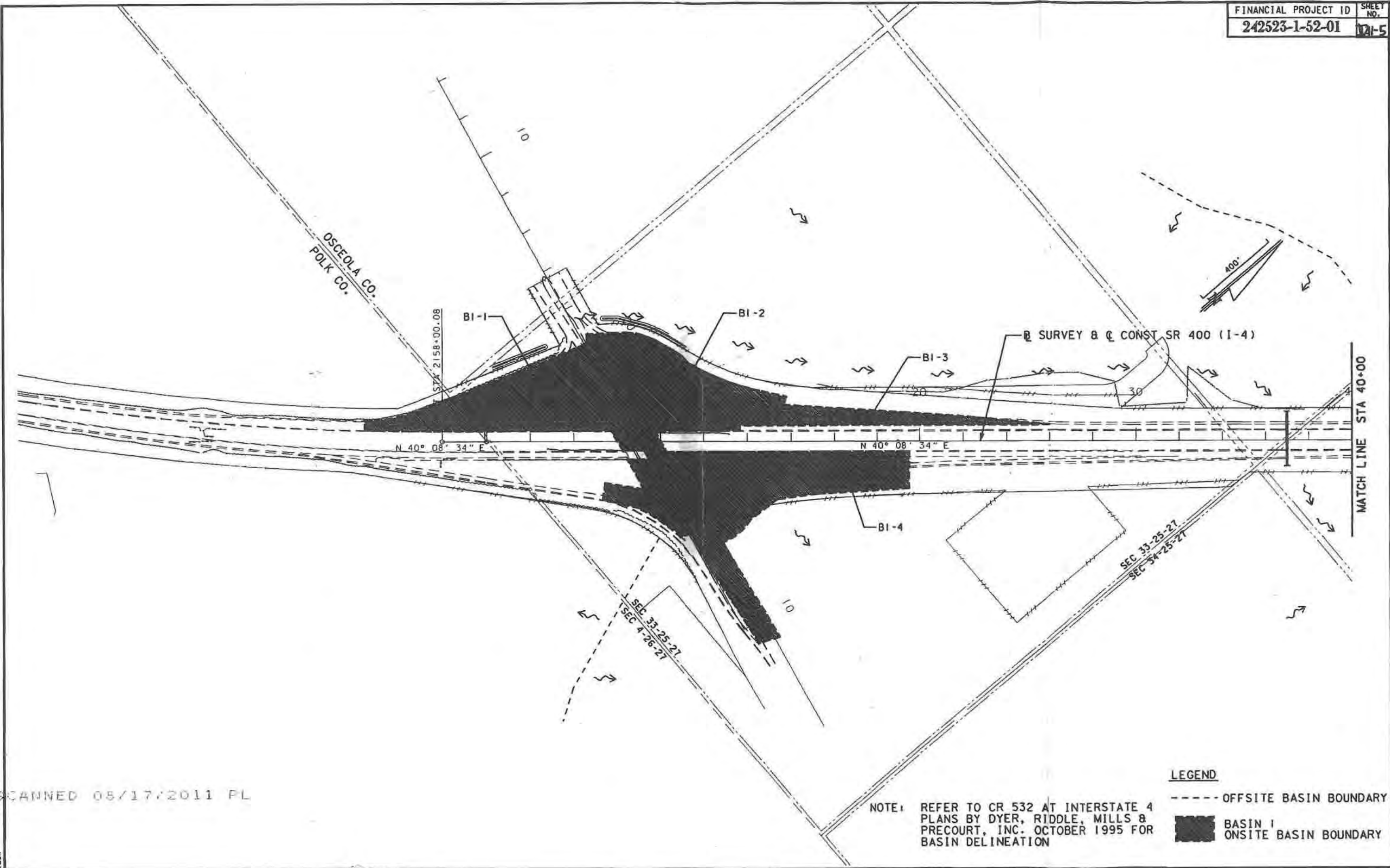
NOTE: FOR UNMODIFIED AREA, REFER TO CR 532 AT INTERSTATE 4 PLANS BY DYER, RIDDLE, MILLS & PRECOURT, INC. OCTOBER 1995 FOR BASIN DELINEATION.

FOR MODIFIED AREA, REFER TO CALCULATION BOOK FOR BASIN DELINEATION.

ANNEX 09/17/2011

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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



CANNED 08/17/2011 PL

NOTE: REFER TO CR 532 AT INTERSTATE 4 PLANS BY DYER, RIDDLE, MILLS & PRECOURT, INC. OCTOBER 1995 FOR BASIN DELINEATION

LEGEND
 - - - - OFFSITE BASIN BOUNDARY
 ■ BASIN I ONSITE BASIN BOUNDARY

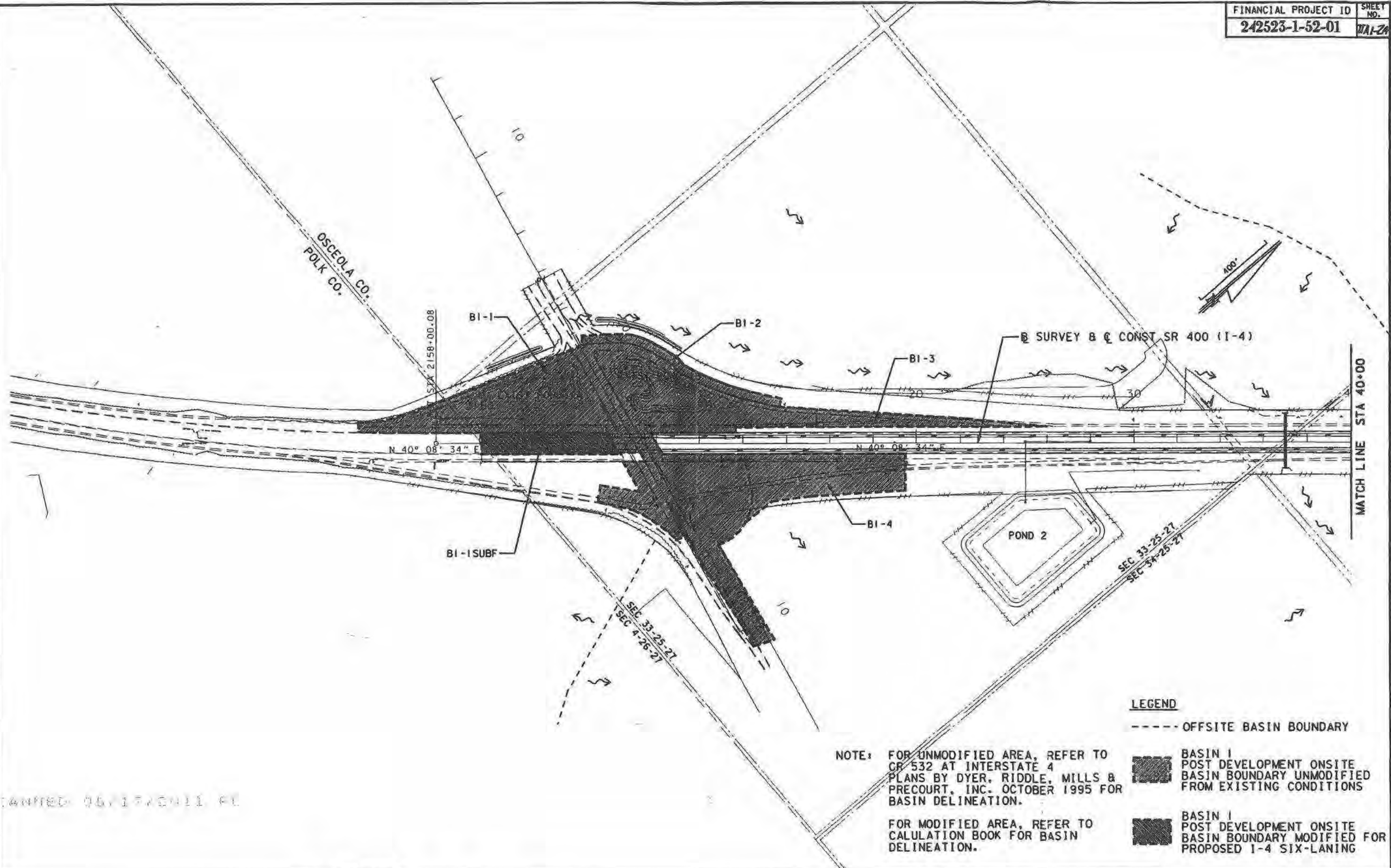
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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

BASIN I
 PRE DEVELOPMENT BASIN



- LEGEND**
- OFFSITE BASIN BOUNDARY
 - BASIN I POST DEVELOPMENT ONSITE BASIN BOUNDARY UNMODIFIED FROM EXISTING CONDITIONS
 - BASIN I POST DEVELOPMENT ONSITE BASIN BOUNDARY MODIFIED FOR PROPOSED 1-4 SIX-LANING

NOTE: FOR UNMODIFIED AREA, REFER TO CP 532 AT INTERSTATE 4 PLANS BY DYER, RIDDLE, MILLS & PRECOURT, INC. OCTOBER 1995 FOR BASIN DELINEATION.

FOR MODIFIED AREA, REFER TO CALCULATION BOOK FOR BASIN DELINEATION.

Men, Loc 24, 2000
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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

**BASIN I
 POST DEVELOPMENT BASIN**

Appendix B - Drainage Calculations

IIA1-B1

B-3

Sub-basin D = 2.45 acres

Soils - Placid fine sand, Type D (wooded area)
Candler sand, 0 to 5% slopes, Type A (grassed area)

Weighted CN Description	Area (ac.)	CN	Product
Pavement	0.83	98	81.73
Wooded area	0.77	77	59.21
Grassed area	0.85	49	41.41
Total	2.45		182.35
		CN =	74.5

Time of Concentration

Use Tc (min) =	10
----------------	----

Modified Existing Pond
Stage/Storage

Stage ft	Area ac	Storage ac-ft
113.00	0.51	0.00
114.00	0.58	0.55
115.00	0.65	0.62
116.00	0.73	0.69
117.00	0.92	0.83

~~2.45~~
2.30
Sub-basin E = 2.30 acres

Soils - Placid fine sand, Type D (wooded area)
Candler sand, 0 to 5% slopes, Type A (grassed area)

Weighted CN Description	Area (ac.)	CN	Product
Pond	0.71	98	69.58
Grassed area good	1.59	80	127.20
Total	2.30		196.78
		CN =	85.6

Time of Concentration

Use Tc (min) =	10
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Proposed New Pond
Stage/Storage

Stage ft	Area ac	Storage ac-ft
113.00	0.71	0.00
114.00	0.82	0.77
115.00	0.94	0.88
116.00	1.06	1.00
117.00	1.25	1.16

Appendix B - Drainage Calculations

Water Quality

Basin Area = 14.09 ac. (sub-basins A,B,C, & E)
 Impervious = 3.69 ac.
 1" of runoff from the proposed basin = 1.17 ac-ft. or
 2.5" runoff from = 0.77 ac-ft

Combined Stage/Storage

Stage ft	Mod-Ext. Area ac.	New Area ac.	Total Area ac.	Total Storage ac-ft
113.00	0.51	0.71	1.22	0.00
114.00	0.58	0.82	1.40	1.31
115.00	0.65	0.94	1.59	2.81
116.00	0.73	1.06	1.79	4.50
117.00	0.92	1.25	2.17	6.48

Bleed Down Calculations

Volume to be recovered in 24 hrs: 0.5" over basin area = 0.69 ac-ft
 Flow Rate $Q = (0.69 \text{ ac-ft} \times 43560 \text{ ft}^2/\text{ac}) / (24 \text{ hr/day} \times 3600 \text{ s/hr}) = 0.35 \text{ cfs}$
 Orifice Diameter $d = 3.25$ " (existing)
 Orifice Area $A = 0.0576 \text{ ft}^2$

$H = (0.53 + .26) / 2 = 0.40 \text{ ft}$
 $h = H - d / 2 = 0.26$
 Coefficient of Discharge $C = 0.6$

$Q = CA(2gh)^{0.5} = 0.140 \text{ cfs}$ need to modify orifice

Try 5" diameter orifice
 Orifice Area $A = 0.1364 \text{ ft}^2$
 $Q = CA(2gh)^{0.5} = 0.335 \text{ cfs}$ OK

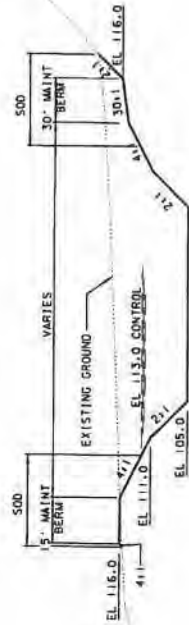
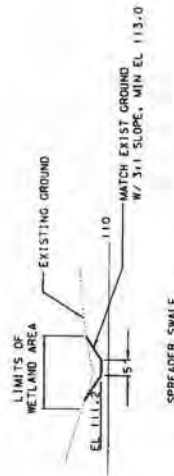
SPECIAL CONDITIONS

1. MINIMUM ROAD CROWN ELEVATION: 115 FEET NGVD.
2. DISCHARGE FACILITIES:
 - 1-.42' DIA. CIRCULAR ORIFICE WITH INVERT AT ELEV. 113' NGVD.
 - 66 LF OF 2' DIA. RCP CULVERT.
 - 1-2' W X 3.08' L DROP INLET WITH CREST AT ELEV. 114.2' NGVD.RECEIVING BODY : ADJACENT WETLANDS
CONTROL ELEV : 113 FEET NGVD. /113 FEET NGVD DRY SEASON.
3. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY EROSION, SHOALING OR WATER QUALITY PROBLEMS THAT RESULT FROM THE CONSTRUCTION OR OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM.
4. MEASURES SHALL BE TAKEN DURING CONSTRUCTION TO INSURE THAT SEDIMENTATION AND/OR TURBIDITY PROBLEMS ARE NOT CREATED IN THE RECEIVING WATER.
5. THE DISTRICT RESERVES THE RIGHT TO REQUIRE THAT ADDITIONAL WATER QUALITY TREATMENT METHODS BE INCORPORATED INTO THE DRAINAGE SYSTEM IF SUCH MEASURES ARE SHOWN TO BE NECESSARY.
6. LAKE SIDE SLOPES SHALL BE NO STEEPER THAN 4:1 (HORIZONTAL:VERTICAL) TO A DEPTH OF TWO FEET BELOW THE CONTROL ELEVATION. SIDE SLOPES SHALL BE NURTURED OR PLANTED FROM 2 FEET BELOW TO 1 FOOT ABOVE CONTROL ELEVATION TO INSURE VEGETATIVE GROWTH.
7. FACILITIES OTHER THAN THOSE STATED HEREIN SHALL NOT BE CONSTRUCTED WITHOUT AN APPROVED MODIFICATION OF THIS PERMIT.
8. ALL SPECIAL CONDITIONS PREVIOUSLY STIPULATED BY PERMIT NUMBER 49-00809-P REMAIN IN EFFECT UNLESS OTHERWISE REVISED AND SHALL APPLY TO THIS MODIFICATION.
9. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION OF FUTURE PHASES, PAVING, GRADING, AND DRAINAGE PLANS SHALL BE SUBMITTED TO THE DISTRICT FOR PERMIT MODIFICATIONS.
10. OPERATION OF THE SURFACE WATER MANAGEMENT SYSTEM SHALL BE THE RESPONSIBILITY OF OSCEOLA COUNTY.
11. SILT SCREENS, HAY BALES OR OTHER SUCH SEDIMENT CONTROL MEASURES SHALL BE UTILIZED DURING CONSTRUCTION. THE SELECTED SEDIMENT CONTROL MEASURES SHALL BE INSTALLED LANDWARD OF THE UPLAND BUFFER ZONES AROUND ALL PROTECTED WETLANDS. ALL AREAS SHALL BE STABILIZED AND VEGETATED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION INTO THE WETLANDS AND UPLAND BUFFER ZONES.
12. THE SFWMD RESERVES THE RIGHT TO REQUIRE REMEDIAL MEASURES TO BE TAKEN BY THE PERMITTEE IF WETLAND AND/OR UPLAND MONITORING OR OTHER INFORMATION DEMONSTRATES THAT ADVERSE IMPACTS TO PROTECTED, CONSERVED, INCORPORATED OR MITIGATED WETLANDS OR UPLANDS HAVE OCCURRED DUE TO PROJECT RELATED ACTIVITIES.
13. PRIOR TO MARCH 15, 1999, AND PRIOR TO CONSTRUCTION, THE PERMITTEE SHALL PROVIDE THE DISTRICT WITH A LETTER OF COMMITMENT FROM THE FLORIDA MITIGATION BANK (FDEP PERMIT NO. 492924779) DEMONSTRATING THAT THE BANK HAS CREDITS AVAILABLE AND THE PERMITTEE HAS PURCHASED 1 FORESTED WETLAND CREDIT AS MITIGATION TO OFFSET THE 0.89 ACRES OF WETLAND IMPACT ASSOCIATED WITH THIS PERMIT.



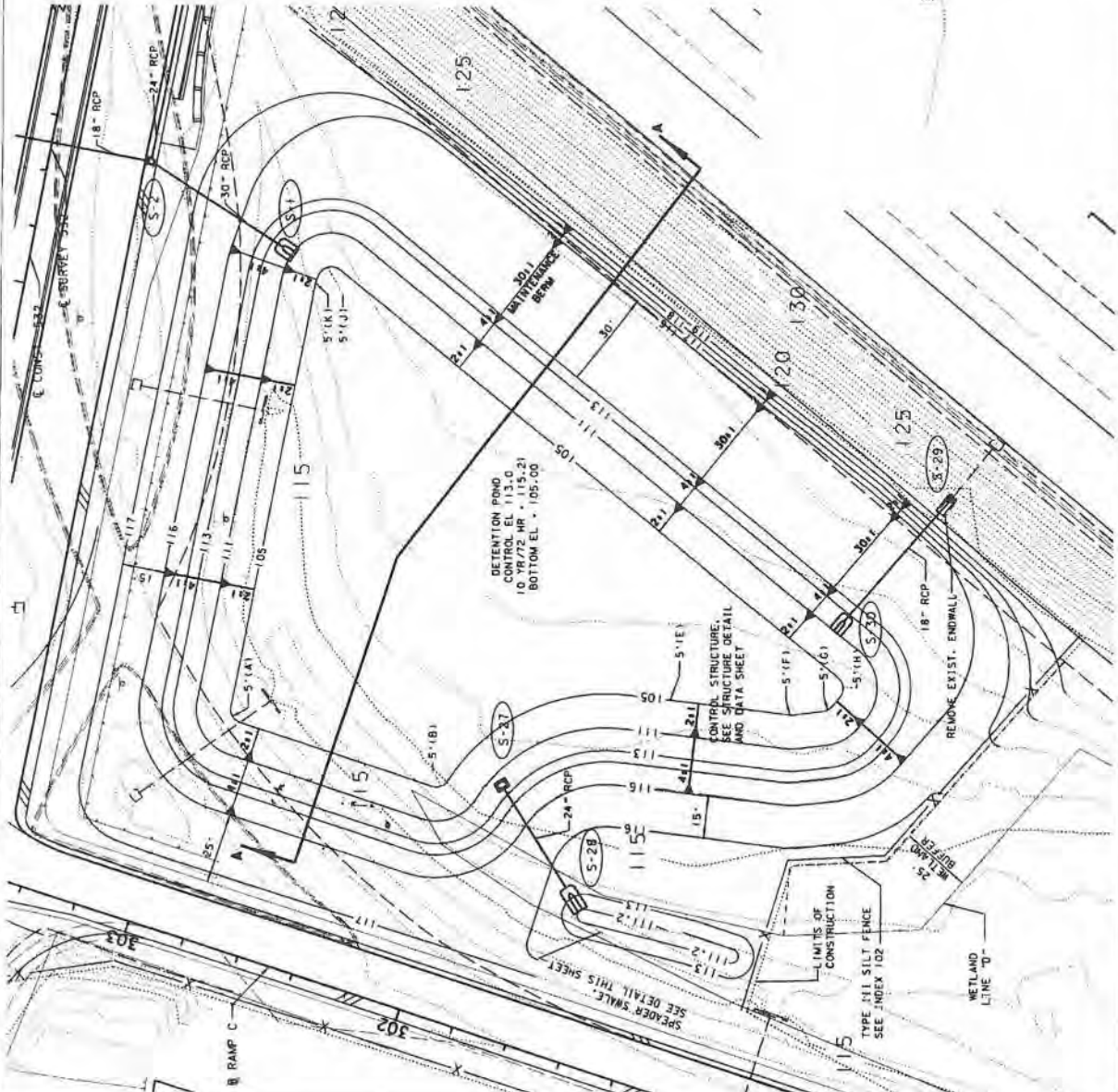
RADIUS POINT LOCATIONS

POINT ID	STATION	OFFSET
(A)	20+66.08	105.51 RT & CONST 532
(B)	302+13.97	84.00 RT & CONST RAMP
(C)		INTENTIONALLY LEFT BLANK
(D)		INTENTIONALLY LEFT BLANK
(E)	301+44.31	65.81 RT & CONST RAMP
(F)	301+01.86	147.89 RT & CONST RAMP
(G)	300+92.35	152.29 RT & CONST RAMP
(H)	300+90.66	156.25 RT & CONST RAMP
(I)		INTENTIONALLY LEFT BLANK
(J)	22+21.09	105.86 RT & CONST 532
(K)	22+18.66	105.50 RT & CONST 532



SECTION 4-4

*Callahan Plans
 Oct 17, 1975*



PREPARED BY: **DD&MP**
 OREGON COUNTY PUBLIC WORKS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

POND DETAIL SHEET



- Pond MV5A permit modification
 - Volumes I, IIA, IIB and VIII (5 total copies, 2 signed and sealed)
 - Permitting set of plans (including SMIS) (5 total copies, 2 signed and sealed)
- Pond TP-2 permit modification
 - Volumes I, IIA, IIB and IX (5 total copies, 2 signed and sealed)
 - Permitting set of plans (including SMIS) (5 total copies, 2 signed and sealed)

Ponds MV5A and TP-2 are owned by The Celebration Company (TCC) and Celebration Community Development District (CCDD), respectively. Legal agreements have been established between FDOT (District 5) and both Disney entities allowing FDOT to modify the existing permits for these ponds.

Several things should be consider when reviewing this project:

- The datum for this project is the 1988 NAVD (North American Vertical Datum). Previous projects are in the 1929 NGVD (National Geodetic Vertical Datum). The difference between the two is approximately between 0.80 ft to 0.90 ft. The 1988 NAVD elevations are lower than the 1929 NGVD elevations. For consistency and ease of review, a set difference of 0.85 ft was used for calculations.
- SMIS (Surveillance Motorist Information System) conduits will be installed under this project. These conduits will be installed as to avoid any impacts to wetlands, some of which are located in District 1 under a different contract. SMIS plans are included in the permitting plan set.
- Pond 4 will be built under this contract; however, it will serve the future Western Beltway Interchange at I-4. The Western Beltway project is being permitted through DEP. Please refer to Volume IIA under section 4 narrative for more information concerning coordination between DEP and SFWMD.
- A copy of the FDOT permit application would need to be submitted to the Army Corps of Engineers (ACOE) due to widening work at the Reedy Creek Bridge and impacts of wetlands due to widening.

If you have any questions or require additional information, please call

Sincerely,

URS Corporation

Renato E. Chuw, P.E.
Drainage Engineer

xc w/o attachments: Alan Ledgerwood (FDOT-5), Michael Hill (FDOT-5), Herb Raybourn (RCID), Chris Lory, Steve Hart, File V100264.03(C2, A4)

SCANNED 08/23/2011 PL

* NOTE: ALL ELEVATIONS PRESENTED IN THIS SECTION ARE IN 1929 NGVD

Purpose

The purpose of these calculations is to provide information relative to the proposed improvements to the C.R. 532/Interstate 4 interchange stormwater management plan. The stormwater management approach developed utilizes compensating treatment and storage for stormwater runoff that is generated by new impervious areas which are too remote from the proposed treatment facilities. A location map, soils map, and floodplain map are included in Appendix A.

Existing Conditions

The overall project was divided into five existing drainage basins (see predevelopment drainage map, Appendix B).

Basin 1 includes part of C.R. 532 east bound, approximately from stations 20+00 to 1+50 (center line of construction), part of Interstate 4 west bound, from station 89+50 to 100+00 (base line of survey), and Ramp C. Some of the stormwater runoff generated from this basin is collected by median inlets, some by gutter drains, and some is conveyed by shallow road side swales. This runoff discharges into a wetland area that occupies the south west area of the basin, and then through a 24" culvert under Ramp C to the adjacent wetlands. There is no existing permitted treatment facility in this basin. For predevelopment discharge rate the contributing area was flood routed through the existing wetland ("D").

Basin 2 includes C.R. 532 west bound from station 19+50 to station 11+40 (center line of construction), Interstate 4 east bound from station 0+00 to 11+00 (center line of construction), Interstate 4 west bound from station 0+00 to 11+50 (center line of construction), and Ramp B from station 200+00 to 210+50. Runoff from this basin is conveyed through gutter drains and swales under Interstate 4 to a wetland area on the west side of the basin. From this area the runoff overflows into an existing swale to the north which runs along Interstate 4. There is no existing treatment facility in this basin. For predevelopment discharge rate the contributory area was flood routed through the existing wetland "C".

Basin 3 includes the proposed Ramp B area from station 210+50 to 222+50 which is basically a natural grass area. Runoff from this area sheet flows into an existing swale which runs along Interstate 4 and flows to the north.

Basin 4 includes Interstate 4 east bound from station 11+00 to station 19+65 (center line of construction) and adjacent east watershed area. Runoff from this basin is conveyed through a gutter drain from Interstate 4 to a swale and then is conveyed to the north to Davenport Creek. There is no existing treatment for this basin.

Basin 5 includes the proposed Ramp A area from station 111+00 to 128+50. This is a natural grass area. Runoff from this area sheet flows into an existing swale which runs along Interstate 4 and flows to the north to Davenport Creek.

Proposed Conditions

The proposed drainage system consists of new swales, storm sewer systems, a wet detention pond, and a dry detention pond. The proposed treatment system will maximize stormwater treatment and minimize offsite discharges for existing roadways in order to compensate for the added impervious areas.

There are five drainage basins for the proposed conditions as shown on the post development drainage map included in Appendix B.

Basin 1 is the largest basin combining existing basin 1 and part of existing Basin 2. A wet detention pond proposed at the south west part of the basin will provide 1" of runoff treatment over the basin. New swales proposed along Ramp A, Ramp B, Ramp D, and C.R. 532 will convey runoff to a storm sewer system which outfalls into the pond. Two existing segments of Interstate 4 are directed into the pond to compensate for part of Ramp B that is not treated. The pond outfalls into a spreader swale which controls the water elevation at the seasonal high level. The swale overflows into the existing 24" culvert under Ramp C. A geotechnical investigation showed that the seasonal high water table in the area of the proposed pond will rise to level of approximately 3.0 ft below the existing ground, at elevation 113 ft NGVD (see Appendix C for geotechnical information). In addition the wetland that this pond discharges to is controlled by a culvert discharging to the west under the existing west bound on ramp. The invert of this culvert is at elevation 112.4 ft NGVD. There is no physical "staining" marks that would indicate there is water standing above elevation 112.4 for any significant period of time.

Basin 2 includes the remaining area of existing Basin 1 that is not directed into the pond. A storm sewer system is proposed to direct runoff between Ramp B and Interstate 4 to the north, after staging up to the predevelopment elevation within the wetland area "C".

Basin 3 is the same as existing Basin 3. A swale system is proposed along the proposed ramp to collect the runoff and direct it to the north.

Basin 4 is the same as existing Basin 4. A dry retention pond is proposed in this area. The pond provides treatment for a portion of Ramp A that sheet flows to it, and also for a portion of Interstate 4. The runoff treatment from Interstate 4 offsets the part of Ramp A that is not directed into the pond (Basin 5). The pond provides treatment of 0.75" of runoff over the entire basin 4. A geotechnical investigation showed that the seasonal high water table in the area of the proposed pond will rise to level approximately 8.0 ft below

July 1995

Revised: October 1995

4-2

BASIN 4

The limits of Basin 4 extend from station 83+50 to station 133+50 in the median, station 85+30 to station 133+50 to the left of I-4 and station 82+00 to station 138+00 to the right of I-4. Widening of I-4 will occur in the inside with the additional lanes sloping towards the median up until station 110+00 in which the widening then occurs to the outside.

This basin is located at the future Western Beltway and I-4 Interchange (FPID 4034972 32 01). It is anticipated that the Western Beltway project will follow the I-4 Six-Laning project. Since both of these projects have overlapping project limits, coordination is necessary for construction and permitting between the two projects. The following narratives discuss the construction packaging and the permitting packaging for both projects.

Construction Packaging

It is anticipated that construction of the I-4 Six Laning project will commence in 2003. Included in this project are the widening of I-4, the construction of the CR 545 Bridge replacement, auxiliary lanes along I-4, required for the proposed Interchange ramps, and Pond 4 (Pond F-2-A in the Western Beltway contract), including the outfall structure designed for future pavement area.

The Turnpike District will construct the interchange connecting the Beltway and I-4. Construction is anticipated to begin in 2005. Included in this project are the single lane ramps required for the interchange, in addition to the infield ponds within the interchange. Exhibit A depicts the intended construction packaging between the two projects.

Permitting Packaging

Because the wetland mitigation for the Western Beltway will be accomplished in accordance with the Beltway Bill and The Central Florida Beltway Mitigation Trust, the environmental permitting of the Turnpike project will occur with the Florida Department of Environmental Protection (FDEP). In this area, the I-4 Six-Laning project is located within the South Florida Water Management District (SFWMD), therefore; the project will be permitted through SFWMD.

The permit application submitted to FDEP by the Turnpike District will include the dual lane ramps, the CR 545 Bridge replacement, the six-laning of I-4, and all ponds within the following limits along

I-4:

From: STA 85+30 left, STA 83+50 median, STA 82+00 right (Baseline Survey SR 400)

To: STA 133+50 left, STA 133+50 median, STA 138+00 right (Baseline Survey SR 400)

In addition, the Turnpike permit will address all wetland and floodplain impacts along I-4, within the above limits. See Exhibit B for a depiction of these limits.

The District 5 permit to SFWMD will include all improvements, including auxiliary lanes and tapers, east of the eastern divide, and west of the western divide. The District 5 permit will address all wetlands and floodplain impacts along I-4, beyond the above limits. In addition, it will include an "interim condition" for improvements associated with the I-4 widening construction package within the I-4 limits described above, because these improvements will precede the construction of the entire interchange by two years. The "interim condition" permit will correspond to the proposed District 5 construction within these limits, including Pond 4 (Pond F-2-A). The outfall structure for this pond will be designed and constructed for the ultimate condition. Exhibit C shows a depiction of impervious areas contributing to Pond 4 (Pond F-2-A) in the interim and future conditions. The CR 545 Bridge will be an "in-kind" replacement of the existing bridge and approach roadway, therefore, no stormwater treatment or attenuation is proposed for this facility in the interim condition.

EXISTING (PRE-DEVELOPMENT) CONDITIONS

The existing median and travel lanes within the limits of this basin are currently untreated. Runoff from the travel lanes combines with offsite flow in the roadside ditches and flow towards the double 7' x 4' box culvert at station 105+50. The existing box culvert conveys water from the west side of I-4 to the east side of I-4 to a tributary that eventually makes its way to the Reedy Creek system.

PROPOSED (POST-DEVELOPMENT) CONDITIONS

The "interim condition" consist of widening an additional lane to the inside of I-4 up until Station 110+00, in which the widening transitions to the outside. Also, the inside shoulder is proposed to be widened from the existing 4' shoulder pavement to the proposed 10' shoulder pavement.

The limits of the "interim condition" area that will be treated in Pond 4 are from Station 83+50 to Station 103+00 in the median and from Station 82+00 to Station 102+00 of eastbound I-4. Refer to Exhibit C for a depiction of the "interim" and ultimate basin areas. The proposed pond will discharge to the downstream end of the double 7' x 4' box culvert located at Station 105+50.

It was agreed that floodplain and wetland impacts within the limits described under the permitting packaging section will be addressed under the Turnpike permit. For the "interim condition", the proposed new pavement east of the box culvert at Station 105+50 will not be able to be treated in Pond 4. This is because of hydraulic difficulties in conveying stormwater via stormsewer or ditches across the box culvert. However, existing pavement that was not treated before, will be treated to compensate for this area. The proposed pavement untreated amounts to 1.50 acres and the existing pavement treated is 1.84 acres.

POND 4 DESIGN (POND F-2-A IN BELTWAY CONTRACT)

Pond 4 is a wet detention system. In accordance with SFWMD criteria, the pond provides water quality detention (or pollution abatement) of the first 1" of runoff from the total contributing area or 2.5" of runoff from the impervious area, whichever is greater.

The control structure of this pond has been designed to accommodate the ultimate Western Beltway Interchange and to ensure that the post-development peak rate of discharge does not exceed the pre-development peak rate of discharge for the 10 year / 72 hour storm (per SFWMD criteria). The 50 year / 72 hour storm is also routed through the pond to determine the discharge rate for the impact fee as imposed by the Reedy Creek Improvement District (RCID) for systems discharging into RCID fee collection boundary. It was agreed by District 5 and the Turnpike District that the RCID impact fee within the limits of the Turnpike permit boundary, will be paid by the Turnpike District and beyond these limits, District 5 will pay for the impact fee. The orifice has been designed to recover ½" of the detention volume in 24 hours (per SFWMD criteria).

SECTION INFORMATION

This section contains the pre-development and post-development basin maps, basin area calculations which include the Santa Barbara worksheet, DCIA (Directly Connected Impervious Area), water surface area, %DCIA, NDCIA (Non-Directly Connected Impervious Area); composite Curve Number (CN) and Time of Concentration (Tc) calculations. Also included are: treatment volume calculation worksheet which provides the pollution abatement volume required and provided and the recovery volume required; stage/storage worksheet; pond area calculations; nodal diagrams for the AdICPR model, pre-development and post-development hydrographs for the 10yr/72hr and 50yr/72hr events; post-development routing models for the 10yr/72hr and 50yr/72hr storm events and Exhibits A, B and C which show limits coordination between the I-4 Six-Laning and the Western Beltway Interchange projects.

URS Greiner Woodward Clyde

BASIN 4 SUMMARY

BASIN #4	AREA (ac)		DISCHARGE (cfs) 10yr/72hr		DISCHARGE (cfs) 50yr/72hr	
	PRE	POST	PRE	POST	PRE	POST
B4	21.05	15.74	26.94	24.97	40.37	35.35
B4EB	7.06	12.55	12.17	1.04	18.38	2.61
Total	28.11	28.29	39.11	26.01	58.75	37.96

Required Treatment Volume	1.05 ac-ft
Provided Treatment Volume	1.32 ac-ft
Pond 4 NWL	93.20 ft
Pollution Abatement Volume el	94.00 ft
Design High Water el (10yr/72hr)	
Pond 4	95.00 ft
Design High Water el (50yr/72hr)	
Pond 4	95.53 ft
Orifice Diameter	3.50 in
Recovery Volume	0.52 ac-ft
Recovery Time	24.50 hrs

100 yr Floodplain Elevation	95.18 ft
Floodplain impacts	0 ac-ft
Volume Available in pond for floodplain compensation	3.56 ac-ft

Proposed Pavement Untreated	1.50 ac
Existing Pavement Treated	1.84 ac
Existing Treated > Proposed Untreated?	Yes

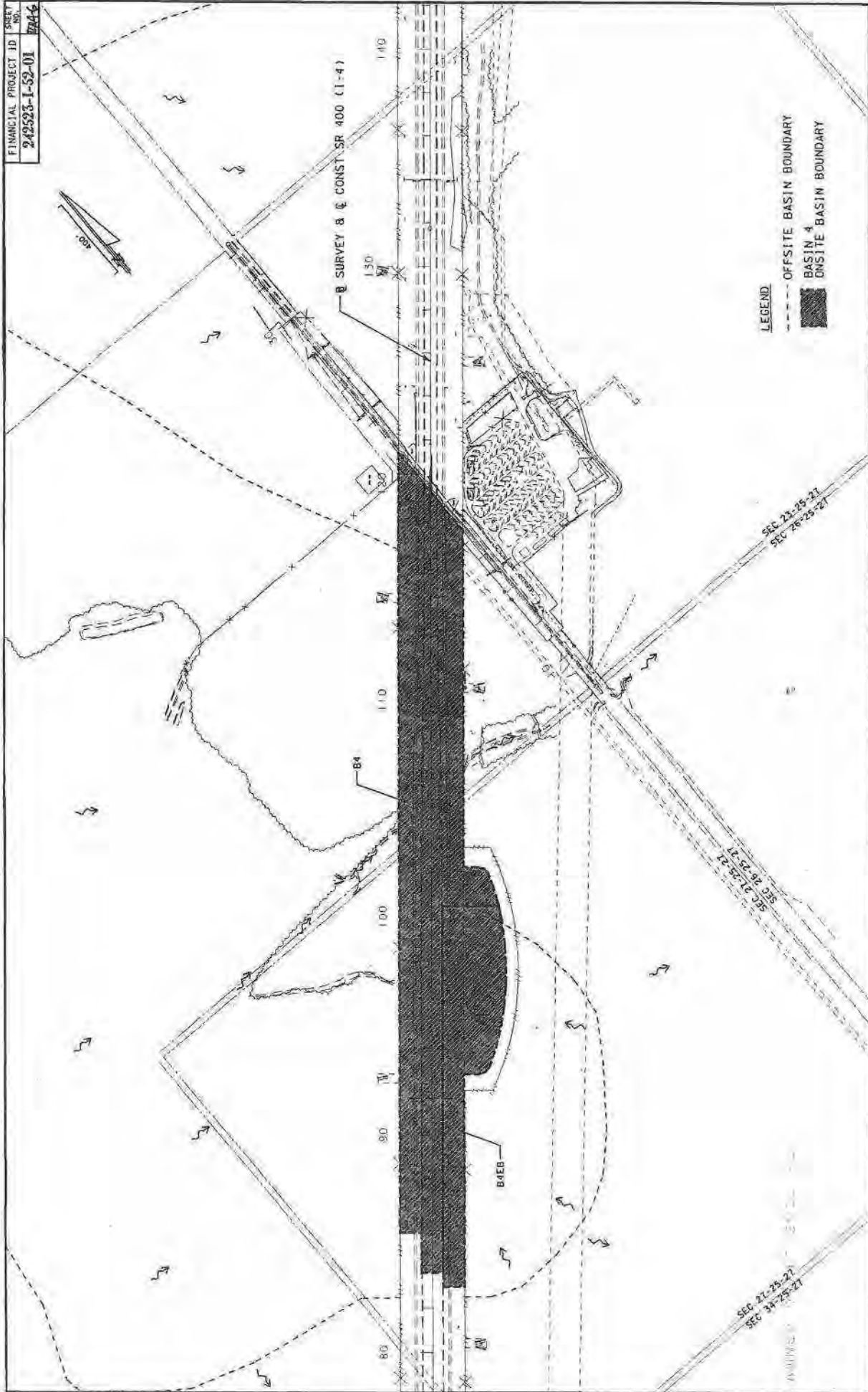
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SCANNED 08/17/2011 PL

BASIN 4

PRE-DEVELOPMENT

FINANCIAL PROJECT ID: 242523-1-52-01
 SHEET NO.: 2446



LEGEND
 --- OFFSITE BASIN BOUNDARY
 ■ BASIN 4
 ■ ONSITE BASIN BOUNDARY

BASIN 4
 PRE DEVELOPMENT BASIN

URS
 345 E. WASHINGTON, SUITE 200
 PALMDALE, CA 93551-3877
 PH: (661) 422-1053 FAX: (661) 422-0995
 www.urscorp.com

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

NO.	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY

SCANNED 08/17/2011 11:01:01 PM

BASIN 4

PRE-DEVELOPMENT HYDROLOGY

URS Greiner Woodward Clyde				
PROJECT TITLE:	I-4 SIX LANE			
PROJECT NUMBER:	V100264.03			DATE
BASIN DESIGNATION:	B4	MADE BY:	REC	14-Mar-01
BASIN ANALYSIS (PRE/POST):	PRE	CHECKED BY:	SJH	2/21/01

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		4.64
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		4.64
NON - DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	22.04%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	16.41
CN AREA	(BASIN AREA - DCIA)	16.41
TOTAL BASIN AREA		21.85

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space - good	Candler	A	39	16.41	639.99
TOTALS				16.41	639.99

COMPOSITE CN	39.0
---------------------	-------------

URS Greiner Woodward Clyde				
PROJECT TITLE:	I-4 SIX LANING			
PROJECT NUMBER:	V100264.03			DATE
BASIN DESIGNATION:	B4EB	MADE BY:	REC	14-Mar-01
BASIN ANALYSIS (PRE/POST):	PRE	CHECKED BY:	SJH	8/31/01

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (ac)
BUILDING		
DRIVEWAY		
ROADWAY		1.37
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		1.37
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	19.41%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	5.69
CN AREA	(BASIN AREA - DCIA)	5.69
TOTAL BASIN AREA		7.06

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space - good	Candler	A	39	5.69	221.91
TOTALS				5.69	221.91

COMPOSITE CN	39.0
---------------------	-------------

filename: b4ebcn.xls
worksheet: PRE CN

URS Greiner Woodward Clyde - Orlando

TIME OF CONCENTRATION

PROJECT TITLE: I-4 SIX LANING
PROJECT NUMBER: V10026403
BASIN NAME: B4

CONDITIONS	
Pre-Development	X
Post-Development	
Rainfall Zone:	7

COMPUTED VARIABLE	
T _c	X
T _i	
Frequency:	10

Water Resources Group	Date
Computed By <i>RAC</i>	14-Mar-2001
Checked By <i>SK</i>	3/20/01

SHEET FLOW (Applicable To T_c Only)

- 1) SURFACE DESCRIPTION (table 5-4)
- 2) MANNING'S ROUGHNESS COEFF., [n] (table 5-4)
- 3) FLOW LENGTH, [L] (TOTAL L <= 300 ft)
- 4) HIGH ELEVATION, [A]
- 5) LOW ELEVATION, [B]
- 6) RAINFALL INTENSITY, [i]
- 7) LAND SLOPE, [s]
- 8) COMPUTE T_c: $T_c = (.93 * (n * L)^{0.6}) / (i^{0.4} * S^{0.3})$

Segment ID			
	ft		
	ft		
	ft		
	in/hr	3.53	
	ft/ft		
	hr	+	
			=
			min =

SHALLOW CONCENTRATED FLOW

- 9) SURFACE DESCRIPTION Enter 1 (Paved) or 2 (Unpaved)
- 10) FLOW LENGTH, [L]
- 11) HIGH ELEVATION, [C]
- 12) LOW ELEVATION, [D]
- 13) WATERCOURSE SLOPE, [s]
- 14) AVERAGE VELOCITY, [V] **
- 15) COMPUTE T_i: $T_i = L / 3600 * V$

Segment ID			
	ft		
	ft		
	ft		
	ft/ft		
	ft/sec		
	hr	+	
			=
			min =

CHANNEL FLOW

- 16) DEPTH OF FLOW
- 17) FRONT SLOPE (Z:1)
- 19) BACK SLOPE (Z:1)
- 21) BOTTOM WIDTH
- 22) GROSS SECTIONAL FLOW AREA, [a]
- 23) WETTED PERIMETER, [P_w]
- 24) HYDRAULIC RADIUS, [r] = a / P_w
- 25) FLOW LENGTH, [L]
- 26) HIGH ELEVATION, [D]
- 27) LOW ELEVATION, [E]
- 28) CHANNEL SLOPE, [s]
- 29) MANNING'S ROUGHNESS COEFF., [n]
- 30) COMPUTE V: $V = (1.49 * r^{2/3} * S^{1/2}) / n$
- 31) COMPUTE T_i: $T_i = L / 3600 * V$

Segment ID	A-B		
	ft	0.50	
		6.00	
		4.00	
	ft		
	ft ²	1.25	
	ft	5.10	
	ft	0.24	
	ft	1550	
	ft	100.16	
	ft	94.00	
	ft/ft	0.0040	
		0.060	
	ft/sec	0.61	
	hr	0.70	+
			=
			0.70
			min =
			42.3

* See spreadsheet for Trial & Error tabulation
** Reference: FDOT Drainage Manual Chapter 5.5, TR-55 Chapter 3 & APP-F.

TOTAL TIME (hr) **0.70**
TOTAL TIME (min) **42.3**

TIME OF CONCENTRATION

PROJECT TITLE: I-4 SIX LANE
PROJECT NUMBER: V10026403
BASIN NAME: B4EB

CONDITIONS	
Pre-Development	X
Post-Development	
Rainfall Zone:	7

COMPUTED VARIABLE	
T _c	X
T ₁	
Frequency:	10

Water Resources Group	Date
Computed By: <i>REL</i>	14-Mar-2001
Checked By: <i>G+H</i>	8/31/01

SHEET FLOW (Applicable To T_c Only)

- 1) SURFACE DESCRIPTION (table 5-4)
- 2) MANNING'S ROUGHNESS COEFF., [n] (table 5-4)
- 3) FLOW LENGTH, [L] (TOTAL L <= 300 ft)
- 4) HIGH ELEVATION, [A]
- 5) LOW ELEVATION, [B]
- 6) RAINFALL INTENSITY, [i]
- 7) LAND SLOPE, [s]
- 8) COMPUTE T_c: $T_c = (.93 * (n * L)^{0.6}) / (i^{0.4} * S^{0.3})$

Segment ID			
	ft		
	ft		
	ft		
	in/hr	4.78	
	ft/ft		
	hr		
		+	
		=	
		min =	

SHALLOW CONCENTRATED FLOW

- 9) SURFACE DESCRIPTION Enter 1 (Paved) or 2 (Unpaved)
- 10) FLOW LENGTH, [L]
- 11) HIGH ELEVATION, [C]
- 12) LOW ELEVATION, [D]
- 13) WATERCOURSE SLOPE, [s]
- 14) AVERAGE VELOCITY, [V] **
- 15) COMPUTE T_c: $T_c = L / 3600 * V$

Segment ID			
	ft		
	ft		
	ft		
	ft/ft		
	ft/sec		
	hr		
		+	
		=	
		min =	

CHANNEL FLOW

- 16) DEPTH OF FLOW
- 17) FRONT SLOPE (Z:1)
- 19) BACK SLOPE (Z:1)
- 21) BOTTOM WIDTH
- 22) CROSS SECTIONAL FLOW AREA, [a]
- 23) WETTED PERIMETER, [P_w]
- 24) HYDRAULIC RADIUS, [r] = a / P_w
- 25) FLOW LENGTH, [L]
- 26) HIGH ELEVATION, [D]
- 27) LOW ELEVATION, [E]
- 28) CHANNEL SLOPE, [s]
- 29) MANNING'S ROUGHNESS COEFF., [n]
- 30) COMPUTE V: $V = (1.49 * r^{2/3} * S^{1/2}) / n$
- 31) COMPUTE T_c: $T_c = L / 3600 * V$

Segment ID	A-B		
	ft	0.50	
		6.00	
		4.00	
	ft		
	ft ²	1.25	
	ft	5.10	
	ft	0.24	
	ft	1300	
	ft	112.97	
	ft	95.99	
	ft/ft	0.0131	
		0.060	
	ft/sec	1.11	
	hr	0.33	
		+	
		=	0.33
		min =	19.6

* See spreadsheet for Trial & Error tabulation
** Reference: FDOT Drainage Manual Chapter 5.5, TR-55 Chapter 3 & APP-F.

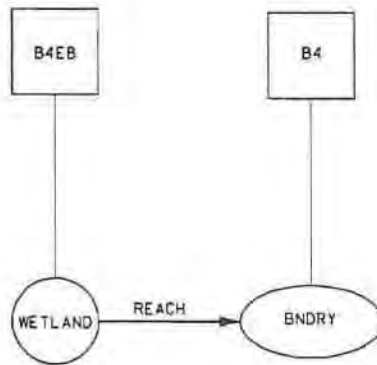
TOTAL TIME (hr)	0.33
TOTAL TIME (min)	19.6

SCANNED 08/17/2011 PL

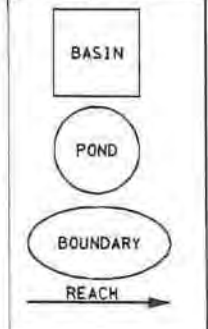
BASIN 4

PRE-DEVELOPMENT 10YR/72HR & 50YR/72HR ROUTING MODEL

SCHEDULED FOR LITIGATION



LEGEND



Thu Mar 15 11:06:54 2001
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 \\V1_NT1\SPDL\PL02\B4PREN00.plt
 RCHW
 F:\TABLE\format.tbl

S.R. 400 (I-4) Polk County Line to SR 530 (US 192)

DRAWN BY: REC

CHECKED BY:

URS Greiner Woodward Clyde

BASIN 4
PRE-DEVELOPMENT
NODAL DIAGRAM

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

5/11/01

BASIN 4, PRE DEVELOPMENT, 10YR/72HR
03/14/01

BASIN NAME	B4	B4EB
NODE NAME	BNDRY	WETLAND
TIME INCREMENT (min)	5.00	5.00
RAINFALL FILE	SFWM72	SFWM72
RAIN AMOUNT (in)	10.19	10.19
STORM DURATION (hrs)	72.00	72.00
AREA (ac)	21.05 ✓	7.06 ✓
CURVE NUMBER	39.00 ✓	39.00 ✓
DCIA (%)	22.04 ✓	19.41 ✓
TC (mins)	42.30 ✓	19.60 ✓
LAG TIME (hrs)	.00	.00
BASIN STATUS	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
B4	26.94	60.00	3.94	
B4EB	12.73	59.92	3.73	

URS Greiner Woodward Clyde

MADE BY: MPL DATE: 02/07/00 JOB NO. V100264.03
 CHECKED BY: REC DATE: 2/8/00 SHEET NO.
 CALCULATIONS FOR: I-4 SIX LANING POND: EXIST TP-2 BASIN: B6E

Water Quality

Total Basin Area = 12.43 ac
 Paved Area = 7.14 ac
 Pond Area at NWL = 2.63 ac

A. 1.0 " Over Total Basin Area = 1.04 Ac-Ft
 B. 2.5 " Over Paved Area = 1.49 Ac-Ft
 Required PAV = 1.49 Ac-Ft

Stage Storage Calculations

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
77.15	3.23				6.59
		3.01	1.65	4.97	
75.50 (PAV)	2.79				1.63
		2.71	0.60	1.63	
74.90 (NWL)	2.63				

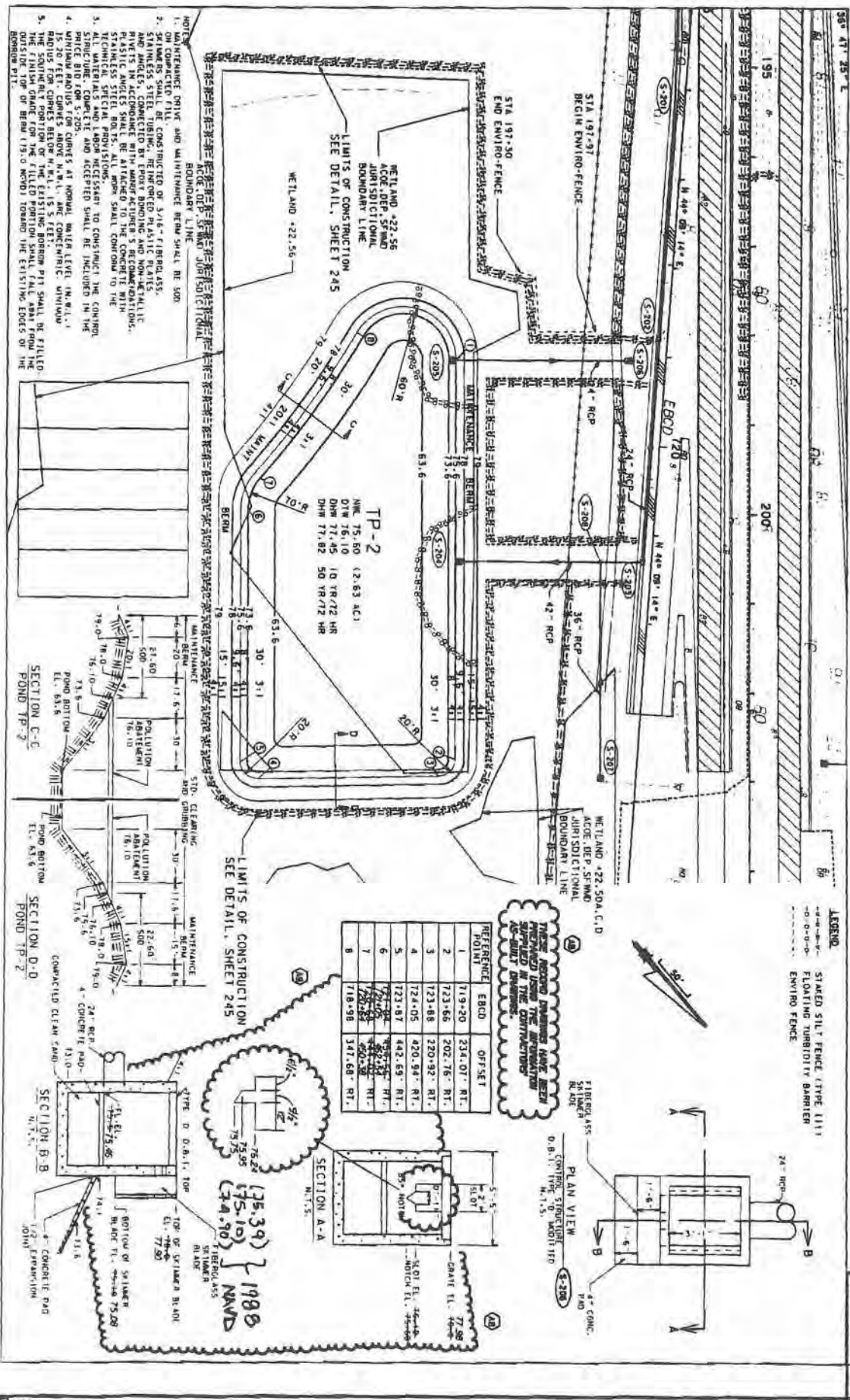
Bleed Down Volume

1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.52 \text{ Ac-Ft}$

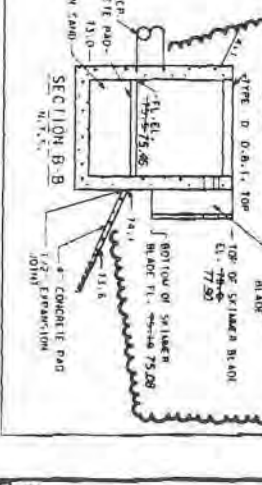
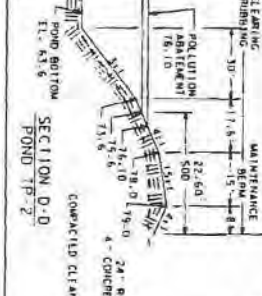
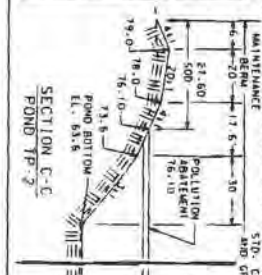
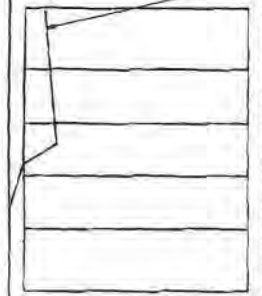
Volume Remaining in Pond after Bleed Down = $\text{PAV} - \text{Bleed Down Volume} = 1.11 \text{ Ac-Ft}$

*** AS BUILT DRAWING FOR POND TP-2 (ALL ELEVATIONS SHOWN IN 1929 NGVD)**

STATE PROJ. NO. 92130-3490 74



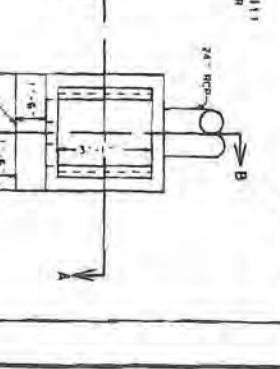
1. ON COMPACTED FILL.
2. STRIKERS SHALL BE CONSTRUCTED OF 3/4" x 1/4" RIBBONS, AND SHALL BE CONNECTED BY FIVE BARS PER LINE. THE STRIKERS SHALL BE ATTACHED TO THE CONCRETE WITH PLASTIC ANCHORS SHALL BE ATTACHED TO THE CONCRETE WITH TECHNICAL SPECIAL PROVISIONS.
3. ALL MATERIALS AND LABOR NECESSARY TO CONSTRUCT THE CONCRETE STRUCTURE COMPLETE AND ACCEPTED SHALL BE INCLUDED IN THE QUANTITY LIST.
4. FINISH RADIUS FOR CURVES AT NORMAL WATER LEVEL (N.W.L.) SHALL BE 15.20 FEET. CURVES ABOVE N.W.L. AND CONCENTRIC WITHIN RADIUS FOR CURVES BELOW N.W.L. IS 5 FEET.
5. THE FINISH GRADE FOR THE FILLED PORTION SHALL TAKE FROM THE OUTSIDE TOP OF BRAM (19.0' MOD) TOWARD THE EXISTING EDGES OF THE BOUNDARY PIT.



TP-2
 H.W. 75.60 (2.63 A.C.I.)
 D.M. 71.45
 D.M. 71.02
 50 YR. 72 HR.

THESE RECORD DRAWINGS HAVE BEEN PREPARED USING THE INFORMATION SUPPLIED IN THE CONTRACTOR'S AS-BUILT DRAWINGS.

REFERENCE POINT	EBOD	OFFSET
1	719.20	334.07' RT.
2	723.66	202.76' RT.
3	723.88	220.92' RT.
4	724.05	420.94' RT.
5	723.87	442.69' RT.
6	724.05	459.75' RT.
7	720.25	450.30' RT.
8	718.98	347.68' RT.



1988
 (75.39)
 (75.10)
 (74.90)
 N.A.M.D.

1136-71

WATER QUALITY:

Water quality treatment equal to 2.5 inches times the percentage of impervious coverage is provided in 6 wet detention ponds.

Basin	Treatment Method	Vol Req'd. (ac-ft)	Vol Prov'd (ac-ft)
TP-2	2.6 acres WET DETENTION	1.35	1.35
TP-3A & TP-3B	2 acres WET DETENTION	1.80	1.80
TP-4	3.7 acres WET DETENTION	2.10	2.10
TP-5	.7 acres WET DETENTION	0.37	0.37
TP-6	2.6 acres WET DETENTION	1.76	3.30
TP-7A & TP-7B	1.8 acres WET DETENTION	0.50	0.50

ROAD DESIGN:

As shown in the following table, minimum road center lines have been set at or above the calculated design storm flood elevation.

Design Storm Freq: 10 YR/72 HR

Design Rainfall: 10.20 inches

Basin	Flood Elevation (ft., NGVD)	Minimum Centerline Elevation (ft., NGVD)
TP-2	77.5	80.9
TP-3A & TP-3B	81.8	82.5
TP-4	74.4	84.7
TP-5	85.6	87.7
TP-6	84.9	86.3
TP-7A & TP-7B	86.9	88.9

IV. ENVIRONMENTAL ASSESSMENT

PROJECT SITE DESCRIPTION:

The 82.22 acre project site contains 4.49 acres of wetlands, 4.46 acres of open water habitat within a manmade borrow pond and ditches and 73.27 acres of uplands consisting primarily of flatwoods, hardwood/conifer mixed forests and existing disturbed right-of-way.

The majority of these wetland impacts and associated mitigation were previously permitted under the Disney Master Development Plan permit (#48-00714-S).

A portion (0.75 acre) of Wetland 20.4A lies within the project limits and will

SPECIAL CONDITIONS

1. MINIMUM ROAD CROWN ELEVATION: BASIN: TP-2 - 77.50 FEET NGVD.
BASIN: TP-3A & TP-3B - 82.50 FEET NGVD.
BASIN: TP-4 - 84.70 FEET NGVD.
BASIN: TP-5 - 87.70 FEET NGVD.
BASIN: TP-6 - 86.30 FEET NGVD.
BASIN: TP-7A & TP-7B - 88.90 FEET NGVD.

2. DISCHARGE FACILITIES:

BASIN: CP-2:

1-4.5' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 74.5' NGVD.
19 LF OF 1.5' DIA. RCP CULVERT.
1-3' W X 4.5' L DROP INLET WITH CREST AT ELEV. 75.9' NGVD.

RECEIVING BODY : REEDY CREEK VIA SPREADER SWALE

CONTROL ELEV : 74.5 FEET NGVD. /74.5 FEET NGVD DRY SEASON.

BASIN: TP-2:

1-2' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 76.1' NGVD.
1-85 DEG. V-NOTCH WITH INVERT AT ELEV. 75.6' NGVD.
175 LF OF 2' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA ADJACENT WETLANDS

CONTROL ELEV : 75.6 FEET NGVD. /75.6 FEET NGVD DRY SEASON.

BASIN: TP-3A & TP-3B:

1-2' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 80.35' NGVD.
1-26 DEG. V-NOTCH WITH INVERT AT ELEV. 79.5' NGVD.
118 LF OF 2' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA ADJACENT WETLANDS

CONTROL ELEV : 79.5 FEET NGVD. /79.5 FEET NGVD DRY SEASON.

BASIN: TP-4:

1-7' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 73.57' NGVD.
1-70 DEG. V-NOTCH WITH INVERT AT ELEV. 73' NGVD.
60 LF OF 2.5' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA SPREADER SWALE

SPECIAL CONDITIONS

- I. MINIMUM ROAD CROWN ELEVATION: BASIN: TP-2 - 77.50 FEET NGVD.
BASIN: TP-3A & TP-3B - 82.50 FEET NGVD.
BASIN: TP-4 - 84.70 FEET NGVD.
BASIN: TP-5 - 87.70 FEET NGVD.
BASIN: TP-6 - 86.30 FEET NGVD.
BASIN: TP-7A & TP-7B - 88.90 FEET NGVD.

2. DISCHARGE FACILITIES:

BASIN: CP-2:

1-4.5' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 74.5' NGVD.
19 LF OF 1.5' DIA. RCP CULVERT.

1-3' W X 4.5' L DROP INLET WITH CREST AT ELEV. 75.9' NGVD.

RECEIVING BODY : REEDY CREEK VIA SPREADER SWALE

CONTROL ELEV : 74.5 FEET NGVD. /74.5 FEET NGVD DRY SEASON.

BASIN: TP-2:

1-2' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 76.1' NGVD.

1-85 DEG. V-NOTCH WITH INVERT AT ELEV. 75.6' NGVD.

175 LF OF 2' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA ADJACENT WETLANDS

CONTROL ELEV : 75.6 FEET NGVD. /75.6 FEET NGVD DRY SEASON.

BASIN: TP-3A & TP-3B:

1-2' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 80.35' NGVD.

1-26 DEG. V-NOTCH WITH INVERT AT ELEV. 79.5' NGVD.

118 LF OF 2' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA ADJACENT WETLANDS

CONTROL ELEV : 79.5 FEET NGVD. /79.5 FEET NGVD DRY SEASON.

BASIN: TP-4:

1-7' WIDE SHARP CRESTED WEIR WITH CREST AT ELEV. 73.57' NGVD.

1-70 DEG. V-NOTCH WITH INVERT AT ELEV. 73' NGVD.

60 LF OF 2.5' DIA. RCP CULVERT.

RECEIVING BODY : REEDY CREEK VIA SPREADER SWALE

BASIN INFORMATION:

Basin	Area Acres	WSWT Elev (ft, NGVD)	Normal/Dry Ctrl Elev (ft, NGVD)	Method of Determination
CP-2	.60	75.00	74.5/74.5	WET SEASON SOIL BORINGS
TP-2	12.17	75.60	75.6/75.6	WET SEASON SOIL BORINGS
TP-3A & TP-3B	13.00	80.00	79.5/79.5	WET SEASON SOIL BORINGS
TP-4	15.47	74.00	73/73	WET SEASON SOIL BORINGS
CP-4A & CP-4B	2.87	86.00	83/83	WET SEASON SOIL BORINGS
TP-5	3.17	83.00	83/83	WET SEASON SOIL BORINGS
CP-5	1.48	85.00	83/83	WET SEASON SOIL BORINGS
TP-6	11.85	86.00	82/82	WET SEASON SOIL BORINGS
TP-7A & TP-7B	5.65	87.00	85.5/85.5	WET SEASON SOIL BORINGS

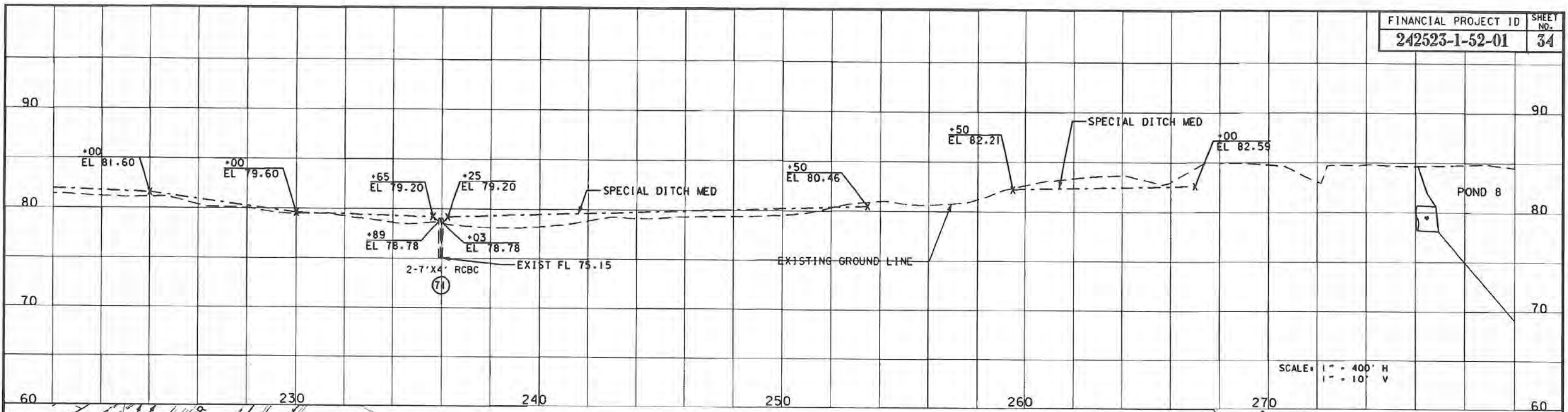
DISCHARGE STRUCTURE INFORMATION:

Water Quality Structures:

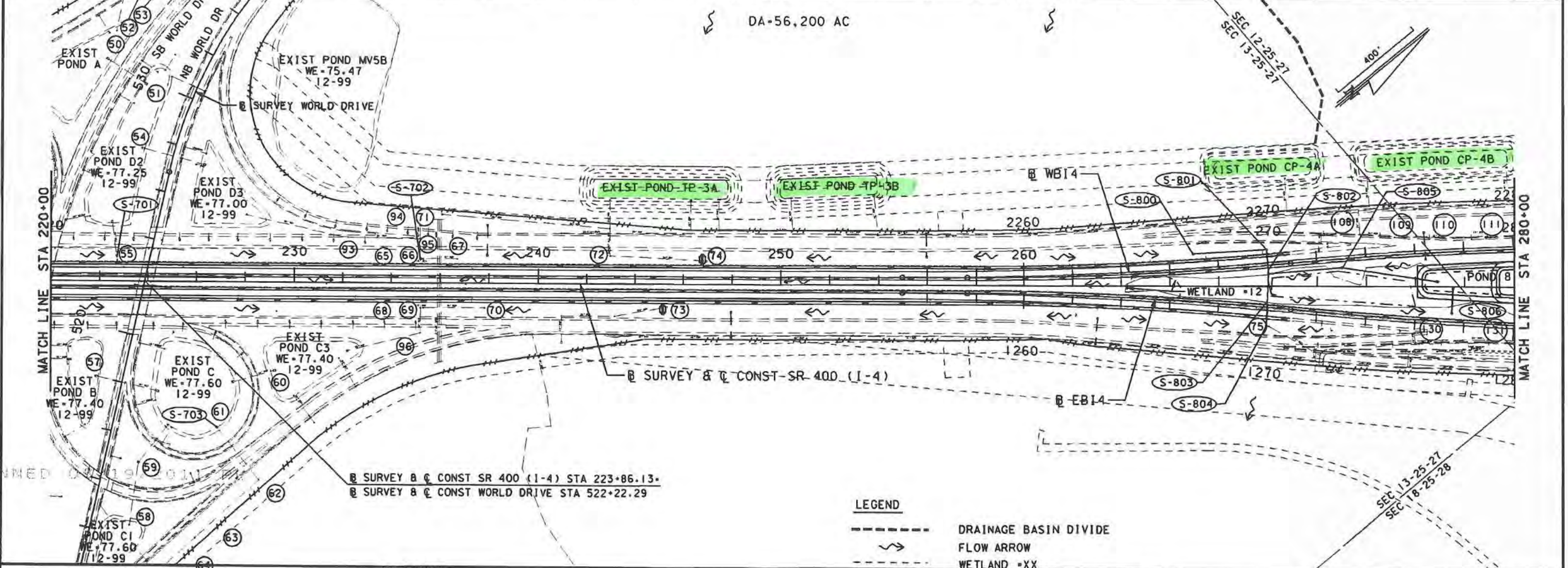
Basin	Str. #	Bleeder Type	Dimensions	Invert Elev. (ft, NGVD)
TP-2	1	V-NOTCH	85 degrees	75.60
TP-3A & TP-3B	1	V-NOTCH	26 degrees	79.50
TP-4	1	V-NOTCH	70 degrees	73.00
TP-5	1	V-NOTCH	20 degrees	83.00
TP-6	1	V-NOTCH	40 degrees	82.00
TP-7A & TP-7B	1	V-NOTCH	120 degrees	85.50

Major Discharge Structures:

Basin	Str. #	Description	Crest Elev. (ft, NGVD)
CP-2	1	4.5' wide SHARP CRESTED weir	74.50
CP-2	1	3' wide X 4.5' long drop inlet	75.90
TP-2	1	2' wide SHARP CRESTED weir	76.10
TP-3A & TP-3B	1	2' wide SHARP CRESTED weir	80.35
TP-4	1	7' wide SHARP CRESTED weir	73.57
CP-4A & CP-4B	1	8' wide SHARP CRESTED weir	83.00
TP-5	1	10' wide SHARP CRESTED weir	83.55



SCALE: 1" = 400' H
1" = 10' V



☐ SURVEY & CONST SR 400 (I-4) STA 223+86.13
☐ SURVEY & CONST WORLD DRIVE STA 522+22.29

LEGEND

----- DRAINAGE BASIN DIVIDE

→ FLOW ARROW

--- WETLAND ---XX

DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1915
PH (407) 422-0353 FAX (407) 423-2595
NO. 000002

DRAINAGE MAP

Permit No. 49-00792-S

Application No. 030115-14

State Road 400 (I-4) and State Road 530 (US 192)
Interchange

BASIN 1
ALTERNATIVE 1

BASIN 1 (ALTERNATIVE 1)

The limits for Basin 1 are presented in the colored map included in this section. This alternative proposes a combination of two interconnected wet detention ponds (Pond 1A and 1B) located in the existing overhead power easement west of I-4, between stations 312+00 to 322+00.

In the existing condition, the historic pre-development condition was used in lieu of the current existing condition. In the current existing conditions, attenuated discharge flows out of the existing ponds TP-7A and TP-7B, built under the I-4 CD Roads project. These ponds will be eliminated due to the proposed horizontal alignment of westbound CD. It will be shown that there is not an increase of discharge on the post development ultimate condition. Pre vs Post discharge through the bifurcation will be compared during final design.

Ponds 1A and 1B were sized to meet discharge criteria between pre and post-development conditions and to provide treatment of the ultimate build-out of I-4. The control elevation of the ponds were set at the normal pool elevation of the surrounding wetlands to prevent lowering the water table and degrading the quality of the wetlands. The wetlands in the power easement, proposed to be removed by the construction of Ponds 1A and 1B, were analyzed for quality by EMS. The results indicate that these wetlands have been degraded due to construction of the maintenance access road in the power easements (see Appendix C, for a technical memo from EMS). Also, the wetlands are part of the Long Term Permit application and slated for impacts by the construction of the overhead electric transmissions. Therefore, impacts to these wetlands are not expected to be significant since they have already been degraded to a lower quality than the wetlands located to the west of the power easement.

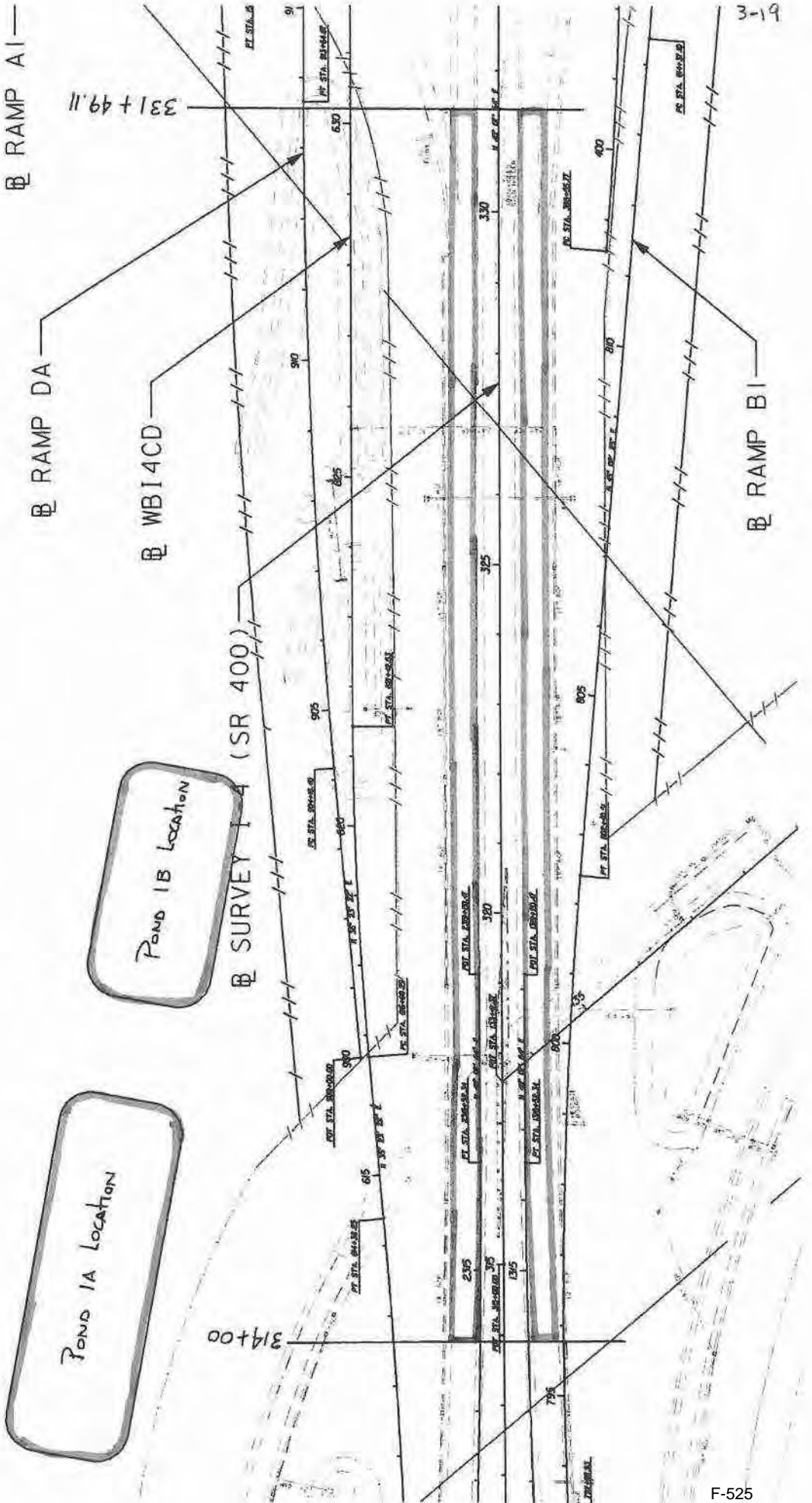
There will be some proposed pavement that will not be able to be treated into Ponds 1A and 1B due to the existing profile of I-4 being too low in comparison with the control elevation of the ponds. It was determined that in the ultimate condition, from station 306+00 to 314+00, I-4 and the adjacent ramps within these limits, will not be able to be treated into a stormwater management facility. In the interim condition, from station 314+00 to 317+00, westbound and eastbound I-4, ramp B1 and WBCD, within these limits, will have to go untreated. Pavement compensation, which consists of treating existing pavement not currently treated, to compensate for proposed pavement not being able to be treated, will be provided. The compensation for the proposed pavement not treated within these limits will be provided in the northwest side of the interchange.

Following are drainage calculations for this alternative, which includes: basin calculations, CN and Tc worksheets, pond calculations, hydraulic calculations and pavement compensation calculations.

PRE DEVELOPMENT (HISTORIC) CONDITION

$1" = 200'$

□ BASIN AREA (9.30AC)



URSJob I-4 / US 192 Int.Project No. V100385.00Page 1 of Description BASIN 1 (ALT. 1)Computed by RECSheet of ULTIMATEChecked by SJHDate 11/1/00Date 11/20/00

Reference

Description :

The Location of the proposed wet detention ponds are in the power easements, west of THE Southern Connector Extension BRIDGE over I-4. The control of the ponds will be set at the normal pool elevation of the surrounding wetlands. This alternative is preferred since it does not require taking valuable Disney property. The ponds will be designed to accommodate the ultimate PAVEMENT

Computation:

Normal Pool of surrounding wetland = 86.56 (1929 NGVD)
= 85.51 (1988 NAVD)

SET NWL at 85.50

Preliminary Pond Stage / Storage :

	STAGE (FT)	AREA (AC)	STORAGE (AC-FT)
NWL	85.50	2.16	
IS	88.00	2.62	
OB	89.00	3.36	

Preliminary Water Quality :

(i) TRIAL & Error :

Assume from 306+00 TO 314+00, Proposed Impervious CANNOT BE TREATED DUE TO ELEVATION difference between I-4 and the pond control elev. (I-4 too Low)

Job I-4/US 192 Int.

Project No. V100385.00

Page 4 of

Description BASIN 1 (ALT. 1)

Computed by REC

Sheet of

ULTIMATE

Checked by SWH

Date 11/1/00

Date 12/20/00

Reference

Find PRE DEVELOPED runoff :

Basin Area (historically)

ImperVIOUS = $(33149.11 - 31400)(24 + 24 + 10 + 10) / 43560 = 2.73 \text{ AC}$ ^{1.5} M'

PERVIOUS = $(33149.11 - 31400)(80) / 43560 = 3.21 \text{ AC}$ M'

POND AREA = 3.36 AC

TOTAL BASIN AREA = 9.30 AC M'

From Soils Map, soils are Immokalee and Arcents A/D

use "D", CN = 80 (open space - good)

Find Tc :

Ditch flow on the WB Lane of I-4 will determine the Tc

Ditch Length = 1350'

High point = 84.81 } From EXIST I-4 PLANS STA 331+50

Low point = 84.16 } STA 318+00

depth of flow = 0.5' (Assume)

RT & LT side slopes = 4:1



PROJECT TITLE: US 192 / I-4 INTERCHANGE				
PROJECT NUMBER:	V100385.00			DATE
BASIN DESIGNATION:	BASIN 1 (ULTIMATE)	MADE BY:	REC	01-Nov-00
BASIN ANALYSIS (PRE/POST):	PRE	CHECKED BY:	SJA	12/20/00

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (a)
BUILDING		
DRIVEWAY		
ROADWAY		2.73
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		2.73
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	29.35%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	6.57
CN AREA	(BASIN AREA - DCIA)	6.57
TOTAL BASIN AREA		22.91

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (a)	PRODUCT
Open Space - good	Immokalee, Arents	A/D	80	3.21	256.80
Pond location	Immokalee	A/D	80	3.36	268.80
TOTALS				6.57	525.60

COMPOSITE CN	30.0
---------------------	-------------

filename: basin1ult.xls
worksheet: PRE CN

URS - Orlando

TIME OF CONCENTRATION

PROJECT TITLE: I-4/US 192 Interchange
 PROJECT NUMBER: V100385.00
 BASIN NAME: Basin 1 (Ultimate analysis)

CONDITIONS	
Pre-Development	X
Post-Development	
Rainfall Zone:	7

COMPUTED VARIABLE	
T _c	X
T _i	
Frequency:	10

Water Resources Group		Date
Computed By	REC	19-Dec-2000
Checked By	12JH	12/20/00

SHEET FLOW (Applicable To T_c Only)

- 1) SURFACE DESCRIPTION (table 5-4)
- 2) MANNING'S ROUGHNESS COEFF., [n] (table 5-4)
- 3) FLOW LENGTH, [L] (TOTAL L <= 300 ft)
- 4) HIGH ELEVATION, [A]
- 5) LOW ELEVATION, [B]
- 6) RAINFALL INTENSITY, [i]
- 7) LAND SLOPE, [s]
- 8) COMPUTE T_c: $T_c = (.93 * (n * L)^{0.6}) / (i^{0.4} * s^{0.3})$

Segment ID	
ft	
ft	
ft	
in/hr	3.09
ft/ft	
hr	
+ =	
min =	

SHALLOW CONCENTRATED FLOW

- 9) SURFACE DESCRIPTION Enter 1 (Paved) or 2 (Unpaved)
- 10) FLOWLENGTH, [L]
- 11) HIGH ELEVATION, [C]
- 12) LOW ELEVATION, [D]
- 13) WATERCOURSE SLOPE, [s]
- 14) AVERAGE VELOCITY, [V] **
- 15) COMPUTE T_i: $T_i = L / 3600 * V$

Segment ID	
1	
ft	24
ft	
ft	
ft/ft	0.0200
ft/sec	2.87
hr	0.00
+ = 0.00	
min = 0.1	

CHANNEL FLOW

- 16) DEPTH OF FLOW
- 17) FRONT SLOPE (Z:1)
- 19) BACK SLOPE (Z:1)
- 21) BOTTOM WIDTH
- 22) CROSS SECTIONAL FLOW AREA, [a]
- 23) WETTED PERIMETER, [P_w]
- 24) HYDRAULIC RADIUS, [r] = a / P_w
- 25) FLOWLENGTH, [L]
- 26) HIGH ELEVATION, [D]
- 27) LOW ELEVATION, [E]
- 28) CHANNEL SLOPE, [s]
- 29) MANNING'S ROUGHNESS COEFF., [n]
- 30) COMPUTE V: $V = (1.49 * r^{0.485} * s^{0.148}) / n$
- 31) COMPUTE T_i: $T_i = L / 3600 * V$

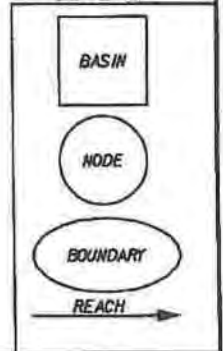
Segment ID	
2	
ft	0.50
ft	4.00
ft	4.00
ft	5.00
ft ²	3.50
ft	9.12
ft	0.38
ft	1350
ft	84.81
ft	84.16
ft/ft	0.0005
ft/ft	0.042
ft/sec	0.41
hr	0.91
+ = 0.91	
min = 54.9	

* See spreadsheet for Trial & Error tabulation
 ** Reference: FDOT Drainage Manual Chapter 5.5, TR-55 Chapter 3 & APP-F.

TOTAL TIME (hr)	0.91
TOTAL TIME (min)	54.9



LEGEND



Set Date: 15/04/2008 20:00
 H:\Projects\4253\drainage\water\nodal\diagram\PRELIM00.dgn
 H:\Projects\4253\drainage\water\nodal\diagram\PRELIM00.plt
 F:\TABLE\rdmst.tbl

1-4 (SR 400) / US 192 INTERCHANGE

DRAWN BY: REC

CHECKED BY:

URS

BASIN 1 (ALT. 1)
 PRE DEVELOPMENT
 NODAL DIAGRAM

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
 Copyright 1989, Streamline Technologies, Inc.

1/20/00

BASIN 1 PRE DEVELOPMENT, POND SIZING (10YR/72HR)
 11/27/00

BASIN NAME BASIN1U
 NODE NAME BNDRY

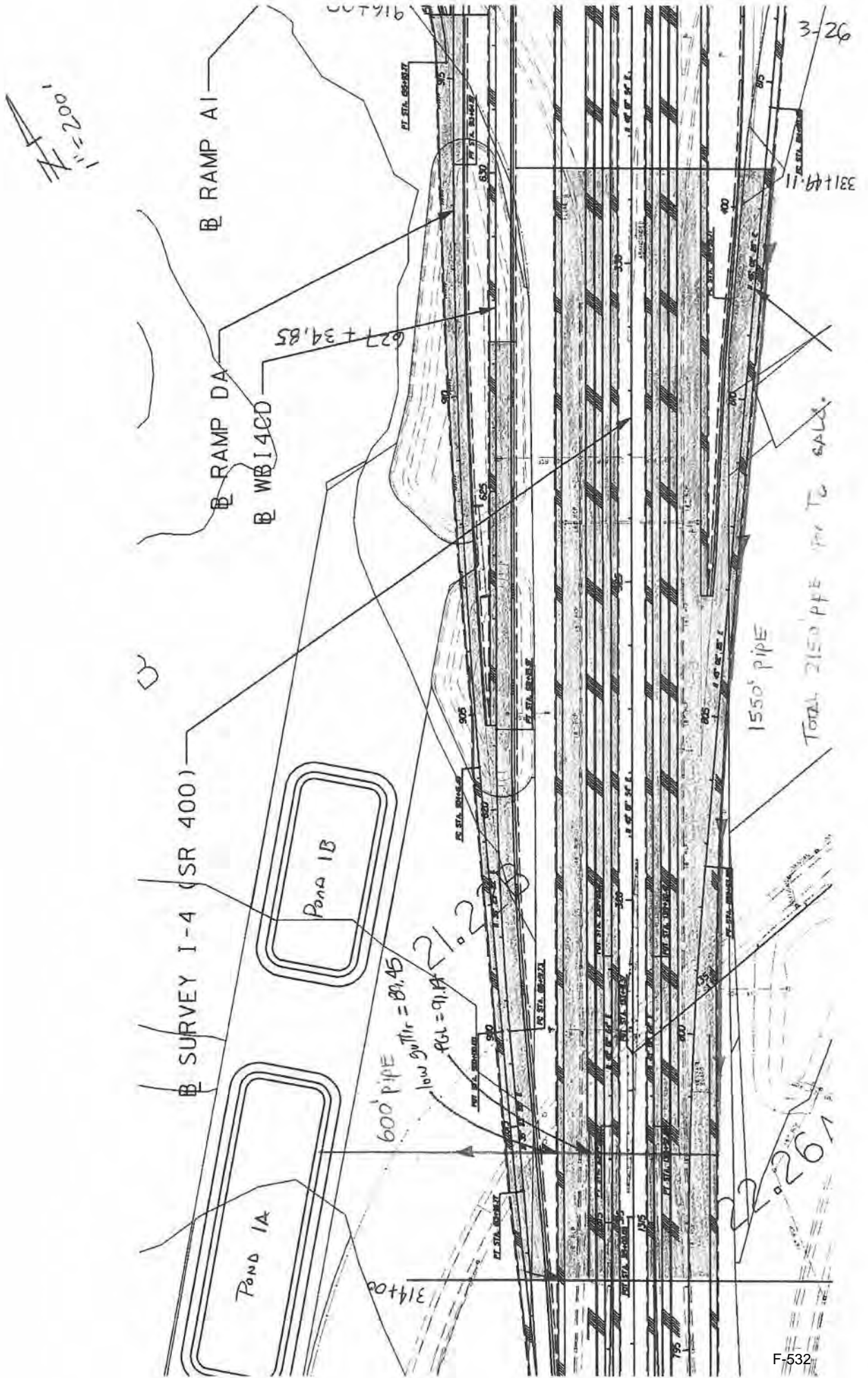
TIME INCREMENT (min) 5.00

RAINFALL FILE SFWMD72
 RAIN AMOUNT (in) 10.19
 STORM DURATION (hrs) 72.00

AREA (ac) 9.30
 CURVE NUMBER 80.00
 DCIA (%) 29.35
 TC (mins) 55.00
 LAG TIME (hrs) .00
 BASIN STATUS ONSITE

BASIN QMK (cfs)	TMX (hrs)	VOL (in)	NOTES
BASIN1U	20.83	60.00	8.40

Proposed Basin (ULTIMATE)



Job I-4 / HS 192 Int. Project No. V100385.00 Page 2 of
 Description BASIN 1 (ALT. 1) Computed by REC Sheet of
ULTIMATE Checked by SJH Date 11/1/00
 Date 12/2/00
 Reference

Basin limit : 314+00 (I-4) to 627+34.85 (WB ± 4 LD)
 916+00 (DA)
 331+49.11 (I-4)
 813+63 (B1)

For water quality CALCS, 2.5" over impervious will control in the ultimate

ultimate PAVEMENT = 486,966.84 ft² (11.18 ac) M✓

$\frac{2.5"}{12} \times 11.18 = 2.33 \text{ ac-ft}$ M✓

POND 1A & 1B

	STAGE	AREA	STORAGE	
NWL	85.50	2.16	∅	
PAV	86.60	2.36	2.49 > 2.33	O.K. M✓
IB	88.00	2.62		
OB	89.00	3.36		

Hydraulic check : * Assume Tw for storm sewer design will be at 87.20 (0.6' higher than weir elev.)

Basin Runoff

I-4 AREA From 316+10 TO 331+49.11

$A = (33149.11 - 31610) (196') / 43560 = 6.93 \text{ ac}$ M✓

$Q = CWA = (1.0)(7.4)(6.93) = 51.28 \text{ cfs}$ M✓

URS

Job I-4 / US 192 Int.

Project No. V100385.00

Page 3 of

Description BASIN 1 (ALT. 1)

Computed by REC

Sheet of

ULTIMATE

Checked by SJH

Date 11/1/00

Date 12/20/00

Reference

Find Allowable H_L

$$\text{Low gutter el on I-4} = 91.14 - 24(0.02) - 12(0.03) - 8(0.06) - \frac{4.5'}{12} = 89.45 \text{ m}'$$

(STA 2316+10) ↙ P6L

$$\text{Allowable } H_L = 89.45 - 87.74 = 1.71' \text{ m}'$$

↙ Assume T_w

Find ULTIMATE PIPE DIAM.

$$H_L = \frac{4.61 n^2 L Q^2}{D^{5.33}} + \frac{KV^2}{2g}$$

0.42 0.19

$$n = 0.012$$

$$L = 300'$$

$$Q = 51.28 \text{ cfs}$$

$$K = 0.02 + 1.0 + 1.36 = 2.38 \text{ m}'$$

TRIAL D computed H_L $< 1.71'$ O.K. m'



PROJECT TITLE: US 192 / I-4 INTERCHANGE				
PROJECT NUMBER:	V100385.00			DATE
BASIN DESIGNATION:	BASIN 1 (ULTIMATE)	MADE BY:	REC	01-Nov-00
BASIN ANALYSIS (PRE/POST):	POST	CHECKED BY:	SJH	12/20/00

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)		AREA (A)
BUILDING		
DRIVEWAY		
ROADWAY		11.18
PAVEMENT (MISC.)		
WATER SURFACE		2.16
TOTAL DCIA		13.34
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	91.75%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	1.20
CN AREA	(BASIN AREA - DCIA)	1.20
TOTAL BASIN AREA		1.20

LAND-USE DESCRIPTION (PERVIOUS AREA)	SOIL NAME	SOIL GROUP	CN	AREA (A)	PRODUCT
Pond location - Open space - good		A/D	80	1.20	96.00
TOTALS				1.20	96.00

COMPOSITE CN	30.0
---------------------	-------------

TIME OF CONCENTRATION

PROJECT TITLE: I-4/US 192 Interchange
PROJECT NUMBER: V100385.00
BASIN NAME: Basin 1 (Ultimate analysis)

CONDITIONS	
Pre-Development	
Post-Development (Build)	X
Rainfall Zone:	7

COMPUTED VARIABLE	
T _c	X
T _i	
Frequency:	10

Water Resources Group		Date
Computed By	REC	01-Nov-2000
Checked By	SJH	11/20/00

SHEET FLOW (Applicable To T_c Only)

- 1) SURFACE DESCRIPTION (table 5-4)
- 2) MANNING'S ROUGHNESS COEFF., [n] (table 5-4)
- 3) FLOW LENGTH, [L] (TOTAL L <= 300 ft)
- 4) HIGH ELEVATION, [A]
- 5) LOW ELEVATION, [B]
- 6) RAINFALL INTENSITY, [i]
- 7) LAND SLOPE, [s]
- 8) COMPUTE T_i: $T_i = (.93 * (n * L)^{0.6}) / (i^{0.4} * s^{0.3})$

Segment ID		
ft		
ft		
ft		
in/hr	7.41	
ft/ft		
hr		
	+	
		=
		min =

SHALLOW CONCENTRATED FLOW

- 9) SURFACE DESCRIPTION Enter 1 (Paved) or 2 (Unpaved)
- 10) FLOW LENGTH, [L]
- 11) HIGH ELEVATION, [C]
- 12) LOW ELEVATION, [D]
- 13) WATERCOURSE SLOPE, [s]
- 14) AVERAGE VELOCITY, [V] **
- 15) COMPUTE T_i: $T_i = L / 3600 * V$

Segment ID		
ft		
ft		
ft		
ft/ft		
ft/sec		
hr		
	+	
		=
		min =

CHANNEL FLOW

- 16) DEPTH OF FLOW
- 17) FRONT SLOPE (Z:1)
- 18) BACK SLOPE (Z:1)
- 21) BOTTOM WIDTH
- 22) CROSS SECTIONAL FLOW AREA, [a]
- 23) WETTED PERIMETER, [P_w]
- 24) HYDRAULIC RADIUS, [r] = a / P_w
- 25) FLOW LENGTH, [L]
- 26) HIGH ELEVATION, [D]
- 27) LOW ELEVATION, [E]
- 28) CHANNEL SLOPE, [s]
- 29) MANNING'S ROUGHNESS COEFF., [n]
- 30) COMPUTE V: $V = (1.49 * r^{2/3} * s^{1/2}) / n$
- 31) COMPUTE T_i: $T_i = L / 3600 * V$

Segment ID		
ft		
ft		
ft		
ft		
ft		
ft		
ft		
ft		
ft		
ft/ft		
ft/sec		
hr		
	+	
		=
		min =

Pipe flow = 2150' / 2.5 fps

* See spreadsheet for Trial & Error tabulation
 ** Reference: FDOT Drainage Manual Chapter 5.5, TR-55 Chapter 3 & APP-F.

TOTAL TIME (hr) _____
 TOTAL TIME (min) **14.3**



MADE BY: REC DATE: 11/01/00 JOB NO. V100385.00
 CHECKED BY: SJP DATE: 12/20/02 SHEET NO.
 PROJECT: US 192 / I-4 INTERCHANGE POND: BASIN: BASIN 1 (ULTIMATE)

Water Quality

Total Basin Area = 10.34 ac
 Paved Area = 11.10 ac
 Pond Area at NWL = 2.16 ac

A. 1.0 * Over Total Basin Area = 1.21 Ac-Ft
 B. 2.5 * Over Paved Area = 2.33 Ac-Ft
 Required PAV = 2.33 Ac-Ft

Stage Storage Calculations

ELEV. (ft)	AREA (ac)	AVG. AREA (ac)	DEPTH (ft)	DELT. STORAGE (Ac-Ft)	Cum. Storage (Ac-Ft)
89.00	3.36	2.99	1.00	2.99	8.97
88.00	2.62	2.49	1.40	3.49	5.98
86.60 (PAV)	2.36	2.26	1.10	2.49	2.49
85.50 (NWL)	2.16				

Bleed Down Volume

1/2" of the detention volume = 0.5 *(Basin area)/12 = 0.61 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 1.88 Ac-Ft

Preliminary Bleed Down Calculations

ELEV. (ft)	AREA (ac)	AVG. AREA (ac)	DEPTH (ft)	DELT. STORAGE (Ac-Ft)
86.60 (PAV)	2.36	2.34	0.26	0.61
86.34 (at time t)	2.31			

Pond Bleed Down Design

Orifice Design

$t = 1/2 \text{ Detention Volume} / (CF * C * A_o * (2 * g * h)^{0.5})$

Diameter of orifice (do) = 3.50 in
 Recovery time (t) = 23.1 hrs
 Orifice coefficient (C) = 0.60
 1/2 Detention Volume = 26,390.10 ft³
 Depth from PAV Elev. to orifice flow line (h1) = 1.100 ft
 Depth from Water Elev. at time t to orifice flow line (h2) = 0.841 ft
 Average depth (h) = (h1+h2) / 2 = 0.970 ft
 Area of orifice (Ao) = 0.06681 ft²
 Gravitational constant (g) = 32.20 ft/sec²
 Conversion Factor (CF) = 3,600 sec/hr

V-notch Design

$\text{Theta} = 2 * \text{atan}(0.492 * V_{det} / H^{2.5})$

V_{det} = 0.61 Ac-Ft
 H = 1.100 ft
 Theta = 26.436 deg
 b = 0.517 ft



MADE BY: REC DATE: 11/28/00 JOB NO. V100385.00
 CHECKED BY: 5JH DATE: 12/20/00 SHEET NO.
 PROJECT: US 192 / I-4 INTERCHANGE BASIN: BASIN 1 (ULT)

Hydraulic Grade Line Clearance Calculations

1) Estimated tailwater elevation in the pond (for preliminary storm sewer design) = 87.74 ft *

* Refer to preliminary post-development routing model - tailwater stage at peak inflow (hour 60 for the 10yr/72hr SFWMD design storm)

2) Calculation of post-development area for HGL check

Baseline	From Station	To Station	Length (ft)	Roadway width (ft)	Area (ac)
Total					

or see calcs attached 6.93 ac

3) Lowest gutter elevation in Basin for HGL check

Station	4316+10
Baseline	WB I-4 ULT
Offset (ft)	LT
Elevation (ft)	89.45

4) Allowable Head Loss = lowest gutter el - est. tailwater el = 1.71 ft

5) Pipe length from Pond to lowest gutter point = 380 ft

6) Rational Method for contributing runoff - $Q=CiA$

C = 1.00
 int. = 7.40 in/hr
 A = 6.93 ac
 Q = 51.28 cfs

Manning's n = 0.012
 Sum K = 2.39
 V = 4.08 fps

7) Estimation of Pipe Size

$$HL = [4.61 \cdot (n^2) \cdot L \cdot (Q^2)] / (D^5 \cdot 33) + K(V^2) / 2g$$

HL = Allowable Head Loss (ft) 1.03 trial
 n = Manning's n < actual HL - OK
 L = Length (ft)
 Q = Runoff (cfs)
 D = Pipe diameter (ft)
 K = coefficient for minor losses
 V = pipe velocity (fps)
 g = gravitational constant (32.2 ft/sec²)

8) Estimated Pipe Diameter to satisfy the conditions = 4.0 ft
48 in

URS	MADE BY: REC	DATE: 11/28/00	JOB NO. V100385.00
CHECKED BY:		SJH DATE: 12/20/00	SHEET NO.
PROJECT: US 192 / I-4 INTERCHANGE			BASIN: BASIN 1 (ULT)

WEIR ELEVATION CHECK

Low Edge of Pavement =	<input type="text"/>	ft
Pavement Depth =	<input type="text"/>	ft
Minimum Base Clearance =	<input type="text"/>	ft
Max. Desirable Weir EI =	0.00	ft
Proposed Weir EI =	86.60	ft
Status Check =	RETRY	

Pond located in the power easement, not adjacent to I-4.

Ultimate I-4 is raised to meet base clearance criteria over the seasonal high water table

FREEBOARD CHECK

DHW = Design High Water

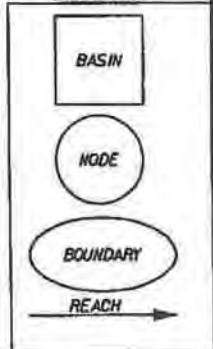
SFWMD	DHW (10yr/72hr) =	88.00	ft
RCID	DHW (50yr/72hr) =	<input type="text"/>	ft
	Pond outside berm el =	89.00	ft
	Freeboard provided =	1.00	ft (10yr/72hr)
			ft (50yr/72hr)

(From Preliminary Routing)
(From Preliminary Routing)

Status
OK
<input type="text"/>



LEGEND



Sat Dec 15 15:46:32 2000
 W:\P\10\2000\2000\33\4\rel\maps\water\nodal\log\name\POSTNOD0.dgn
 R:\P\10\2000\2000\33\4\rel\maps\water\nodal\log\name\POSTNOD0.prn
 REACH
 F:\TABLE\Vrd\del.tbl

I-4 (SR 400) / US 192 INTERCHANGE

DRAWN BY: REC

CHECKED BY:

URS

BASIN 1 (ALT. 1)
 POST DEVELOPMENT
 NODAL DIAGRAM

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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SNK

BASIN 1, POST DEVELOPMENT ULTIMATE, POND SIZING (10YR/72HR)
11/27/00

BASIN NAME BASIN1U
NODE NAME POND1AB

TIME INCREMENT (min) 5.00

RAINFALL FILE SFWMD72

RAIN AMOUNT (in) 10.19

STORM DURATION (hrs) 72.00

AREA (ac) 14.54

CURVE NUMBER 80.00

DCIA (%) 91.75

TC (mins) 14.30

LAG TIME (hrs) .00

BASIN STATUS ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
BASIN1U	64.51	59.92	9.89	

30A

BASIN 1, POST DEVELOPMENT ULTIMATE, POND SIZING (10YR/72HR)
11/27/00

NODAL MIN/MAX/TIME CONDITIONS REPORT
=====

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
POND1AB	STAGE (ft):	85.50	2.00	88.00	60.50
	VOLUME (af):	.00	2.00	5.97	60.50
	RUNOFF (cfs):	.00	2.00	58.48	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	2.00	20.45	60.50
BNDRY	STAGE (ft):	81.47	.00	85.51	60.25
	VOLUME (af):	.00	2.00	8.87	72.00
	RUNOFF (cfs):	.00	72.00	.00	72.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	2.00	20.45	60.50
	OUTFLOW (cfs):	.00	72.00	.00	72.00

PRE MAX Q = 20.83 > 20.45 cfs O.K.

MAX. STAGE in pond = 88.00

Pond outside berm = 89.00 1' freeboard provided

∴ Pond size adequate.

STAGE AT HR 60 (Tailwater el for storm sewer design) = 87.74

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BASIN 1, POST DEVELOPMENT ULTIMATE, POND SIZING (10YR/72HR)
11/27/00

CONTROL PARAMETERS
=====

START TIME: .00
END TIME: 72.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
72.00	15.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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/SJM

BASIN 1, POST DEVELOPMENT ULTIMATE, POND SIZING (10YR/72HR)
 11/27/00

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
POND1AB	AREA	85.500	.000	.000	.000	85.500	2.160
						88.000	2.620
						89.000	3.360
BNDRY	TIME	81.470	.000	.000	.000	81.470	.000
						82.010	30.000
						82.270	51.000
						82.560	55.000
						85.160	60.000
						85.510	60.250
						84.700	64.000
84.510	68.000						
						84.430	70.000
						84.440	72.000

Tailwater condition based on "BIGONE" MODEL, NODE 2

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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504

BASIN 1, POST DEVELOPMENT ULTIMATE, POND SIZING (10YR/72HR)
 11/27/00

>>REACH NAME : R1
 FROM NODE : POND1AB
 TO NODE : BNDRY
 REACH TYPE : DROP STRUCTURE w/ CIRC. CULVERT
 FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
 TURBO SWITCH : OFF

CULVERT DATA :
 SPAN (in): 24.000 RISE (in): 24.000 LENGTH (ft): 130.000
 U/S INVERT (ft): 82.000 D/S INVERT (ft): 81.570 MANNING N: .012
 ENTRNC LOSS: .500 # OF CULVERTS: 1.000

POSITION A : CIRCULAR RISER SLOT
 INVERT EL. (ft): 85.500 SPAN (in): 3.500 RISE (in): 3.500
 WEIR COEF.: 3.200 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

POSITION B : RECTANGULAR RISER SLOT
 CREST EL. (ft): 86.600 CREST LN. (ft): 4.700 OPENING (ft): 999.000
 WEIR COEF.: 3.200 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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BASIN 1, POST DEVELOPMENT ULTIMATE, POND SIZING (10YR/72HR)
11/27/00

REACH SUMMARY

=====

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	R1	POND1AB	BNDRY	DROP STRUCTURE w/ CIRC. CULVERT

Job I-4 / US 192 Int, Project No. V100385.00 Page of
 Description Hydraulic Calc. for Initial Computed by REC Sheet of
 Cond. (BASIN 1, ALT. 1) Checked by SJA Date 11/2/00
 Date 12/20/00

Reference

Assume $T_w = 87.00$ for initial (0.40' higher than weir el.)

$$T_w = 87.74 \text{ ult.}$$

BASIN Runoff

Initial part $\approx 1/3$ ult. part
 $T_w \text{ initial} \approx 86.00 + \frac{1}{3}(87.74 - 86.00) = 86.98 \approx 87.00$

I-4 AREA FROM 314+00 TO 331+49.11

$$A = (33149.11 - 31400)(36 + 8 + 3.5)(2) / 43560 = 3.81 \text{ AC}$$

$$Q = C I A$$

$$Q = (1.0)(7.4)(3.81) = 28.19 \text{ CFS}$$

FIND ALLOWABLE H_L

Lowest gutter el = 86.67 \rightarrow lower than Assumed T_w , will not work
 (at 314+00 EB)

shift treatment limit to 317+00

I-4 Area from 317+00 to 331+49.11

$$A = (33149.11 - 31700)(36 + 8 + 3.5)(2) / 43560 = 3.16 \text{ AC}$$

M✓

$$Q = C I A$$

$$Q = (1.0)(7.4)(3.16) = 23.38 \text{ cfs}$$

M✓

Find allowable H_L

Lowest gutter el = 87.50 (From I-4 CD ROAD PLANS)
 (at 317+00 EB, SWB)

$$\text{Allowable } H_L = 87.50 - 87.00 = 0.50'$$

M✓

Job I-4 / US 192 Int.
 Description Hydraulic Calc. for Initial Condition (BASIN 1, ALT. 1)

Project No. V10038500
 Computed by REC
 Checked by SJW

Page of
 Sheet of
 Date 11/2/00
 Date 12/2/00

Reference

Find pipe diam.

$$H_L = \frac{4.61 n^2 L Q^2}{D^{5.33}} + \frac{K V^2}{2g}$$

$n = 0.012$

$L = 450'$

$Q = 23.38 \text{ cfs}$

$K = 0.02 + 1.00 + 1.36 = 2.38$

with $D = 42'' (3.5')$, $H_L = 0.42' < 0.50 \text{ O.K.}$

M'

Initial Basin Limits : 317+00 to 339+49.11

No calculations will be done to check the pond size for the initial since it is designed to accommodate the ultimate pavement.
 Refer to ultimate calculations.

Job I-4 / US 192 Int.
 Description BASIN 1
Pavement Compensation, (Interim)

Project No. V100385.00
 Computed by REC
 Checked by SJH

Page of
 Sheet of
 Date 11/1/00
 Date 12/20/00

Reference

EXISTING Ponds TP-7A & TP-7B will be ELIMINATED. They were treating I-4 from STA 319+00 to 329+36.15 (WB) and 329+92.53 (EB). In the proposed condition, treatment will be provided in Ponds 1A & 1B.

From 314+00 to 317+00, I-4, portions of ramp B1 AND WBLO will not be able to be treated because of hydraulic constraints (I-4 is too low)

In this basin, ALL of existing I-4 is treated into wet detention Ponds, therefore,

Existing Pavement untreated to be treated = \emptyset

limits from 306+00 to 314+00

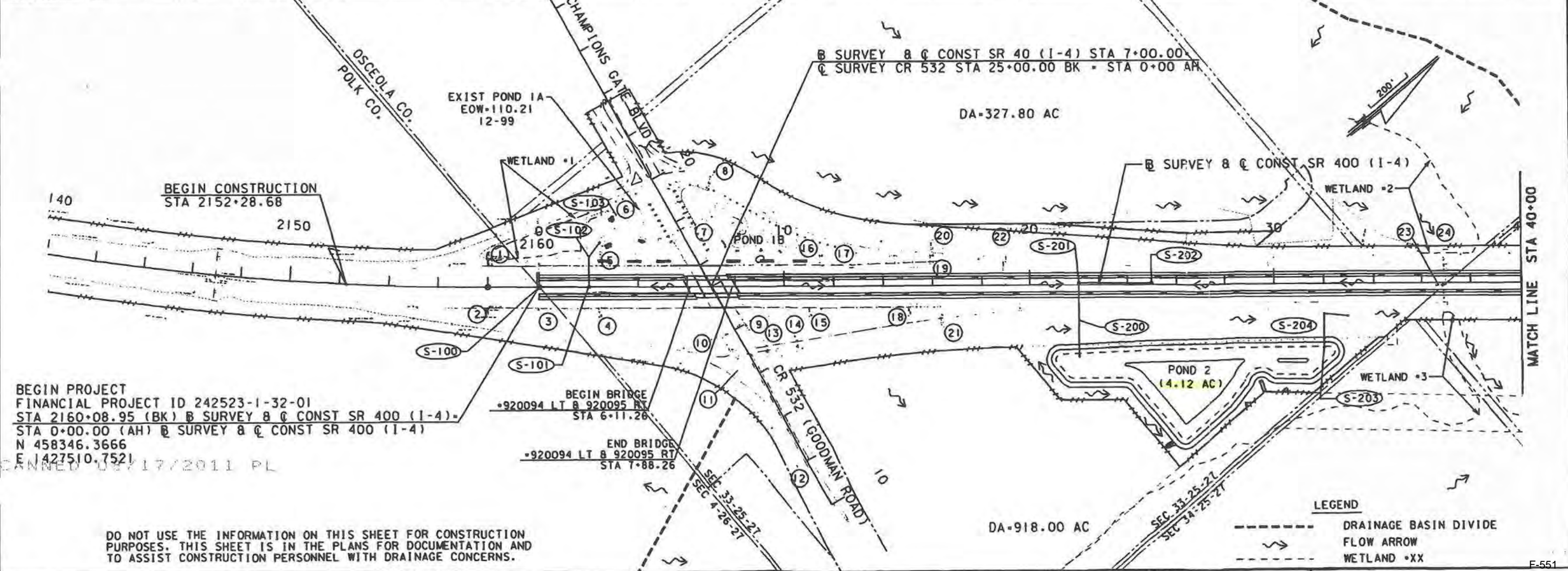
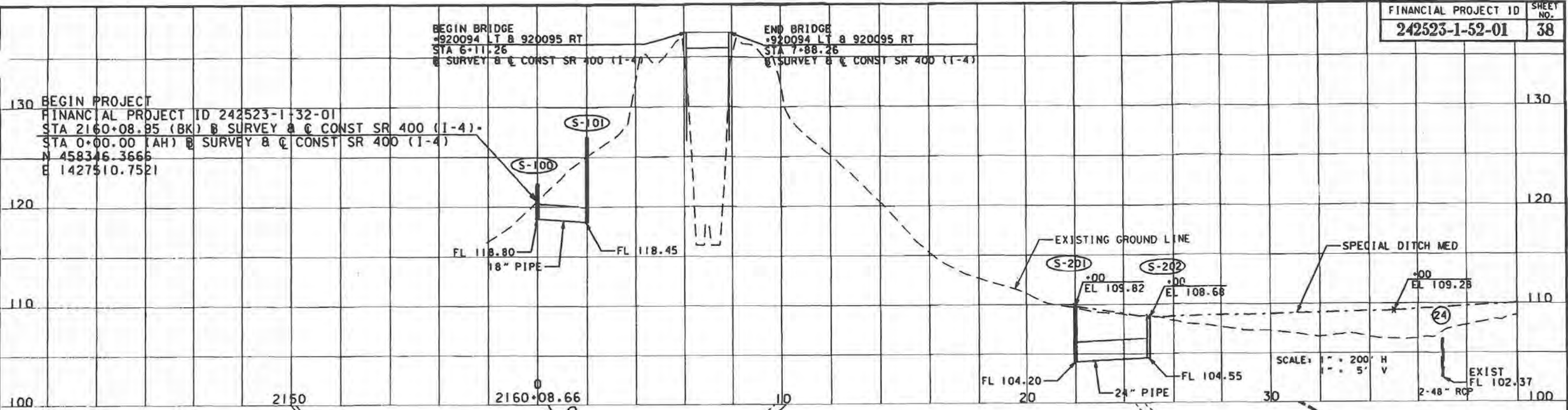
Proposed Pavement to be untreated = 189,825.46 ft² (4.36 AC) ultimate
 99,062 ft² (1.13 AC) initial

limits 314+00 to 317+00

Since the project will be permitted for the initial condition, 1.13 AC of Impervious will need to be compensated.

Will treat 1.13 AC of existing Impervious currently not being treated to offset the proposed pavement in this basin not treated. Compensation will occur in the Interchange as this basin does not contain existing Impervious currently not being treated. Detail calculations will follow.

FINANCIAL PROJECT ID	SHEET NO.
242523-1-52-01	38



BEGIN PROJECT
 FINANCIAL PROJECT ID 242523-1-32-01
 STA 2160+08.95 (BK) B SURVEY 8 & CONST SR 400 (1-4)
 STA 0+00.00 (AH) C SURVEY 8 & CONST SR 400 (1-4)
 N 458346.3666
 E 1427510.7521

BEGIN BRIDGE
 +920094 LT 8 920095 RT
 STA 6+11.26

END BRIDGE
 +920094 LT 8 920095 RT
 STA 7+88.26

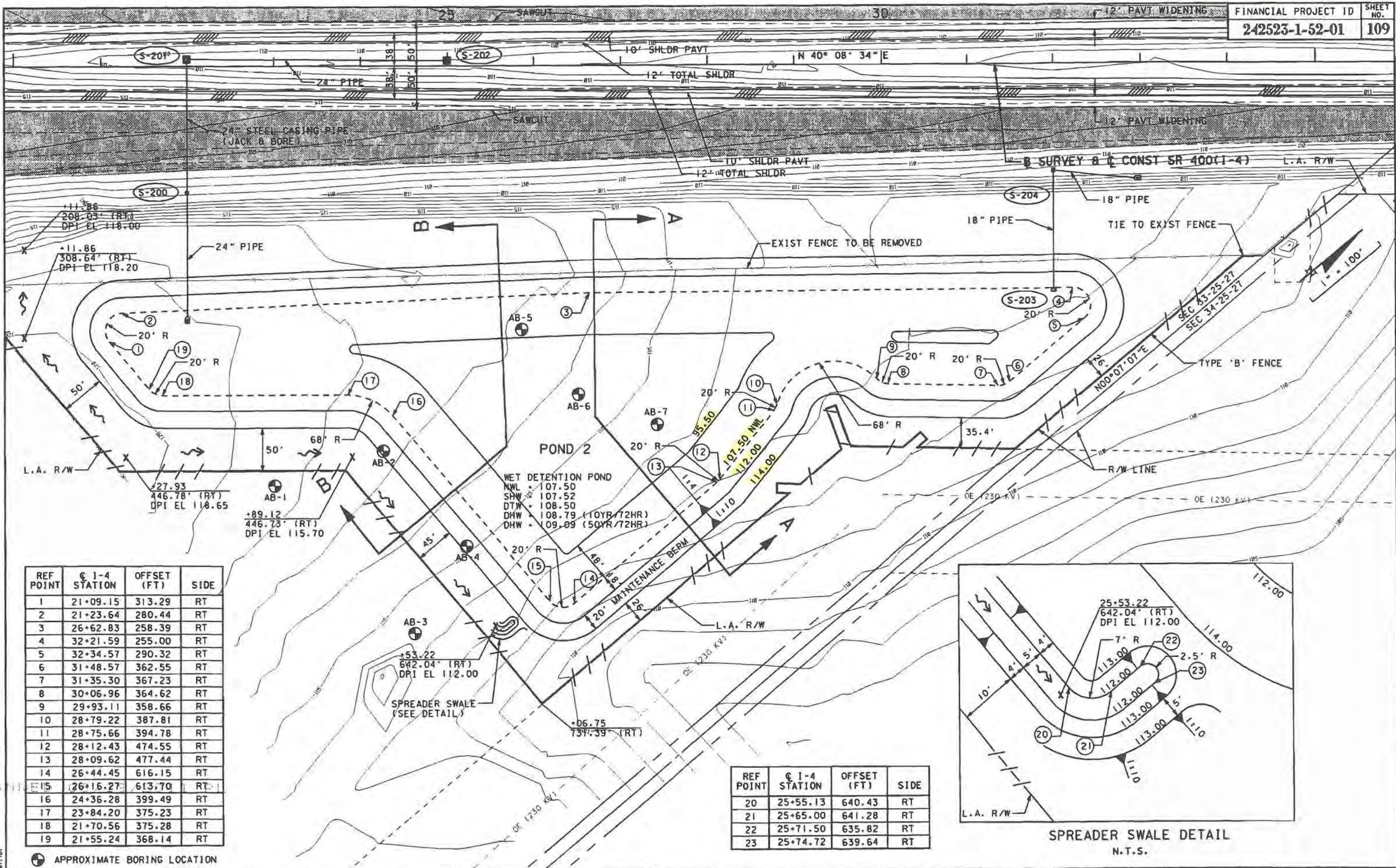
LEGEND

---	DRAINAGE BASIN DIVIDE
→	FLOW ARROW
XX	WETLAND

DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

DATE		BY		DESCRIPTION	

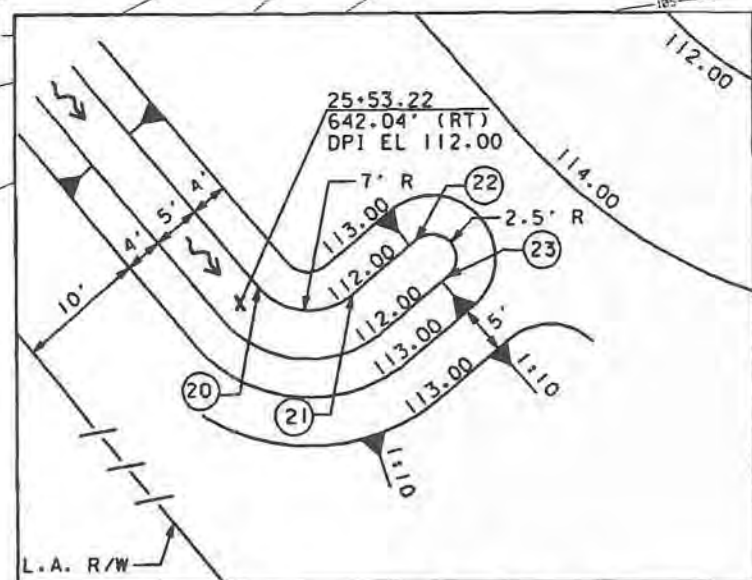
28-1998 1536403 DRAIN.DWG



REF POINT	STATION	OFFSET (FT)	SIDE
1	21+09.15	313.29	RT
2	21+23.64	280.44	RT
3	26+62.83	258.39	RT
4	32+21.59	255.00	RT
5	32+34.57	290.32	RT
6	31+48.57	362.55	RT
7	31+35.30	367.23	RT
8	30+06.96	364.62	RT
9	29+93.11	358.66	RT
10	28+79.22	387.81	RT
11	28+75.66	394.78	RT
12	28+12.43	474.55	RT
13	28+09.62	477.44	RT
14	26+44.45	616.15	RT
15	26+16.27	613.70	RT
16	24+36.28	399.49	RT
17	23+84.20	375.23	RT
18	21+70.56	375.28	RT
19	21+55.24	368.14	RT

WET DETENTION POND
 NWL = 107.50
 SHW = 107.52
 DTW = 108.50
 DHW = 108.79 (10YR/72HR)
 DHW = 109.89 (50YR/72HR)

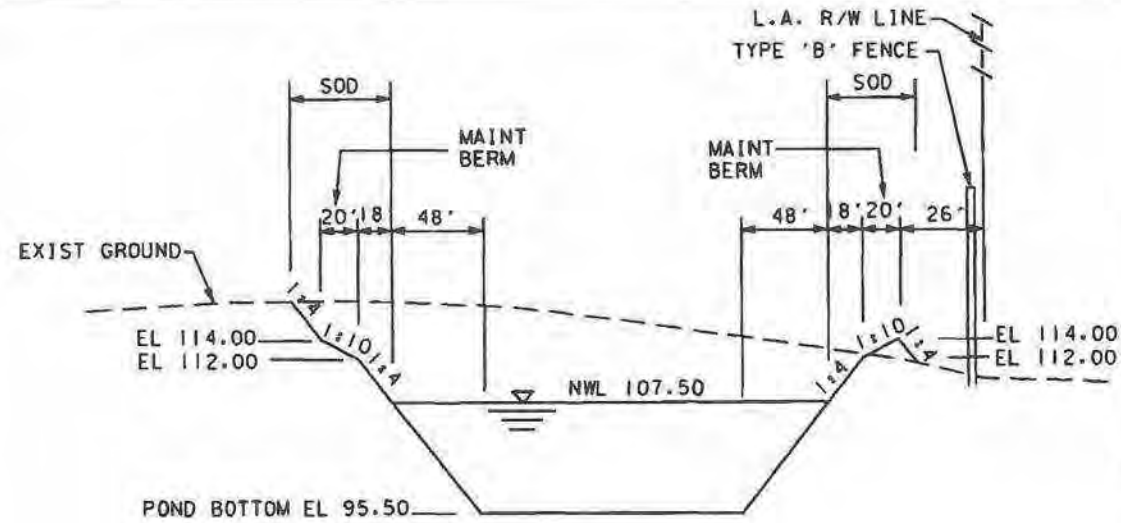
REF POINT	STATION	OFFSET (FT)	SIDE
20	25+55.13	640.43	RT
21	25+65.00	641.28	RT
22	25+71.50	635.82	RT
23	25+74.72	639.64	RT



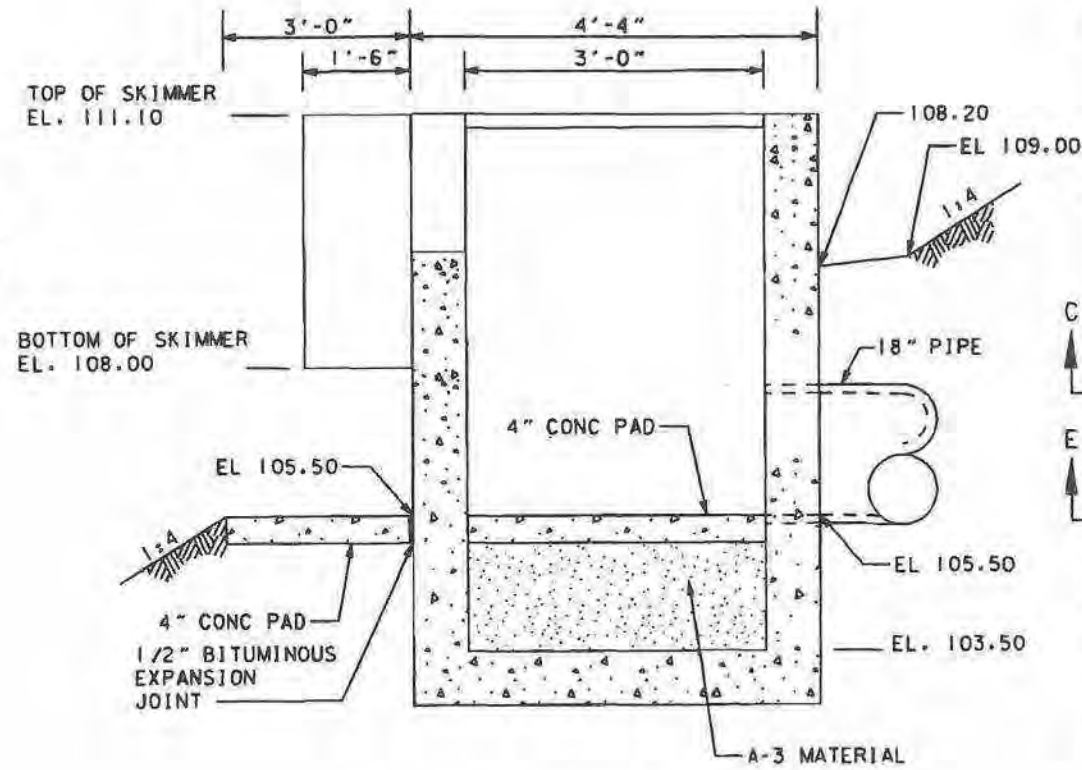
SPREADER SWALE DETAIL
N.T.S.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

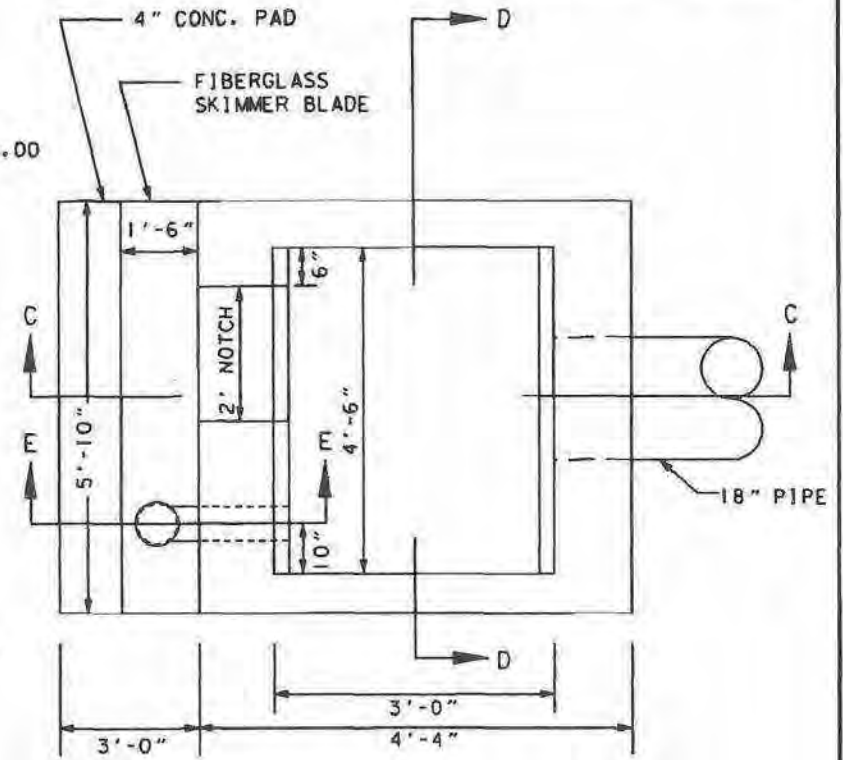
DATE PLOT: 10.25.08
 DRAWN BY: J. GORDON
 CHECKED BY: J. GORDON
 SCALE: AS SHOWN
 FILE: 1020204-8.dwg



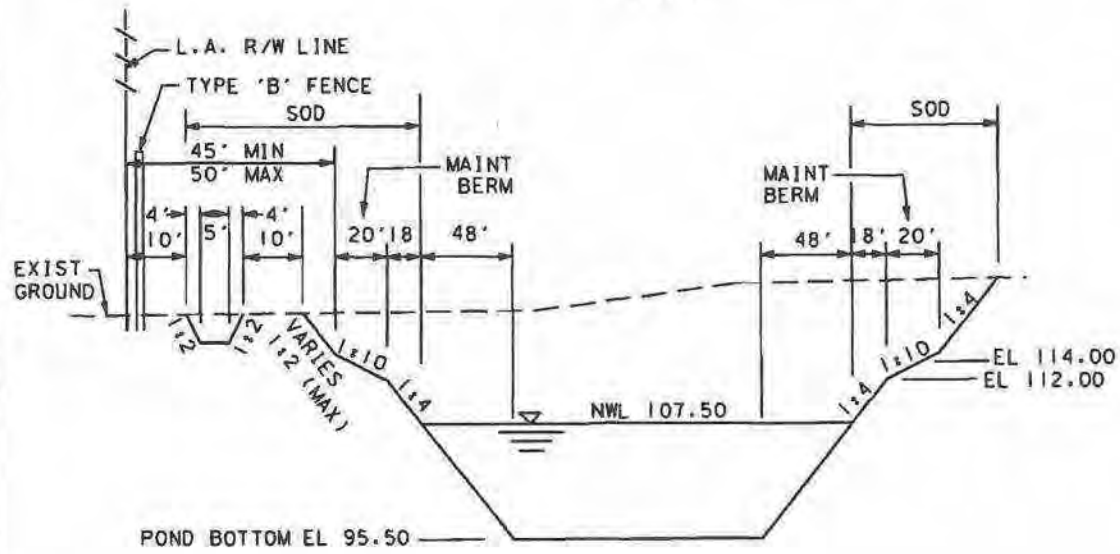
POND 2 SECTION A-A
N.T.S.



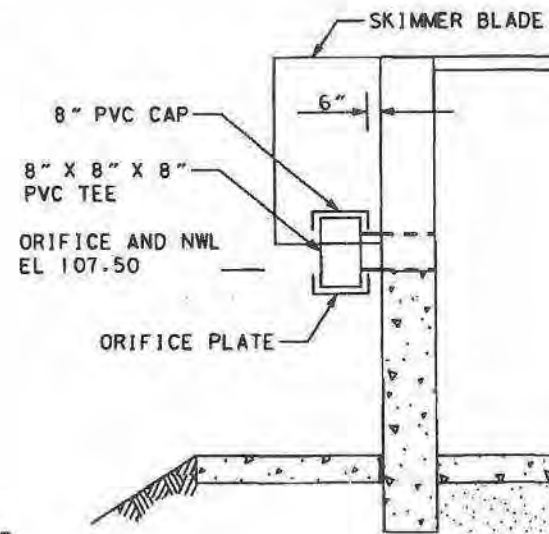
SECTION C-C
N.T.S.



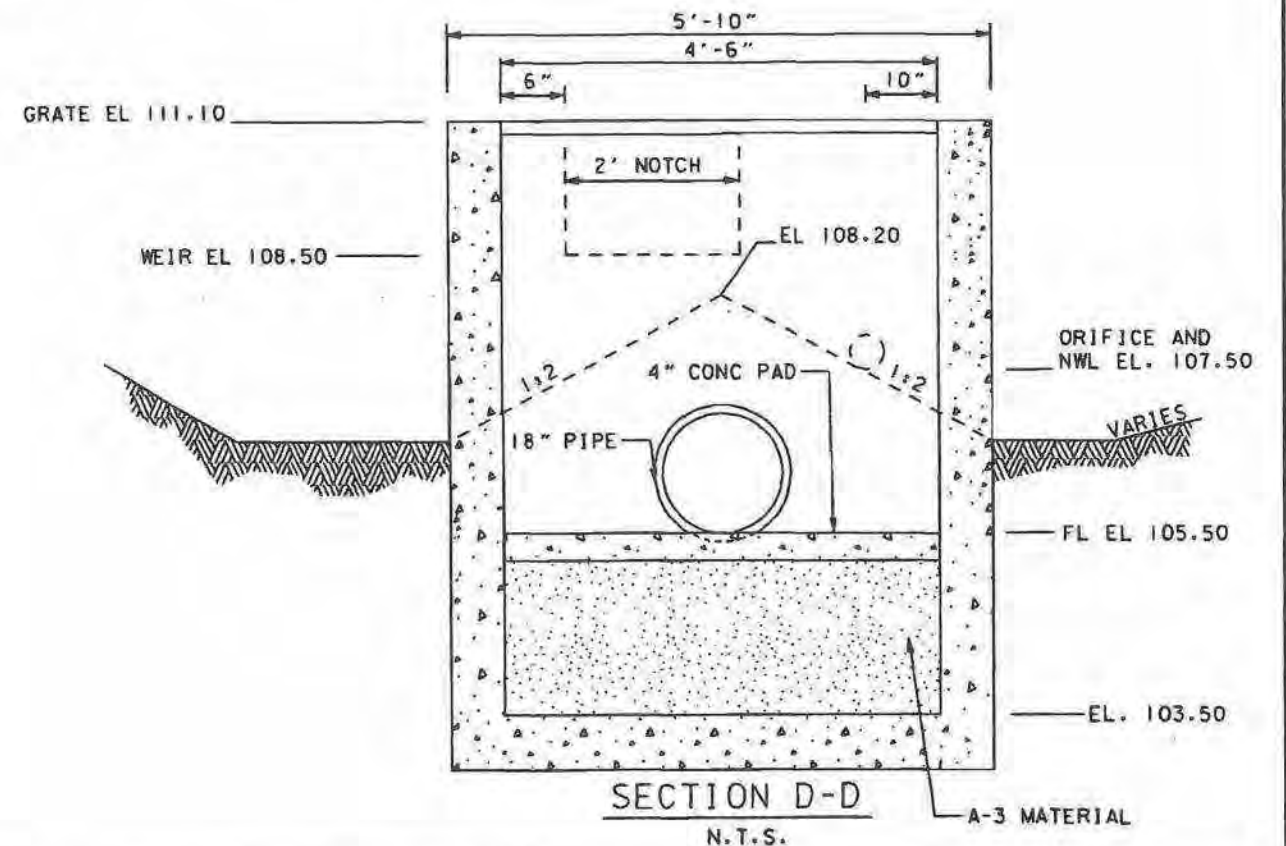
PLAN VIEW
CONTROL STRUCTURE
D.B.1. TYPE E SPECIAL
N.T.S.



POND 2 SECTION B-B
N.T.S.



SECTION E-E
N.T.S.



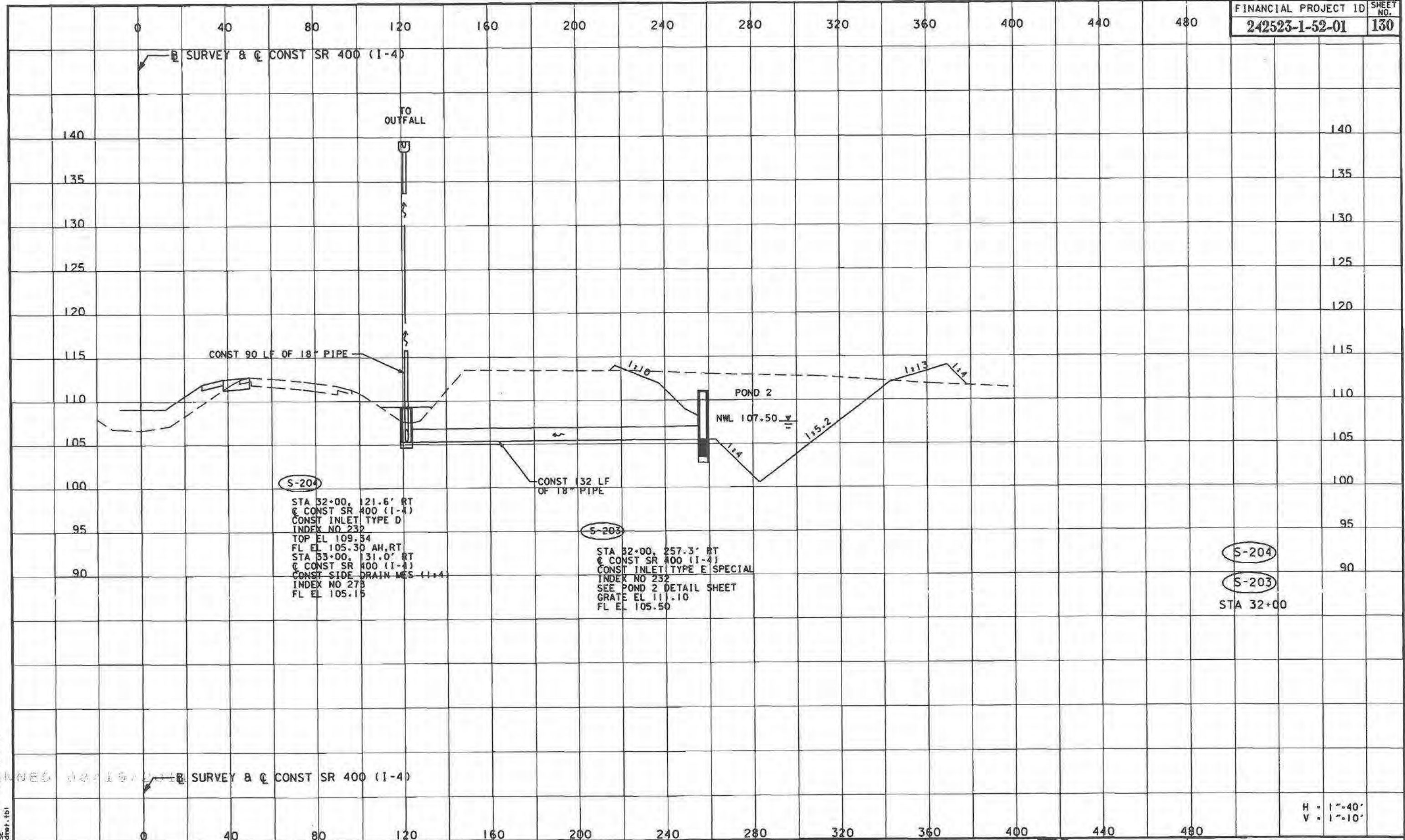
SECTION D-D
N.T.S.

NOTES:

1. MAINTENANCE BERM SHALL BE SOD ON COMPACTED FILL.
2. SKIMMER TO BE CONSTRUCTED OF 3/16" FIBERGLASS, REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES TO BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS.
3. SKIMMER BLADE, FASTENERS, PVC PIPE AND CONCRETE PAD, ETC. TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLET TYPE SPECIAL (CONTROL STRUCTURE).
4. MINIMUM RADIUS FOR CURVES AT NORMAL WATER LEVEL (NWL) IS 20 FEET. CURVES ABOVE AND BELOW NWL ARE CONCENTRIC. MINIMUM RADIUS FOR CURVES BELOW NWL IS 5 FEET.
5. THE ORIFICE PLATE SHALL BE 8" PVC CAP W/ HOLE DRILLED TO 5.00" AND SOLVENT WELDED TO TEE PER MANUFACTURER'S RECOMMENDATIONS.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



S-204
 STA 32+00, 121.6' RT
 C CONST SR 400 (1-4)
 CONST INLET TYPE D
 INDEX NO 232
 TOP EL 109.54
 FL EL 105.30 AH, RT
 STA 33+00, 131.0' RT
 C CONST SR 400 (1-4)
 CONST SIDE DRAIN MES (1+4)
 INDEX NO 275
 FL EL 105.15

S-203
 STA 32+00, 257.3' RT
 C CONST SR 400 (1-4)
 CONST INLET TYPE E SPECIAL
 INDEX NO 232
 SEE POND 2 DETAIL SHEET
 GRATE EL 111.10
 FL EL 105.50

S-204
S-203
 STA 32+00

H = 1"=40'
 V = 1"=10'

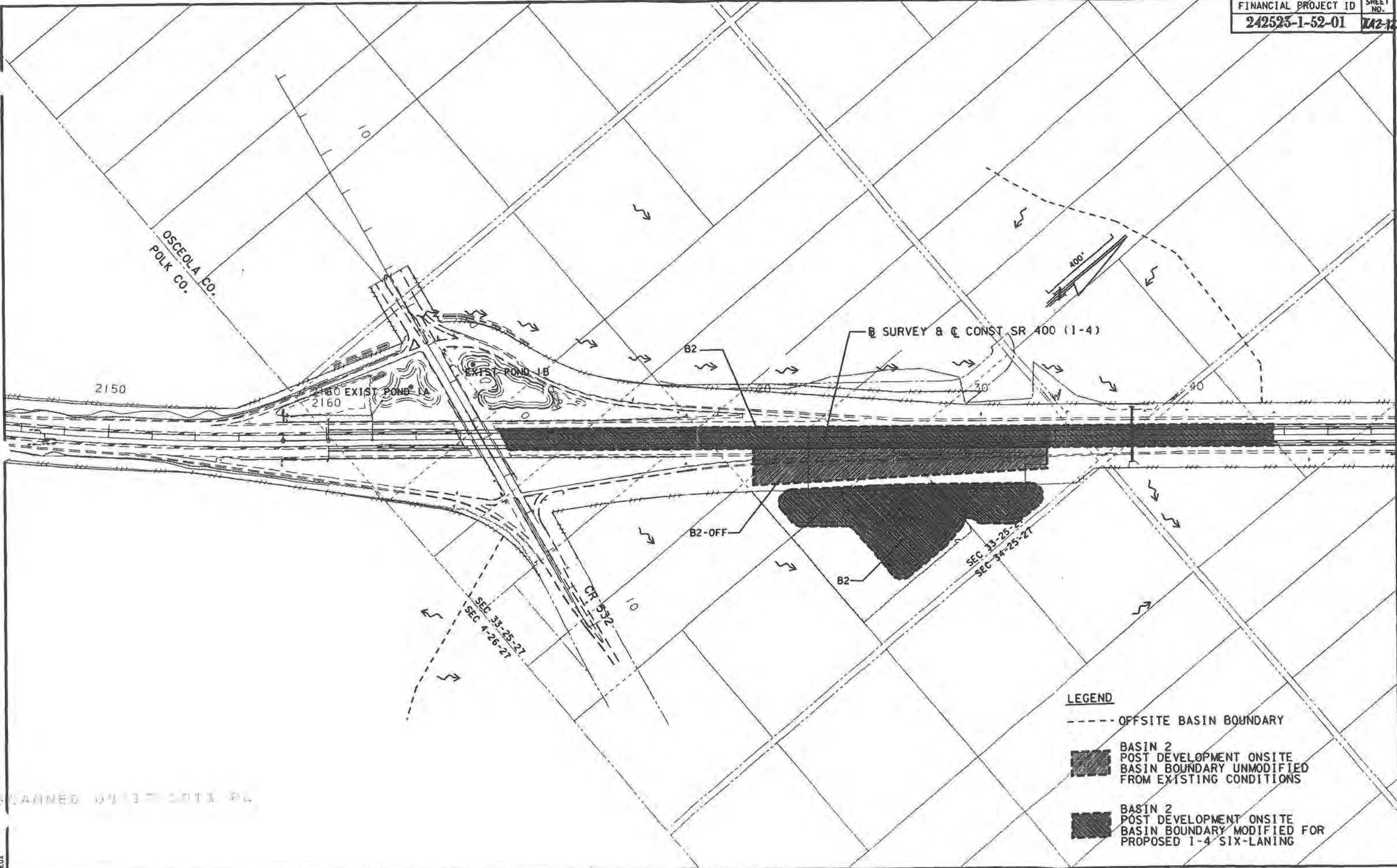
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 F:\V\026403\01\Drawings\242523-1-52-01.fbi



REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

URS
 315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-1975
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

SR 400 (1-4)
 DRAINAGE STRUCTURE
 CROSS SECTIONS



- LEGEND**
- OFFSITE BASIN BOUNDARY
 -  BASIN 2 POST DEVELOPMENT ONSITE BASIN BOUNDARY UNMODIFIED FROM EXISTING CONDITIONS
 -  BASIN 2 POST DEVELOPMENT ONSITE BASIN BOUNDARY MODIFIED FOR PROPOSED 1-4 SIX-LANING

PLANNED 09/17/2013 PL

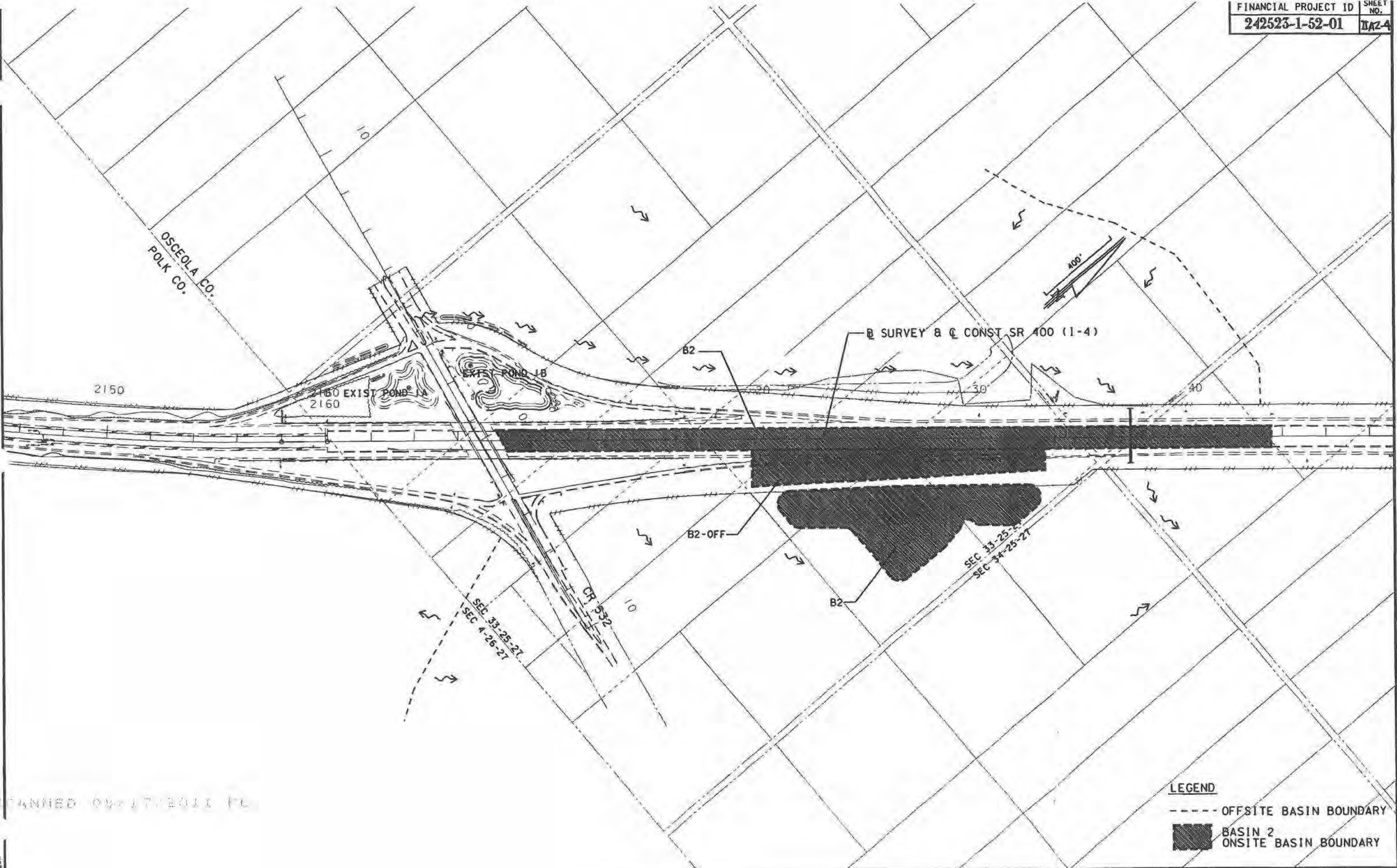
REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

BASIN 2
 POST DEVELOPMENT BASIN

Mon Oct 16 16:11:00
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 V1042-LEMIEUR



LEGEND

- OFFSITE BASIN BOUNDARY
- █ BASIN 2 ONSITE BASIN BOUNDARY

PLANNED ON 17/2011 PL

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 11042-LEITEUX

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

URS Greiner Woodward Clyde

MADE BY: REC DATE: 10/16/00 JOB NO. V100264.03
 CHECKED BY: DATE: 9/21/01 SHEET NO.
 CALCULATIONS FOR: I-4 SIX LANING POND: POND 2 BASIN: B2

Water Quality

Total Basin Area = [] ac
 Paved Area = [] ac
 Pond Area at NWL = [] ac

A. 1.0 * Over Total Basin Area = 1.22 Ac-Ft
 B. 2.5 * Over Paved Area = 0.77 Ac-Ft
 Required PAV = [] Ac-Ft

Stage Storage Calculations

ELEV (ft)	AREA (sq ft)	PAV (sq ft)	Delta (ft)	Delta Storage (Ac-Ft)	Stage Storage (Ac-Ft)
114.00	6.50				32.74
		5.86	2.00	11.72	
112.00	5.22				21.02
		4.79	3.50	16.77	
108.50 (PAV)	4.36				4.24
		4.24	1.00	4.24	
107.50 (NWL)	4.12				

Bleed Down Volume

1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.61 \text{ Ac-Ft}$

Volume Remaining in Pond after Bleed Down = $\text{PAV} - \text{Bleed Down Volume} = 3.63 \text{ Ac-Ft}$

URS Greiner Woodward Clyde

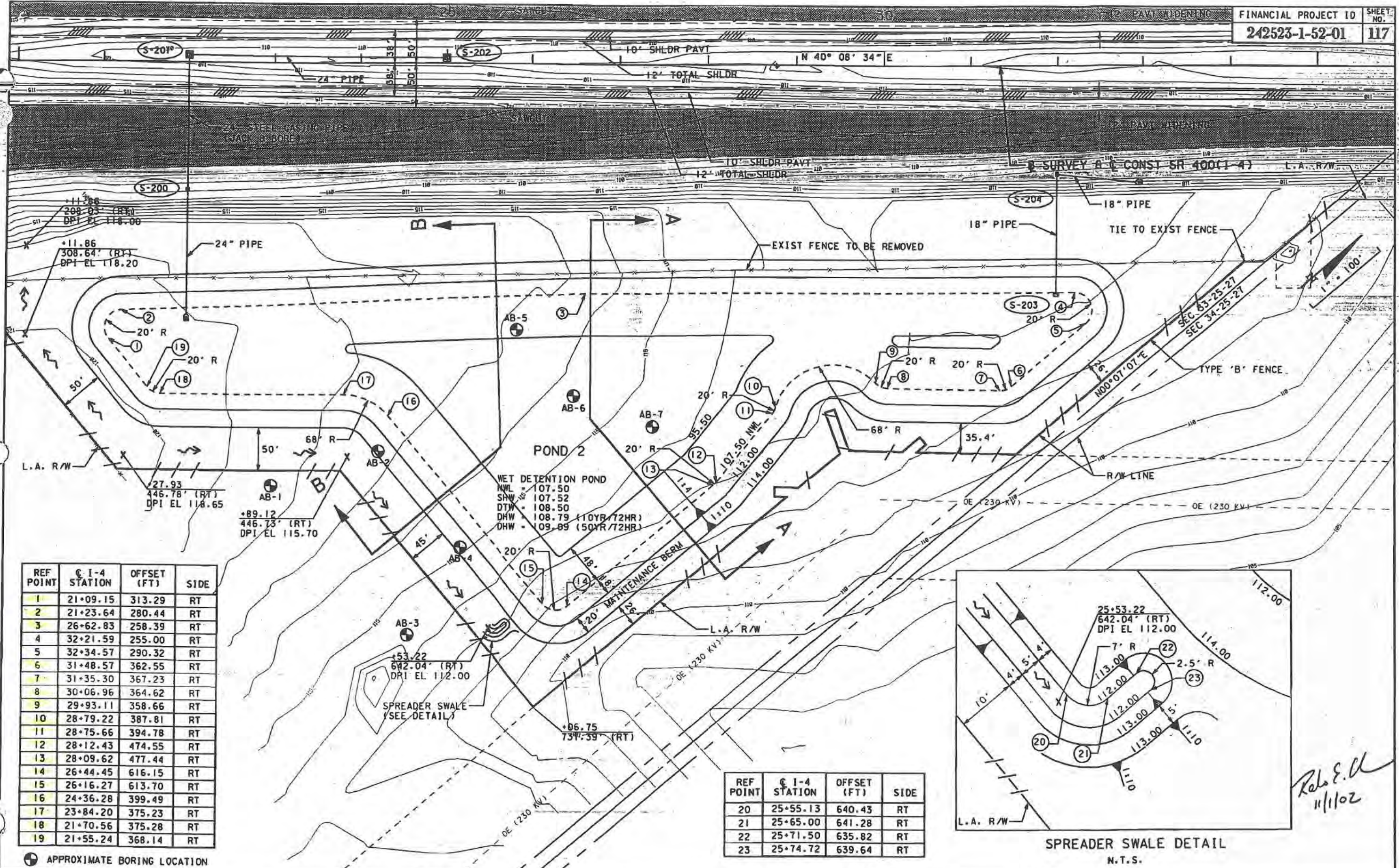
BASIN 2 SUMMARY

BASIN: 2	AREA (ac)		DISCHARGE (cfs) 10yr/72hr		DISCHARGE (cfs) 50yr/72hr	
	PRE	POST	PRE	POST	PRE	POST
B2	14.62	14.62	14.89		24.55	
B2-OFF	4.17	4.17	6.38	5.63	8.91	7.69
Total	18.79	18.79	21.27	5.63	33.46	7.69

Required Treatment Volume	1.22 ac-ft
Provided Treatment Volume	4.24 ac-ft
Pond 2 NWL	107.50 ft
Pollution Abatement Volume el	108.50 ft
Design High Water el (10yr/72hr)	
Pond 2	108.79 ft
Design High Water el (50yr/72hr)	
Pond 2	109.09 ft
Orifice Diameter	5.0 in
Recovery Volume	0.61 ac-ft
Recovery Time	21.00 hrs

100 yr Floodplain Elevation	108.98 ft
Floodplain impacts	0.53 ac-ft
Volume Available in pond for floodplain compensation	6.36 ac-ft

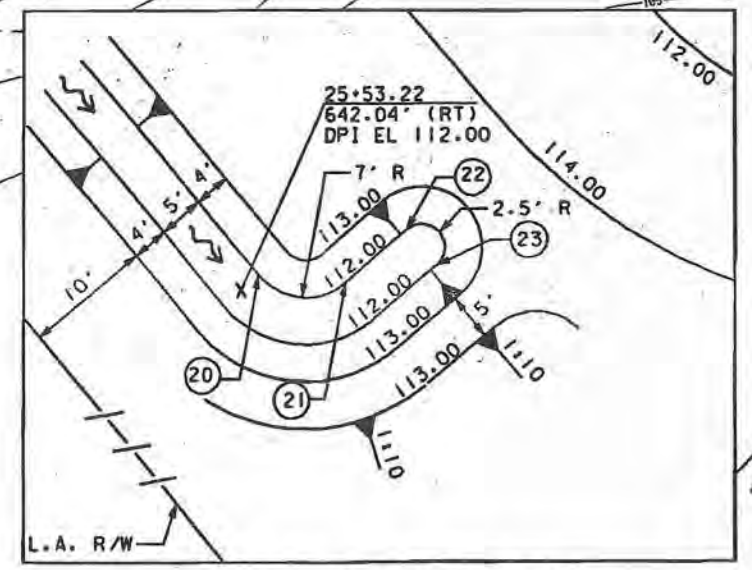
Proposed Pavement Untreated	0.00 ac
Existing Pavement Treated	0.67 ac
Existing Treated > Proposed Untreated?	Yes



REF POINT	STATION	OFFSET (FT)	SIDE
1	21+09.15	313.29	RT
2	21+23.64	280.44	RT
3	26+62.83	258.39	RT
4	32+21.59	255.00	RT
5	32+34.57	290.32	RT
6	31+48.57	362.55	RT
7	31+35.30	367.23	RT
8	30+06.96	364.62	RT
9	29+93.11	358.66	RT
10	28+79.22	387.81	RT
11	28+75.66	394.78	RT
12	28+12.43	474.55	RT
13	28+09.62	477.44	RT
14	26+44.45	616.15	RT
15	26+16.27	613.70	RT
16	24+36.28	399.49	RT
17	23+84.20	375.23	RT
18	21+70.56	375.28	RT
19	21+55.24	368.14	RT

APPROXIMATE BORING LOCATION

REF POINT	STATION	OFFSET (FT)	SIDE
20	25+55.13	640.43	RT
21	25+65.00	641.28	RT
22	25+71.50	635.82	RT
23	25+74.72	639.64	RT



SPREADER SWALE DETAIL
N.T.S.

Relo E. U
11/1/02

Scale: 1" = 40' (Horizontal)
 1" = 4' (Vertical)
 NAD 83 DATUM
 NAVD 83 DATUM
 AVAILABLE FROM: URS

REVISIONS			
DATE	BY	DESCRIPTION	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
 315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-9755
 PH (407) 422-0333 FAX (407) 423-2805
 NO. 000002

POND 2
DETAIL SHEET

BASIN 3

**PRE-DEVELOPMENT
HYDROLOGY**

BASIN 3

The limits of Basin 3 extend from station 43+50 to station 83+50 in the median, station 71+00 to station 85+30 to the left of I-4 and station 72+42.33 to station 82+00 to the right of I-4. Widening of I-4 will occur in the inside with the additional lanes sloping towards the median. The tapers for ramps A and B that connect to the Western Beltway and I-4 Interchange will be constructed all the way to the physical gore.

EXISTING (PRE-DEVELOPMENT) CONDITIONS

The existing median of I-4 within the limits of this basin is currently untreated. From station 43+50 to station 52+70, the median drains to a double 9 ft by 7 ft box culvert under the eastbound and westbound lanes of I-4. These culverts provide conveyance for 1470 acres of offsite flow under I-4 to the northwest. From station 52+70 to station 65+00, the median drains to a 36" RCP cross drain which conveys runoff from a 46 acres offsite area to the northwest side of I-4. From station 65+00 to station 83+50, the median drains to the existing quadruple 12 ft by 8 ft located at station 70+72. These culverts provide conveyance of 16,600 acres of offsite flow to the southeast side of I-4.

The median area between stations 43+50 and 52+70 has been ignored in the pre-developed calculations since it is part of a much larger basin with a Tc of 353 minutes and produces an insignificant discharge at peak rate.

PROPOSED (POST-DEVELOPMENT) CONDITIONS

The proposed I-4 widening will add an additional lane to the inside of the existing eastbound and westbound lanes. The inside shoulder is also widened from the existing 4' to 10'. The entire median and ramps A and B tapers within the limits of the basin will be treated into a new stormwater management facility (Pond 3) located on the west side of I-4 at station 72+00. In this basin, 2.59 acres of existing pavement is treated in the proposed pond. This will be used as compensation for areas where treatment of proposed pavement is not feasible or impractical. The proposed pond will discharge into Davenport Creek just upstream of the quadruple 12 ft by 8 ft box culvert.

The proposed widening of I-4 will encroach into the 100 year floodplain (el. 93.13). Floodplain compensation will be provided in Pond 3 and calculations are provided which verify connectivity

between the floodplain and the pond.

Wetlands #4, #5 and #7 will be slightly impacted by the extensions of the double 9 ft by 7 ft box culvert and the quadruple 12 ft by 8 ft box culvert. Pond 3 is located adjacent to wetland #4 and a minimum of 25' buffer has been provided between the pond and the wetland.

POND 3 DESIGN

Pond 3 is a wet detention system. In accordance with SFWMD criteria, the pond provides water quality detention (or pollution abatement) of the first 1" of runoff from the total contributing area or 2.5" of runoff from the impervious area, whichever is greater.

The control structure of this pond has been designed such that the post-development peak rate of discharge does not exceed the pre-development peak rate of discharge for the 10 year / 72 hour storm (per SFWMD criteria). The 50 year / 72 hour storm is also routed through the pond to determine the discharge rate for the impact fee as imposed by the Reedy Creek Improvement District (RCID) for systems discharging into RCID fee collection boundary.

The orifice has been designed to recover ½" of the detention volume in 24 hours (per SFWMD criteria).

SECTION INFORMATION

This section contains the pre-development and post-development basin maps, basin area calculations which include the Santa Barbara worksheet, DCIA (Directly Connected Impervious Area), water surface area, %DCIA, NDCIA (Non-Directly Connected Impervious Area); composite Curve Number (CN) and Time of Concentration (Tc) calculations. Also included are: treatment volume calculation worksheet which provides the pollution abatement volume required and provided and the recovery volume required; stage/storage worksheet; pond area calculations; nodal diagrams for the AdICPR model, pre-development and post-development hydrographs for the 10yr/72hr and 50yr/72hr events; post-development routing models for the 10yr/72hr and 50yr/72hr storm events and 100-yr Floodplain Compensation calculations.

BASIN 3

**POST-DEVELOPMENT
HYDROLOGY**

URS Greiner Woodward Clyde

BASIN 3 SUMMARY

BASIN: 3	AREA (ac)		DISCHARGE (cfs) 10yr/72hr		DISCHARGE (cfs) 50yr/72hr	
	PRE	POST	PRE	POST	PRE	POST
B3	14.62	19.50	15.82		23.50	
B3WB	1.66		6.89	4.76	9.03	6.89
B3EB	1.28		5.67		7.36	
Total	17.56	19.50	28.38	4.76	39.89	6.89

Required Treatment Volume	1.63 ac-ft
Provided Treatment Volume	4.50 ac-ft
Pond 3 NWL	91.00 ft
Pollution Abatement Volume ei	92.45 ft
Design High Water ei (10yr/72hr)	
Pond 3	93.25 ft
Design High Water ei (50yr/72hr)	
Pond 3	93.96 ft
Orifice Diameter	3.75 in
Recovery Volume	0.81 ac-ft
Recovery Time	23.00 hrs

100 yr Floodplain Elevation	93.13 ft
Floodplain impacts	2.94 ac-ft
Volume Available in pond for floodplain compensation	6.72 ac-ft

Proposed Pavement Untreated	0.00 ac
Existing Pavement Treated	2.59 ac
Existing Treated > Proposed Untreated?	Yes

URS Greiner Woodward Clyde

MADE BY: REC DATE: 08/08/01 JOB NO. V100264.03
 CHECKED BY: SJD DATE: 8/31/01 SHEET NO.
 CALCULATIONS FOR: 1-4 SIX LANE POND: POND 3 BASIN: B3

Water Quality

Total Basin Area = 19.50 ac
 Paved Area = 6.61 ac
 Pond Area at NWL = 2.99 ac

A. 1.0 " Over Total Basin Area = 1.63 Ac-Ft
 B. 2.5 " Over Paved Area = 1.38 Ac-Ft
 Required PAV = 1.63 Ac-Ft

Stage Storage Calculations

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
98.75	4.71				28.34
		4.30	2.00	8.59	
96.75	3.88				19.75
		3.55	4.30	15.25	
92.45 (PAV)	3.21				4.50
		3.10	1.45	4.50	
91.00 (NWL)	2.99				
90.5					
80.5					

Bleed Down Volume
 1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.81 \text{ Ac-Ft}$
 Volume Remaining in Pond after Bleed Down = $\text{PAV} - \text{Bleed Down Volume} = 3.69 \text{ Ac-Ft}$

Job I-4 Six LANE

Project No. Y100264.03

Page of

Description BASIN 3

Computed by REC

Sheet of

PAVEMENT COMPENSATION

Checked by SJP

Date 02/6/01

Date 8/31/01

Reference

EXISTING Pavement to be treated :

(i) WB I-4 (STA 71+00 TO 85+25) \Rightarrow 1425 LF

$$(8525 - 7100)(24+10) / 43560 = 1.11 \text{ AC } \checkmark$$

(ii) EB I-4 (STA 72+42.33 TO 82+00) \Rightarrow 957.67 LF

$$(8200 - 7242.33)(24+10) / 43560 = 0.75 \text{ AC } \checkmark$$

(iii) MEDIAN (STA 43+50 TO 83+50) \Rightarrow 4000 LF

$$(8350 - 4350)(4+4) / 43560 = 0.73 \text{ AC } \checkmark$$

TOTAL EXIST PAVEMENT TO BE TREATED = 2.59 AC

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
 Copyright 1989, Streamline Technologies, Inc.

BASIN 3, 1/2" OF DETENTION VOLUME IN 24 HRS
 02/07/01

NODAL STAGE/VOLUME/FLOW REPORT
 =====

NODE ID: POND3

TIME (hrs)	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	OTHER (cfs)	OUTFLOW (cfs)
22.00	92.20	3.72	.00	.00	.00	.40
22.25	92.20	3.71	.00	.00	.00	.40
22.50	92.20	3.71	.00	.00	.00	.40
22.75	92.19	3.70	.00	.00	.00	.40
23.00	92.19	3.69	.00	.00	.00	.40
23.25	92.19	3.68	.00	.00	.00	.40
23.50	92.18	3.67	.00	.00	.00	.40
23.75	92.18	3.66	.00	.00	.00	.40
24.00	92.18	3.66	.00	.00	.00	.40
24.25	92.18	3.65	.00	.00	.00	.40
24.50	92.17	3.64	.00	.00	.00	.40
24.75	92.17	3.63	.00	.00	.00	.40
25.00	92.17	3.62	.00	.00	.00	.40
25.25	92.17	3.62	.00	.00	.00	.40
25.50	92.16	3.61	.00	.00	.00	.40
25.75	92.16	3.60	.00	.00	.00	.40
26.00	92.16	3.59	.00	.00	.00	.40
26.25	92.16	3.58	.00	.00	.00	.40
26.50	92.15	3.57	.00	.00	.00	.40
26.75	92.15	3.57	.00	.00	.00	.40
27.00	92.15	3.56	.00	.00	.00	.40
27.25	92.15	3.55	.00	.00	.00	.39
27.50	92.14	3.54	.00	.00	.00	.39
27.75	92.14	3.53	.00	.00	.00	.39
28.00	92.14	3.53	.00	.00	.00	.39
28.25	92.13	3.52	.00	.00	.00	.39
28.50	92.13	3.51	.00	.00	.00	.39
28.75	92.13	3.50	.00	.00	.00	.39
29.00	92.13	3.49	.00	.00	.00	.39
29.25	92.12	3.48	.00	.00	.00	.39
29.50	92.12	3.48	.00	.00	.00	.39
29.75	92.12	3.47	.00	.00	.00	.39
30.00	92.12	3.46	.00	.00	.00	.39

← Volume remaining
 in pond after
 bleed down
 Recovery in 23 hrs

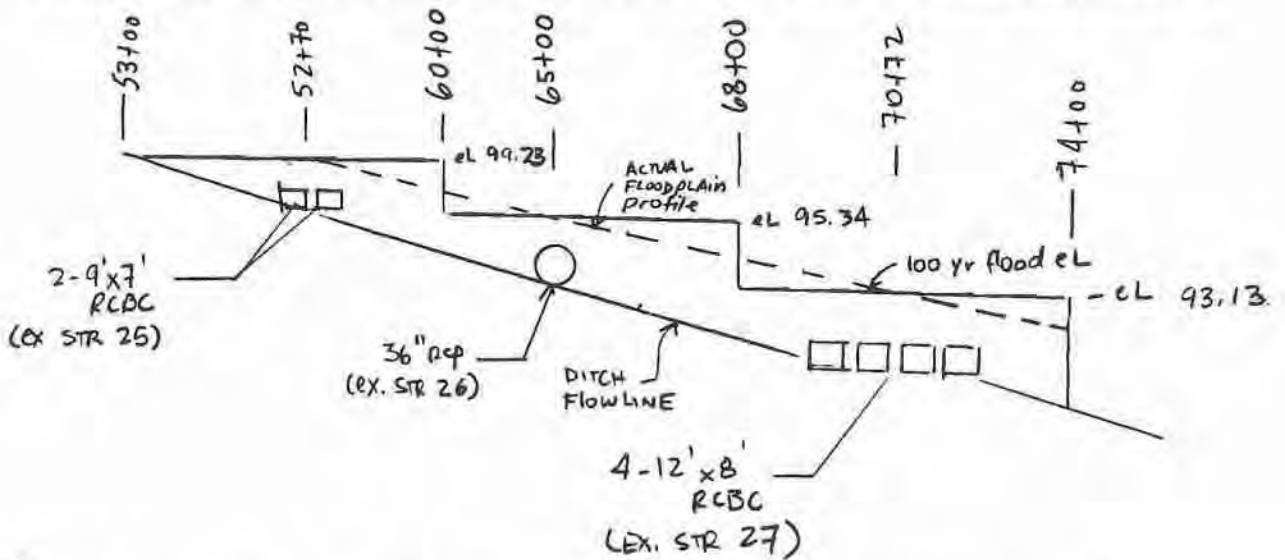
Job I-4 SIX LANINGS
 Description BASIN 3
100 YR FLOODPLAIN IMPACTS

Project No. V100264.03
 Computed by RFC
 Checked by MPL

Page 3 of 3
 Sheet of
 Date 11/3/99
 Date 11/5/99

Reference

Floodplain encroaches into MEDIAN of I-4, AND PORTION OF EB I-4



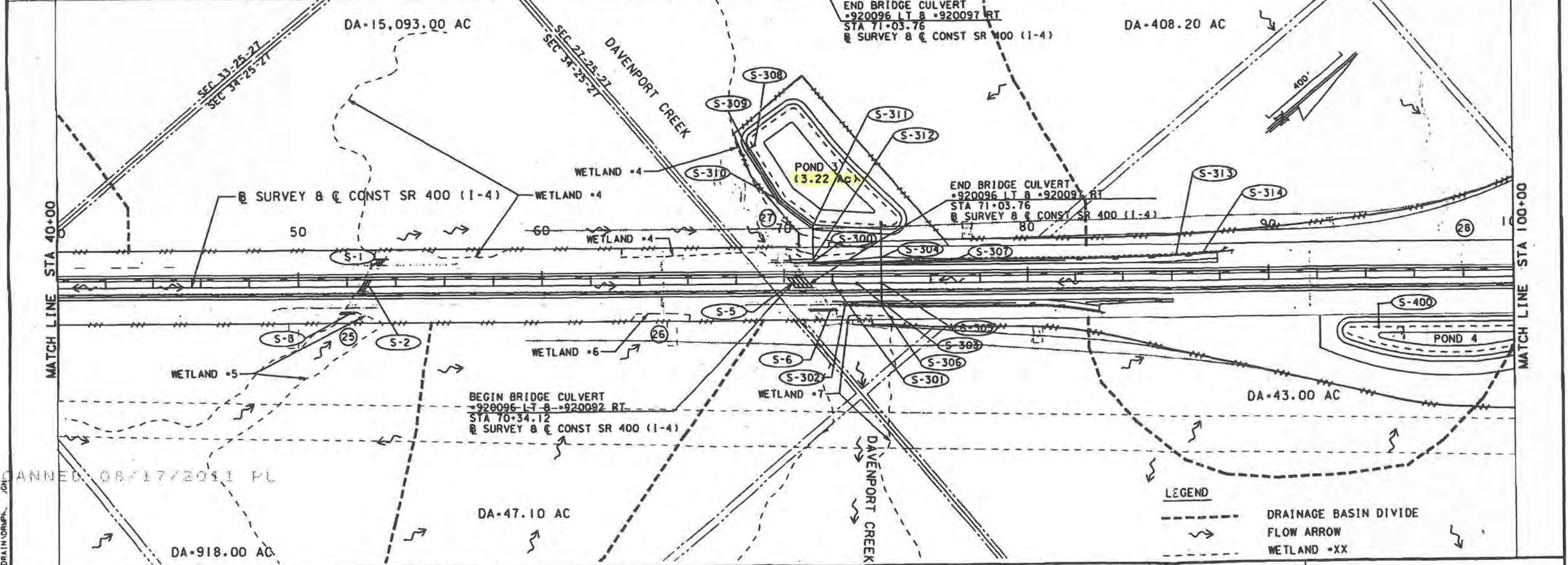
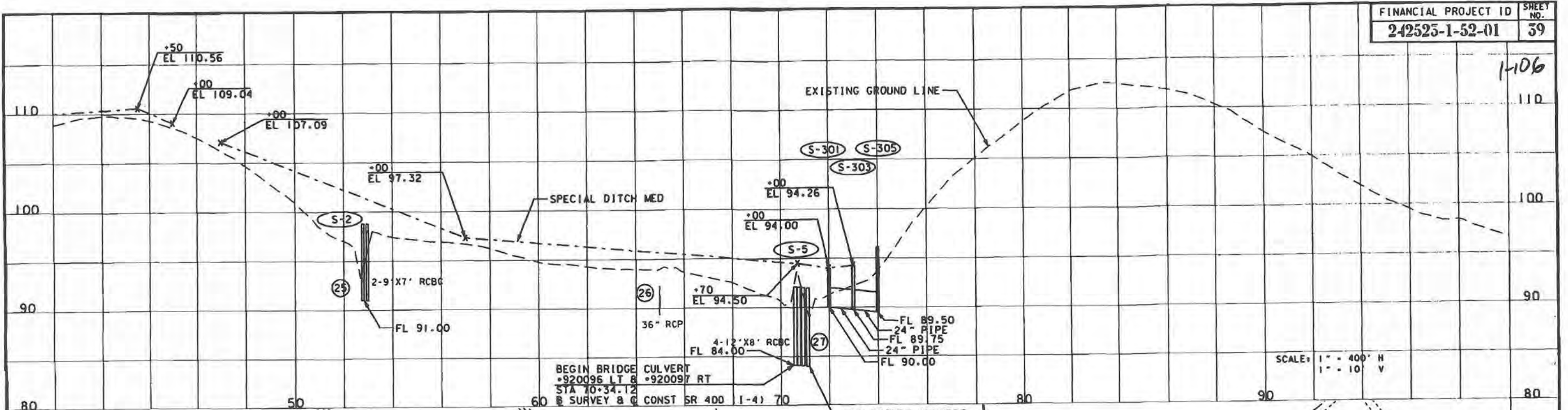
TO BE CONSERVATIVE, THE FLOODPLAIN IMPACTS WERE COMPUTED USING THE LADDER APPROACH AS SHOWN ABOVE.

100 yr floodplain impacts = 2.935 AC-ft

the following AdICPR model shows that water will back up into the pond from the floodplain and is compensated.

020204-8

FINANCIAL PROJECT ID
242525-1-52-01 SHEET NO.
59



LEGEND

--- DRAINAGE BASIN DIVIDE
 → FLOW ARROW
 ~ WETLAND +XX

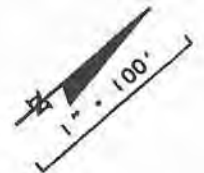
SCANNED 08/17/2011 PL

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

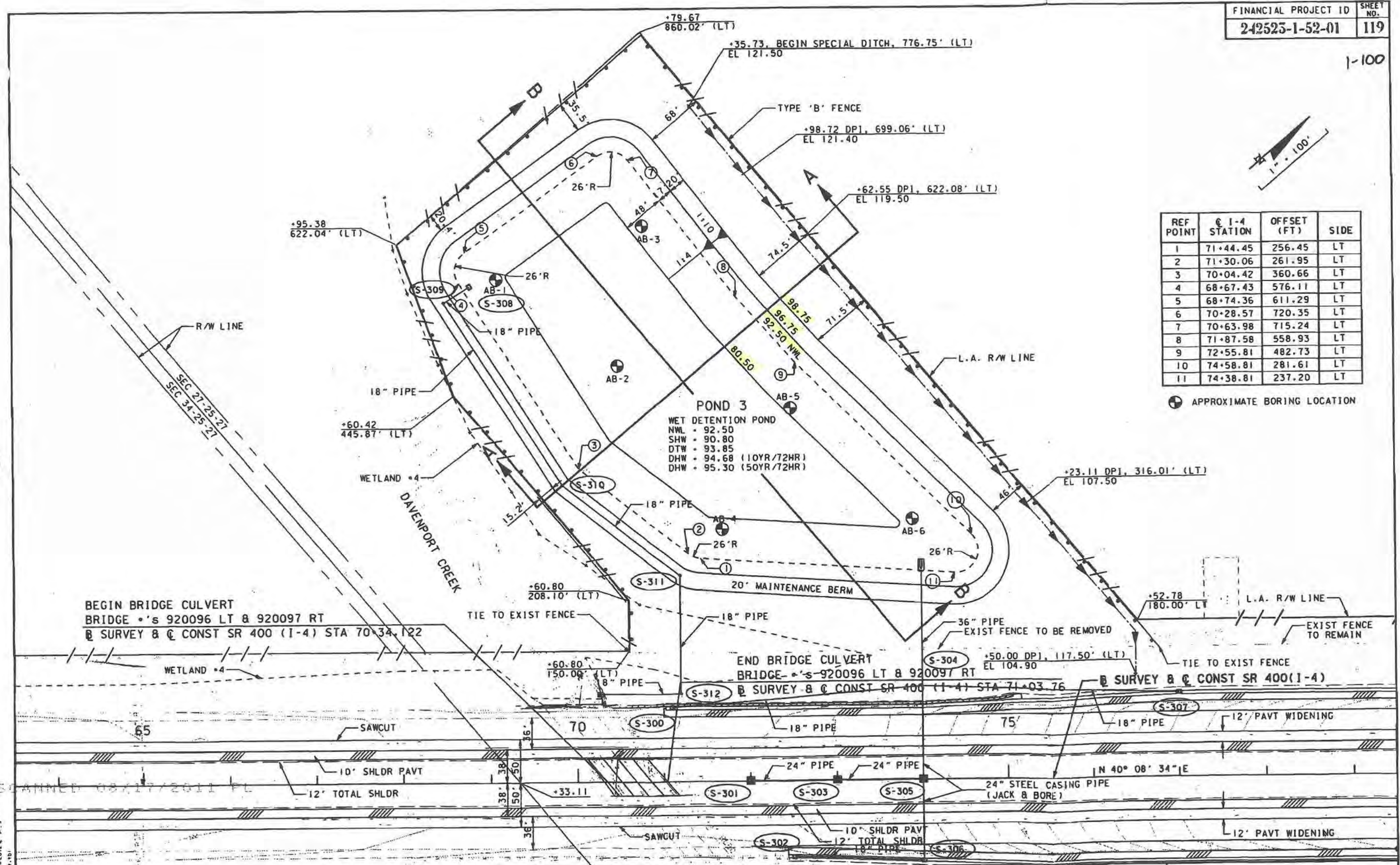
URS
 315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-1975
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

DRAINAGE MAP F-570



REF POINT	© I-4 STATION	OFFSET (FT)	SIDE
1	71+44.45	256.45	LT
2	71+30.06	261.95	LT
3	70+04.42	360.66	LT
4	68+67.43	576.11	LT
5	68+74.36	611.29	LT
6	70+28.57	720.35	LT
7	70+63.98	715.24	LT
8	71+87.58	558.93	LT
9	72+55.81	482.73	LT
10	74+58.81	281.61	LT
11	74+38.81	237.20	LT

⊕ APPROXIMATE BORING LOCATION



BEGIN BRIDGE CULVERT
BRIDGE •s 920096 LT & 920097 RT
@ SURVEY & © CONST SR 400 (I-4) STA 70+34.122

END BRIDGE CULVERT
BRIDGE •s 920096 LT & 920097 RT
@ SURVEY & © CONST SR 400 (I-4) STA 71+03.76

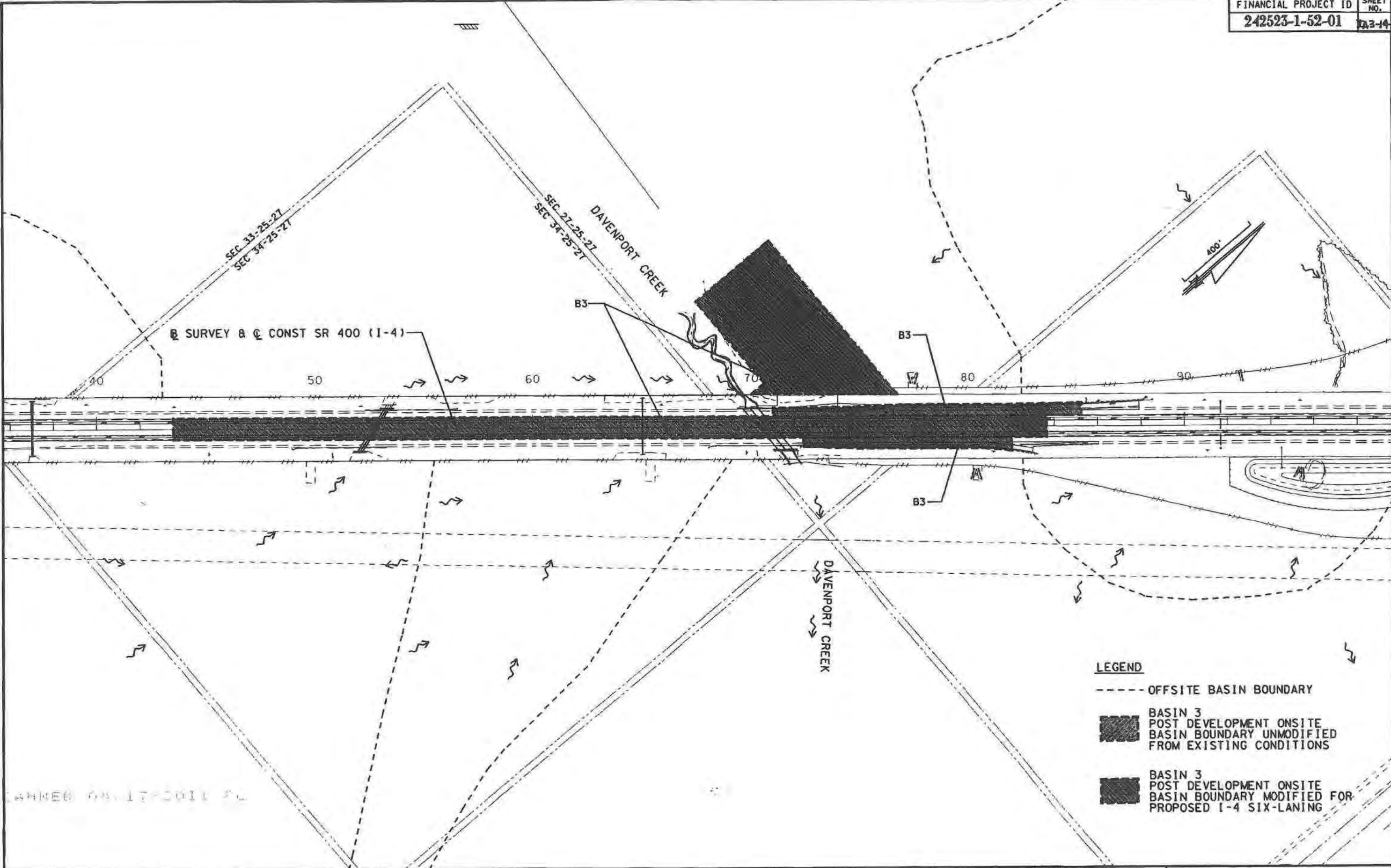
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-9975
PH (407) 422-0353 FAX (407) 425-2695

POND 3
DETAIL SHEET

F-571



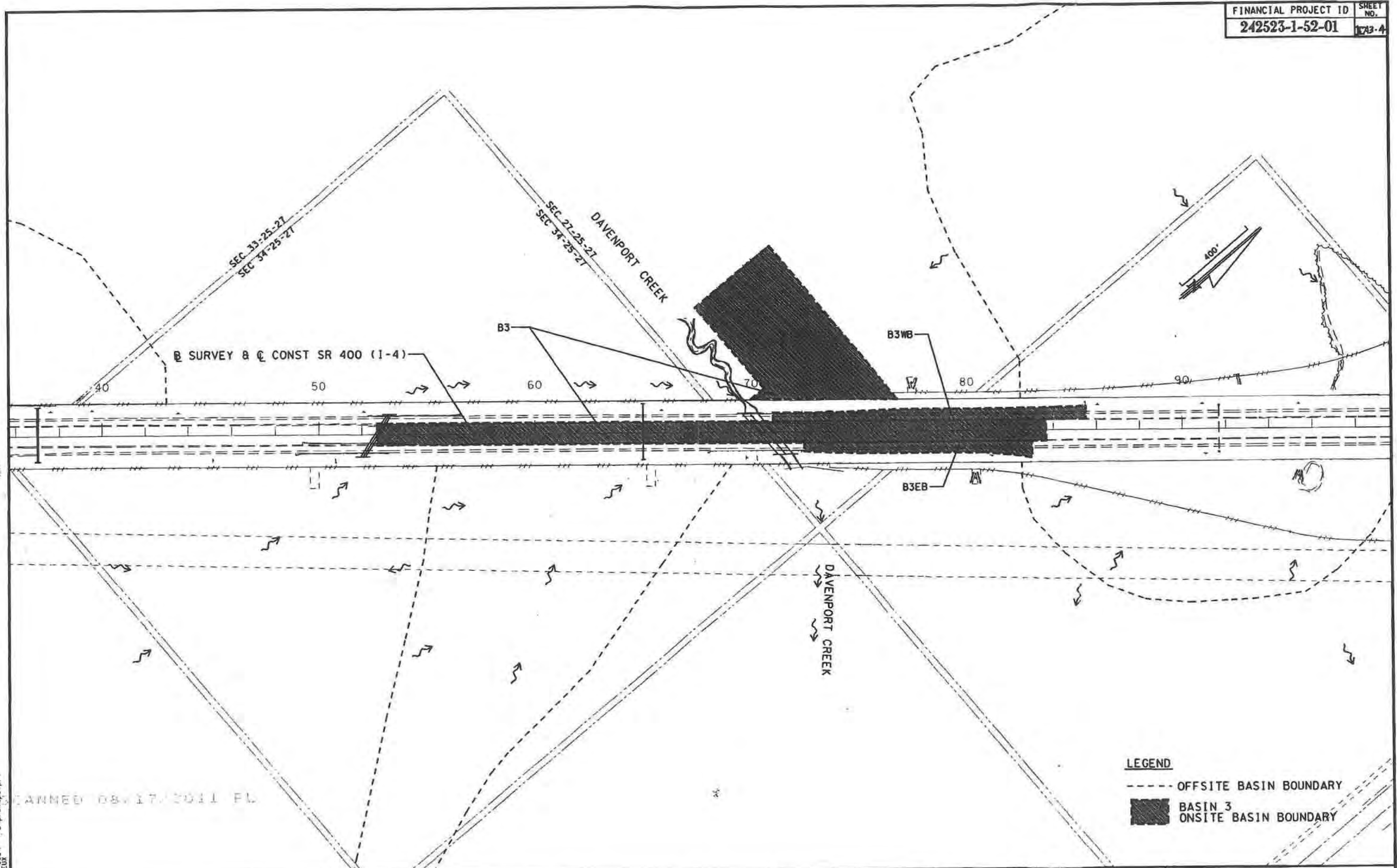
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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1975
PH (407) 422-0333 FAX (407) 423-2885
NO. 000002

BASIN 3
POST DEVELOPMENT BASIN



LEGEND

--- OFFSITE BASIN BOUNDARY

█ BASIN 3 ONSITE BASIN BOUNDARY

PLANNED 08/17/2011 FL

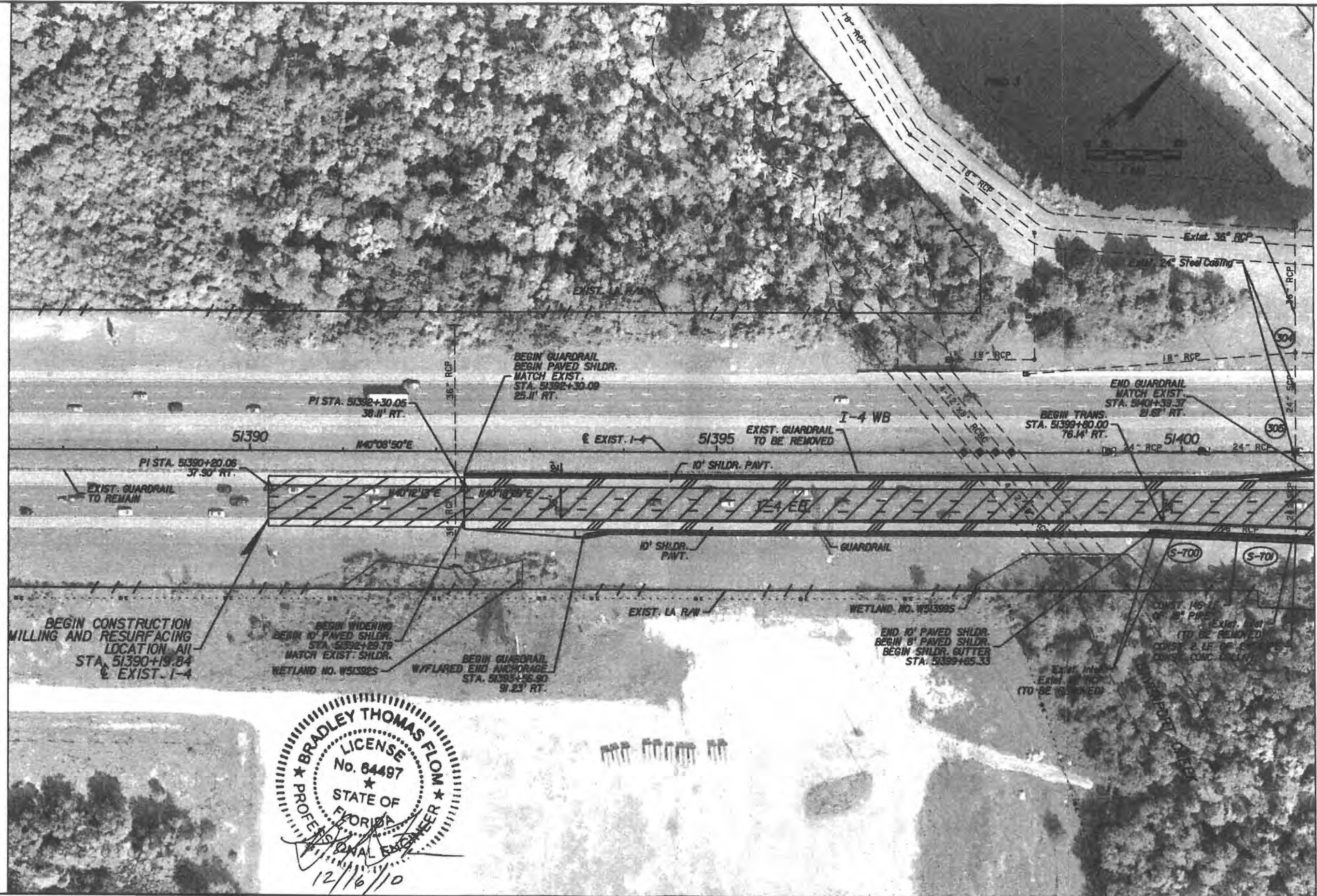
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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1915
PH (407) 422-0353 FAX (407) 423-8695
NO. 000002

**BASIN 3
PRE DEVELOPMENT BASIN**



BRADLEY THOMAS FLOW
 LICENSE
 No. 64497
 STATE OF
 FLORIDA
 PROFESSIONAL ENGINEER
 12/16/10

ADDITIONAL INFORMATION
 DEC 17 2010
 ORLANDO SERVICE CENTER
 MATCHLINE STA 51401+50.00

APP# 101124-20

SCANNED

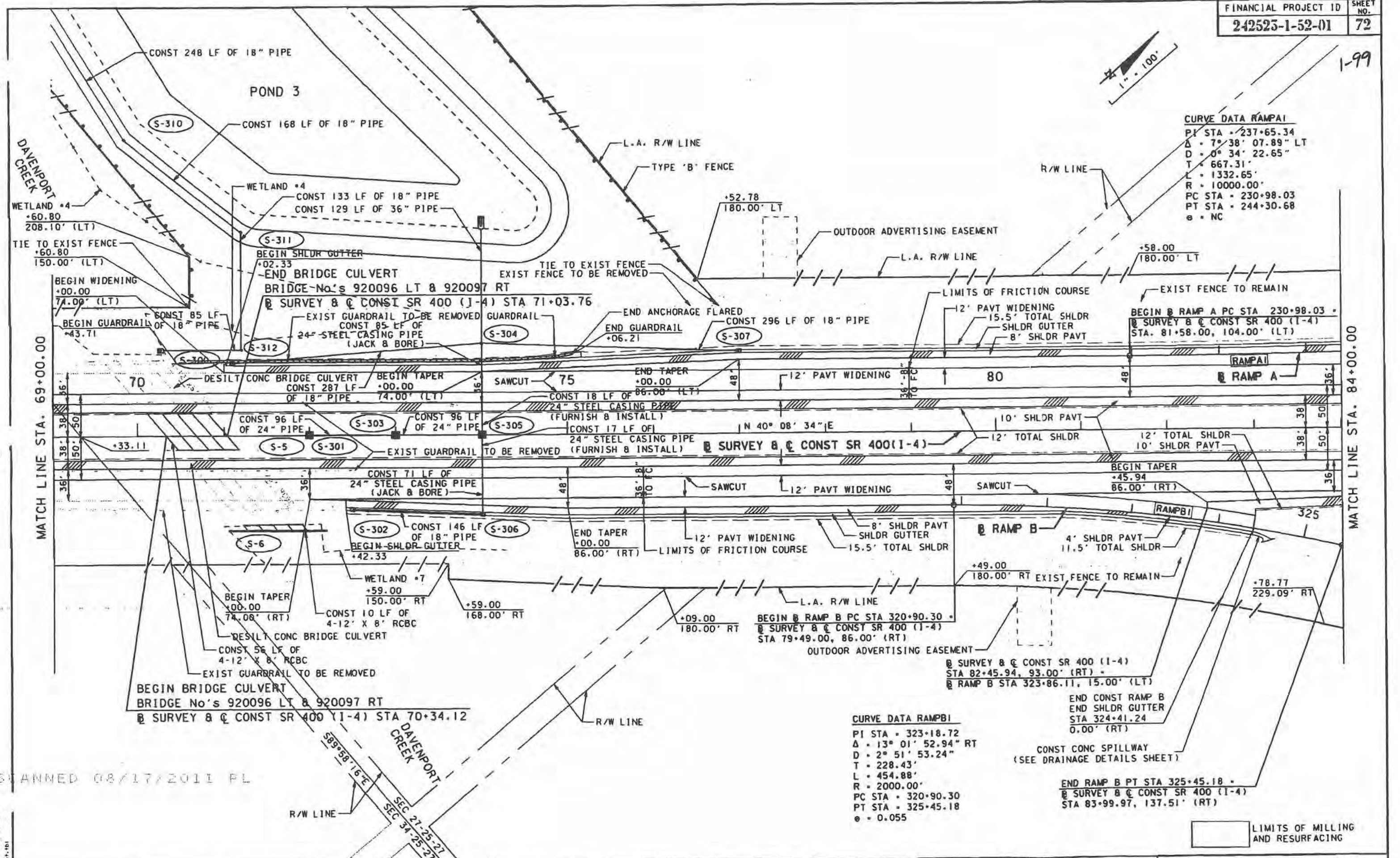
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

HNTB
 HNTB CORPORATION
 60 CRESCENT EXECUTIVE COURT
 SUITE 400
 LAKE MARY, FL 32746
 (407) 805-0355
 CERT. OF AUTH. NO. 6500
 ENGINEER OF RECORD: BRADLEY T. FLOW, P.E.
 FL. REGISTRATION NO. 64497

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	190258-1-32-46

PLAN SHEET
I-4 (SR 400)

SHEET NO.
 F-574



CURVE DATA RAMP A
PI STA = 237+65.34
Δ = 7° 38' 07.89" LT
D = 0° 34' 22.65"
T = 667.31'
L = 1332.65'
R = 10000.00'
PC STA = 230+98.03
PT STA = 244+30.68
e = NC

CURVE DATA RAMP B
PI STA = 323+18.72
Δ = 13° 01' 52.94" RT
D = 2° 51' 53.24"
T = 228.43'
L = 454.88'
R = 2000.00'
PC STA = 320+90.30
PT STA = 325+45.18
e = 0.055

END CONST RAMP B
END SHLDR GUTTER
STA 324+41.24
0.00' (RT)
CONST CONC SPILLWAY
(SEE DRAINAGE DETAILS SHEET)

END RAMP B PT STA 325+45.18
SURVEY & CONST SR 400 (I-4)
STA 83+99.97, 137.51' (RT)

LIMITS OF MILLING AND RESURFACING

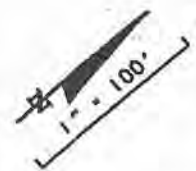
STAMPED 08/17/2011 PL

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-875
PH (407) 422-0353 FAX (407) 423-2695

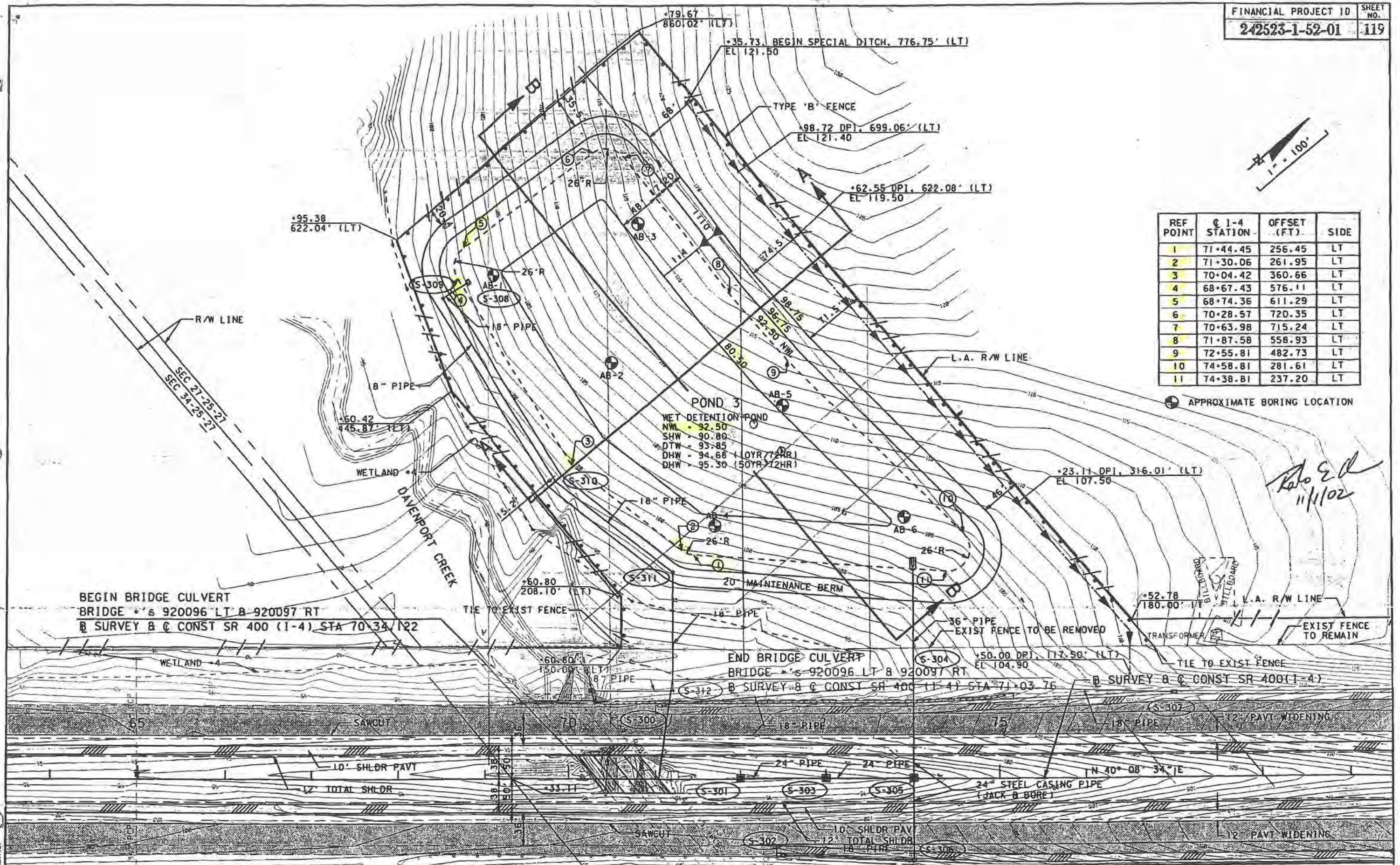
SR 400 (I-4) WIDENING
69+00.00 TO 84+00.00



REF POINT	C 1-4 STATION	OFFSET (FT)	SIDE
1	71+44.45	256.45	LT
2	71+30.06	261.95	LT
3	70+04.42	360.66	LT
4	68+67.43	576.11	LT
5	68+74.36	611.29	LT
6	70+28.57	720.35	LT
7	70+63.98	715.24	LT
8	71+87.58	558.93	LT
9	72+55.81	482.73	LT
10	74+58.81	281.61	LT
11	74+38.81	237.20	LT

APPROXIMATE BORING LOCATION

Rob E. C.
11/1/02

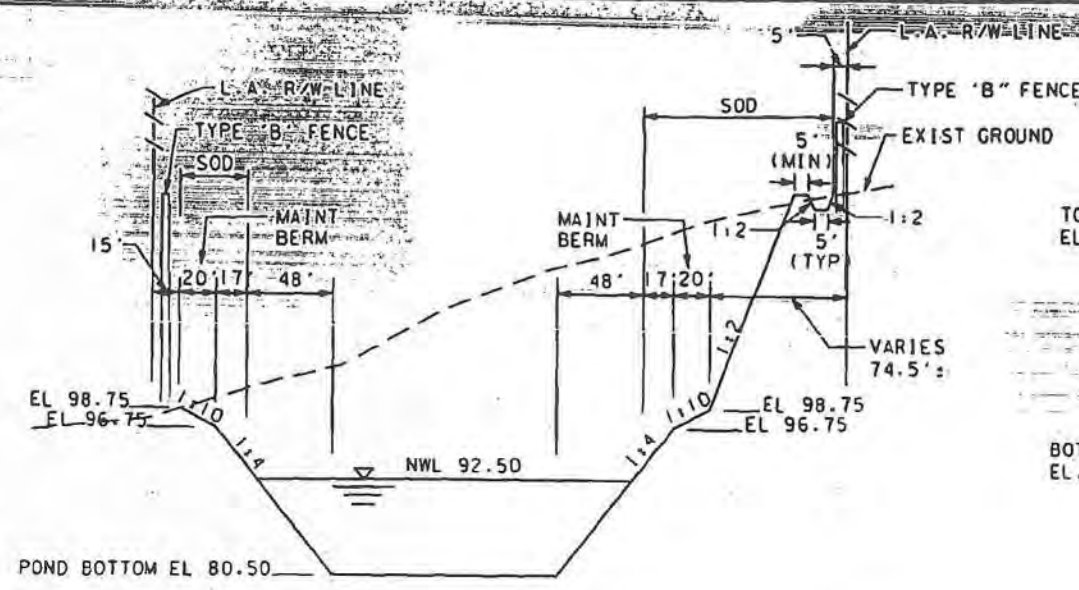


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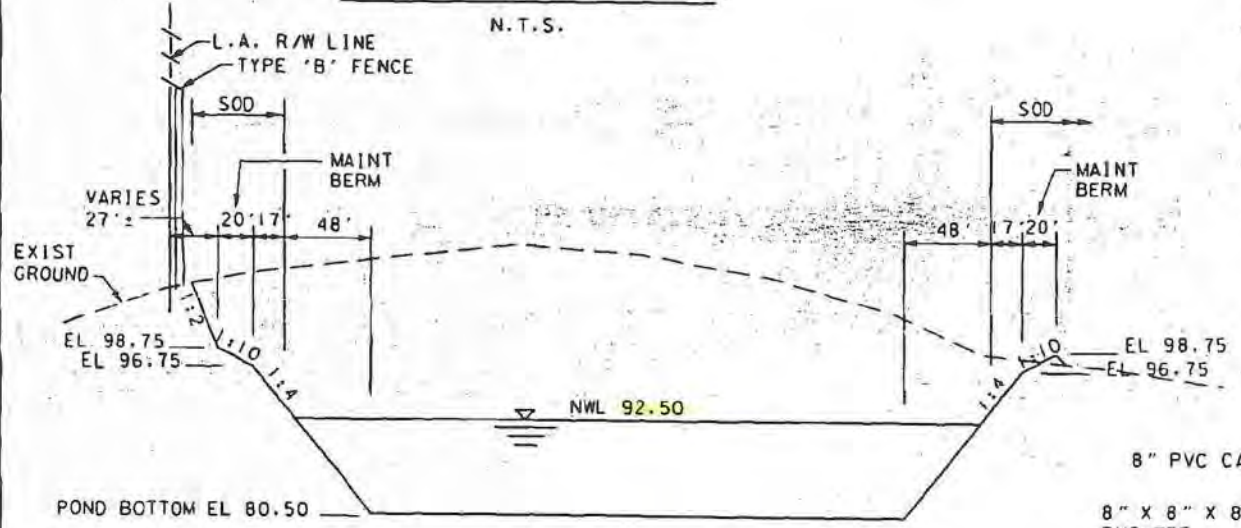
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1975
PH (407) 422-0353 FAX (407) 423-2695
NO. 000002

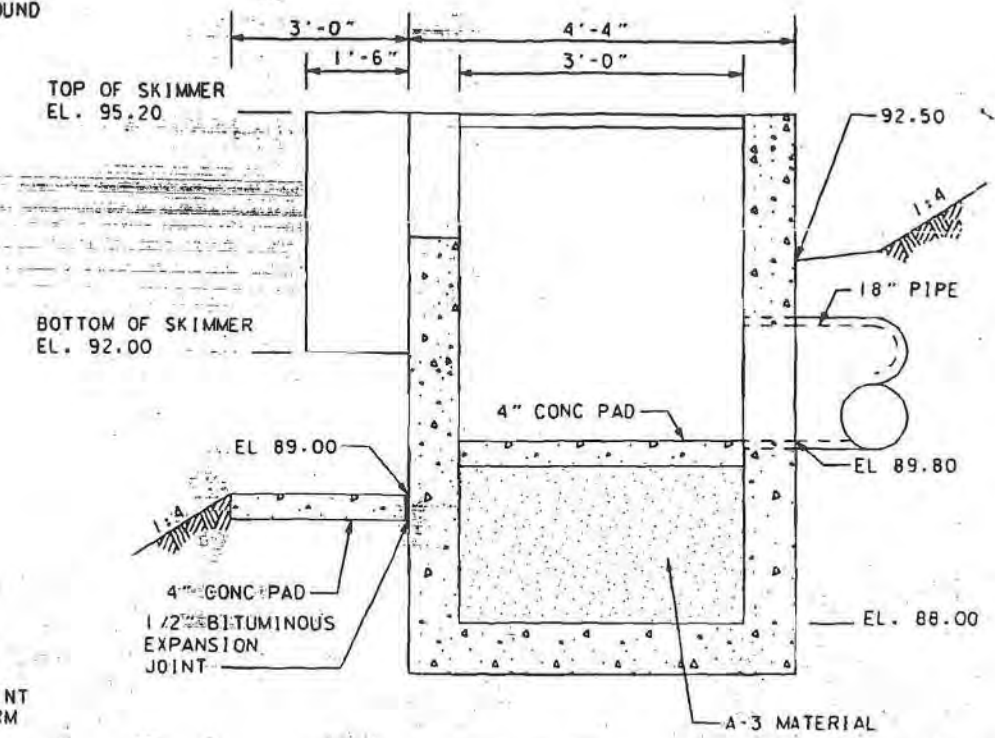
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DETAIL SHEET



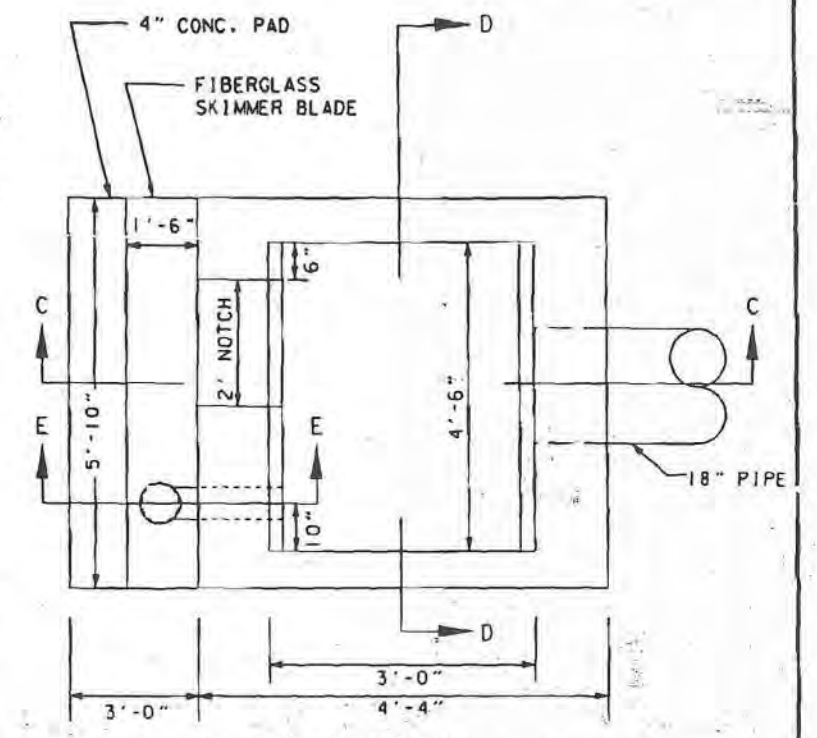
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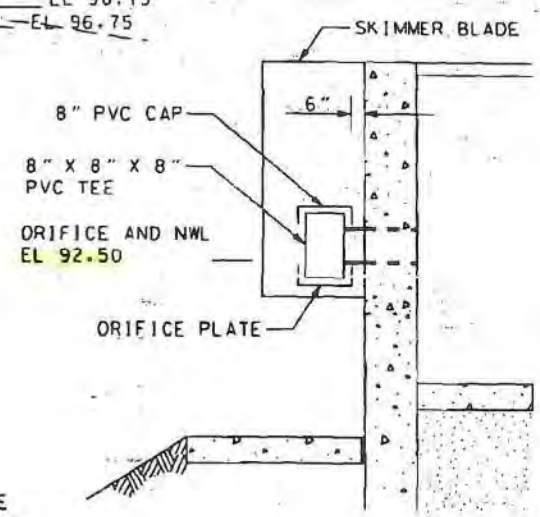
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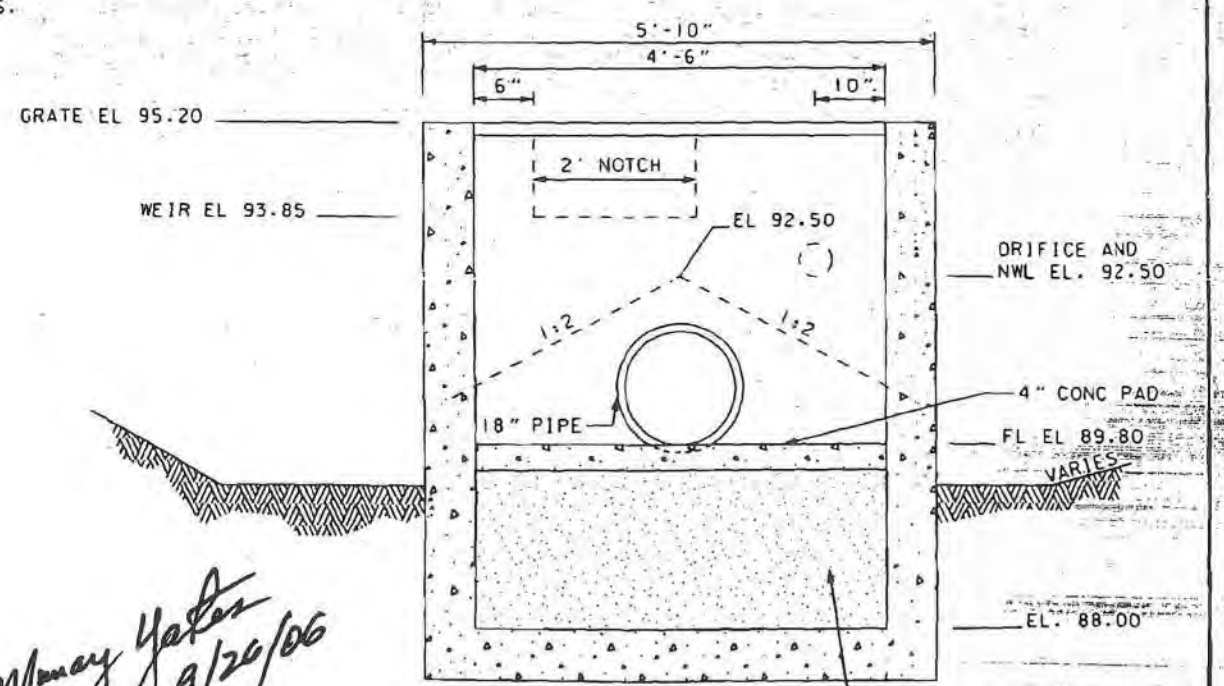
SECTION C-C
N.T.S.



PLAN VIEW
CONTROL STRUCTURE S-308
D.B.I. TYPE E MODIFIED
N.T.S.



SECTION E-E
N.T.S.



SECTION D-D
N.T.S.

NOTES:

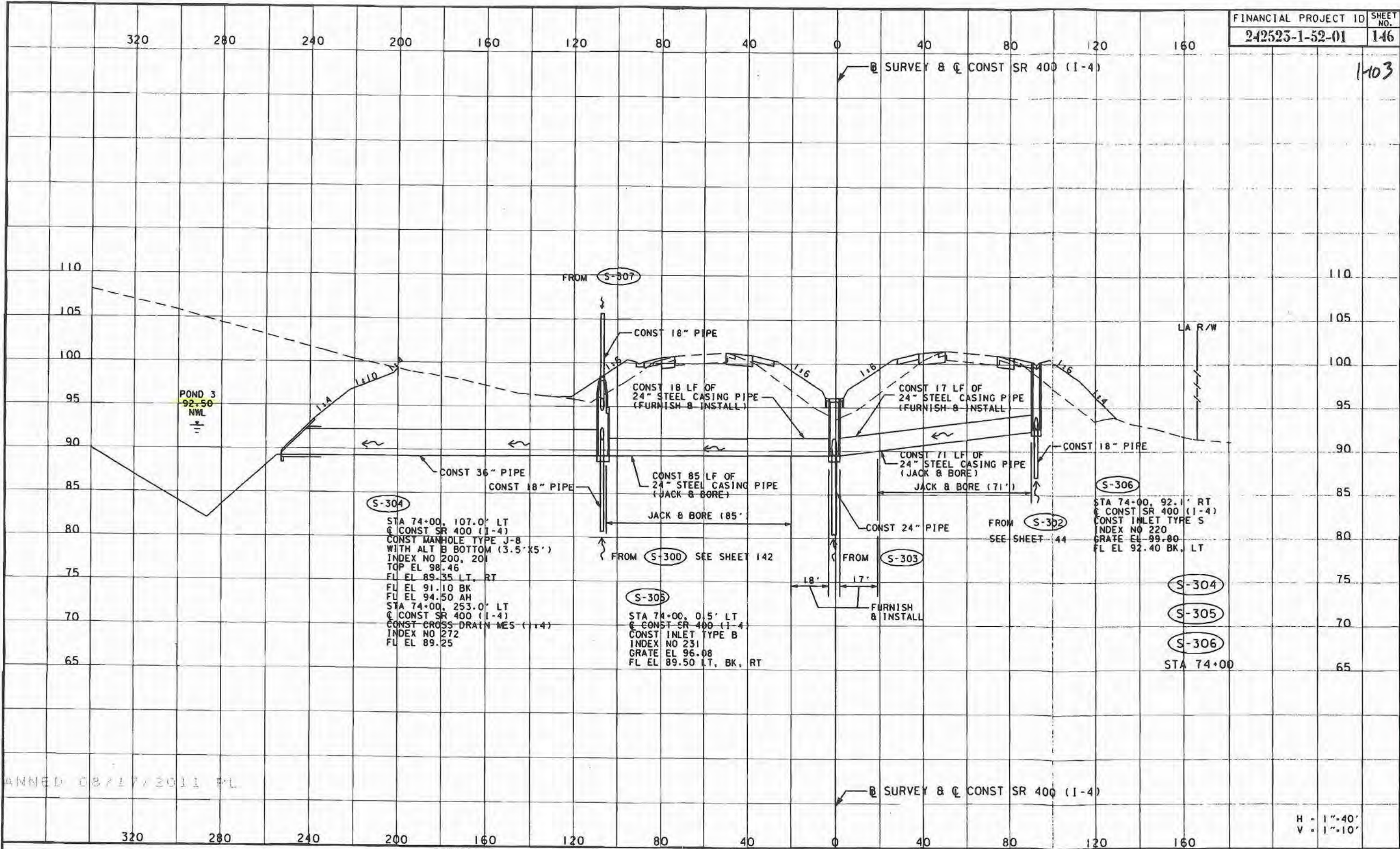
1. MAINTENANCE BERM SHALL BE SOD ON COMPACTED FILL.
2. SKIMMER TO BE CONSTRUCTED OF 3/16" FIBERGLASS, REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES TO BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS.
3. SKIMMER BLADE, FASTENERS, PVC PIPE AND CONCRETE PAD, ETC. TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLET TYPE E MODIFIED (CONTROL STRUCTURE).
4. MINIMUM RADIUS FOR CURVES AT NORMAL WATER LEVEL (NWL) IS 20 FEET. CURVES ABOVE AND BELOW NWL ARE CONCENTRIC. MINIMUM RADIUS FOR CURVES BELOW NWL IS 5 FEET.
5. THE ORIFICE PLATE SHALL BE 8" PVC CAP W/ HOLE DRILLED TO 3.75" AND SOLVENT WELDED TO TEE PER MANUFACTURER'S RECOMMENDATIONS.

6. See sheet 115A for as-built data. 7. See plan sheet 115C for bench mark data.

Murray Yates
9/26/06

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

1403



S-304
 STA 74+00, 107.0' LT
 CONST SR 400 (1-4)
 CONST MANHOLE TYPE J-8
 WITH ALT B BOTTOM (3.5'x5')
 INDEX NO 200, 201
 TOP EL 98.46
 FL EL 89.35 LT, RT
 FL EL 91.10 BK
 FL EL 94.50 AH
 STA 74+00, 253.0' LT
 CONST SR 400 (1-4)
 CONST CROSS-DRAIN MES (1:4)
 INDEX NO 272
 FL EL 89.25

S-305
 STA 74+00, 0.5' LT
 CONST SR 400 (1-4)
 CONST INLET TYPE B
 INDEX NO 231
 GRATE EL 96.08
 FL EL 89.50 LT, BK, RT

S-306
 STA 74+00, 92.1' RT
 CONST SR 400 (1-4)
 CONST INLET TYPE S
 INDEX NO 220
 GRATE EL 99.80
 FL EL 92.40 BK, LT

S-304
S-305
S-306
 STA 74+00

REVISIONS			
DATE	BY	DESCRIPTION	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

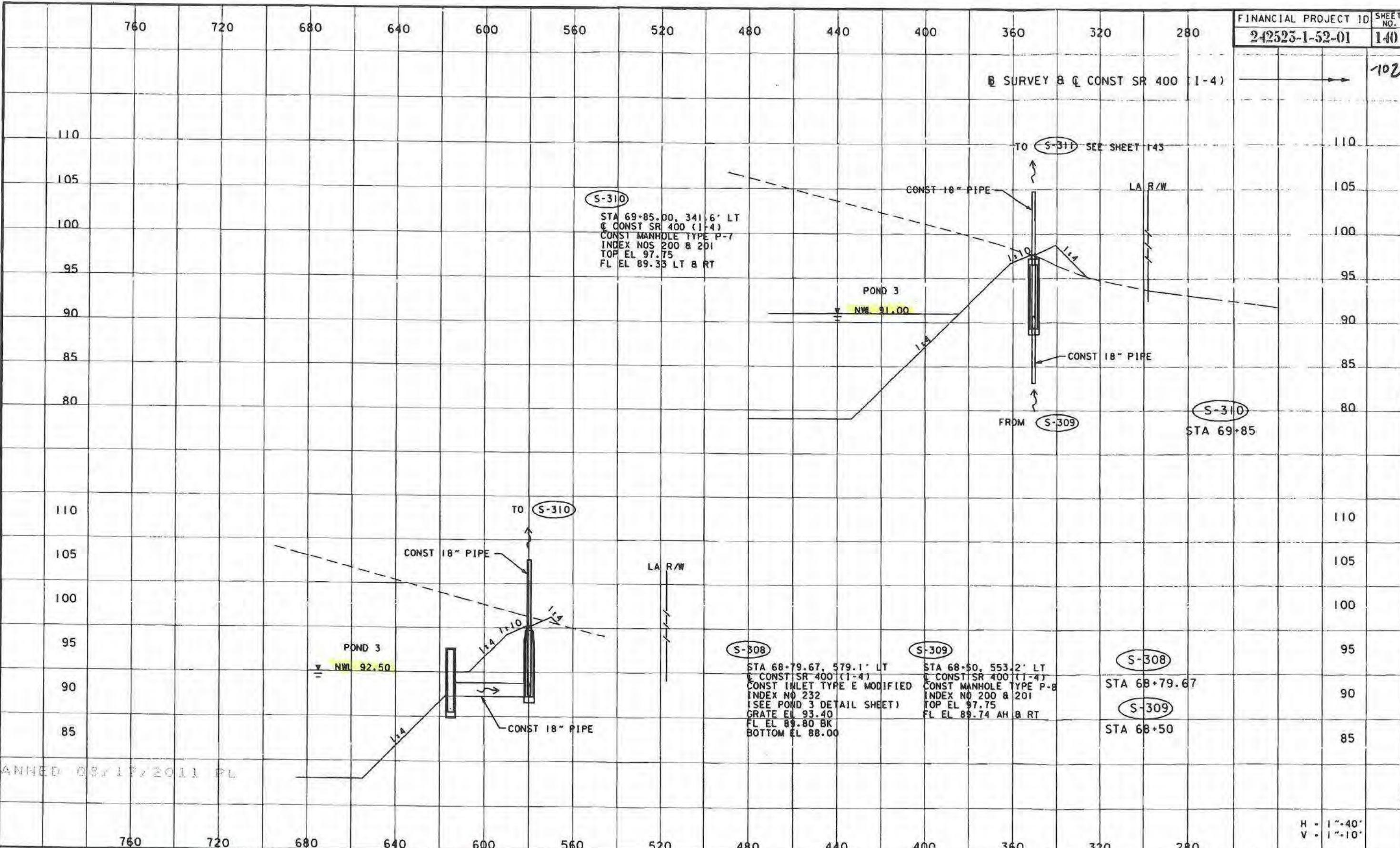
URS
 315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-1915
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

SR 400 (1-4)
DRAINAGE STRUCTURE
CROSS SECTIONS

H = 1"=40'
V = 1"=10'

102

☐ SURVEY & ☐ CONST SR 400 (1-4)



PRINTED OR 11/2011 PL

MON, ACC. R. 11, 2002
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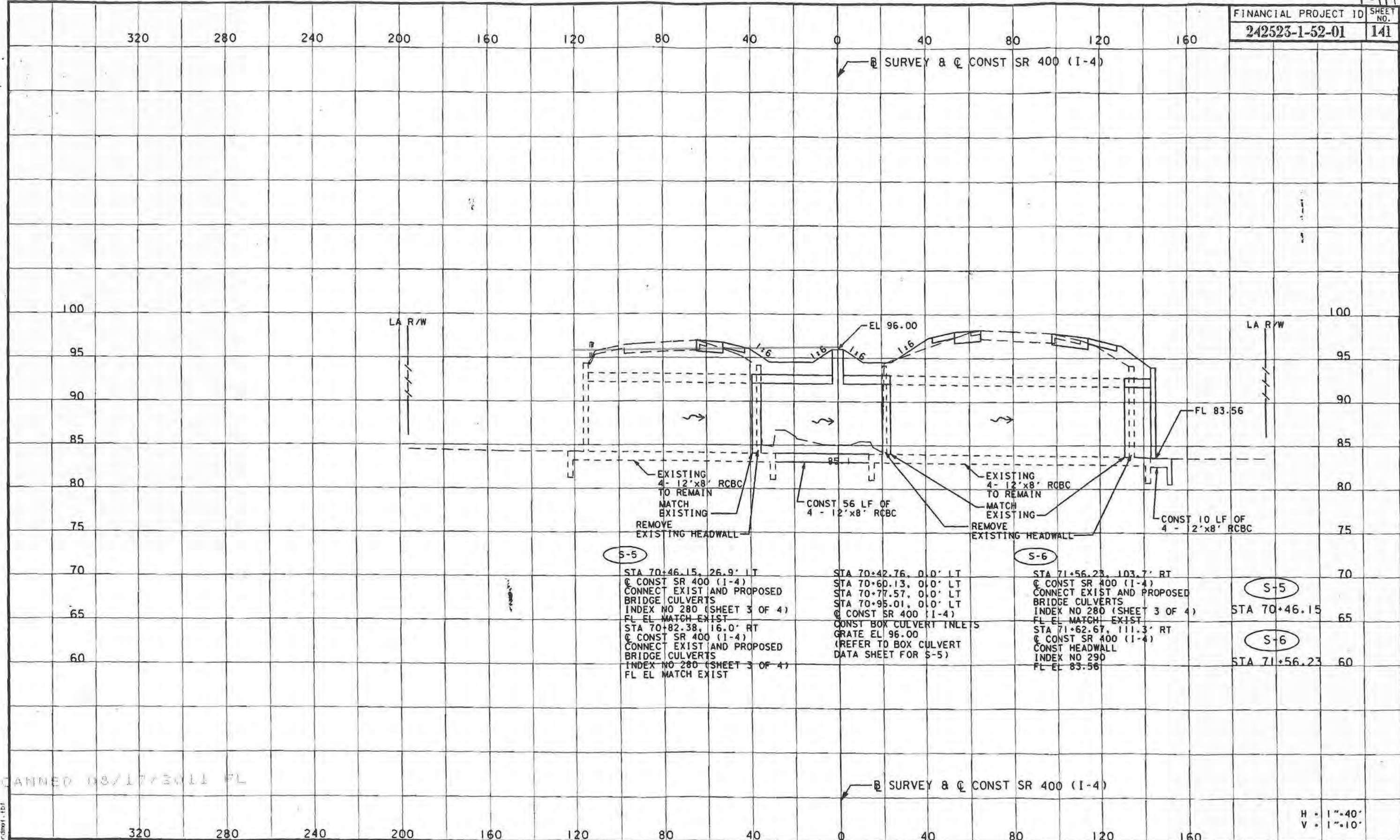
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
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URS
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ORLANDO, FL 32801-1915
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NO. 000002

SR 400 (1-4)
DRAINAGE STRUCTURE
CROSS SECTIONS

H = 1"=40'
V = 1"=10'



S-5

STA 70+46.15, 26.9' LT
 @ CONST SR 400 (I-4)
 CONNECT EXIST AND PROPOSED
 BRIDGE CULVERTS
 INDEX NO 280 (SHEET 3 OF 4)
 FL EL MATCH EXIST
 STA 70+82.38, 16.0' RT
 @ CONST SR 400 (I-4)
 CONNECT EXIST AND PROPOSED
 BRIDGE CULVERTS
 INDEX NO 280 (SHEET 3 OF 4)
 FL EL MATCH EXIST

S-6

STA 70+42.76, 0.0' LT
 STA 70+60.13, 0.0' LT
 STA 70+77.57, 0.0' LT
 STA 70+95.01, 0.0' LT
 @ CONST SR 400 (I-4)
 CONST BOX CULVERT INLET 5
 GRATE EL 96.00
 (REFER TO BOX CULVERT
 DATA SHEET FOR S-5)
 STA 71+56.23, 103.7' RT
 @ CONST SR 400 (I-4)
 CONNECT EXIST AND PROPOSED
 BRIDGE CULVERTS
 INDEX NO 280 (SHEET 3 OF 4)
 FL EL MATCH EXIST
 STA 71+62.67, 111.3' RT
 @ CONST SR 400 (I-4)
 CONST HEADWALL
 INDEX NO 290
 FL EL 83.56

S-5

STA 70+46.15

S-6

STA 71+56.23

PLANNED 08/17/2011 FL

SURVEY & CONST SR 400 (I-4)

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V = 1"=10'

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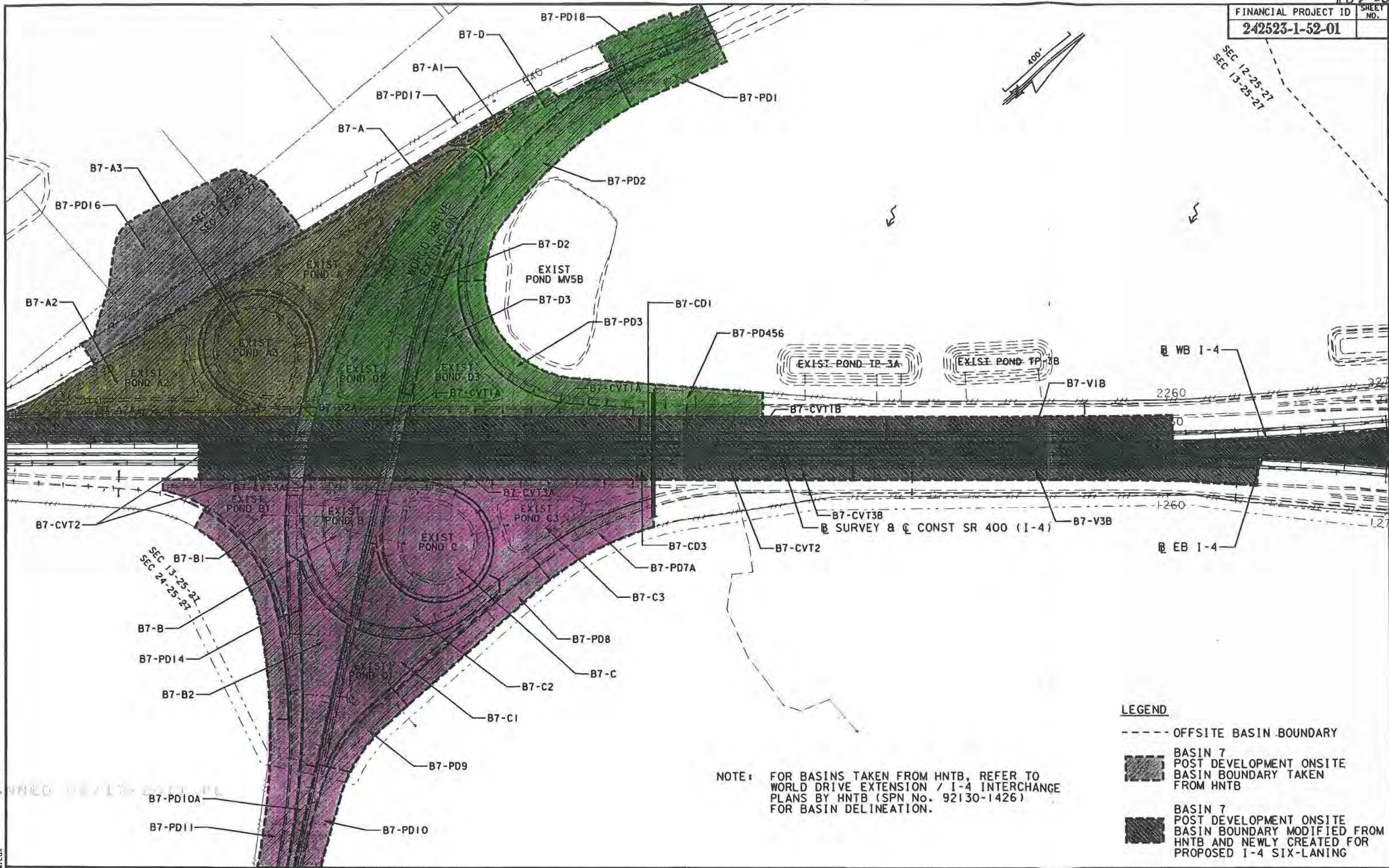
REVISIONS		
DATE	BY	DESCRIPTION

STATE OF FLORIDA
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URS
 315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-1975
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

SR 400 (I-4)
DRAINAGE STRUCTURE
CROSS SECTIONS

SEC 12-25-27
 SEC 13-25-27



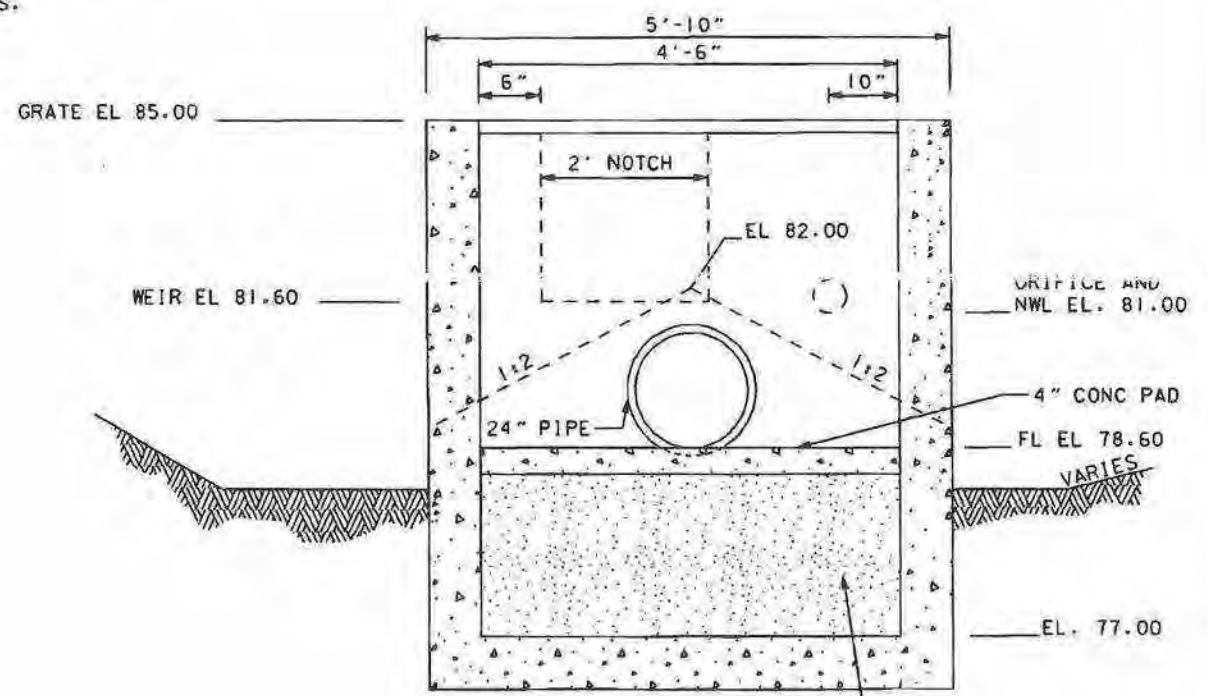
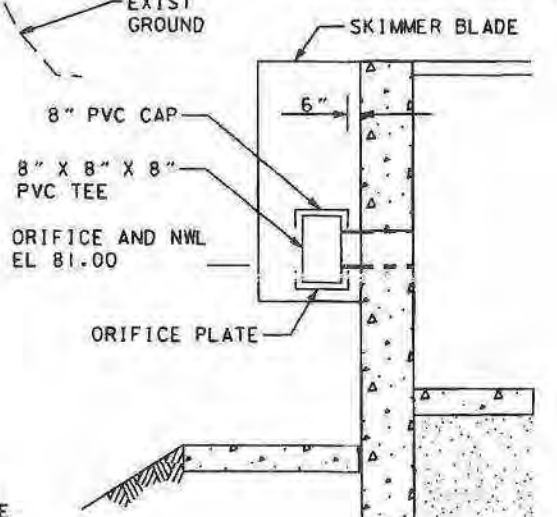
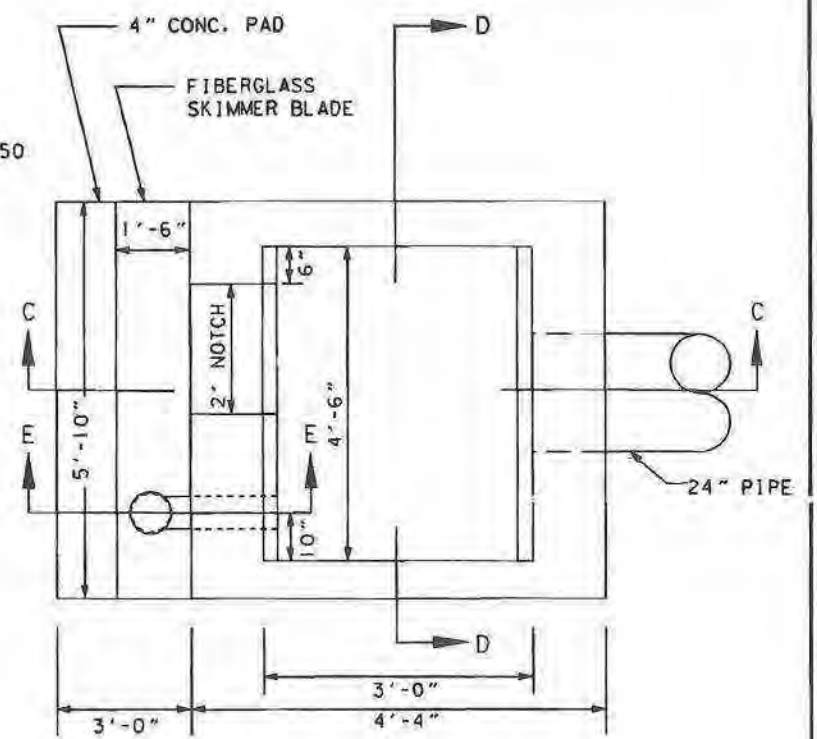
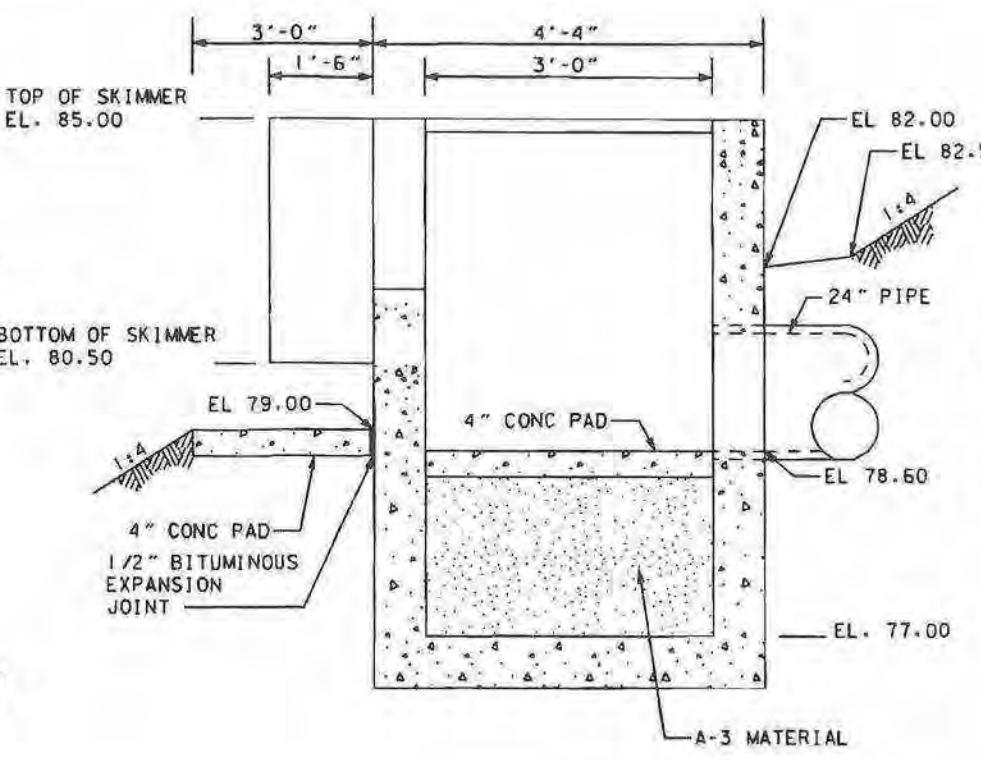
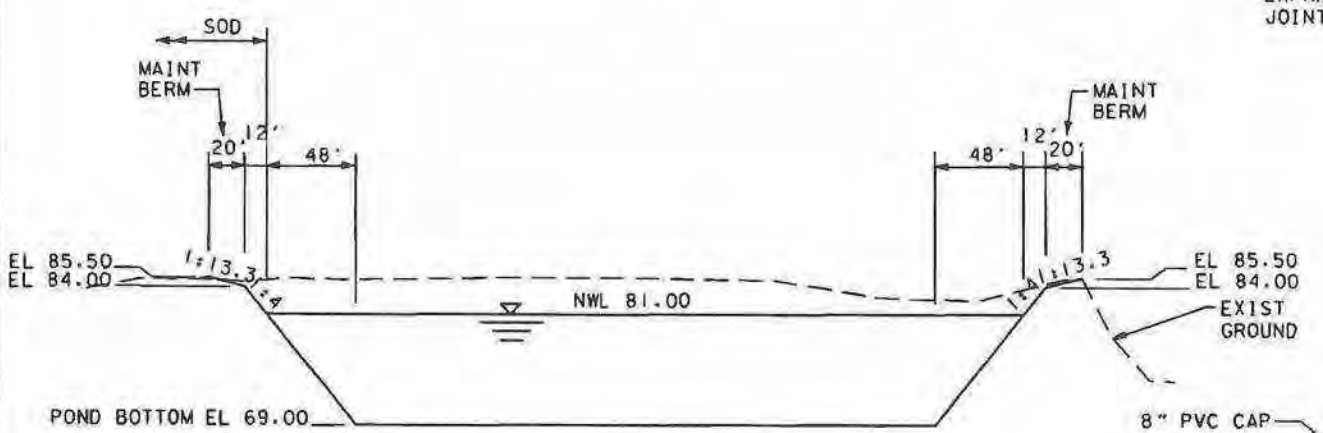
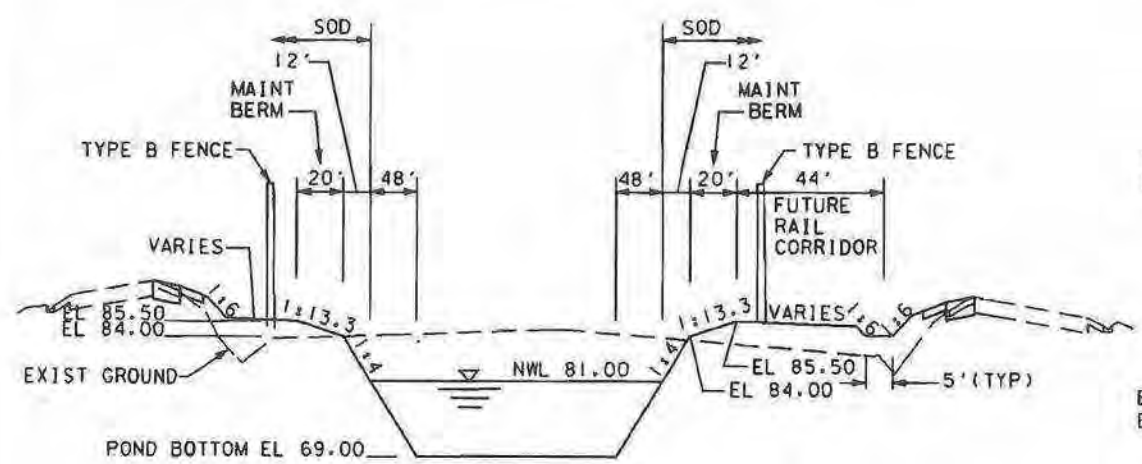
LEGEND

- OFFSITE BASIN BOUNDARY
- BASIN 7 POST DEVELOPMENT ONSITE BASIN BOUNDARY TAKEN FROM HNTB
- BASIN 7 POST DEVELOPMENT ONSITE BASIN BOUNDARY MODIFIED FROM HNTB AND NEWLY CREATED FOR PROPOSED I-4 SIX-LANING

NOTE: FOR BASINS TAKEN FROM HNTB, REFER TO WORLD DRIVE EXTENSION / I-4 INTERCHANGE PLANS BY HNTB (SPN No. 92130-1426) FOR BASIN DELINEATION.

Thu Mar 9 11:20:00 AM 2000
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DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION	



NOTES:

1. MAINTENANCE BERM SHALL BE SOD ON COMPACTED FILL.
2. SKIMMER TO BE CONSTRUCTED OF 3/16" FIBERGLASS, REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES TO BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS.
3. SKIMMER BLADE, FASTENERS, PVC PIPE AND CONCRETE PAD, ETC. TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLET TYPE SPECIAL (CONTROL STRUCTURE).
4. MINIMUM RADIUS FOR CURVES AT NORMAL WATER LEVEL (NWL) IS 20 FEET. CURVES ABOVE AND BELOW NWL ARE CONCENTRIC. MINIMUM RADIUS FOR CURVES BELOW NWL IS 5 FEET.
5. THE ORIFICE PLATE SHALL BE 8" PVC CAP W/ HOLE DRILLED TO 4.50" AND SOLVENT WELDED TO TEE PERMANUFACTURER'S RECOMMENDATIONS.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1975
PH (407) 422-0353 FAX (407) 423-2695
MG. 000002

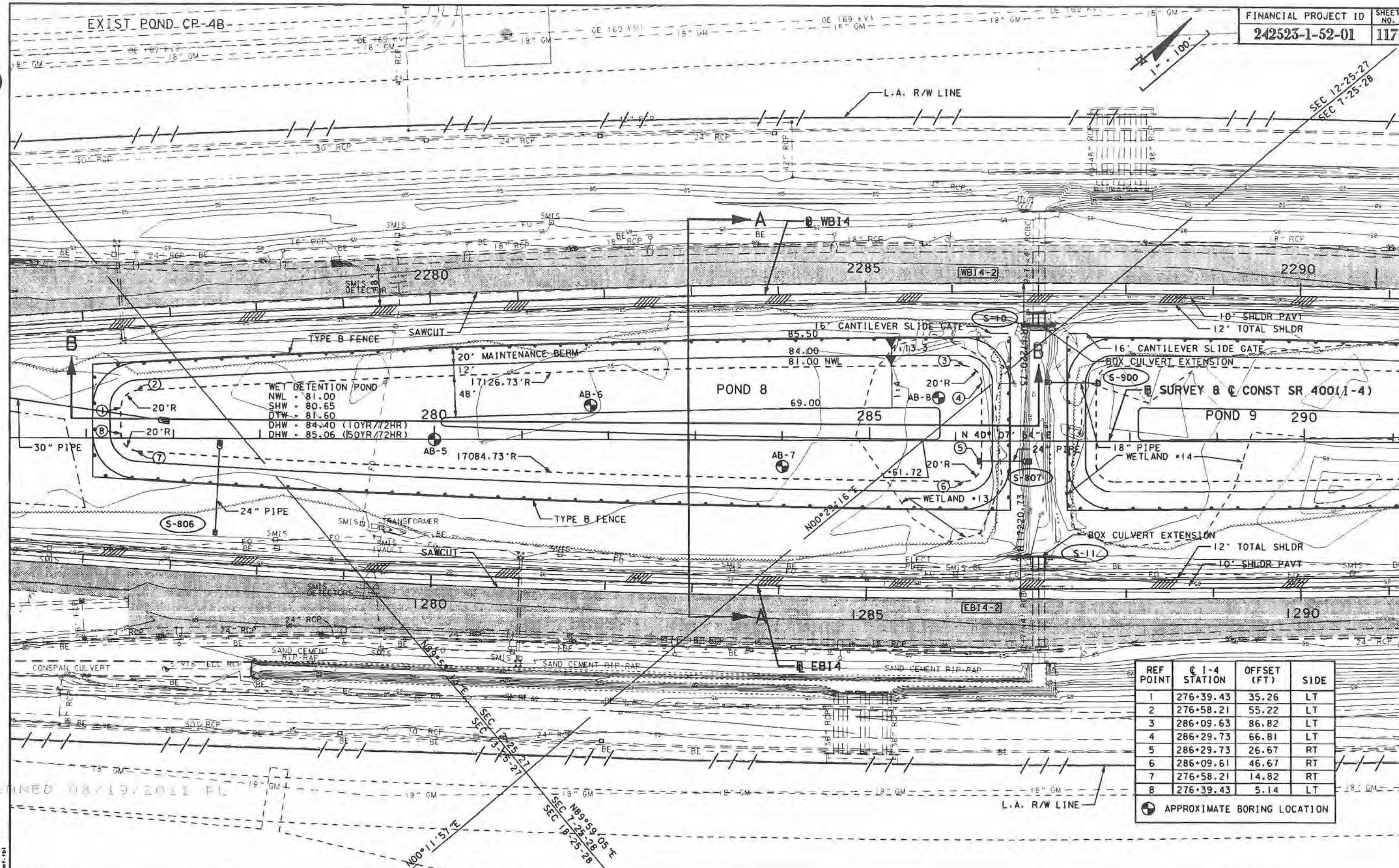
POND 8
DETAIL SHEET

F-582

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EXIST POND CP-4B

FINANCIAL PROJECT ID
242523-1-52-01
SHEET NO.
117



REF POINT	¢ I-4 STATION	OFFSET (FT)	SIDE
1	276+39.43	35.26	LT
2	276+58.21	55.22	LT
3	286+09.63	86.82	LT
4	286+29.73	66.81	LT
5	286+29.73	26.67	RT
6	286+09.61	46.67	RT
7	276+58.21	14.82	RT
8	276+39.43	5.14	LT

⊕ APPROXIMATE BORING LOCATION

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1975
PH (407) 422-0353 FAX (407) 423-2695
NO. 000002

POND 8
DETAIL SHEET

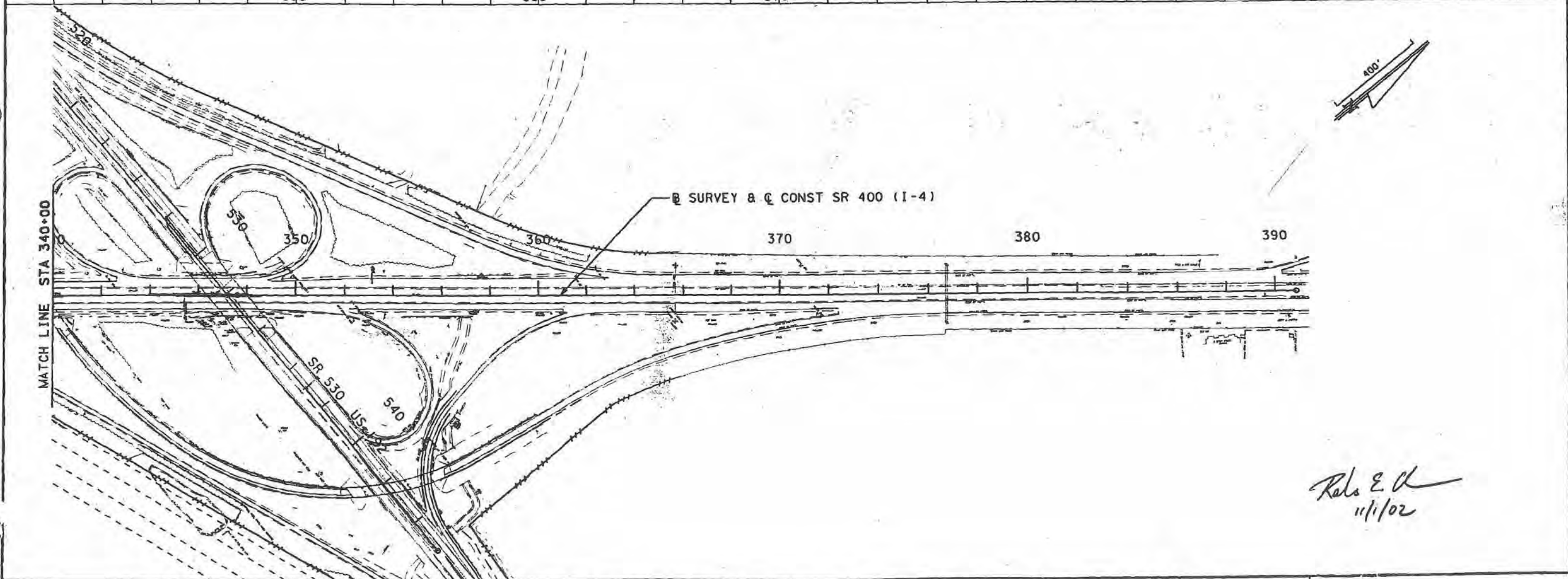
F-583

EXIST. STRUCTURE NO.	STATION	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD		GREATEST FLOOD	
		2% PROB. DISCHARGE	50 YR. FREQ. STAGE	1% PROB. DISCHARGE	100 YR. FREQ. STAGE	DISCHARGE	STAGE	DISCHARGE	STAGE
24	37+00	177	108.34	206	109.05			275	111.14
25	52+70	332	99.08	408	99.11			622	99.50
26	65+00	56	94.83	65	95.62			86	97.98
27	70+72	1746	92.42	2152	92.69			3026	93.56
29	105+45	201	95.02	249	95.47			399	96.64
30	134+00	69	88.81	81	89.55	109	91.97	0.22	455
31	158+00	141	78.84	163	79.61			213	81.54
71	236+00	17	78.56	20	78.56			27	78.57
76	287+00	176	84.77	177	84.86			177	85.00
77	287+00	180	84.53	181	84.61			181	84.93

DEFINITIONS:
DESIGN FLOOD: THE FLOOD SELECTED BY F.D.O.T. TO BE UTILIZED TO ASSURE A STANDARD LEVEL OF HYDRAULIC PERFORMANCE.
BASE FLOOD: THE FLOOD HAVING A 1% CHANCE OF BEING EXCEEDED IN ANY YEAR. (100 YR. FREQUENCY)
OVERTOPPING FLOOD: THE FLOOD WHERE FLOW OCCURS (A) OVER THE HIGHWAY (B) OVER A WATERSHED DIVIDE OR (C) THRU EMERGENCY RELIEF STRUCTURES.
GREATEST FLOOD: THE MOST SEVERE FLOOD WHICH CAN BE PREDICTED WHERE OVERTOPPING IS NOT PRACTICABLE; NORMALLY ONE WITH A 0.2% CHANCE OF BEING EXCEEDED IN ANY YEAR. (500 YR. FREQUENCY)

NOTE: THE HYDRAULIC DATA IS SHOWN FOR INFORMATIONAL PURPOSES ONLY, TO INDICATE THE FLOOD DISCHARGES AND WATER SURFACE ELEVATIONS WHICH MAY BE ANTICIPATED IN ANY GIVEN YEAR. THIS DATA WAS GENERATED USING HIGHLY VARIABLE FACTORS DETERMINED BY A STUDY OF THE WATERSHED. MANY JUDGEMENTS AND ASSUMPTIONS ARE REQUIRED TO ESTABLISH THESE FACTORS. THE RESULTANT HYDRAULIC DATA IS SENSITIVE TO CHANGES, PARTICULARLY OF ANTECEDENT CONDITIONS, URBANIZATION, CHANNELIZATION, AND LAND USE. USERS OF THIS DATA ARE CAUTIONED AGAINST THE ASSUMPTION OF PRECISION WHICH CAN NOT BE ATTAINED. DISCHARGES ARE IN CUBIC FEET PER SECOND AND STAGES ARE IN FEET, NAVD, 1988.

SCALE: 1" = 400' H
1" = 10' V



Relo E. O.
11/1/02

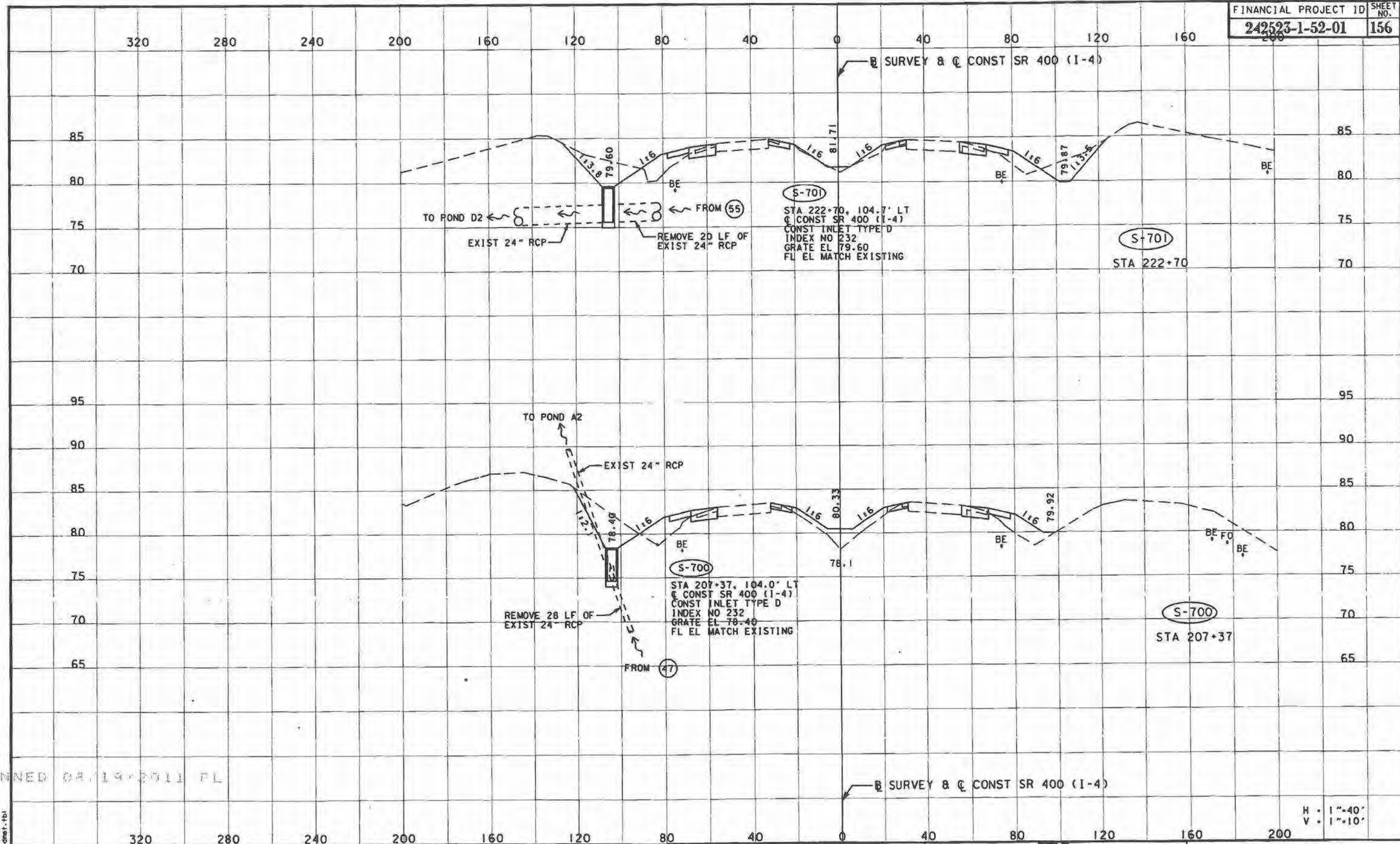
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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
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ORLANDO, FL 32801-9775
PH (407) 422-0353 FAX (407) 423-2695
NO. 000002

DRAINAGE MAP



PLANNED DR. 19-2011 PL
 DATE: 08/19/2011
 BY: [illegible]
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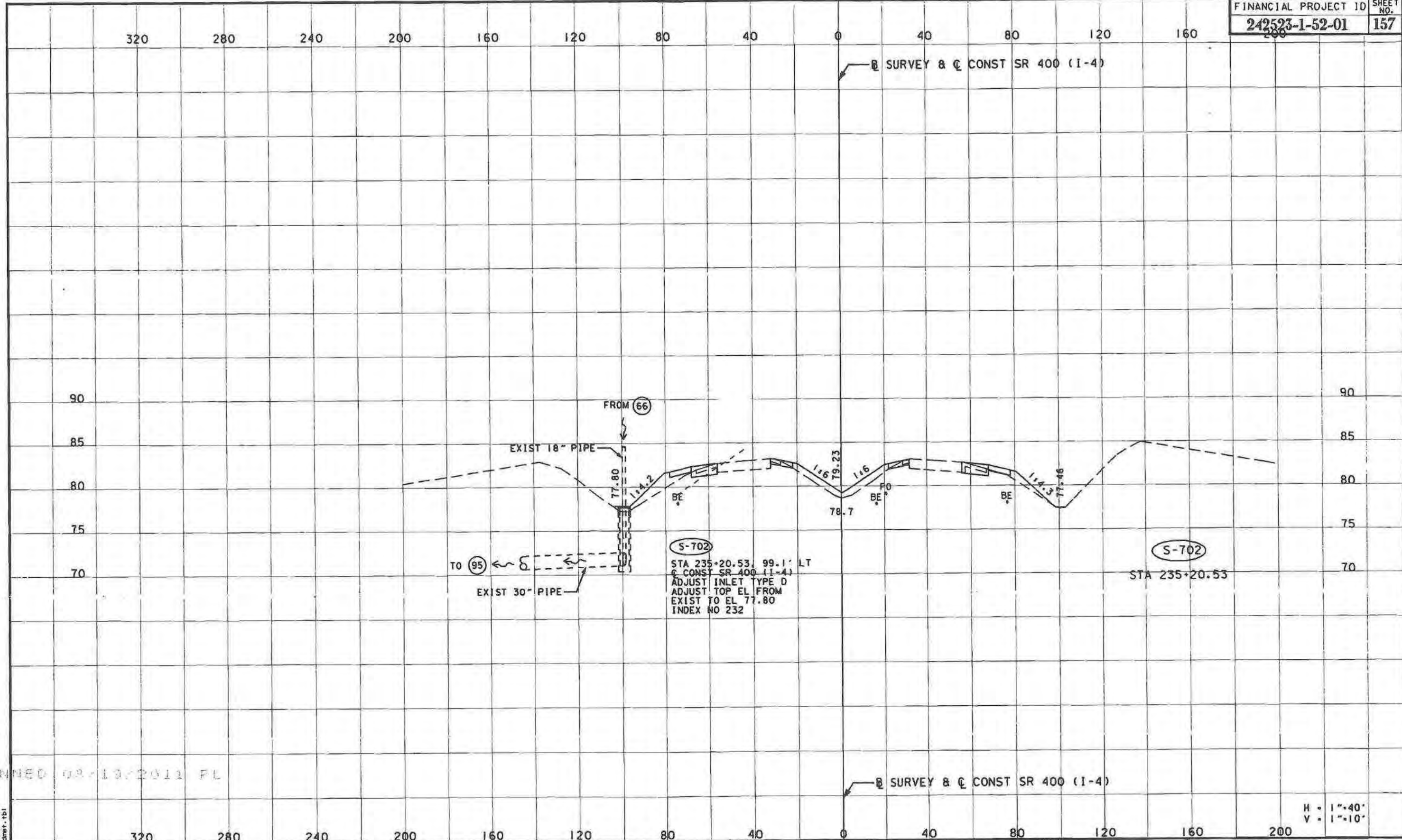
REVISIONS			
DATE	BY	DESCRIPTION	DATE

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

URS
 315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-8915
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

SR 400 (I-4)
 DRAINAGE STRUCTURE
 CROSS SECTIONS

H = 1"=40'
 V = 1"=10'



S-702
 STA 235+20.53, 99.1' LT
 CONST SR 400 (I-4)
 ADJUST INLET TYPE D
 ADJUST TOP EL FROM
 EXIST TO EL 77.80
 INDEX NO 232

S-702
 STA 235+20.53

H = 1"=40'
 V = 1"=10'

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 2011
 03-13-2011
 PL
 FILE FROM TBI

REVISIONS			
DATE	BY	DESCRIPTION	

1.0 PROJECT DESCRIPTION

The Florida Department of Transportation (FDOT), has proposed to improve the existing four lane facility to six lanes, to address the capacity deficiencies along the I-4 corridor. This project lies within FDOT District 5, South Florida Water Management District (SFWMD) and the Reedy Creek Improvement District (RCID).

I-4 is an east-west limited access freeway connecting the major urban centers of Tampa, Orlando and Daytona Beach across Central Florida. The existing facility is a four-lane divided limited access highway constructed within the standard interstate right-of-way width of 300 feet, with the exception of a bifurcated median where the right-of-way varies from 300 feet to 600 feet. Additional right-of-way is provided at the interchanges within the project limits. Much of the project (from approximately CR 532 to Reedy Creek) was constructed prior to regulatory requirements to provide stormwater treatment and attenuation. This area of the project is characterized by a rural conveyance system. The remainder of the project (approximately between Reedy Creek and the end of the project) has been improved since the original construction; therefore, stormwater management facilities have been constructed to accommodate all current improvements and most of the existing I-4 pavement.

FDOT is proposing improvements which consist of widening the existing four lane facility to a six lane facility and to provide stormwater management for all improvements. The six laning will be accomplished using a combination of inside and outside pavement widening. This project is being designed under the 1988 NAVD (North American Vertical Datum). Prior projects were designed under the 1929 NGVD (National Geodetic Vertical Datum). The difference in datum elevations differ throughout the project but it ranges from 0.80 feet to 0.90 feet. In order to maintain consistency in the calculations and for ease of review, a constant 0.85 feet difference in elevations was used between datum. This should be kept in mind when referring to previous analysis and calculations from prior projects (i.e. CR 532 Interchange and I-4, World Drive Extension and I-4 Interchange, I-4 CD Roads and the PD & E Study).

The project site is divided into ten (10) drainage basins. Basins 1, 6E, 6W and 7 include existing stormwater management facilities that will be used to treat and attenuate the proposed widening of I-4. Basin 4 is part of the future Western Beltway and I-4 Interchange project (basin limits are the following: begin Sta 85+30 lt, 84+00 med., 82+00 rt, end Sta 133+50 lt, 134+00 med, 138+00 rt).

E. Design Frequencies

Type of Channel	Frequency
Roadside, Median, and Interceptor ditches or swales	10 year
Outfall ditches and Canals	25 year
Temporary roadside and median ditches or swales.	2 year
Temporary Outfalls and Canals	5 year

F. Maximum velocity in accordance with Tables 2.3 and 2.4 on the Drainage Manual, Section 2.4.3

G. For ditches where positive flow conditions are required, a minimum physical slope of 0.0005 ft/ft shall be used.

V. STORMWATER MANAGEMENT CRITERIA

A. Quantity

SBUH Method -- New and existing conditions (per RCID)

YEARS	HOURS	P (in)	COMMENTS
10	72	10.19	TW - HGL Computation (as appropriate) Pond Routing - SFWMD, 40E-4
50	72	12.91	RCID drainage impact fee determination and cross drains
100	72	14.27	Compensating Floodplain Storage

1. Time of Concentration

Overland Flow -- Kinematic Wave Equation
Sheet Flow -- Kinematic Wave Equation (Max. 300 ft)
Channel Flow -- Manning's Equation

2. Assume Antecedent Moisture Condition II

Richard Bell expressed concern that two separate Pond Siting Reports were being prepared. The HNTB I-4 MMMP report has been or soon will be made available to the public, and the URS Greiner report will be available to the public upon completion.

Several options were discussed, including the possibility of one consultant deferring to the others report. However, the final consensus was that both URS Greiner and HNTB should work together to coordinate locations as much as possible. To that end, each pond site was reviewed individually. Specific discussion regarding each of HNTB's preferred pond sites were as follows:

POND

- 57.6** URS Greiner concurs with this site, but noted that Champions Gate, a proposed development at the CR 532 interchange, is proposing to modify this existing FDOT pond in the southwest quadrant and construct a new pond in the northwest quadrant (**Pond 57.8**). The ponds would be aesthetically enhanced, possibly including a golf green and fountain, to complement their proposed gated entrance. If FDOT allows the developer to do this work, URS Greiner suggested that FDOT require the modified ponds to accommodate the I-4 Master Plan.
- 58.1** URS Greiner suggested that HNTB review the possibility of eliminating this pond.
- Alt. 58.3** URS Greiner suggested that HNTB consider enlarging this pond to make up for the elimination of Pond 58.1. This site corresponds to URS Greiner's preferred location.
- Alt. 58.9** URS Greiner suggested that HNTB review the possibility of eliminating this pond
- Alt. 59.2** URS Greiner agrees with this site as an alternate, but prefers a site on the opposite side of I-4.
- 59.5** URS Greiner suggested that HNTB review the possibility of eliminating this pond.
- 59.6** URS Greiner agrees with this location as a preferred site.
- 59.7** URS Greiner agrees with this location as an alternate site for Pond 59.6
- 60.9** URS Greiner agrees with this location as a preferred site.
- 61.0** This pond is not needed for the Six-Laning improvements. URS Greiner proposes to modify existing Ponds MV5A and TP-2. Noranne Downs will discuss with Bob Cortelyou to determine if FDOT wants to buy R/W and construct this Master Plan pond under the Six-Laning project, even if it is not required for the Six-Laning.
- 62.8** This pond is not needed for the Six-Laning improvements. URS Greiner proposes to modify existing Ponds TP-3A and TP-3B. Noranne Downs will discuss with Bob Cortelyou to determine if FDOT wants to buy R/W and construct this Master Plan pond under the Six-Laning project, even if it is not required for the Six-Laning.

BASIN 7

The limits of widening for this basin are from station 206+20 to 260+00 on the westbound and from station 215+00 to 264+00 on the eastbound. The proposed 12 ft widening is to the outside of the eastbound and westbound lanes. The median is also widened from the existing 4 ft pavement to 10 ft. The limits for the median are from station 215+00 to 270+00.

EXISTING (PRE-DEVELOPMENT) CONDITIONS

The current condition for Basin 7 consists of four lanes of I-4, an interchange at I-4 and World Drive and a collector-distributor road system which connects the I-4/World Drive Interchange with the Southern Connector Extension to the east. The existing ponds in the Interchange were originally designed to occupy the maximum available area and therefore, it was determined that the most effective method to determine fairly accurate pre-developed runoff rates and existing stage conditions was to use the historic pre-developed condition (before the ponds and the Interchange was built). This historic pre-developed condition was developed during the design and permitting of the I-4/World Drive Interchange by HNTB (SFWMD Permit #49-00792-S). Backup drainage calculations for the Interchange is located in the HNTB Backup section in this Volume. Some of the historic pre-developed sub-basins from the HNTB calculations were modified to better represent the footprint of the post-developed sub-basins. The modifications made to the historic pre-development basins meshes the World Drive Interchange, I-4 CD-Roads and the I-4 Six-Laning project together.

The historic existing drainage patterns for this basin can be described as overland flow through undeveloped wetlands and floodplains toward Reedy Creek to the south and I-4 to the southwest. Runoff flowing to the south discharge directly into Reedy Creek. The runoff which flows to I-4 is conveyed under I-4 via an existing double 7' x 4' box culvert (Sta. 236+00) which discharges on the south side of I-4 into Reedy Creek system and eventually on to Lake Tohopekaliga near Kissimmee. The general pattern of flow is maintained throughout the design of the basin.

PROPOSED (POST-DEVELOPMENT) CONDITIONS

The proposed improvements consist of adding a 12 ft lane to the existing eastbound and westbound lanes of I-4 as well as widening the inside shoulder from the existing 4 ft of pavement to 10 ft.

The hydraulic model used was developed using the previously discussed and permitted project at the World Drive Interchange (Permit #49-00792-S). The sub-basins defining the parameters for the mainline of I-4 were revised to reflect the new additional lanes for each side.

The analysis in the post-developed condition includes areas requiring compensating treatment within Basin 8. Basin 8 is an ideal alternative since it is located adjacent to Basin 7 and discharges into the same overall Reedy Creek basin. Basin 8 also contains a large amount of currently untreated pavement that will serve as compensation of new pavement unable to be treated. These calculations quantify the amount of new pavement unable to be treated and the calculations in Basin 8 verify the compensation. The following discussion describe the areas requiring compensating treatment volume in Basin 8:

- The median of I-4 within the basin limits will not be treated due, in part, to the fact that runoff from the inside shoulder will produce an insignificant pollutant loading. Additionally, a jack and bore would be required to convey the runoff into a water management facility. A jack and bore is expensive and very dangerous in this location and not considered a viable alternative.
- Eastbound I-4 between stations 245+30 and 264+00 is currently untreated. Runoff from this pavement flows into the existing conveyance ditch on the south side of I-4 toward the downstream end of the existing double 7' x 4' box culvert at station 236+00 and into the Reedy Creek system. The runoff from this pavement is unable to be conveyed to a water management facility because of hydraulic constraints.
- Westbound I-4 between stations 247+00 and 260+00 is currently untreated. Runoff from this pavement flows into the existing conveyance ditch between I-4 and the existing westbound Collector-Distributor road. This ditch is conveyed under I-4 and is combined with the outfall for the existing pond TP-3, then discharges to the upstream end of the existing double 7' x 4' box culvert. The runoff from this pavement is unable to be conveyed to a water management facility because of hydraulic constraints.

The proposed widening will not impact the 100-year floodplain or wetlands associated within the basin limits.

WORLD DRIVE INTERCHANGE PONDS

The existing I-4/World Drive Interchange contains several infield ponds which were previously designed by HNTB and permitted by the SFWMD (Permit #49-00792-S). To minimize property acquisition and to maximize use of existing facilities, these existing ponds were investigated for their use for this six-laning improvement.

The series of ponds which were identified as the northwest system in permit #49-00792-S include ponds A, A2, A3, D2 and D3. These ponds are interconnected with the control structure located in Pond A. The discharge from this pond system is conveyed in a roadside ditch to a wetland system. The wetland system stages up and discharges into Reedy Creek.

The series of ponds which were identified as the southeast system in permit #49-00792-S include ponds B, B1, C, C1 and C3. These ponds are interconnected with the control structure located in Pond C. This pond system discharges to a wetland that stages up and discharges to Reedy Creek.

These existing ponds were analyzed using the post-developed areas in accordance with SFWMD criteria to evaluate required water quality detention. It was determined that the existing ponds provide sufficient volume to accommodate the proposed improvements without regrading.

The existing control structure in Pond A does not need any modification to accommodate the additional runoff from the six-laning project. The existing control structure in Pond C will need minor modification to comply with SFWMD criteria regarding recovery. The rectangular weir elevation and size are adequate; however, the existing v-notch weir will be modified by use of a prefabricated aluminum metal plate with the new v-notch shape and secured with bolts to the outside of the control structure (Refer to Pond C control structure detail sheet).

SECTION INFORMATION

This section contains the pre-development and post-development basin maps, basin area calculations which include the Santa Barbara worksheet, DCIA (Directly Connected Impervious Area), water surface area, %DCIA, NDCIA (Non-Directly Connected Impervious Area); composite Curve Number (CN) and Time of Concentration (Tc) calculations. Also included are: treatment volume calculation worksheet which provides the pollution abatement volume required and provided and

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
 Copyright 1989, Streamline Technologies, Inc.

BASIN 7, POST-DEVELOPMENT, 50YR/72HR STORM
 10/25/99

BASIN NAME	B7-A	B7-A1	B7-A2	B7-A3	B7-B
NODE NAME	PONDA	PONDD2	PONDA2	PONDA3	PONDB
TIME INCREMENT (min)	5.00	5.00	5.00	5.00	5.00
RAINFALL FILE	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
RAIN AMOUNT (in)	12.91	12.91	12.91	12.91	12.91
STORM DURATION (hrs)	72.00	72.00	72.00	72.00	72.00
AREA (ac)	6.70	.37	7.06	5.77	4.46
CURVE NUMBER	80.00	80.00	80.00	80.00	80.00
DCIA (%)	37.61	48.65	47.45	60.83	45.29
TC (mins)	10.00	19.63	10.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
B7-A	39.55	59.92	11.26
B7-A1	1.82	59.92	11.54
B7-A2	41.92	59.92	11.51
B7-A3	34.53	59.92	11.84
B7-B	26.45	59.92	11.45

BASIN NAME	B7-B1	B7-B2	B7-C	B7-C1	B7-C2
NODE NAME	PONDB1	PONDC1	PONDC	PONDC1	PONDC
TIME INCREMENT (min)	5.00	5.00	5.00	5.00	5.00
RAINFALL FILE	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
RAIN AMOUNT (in)	12.91	12.91	12.91	12.91	12.91
STORM DURATION (hrs)	72.00	72.00	72.00	72.00	72.00
AREA (ac)	3.43	4.14	6.46	3.39	2.59
CURVE NUMBER	80.00	80.00	80.00	80.00	80.00
DCIA (%)	32.07	32.61	70.90	39.82	32.05
TC (mins)	10.00	17.99	10.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
B7-B1	20.18	59.92	11.12
B7-B2	20.87	59.92	11.14
B7-C	38.89	59.92	12.09
B7-C1	20.04	59.92	11.32
B7-C2	15.24	59.92	11.12

ITEM IV-15
I-4/WORLD DRIVE INTERCHANGE
FLOOD ROUTING SUMMARY-
SUPPLEMENTAL TO ADICPR SUMMARY

Pond ID	Contributing Basins	Basin Area (Ac)	Pond Satic Elev. (NGVD)	10 YR/72 HR STORM		50 YR/72 HR STORM	
				Peak Discharge (CFS)	Peak Stage (NGVD)	Peak Discharge (CFS)	Peak Stage (NGVD)
POND A	BASIN A	6.70	78.00	35.05	80.27	43.86	80.72
POND A2	BASIN A2 A2A	7.05 3.00	78.00	6.28	80.31	7.49	80.77
POND A3	BASIN A3 PD-16	5.77 8.77	78.00	13.49	80.30	16.65	80.75
POND B	BASIN B	4.46	78.00	10.47	80.40	10.54	80.77
POND B1	BASIN B1	3.43	78.00	7.90	80.40	9.26	80.78
POND C	BASIN C BASIN C2	6.46 2.59	78.00	37.85	80.39	49.39	80.76
POND C1	BASIN C1 BASIN B2	3.39 4.14	78.00	14.17	80.41	17.30	80.80
POND C3	BASIN C3 CULVRT 3A CULVRT 3B PD-7A	6.04 6.93 2.35 2.03	78.00	21.14	80.50	27.15	80.95
POND D2	BASIN D2 BASIN D BASIN A1	10.89 1.91 0.37	78.00	28.09	80.42	34.35	81.12
POND D3	BASIN D3 CULVRT 1A CULVRT 1B PD-3	5.62 5.59 2.71 3.18	78.00	22.16	80.53	27.50	81.18

SCANNED 08/17/2011 8:11 PM

BASIN 8

PRE-DEVELOPMENT

BASIN 8

The limits of Basin 8 extend from station 2260+00 to station 2287+00 on the westbound and station 1264+00 to station 1287+00 on the eastbound. Widening of I-4 will occur to the inside with the additional lanes sloping towards the median.

EXISTING (PRE-DEVELOPMENT) CONDITIONS

In the existing condition, the majority of the existing pavement is untreated since construction took place prior to regulatory requirements. In general, the mainline of I-4 discharges to the outside, and the inside shoulders slope toward the median. The median drains toward the existing double 7 ft by 4 ft box culvert located under I-4 at station 1287+00 and discharges to the east into a wetland system hydraulically connected to Reedy Creek.

PROPOSED (POST-DEVELOPMENT) CONDITIONS

Widening will occur on the inside of I-4 within this basin and slope toward the median. The runoff from the widening will be treated in a new pond (Pond 8) located inside the bifurcated median. The pond will discharge into a ditch system that connects the existing double 7' by 4' box culvert located under the eastbound and westbound lanes of I-4.

Compensation for new untreated pavement from Basin 7 will be accommodated in Pond 8. The amount of new untreated pavement from Basin 7 is 2.39 acres. Basin 8 will treat 2.79 acres of existing pavement which is currently untreated.

Pond 8 will provide floodplain compensation as well as treatment and attenuation. Based on the offsite model (Refer to Volume IV, "Offsite Analysis for Basins 8 and 9") for the 100 year storm, the 100-year floodplain elevation was determined to be at 84.71. The volume of displaced floodplain storage was determined to be 4.20 acre-feet. The backup calculations demonstrate that water from the 100-year storm event backs into Pond 8.

Wetland #13 will be removed by the construction of Pond 8, and will be mitigated for under Senate Bill 1986.

POND 8 DESIGN

Pond 8 is a wet detention system. In accordance with SFWMD criteria, the pond provides water quality detention (or pollution abatement) of the first 1" of runoff from the total contributing area or 2.5" of runoff from the impervious area, whichever is greater. The pond also provides floodplain compensation to impacts to the 100-year floodplain.

The pond geometry was designed to accommodate future widening of I-4 based on the I-4 Master Plan. A buffer was considered between the pond and the mainline on the eastbound side for a future 44 ft rail corridor.

The control structure for this pond has been designed such that the post-development peak rate of discharge does not exceed the pre-development peak rate of discharge for the 10 year / 72 hour storm (per SFWMD criteria). The 50 year / 72 hour storm is also routed through the pond to determine the discharge rate for the impact fee as imposed by the Reedy Creek Improvement District (RCID) for systems discharging into RCID fee collection boundary.

The orifice has been designed as to recover $\frac{1}{2}$ " of the detention volume in 24 hours (per SFWMD criteria).

SECTION INFORMATION

This section contains the pre-development and post-development basin maps, basin area calculations which include the Santa Barbara worksheet, DCIA (Directly Connected Impervious Area), water surface area, %DCIA, NDCIA (Non-Directly Connected Impervious Area); composite Curve Number (CN) and Time of Concentration (Tc) calculations. Also included are: treatment volume calculation worksheet which provides the pollution abatement volume required and provided and the recovery volume required; stage/storage worksheet; pond area calculations; nodal diagrams for the AdICPR model, pre-development and post-development hydrographs for the 10yr/72hr and 50yr/72hr events; post-development routing models for the 10yr/72hr and 50yr/72hr storm events and 100-yr Floodplain Compensation calculations.

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BASIN 8 SUMMARY

BASIN: 8	AREA (ac)		DISCHARGE (cfs) 10yr/72hr		DISCHARGE (cfs) 50yr/72hr	
	PRE	POST	PRE	POST	PRE	POST
B8	14.62	17.68	25.72	6.36	33.80	11.47
Total	14.62	17.68	25.72	6.36	33.80	11.47

Required Treatment Volume	1.47 ac-ft
Provided Treatment Volume	1.54 ac-ft
Pond 8 NWL	81.00 ft
Pollution Abatement Volume el	81.60 ft
Design High Water el (10yr/72hr)	
Pond 8	84.40 ft
Design High Water el (50yr/72hr)	
Pond 8	85.06 ft
Orifice Diameter	4.5 in
Recovery Volume	0.74 ac-ft
Recovery Time	25.00 hrs

100 yr Floodplain Elevation	84.71 ft
Floodplain impacts	4.28 ac-ft
Volume Available in pond for floodplain compensation	10.87 ac-ft

Proposed Pavement Untreated	0.00 ac
Existing Pavement Treated	2.79 ac
Exist Treated > Proposed Untreated?	Yes

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IGB-11

Job I-4 Six LaningProject No. V100264.03

Page ___ of ___

Description BASIN 8Computed by REC

Sheet ___ of ___

UNTREATED VS TREATED PAVEMENTChecked by MPLDate 11/10/99Date 11/12/99

Reference

EXISTING PAVT TO BE TREATED

(i) MEDIAN :

WB I-4 : 2270+00 to 2270+79.73 (4' exist. SHLDR) 79.73' ✓
WBI-4 : 2270+79.73 to 2287+00 (10' exist. SHLDR) 1620.27' ✓
EB I-4 : 1270+00 to 1276+93.80 (4' exist. SHLDR) 693.80' ✓
EB I-4 : 1276+93.80 to 1287+00 (10' exist. SHLDR) 1006.20' ✓

$$A = (79.73)(4) + (1620.27)(10) + (693.80)(4) + (1006.20)(10) = 29,358.82 \text{ ft}^2 \\ (0.67 \text{ AC})$$

(ii) EB :

STA 1264+00 to 1275+40 (1140')

$$A = (1140)(24+10) + (126800 - 126400)(10) = 42700 \text{ ft}^2 (0.98 \text{ AC})$$

(iii) WB :

STA 2260+00 to 2272+50 (1250')

$$A = (1250)(24+10) + (226680 - 226000)(10) = 49300 \text{ ft}^2 (1.13 \text{ AC})$$

$$\text{TOTAL EXIST. PAVT. TREATED} = \underline{121,418.82 \text{ ft}^2 (2.79 \text{ AC})}$$

$$\underline{2.79 \text{ AC} > 2.39 \text{ AC. O.K.}}$$

URS Greiner Woodward Clyde

MADE BY: REC DATE: 03/10/00 JOB NO. V100264.03
 CHECKED BY: MPL DATE: 3/11/2000 SHEET NO.
 CALCULATIONS FOR I-4 SIX LANING POND: POND 8 BASIN: B8

Water Quality

Total Basin Area = 17.68 ac
 Paved Area = 4.28 ac
 Pond Area at NWL = 2.50 ac

A. 1.0 " Over Total Basin Area = 1.47 Ac-Ft
 B. 2.5 " Over Paved Area = 0.89 Ac-Ft
 Required PAV = 1.47 Ac-Ft

Stage Storage Calculations

ELEV. (ft)	AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
85.50	4.15				13.84
84.00	3.10	3.63	1.50	5.44	8.40
81.60 (PAV)	2.62	2.86	2.40	6.86	1.54
81.00 (NWL)	2.50	2.56	0.60	1.54	

Bleed Down Volume

1/2" of the detention volume = $0.5 * (\text{Basin area}) / 12 = 0.74 \text{ Ac-Ft}$

Volume Remaining in Pond after Bleed Down = $\text{PAV} - \text{Bleed Down Volume} = 0.80 \text{ Ac-Ft}$

Job I-4 Six LANE

Project No. V100264.03

Page of

Description BLEED DOWN OF 1/2" OF

Computed by REC

Sheet of

DETENTION VOLUME IN 24HRS

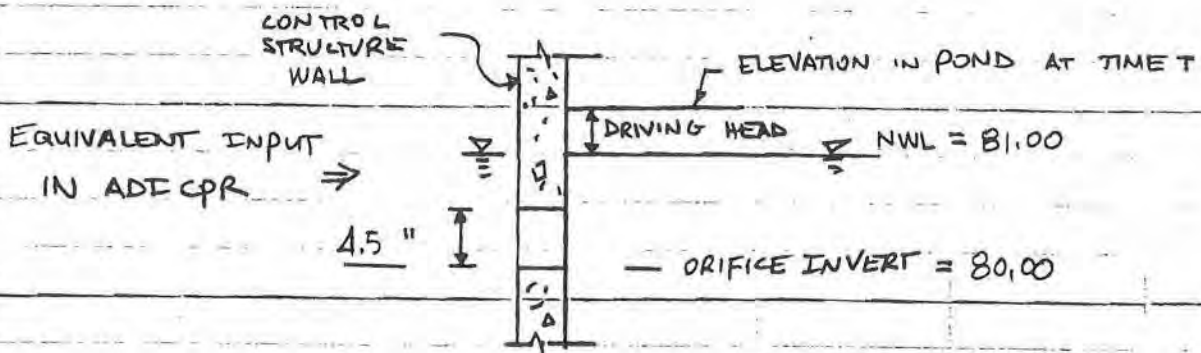
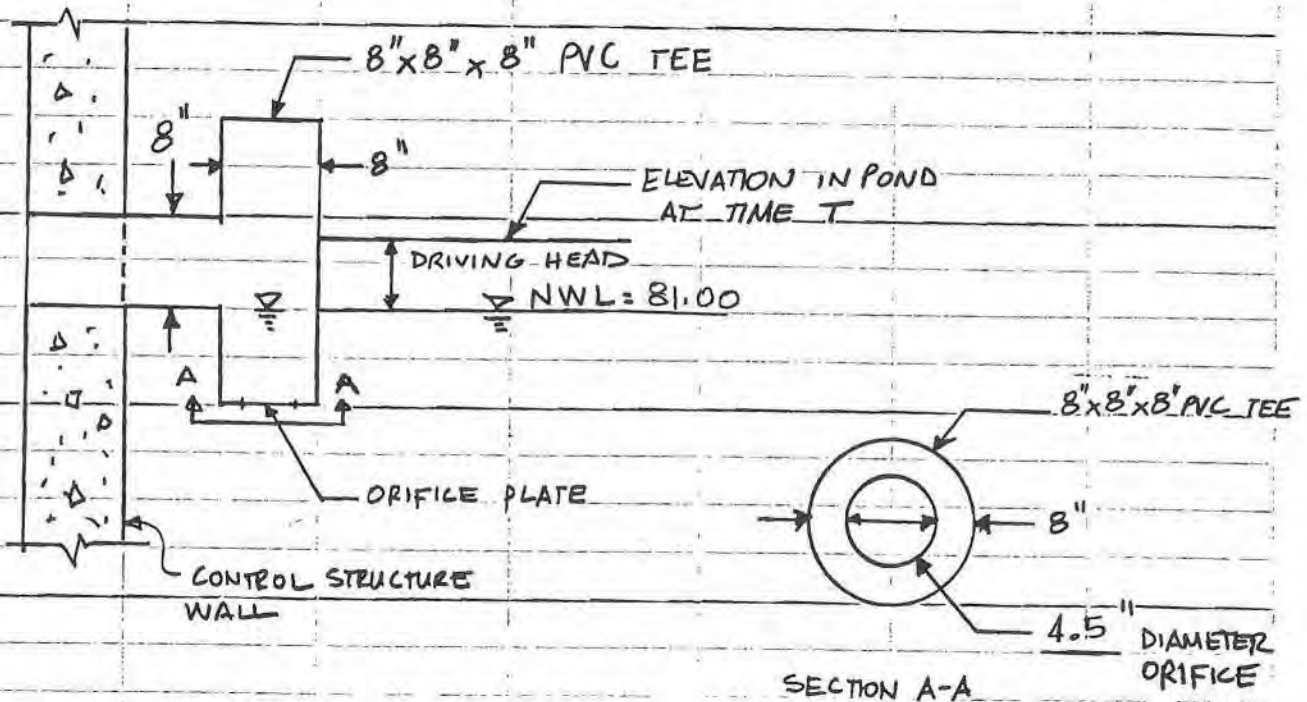
Checked by MPL

Date 10/28/99

Date 10/28/99

Reference

FLOW THROUGH ORIFICE OCCURS IN SUBMERGED CONDITIONS. TO MODEL IN ADE CPR, THE INPUT WAS REVISED TO SIMULATE A SUBMERGED ORIFICE IN THE WALL OF THE CONTROL STRUCTURE (CREST OF ORIFICE IS PLACED BELOW NORMAL WATER LEVEL). THE TAILWATER IS SET AT THE NORMAL WATER LEVEL SINCE FLOW THROUGH THE ORIFICE TERMINATES WHEN ELEVATION IN THE POND RECOVERS TO NWL.



BASIN 8

100 YR FLOODPLAIN COMPENSATION

URS Greiner Woodward Clyde

IB8-31

Job I-4 Six Lining
 Description BASIN 8
100 yr Floodplain Impacts
(Bifurcation)

Project No. V100264.03
 Computed by REC
 Checked by MPL

Page of
 Sheet of
 Date 11/3/99
 Date 11/5/99
 Reference

Basin limits: 270+00 TO 287+00

Floodplain limits = 270+00 TO 287+00 (median)

100 yr flood el = 84.71 (from BIGONE MODEL, NODE 7)

STA	AREA (ft ²)	AVG. AREA (ft ²)	LENGTH (ft)	VOLUME (AC-ft)
269+50	0			
		10.86 ✓	50	0.012 ✓
270+00	6.2 + 15.52 = 21.72	31.02 ✓	150	0.107 ✓
271+50	24.8 + 15.52 = 40.32	40.32 ✓	150	0.139 ✓
273+00	24.8 + 15.52 = 40.32	40.36 ✓	150	0.139 ✓
274+50	24.8 + 15.60 = 40.40	45.20 ✓	150	0.156 ✓
276+00	31.2 + 18.8 = 50.0	54.46 ✓	150	0.187 ✓
277+50	24.8 + 34.12 = 58.92	113.26 ✓	150	0.390 ✓
279+00	124 + 43.6 = 167.6	153.60 ✓	150	0.529 ✓
280+50	93.2 + 46.4 = 139.6	144.30 ✓	150	0.497 ✓
282+00	105.6 + 43.4 = 149.0	173.7 ✓	150	0.598 ✓
283+50	142.4 + 56 = 198.4	215.4 ✓	150	0.742 ✓
285+00	161.2 + 71.2 = 232.4	200.0 ✓	150	0.689 ✓
286+50	127.2 + 40.4 = 167.6	83.8 ✓	50	0.096 ✓
287+00	0			

TOTAL = 4.28

URS Greiner Woodward Clyde

IB88-32

Job I-4 SIX LANE
 Description BASIN 8
100 YR FLOODPLAIN IMPACTS
(BIFURCATION)

Project No. V100262.03
 Computed by REC
 Checked by MPL

Page of
 Sheet of
 Date 11/3/99
 Date 11/5/99
 Reference

POND 8

	STAGE (ft)	AREA (AC)	STORAGE (AC-ft)
	OB 85.5	4.15	13.84
84.71 ↗	IB 84.0	3.10	8.40 ← 10.78
	PAV 81.6	2.62	1.54
	NNL 81.0	2.50	0

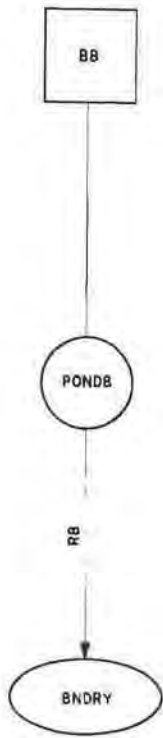
$$\text{Area @ } 84.71 \Rightarrow \frac{85.5-84.71}{85.5-84} = \frac{4.15-x}{4.15-3.10} \quad x = 3.60$$

$$\text{Storage @ } 84.71 \Rightarrow \frac{3.60 + 3.10}{2} (84.71 - 84.0) + 8.40 = 10.78$$

Volume available for compensating storage = 10.78 AC-ft > 4.28 AC-ft

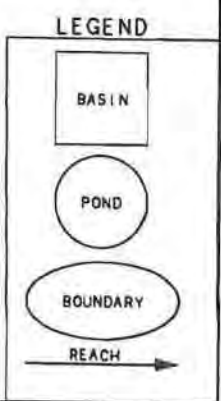
The ADICPR model shows that water will back up from the floodplain into the pond and impacts to be compensated.

CN = 1
tc = 100 min
(TO PRODUCE 0 DISCHARGE)



100 YEAR FLOOD ELEVATION

STAGE	TIME
0	84.71
72	84.71



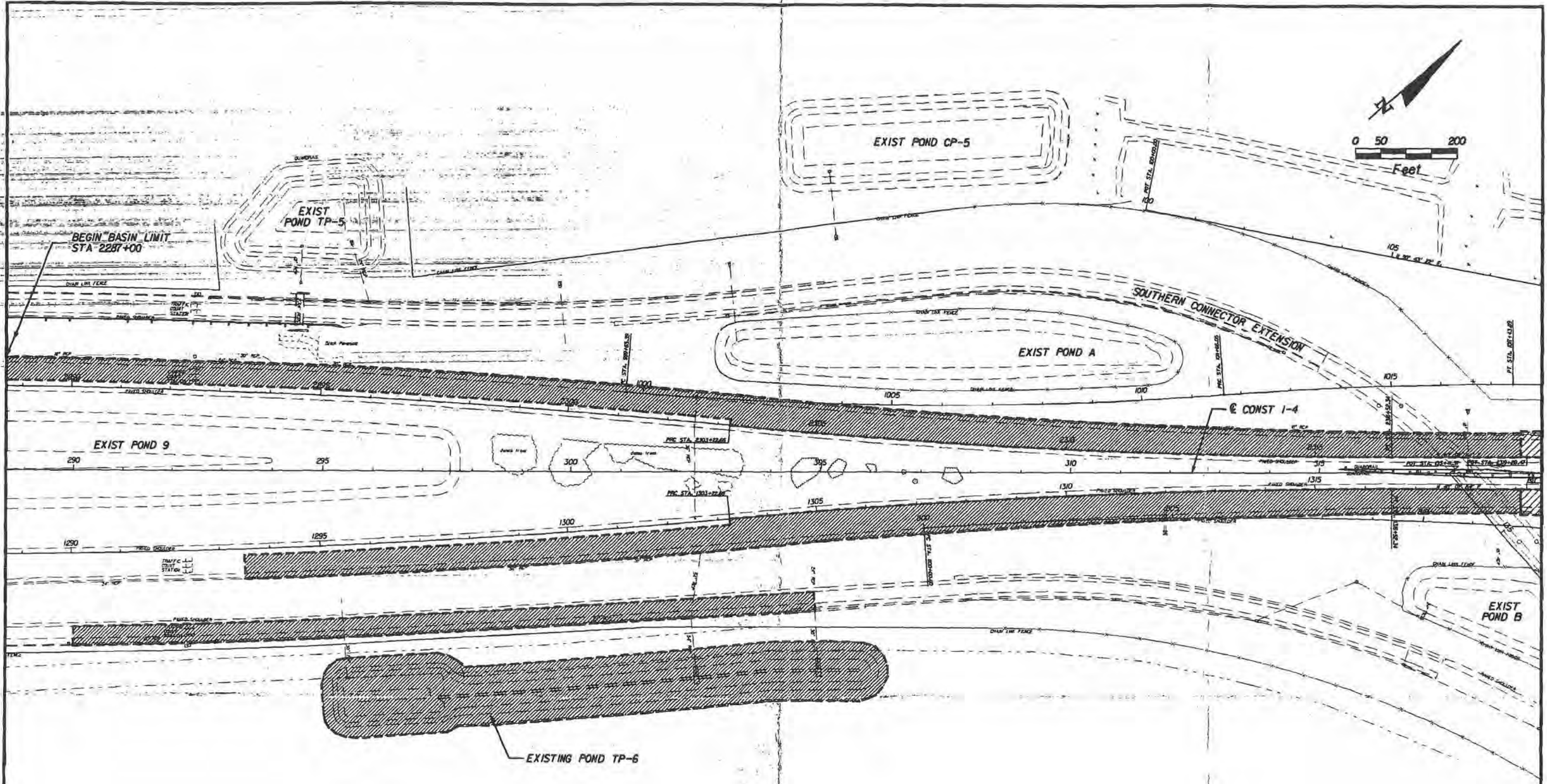
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 V1080
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S.R. 400 (I-4) Polk County Line to SR 530 (US 192)


DRAWN BY: REC
 CHECKED BY:

URS Greiner Woodward Clyde

BASIN 8
 100 YR FLOODPLAIN IMPACTS
 NODAL DIAGRAM
 F-605



LEGEND

-  PRE DEVELOPMENT BASIN
- 11.85 AC TOTAL BASIN AREA
- 8.45 AC IMPERVIOUS
- 1.39 AC WATER SURFACE
- 2.01 AC PERVIOUS

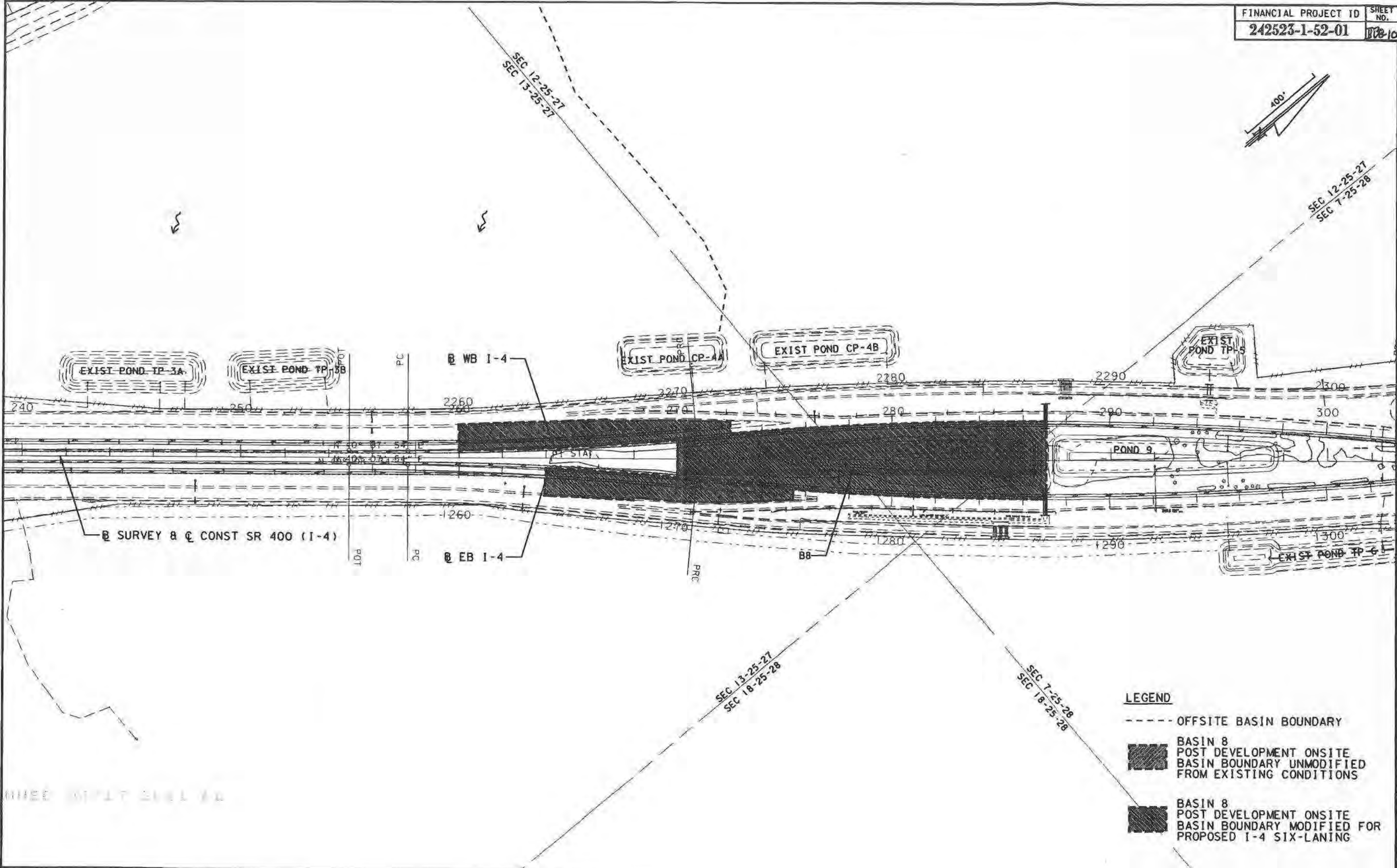
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

URS
 315 E. ROBINSON STREET, SUITE 245,
 ORLANDO, FL 32801-1975
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	242531-1-52-01

**PRE DEVELOPMENT BASIN TP-6
 (CURRENT CONDITION)**

SHEET NO.



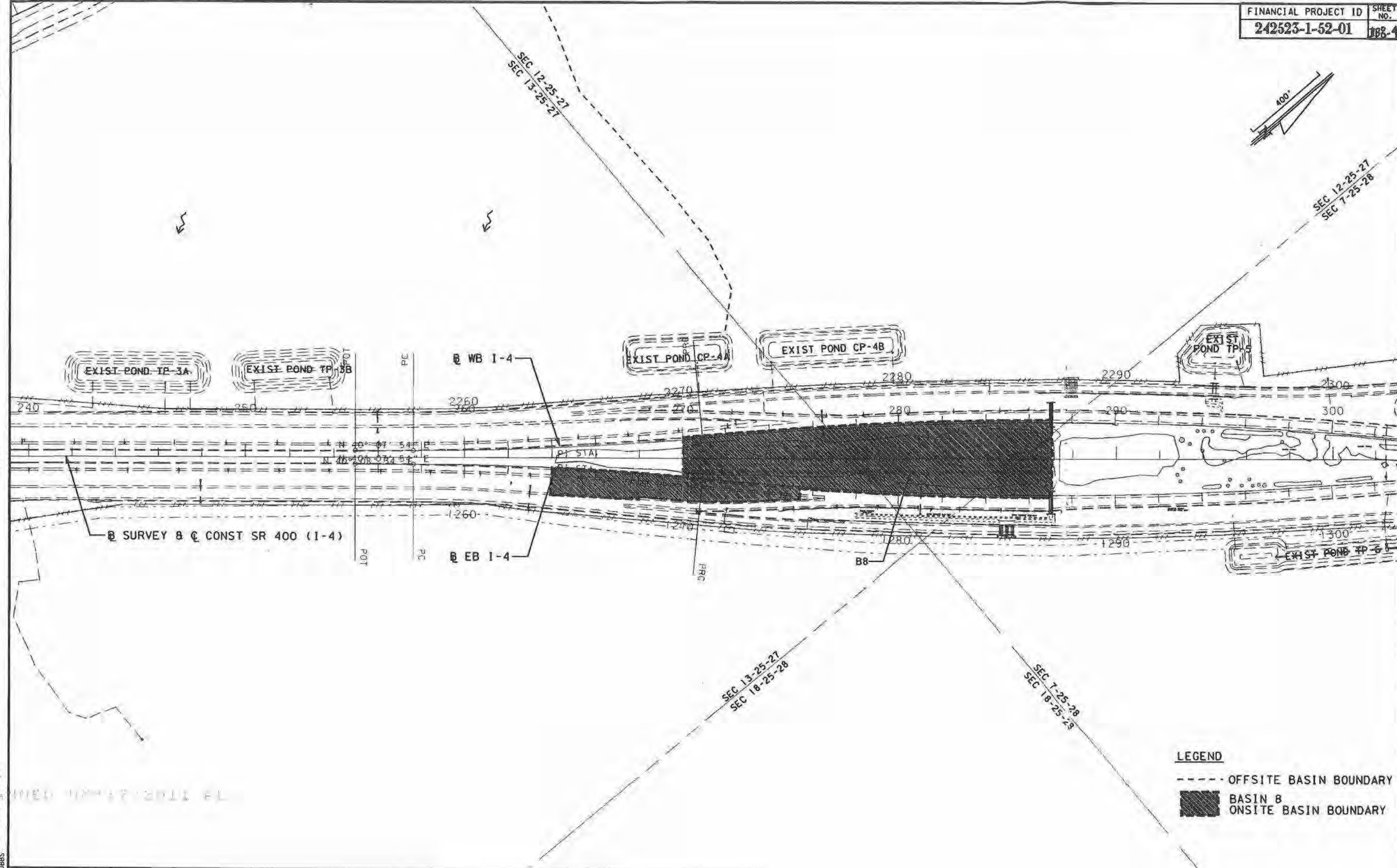
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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

BASIN 8
POST DEVELOPMENT BASIN



② SURVEY & ④ CONST SR 400 (1-4)

LEGEND
 - - - OFFSITE BASIN BOUNDARY
 [Hatched Box] BASIN 8
 [Solid Line] ONSITE BASIN BOUNDARY

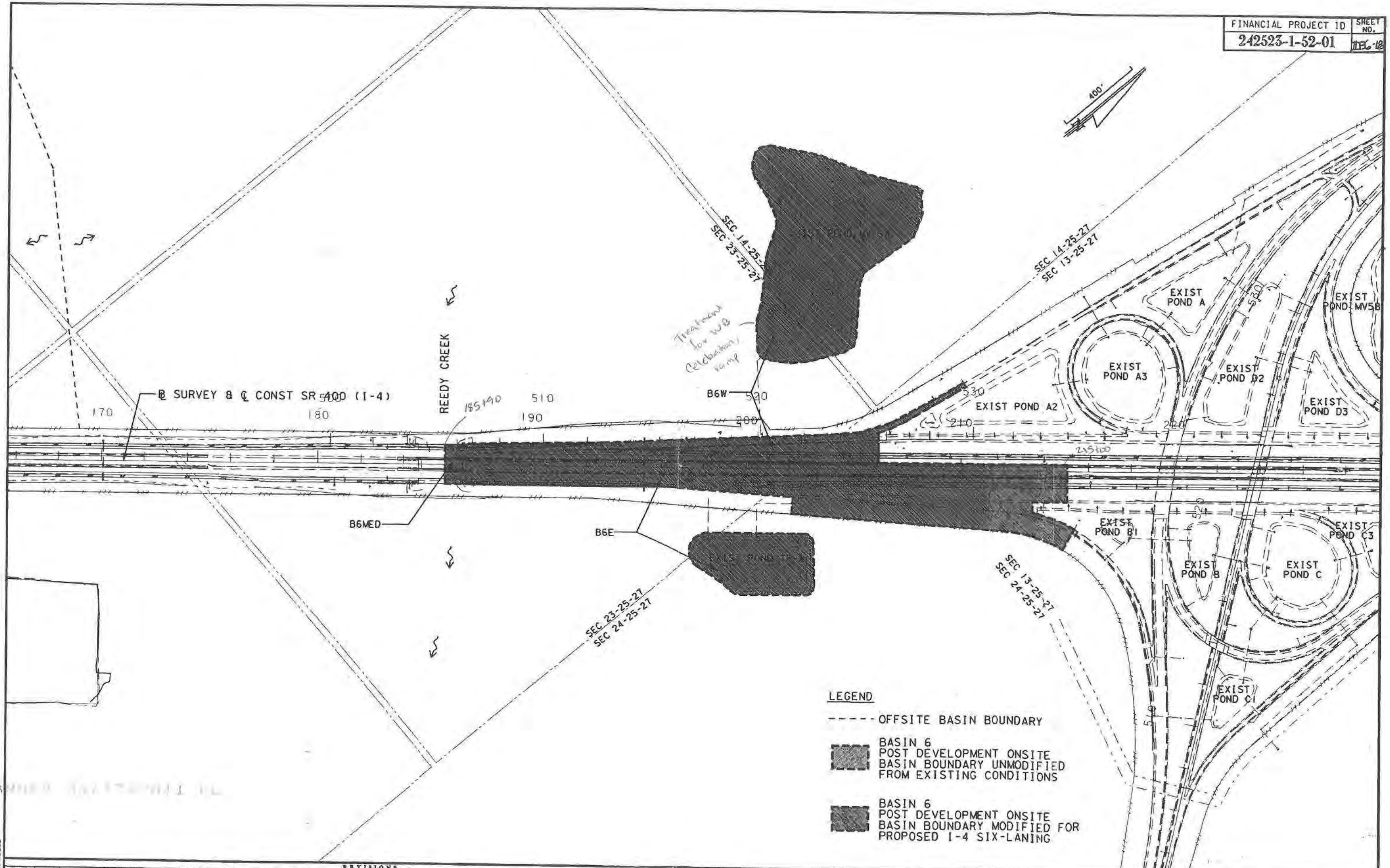
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

**BASIN 8
 PRE DEVELOPMENT BASIN**



Fri, Jan 21, 10, 2000
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② SURVEY & CONST SR 400 (I-4)

Treatment for WB Celebration Camp

LEGEND

- OFFSITE BASIN BOUNDARY
- 
 BASIN 6
 POST DEVELOPMENT ONSITE
 BASIN BOUNDARY UNMODIFIED
 FROM EXISTING CONDITIONS
- 
 BASIN 6
 POST DEVELOPMENT ONSITE
 BASIN BOUNDARY MODIFIED FOR
 PROPOSED I-4 SIX-LANING

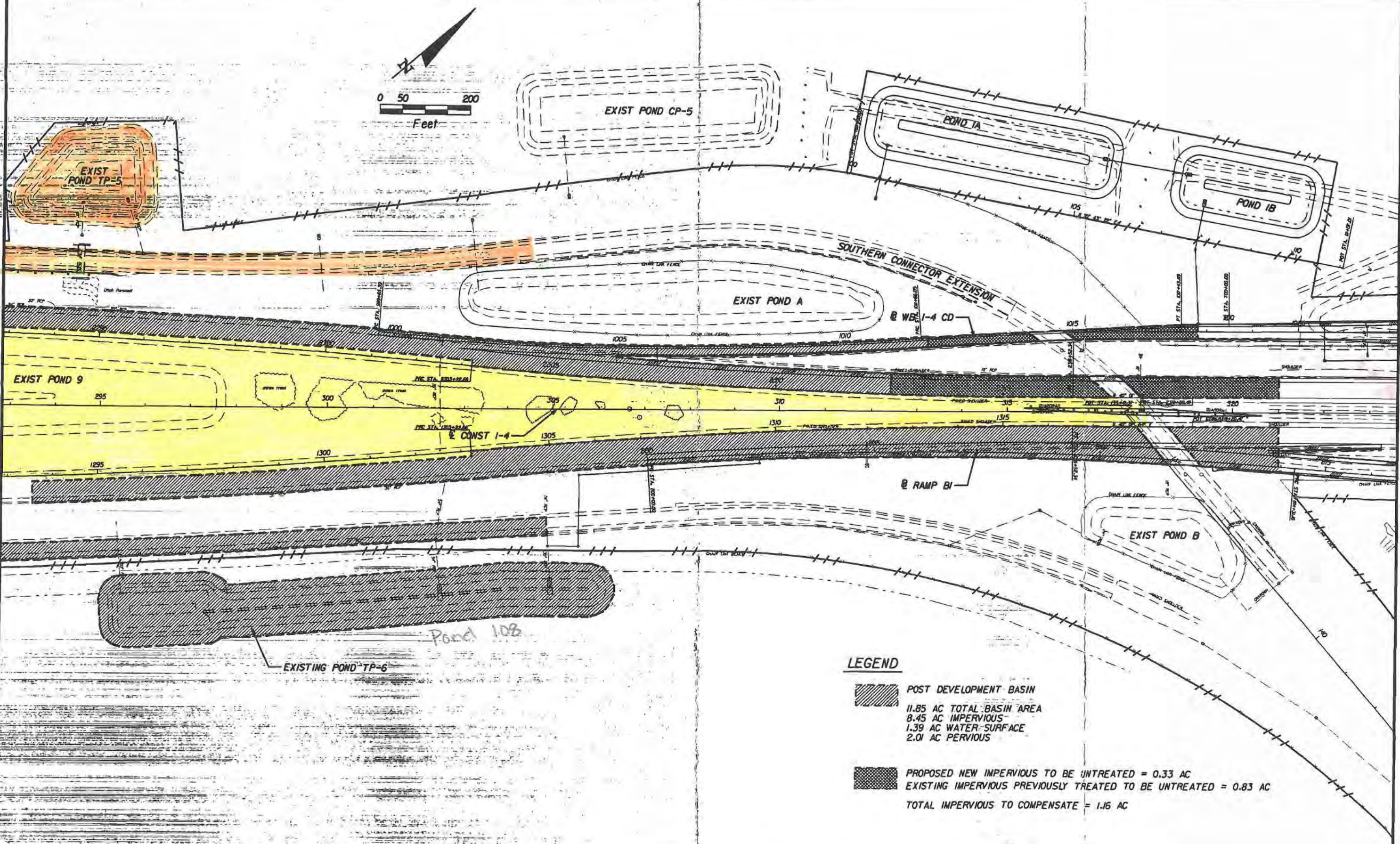
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REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

**BASIN 6W & 6E
POST DEVELOPMENT BASIN**



LEGEND

POST DEVELOPMENT BASIN
 11.85 AC TOTAL BASIN AREA
 8.45 AC IMPERVIOUS
 1.39 AC WATER SURFACE
 2.01 AC PERVIOUS

PROPOSED NEW IMPERVIOUS TO BE UNTREATED = 0.33 AC
 EXISTING IMPERVIOUS PREVIOUSLY TREATED TO BE UNTREATED = 0.83 AC
 TOTAL IMPERVIOUS TO COMPENSATE = 1.16 AC

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

URS

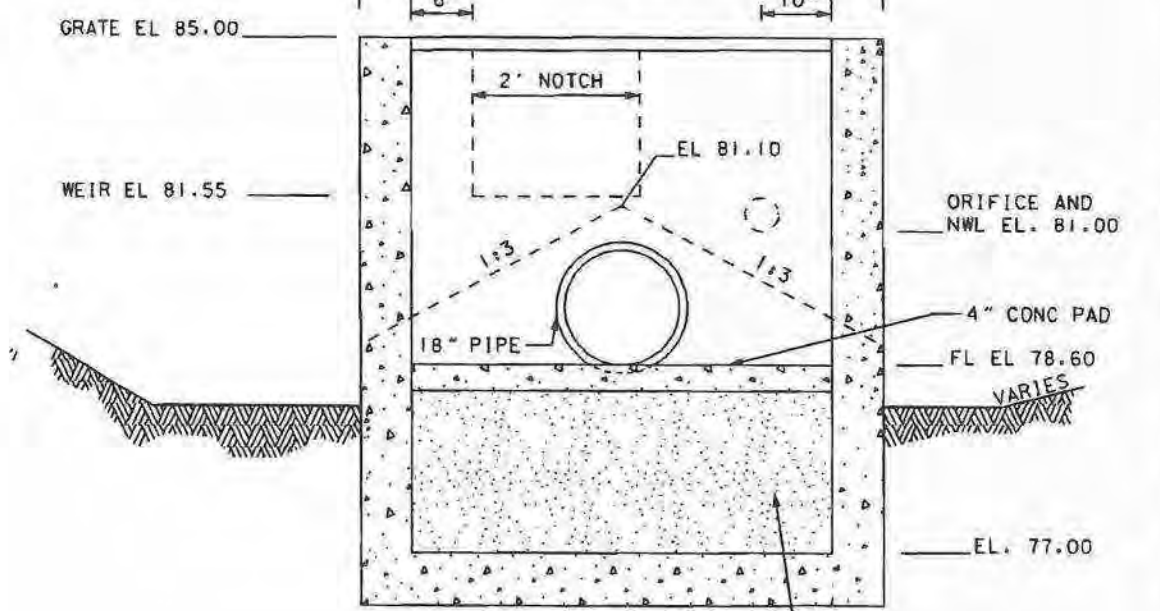
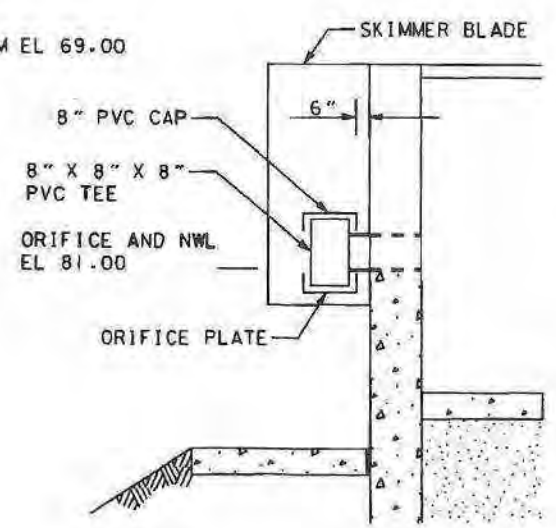
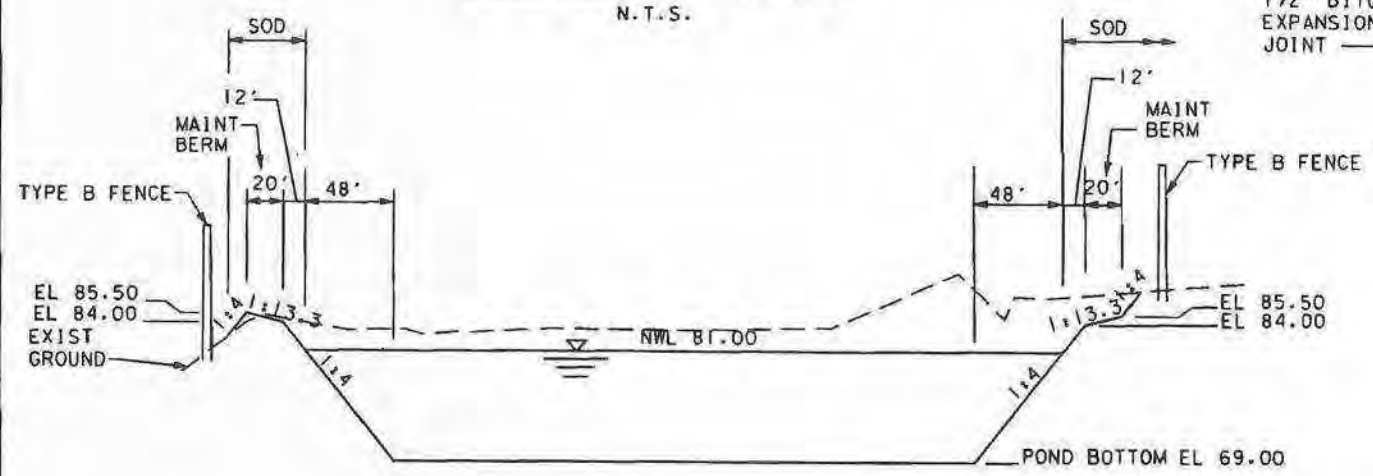
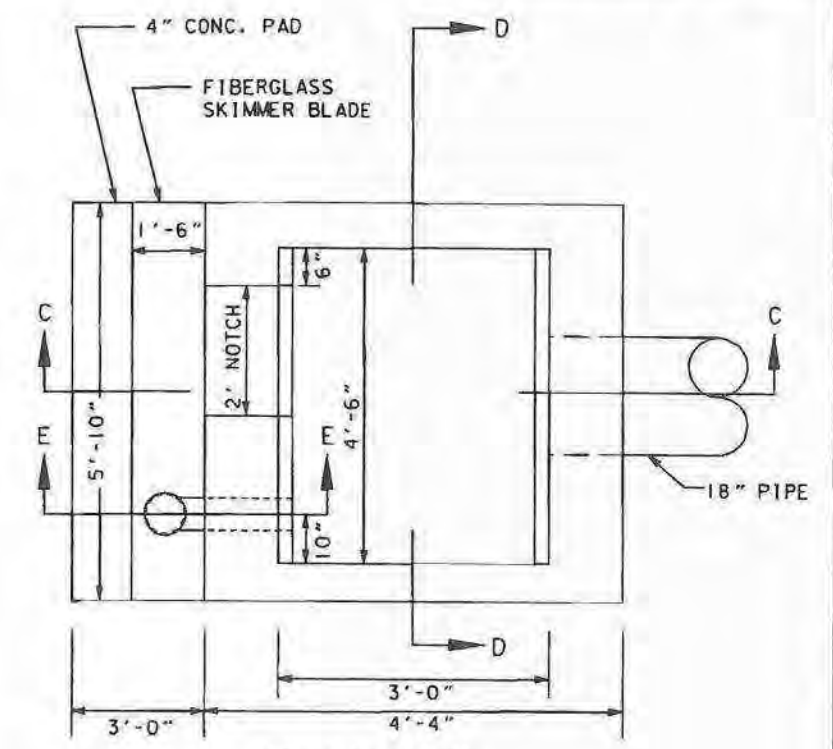
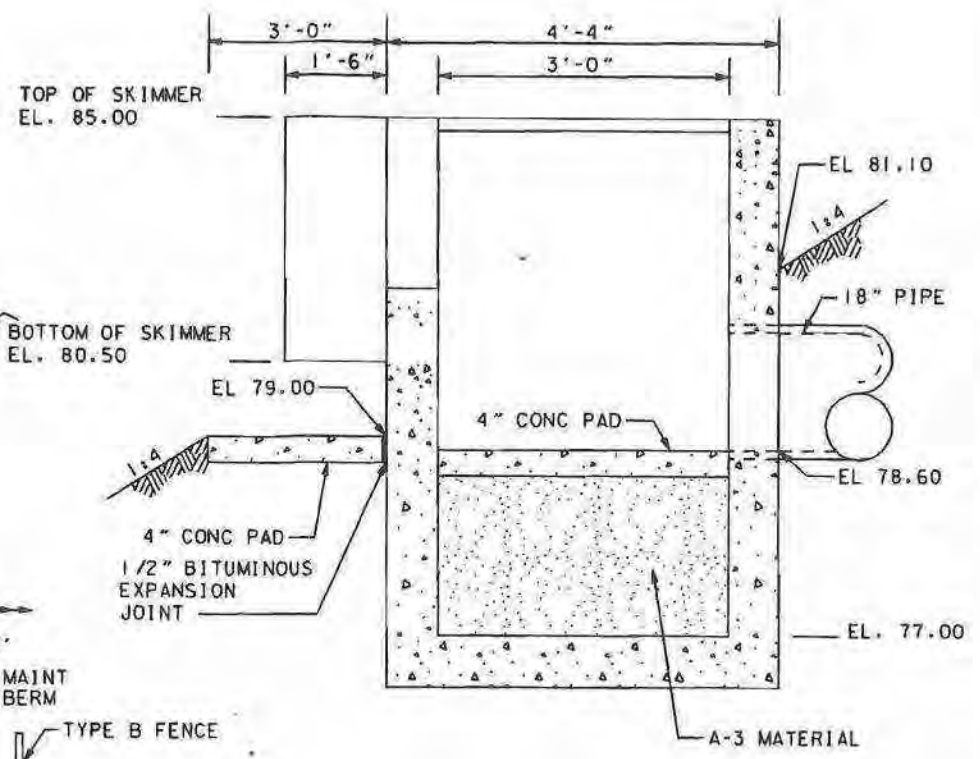
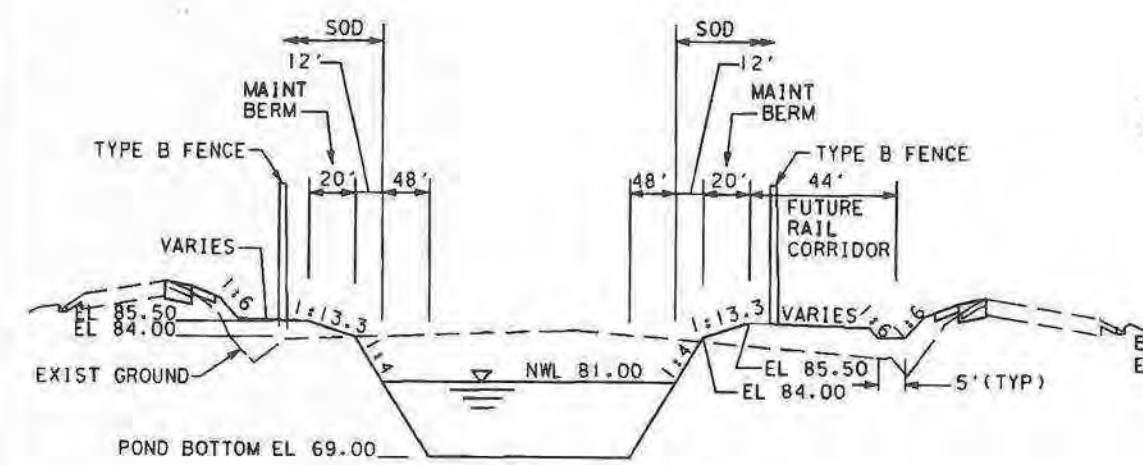
315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-1975
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	242531-1-52-01

POST DEVELOPMENT BASIN TP-6

SHEET NO.



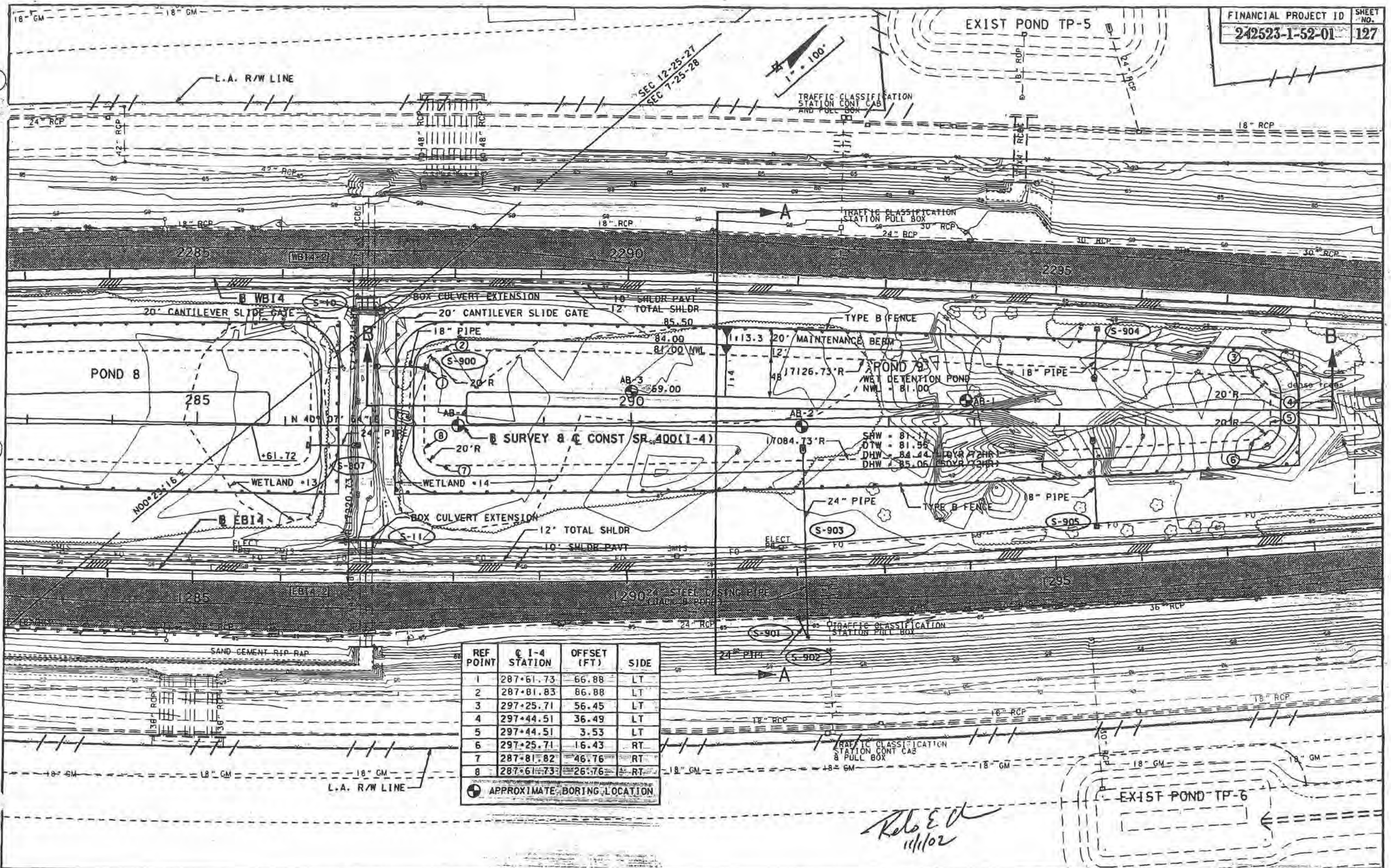
- NOTES:
1. MAINTENANCE BERM SHALL BE SOD ON COMPACTED FILL.
 2. SKIMMER TO BE CONSTRUCTED OF 3/16" FIBERGLASS, REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES TO BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS.
 3. SKIMMER BLADE, FASTENERS, PVC PIPE AND CONCRETE PAD, ETC. TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLET TYPE SPECIAL (CONTROL STRUCTURE).
 4. MINIMUM RADIUS FOR CURVES AT NORMAL WATER LEVEL (NWL) IS 20 FEET. CURVES ABOVE AND BELOW NWL ARE CONCENTRIC. MINIMUM RADIUS FOR CURVES BELOW NWL IS 5 FEET.
 5. THE ORIFICE PLATE SHALL BE 8" PVC CAP W/ HOLE DRILLED TO 4.50" AND SOLVENT WELDED TO TEE PER MANUFACTURER'S RECOMMENDATIONS.

REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-8715
PH (407) 422-0353 FAX (407) 423-2685
NO. 000002

POND 9
DETAIL SHEET



REF POINT	± I-4 STATION	OFFSET (FT)	SIDE
1	287+61.73	66.88	LT
2	287+81.83	86.88	LT
3	297+25.71	56.45	LT
4	297+44.51	36.49	LT
5	297+44.51	3.53	LT
6	297+25.71	16.43	RT
7	287+81.82	46.76	RT
8	287+61.73	26.76	RT

⊕ APPROXIMATE BORING LOCATION

REVISIONS

DATE	BY	DESCRIPTION

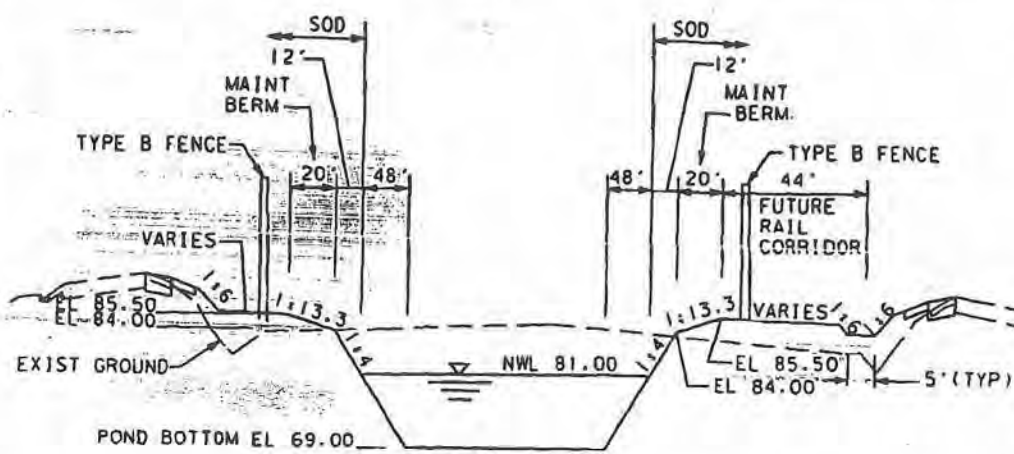
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-8719
PH (407) 422-0353 FAX (407) 423-2895
NO. 000002

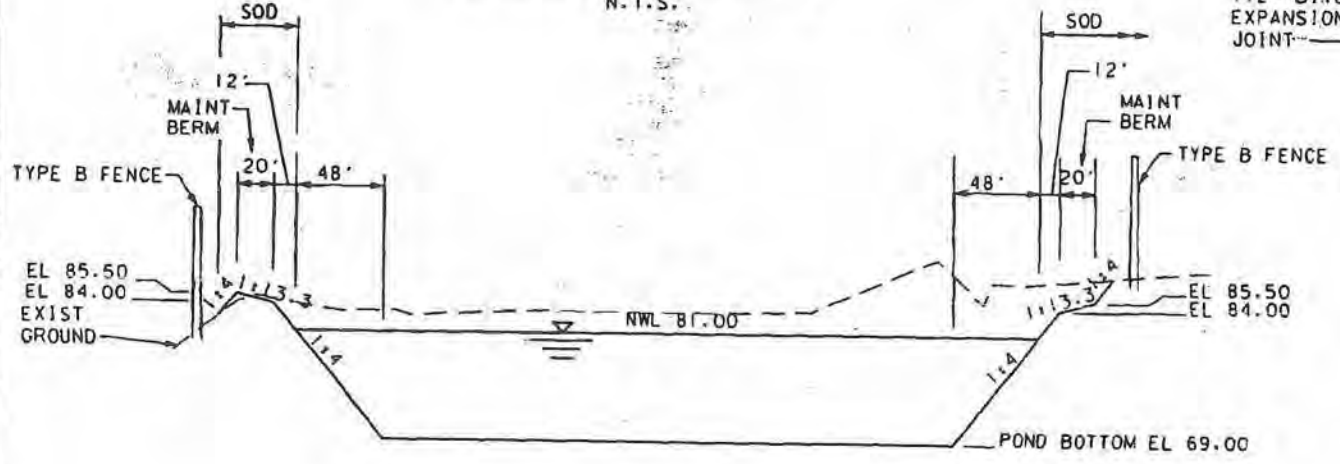
POND 9
DETAIL SHEET

Relo E. V.
11/1/02

Mod. Feb. 8, 1958-17, 200
BY: J. L. G. (JLG)
DATE: 11/1/02
FILE: 242523-1-52-01



POND 9 SECTION A-A
N.T.S.



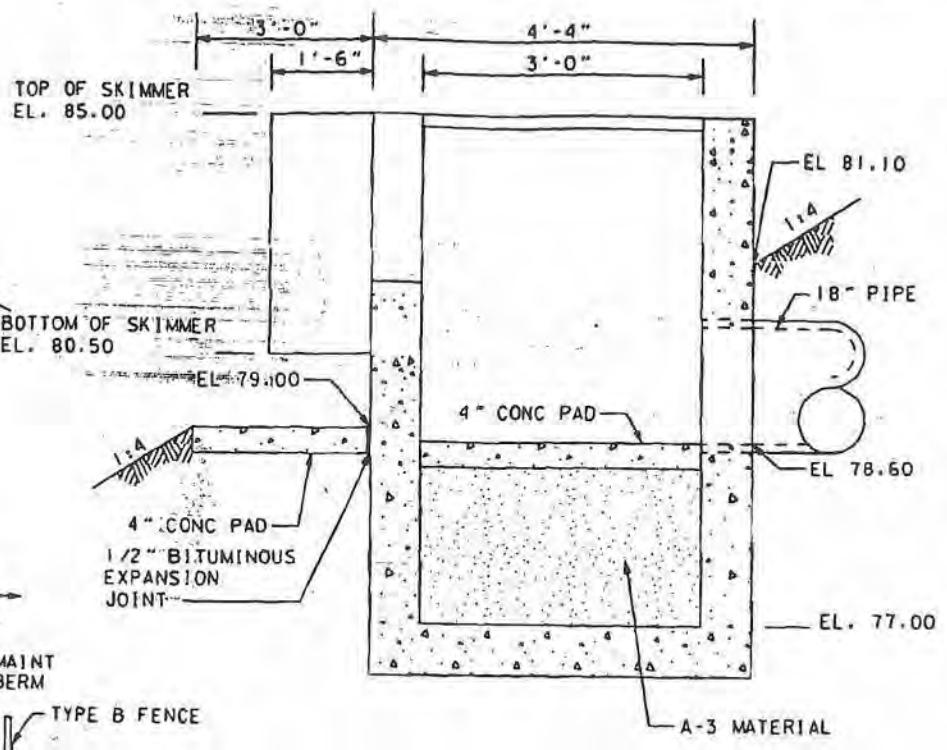
POND 9 SECTION B-B
N.T.S.

NOTES:

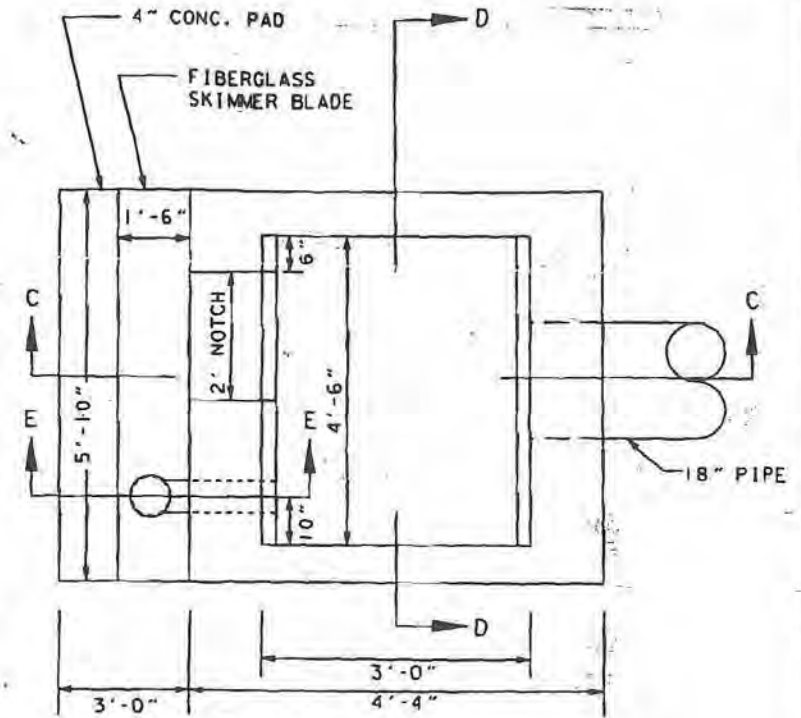
See plan sheet 115C for bench mark data.

1. MAINTENANCE BERM SHALL BE SOD ON COMPACTED FILL.
2. SKIMMER TO BE CONSTRUCTED OF 3/16" FIBERGLASS, REINFORCED PLASTIC PLATES AND ANGLES, CONNECTED BY EPOXY BONDING AND NON-METALLIC RIVETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLASTIC ANGLES TO BE ATTACHED TO THE CONCRETE WITH STAINLESS STEEL BOLTS.
3. SKIMMER BLADE FASTENERS, PVC PIPE AND CONCRETE PAD, ETC. TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLET TYPE E MODIFIED (CONTROL STRUCTURE).
4. MINIMUM RADIUS FOR CURVES AT NORMAL WATER LEVEL (NWL) IS 20 FEET. CURVES ABOVE AND BELOW NWL ARE CONCENTRIC. MINIMUM RADIUS FOR CURVES BELOW NWL IS 5 FEET.
5. THE ORIFICE PLATE SHALL BE 8" PVC CAP W/ HOLE DRILLED TO 4.50" AND SOLVENT WELDED TO TEE PER MANUFACTURER'S RECOMMENDATIONS.

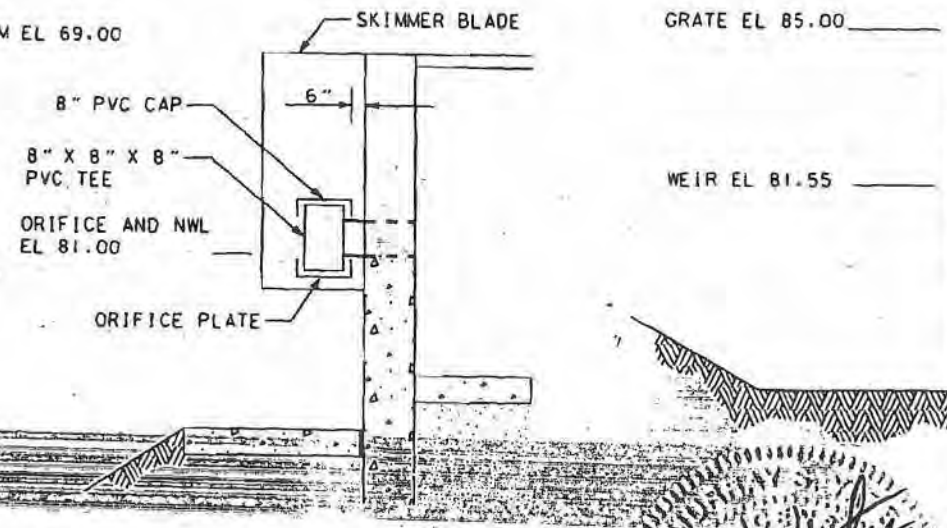
Go see plan sheet 115B for as-built data.



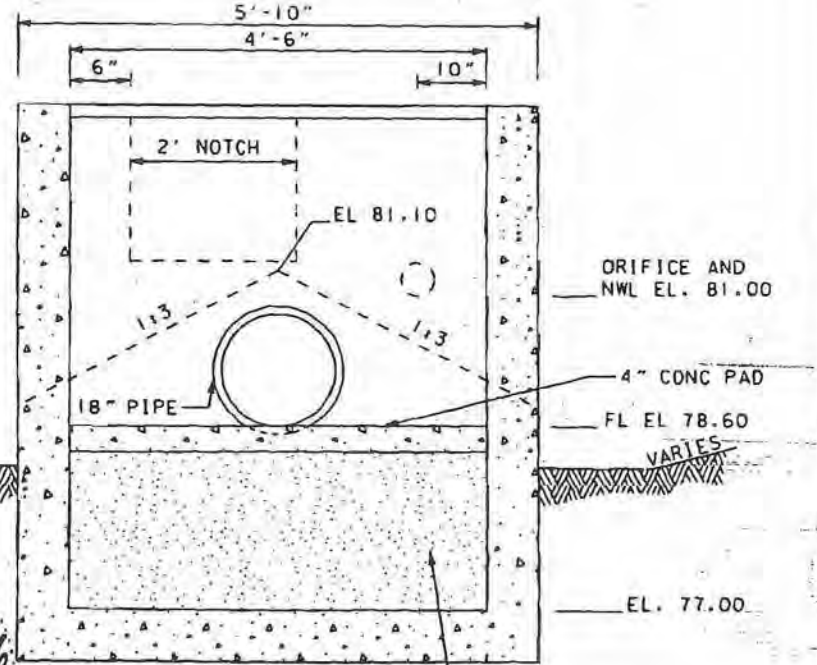
SECTION C-C
N.T.S.



PLAN VIEW
CONTROL STRUCTURE S-900
D.B.I. TYPE E MODIFIED
N.T.S.



SECTION E-E
N.T.S.

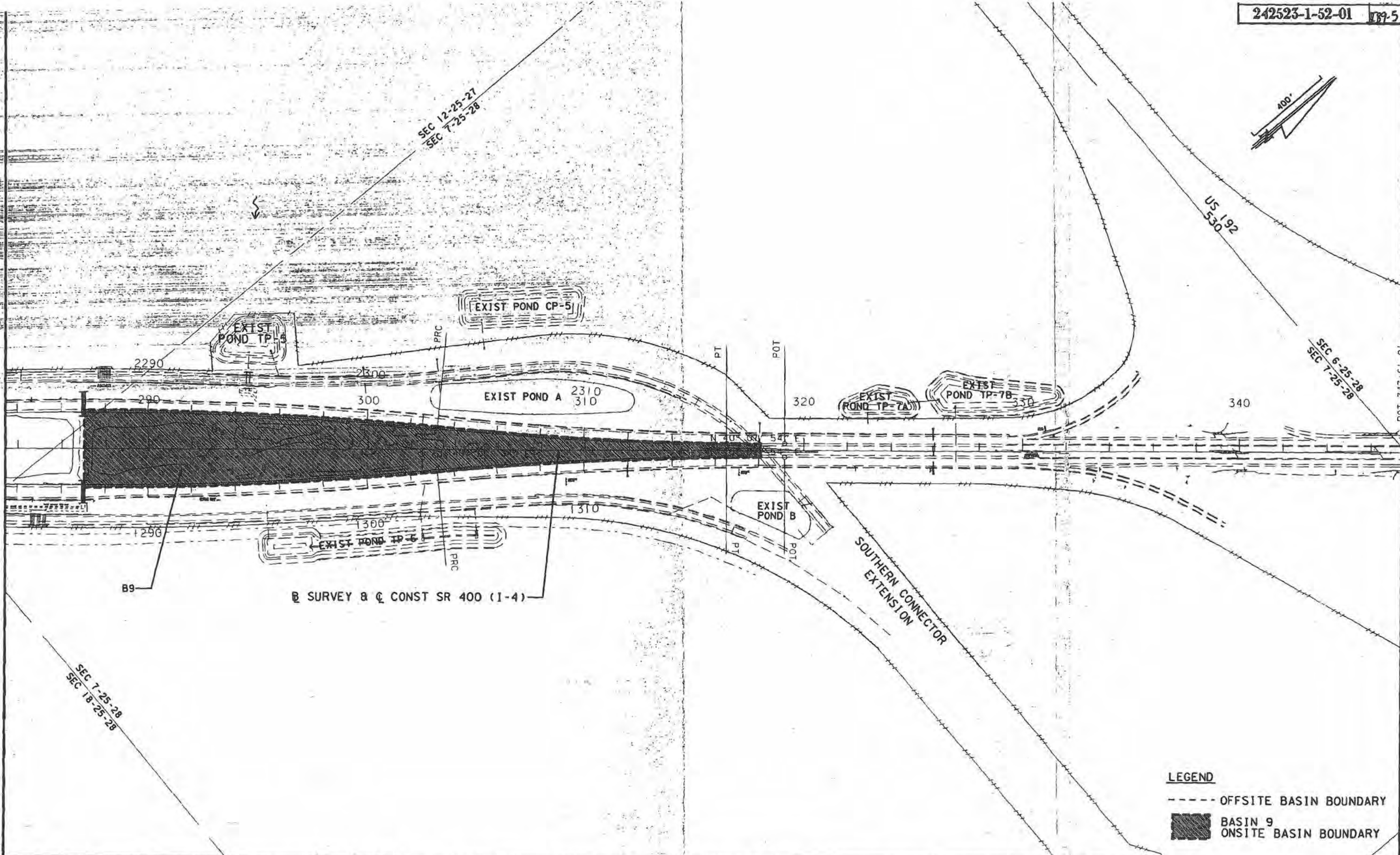


SECTION D-D
N.T.S.

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32809-8715
PH (407) 422-0353 FAX (407) 423-2695
NO. 000002

POND 9
DETAIL SHEET



LEGEND
 - - - - OFFSITE BASIN BOUNDARY
 [Shaded Area] BASIN 9
 [Dashed Line] ONSITE BASIN BOUNDARY

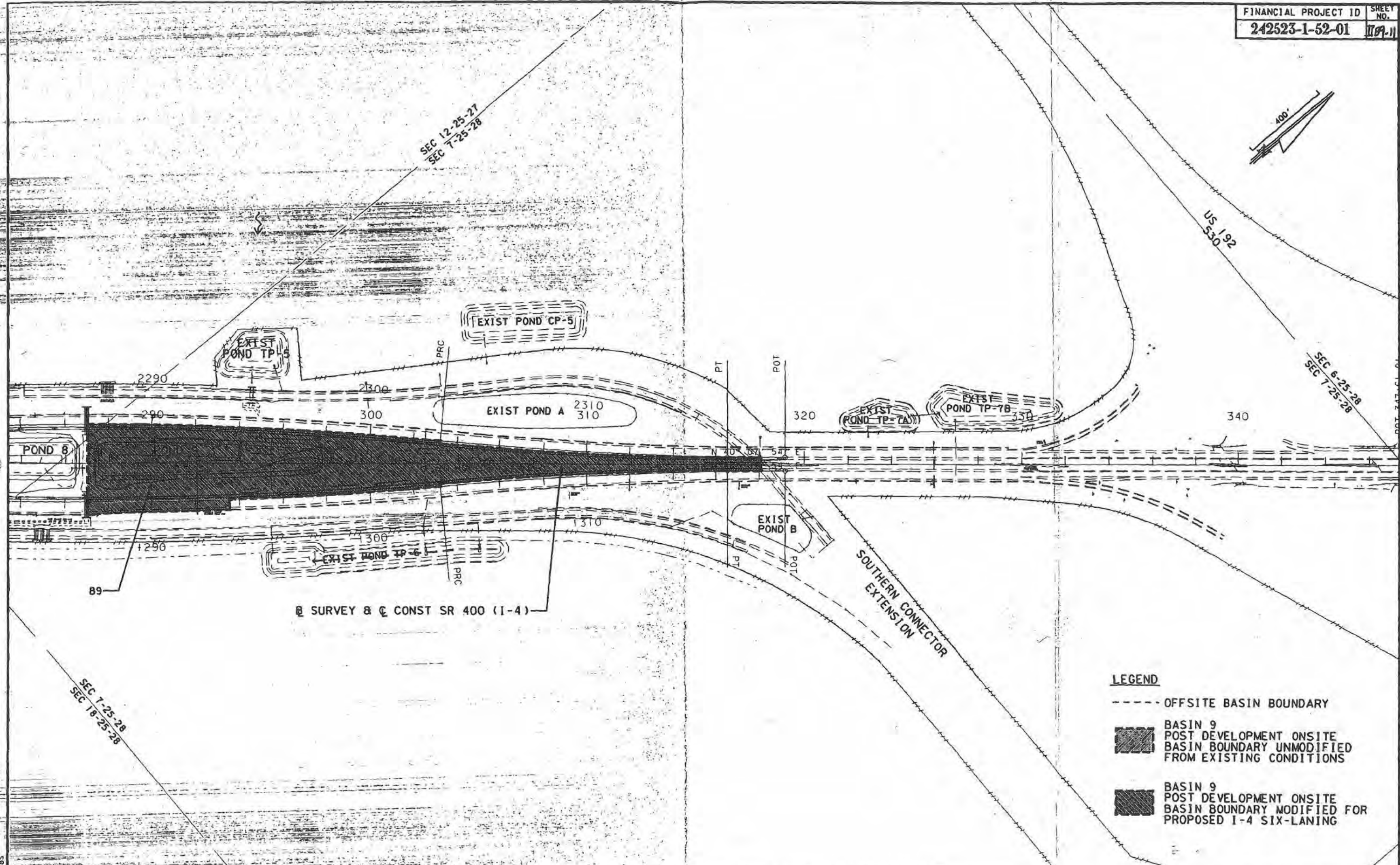
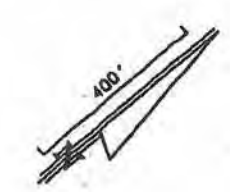
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DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION	

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

**BASIN 9
 PRE DEVELOPMENT BASIN**



- LEGEND**
- OFFSITE BASIN BOUNDARY
 - BASIN 9 POST DEVELOPMENT ONSITE BASIN BOUNDARY UNMODIFIED FROM EXISTING CONDITIONS
 - BASIN 9 POST DEVELOPMENT ONSITE BASIN BOUNDARY MODIFIED FOR PROPOSED I-4 SIX-LANING

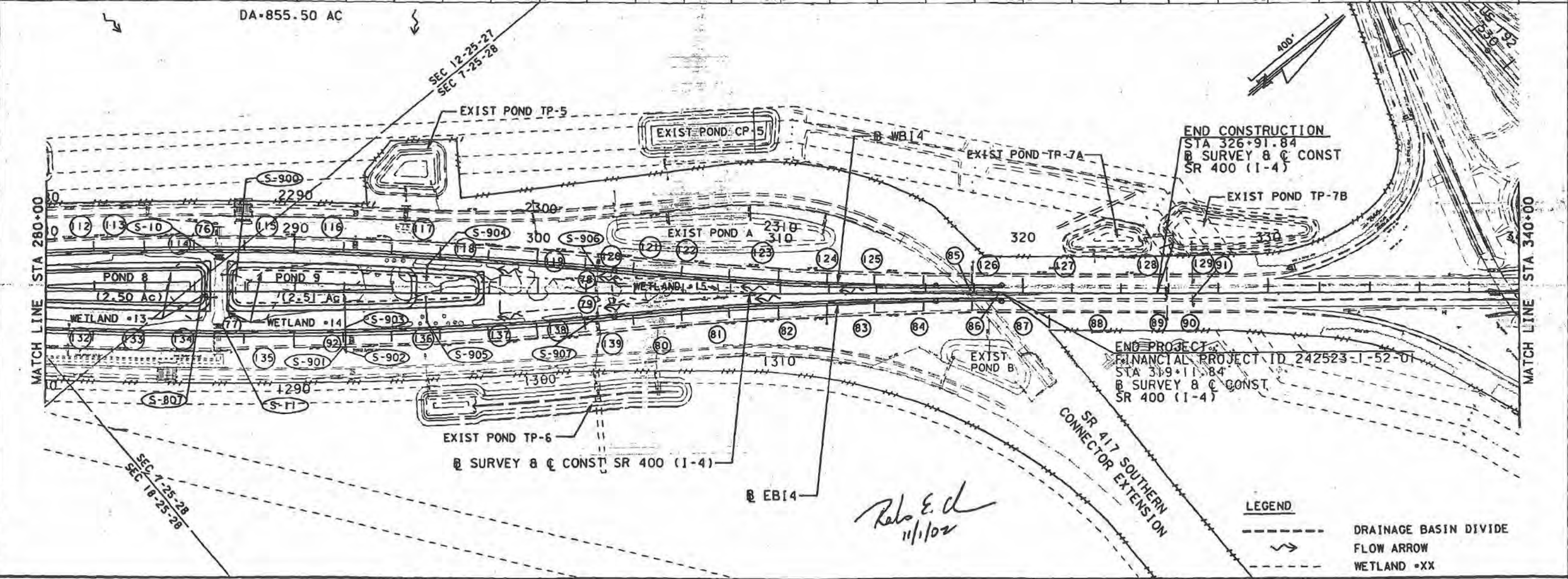
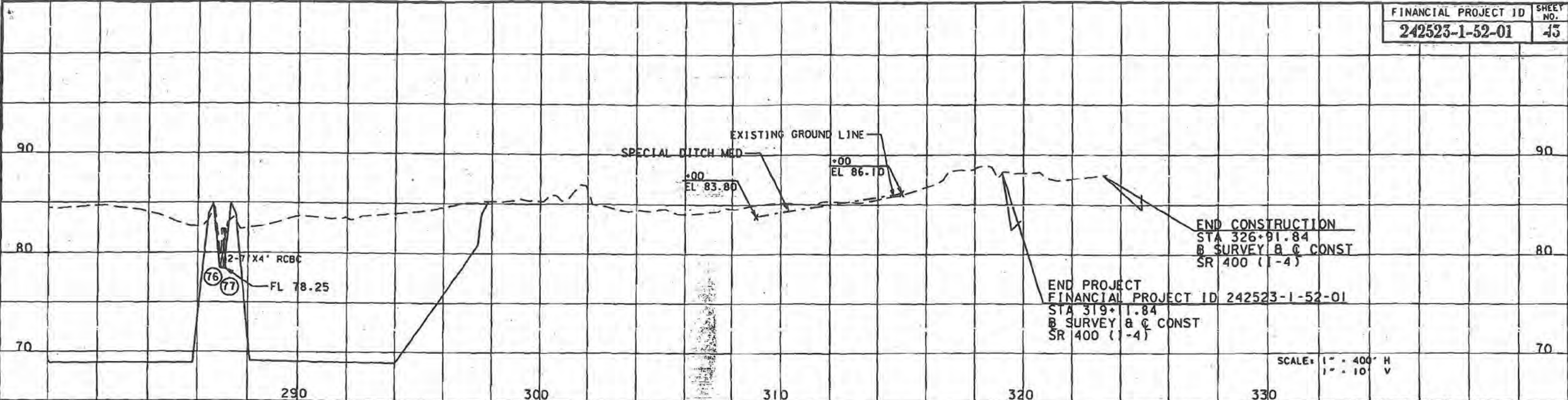
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DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS Greiner Woodward Clyde

**BASIN 9
POST DEVELOPMENT BASIN**



DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION	

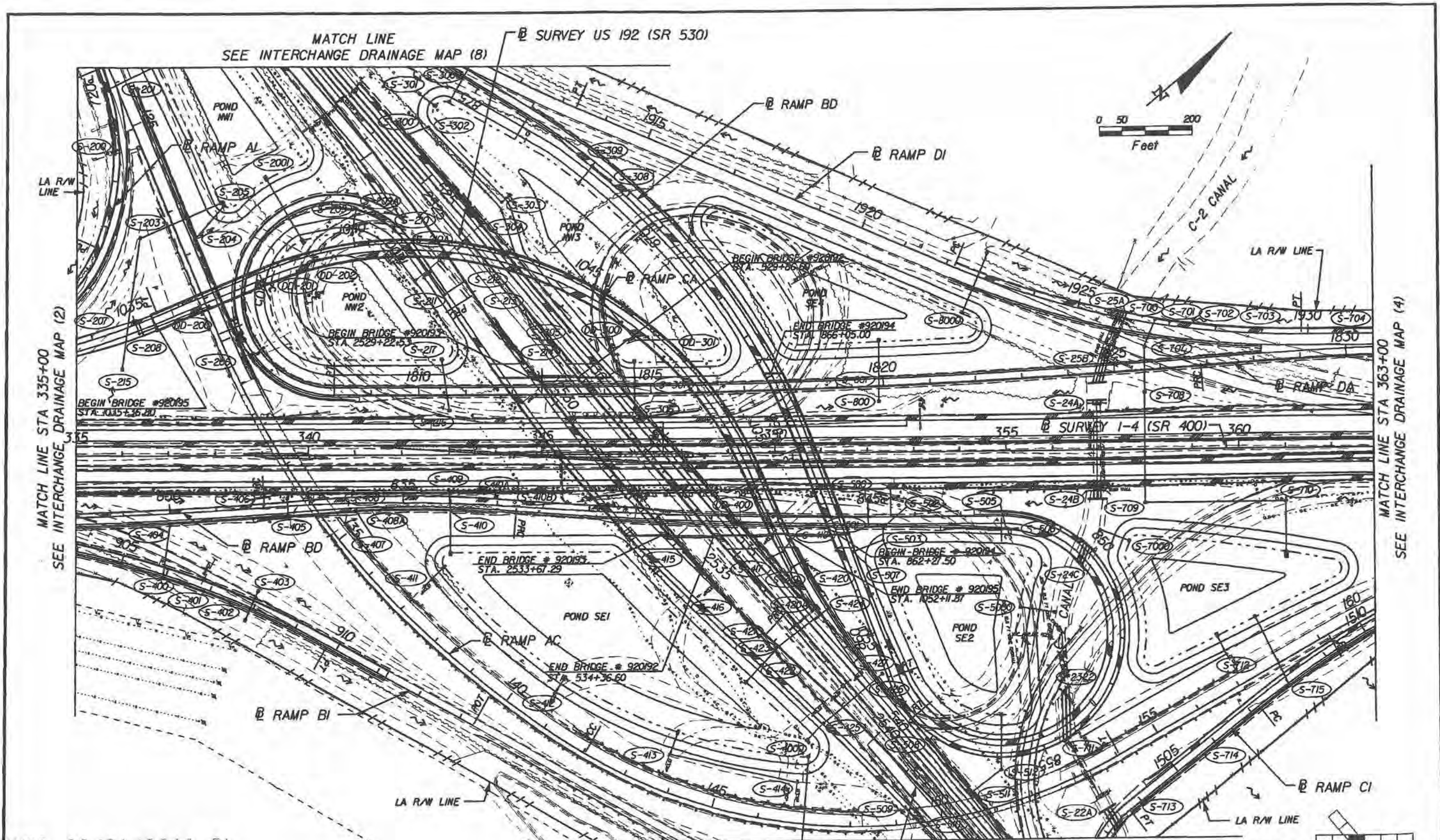
STATES OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
35 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-8715
PH (407) 422-0353 FAX (407) 423-2695
NO. 000002

LEGEND
 --- DRAINAGE BASIN DIVIDE
 → FLOW ARROW
 XX WETLAND

DRAINAGE MAP

ULY 28, 1999
1:V1026403 (GRAIN)



SCANNED 08/24/2011 PL

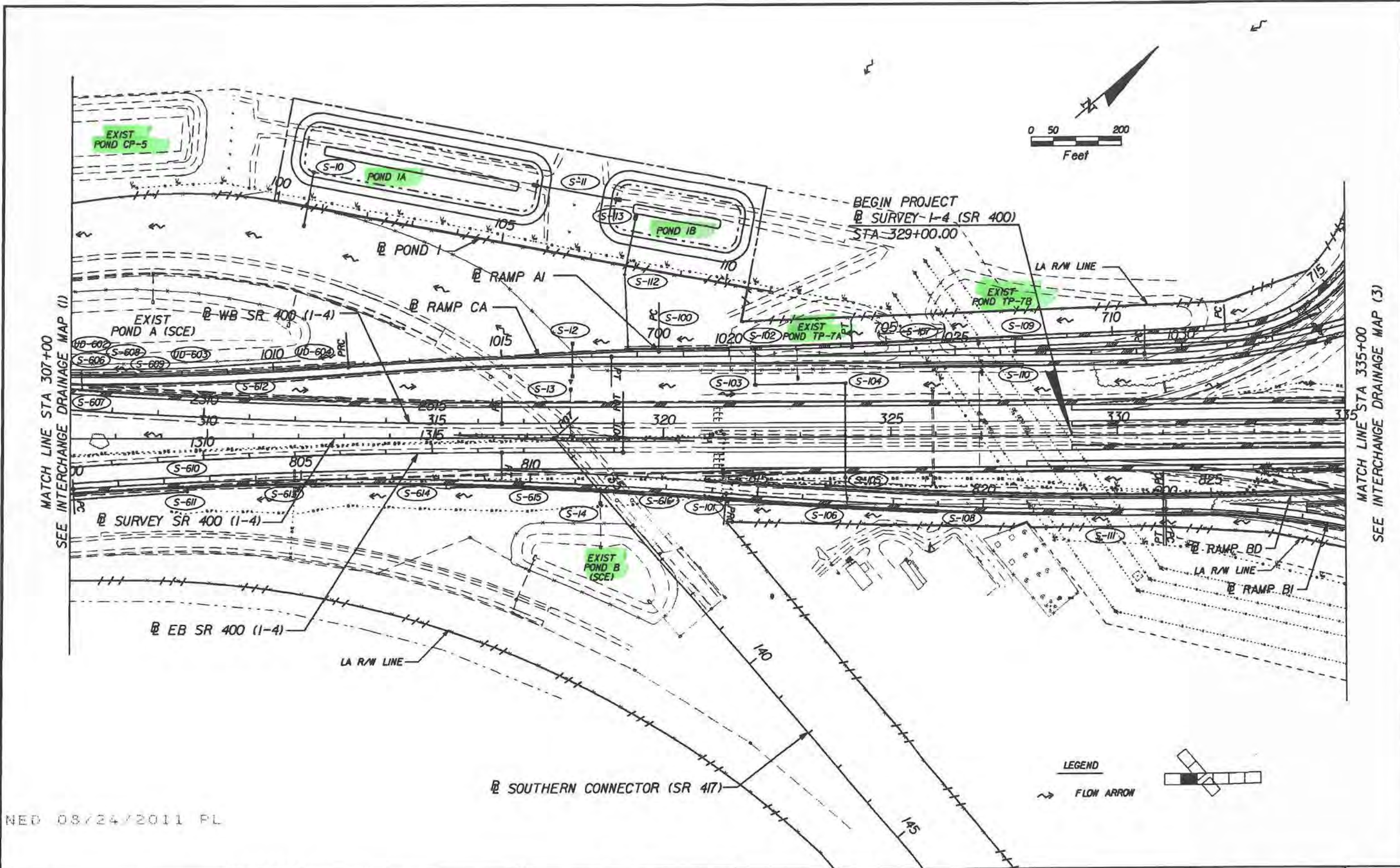
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

URS
 315 E. ROBINSON STREET, SUITE 245
 ORLANDO, FL 32801-1975
 PH (407) 422-0353 FAX (407) 423-2695
 NO. 000002

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	242531-1-52-01

INTERCHANGE DRAINAGE MAP (3)
 STA 335+00 TO STA 363+00

SHEET NO.
 10



MATCH LINE STA 307+00
SEE INTERCHANGE DRAINAGE MAP (1)

MATCH LINE STA 335+00
SEE INTERCHANGE DRAINAGE MAP (3)

LEGEND

~> FLOW ARROW

SCANNED 08/24/2011 PL

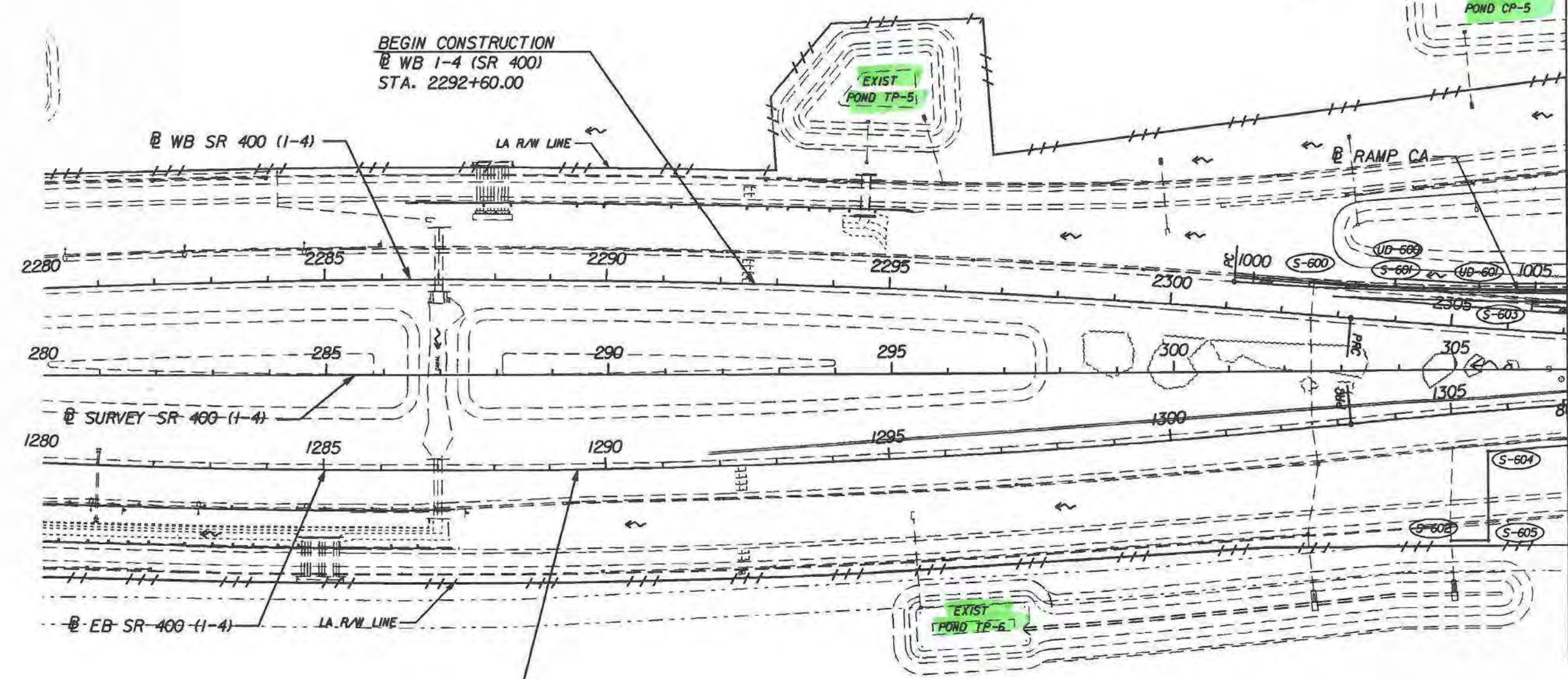
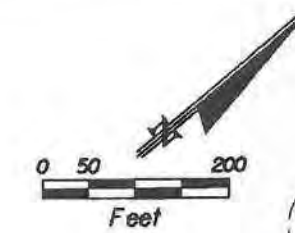
REVISIONS						URS 315 E. ROBINSON STREET, SUITE 245 ORLANDO, FL 32801-1975 PH (407) 422-0353 FAX (407) 423-2695 NO. 000002	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			INTERCHANGE DRAINAGE MAP (2) STA 1305+40 TO STA 335+00	SHEET NO. 9
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 400	OSCEOLA	242531-1-52-01			

Mon Nov 18 10:51:19 2002

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\\S066106\SP00L\PL012\INTDRA02.plt

H:\TABLE\T\dsr408.tbl



BEGIN CONSTRUCTION
WB I-4 (SR 400)
STA. 2292+60.00

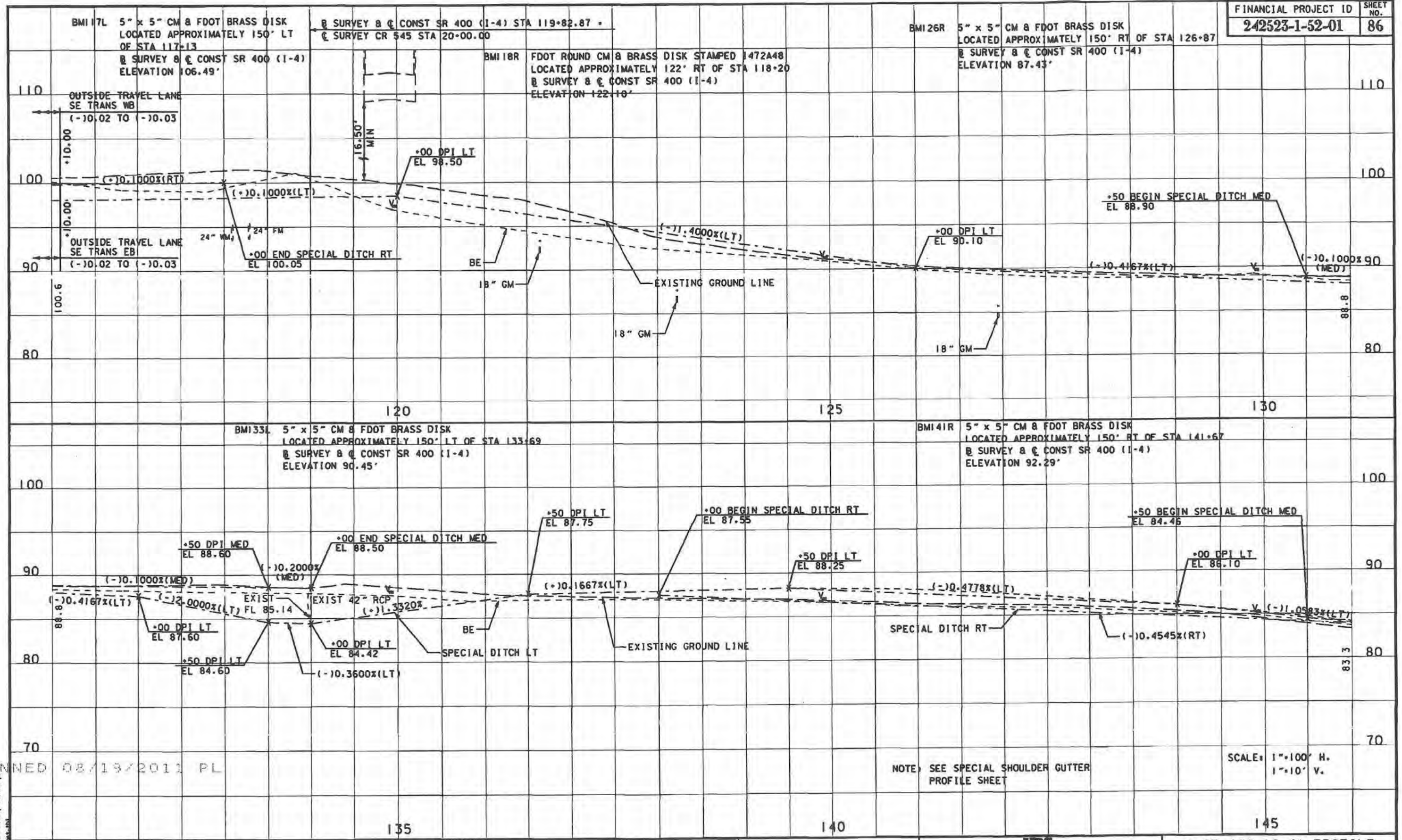
BEGIN CONSTRUCTION
EB I-4 (SR 400)
STA. 1289+50.00

MATCH LINE STA 307+00
SEE INTERCHANGE DRAINAGE MAP (2)



SCANNED 08/24/2011 PL

REVISIONS						URS 315 E. ROBINSON STREET, SUITE 245 ORLANDO, FL 32801-1975 PH (407) 422-0353 FAX (407) 423-2695 NO. 000002	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			INTERCHANGE DRAINAGE MAP (1) STA 1280+00 TO STA 1305+40	SHEET NO. 8
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 400	OSCEOLA	242531-1-52-01			



SCANNED 08/19/2011 PL

NOTE: SEE SPECIAL SHOULDER GUTTER PROFILE SHEET

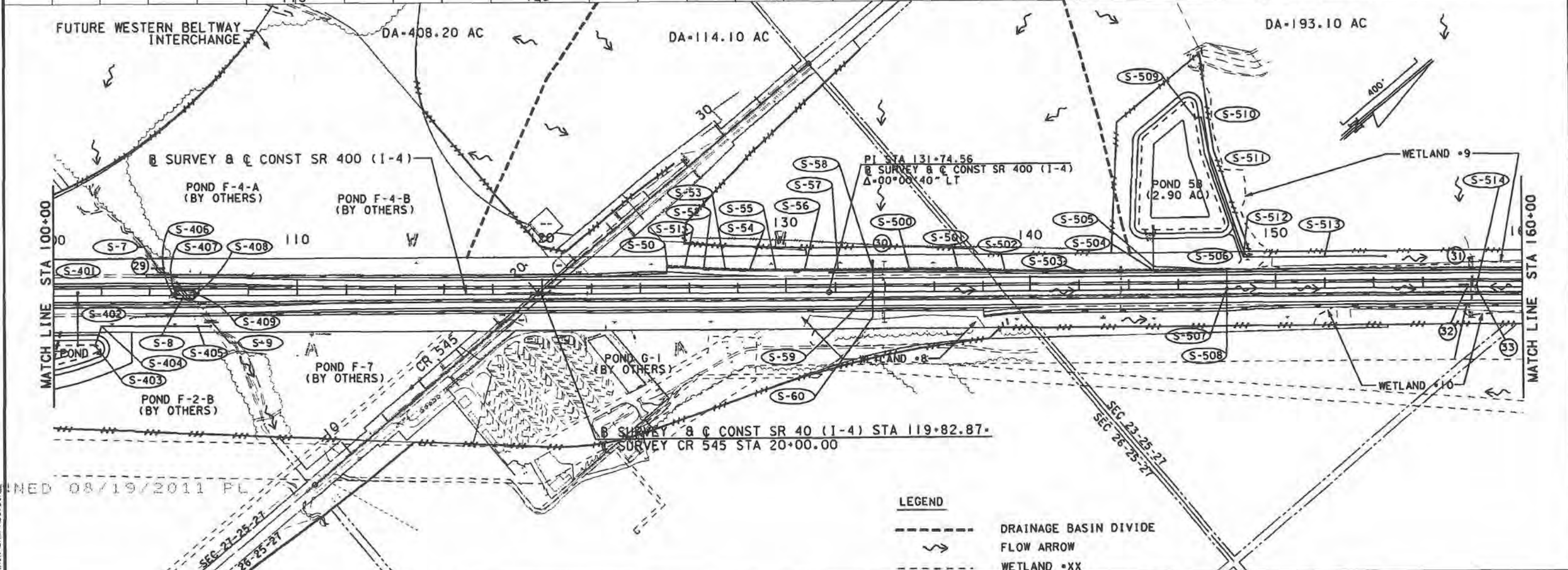
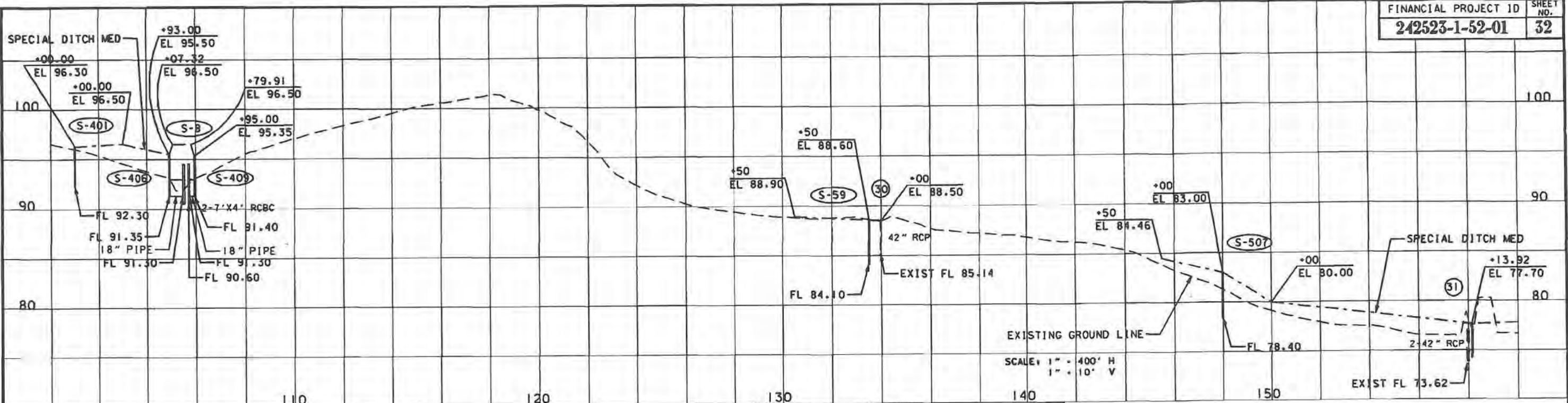
SCALE: 1"=100' H.
1"=10' V.

REVISIONS			
DATE	BY	DESCRIPTION	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1975
PH 407/422-0353 FAX 407/423-2585
NO. 000002

SR 400 (I-4) PROFILE
STA 116+00 - STA 146+00



SCANNED 08/19/2011 PL

REVISIONS		REVISIONS		REVISIONS		REVISIONS		REVISIONS			
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

LEGEND

----- DRAINAGE BASIN DIVIDE

~> FLOW ARROW

--- WETLAND *XX

Permit No. 49-00792-P
Application No. 101001-20
I-4 Braided Ramp

URS

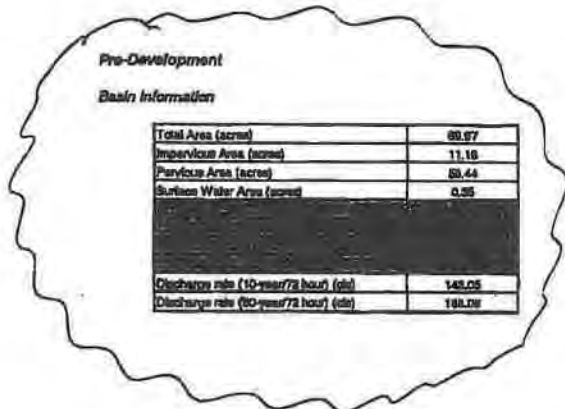


TABLE 4.4

Basin SE Summary

Post-Development Basin Information

Total Area (acres)	80.71
Impervious Area (acres)	21.34
PerVIOUS Area (acres)	58.85
Surface Water Area (acres)	
Pond SE1	0.65
Pond SE2	1.75
Pond SE3	1.67
Pond SE4	1.72
Discharge rate (10-year/72 hour) (cfs)	80.71
Discharge rate (50-year/72 hour) (cfs)	76.76

Proposed Pond Information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Normal Water Level (NWL) Elevation (ft. NAVD)	85.80	85.80	85.00	86.80
Avg. Wet Season Water Table (AWSWT) (ft. NAVD)	85.10	85.17	85.27	86.97
Design High Water (DHW) (10-year/72hr) (ft. NAVD)	87.59	86.99	86.99	87.99
Design High Water (DHW) (50-year/72hr) (ft. NAVD)	87.78	86.78	86.08	88.11
Top of berm elevation (ft. NAVD)	81.30	81.00	81.00	81.30

Water Quality Information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Required Pollution Abatement Volume (PAV) (ac-ft)	1.58	0.83	1.65	0.87
Provided Pollution Abatement Volume (PAV) (ac-ft)	1.82	0.90	1.55	0.81
PAV elevation (ft. NAVD)	85.85	84.00	86.80	86.85

Pond Outlet Information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Outlet type	Drop structure	Drop Structure	Drop Structure	Drop Structure
Weir length (ft)	2'	2'	2'	2'
Outlet pipe diameter (inches)	3"	18"	18"	18"
Receiving Body	C-2 Canal	C-2 Canal	C-2 Canal	C-2 Canal

Treatment Recovery Information

	Pond SE1	Pond SE2	Pond SE3	Pond SE4
Blended Down Volume (ac-ft)	0.78	0.41	0.77	0.39
Orifice or V-notch weir size (inches or degrees)	3.00"	3.75"	4.88"	3.80"
Recovery Time (hours)	22.75	29.00	34.00	20.35

URS

PROJECT TITLE:	US 92/F4 INTERCHANGE		
PROJECT NUMBER:	V100385.01		DATE
BASIN DESIGNATION:	PRE24	MADE BY:	REC 15-Aug-02
BASIN ANALYSIS (PRE/POST):	PRE	CHECKED BY:	USD 10/21/02

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DIRECTIONALLY CONNECTED IMPERVIOUS AREAS (DCIA)		AREA (SQ FT)
BUILDING		
DRIVEWAY		
ROADWAY		3.44
PAVEMENT (MISC.)		
WATER SURFACE		
TOTAL DCIA		3.44
NON-DIRECTIONALLY CONNECTED IMPERVIOUS AREAS (NDCIA)		AREA (SQ FT)
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	21.18%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	12.80
CN AREA	(BASIN AREA - DCIA)	12.80
TOTAL BASIN AREA		60.00

LAND USE DESCRIPTION (PARTITION'S AREA)	SOIL NAME	SOIL GROUP	CN	AREA (SQ FT)	PERCENT OF TOTAL
Open Space - good	Arent	A/D	80	12.80	1024.00
TOTALS				12.80	1024.00

COMPOSITION **80%**

URS

PROJECT TITLE: US 192/I-4 INTERCHANGE			
PROJECT NUMBER:	V100385.01		DATE
BASIN DESIGNATION:	PRE23	MADE BY:	REC 15-Aug-02
BASIN ANALYSIS (PRE/POST):	PRE	CHECKED BY:	ASP 10/21/02

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

CONNECTED IMPERVIOUS AREAS (DCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		2.46
PAVEMENT (MISC.)		
WATER SURFACE		0.19
TOTAL DCIA		
NON-CONNECTED IMPERVIOUS AREAS (NDCIA)		
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	15.59%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	14.35
CN AREA	(BASIN AREA - DCIA)	14.35
TOTAL BASIN AREA		29.70

LAND USE OR COVER	SOIL	SOIL	CN	AREA	PRODUCT
PERCENT	TYPE	GROUP			
Open Space - good	Aren	A/D	80	14.35	1148.00
TOTALS				14.35	1148.00

COMPOSITE CN 80

URS

PROJECT TITLE:	US 192/14 INTERCHANGE		
PROJECT NUMBER:	V100385.01	MADE BY:	REC
BASIN DESIGNATION:	PRE22	CHECKED BY:	CSO
BASIN ANALYSIS (PRE/POST):	PRE	DATE:	10/21/02

**CURVE NUMBER WORKSHEET
SANTA BARBARA METHOD (SFWMD)**

DISTRICT CONSTRUCTED IMPERVIOUS AREAS (DCIA)		AREA (SQ FT)
BUILDING		
DRIVEWAY		
ROADWAY		1.73
PAVEMENT (MISC.)		
WATER SURFACE		0.06
TOTAL DCIA		1.79
NON-DISTRICT CONSTRUCTED IMPERVIOUS AREAS (NDCIA)		AREA (SQ FT)
BUILDING		
DRIVEWAY		
ROADWAY		
PAVEMENT (MISC.)		
TOTAL N - DCIA		0.00
PERCENT DCIA	(TOTAL DCIA / TOTAL BASIN AREA)	19.39%
PERVIOUS AREA	(BASIN AREA - DCIA - NDCIA)	7.44
CN AREA	(BASIN AREA - DCIA)	7.44
TOTAL BASIN AREA		38.00

LAND USE DESCRIPTION	SOIL NAME	SOIL GROUP	CS	CU	PRODUCT
Open Space - good	Aeal	A/D	80	7.44	595.20
TOTALS			80	7.44	595.20

COMPOSITE CN 80

Permit No. 49-00809-P

Application No. 950728-4

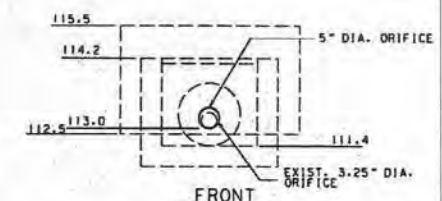
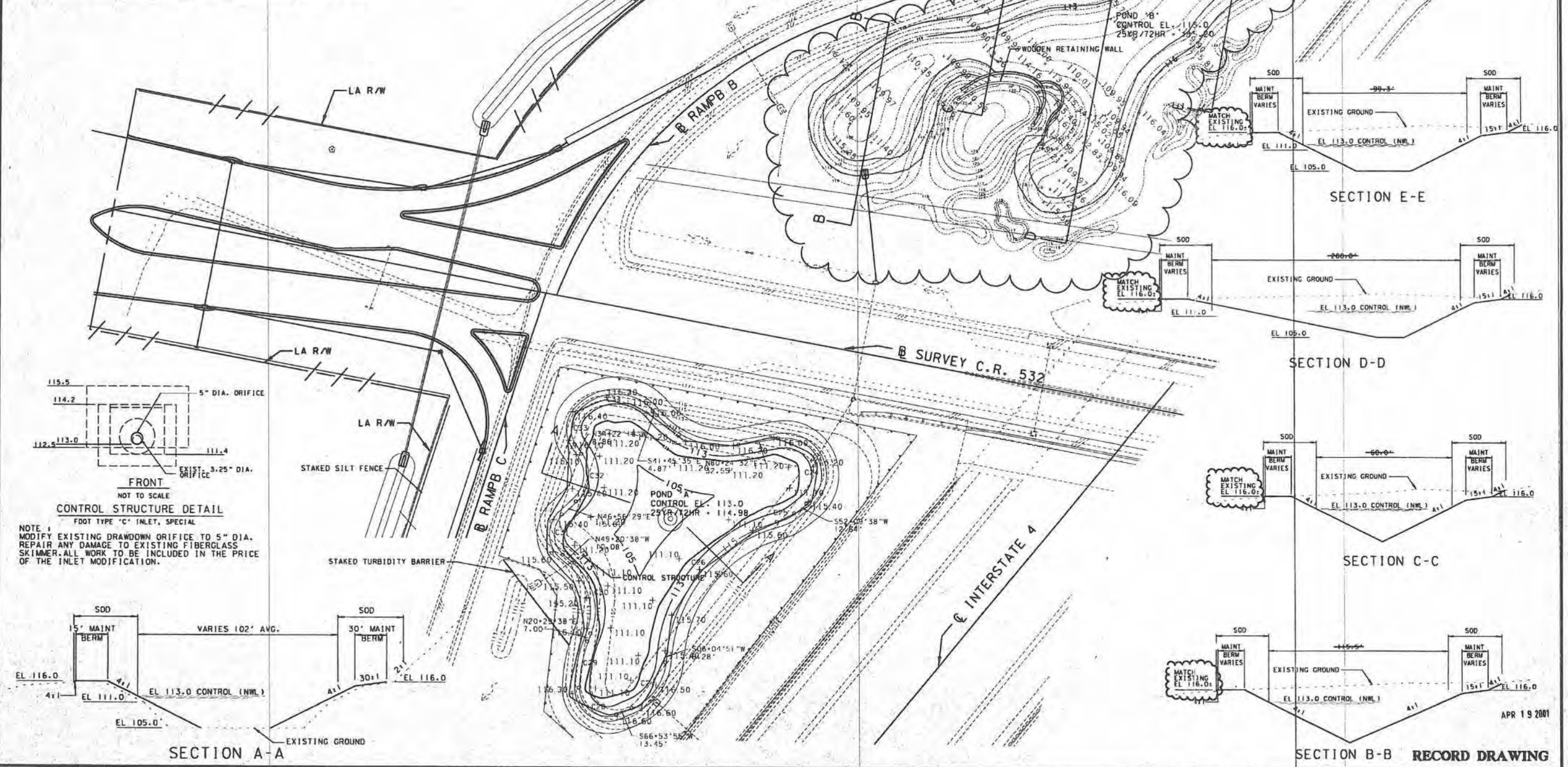
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Interstate 4 (SR 400)

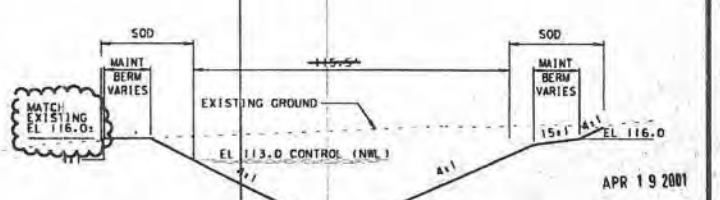
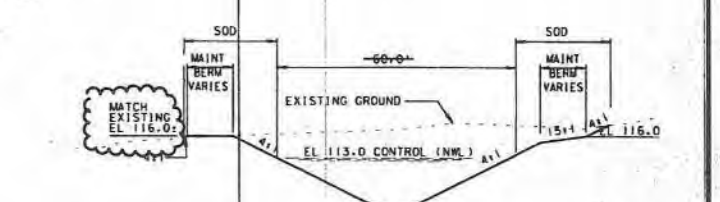
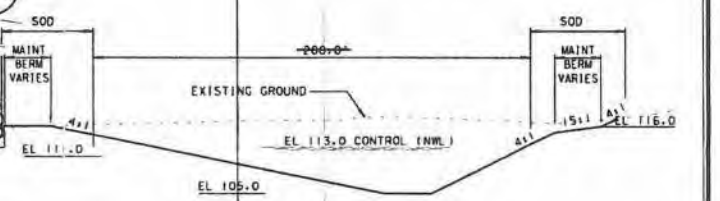
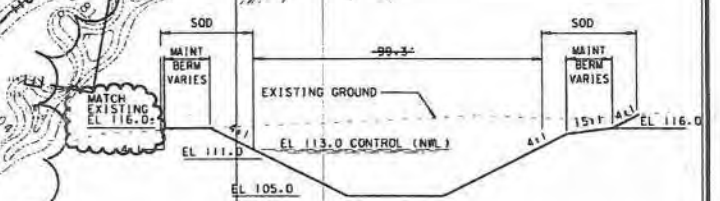
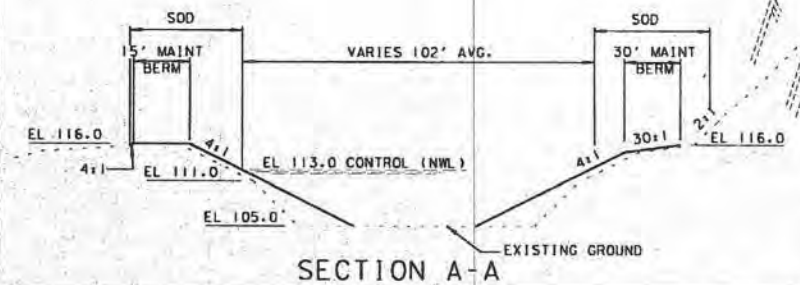
980930-4
950723-4

COUNTY PROJ. NO. SHEET NO.
COUNTY PROJ. 8

CURVE TABLE									
CURVE NUMBER	DELTA	RADIUS	LENGTH	TANGENT	CURVE NUMBER	DELTA	RADIUS	LENGTH	TANGENT
1	76°38'56"	26.00	34.78	20.55	8	88°42'56"	57.16	88.50	55.65
2	49°45'27"	64.00	55.58	29.68	19	51°25'52"	50.00	47.88	24.08
3	55°59'26"	48.00	55.29	21.17	20	118°33'36"	50.00	51.73	42.07
4	42°01'26"	37.00	91.77	107.53	21	45°23'19"	52.00	41.19	21.75
5	8°34'38"	55.00	17.99	9.08	22	117°31'54"	17.00	34.87	28.03
6	26°33'13"	65.00	20.16	15.36	23	57°49'53"	74.00	74.69	40.88
7	63°45'17"	60.00	66.76	37.31	24	151°45'07"	30.00	79.46	119.22
8	28°05'39"	46.00	71.59	36.53	25	22°41'17"	40.00	15.84	8.02
9	24°29'01"	50.00	40.17	20.40	26	68°46'32"	124.00	148.84	84.87
10	52°17'19"	75.00	81.54	45.32	27	60°49'04"	46.00	48.83	27.00
11	81°38'05"	97.00	38.21	83.78	28	110°20'29"	23.00	44.29	33.06
12	74°19'34"	36.00	65.70	27.29	29	19°49'08"	111.00	38.40	19.39
13	73°26'14"	58.00	74.34	43.26	30	69°50'17"	52.00	63.38	36.30
14	1°00'39"	165.00	31.77	15.90	31	96°17'08"	22.00	36.97	24.56
15	67°44'21"	37.00	43.74	24.83	32	81°18'47"	30.00	42.58	25.76
16	27°32'21"	102.00	49.03	25.00	33	73°59'49"	22.00	28.41	16.58
17	59°05'45"	43.00	44.35	24.38	34	98°37'51"	41.00	70.58	47.69



NOTE 4
MODIFY EXISTING DRAWDOWN ORIFICE TO 5" DIA.
REPAIR ANY DAMAGE TO EXISTING FIBERGLASS
SKINNER. ALL WORK TO BE INCLUDED IN THE PRICE
OF THE INLET MODIFICATION.



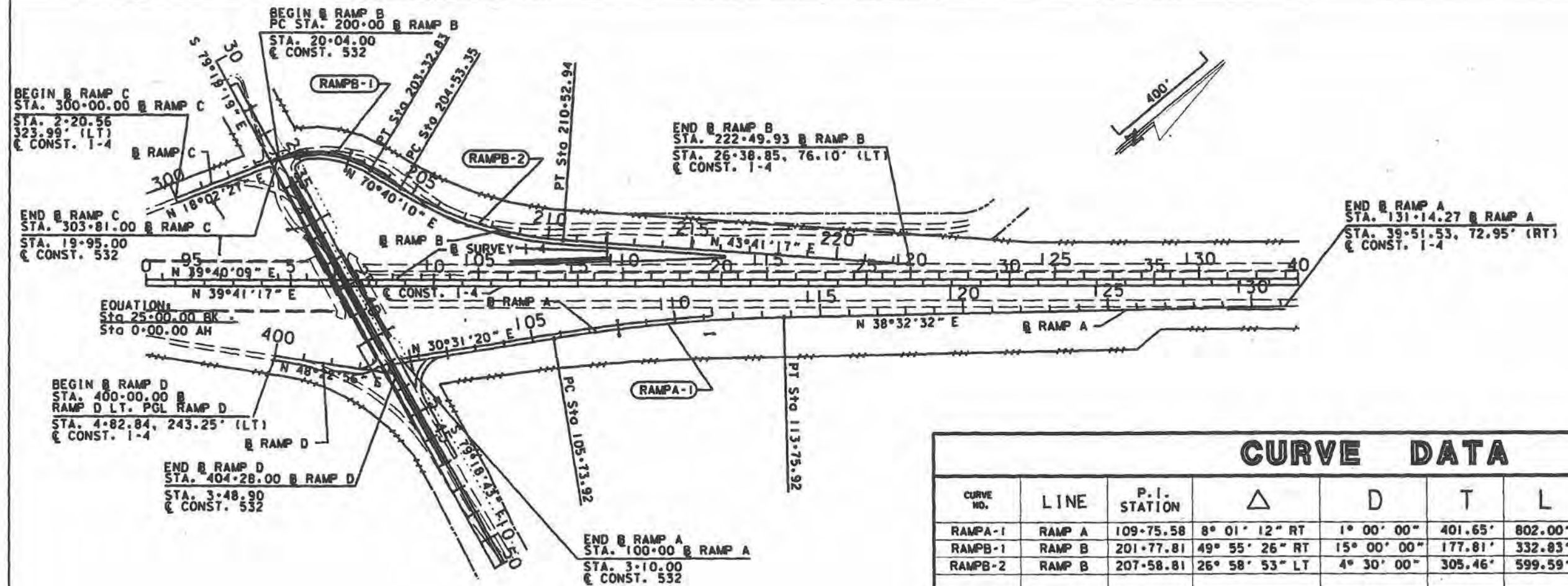
REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/02/01	ROD										
06/30/99	ROD	RELOCATED POND B									
		AS-BUILT									

OSCEOLA COUNTY
PUBLIC WORKS



POND DETAIL SHEET

APR 19 2001

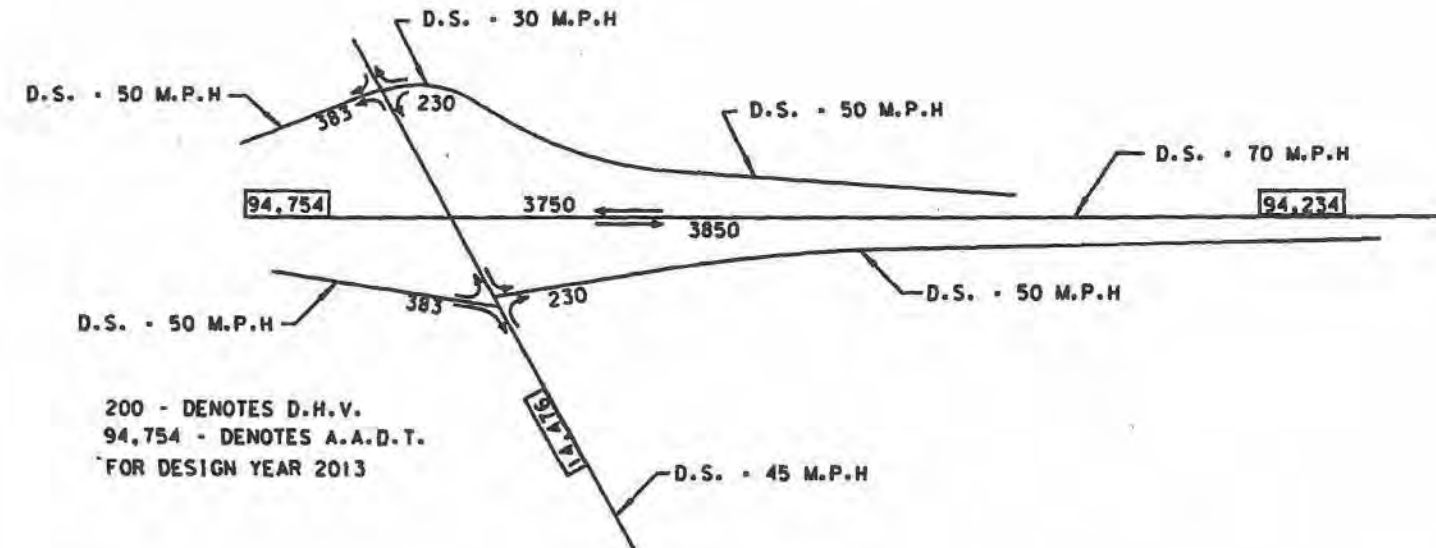


CURVE DATA

CURVE NO.	LINE	P.I. STATION	Δ	D	T	L	R	e	DESIGN SPEED (MPH)
RAMPA-1	RAMP A	109-75.58	8° 01' 12" RT	1° 00' 00"	401.65'	802.00'	5,729.58'	N.C.	50
RAMPB-1	RAMP B	201-77.81	49° 55' 26" RT	15° 00' 00"	177.81'	332.83'	381.97'	VARIABLES	30
RAMPB-2	RAMP B	207-58.81	26° 58' 53" LT	4° 30' 00"	305.46'	599.59'	1,273.24'	0.078	50

CURVE COORDINATE DATA

R	CURVE NUMBER	CONTROL POINT	STATION	COORDINATES	
RAMP A	RAMPA-1	PC	105-73.92	1,428,182.618	781,304.495
RAMP A	RAMPA-1	PI	109-75.58	1,428,528.615	781,508.484
RAMP A	RAMPA-1	CC	--	1,425,272.722	786,240.138
RAMP A	RAMPA-1	PT	113-75.92	1,428,642.769	781,758.750
RAMP B	RAMPB-1	PC	200-00.00	1,427,837.704	780,220.998
RAMP B	RAMPB-1	PI	201-77.81	1,428,003.983	780,283.981
RAMP B	RAMPB-1	CC	--	1,427,702.403	780,578.204
RAMP B	RAMPB-1	PT	203-32.83	1,428,062.841	780,451.764
RAMP B	RAMPB-2	PC	204-53.35	1,428,102.735	780,565.489
RAMP B	RAMPB-2	PI	207-58.81	1,428,203.847	780,853.729
RAMP B	RAMPB-2	CC	--	1,429,304.195	780,144.024
RAMP B	RAMPB-2	PT	210-52.94	1,428,424.730	781,064.720



200 - DENOTES D.H.V.
 94,754 - DENOTES A.A.D.T.
 FOR DESIGN YEAR 2013

Collette Moss
 7/18/95

REVISIONS											
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

OSCEOLA COUNTY PUBLIC WORKS

PREPARED BY: **DRMP**

INTERCHANGE LAYOUT
 C.R. 532

F-630

C.R. 532 at Interstate 4

Purpose

The purpose of these calculations is to provide information relative to the proposed improvements to the C.R. 532/Interstate 4 interchange stormwater management plan. The stormwater management approach developed utilizes compensating treatment and storage for stormwater runoff that is generated by new impervious areas which are too remote from the proposed treatment facilities.

Existing Conditions

The overall project was divided into five existing drainage basins (see predevelopment drainage map, section 8).

Basin 1 includes part of C.R. 532 east bound, approximately from stations 20+00 to 1+50 (center line of construction), part of Interstate 4 west bound, from station 89+50 to 100+00 (base line of survey), and Ramp C. Some of the stormwater runoff generated from this basin is collected by median inlets, some by gutter drains, and some is conveyed by shallow road side swales. This runoff discharges into a wetland area that occupies the south west area of the basin, and then through a 24" culvert under Ramp C to the adjacent wetlands. There is no existing treatment facility in this basin. For predevelopment discharge rate the contributing area was flood routed through the existing wetland ("D").

Basin 2 includes C.R. 532 west bound from station 19+50 to station 11+40 (center line of construction), Interstate 4 east bound from station 0+00 to 11+00 (center line of construction), Interstate 4 west bound from station 0+00 to 11+50 (center line of construction), and Ramp B from station 200+00 to 210+50. Runoff from this basin is conveyed through gutter drains and swales under Interstate 4 to a wetland area on the west side of the basin. From this area the runoff overflows into an existing swale to the north which runs along Interstate 4. There is no existing treatment facility in this basin. For predevelopment discharge rate the contributory area was flood routed through the existing wetland "C".

Basin 3 includes the proposed Ramp B area from station 210+50 to 222+50 which is basically a natural grass area. Runoff from this area sheet flows into an existing swale which runs along Interstate 4 and flows to the north.

Basin 4 includes Interstate 4 east bound from station 11+00 to station 19+65 (center line of construction) and adjacent east watershed area. Runoff from this basin is conveyed through a gutter drain from Interstate 4 to a swale and then is conveyed to the north to Davenport Creek. There is no existing treatment for this basin.

July 1995

C.R. 532 at Interstate 4

Basin 5 includes the proposed Ramp A area from station 111+00 to 128+50. This is a natural grass area. Runoff from this area sheet flows into an existing swale which runs along Interstate 4 and flows to the north to Davenport Creek.

Proposed Conditions

The proposed drainage system consists of new swales, storm sewer systems, a wet detention pond, and a dry detention pond. The proposed treatment system will maximize stormwater treatment and minimize offsite discharges for existing roadways in order to compensate for the added impervious areas.

There are five drainage basins for the proposed conditions.

Basin 1 is the largest basin combining existing basin 1 and part of existing Basin 2. A wet detention pond proposed at the south west part of the basin will provide 1" of runoff treatment over the basin. New swales proposed along Ramp A, Ramp B, Ramp D, and C.R. 532 will convey runoff to a storm sewer system which outfalls into the pond. Two existing segments of Interstate 4 are directed into the pond to compensate for part of Ramp B that is not treated. The pond outfalls into a spreader swale which controls the water elevation at the seasonal high level. The swale overflows into the existing 24" culvert under Ramp C. A geotechnical investigation showed that the seasonal high water table in the area of the proposed pond will rise to level of approximately 3.0 ft below the existing ground, at elevation 113 ft NGVD (see section 7 for geotechnical information). In addition the wetland that this pond discharges to is controlled by a culvert discharging to the west under the existing west bound on ramp. The invert of this culvert is at elevation 112.4 ft NGVD. There is no physical "staining" marks that would indicate there is water standing above elevation 112.4 for any significant period of time.

Basin 2 includes the remaining area of existing Basin 1 that is not directed into the pond. A storm sewer system is proposed to direct runoff between Ramp B and Interstate 4 to the north, after staging up to the predevelopment elevation within the wetland area "C".

Basin 3 is the same as existing Basin 3. A swale system is proposed along the proposed ramp to collect the runoff and direct it to the north.

Basin 4 is the same as existing Basin 4. A dry retention pond is proposed in this area. The pond provides treatment for a portion of Ramp A that sheet flows to it, and also for a portion of Interstate 4. The runoff treatment from Interstate 4 offsets the part of Ramp A that is not directed into the pond (Basin 5). The pond provides treatment of 0.75" of runoff over the entire basin 4. A geotechnical investigation showed that the seasonal high water table in the area of the proposed pond will rise to level approximately 8.0 ft below the existing ground, at elevation 112-113 ft NGVD (see section 7 for geotechnical information).

C.R. 532 at Interstate 4

Basin 5 is the same as existing Basin 5 and includes the north part of Ramp A. Although this portion of new impervious area is not directed into the pond treatment is provided along the proposed swale.

Floodplain Impacts

No floodplain impacts are anticipated due to the proposed construction (see floodplain map in section 2).

Water Quality

The proposed wet and dry ponds are designed to provide treatment for new impervious areas. C.R. 532, and existing parts of Interstate 4. Treatment of Interstate 4 provides compensation for the parts of Ramp A and B that are not treated. Table 1 shows the untreated proposed impervious areas. Table 2 shows the proposed treated impervious areas, both new and existing. Water quality volumes were computed for the greater of 1" over contributing area, or 2.5" over impervious. For dry retention this volume was decreased by 25% (with bleedown).

Table 1
Proposed Untreated Impervious Areas

DESCRIPTION	NEW IMPERVIOUS (ac.)
Basin 5 (Ramp A)	0.342
Basin 3 (Ramp B)	0.415
TOTALS	0.757

Table 2
Proposed Treated Impervious Areas

DESCRIPTION	NEW IMPERVIOUS (ac.)	EXISTING IMPERVIOUS (ac.)
Basin 1	3.282	0.418
Basin 4	0.557	0.473
TOTALS	3.839	0.891

As it is seen from these tables ($0.891 > 0.757$) the untreated new impervious areas are being compensated with the existing impervious areas (Interstate 4). It is expected that the pollutant loading generated for Interstate 4 would be much greater than the ramps. In addition a significant area of existing C.R. 532 is being treated under the proposed improvements.

C.R. 532 at Interstate 4

Water Quantity

To determine the post development discharge rates versus the predevelopment rates the runoff generated from the existing five drainage basins combined was compared to the runoff generated from the proposed five drainage basins combined. Table 3 summarizes the peak discharges for the existing conditions and Table 4 for the proposed conditions

Table 3
Predevelopment Discharges

BASIN	AREA (ac.)	DISCHARGE (cfs)	DISCHARGE METHOD
Basin 1	5.57	7.53	Hydrograph/Routing
Basin 2	11.32	19.10	Hydrograph/Routing
Basin 3	0.72	1.47	Hydrograph
Basin 4	3.72	8.02	Hydrograph
Basin 5	4.7	11.33	Hydrograph
Totals	26.03	47.45	

Table 4
Post Development Discharges

BASIN	AREA (ac.)	DISCHARGE (cfs)	DISCHARGE METHOD
Basin 1	14.24	12.90	Hydrograph/Routing
Basin 2	3.67	10.51	Hydrograph/Routing
Basin 3	0.72	3.04	Hydrograph
Basin 4	3.72	3.87	Hydrograph/Routing
Basin 5	4.7	14.85	Hydrograph
Totals	27.05*	45.17	

* Post development area is approximately one acre bigger than predevelopment area due to the fact that runoff from the proposed Ramp D and adjacent areas is being diverted to the wet detention pond. This area currently flows to the south.

C.R. 532 at Interstate 4

Hydrologic & Hydraulic Calculations

Predevelopment

Basin 1

Drains to Cross Drain South West
Drainage Area = 5.57 acres

"Soils - Placid fine sand, Type D (wooded area)"
"Candler sand, 0 to 5% slopes, Type A (grassed areas)"

Weighted CN	Description	Area(ac.)	CN	Product
	Pavement	1.68	98	164.64
	Wooded area - good	0.77	11	59.29
	Grassed area - fair	3.12	49	152.88
Total		5.57		376.81

CN = 67.6

Time of Concentration
Sheet Flow

Length (ft) = 130
Manning's n = 0.15
2 yr 24 hr (in) = 4.75
Slope (ft/ft) = 0.019 Tc (min) = 10.1

Shallow Concentrated Flow

Length (ft) = 210
Surface = unpaved
Slope (ft/ft) = 0.0025
Velocity (ft/s) = 0.81 Tc (min) = 4.3

Length (ft) = 460
Surface = unpaved
Slope (ft/ft) = 0.011
Velocity (ft/s) = 1.69 Tc (min) = 4.5
Total Tc (min) = 19

Hydrographs

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, PRE DEVELOPMENT CONDITIONS
5/17/1995

BASIN NAME	BASIN1
NODE NAME	STORE
UNIT HYDROGRAPH	UH256
PEAKING FACTOR	256.

C.R. 532 at Interstate 4

RAINFALL FILE SFWMD72
 RAIN AMOUNT (in) 9.50
 STORM DURATION (hrs) 72.00
 AREA (ac) 5.57
 CURVE NUMBER 67.60
 DCIA (%) .00
 TC (mins) 19.00
 LAG TIME (hrs) .00
 BASIN STATUS ONSITE

BASIN QMX (cfs) IMX (hrs) VOL (in) NOTES
 BASIN1 14.05 60.08 5.47

Flood Routing 10 Year 72 Hour

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C.R. 532 AT I-4, BASIN 1, PRE DEVELOPMENT CONDITIONS
 5/17/1995

CONTROL PARAMETERS

START TIME: .00
 END TIME: 72.00
 TO TIME SIMULATION INC PRINT INC
 (hours) (secs) (mins)

 72.00 15.00 15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
 OFFSITE HYDROGRAPH FILE: DEFAULT
 BOUNDARY DATABASE FILE: NONE

NOTE:

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C.R. 532 AT I-4, BASIN 1, PRE DEVELOPMENT CONDITIONS
 5/17/1995

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
STORE	AREA	112.400	.000	.000	.000	112.400	.000
						113.000	.227
						114.000	.664
						115.000	1.000

C.R. 532 at Interstate 4

						116.000	1.350
						117.000	1.777
BNDRY	TIME	111.890	.000	.000	.000	111.890	.000
						111.890	20.000
						111.900	40.000
						112.890	60.000
						111.850	72.000

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C.R. 532 AT I-4, BASIN 1, PRE DEVELOPMENT CONDITIONS
 5/17/1995

>>REACH NAME : CULVERT
 FROM NODE : STORE
 TO NODE : BNDRY
 REACH TYPE : CULVERT, CIRCULAR w/ ROADWAY
 FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
 TURBO SWITCH : OFF

CULVERT DATA :
 SPAN (in): 24.000 RISE (in): 24.000 LENGTH (ft): 70.000
 U/S INVERT (ft): 112.400 D/S INVERT (ft): 110.890 MANNING N: .013
 ENTRNC LOSS: .500 # OF CULVERTS: 1.000

POSITION A : RECTANGULAR ROADWAY/BERM WEIR
 CREST EL. (ft): 117.800 CREST LN. (ft): 150.000 WEIR COEF.: 2.800
 RESERVED:***** RESERVED:***** RESERVED:*****

POSITION B : RECTANGULAR ROADWAY/BERM WEIR
 CREST EL. (ft): 9999.000 CREST LN. (ft): .000 WEIR COEF.: 2.800
 RESERVED:***** RESERVED:***** RESERVED:*****

NOTE:

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C.R. 532 AT I-4, BASIN 1, PRE DEVELOPMENT CONDITIONS
 5/17/1995

REACH SUMMARY
 =====

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
-----	-----	-----	-----	-----
1	CULVERT	STORE	BNDRY	CULVERT, CIRCULAR w/ ROADWAY

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 at Interstate 4

C.R. 532 AT I-4, BASIN 1, PRE DEVELOPMENT CONDITIONS
5/17/1995

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
STORE	STAGE (ft):	112.40	48.00	113.95	60.50
	VOLUME (af):	.00	22.75	.49	60.50
	RUNOFF (cfs):	.00	22.50	13.30	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	48.00	7.53	60.50
BNDRY	STAGE (ft):	111.89	72.00	112.89	60.00
	VOLUME (af):	.00	22.50	2.48	72.00
	RUNOFF (cfs):	.00	72.00	.00	72.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	48.00	7.53	60.50
	OUTFLOW (cfs):	.00	72.00	.00	72.00

Basin 2

Drains to the North

Drainage Area = 11.32 acres

Soils - Pompano fine sand depressional, Type D (wooded area),
Candler sand, 0 to 5% slopes, Type A (grassed areas and orange grove)

Weighted CN	Area(ac.)	CN	Product
Description			
Pavement	1.63	98	159.74
Wooded area - good	1.32	77	101.64
Grassed area - fair	7.56	49	370.44
Orange grove - good	0.81	32	25.98
Total	11.32		657.8

CN= 58.1

Time of Concentration Sheet Flow

Length (ft) = 300	
Manning's n = 0.15	
2 yr 24 hr (in) = 4.75	
Slope (ft/ft) = 0.057	Tc (min) = 11.9

Shallow Concentrated Flow

Length (ft) = 130	
Surface = unpaved	
Slope (ft/ft) = 0.045	
Velocity (ft/s) = 3.4	Tc (min) = 0.6

C.R. 532 at Interstate 4

Channel Flow

Area (sq ft) = 22.5
Perimeter (ft) = 36.09
Hydraulic Radius (ft) = 0.62
Slope (ft/ft) = 0.0085
Manning's n = 0.04
Velocity (ft/s) = 2.51
Length (ft) = 960

Tc (min) = 6.4
Total Tc (min) = 19

Hydrographs

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 2, PRE DEVELOPMENT CONDITIONS
5/19/1995

BASIN NAME	BASIN2		
NODE NAME	STORE		
UNIT HYDROGRAPH	UH256		
PEAKING FACTOR	256.		
RAINFALL FILE	SFWMD72		
RAIN AMOUNT (in)	9.50		
STORM DURATION (hrs)	72.00		
AREA (ac)	11.32		
CURVE NUMBER	58.10		
DCIA (%)	.00		
TC (mins)	19.00		
LAG TIME (hrs)	.00		
BASIN STATUS	ONSITE		
BASIN QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
BASIN2	23.34	60.08	4.25

Flood Routings 10 Year 72 Hour

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 2, PRE DEVELOPMENT CONDITIONS
5/19/1995

CONTROL PARAMETERS

START TIME: .00
END TIME: 72.00
TO TIME SIMULATION INC PRINT INC

July 1995

C.R. 532 at Interstate 4

(hours)	(secs)	(mins)
72.00	15.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
 OFFSITE HYDROGRAPH FILE: DEFAULT
 BOUNDARY DATABASE FILE: NONE

NOTE:

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C.R. 532 AT I-4, BASIN 2, PRE DEVELOPMENT CONDITIONS
 5/19/1995

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE AR/TM/STR (ft)	AC/HR/AF
STORE	AREA	111.000	.000	.000	.600	111.000	.032
						112.000	.321
						113.000	.944
BNDRY	TIME	111.000	.000	.000	.000	111.000	.000
						111.000	72.000

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C.R. 532 AT I-4, BASIN 2, PRE DEVELOPMENT CONDITIONS
 5/19/1995

>>REACH NAME : WEIR
 FROM NODE : STORE
 TO NODE : BNDRY
 REACH TYPE : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTÉ EQ.
 FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
 CREST EL. (ft): 112.000 CREST LN. (ft): 15.000 OPENING (ft): 999.000
 WEIR COEF.: 2.700 GATE COEF.: .600 NUMBER OF ELEM.: 1.000
 NOTE:

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C.R. 532 AT I-4, BASIN 2, PRE DEVELOPMENT CONDITIONS
 5/19/1995

REACH SUMMARY
 =====

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
-----	-----	-----	-----	-----

C.R. 532 at Interstate 4

1 WEIR STORE BNDRY RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTÉ EQ

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C.R. 532 AT I-4, BASIN 2, PFE DEVELOPMENT CONDITIONS
5/19/1995

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
STORE	STAGE (ft):	111.00	30.75	112.61	60.25
	VOLUME (af):	.00	30.75	.56	60.25
	RUNOFF (cfs):	.00	30.75	21.90	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	51.00	19.10	60.25
BNDRY	STAGE (ft):	111.00	72.00	111.00	72.00
	VOLUME (af):	.00	51.00	3.76	72.00
	RUNOFF (cfs):	.00	72.00	.00	72.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	51.00	19.10	60.25
	OUTFLOW (cfs):	.00	72.00	.00	72.00

Basin 3

Drains to the North
Drainage Area = 0.72 acres

"Soils - Candler sand, 0 to 5% slopes, Type A"

Grassed area - fair CN = 49

Time of Concentration
Sheet Flow

Length (ft) = 40
Manning's n = 0.15
2 yr 24 Hr (in) = 4.75
Slope (ft/ft) = 0.06

Tc (min) = 2.5
Use Tc (min) = 10

Hydrographs

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 3, PRE DEVELOPMENT CONDITIONS

July 1995

4-11

C.R. 532 - Interstate 4

5/19/1995

BASIN NAME	BASIN3
NODE NAME	OUTFALL
UNIT HYDROGRAPH	UH256
PEAKING FACTOR	256.
RAINFALL FILE	SFAMD72
RAIN AMOUNT (in)	9.50
STORM DURATION (hrs)	72.00
AREA (ac)	.72
CURVE NUMBER	49.00
DCIA (%)	.00
TC (mins)	10.00
LAG TIME (hrs)	.00
BASIN STATUS	ONSITE

BASIN QMX (cfs)	TMX (h s)	VOL (in.)	NOTES
BASIN3 1.47	60 12	3.09	

Basin 4

Drains to the North

Drainage area = 3.72 acres

"Soils - Candler sand, 0 to 5% slopes, Type A"

Weighted CN Description	Area(ac.)	CN	Product
Pavement	0.69	98	67.72
Grassed area - fair	2.77	49	135.58
Orange grove - good	0.26	32	8.38
Total	3.72		211.69

CN= 56.9

Time of Concentration

Sheet Flow

Length (ft) = 300
 Manning's n = 0.15
 2 yr 24 hr (in) = 4.75
 Slope (ft/ft) = 0.05

Tc (min) = 13.4

Channel Flow

Area (sq ft) = 34.2
 Perimeter (ft) = 28.37
 Hydraulic Radius (ft) = 1.21

C.R. 532 at Interstate 4

Slope (ft/ft) = 0.0074
 Manning's n = 0.04
 Velocity (ft/s) = 3.63
 Length (ft) = 570

Tc (min) = 2.6
 Total Tc (min) = 16

Hydrographs

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 4, PRE DEVELOPMENT CONDITIONS
 5/19/1995

BASIN NAME	BASIN4		
NODE NAME	OUTFALL		
UNIT HYDROGRAPH	UH256		
PEAKING FACTOR	256.		
RAINFALL FILE	SFWM072		
RAIN AMOUNT (in)	9.50		
STORM DURATION (hrs)	72.00		
AREA (ac)	3.72		
CURVE NUMBER	56.90		
DCIA (%)	.00		
TC (mins)	16.00		
LAG TIME (hrs)	.00		
BASIN STATUS	ONSITE		
BASIN QM _x (cfs)	TMX (hrs)	VOL (in)	NOTES
BASIN4	2.02	60.05	4.10

Basin 5

Drains to the North

Drainage area = 4.7 acres

"Soils - Candler sand, 0 to 5% slopes, Type A"

Weighted CN			
Description	Area(ac.)	CN	Product
Pavement	0.94	98	91.83
Range - fair	3.76	49	184.39
Total	4.7		276.21
		CN=	58.8

Time of Concentration
 Sheet Flow

C.R. 532 at Interstate 4

Length (ft) = 115
Manning's n = 0.13
2 yr 24 hr (in) = 4.75
Slope (ft/ft) = 0.02

Tc (min) = 8

Channel Flow

Area (sq ft) = 32
Perimeter (ft) = 28.33
Hydraulic Radius (ft) = 1.13
Slope (ft/ft) = 0.007
Manning's n = 0.04
Velocity (ft/s) = 3.38
Length (ft) = 1200

Tc (min) = 5.9
Total Tc (min) = 13.9

Hydrographs

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 5, PRE DEVELOPMENT CONDITIONS
6/8/1995

BASIN NAME	BASIN5		
NODE NAME	OUTFALL		
UNIT HYDROGRAPH	UH256		
PEAKING FACTOR	256.		
RAINFALL FILE	SFWMD72		
RAIN AMOUNT (in)	9.50		
STORM DURATION (hrs)	72.00		
AREA (ac)	4.70		
CURVE NUMBER	58.80		
DCIA (%)	.00		
TC (mins)	13.90		
LAG TIME (hrs)	.00		
BASIN STATUS	ONSITE		
BASIN QMx (cfs)	TMX (hrs)	VOL (in)	NOTES
BASIN5	11.33	60.05	4.34

Post development

Basin 1

Drains to Cross Drain South West
Drainage area = 14.24 acres

Sub-basin A = 6.61 acres

July 1995

4-14

C.R. 532 at Interstate 4

"Soils - Candler sand, 0 to 5% slopes, Type A"

Weighted CN Description	Area (ac.)	CN	Product
Pavement	2.21	98	216.58
Orange Grove - good	0.81	32	25.98
Grassed area - good	3.59	39	140.01
Total	6.61		382.57

CN = 57.9

Time of Concentration

Sheet Flow

Length (ft) = 300

Manning's n = 0.15

2 yr 24 hr (in) = 4.75

Slope (ft/ft) = 0.067

Tc (min) = 11.9

Channel Flow

Area (sq ft) = 63.38

Perimeter (ft) = 34.79

Hydraulic Radius (ft) = 1.82

Slope (ft/ft) = 0.001

Manning's n = 0.04

Velocity (ft/s) = 1.76

Length (ft) = 430

Tc (min) = 4.1

Pipe Flow

V (ft/s) = 2.5

Length (ft) = 600

Tc (min) = 4

Total Tc (min) = 20

Sub-basin B = 2.38 acres

"Soils - Pompano fine sand, depressional, Type D"

Weighted CN Description	Area (ac.)	CN	Product
Pavement	0.9	98	87.71
Grassed area - good	1.48	80	118.56
Total	2.38		206.27

CN = 86.8

Time of Concentration

Channel Flow

Area (sq ft) = 26

Perimeter (ft) = 21.5

C.R. 532 at Interstate 4

Hydraulic Radius (ft) = 1.21
 Slope (ft/R) = 0.001
 Manning's n = 0.04
 Velocity (ft/s) = 1.34
 Length (ft) = 1130

Tc (min) = 14.1

Pipe Flow

Velocity (ft/s) = 3
 Length (ft) = 215

Tc (min) = 1.2
 Total Tc (min) = 15.3

Sub-basin C = 2.80 acres

"Soils - Candler sand, 0 to 5% slopes, Type A"

Weighted CN Description	Area (ac.)	CN	Product
Pond	0.75	100	75.4
Pavement	0.59	98	57.62
Grassed area - good	1.46	39	56.94
Total	2.8		189.96

CN = 67.8

Time of Concentration

Use Tc (min) = 10

Sub-basin D = 2.45 acres

"Soils - Placid fine sand, Type D (wooded area)"

"Candler sand, 0 to 5% slopes, Type A (grassed area)"

Weighted CN Description	Area (ac.)	CN	Product
Pavement	0.83	98	81.73
Wooded area	0.77	77	59.21
Grassed area	0.85	49	41.41
Total	2.45		182.35

CN = 74.5

Time of Concentration

Use Tc (min) = 10

Water Quality Volume

Impervious area = 3.424 acres (Sub-basins A, B, & C)
 Basin area = 10.606 acres (Sub-basins A, B, & C)

C.R. 532 at Interstate 4

2.5" over impervious area = 0.713 ac-ft
 1" over basin area = 0.884 ac-ft (governs)

Stage Storage

Stage ft	Area acres	Storage ac-ft
113	0.777	0
114	0.848	0.812
114.2	0.863	0.984
115	0.922	1.699
116	1.178	2.750

Bleed-down calculations

Volume to be recovered in 24 hrs: 0.5" over basin area = 0.442 ac-ft
 Flow Rate $Q = (0.442 \times 43560) / (24 \times 3600) = 0.223$ cfs
 Assume Orifice diameter $d = 3.25$ "
 Orifice area $A = 0.0576$ sq ft

$H = (1.2 + 0.6) / 2 = 0.9$ ft
 $h = H - d/2 = 0.764$ ft
 Coefficient of Discharge $C = 0.6$

$Q = C A (2gh)^{1/2} = 0.242$ cfs OK

Flood Routings 10 Year 72 Hour

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
 5/24/1995

BASIN NAME	SUB-A	SUB-B	SUB-C	SUB-D
NODE NAME	POND	POND	POND	STORE
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.
RAINFALL FILE	SFWMD72	SFWMD72	SFWMD72	SFWMD72
RAIN AMOUNT (in)	9.50	9.50	9.50	9.50
STORM DURATION (hrs)	72.00	72.00	72.00	72.00
AREA (ac)	6.61	2.38	2.80	2.45
CURVE NUMBER	57.90	86.80	67.80	74.50
DCIA (%)	.00	.00	.00	.00
TC (mins)	20.00	15.30	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE
BASIN QMX (cfs) TMX (hrs) VOL (in) NOTES				
SUB-A	13.22	60.09	4.22	

C.R. 532 at Interstate 4

SUB-B	8.29	60.04	7.89
SUB-C	9.11	60.02	5.49
SUB-D	8.80	60.02	6.35

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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
 5/24/1995

CONTROL PARAMETERS
 =====

START TIME:	.00		
END TIME:	72.00		
TO TIME	SIMULATION INC	PRINT INC	
(hours)	(secs)	(mins)	
-----	-----	-----	
72.00	15.00	15.00	

RUNOFF HYDROGRAPH FILE: DEFAULT
 OFFSITE HYDROGRAPH FILE: DEFAULT
 BOUNDARY DATABASE FILE: NONE

NOTE:

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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
 5/24/1995

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE AR/TM/STR (ft) (ac/hr/af)
POND	AREA	113.000	.000	.000	.000	113.000 .777
						114.000 .848
						115.000 .922
						116.000 1.178
STORE	AREA	112.400	.000	.000	.000	112.400 .014
						113.000 .227
						114.000 .664
						115.000 1.000
BNDRY	TIME	111.890	.000	.000	.000	111.890 .000
						111.890 20.000
						111.900 40.000
						112.890 60.000
						111.890 72.000

C.R. 532 at Interstate 4

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
5/24/1995

```
>>REACH NAME      : REACH2
FROM NODE         : STORE
TO NODE          : ENDRY
REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH     : OFF

CULVERT DATA    :
  SPAN (in): 24.000      RISE (in): 24.000      LENGTH (ft): 70.000
  U/S INVERT (ft): 112.400 D/S INVERT (ft): 110.890      MANNING N: .013
  ENTRNC LOSS: .500    # OF CULVERTS: 1.000

POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
  CREST EL. (ft): 118.000  CREST LN. (ft): 100.000      WEIR COEF.: 2.800
  RESERVED:*****      RESERVED:*****      RESERVED:*****

POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
  CREST EL. (ft): 999.000  CREST LN. (ft): .000      WEIR COEF.: 2.800
  RESERVED:*****      RESERVED:*****      RESERVED:*****
```

NOTE:

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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
5/24/1995

```
>>REACH NAME      : REACH1
FROM NODE         : POND
TO NODE          : STORE
REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH     : OFF

CULVERT DATA    :
  SPAN (in): 24.000      RISE (in): 24.000      LENGTH (ft): 66.000
  U/S INVERT (ft): 111.400 D/S INVERT (ft): 111.200      MANNING N: .013
  ENTRNC LOSS: .500    # OF CULVERTS: 1.000

POSITION A       : CIRCULAR RISER SLOT
  INVERT EL. (ft): 113.000  SPAN (in): 3.250      RISE (in): 3.250
  WEIR COEF.: 3.200      GATE COEF.: .600  NUMBER OF ELEM.: 1.000

POSITION B       : RECTANGULAR RISER SLOT
  CREST EL. (ft): 114.200  CREST LN. (ft): 10.170  OPENING (ft): 999.000
  WEIR COEF.: 3.200      GATE COEF.: .600  NUMBER OF ELEM.: 1.000
```

C.R. 532 at Interstate 4

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
5/24/1995

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	REACH2	STORE	BNDRY	CULVERT, CIRCULAR w/ ROADWAY
2	REACH1	POND	STORE	DROP STRUCTURE w/ CIRC. CULVERT

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
5/24/1995

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
POND	STAGE (ft):	113.00	7.25	115.21	60.75
	VOLUME (af):	.00	7.00	1.92	60.75
	RUNOFF (cfs):	.00	7.00	29.49	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	.00	7.25	14.16	60.25
STORE	STAGE (ft):	112.18	10.25	114.53	61.00
	VOLUME (af):	.00	10.25	.97	61.00
	RUNOFF (cfs):	.00	16.00	8.75	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	7.25	14.16	60.25
	OUTFLOW (cfs):	.00	47.75	12.90	61.00
BNDRY	STAGE (ft):	111.89	72.00	112.89	60.00
	VOLUME (af):	.00	10.00	5.33	72.00
	RUNOFF (cfs):	.00	72.00	.00	72.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	47.75	12.90	61.00
	OUTFLOW (cfs):	.00	72.00	.00	72.00

Flood Routings 10 Year 24 Hour

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 at Interstate 4

C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT COND., 10-YR, 24-HR
6/12/1995

BASIN NAME	SUB-A	SUB-B	SUB-C	SUB-D
NODE NAME	POND	POND	POND	STORE
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.
RAINFALL FILE	SCSII-24	SCSII-24	SCSII-24	SCSII-24
RAIN AMOUNT (in)	7.40	7.40	7.40	7.40
STORM DURATION (hrs)	24.00	24.00	24.00	24.00
AREA (ac)	6.61	2.38	2.80	2.45
CURVE NUMBER	57.90	86.80	67.80	74.50
DCIA (%)	.00	.00	.00	.00
TC (mins)	20.00	15.30	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
SUB-A	11.14	12.13	2.67	
SUB-B	10.57	12.07	5.84	
SUB-C	10.27	12.04	3.71	
SUB-D	10.73	12.04	4.45	

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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT COND., 10-YR, 24-HR
6/12/1995

CONTROL PARAMETERS

```

START TIME:      .00
END TIME:        24.00

  TO TIME  SIMULATION INC  PRINT INC
  (hours)   (secs)         (mins)
-----
  24.00    15.00         15.00
    
```

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT COND., 10-YR, 24-HR

C.R. 532 at Interstate 4

6/12/1995

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE AR/TM/STR (ft)	(ac/hr/af)
POND	AREA	113.000	.000	.000	.000	113.000	.777
						114.000	.848
						115.000	.922
						116.000	1.178
STORE	AREA	112.400	.000	.000	.000	112.400	.014
						113.000	.227
						114.000	.664
						115.000	1.000
BNDRY	TIME	111.890	.000	.000	.000	111.890	.000
						112.890	12.000
						111.900	24.000

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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT COND., 10-YR, 24-HR
6/12/1995

>>REACH NAME : REACH2
FROM NODE : STORE
TO NODE : BNDRY
REACH TYPE : CULVERT, CIRCULAR w/ ROADWAY
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH : OFF

CULVERT DATA :
SPAN (in): 24.000 RISE (in): 24.000 LENGTH (ft): 70.000
U/S INVERT (ft): 112.400 D/S INVERT (ft): 110.890 MANNING N: .013
ENTRNC LOSS: .500 # OF CULVERTS: 1.000

POSITION A : RECTANGULAR ROADWAY/BERM WEIR
CREST EL. (ft): 118.000 CREST LN. (ft): 100.000 WEIR COEF.: 2.800
RESERVED:***** RESERVED:***** RESERVED:*****

POSITION B : RECTANGULAR ROADWAY/BERM WEIR
CREST EL. (ft): 9999.000 CREST LN. (ft): .000 WEIR COEF.: 2.800
RESERVED:***** RESERVED:***** RESERVED:*****

NOTE:

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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT COND., 10-YR, 24-HR
6/12/1995

>>REACH NAME : REACH1
FROM NODE : POND

C.R. 532 at Interstate 4

TO NODE : STORE
 REACH TYPE : DROP STRUCTURE w/ CIRC. CULVERT
 FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
 TURBO SWITCH : OFF

CULVERT DATA :
 SPAN (in): 24.000 RISE (in): 24.000 LENGTH (ft): 66.000
 U/S INVERT (ft): 111.400 D/S INVERT (ft): 111.200 MANNING N: .013
 ENTRNC LOSS: .500 # OF CULVERTS: 1.000

POSITION A : CIRCULAR RISER SLOT
 INVERT EL. (ft): 113.000 SPAN (in): 3.250 RISE (in): 3.250
 WEIR COEF.: 3.200 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

POSITION B : RECTANGULAR RISER SLOT
 CREST EL. (ft): 114.200 CREST LN. (ft): 10.170 OPENING (ft): 999.000
 WEIR COEF.: 3.200 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

NOTE:

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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT COND., 10-YR, 24-HR
 6/12/1995

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	REACH2	STORE	BNDRY	CULVERT, CIRCULAR w/ ROADWAY
2	REACH1	POND	STORE	DROP STRUCTURE w/ CIRC. CULVERT

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT COND., 10-YR, 24-HR
 6/12/1995

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
POND	STAGE (ft):	113.00	3.50	114.72	12.75
	VOLUME (af):	.00	3.50	1.45	12.75
	RUNOFF (cfs):	.00	3.50	26.70	12.00
	OFFSITE (cfs):	.00	24.00	.00	24.00
	OTHER (cfs):	.00	24.00	.00	24.00
	OUTFLOW (cfs):	.00	3.50	10.51	12.75

C.R. 532 at Interstate 4

STORE	STAGE (ft):	112.35	5.25	114.14	13.25
	VOLUME (af):	.00	5.25	.64	13.25
	RUNOFF (cfs):	.00	6.50	10.11	12.00
	OFFSITE (cfs):	.00	24.00	.00	24.00
	OTHER (cfs):	.00	3.50	10.51	12.75
	OUTFLOW (cfs):	-.21	8.75	9.21	13.25
BNDRY	STAGE (ft):	111.89	.00	112.89	12.00
	VOLUME (af):	-.02	9.25	3.28	24.00
	RUNOFF (cfs):	.00	24.00	.00	24.00
	OFFSITE (cfs):	.00	24.00	.00	24.00
	OTHER (cfs):	-.21	8.75	9.21	13.25
	OUTFLOW (cfs):	.00	24.00	.00	24.00

Basin 2

Drains to the north
Drainage Area = 3.67 acres

"Soils - Pompano fine sand depressional, Type D "

Weighted CN	Description	Area (ac.)	CN	Product
	Pavement	0.52	98	50.76
	Grassed area - fair	2.37	84	198.74
	Wooded area - good	0.78	77	60.37
	Total	3.67		309.88

CN = 84.5

Time of Concentration

Sheet Flow

Length (ft) =	150		
Manning's n =	0.15		
2 yr 24 hr (in) =	4.75		
Slope (ft/ft) =	0.0125	Tc (min) =	13.4

Flood Routings 10 Year 72 Hour

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 2, POST DEVELOPMENT CONDITIONS
6/1/1995

BASIN NAME BASIN2

Appendix B - Drainage Calculations

ADDITIONAL INFORMATION
B-1

DEC 10 1998

ORLANDO SERVICE CENTER

Purpose

The purpose of these calculations is to provide information relative to the proposed improvements to the CR 532/Interstate 4 interchange stormwater management plan. These calculations specifically address the areas previously permitted by the South Florida Water Management District (SFWMD) permit # 49-008098-P and should modify this permit. In addition these calculations also account for the recently submitted permit application for Rida at Champions Gate (Conceptual 971112-7 and construction 980702-2).

The proposed improvements are essentially the modification of the proposed pond within basin 1 of the existing permit. The addition of another pond in this basin and the slight enlargement of the drainage area to basin 1. The revised calculations are included to show that the SFWMD rules are still achieved by the proposed modifications.

The presently permitted discharge from basin 1 is 12.90 cfs (see previous calculations page 4 table 4 SFWMD permit # 49-0080981-P). The proposed modifications will actually slightly decrease the discharge rate that was previously permitted to a peak rate of 11.58 cfs. In addition the outfall structure will be modified to include a 5" orifice to replace the existing 3.25" orifice.

Post Development Hydrology

Basin 1 - Drains to Cross Drain South West
Drainage area = 16.54 acres

Sub-basin A = 6.61 acres

Drains to existing pond
Soils - Candler sand, 0 to 5% slopes, Type A

Weighted CN			
Description	Area (ac.)	CN	Product
Pavement	2.21	98	216.58
Orange Grove - good	0.81	32	25.98
Grassed area - good	3.59	39	140.01
Total	6.61		382.57
		CN =	57.9

Time of Concentration
Sheet Flow

Length (ft) =	300		
Manning's n =	0.15		
2 yr 24 hr (in) =	4.75		
Slope (ft/ft) =	0.067	Tc (min) =	11.9

Channel Flow

Area (sq ft) = 63.38

Appendix B - Drainage Calculations

B-2

Perimeter (ft) = 34.79
 Hydraulic Radius (ft) = 1.82
 Slope (ft/ft) = 0.001
 Manning's n = 0.04
 Velocity (ft/s) = 1.76
 Length (ft) = 430

ADDITIONAL INFORMATION

DEC 1 0 1998

4.1
ORLANDO SERVICE CENTER

Pipe Flow
 V (ft/s) = 2.5
 Length (ft) = 600
 Tc (min) = 4.0
 Total Tc (min) = 20.0

Sub-basin B = 2.38 acres

Drains to proposed pond Ramp B Area
 Soils - Pompano fine sand, depressional, Type D

Weighted CN			
Description	Area (ac.)	CN	Product
Pavement	0.90	98	87.71
Grassed area - good	1.48	80	118.56
Total	2.38		206.27
	CN =	86.8	

Time of Concentration

Channel Flow
 Area (sq ft) = 26
 Perimeter (ft) = 21.5
 Hydraulic Radius (ft) = 1.21
 Slope (ft/ft) = 0.001
 Manning's n = 0.04
 Velocity (ft/s) = 1.34
 Length (ft) = 1130
 Tc (min) = 14.1

Pipe Flow
 Velocity (ft/s) = 3
 Length (ft) = 215
 Tc (min) = 1.2
 Total Tc (min) = 15.3

Sub-basin C = 2.80 acres

Drains to existing pond
 Soils - Candler sand, 0 to 5% slopes, Type A

Weighted CN			
Description	Area (ac.)	CN	Product
Pond	0.51	100	51.00
Pavement	0.59	98	57.62
Grassed area - good	1.70	39	66.30
Total	2.80		174.92
	CN =	62.5	

Time of Concentration

Use Tc (min) = 10

Appendix B - Drainage Calculations

B-3

ADDITIONAL INFORMATION

DEC 10 1998

Sub-basin D = 2.45 acres

Existing low area south of existing pond east of Ramp C
 Soils - Placid fine sand, Type D (wooded area)
 Candler sand, 0 to 5% slopes, Type A (grassed area)

ORLANDO SERVICE CENTER

Weighted CN Description	Area (ac.)	CN	Product
Pavement	0.83	98	81.73
Wooded area	0.77	77	59.21
Grassed area	0.85	49	41.41
Total	2.45		182.35

CN = 74.5

Time of Concentration

Use Tc (min) = 10

Modified Existing Pond Stage/Storage

Stage ft	Area ac	Storage ac-ft
113.00	0.51	0.00
114.00	0.58	0.55
115.00	0.65	0.62
116.00	0.73	0.69
117.00	0.92	0.83

Sub-basin E = 2.30 acres

New Pond Area Northwest infield area.
 Soils - Placid fine sand, Type D (wooded area)
 Candler sand, 0 to 5% slopes, Type A (grassed area)

Weighted CN Description	Area (ac.)	CN	Product
Pond	0.71	98	69.58
Grassed area good	1.59	80	127.60
Total	2.30		196.78

CN = 85.6

Time of Concentration

Use Tc (min) = 10

Proposed New Pond Stage/Storage

Stage ft	Area ac	Storage ac-ft
113.00	0.71	0.00
114.00	0.82	0.77
115.00	0.94	0.88
116.00	1.06	1.00
117.00	1.25	1.16

Appendix B - Drainage Calculations

B-4

ADDITIONAL INFORMATION

DEC 16 1998

ORLANDO SERVICE CENTER

Water Quality

Basin Area = 14.09 ac. (sub-basins A,B,C, & E does not include D)
 Impervious = 3.69 ac.
 1" of runoff from the proposed basin = 1.17 ac-ft. or
 2 1/2" runoff from = 0.77 ac-ft

Combined Stage/Storage

Stage ft.	Mod-Ext. Area ac.	New Area ac.	Total Area ac.	Total Storage ac-ft
113.00	0.51	0.71	1.22	0.00
114.00	0.58	0.82	1.40	1.31
115.00	0.65	0.94	1.59	2.81
116.00	0.73	1.06	1.79	4.50
117.00	0.92	1.25	2.17	6.48

Bleed Down Calculations

Existing Weir Crest @ 114.2 = 2.05 ac-ft > 1.17 OK @ 113.70
 Volume to be recovered in 24 hrs: 0.5" over basin area = 0.69 ac-ft
 Flow Rate $Q = (0.69 \text{ ac-ft} \times 43560 \text{ ft}^2/\text{ac}) \div (24 \text{ hr/day} \times 3600 \text{ s/hr}) = 0.35 \text{ cfs}$
 Orifice Diameter $d = 3.25$ " (existing)
 Orifice Area $A = 0.0576 \text{ ft}^2$
 $H = (0.53 + 0.26) \div 2 = 0.40 \text{ ft}$
 $h = H - d \div 2 = 0.26$
 Coefficient of Discharge $C = 0.6$
 Existing Orifice
 $Q = CA(2gh)^{0.5} = 0.140 \text{ cfs}$ need to modify orifice

Try 5" diameter orifice
 Orifice Area $A = 0.1364 \text{ ft}^2$
 $Q = CA(2gh)^{0.5} = 0.335 \text{ cfs}$ OK

Average Pond Width

Averages based on sections cut perpendicular from the baseline of Ck 532 see plan sheet 8.

Existing Pond

Area = 0.51 @ 113.0 Control Elevation Ave. width = 102'

New Pond Section B-B, C-C, D-D, E-E

Area = 0.71 @ 113.0

Control Elevation Ave. Width = $(115.5 + 60 + 200 + 99.3) \div 4 = 118.7$

Appendix B - Drainage Calculations

B-5

10 Year 72 Hour Hydrographs

ADDITIONAL INFORMATION

DEC 10 1998

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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ORLANDO SERVICE CENTER

C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
11/20/98

BASIN NAME NODE NAME	SUB-A PONDEX	SUB-B PONDNEW	SUB-C PONDEX	SUB-D STORE	SUB-E PONDNEW
UNIT HYDROGRAPH PEAKING FACTOR	UH256 256.	UH256 256.	UH256 256.	UH256 256.	UH256 256.
RAINFALL FILE	SEWMD72	SEWMD72	SEWMD72	SEWMD72	SEWMD72
RAIN AMOUNT (in)	9.50	9.50	9.50	9.50	9.50
STORM DURATION (hrs)	72.00	72.00	72.00	72.00	72.00
AREA (ac)	6.61	2.38	2.80	2.45	2.30
CURVE NUMBER	57.90	86.80	62.50	74.50	85.60
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	20.00	15.30	10.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN QMx (cfs)	TMx (hrs)	VOL (in)	NOTES
SUB-A	13.22	60.09	4.22
SUB-B	8.29	60.04	7.89
SUB-C	8.26	60.02	4.82
SUB-D	8.80	60.02	6.35
SUB-E	9.21	60.02	7.74

Flood Routings

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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C.R. 532 AT I-4, BASIN 1, POST DEVELOPMENT CONDITIONS
11/20/98

CONTROL PARAMETERS

START TIME:	.00		
END TIME:	72.00		
TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)	
72.00	5.00	15.00	

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

Appendix B - Drainage Calculations

B-6

NOTE:

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/ft)
PONDEX	AREA	113.000	.000	.000	.000	113.000	510
						114.000	580
						115.000	650
						116.000	730
						117.000	920
STORE	AREA	112.400	.000	.000	.000	112.400	.014
						113.000	.227
						114.000	.654
						115.000	1.000
BNDRY	TIME	111.890	.000	.000	.000	111.890	.000
						111.890	20.000
						111.900	40.000
						112.890	60.000
						111.890	72.000
PONDNEW	AREA	113.000	.000	.000	.000	113.000	.710
						114.000	.820
						115.000	.940
						116.000	1.060
						117.000	1.250

ADDITIONAL INFORMATION
DEC 10 1998
ORLANDO SERVICE CENTER

>>REACH NAME : REACH2
FROM NODE : STORE
TO NODE : BNDRY
REACH TYPE : CULVERT, CIRCULAR w/ ROADWAY
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH : OFF

CULVERT DATA :
SPAN (in): 24.000 RISE (in): 24.000 LENGTH (ft): 70.000
U/S INVERT (ft): 112.400 D/S INVERT (ft): 110.890 MANNING N: .013
ENTRNC LOSS: .500 # OF CULVERTS: 1.000

POSITION A : RECTANGULAR ROADWAY/BERM WEIR
CREST EL. (ft): 118.000 CREST LN. (ft): 100.000 WEIR COEF.: 2.800
RESERVED:***** RESERVED:*****

POSITION B : RECTANGULAR ROADWAY/BERM WEIR
CREST EL. (ft): 9999.000 CREST LN. (ft): .000 WEIR COEF.: 2.800
RESERVED:***** RESERVED:*****

NOTE:

>>REACH NAME : REACH3
FROM NODE : PONDNEW
TO NODE : PONDEX
REACH TYPE : CULVERT, CIRCULAR w/ ROADWAY
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH : OFF

CULVERT DATA :
SPAN (in): 18.000 RISE (in): 18.000 LENGTH (ft): 224.000
U/S INVERT (ft): 111.100 D/S INVERT (ft): 110.500 MANNING N: .012
ENTRNC LOSS: .700 # OF CULVERTS: 1.000

POSITION A : NOT USED

Appendix B - Drainage Calculations

B-7
ADDITIONAL INFORMATION

DEC 10 1998

ORLANDO SERVICE CENTER

```

POSITION B      : NOT USED
>>REACH NAME   : REACH1
FROM NODE      : PONDEX
TO NODE        : STORE
REACH TYPE     : DROP STRUCTURE w/ CIRC. CULVERT
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH   : OFF
    
```

```

CULVERT DATA :
  SPAN (in): 24.000      RISE (in): 24.000      LENGTH (ft): 66.000
U/S INVERT (ft): 111.400 D/S INVERT (ft): 111.200      MANNING N: .013
ENTRNC LOSS: .500      # OF CULVERTS: 1.000
    
```

```

POSITION A      : CIRCULAR RISER SLOT
INVERT EL. (ft): 113.000      SPAN (in): 5.000      RISE (in): 5.000
WEIR COEF.: 3.200      GATE COEF.: .600      NUMBER OF ELEM.: 1.000
    
```

```

POSITION B      : RECTANGULAR RISER SLOT
CREST EL. (ft): 114.200      CREST LN. (ft): 10.170      OPENING (ft): 999.000
WEIR COEF.: 3.200      GATE COEF.: .600      NUMBER OF ELEM.: 1.000
    
```

REACH SUMMARY

INDEX	RCHNAM	FRMNODE	TONODE	REACH TYPE
1	REACH2	STORE	BNDRY	CULVERT, CIRCULAR w/ ROADWAY
2	REACH3	PONDNEW	PONDEX	CULVERT, CIRCULAR w/ ROADWAY
3	REACH1	PONDEX	STORE	DROP STRUCTURE w/ CIRC. CULVERT

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	<-- MINIMUMS -->		<-- MAXIMUMS -->	
		VALUE	TIME (hr)	VALUE	TIME (hr)
PONDEX	STAGE (ft):	113.00	8.00	114.98	60.75
	VOLUME (af):	.01	8.00	1.15	60.75
	RUNOFF (cfs):	.00	26.75	20.51	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	-.97	59.75	3.90	62.25
	OUTFLOW (cfs):	.00	8.00	12.87	60.25
STORE	STAGE (ft):	112.00	10.25	114.40	61.25
	VOLUME (af):	.00	10.25	.85	61.25
	RUNOFF (cfs):	.00	16.00	8.75	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	8.00	12.87	60.25
	OUTFLOW (cfs):	.00	46.50	11.58	61.25
BNDRY	STAGE (ft):	111.89	72.00	112.89	60.00
	VOLUME (af):	.00	10.00	5.98	72.00
	RUNOFF (cfs):	.00	72.00	.00	72.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	46.50	11.58	61.25
	OUTFLOW (cfs):	.00	72.00	.00	72.00
PONDNEW	STAGE (ft):	113.00	7.25	115.20	61.00
	VOLUME (af):	.01	7.00	1.85	61.00
	RUNOFF (cfs):	.00	7.00	17.29	60.00
	OFFSITE (cfs):	.00	72.00	.00	72.00
	OTHER (cfs):	.00	72.00	.00	72.00
	OUTFLOW (cfs):	-.97	59.75	3.90	62.25

Permit No. 49-187636-001

Application No. ERP49-187636-001EI

Western Beltway (S.R 429)

Part C - Section 1

Project Name: **Western Beltway Part C, Sect. 1
Basin F-4**

Application/File No. **187636-001**

Location: **S.R. 429 ramps A, B, C, & D north of I-4
and westbound I-4.**

County: **Osceola**

Latitude: **N 28 16 54**

Longitude: **W 81 35 39**

Section: Township: Range:
27 25S 27E

USGS Quad: **Intercession City, Fla.**

WMD Boundaries: **SFWMD**

Drainage Basin: **Unnamed tributary of
Davenport Creek**

Applicant: **FDOT, Turnpike District**

Engineer of Record: **John K. Saunders, P.E. No. 45371**

Type of Permit: **Individual**

Other DEP Permits: **N/A**

Modification? **No**

"Extension" By Renewal? **No**

Proposed Permit Expiration Date:

Wetland Impacts? **Yes**

Receiving Water Body: **Davenport Creek Tributary**

Receiving Waters: **Class I Class II Class III OFW**

Special Basin Criteria: **N/A**

Rainfall (Inch)(Storm#1): **12.23" (25yr/72hr)**

Rainfall (Inch)(Storm#2): **N/A**

Site Description - Existing: **Basin F-4 includes S.R. 429 ramps A, B, C, & D north of I-4 up to Sta. 80+50 S.R. 429, and west bound I-4 from Sta. 85+00 to 93+60 and Sta. 106+00 to 119+00. Existing land use includes westbound I-4, pasture land, and wetland.**

Site Description - Proposed: **Basin F-4 includes S.R. 429 ramps A, B, C, & D north of I-4 up to Sta. 80+50 S.R. 429, and west bound I-4 from Sta. 85+00 to 93+60 and Sta. 106+00 to 119+00. Total basin area =36.32 acres. Pavement area = 14.13 acres. The basin contains two interconnected wet detention ponds F-4A and F-4B that operate as a single pond.**

Project Name: **Western Beltway Part C, Sect. 1**
Basin F-4

Application/File No. **187636-001**

PRE-DEVELOPMENT CONDITIONS

Basin/Watershed: **Basin F-4**

	AREA		
	acres	sq ft	CN
Impervious Acreage			
Buildings:	0.00	0	98
Pavement:	0.67	29,185	98
Water Surface:	0.00	0	100
Miscellaneous:	0.00	0	98
Total Impervious Acreage:	0.67	29,185	98.0
% DCIA:	0%	% imperv:	2%
Drainage Area:	35.65	1,552,914	48
Total Drainage Area:	36.32	1,582,099	
Composite CN:			48.9
Ground Storage (inches):	10.44		
Time of Concentration (minutes):	25.2		
SCS Peaking Factor:	323		

POST-DEVELOPMENT CONDITIONS

Basin/Watershed: **Basin F-4**

	AREA		
	acres	sq ft	CN
Impervious Acreage			
Buildings:	0.00	0	98
Pavement:	14.13	615,503	98
Water Surface:	4.57	199,069	100
Miscellaneous:	0.00	0	98
Total Impervious Acreage:	18.70	814,572	98.5
% DCIA:	0%	% imperv:	51%
Pervious Area:	17.62	767,527	48
Total Drainage Area:	36.32	1,582,099	
Composite CN:			74.0
Ground Storage (inches):	3.51		
Time of Concentration (minutes):	27.6		
SCS Peaking Factor:	323		

Conversion Factors
 43560 sqft/acre

Project Name: **Western Beltway Part C, Sect. 1
Basin F-4**

Application/File No. **187636-001**

POLLUTION ABATEMENT VOLUME CALCULATION (SFWMD)

Basin/Watershed:

1.0	36.32	3.03	acre-ft	(drainage area)
2.5	14.13	2.94	acre-ft	(% of impervious area)
Greater of the above:		3.03	acre-ft or	131,842 cf
PAV if wet detention:		3.03	acre-ft or	131,842 cf
PAV if dry detention:		2.27	acre-ft or	98,881 cf
PAV if retention:		1.51	acre-ft or	65,921 cf
PAV calculated by applicant:		3.03	acre-ft or	131,842 cf
PAV provided:		3.36	acre-ft or	146,514 cf

Note: Impervious Area does not include pond area, as per SFWMD B.O.R. Section 5.2.2 (c)

Pond Information:

Length (ft):	990	Width (ft):	201	ft
Bottom:	87.5	ft NGVD		
Berm Elev:	98.5	ft NGVD		
Berm Width (ft):	20			
Side Slopes:	horizontal:vertical	4:1		
Storage Available (ac-ft)	26.95	Total Storage (ac-ft)	49.96	
SHGWT:	95.7	ft NGVD		
Kh (ft/day)	Not Applicable			

Stage-Storage:

	Stage (ft)	AREA		Storage	
		ft ²	acre	ft ³	acre-ft
Bottom	87.5	135,036	3.10	0	0.00
Control	93.5	199,069	4.57	1,002,316	23.01
W.Q.	94.2	219,542	5.04	1,148,830	26.37
DHW25Yr	97.1	245,689	5.64	1,823,415	41.86
T.O.B.	98.5	258,311	5.93	2,176,214	49.96
B.O.B.	100.5	322,344	7.40	2,756,869	63.29

Does the Wet Retention/Detention Area meet the dimensional criteria
(as measured at or from the Control Elevation):

- a) Area - 0.5 acre minimum YES
- b) Width - 100 ft min for linear areas in excess of 200 feet length. Irregular shaped areas may have narrower reaches but shall average at least 100 feet. YES
- c) Depth - minimum shallow, littoral area shall be the lesser of 20% of the retention/detention area or 2.5% of the total area (including side slopes) plus the basin contributing area. YES
- d) Side slopes: no steeper than 4:1 from top to min depth of 2-ft below C.E equivalent substitute. Side slopes shall be topsoiled, and stabilized through seeding or planting from 2-ft below to 1-ft above the CE to promote vegetative growth. YES
- e) Alternative side slopes for golf course (n/a for Department projects) N/A
- f) Bulkheads shall be allowed for no more than 40% of the shoreline length but compensating littoral zone must be provided based on appropriate maximum allowable side slope including local government requirements. YES

Discharge Structure: **Drop Structure with V-notch sized for water quality and attenuation, Overflow weir set above 25-year high water.
Top / grate elevation set 1.0 above Overflow weir.**

V-Notch Angle (degrees) : **122** V-notch Invert (ft. NGVD): **93.5**

V- Notch side slope (Hor:Vert) : **1.8** Rise (inches): **9.72**

Note: V-notch angle set by bleeddown requirements.

Note: V-notch rise set by 25-year discharge requirements.

Note: ICPR model calls for v-notch rise in feet.

Weir Crest Elev (Ft. NGVD): **97.5** Top of Structure (Ft. NGVD): **98.5**

Weir Geometry: **4.08' notch weir @ 50 year High Water.**

Skimmer Blade:

Top Elev (Ft. NGVD): **98.5** Bottom Elev (FT. NGVD): **93.0** 6" below Control

Outfall Pipe diameter (inches): **30** Invert Elevation (Ft. NGVD): **92.5**

Tail Water (Ft. NGVD): **93.3** (Seasonal High Water in outfall)

Maximum Stage Elevations:

Design Storm #1:

Pre-development Discharge (cfs): **89**

Post-development Discharge (cfs): **6.8**

Max. Stage (ft. NGVD) **97.1**

Design Storm #2:

Pre-development Discharge (cfs): **N/A**

Post-development Discharge (cfs): **N/A**

Max. Stage (ft. NGVD) **N/A**

Project Name: Western Beltway Part C, Sect. 1
Basin F-4

Application/File No. 187636-001

V-Notch Sizing Calculations
Treatment Volume Depth
(SFWM criteria)

Discharge of 1/2-inch of the detention volume in 24 hours.

Applicant has set invert of V-notch at: 93.50 ft NAVD

Weir set at: 94.20 ft NAVD

1/2-inch of PAV = 1.513 ac-ft (dependent on if drainage area or impervious driven)

1/2-inch of PAV stage = 93.89 ft NAVD

Depth (h) at 1/2-inch of PAV = 0.385 ft

Average flow rate, Q, required to drawdown 1/2-inch of PAV in 24 hours is:

$Q_{avg} = 0.763$ cfs

Find the area, A, of the orifice:

$C = 0.6$

$g = 32.2$ ft/sec²

$A = Q / (C * (2gh)^{0.5}) =$ N/A ft²

$D = (4 * A / \pi)^{0.5} =$ N/A ft = N/A inches

V-Notch Angle: 122 degrees

Area of V-Notch: 127.3 in² 0.884 ft²

Flow line elevation = N/A ft + N/A /2 = N/A ft

$Q = 2.5 \tan(\text{degrees}/2) H^{2.5}$

Q @ PAV = 1.849 cfs

Q @ 1/2 inch PAV = 0.415 cfs

Project: Western Beltway
 Proj. No. C100003822.00
 Subject Basin Areas

Sheet _____ of _____
 By DMD Date 1/09/01
 Ck JTW Date 1/25/01

BASIN F-4 POST DATA

BASIN F-4 (POST)

<u>AREAS</u>	<u>ACRES (1)</u>	<u>CN (2)</u>	<u>C (3)</u>	
IMPERVIOUS	14.13	98	0.95	
PERVIOUS (A)	17.62	48	0.20	(4)
PERVIOUS (D)	0.00	80	0.20	(4)
WATER	4.57	100	1.00	
TOTAL	36.32	74.0	0.59	

- NOTES:
- (1) Areas calculated in Microstation
 - (2) Curve Number based on SCS Soil Hydrologic Group and Land Use - TR55 Manual (Table 5-8)
 - (3) Runoff Coefficient used for computing permanent pool volume
 - (4) Soil Type is based on Osceola County Soil Survey: Chandler, Hontoon, Pamello, & Tavares Use Hydrologic Group A and D (wetlands), SCS Soil Survey

Project: Western Beltway, Part C, Section 1
 FPN No. 403497 2 32 01
 Subject Water Quality

Sheet _____ of _____
 By SPH
 Ck JTW

Proj. No. C100003822.00
 Date 5/29/01
 Date 5/29/01

BASIN F-4

Required Water Quality Volume

Treatment Volume (Wet Detention):
 The greater of 1.0 inch over the total project area or
 2.5 inches over the project impervious area (excluding ponds)

1 inch x	36.32	=	3.03	ac-ft
2.5 inches x	14.13	=	2.94	ac-ft
Required Treatment Volume		=	3.03	ac-ft

Provided Water Quality Volume

Stage	Elev. (ft navd)	Area (acres)	Volume (acre-ft)
CE	93.5	4.57	0.00
WQ Stage	94.2	5.04	3.36
DHW	97.5	5.66	21.02
TOB	98.5	5.93	26.81

Provided Treatment Volume	=	3.36	ac-ft
Required Treatment Volume	=	3.03	ac-ft
Provided/Required Volume	=	111%	OK

Size V-notch weir angle

V-notch weir angle (theta) sized using procedure found in SFWMD
 Basis of Review, page C-IV-26.

V-notch sized to bleed down 1/2 inch of treatment volume in 24 hours

Theta = $2 \times \arctan(0.492 \times V_{det} / H^{2.5})$

DA = drainage area (ac) =	36.32
Vdet (ac ft) = DA (ac) x 0.5" / 12"/ft	1.51
WQ Stage (ft navd) =	94.2
V-notch El. (ft navd) =	93.5
H (feet) =	0.7

Calculated Theta (degrees) = 122.3

Design Theta (degrees) = 122

V-notch slope (Horiz / Vert.) = 1.80

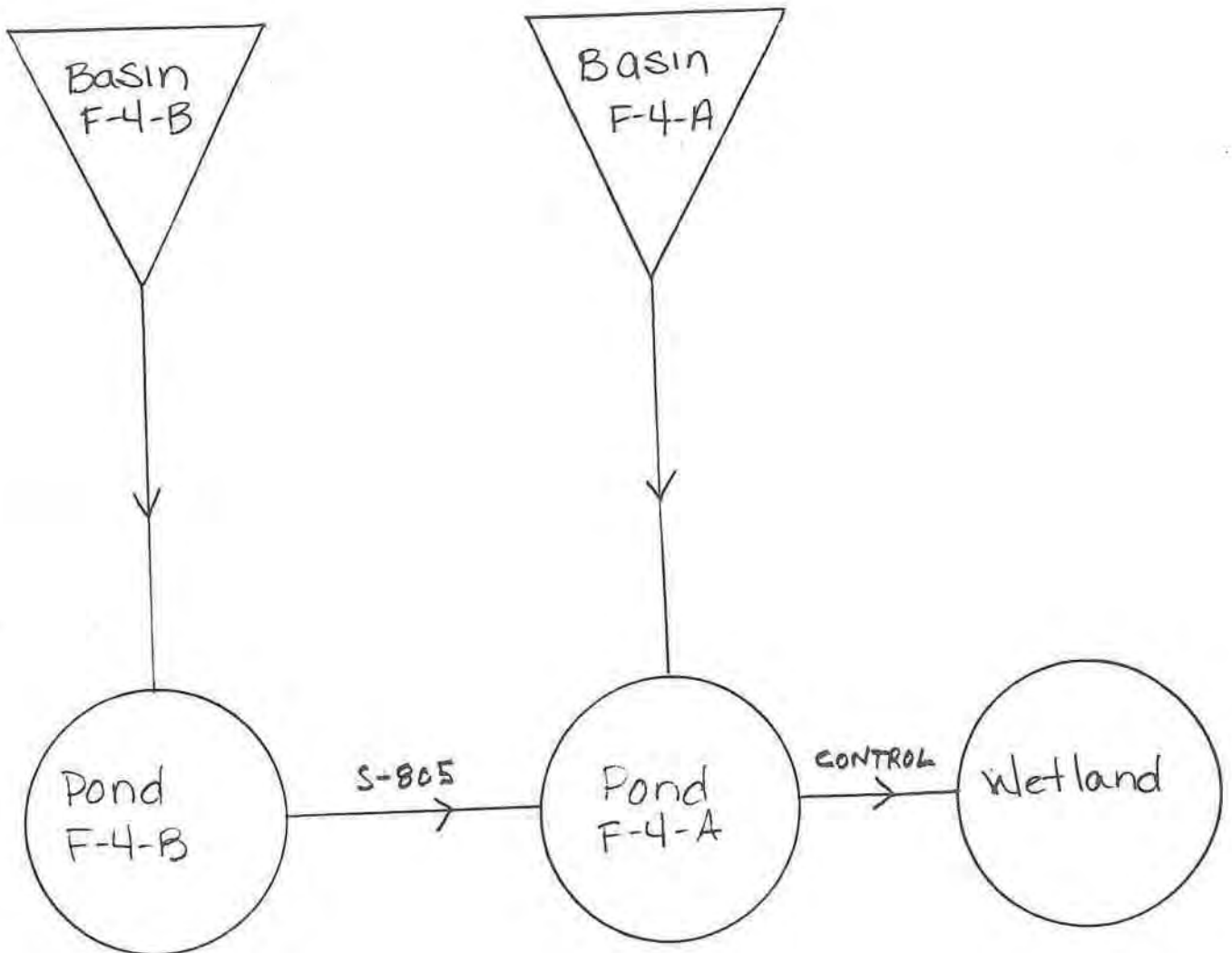
Note:
 ALL ELEVATIONS ARE NAVD '88 DATUM
 (NAVD '88 EL 0.00 = NGVD '29 EL 0.87
 For example: 95.00 shown in the plans is equal
 to 95.87 NGVD '29.

Job Western Beltway
Description Post Development
Basin F-4

Project No. C103822.00
Computed by DMD
Checked by JTW

Page ___ of ___
Sheet ___ of ___
Date 12-18-00
Date 1-25-01
Reference

Basin F-4 Post Development ICPR Schematic



☐

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) [1]
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WESTERN BELTWAY POND F4 POST

BY: SEJ DATE: 3-20-01 CK: JTW DATE: 3-20-01

***** Input Report *****

-----Class: Node-----
Name: POND_F4A Base Flow(cfs): 0 Init Stage(ft): 93.5 ✓
Group: BASE Warn Stage(ft): 97.5 ✓
Comment:

Stage(ft) Area(ac)
93.5 ✓ 3.11 ✓
98.5 ✓ 3.89 ✓
100.5 ✓ 4.73 ✓

-----Class: Node-----
Name: POND_F4B Base Flow(cfs): 0 Init Stage(ft): 93.5 ✓
Group: BASE Warn Stage(ft): 97.5 ✓
Comment:

Stage(ft) Area(ac)
93.5 ✓ 1.46 ✓
98.5 ✓ 2.04 ✓
100.5 ✓ 2.67 ✓

-----Class: Node-----
Name: WETLAND Base Flow(cfs): 0 Init Stage(ft): 93.3
Group: BASE Warn Stage(ft): 95.6
Comment:

Time(hrs) Stage(ft)
0 ✓ 93.3 ✓
59.5 ✓ 93.3 ✓
61 95.6 ✓
72 ✓ 95.6 ✓
240 ✓ 93.3 ✓

-----Class: Basin-----
Basin: BASN_F4A Node: POND_F4A Status: On Site Type: SCS Unit Hydr
Group: BASE
Unit Hydrograph: UH323 Peak Factor: 323 ✓
Rainfall File: SFWMD72 Storm Duration(hrs): 72 ✓
Rainfall Amount(in): 12.23
Area(ac): 24.5 ✓ Concentration Time(min): 27.6 ✓
Curve #: 74 ✓ Time Shift(hrs): 0
DCIA(%): 0

WESTERN BELTWAY POND F4 POST

BY: SEY DATE: 3-20-01 CK: JTW DATE: 3-20-01

***** Input Report *****

-----Class: Basin-----

Basin: BASN_F4B Node: POND_F4B Status: On Site Type: SCS Unit Hydr
 Group: BASE

Unit Hydrograph: UH323 Peak Factor: 323
 Rainfall File: SFWMD72 Storm Duration(hrs): 72
 Rainfall Amount(in): 12.23
 Area(ac): 11.84 ✓ Concentration Time(min): 27.6 ✓
 Curve #: 74 Time Shift(hrs): 0
 DCIA(%): 0 ✓

-----Class: Pipe-----

Name: S-805 From Node: POND_F4B ✓ Length(ft): 369 357
 Group: BASE To Node: POND_F4A ✓ Count: 1

	UPSTREAM	DOWNSTREAM	Equation: Average K
Geometry:	Circular	Circular	Flow: Both
Span(in):	24 ✓	24 ✓	Entrance Loss Coef: 0
Rise(in):	24 ✓	24 ✓	Exit Loss Coef: 0.5 ✓
Invert(ft):	92.5 ✓	92 ✓	Bend Loss Coef: 1 ✓
Manning's N:	0.012 ✓	0.012 ✓	Outlet Cntrl Spec: Use dc or tw
Top Clip(in):	0	0	Inlet Cntrl Spec: Use dn
Bottom Clip(in):	0	0	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
 Circular Concrete: Square edge w/ headwall 1 1

Downstream FHWA Inlet Edge Description:
 Circular Concrete: Square edge w/ headwall 1 1

POND EQUALIZER

WESTERN BELTWAY POND F4 POST

BY: SEY DATE: 3-20-01 CK: JTW DATE: 3-20-01

***** Input Report *****

-----Class: Drop Structure-----

Name: CONTROL ✓ From Node: POND_F4A ✓ Length(ft): 144 ✓
Group: BASE To Node: WETLAND Count: 1 ✓

Outlet Cntrl Spec: Use dc or tw Inlet Cntrl Spec: Use dn
Upstream Geometry: Circular Downstream Geometry: Circular

	UPSTREAM	DOWNSTREAM
Span(in):	30	30 ✓
Rise(in):	30 ✓	30 ✓
Invert(ft):	92.5 ✓	91.5 ✓
Manning's N:	0.012 ✓	0.012 ✓
Top Clip(in):	0	0
Bottom Clip(in):	0	0

Entrance Loss Coef: 0.5 ✓ Flow: Both
Exit Loss Coef: 1 ✓ Equation: Aver Conveyance

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall 1 1
Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall 1 1

*** Weir 1 of 3 for Drop Structure CONTROL *** [TABLE]

Count: 1 Bottom Clip(ft): 0
Type: Fread Top Clip(ft): 0
Flow: Both Weir Discharge Coef: 3.1
Geometry: Trapezoidal Orifice Discharge Coef: 0.61

Bottom Width(ft): 0 Invert(ft): 93.5 ✓
Left Side Slope(h/v): 1.8 ✓ Control Elev(ft): 93.5 ✓
Right Side Slope(h/v): 1.8 ✓ StructOpeningDim(ft): 0.81 ✓

*** Weir 2 of 3 for Drop Structure CONTROL *** [TABLE]

Count: 1 Bottom Clip(in): 0
Type: Fread Top Clip(in): 0
Flow: Both Weir Discharge Coef: 3.1
Geometry: Rectangular Orifice Discharge Coef: 0.61

Span(in): 49 ✓ Invert(ft): 97.5 ✓
Rise(in): 12 ✓ Control Elev(ft): 97.5 ✓

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) [4]
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WESTERN BELTWAY POND F4 POST

BY: SPY DATE: 3-20-01 CK: JTW DATE: 3-20-01

***** Input Report *****

*** Weir 3 of 3 for Drop Structure CONTROL *** [TABLE]
Count: 1 Bottom Clip(in): 0
Type: Fread Top Clip(in): 0
Flow: Both Weir Discharge Coef: 3.1
Geometry: Rectangular Orifice Discharge Coef: 0.61 ✓

Span(in): 172
Rise(in): 999

Invert(ft): 98.5 ✓
Control Elev(ft): 98.5

□□

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20)
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[1]

WESTERN BELTWAY POND F4

POST DEVELOPMENT 25 YR 72 HR SFWMD

BY: SCY DATE: 3-20-01 / CHECK: JTW DATE: 3-20-01

***** Basin Summary - 25YR72HR *****

```

***
Basin Name:          BASN_F4A   BASN_F4B
Group Name:         BASE       BASE
Node Name:         POND_F4A   POND_F4B
Hydrograph Type:   UH         UH

Unit Hydrograph:   UH323     UH323
Peaking Factor:   323.00    323.00
Spec Time Inc (min): 3.68     3.68
Comp Time Inc (min): 3.68     3.68
Rainfall File:     SFWMD72   SFWMD72
Rainfall Amount (in): 12.23   12.23
Storm Duration (hr): 72.00    72.00
Status:           ONSITE     ONSITE
Time of Conc. (min): 27.60    27.60
Lag Time (hr):    0.00     0.00
Area (acres):    24.50    11.84
Vol of Unit Hyd (in): 1.00     1.00
Curve Number:    74.00    74.00
DCIA (%):        0.00     0.00

Time Max (hrs):   60.11    60.11
Flow Max (cfs):   88.87    42.95
Runoff Volume (in): 8.83     8.83
Runoff Volume (cf): 785521  379615

```

TIT-25

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) [1]
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WESTERN BELTWAY POND F4
 POST DEVELOPMENT 25 YR 72 HR SFWMD
 BY: SEY DATE: 3-20-01 CHECK: JWA DATE: 3-20-01

***** Node Maximum Comparisons *****

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow (cfs)	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
*** Node Name: POND F4A	64.63	97.10	97.50	0.0478	159980.72	60.15	89.83	64.63	6.82
25YR72HR		Group: BASE							
*** Node Name: POND F4B	64.63	97.14	97.50	0.0493	82014.78	60.15	42.68	65.89	2.23
25YR72HR		Group: BASE							
*** Node Name: WETLAND	61.00	95.60	95.60	0.1608	0.00	64.63	5.82	0.00	0.00
25YR72HR		Group: BASE							

WESTERN BELTWAY POND F4
 POST DEVELOPMENT
 BY: SW DATE: 3-21-01 CHECK: STW DATE: 3/21/01

***** Node Maximum Comparisons *****

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow (cfs)	Max Inflow (cfs)	Max Time Outflow (cfs)	Max Outflow (cfs)
*** Node Name: POND_F4A Group: BASE									
25YR72HR	64.63	97.10	97.50	0.0478	159980.72	60.15	89.83	64.63	6.82
50YR72HR	64.62	97.52	97.50	0.0496	162810.82	60.15	101.54	64.62	7.74
2Y1H	1.02	93.68	97.50	0.0486	136989.61	0.91	18.55	1.02	0.06
2Y2H	1.96	93.92	97.50	0.0430	138543.07	1.12	14.70	1.96	0.52
2Y4H	4.00	94.13	97.50	0.0474	139867.57	2.74	15.42	4.00	1.42
2Y8H	7.92	94.31	97.50	0.0461	141039.58	4.11	16.82	7.92	2.61
2Y24H	21.56	94.43	97.50	0.0487	141854.01	12.11	7.10	21.56	3.51
2Y72H	64.39	94.53	97.50	0.0410	142506.66	59.99	6.74	64.39	4.05
2Y168H	160.57	94.64	97.50	0.0387	143208.46	159.57	6.21	160.57	4.46
2YR240H	184.58	94.77	97.50	0.0435	144117.58	183.92	7.70	184.58	4.94
5Y1H	1.02	93.78	97.50	0.0469	137618.79	0.88	26.87	1.02	0.18
5Y2H	1.97	94.23	97.50	0.0427	140497.40	0.70	24.01	1.97	2.00
5Y4H	4.02	94.46	97.50	0.0490	142008.50	2.68	22.78	4.02	3.68
5Y8H	7.97	94.69	97.50	0.0498	143553.45	4.16	25.83	7.97	4.65
5Y24H	21.39	94.83	97.50	0.0498	144527.00	12.03	10.03	21.39	5.13
5Y72H	64.26	94.88	97.50	0.0435	144874.92	60.02	9.51	64.26	5.30
5Y168H	160.56	94.94	97.50	0.0407	145257.30	159.76	8.21	160.56	5.47
5Y240H	184.51	95.22	97.50	0.0473	147197.09	183.87	10.59	184.51	6.28
10Y1H	1.00	93.85	97.50	0.0493	138056.92	0.89	34.34	1.00	0.31
10Y2H	2.00	94.42	97.50	0.0438	141748.42	0.71	30.40	2.00	3.39
10Y4H	4.03	94.75	97.50	0.0494	143957.40	2.69	28.83	4.03	4.85
10Y8H	8.02	94.94	97.50	0.0489	145248.27	4.13	32.44	8.02	5.47
10Y24H	21.32	95.25	97.50	0.0487	147351.79	12.17	13.73	21.32	6.34
10Y72H	64.49	95.13	97.50	0.0476	146536.69	59.88	11.36	64.49	6.02
10Y168H	160.56	95.15	97.50	0.0480	146732.08	159.92	9.62	160.56	6.10
10Y240H	184.61	95.58	97.50	0.0493	149621.81	183.85	12.70	184.61	7.17
25Y1H	0.98	93.94	97.50	0.0492	138666.07	0.90	44.35	0.98	0.58
25Y2H	1.98	94.57	97.50	0.0479	142734.73	1.08	39.93	1.98	4.19
25Y4H	3.99	94.97	97.50	0.0482	145505.41	2.65	36.28	3.99	5.58
25Y8H	8.03	95.30	97.50	0.0490	147712.86	4.09	40.92	8.03	6.48
25Y24H	21.42	95.59	97.50	0.0492	148659.19	12.11	16.60	21.42	7.18
25Y72H	64.60	95.47	97.50	0.0459	148905.51	59.94	13.90	64.60	6.92
25Y168H	160.67	95.42	97.50	0.0479	148525.97	159.71	11.23	160.67	6.78
25Y240H	184.65	95.90	97.50	0.0498	151810.50	183.83	14.66	184.65	7.88
50Y1H	0.99	94.14	97.50	0.0487	139926.80	0.92	52.14	0.99	1.47
50Y2H	1.99	94.68	97.50	0.0485	143539.26	1.06	47.23	1.99	4.64
50Y4H	4.01	95.23	97.50	0.0484	147255.05	2.64	42.71	4.01	6.31
50Y8H	7.99	95.64	97.50	0.0489	150057.15	4.09	48.85	7.99	7.32

WESTERN BELTWAY POND F4
 POST DEVELOPMENT

BY: SEY DATE: 3-21-01 CHECK: JTW DATE: 3/21/01

***** Node Maximum Comparisons *****

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow (cfs)	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
50Y24H	21.55	95.97	97.50	0.0490	152300.55	12.01	19.57	21.55	8.03
50Y72H	64.56	95.79	97.50	0.0488	151023.40	60.01	15.97	64.56	7.63
50Y168H	160.62	95.70	97.50	0.0452	150414.87	159.85	12.84	160.62	7.44
50Y240H	184.78	96.21	97.50	0.0480	153897.61	183.96	16.50	184.78	8.51
100Y1H	0.99	94.28	97.50	0.0470	140813.64	0.90	61.27	0.99	2.34
100Y2H	2.00	94.91	97.50	0.0497	145087.65	1.08	56.27	2.00	5.40
100Y4H	4.47	95.54	97.50	0.0492	149369.97	2.65	49.18	4.47	7.08
100Y8H	8.13	95.96	97.50	0.0494	152205.72	4.10	55.90	8.13	8.01
100Y24H	21.48	96.37	97.50	0.0496	155009.09	12.11	22.54	21.48	8.80
100Y72H	64.55	96.16	97.50	0.0496	153551.05	59.88	18.32	64.55	8.41
100Y168H	160.73	95.98	97.50	0.0481	152372.67	159.91	14.43	160.73	8.06
100Y240H	184.83	96.50	97.50	0.0457	155904.25	183.84	18.19	184.83	9.03

*** Node Name: POND_F4B Group: BASE

25YR72HR	64.63	97.14	97.50	0.0493	82014.78	60.15	42.68	65.89	2.23
50YR72HR	64.62	97.57	97.50	0.0492	84170.92	60.15	48.32	65.85	2.52
2Y1H	1.02	93.68	97.50	0.0486	64848.89	0.91	8.88	0.70	0.35
2Y2H	1.96	93.92	97.50	0.0430	66027.53	1.12	7.14	1.96	0.16
2Y4H	4.00	94.14	97.50	0.0475	67028.29	2.74	7.28	1.90	0.57
2Y8H	7.92	94.31	97.50	0.0460	67876.10	4.11	7.96	7.92	0.85
2Y24H	21.56	94.44	97.50	0.0493	68451.25	12.11	2.98	14.35	1.18
2Y72H	64.39	94.55	97.50	0.0460	68901.60	59.99	2.73	64.39	1.32
2Y168H	160.57	94.65	97.50	0.0452	69437.56	159.57	2.33	160.57	1.45
2Y240H	184.58	94.79	97.50	0.0384	70130.75	183.92	2.97	170.47	2.81
5Y1H	1.02	93.78	97.50	0.0469	65324.13	0.88	12.89	0.66	0.32
5Y2H	1.97	94.23	97.50	0.0427	67483.45	0.63	11.51	1.97	0.62
5Y4H	4.02	94.46	97.50	0.0495	68549.64	2.68	10.87	4.02	1.13
5Y8H	7.97	94.70	97.50	0.0496	69700.86	4.16	12.33	7.97	1.51
5Y24H	21.39	94.85	97.50	0.0498	70444.66	12.03	4.68	21.71	1.67
5Y72H	64.26	94.90	97.50	0.0448	70709.53	60.02	3.88	64.66	1.73
5Y168H	160.56	94.96	97.50	0.0469	71000.97	159.76	3.14	160.96	1.78
5Y240H	184.51	95.25	97.50	0.0487	72478.36	183.87	4.18	211.62	2.86
10Y1H	1.00	93.85	97.50	0.0494	65656.99	0.89	16.47	0.63	0.30
10Y2H	2.00	94.42	97.50	0.0438	68371.19	0.61	14.58	2.00	0.98
10Y4H	4.03	94.76	97.50	0.0494	69999.44	2.69	13.68	4.03	1.49
10Y8H	8.02	94.96	97.50	0.0490	70995.08	4.13	15.47	8.02	1.78
10Y24H	21.32	95.28	97.50	0.0494	72601.71	12.01	6.22	21.96	2.07
10Y72H	64.49	95.15	97.50	0.0483	71978.61	59.88	4.70	25.86	2.35
10Y168H	160.56	95.18	97.50	0.0495	72125.65	159.92	3.73	161.20	1.98

WESTERN BELTWAY POND F4
 POST DEVELOPMENT

BY: SEY DATE: 3-21-01 CHECK: JW DATE: 3/21/01

***** Node Maximum Comparisons *****

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow (cfs)	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
10Y240H	184.61	95.62	97.50	0.0493	74327.09	183.85	5.08	175.89	2.91
25Y1H	0.98	93.95	97.50	0.0493	66125.99	0.90	21.28	0.50	0.35
25Y2H	1.98	94.58	97.50	0.0481	69056.47	1.08	19.14	1.98	1.17
25Y4H	3.99	95.00	97.50	0.0480	71173.62	2.65	17.23	3.99	1.68
25Y8H	8.03	95.33	97.50	0.0485	72876.55	4.09	19.47	8.03	2.10
25Y24H	21.42	95.63	97.50	0.0498	74363.50	12.11	7.44	22.51	2.34
25Y72H	64.60	95.51	97.50	0.0473	73786.90	59.94	5.82	32.07	2.41
25Y168H	160.67	95.46	97.50	0.0491	73494.73	159.71	4.42	161.31	2.21
25Y240H	184.65	95.95	97.50	0.0483	75993.28	183.83	5.94	174.10	2.93
50Y1H	0.99	94.14	97.50	0.0489	67072.19	0.92	24.99	0.99	0.51
50Y2H	1.99	94.70	97.50	0.0485	69667.24	1.06	22.66	1.99	1.30
50Y4H	4.01	95.26	97.50	0.0493	72500.14	2.64	20.23	4.01	1.87
50Y8H	7.99	95.69	97.50	0.0496	74664.88	4.09	23.18	7.99	2.36
50Y24H	21.55	96.03	97.50	0.0499	76380.30	12.01	8.77	22.83	2.63
50Y72H	64.56	95.83	97.50	0.0483	75401.38	59.85	6.74	65.59	2.49
50Y168H	160.62	95.74	97.50	-0.0483	74932.47	159.85	5.11	136.28	3.62
50Y240H	184.78	96.26	97.50	0.0492	77584.58	183.96	6.74	225.88	2.83
100Y1H	0.99	94.28	97.50	0.0471	67708.91	0.90	29.35	0.99	0.66
100Y2H	2.00	94.93	97.50	0.0498	70839.19	1.08	26.98	2.00	1.49
100Y4H	4.53	95.58	97.50	0.0500	74124.01	2.61	23.29	5.41	2.29
100Y8H	8.13	96.01	97.50	0.0493	76304.81	4.10	26.51	9.08	2.62
100Y24H	21.48	96.43	97.50	0.0496	78444.65	12.01	10.10	23.01	2.88
100Y72H	64.55	96.21	97.50	0.0488	77327.56	59.88	7.79	65.78	2.74
100Y168H	160.73	96.04	97.50	0.0491	76425.60	159.91	5.79	161.75	2.63
100Y240H	184.83	96.57	97.50	0.0468	79109.34	183.84	7.50	186.34	2.95

Permit No. 49-187636-001

DEP Application No. 187636-001

Western Beltway (S.R. 429)

Part C - Section 3

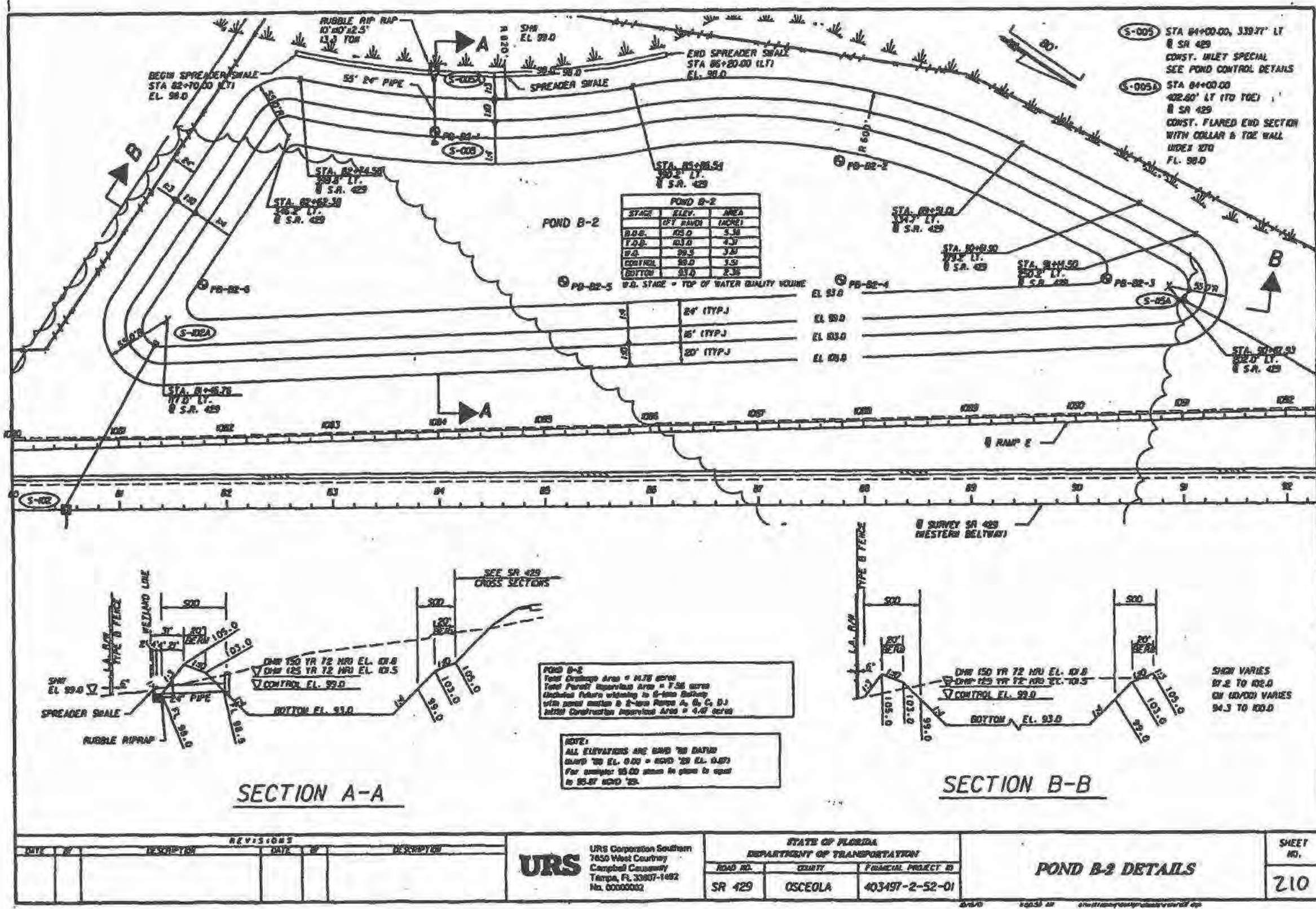


Figure 44

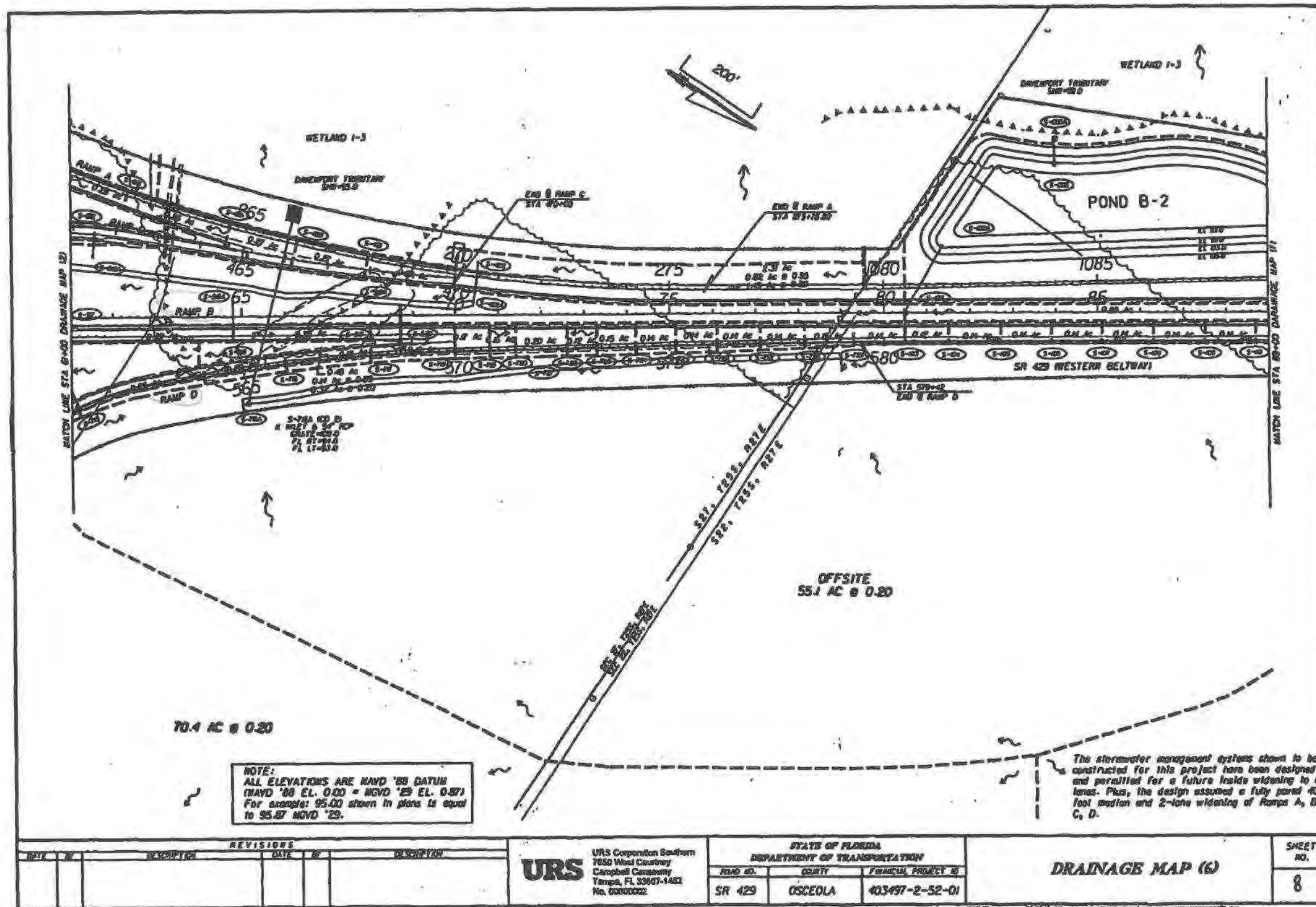


Figure 7

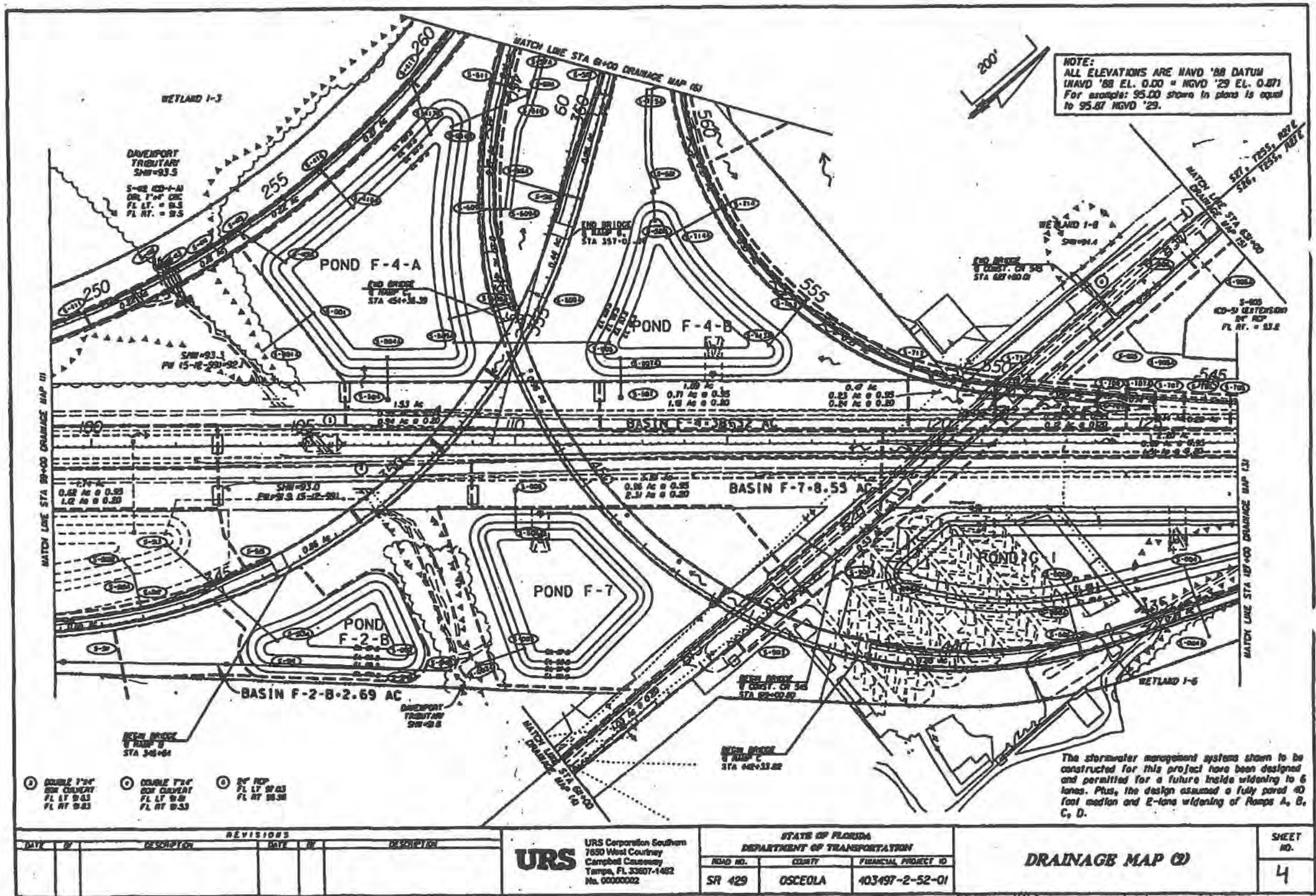


Figure 3

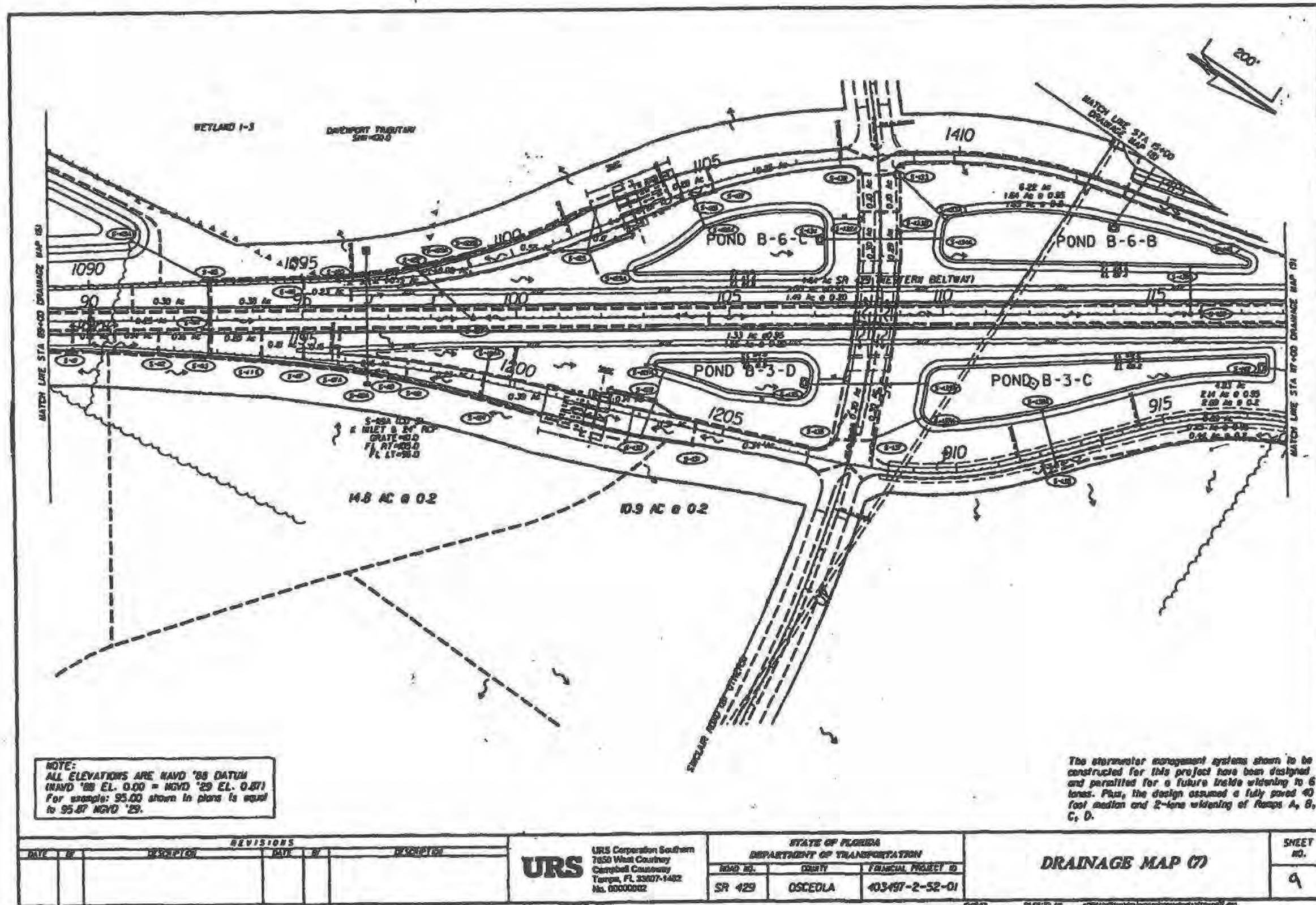
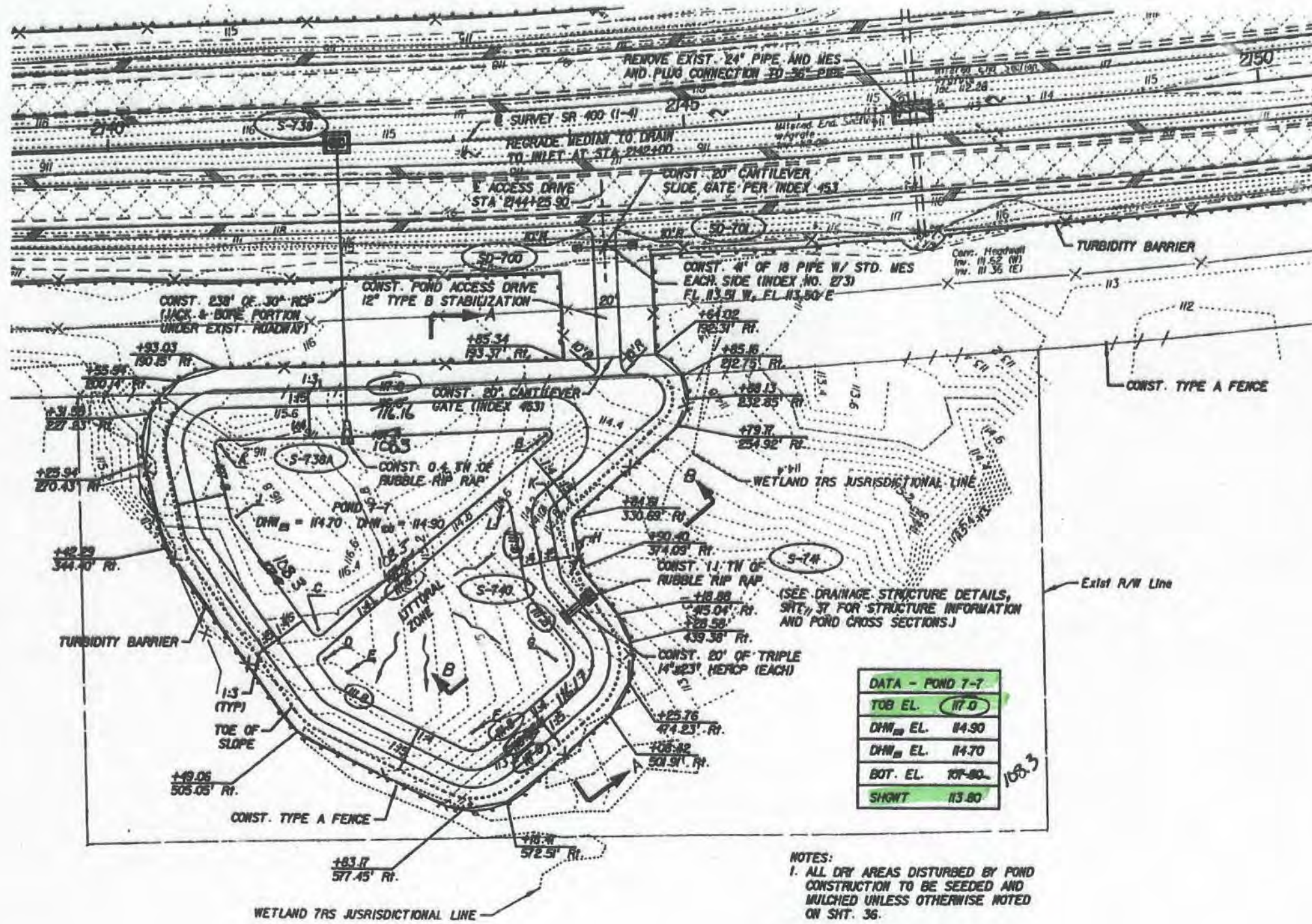


Figure 8

Permit No. 11896.027, 11896.033

Application No. 27474

Sr. 400 (I-4) Widening
Section 7



POND RETURN DATA				
	STATION	OFFSET	SIDE	RADIUS
A	2140+90.14	257.15'	RT.	5'
B	2143+66.37	257.14'	RT.	5'
C	2141+68.67	47.09'	RT.	5'
D	2141+73.13	443.42'	RT.	6.2'
E	2141+92.41	455.10'	RT.	16.2'
F	2142+113.13	510.96'	RT.	16.2'
G	2143+64.96	451.72'	RT.	16.2'
H	2143+82.06	377.45'	RT.	10'
I	2143+25.50	317.49'	RT.	6.2'
J	2141+02.06	310.66'	RT.	5'
K	2143+75.00	325.70'	RT.	10'

DATA - POND 7-7	
TOB EL.	117.0
DHW ₁₀₀ EL.	114.90
DHW ₅₀ EL.	114.70
BOT. EL.	107.80
SHGWT	113.80

- NOTES:
1. ALL DRY AREAS DISTURBED BY POND CONSTRUCTION TO BE SEED AND MULCHED UNLESS OTHERWISE NOTED ON SHT. 36.
 2. NO ENCHROACHMENT INTO THE IDENTIFIED WETLANDS IS PERMITTED BEYOND THE DEPICTED SILT FENCE. SILT FENCE IS LOCATED AT 12' FROM TOE OF PROPOSED EMBANKMENT SLOPE IN THE WETLAND AREAS.

AUG 02 2005
[Signature]

RELEASED FOR CONSTRUCTION
 1:30 *[Signature]*
 8-14-05
 Southwest Florida Water Management District

MAY 18 2006

RECEIVED
 LIMITS OF MILLING AND RESURFACING

Mark J. Van D...
 8/14/03

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JE Jacobs Civil Inc.
 18302 Highlands Preserve Parkway
 Highlands Plaza, Suite 200
 Tampa, FL 33629
 Tel. (813) 977-3434
 ENGINEER OF RECORD:
 W. YEON JR., P.E. No. 35650 EBN 6572

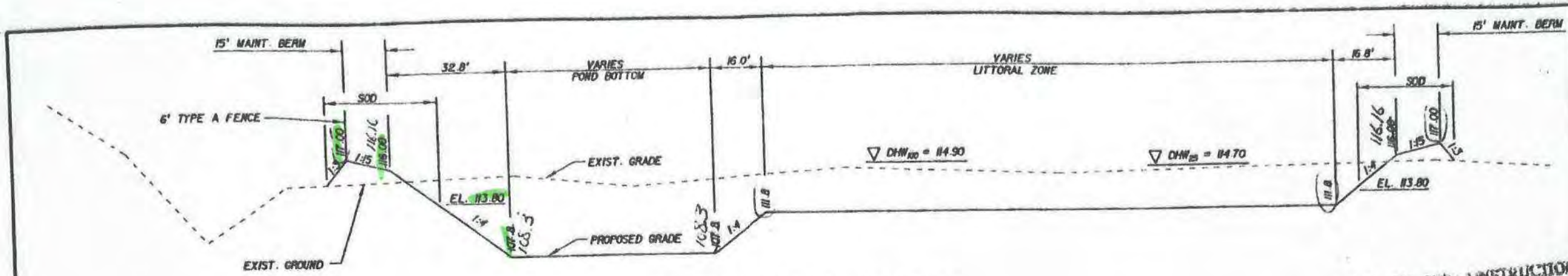
STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	POLK	201204-1

POND DETAIL SHEET
POND 7-7

SHEET NO.
 38

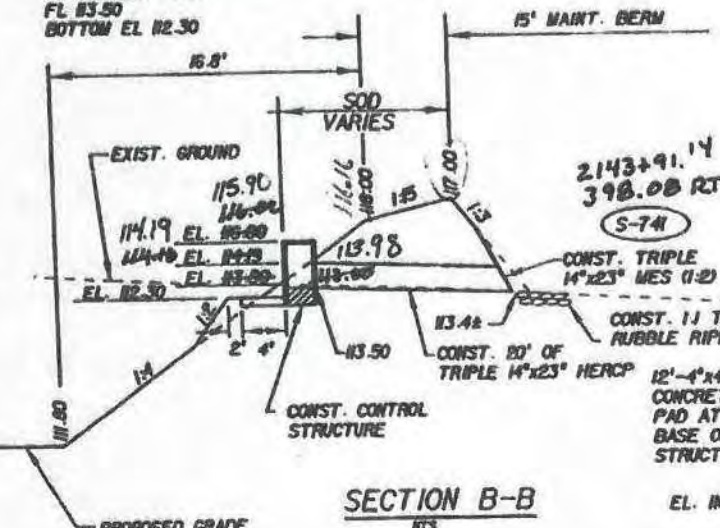
231



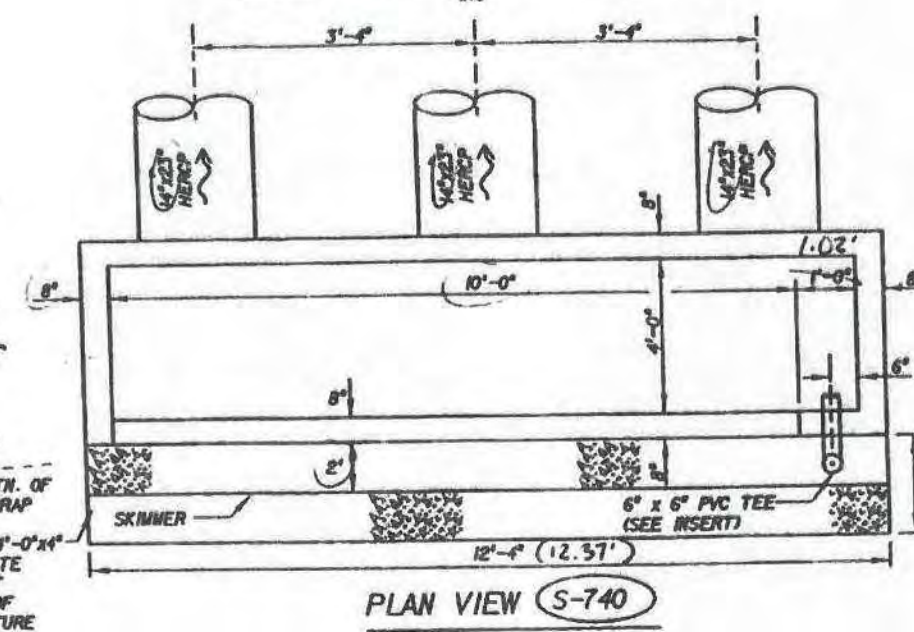
DETENTION POND SECTION A-A

RELEASE FOR CONSTRUCTION
galk
 8-14-03

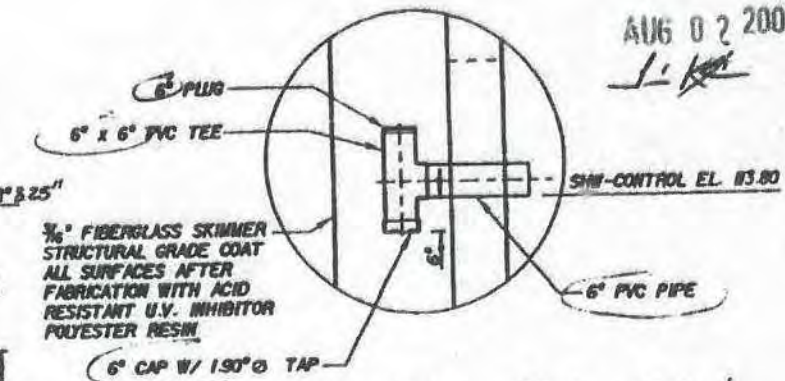
S-740 2143+74.25 113.66 RT
 STA 2143+74.25-82.0' RT.
 CONST. MODIFIED 4.0'X10.0' J-BOTTOM (W/O TOP SLAB)
 INDEX NO. 200,201
 TOP EL. 16.00 (W/O GRATE)
 OVERFLOW WEIR EL. 14.19
 CONTROL EL. 13.80
 FL 13.50
 BOTTOM EL. 12.30



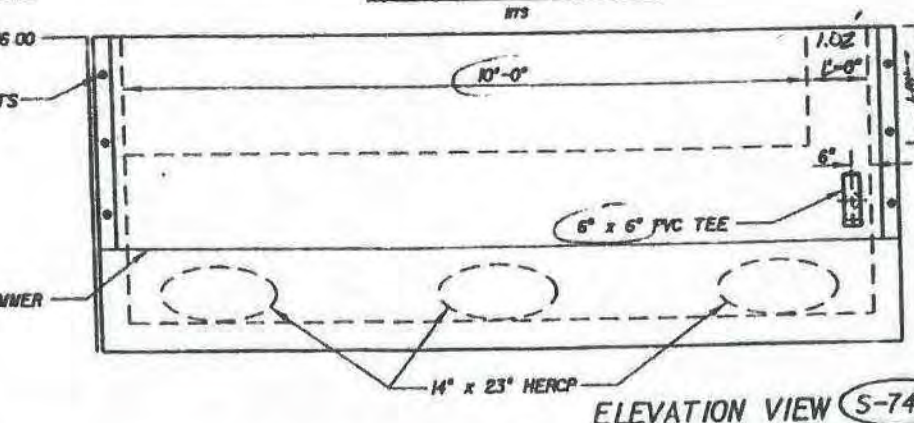
SECTION B-B



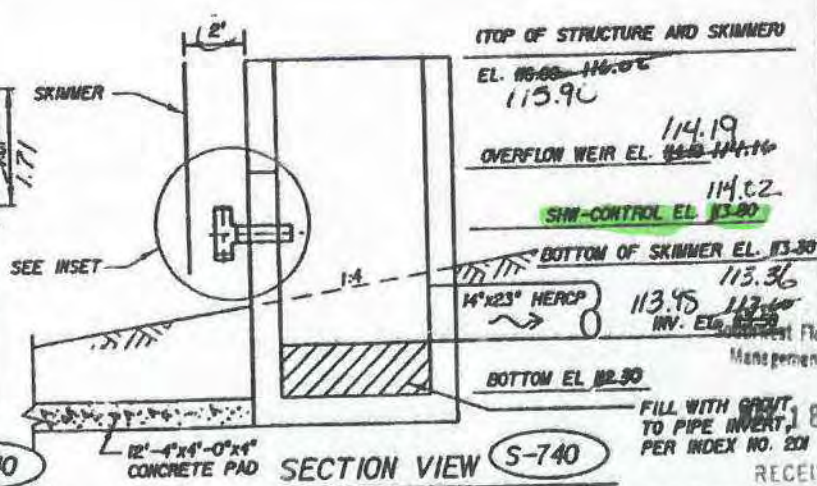
PLAN VIEW S-740



INSET BM=115.904



ELEVATION VIEW S-740



SECTION VIEW S-740

AUG 02 2005
L. K.

E:\Projects\201204-1\Drawings\201204-1\201204-1-37.dwg
 12/14/03
 12/14/03
 12/14/03

Mark J. King
 12/14/03

REVISIONS				
DATE	BY	DESCRIPTION	DATE	BY

JE Jacobs Civil Inc.
 15302 Highlands Preserve Parkway
 Highlands Plaza, Suite 200
 Tampa, FL 33624
 Tel: (813) 977-3434
 ENGINEER OF RECORD:
 W. VEON JR., P.E., No. 35600 EDN 6572

STATE OF FLORIDA
 DEPARTMENT OF TRANSPORTATION
 ROAD NO. COUNTY FINANCIAL PROJECT ID
 SR 400 POLK 201204-1

DRAINAGE STRUCTURE DETAILS
POND 7-7
 RECEIVED
 8/18/06
 SHEET NO. 37

230