S.R. 200
PD&E STUDY REEVALUATION

S.R. 200 PD&E Study Reevaluation

From U.S. 41 to N. of the Marion County Line
Citrus County, Florida
WPI Segment No. 257188 1
FAP No. FL62-020R

POND SITING REPORT

Florida Department of Transportation
District 7, Tampa, Florida

March 2002
Revised June 2002

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Prepared by:

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Prepared for:

Florida Department of Transportation
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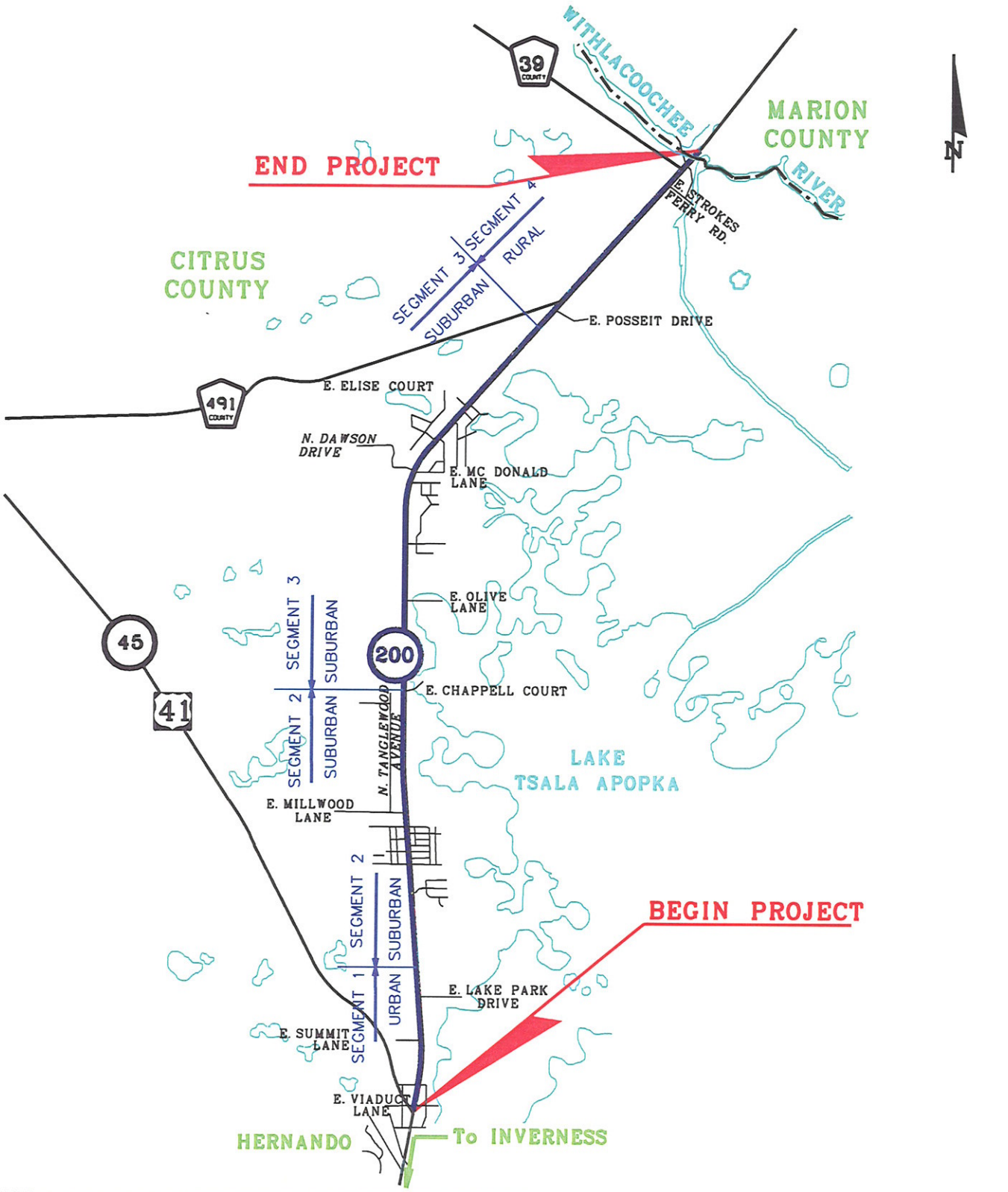
1.0 GENERAL PROJECT DESCRIPTION

1.1 INTRODUCTION

In November 1996, the Florida Department of Transportation (FDOT) received Federal Highway Administration's (FHWA) approval on a Project Development and Environment (PD&E) Study that evaluated improvement alternatives along the S.R. 200 corridor. The limits of the PD&E Study extended from U.S. 41 (S.R. 45) in Citrus County to C.R. 484 in Marion County, a length of approximately 12.9 miles. Following consideration of the future traffic demand, motorist safety and evacuation needs, it was recommended to widen the subject segment of S.R. 200 to a four-lane divided facility.

In accordance with Code 23 of Federal Regulations (CFR) Part 771.129, FDOT is currently conducting a PD&E Study Reevaluation for the segment of S.R. 200 which extends from U.S. 41 in Citrus County (Station 0+00) to just north of the Marion County Line (Station 352+07.04), a length of approximately 6.7 miles. The project is located in Sections 23, 14, 11 and 2 of Township 18S and Range 19E, Sections 35, 36 and 25 of Township 17S and Range 19E and Section 30 of Township 17S and Range 20E within Citrus County, Florida. In addition, the project is in FDOT Rainfall Zone 5 and is under the jurisdictions of the Southwest Florida Water Management District (SWFWMD), the Florida Department of Environmental Protection (FDEP), the United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (ACOE). Figure 1 depicts the location and the limits of the Reevaluation study area.

This Reevaluation will use current data to re-assess the effects of implementing the recommendations of the original PD&E study and, where possible, will modify these recommendations to further minimize these effects. The project is identified as Work Program Item (WPI) Segment Number 257188 1 and Federal Aid Program (FAP) Number FL62-020R.



Project Location Map

Figure 1

S.R. 200 PD&E Study
Reevaluation
From U.S. 41 to N. of Marion County Line
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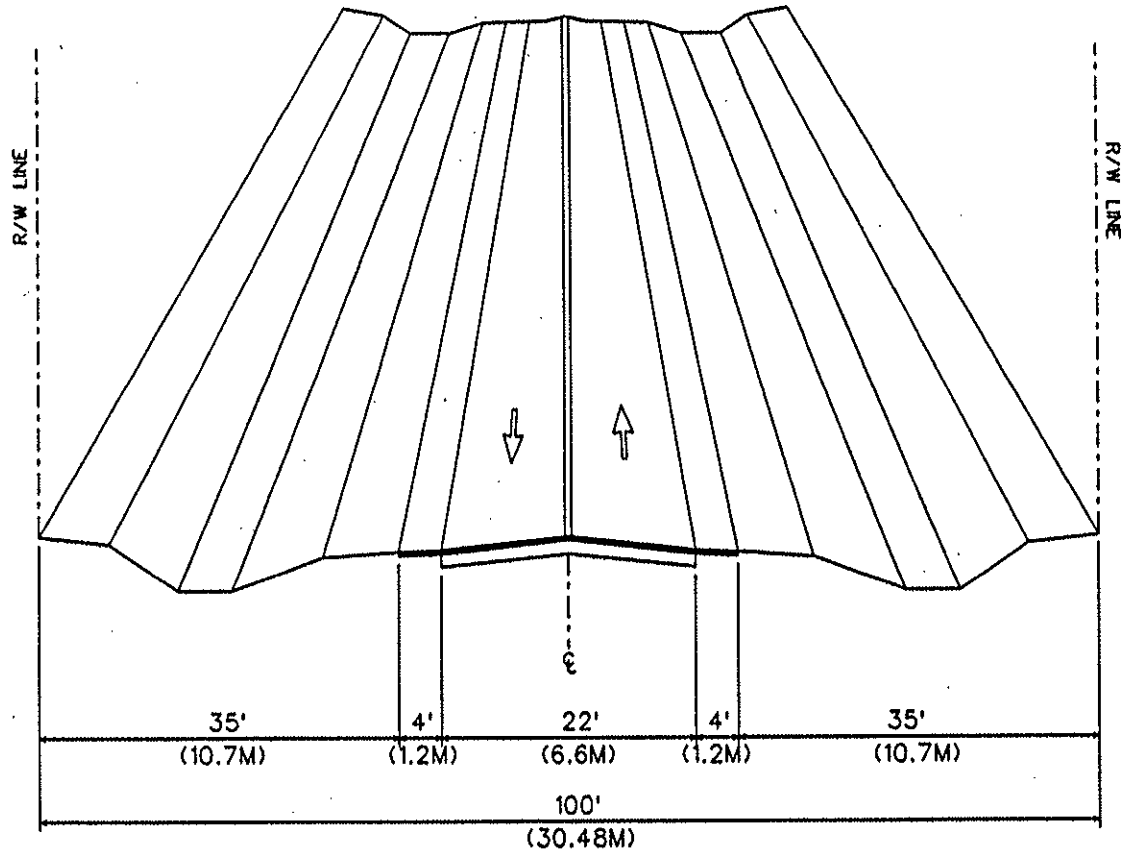
1.2 PURPOSE AND SCOPE

The Pond Siting Report and the Location Hydraulics Report -presented in a separate document- are part of the documentation needed to complete the PD&E Study Reevaluation of the S.R. 200 project. This effort will recommend potential pond locations -for the recommended typical sections- that are hydraulically functional and environmentally permittable. These ponds will meet the requirements of the SWFWMD Criteria and FDOT Rule 14-86, when required, based on the best available information and conservative design assumptions. Although this study describes pond sizes and characteristics, it is important to note that this analysis is contingent upon further data acquisition in the form of ground elevation survey, soil borings, establishing site specific seasonal high water (SHW) elevations in agreement with the environmental agencies, parcel boundaries and floodplain impacts.

1.3 PROJECT DESCRIPTION

Within the limits of the reevaluation study area, S.R. 200 is a two-lane undivided rural facility centered within 100 feet of right-of-way. The existing typical section, in general, provides two 11-foot-wide travel lanes and four-foot-wide paved shoulders and drainage ditches on each side. This typical section is shown on Figure 2. The only variation to this typical section is from south of East Arbor Lakes Drive to north of North Apache Trail, a distance of 0.7 miles, where S.R. 200 has been recently widened to provide two 12-foot-wide through lanes, a center 13-foot-wide two-way left turn lane, 4-foot-wide paved shoulders and 5-foot-wide sidewalks behind the ditches.

From north of East Summit Lane to approximately East Sapphire Lane, the speed limit is 50 miles per hour (mph) and from this point to the end of the project, the posted speed limit is 55 mph. The existing plans, dated 1936, do not indicate a design speed for this roadway.



NOTE: CONVERSIONS FROM ENGLISH TO METRIC UNITS ARE NOMINAL RATHER THAN EXACT

N.T.S.

S.R. 200
PD&E STUDY REEVALUATION

EXISTING TYPICAL SECTION

FIGURE 2

S.R. 200 PD&E STUDY
REEVALUATION

FROM U.S. 41 TO N. OF MARION COUNTY LINE

CITRUS COUNTY

WPI SEG. NO. 257188 1 ; FAP NO. FL62-020R

1.4 RECOMMENDED PROPOSED TYPICAL SECTIONS

The typical sections that are considered in this reevaluation for S.R. 200 are discussed in detail in a separate document, the "Typical Sections Memorandum". Figures 3 through 6 illustrate the typical sections recommended in this reevaluation for various segments of S.R. 200 from U.S. 41 to north of the Marion County Line.

1.4.1 Urban, Four-Lane Divided

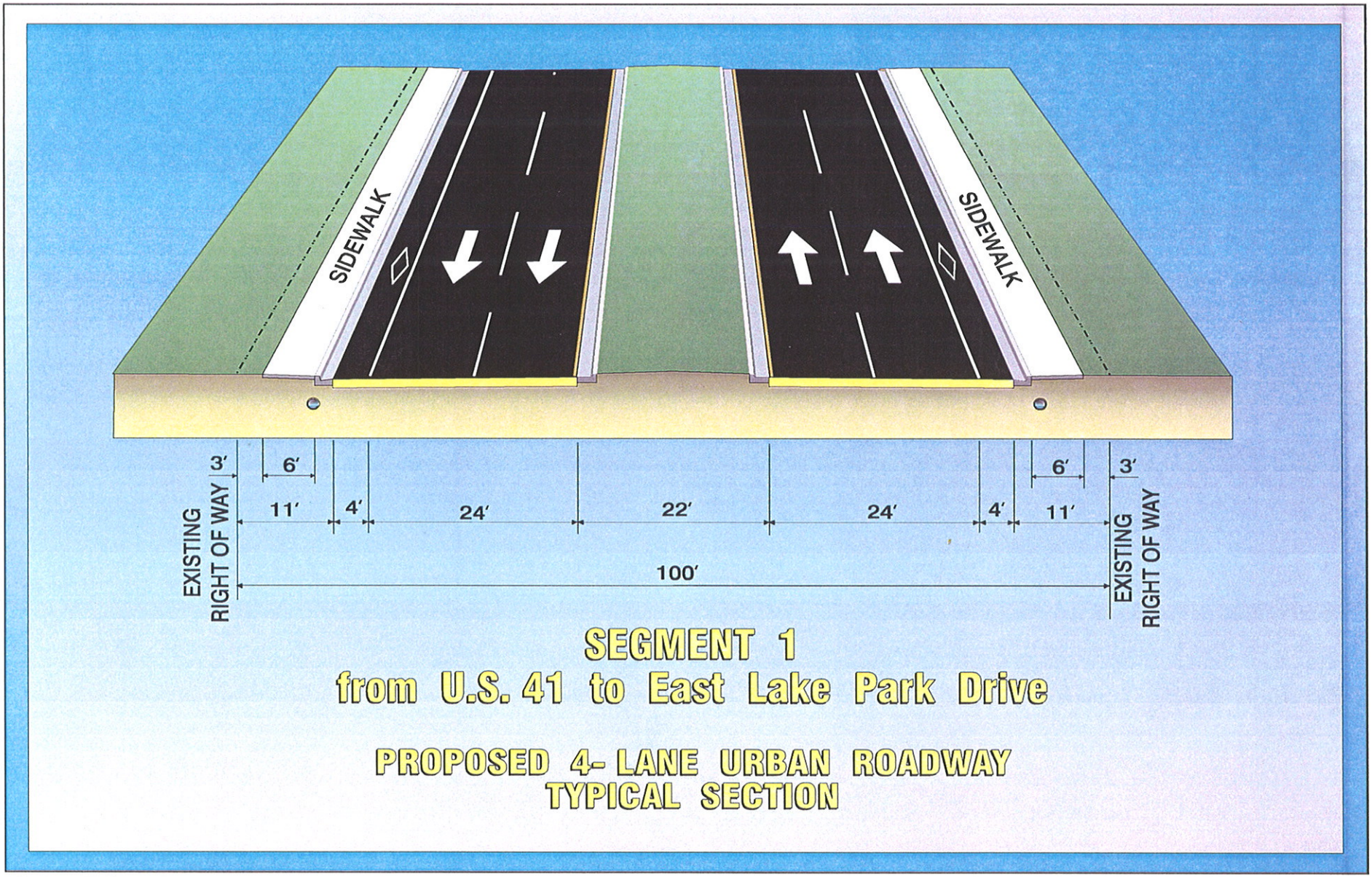
Figure 3 presents the urban typical section. This typical section maintains the same design speed and fits within the existing 100-foot-wide right-of-way compared to the urban typical section recommended by the original PD&E Study.

1.4.2 Suburban, Four-Lane Divided

Figure 4 illustrates the recommended sub-urban typical section. This typical section was not considered in the original PD&E study; however, it is introduced for consideration in this study as an alternative to the rural typical for the segment of S.R. 200 from north of East Lake Park Drive to north of East Elise Court. As described in Section 2.0 of this report, land uses shown along this segment include low and medium density, residential, mixed use residential and low-density coastal lakes. This typical section requires a 180-foot right-of-way.

1.4.3 Rural, Four-Lane Divided

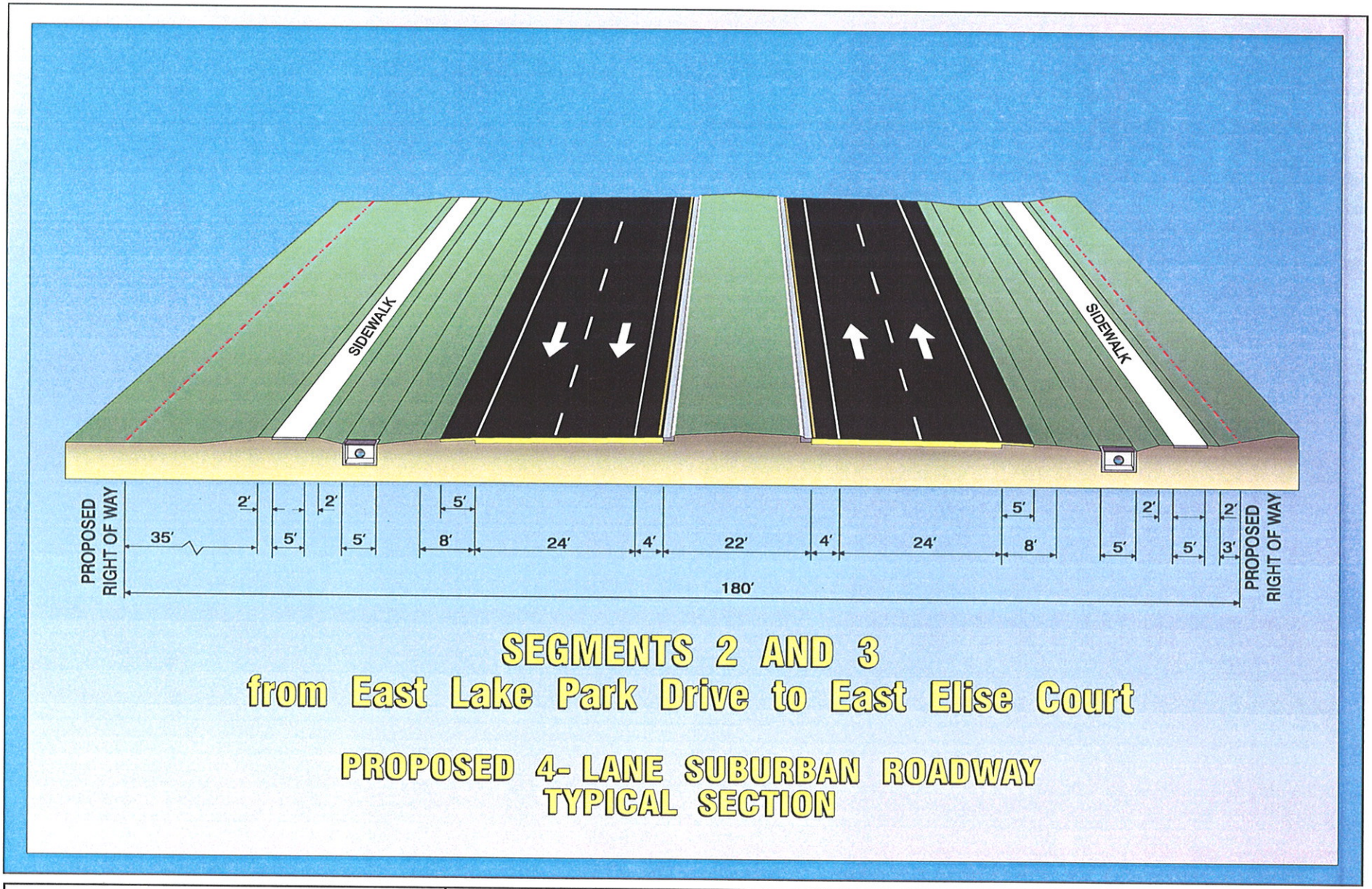
Figure 5 illustrates the recommended rural typical section. In comparison to the rural typical section recommended in the original PD&E study, this typical section continues to require 200 feet of right-of-way and allows for a design speed of 70 mph.



S.R. 200
PD&E STUDY REEVALUATION

PROPOSED FOUR-LANE
URBAN TYPIAL SECTION
FROM U.S. 41 TO NORTH
OF EAST LAKE PARK DRIVE
FIGURE 3

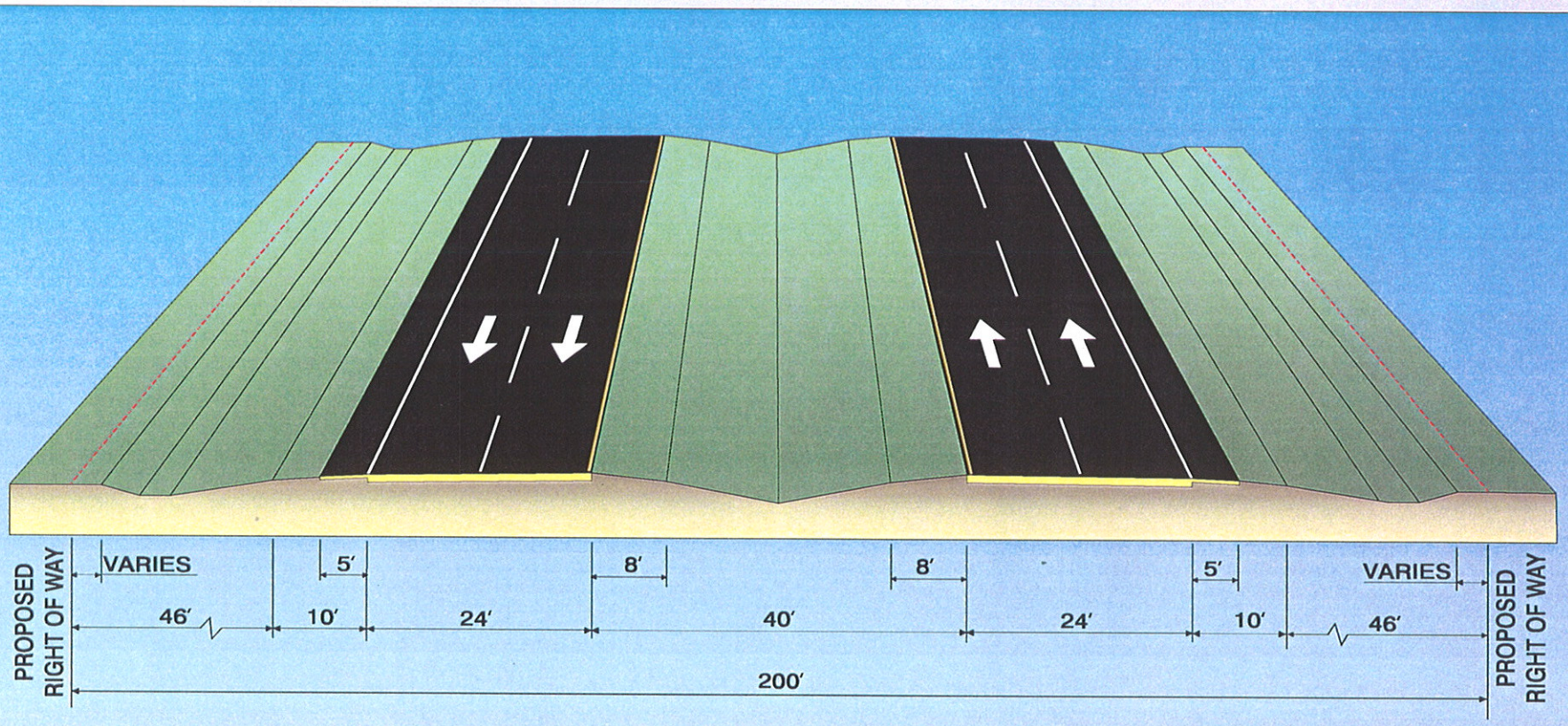
S.R. 200 PD&E STUDY
REEVALUATION
FROM U.S. 41 TO N. OF MARION COUNTY LINE
CITRUS COUNTY
WPI SEG. NO. 257188 1; FAP NO. FL62-020R



S.R. 200
PD&E STUDY REEVALUATION

PROPOSED FOUR-LANE
SUBURBAN TYPIAL SECTION
FROM U.S. 41 TO NORTH
OF EAST LAKE PARK DRIVE
FIGURE 4

S.R. 200 PD&E STUDY
REEVALUATION
FROM U.S. 41 TO N. OF MARION COUNTY LINE
CITRUS COUNTY
WPI SEG. NO. 257188 1; FAP NO. FL62-020R



SEGMENT 4
from East Elise Court to north of the Marion County Line

PROPOSED 4- LANE RURAL ROADWAY TYPICAL SECTION

S.R. 200
PD&E STUDY REEVALUATION

PROPOSED FOUR-LANE
RURAL TYPIAL SECTION
FROM U.S. 41 TO NORTH
OF EAST LAKE PARK DRIVE
FIGURE 5

S.R. 200 PD&E STUDY
REEVALUATION
FROM U.S. 41 TO N. OF MARION COUNTY LINE
CITRUS COUNTY
WPI SEG. NO. 257188 1; FAP NO. FL62-020R

1.4.4 Bridge Typical Section

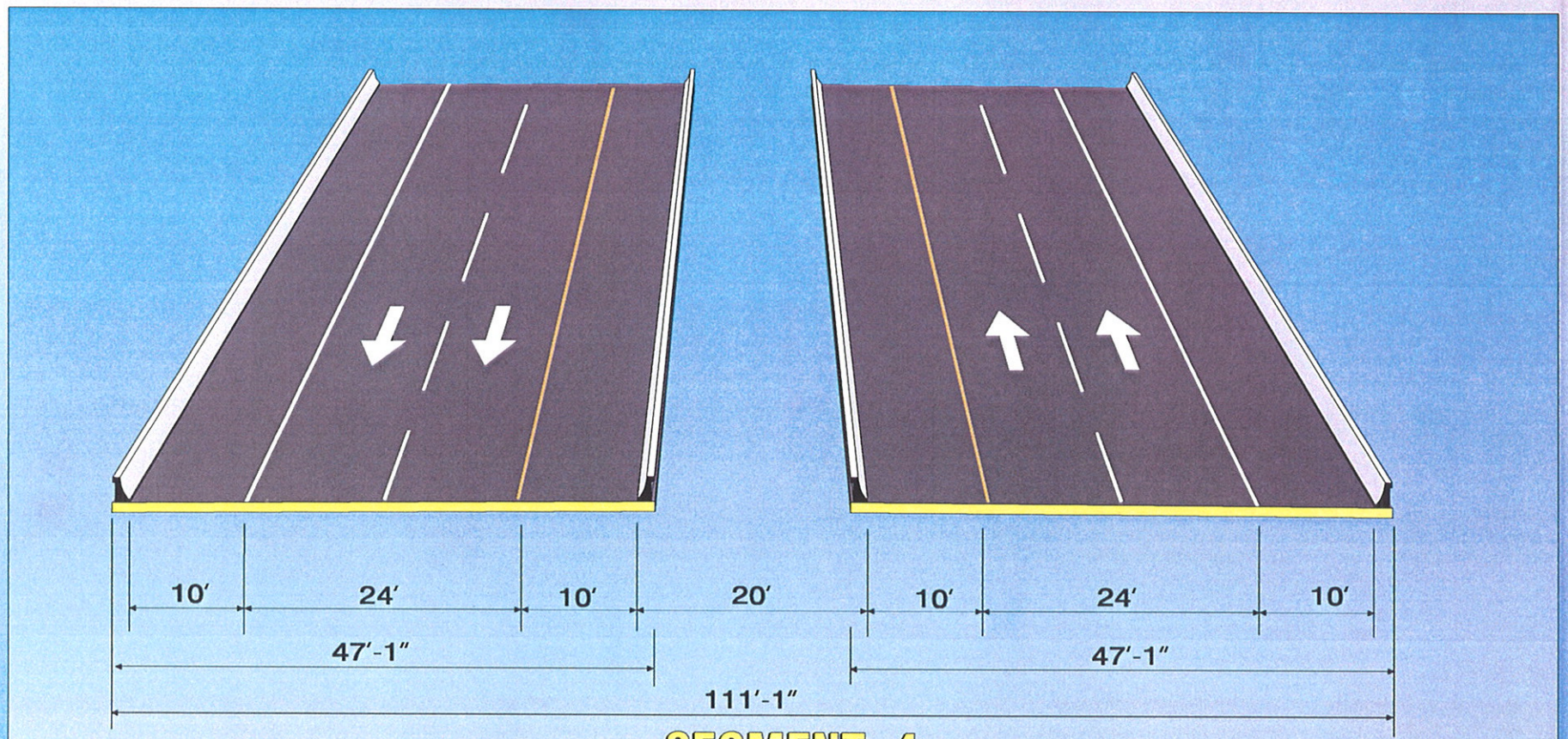
Figure 6 illustrates the recommended four-lane divided typical section for the bridge over the Withlacoochee River.

Table 1 summarizes the typical sections to be considered for this reevaluation project.

TABLE 1

SUMMARY OF TYPICAL SECTIONS UNDER CONSIDERATION

From/To	Typical Section Alternative	Comment
U.S. 41/North of East Lake Park Dr.	Four-Lane Urban	As recommended in original PD&E Study
North of East Lake Park Drive/ North of East Chappell Court	Four-Lane Suburban Four-Lane Rural	New typical section considered in this study. As recommended in original PD&E Study.
North of East Chappell Court/ North of East Elise Court	Four-Lane Suburban Four-Lane Rural	New typical section considered in this study. As recommended in original PD&E Study.
North of East Elise Court/ North Project Terminus	Four-Lane Rural	As recommended in original PD&E Study.
Withlacoochee River Bridge	Four-Lane Bridge	As recommended in original PD&E Study with modification of median spacing.



S.R. 200
PD&E STUDY REEVALUATION

PROPOSED FOUR-LANE
BRIDGE TYPIAL SECTION
FROM U.S. 41 TO NORTH
OF EAST LAKE PARK DRIVE
FIGURE 6

S.R. 200 PD&E STUDY
REEVALUATION
FROM U.S. 41 TO N. OF MARION COUNTY LINE
CITRUS COUNTY
WPI SEG. NO. 257188 1; FAP NO. FL62-020R

2.0 LAND USE

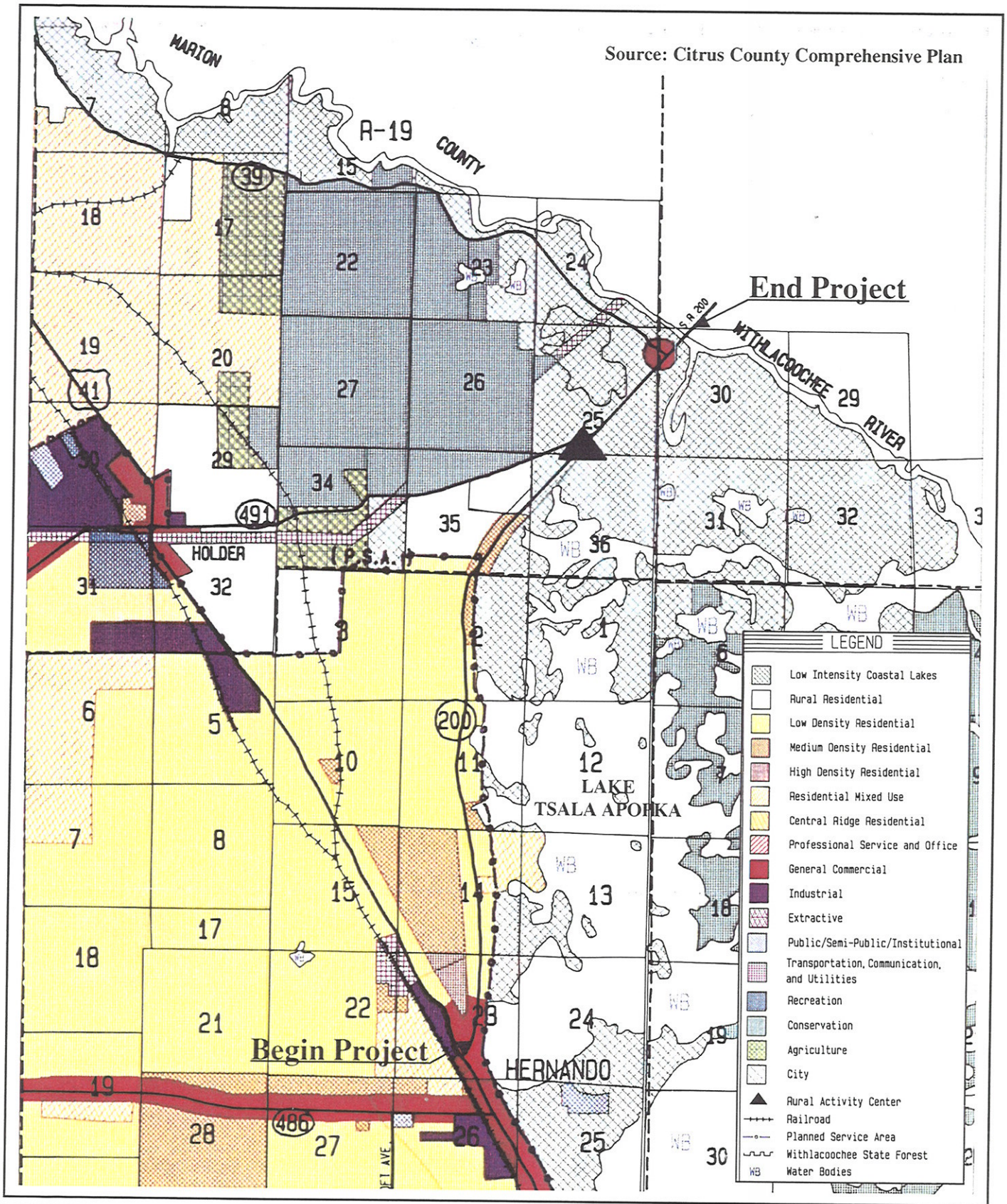
While Citrus County has been experiencing an extensive increase in population, much of the county is still rural in nature and a large percentage of the land is undeveloped.

2.1 EXISTING LAND USE

The land use along the project is primarily rural and open land. At the southern terminus of the project, in the vicinity of the Town of Hernando, the land use is mostly light commercial. In the vicinity of Apache Shores, where S.R. 200 has been widened, land use transitions to light residential and commercial areas. Convenience stores are dispersed throughout the project corridor.

2.2 FUTURE LAND USE

No significant changes of the land use are expected in the vicinity of the project areas. Based on the adopted Citrus County Generalized Future Land Use Map, residential land use is expected to increase in the vicinity of Apache Shores and in the proximity of the Town of Hernando. Figure 7 depicts the Generalized Future Land Use along the project corridor.



S.R. 200
PD&E STUDY REEVALUATION

GENERALIZED LAND USE MAP

FIGURE 7

S.R. 200 PD&E Study Reevaluation
From U.S. 41 to N. of Marion County Line
Citrus County
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3.0 DESIGN INFORMATION

3.1 SOIL CONDITIONS

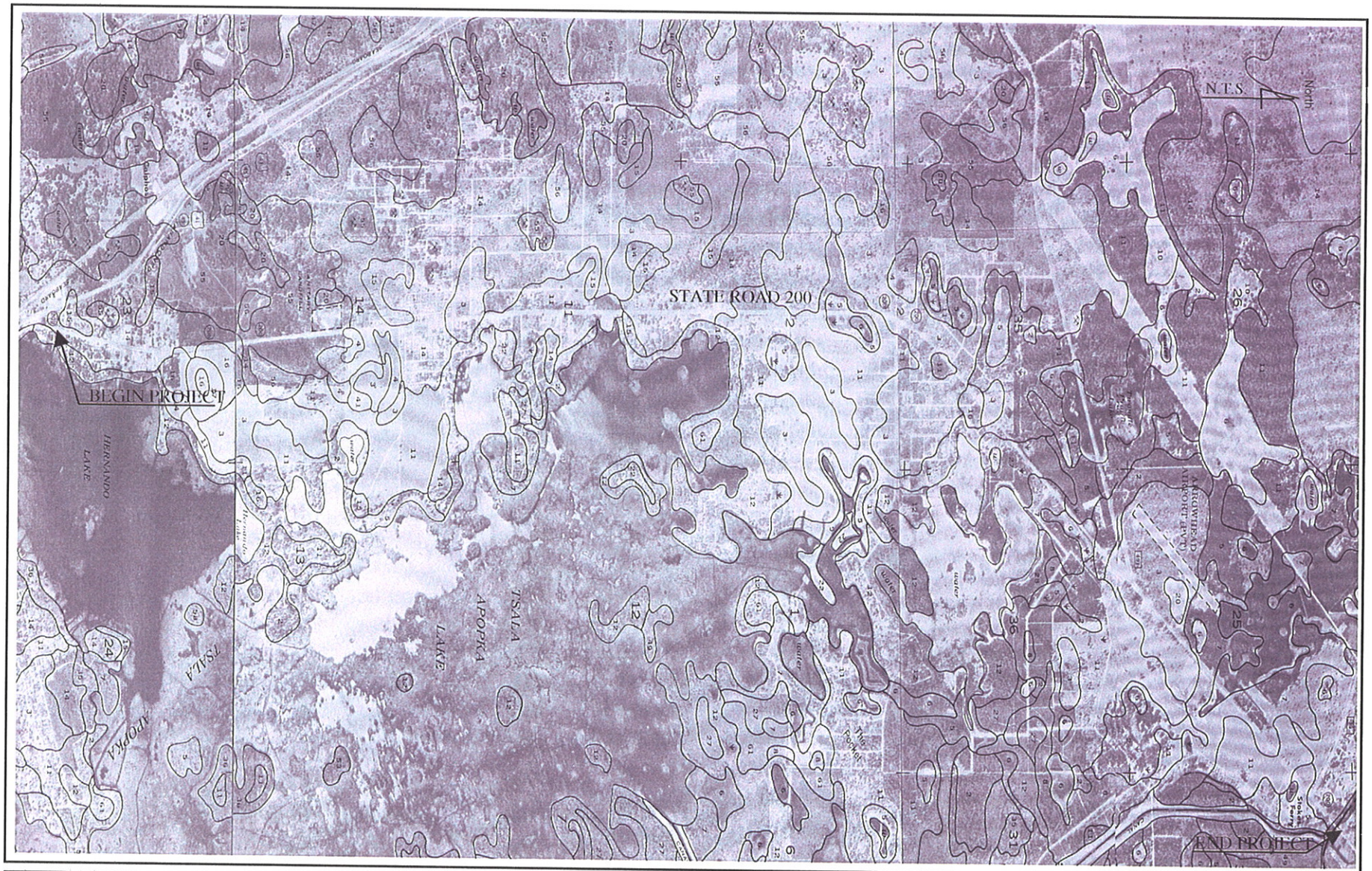
Review of the most recent publication of the US Department of Agriculture Soil Conservation Service (SCS) of Citrus County revealed twelve soil groups within the contributing drainage sub-basins. Table 2 provides the soil name, soil symbol, hydrologic soil group (HSG), seasonal high water (SHW) table depth and permeability rate, for the identified soil groups. The soil categories located within the project limits are illustrated on the Soils Map in Figure 8. Appendix A includes the related soils information.

TABLE 2

SOILS WITHIN THE CONTRIBUTING DRAINAGE SUB-BASINS

Soil Name	Soil Symbol	HSG	SHWT Depth (ft)	Permeability Rate (in/hr)
Adamsville fine sand	2	C	2.0 – 3.5	6.0 – 20.0
Candler fine sand	3	A	>6.0	6.0 – 20.0
Candler fine sand	4	A	>6.0	6.0 – 20.0
Basinger fine sand	5	B/D	0 – 1.0	6.0 – 20.0
Basinger fine sand, depressional	6	D	+2.0 – 1.0	6.0 – 20.0
Myakka fine sand	7	B/D	0 – 1.0	6.0 – 20.0 for 0" to 27" depth 0.6 – 6.0 for 27" to 55" depth 6.0 – 20.0 for 55" to 80" depth
Tavares fine sand	11	A	3.5 – 6.0	>6.0
Lake fine sand	14	A	>6.0	>6.0
Lake fine sand	15	A	>6.0	>6.0
Arredondo fine sand	16	A	>6.0	6.0 – 20.0
Pomello fine sand	27	C	2.0 – 3.5	>20.0 for 0" to 31" depth 2.0 – 6.0 for 31" to 52" depth
Udorthents*	55	N/A	N/A	N/A

*There are no data associated with the UdorthentsSoil.



S.R. 200 PD&E STUDY REEVALUATION

SOILS MAP

FIGURE 8

S.R. 200 PD&E Study
Reevaluation
From U.S. 41 to N. of Marion County Line
Citrus County
WPI Seg. No. 257188 1; FAP No. FL62-020R

3.2 DESIGN INFORMATION SOURCES

The project lies within the jurisdiction of the SWFWMD and will require a stormwater management system that meets the District's criteria. The design information sources used to design and layout the stormwater management facilities are:

- Aerial Photos; flight date September 12, 2000.
- FDOT District 5 Location Hydraulics Report of S.R. 200; prepared December 1993.
- FDOT existing S.R. 200 roadway construction plans; prepared 1936.
- FDOT existing S.R. 200 roadway construction plans; prepared 1995
- USGS Quadrangle Map; Stokes Ferry and Holder, Florida; dated 1954.
- SWFWMD maps.
- US Soil Conservation Service, Soil Survey of Citrus County, Florida; dated October 1988.
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for Citrus County, Florida; dated August 15, 1984.
- SWFWMD Environmental Resource Permit (ERP), Permit Information Manual; dated September 2000.
- FDOT Drainage Manual.
- FDOT Straight Line Diagram (SLD) of Road Inventory.
- Interviews, correspondence and site investigations.

3.3 DESIGN ASSUMPTIONS

All assumptions made are based on the best available information. The general assumptions are listed as follows:

- Pond Site Configuration - The proposed pond site area was estimated based upon a 20-foot perimeter strip to allow for maintenance activities, 1:4 vertical to horizontal side slopes and a minimum of 1-foot of freeboard, which is the distance between the peak water surface

elevation and the pond's berm elevation.

- Pond Volume - The required pond volume was calculated by combining the treatment and attenuation volumes. The attenuation calculations assumed that the treatment volume of the pond is occupied prior to the rainfall event above the SHW elevation.
- Treatment Method - The method of stormwater treatment for this project may be either dry detention/retention or wet detention/retention. The wet detention method involves storing one inch of stormwater runoff in a wet pond, above the seasonal high water surface elevation. Water quality treatment is provided by constructing a littoral zone at a minimum of 35 percent of the pond area at the SHW elevation. The discharge rate from the wet pond will be controlled by an outlet structure to prevent downstream flooding and erosion. Dry retention involves storing half inch of stormwater runoff in dry bottom ponds.

3.4 DESIGN CRITERIA

The drainage system for the S.R. 200 improvements are designed in accordance with the FDOT Drainage Manual and current standards, including Chapter 14-86 when applicable. Stormwater treatment and attenuation is anticipated to be accomplished through the use of detention/retention ponds in accordance with SWFWMD and the FDEP ERP rules (Chapters 40D-4, 40D-40, and 40D-400). Specific criteria contained in the ERP rules pertaining to water quantity will apply to the portions of the S.R. 200 alignment located within closed drainage sub-basins, where the stormwater management facilities will be required to store the difference in the 100-year event runoff volume between the pre-development and post-development conditions.

Per discussion with SWFWMD staff, Lake Tsala Apopka is considered to be an Outstanding Florida Waters (OFW) for which an additional fifty percent treatment volume is necessary. Also, where a proposed stormwater management facility discharges into an existing active sinkhole, double treatment volume will be required. Ground penetrating radar, or other applicable geotechnical investigations, may be performed during the final design phase to identify active sinkhole areas, as necessary. In the SWFWMD pre-application meeting, dated February 29, 2000, SWFWMD agreed to exempt the FDOT stormwater management facilities that outfall directly to Tsala Apopka Lake

from applicable attenuation requirements. Tsala Apopka Lake is considered a large water body and, therefore, SWFWMD does not require attenuation. Documentation of this coordination, as well as other input into the pond site location evaluation process is included in Appendix B.

The applicable types of stormwater management facilities vary throughout the project and are generally dependent upon topographic constraints, SHW table depth, soil types and permeabilities encountered. Dry detention/retention and wet detention/retention type stormwater management facilities are generally considered for use in providing water quality treatment, peak discharge attenuation (quantity) and erosion and sediment control. Based on interpretation of limited data and in concurrence with the previously approved FDOT Report, it is anticipated that dry retention will be used in the design of the required stormwater management facilities for sub-basins with deep SHW table. A wet detention/retention facility may be warranted for sub-basins that have shallow SHW table due to soil types and groundwater conditions. Floodplain compensating storage should be provided as per applicable ERP rules mentioned in Section 4.3 of this report.

Coordination with the SWFWMD will occur during the design phase of this project to address stormwater management issues. Federal agencies that may require permits for the proposed improvements include the ACOE and the EPA. The ACOE requires permits for dredge and fill activities in waters of the United States. EPA requires a Notice of Intent (NOI) for construction under the State of Florida General Permit for the National Pollutant Discharge Elimination System (NPDES) for construction impacts greater than one acre. This NOI will require a site-specific pollution prevention plan that incorporates current FDOT standards.

3.5 CULTURAL AND ENVIRONMENTAL ASSESSMENT FACTORS

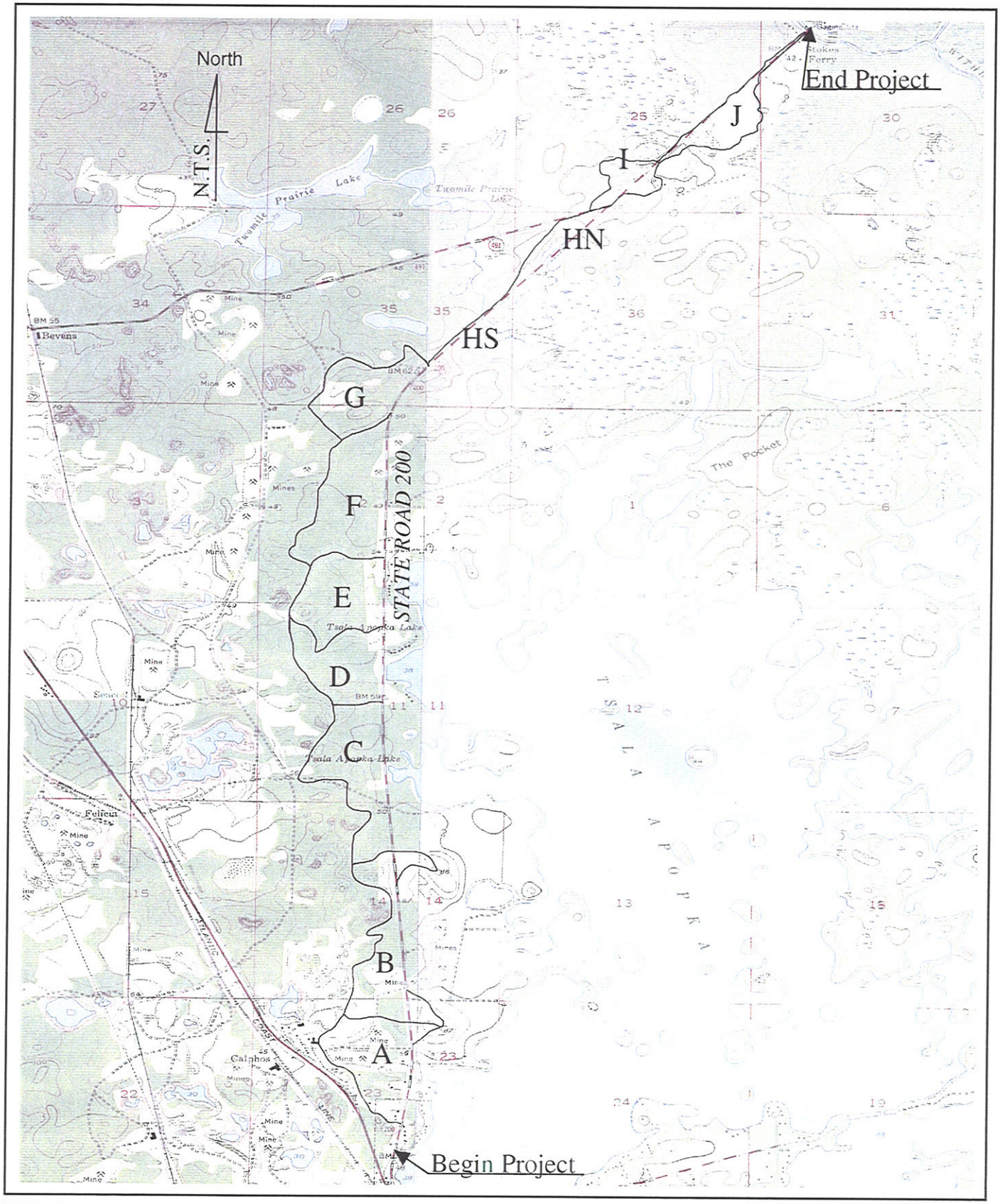
Cultural resource analyses performed by Archaeological, Inc. on May 2001, ecological impacts study performed by Scheda Ecological Associates on April 2001, and petroleum and hazardous material investigations completed by ARCADIS on May 2001were performed on all the potential pond site locations. These reports are summarized and included in the S.R. 200 Preliminary Engineering Memorandum.

4.0 DRAINAGE SUB-BASINS

The entire project is located within the Withlacoochee River drainage basin. The sub-basin boundaries identified in the previously approved FDOT Report were not available. The existing drainage patterns and sub-basin boundaries were determined based on the existing FDOT construction plans, USGS quadrangle and SWFWMD maps. The quadrangle maps were used in lieu of the SWFWMD maps where no contour elevations were available. The SWFWMD maps are included in Appendix I.

4.1 SUB-BASIN CHARACTERISTICS

The project has been delineated into eleven sub-basins, identified as Sub-basins A through G, HS, HN, I and J. These sub-basins were utilized for the current hydrologic evaluation. The overall drainage area contributing to S.R. 200 is shown on the Drainage Map in Figure 9. Within the immediate vicinity of S.R. 200, wetlands are very sparse and predominantly consist of isolated depressions. These wetlands are generally divided by low ridges over-topped in periods of excess rainfall. The overland flow eventually meanders through the wetlands, until it reaches a low area where it flows under S.R. 200 through cross drain culverts. Most of the stormwater runoff travels from west to east through commercial, residential, wetlands and open land. Drainage along the project corridor is accomplished with a combination of roadside ditches and sidedrain pipes that are located under driveways and roadways. The runoff is conveyed through cross drain culverts that outfall to Tsala Apopka Lake and the Withlacoochee River. The existing drainage systems within the project limits appear to function adequately with no known flooding problems. A telephone conversation, included in Appendix B, with Mr. Don Higginbotham and Mr. Jerry Sanford of the FDOT Lecanto City Maintenance Office and a meeting with Mr. Curtis Karr, Citrus County Public Works Director, have indicated that there are no known flooding problems at the existing cross drains and conveyance systems along S.R. 200, between U.S. 41 and the Withlacoochee River at the Marion County Line.



S.R. 200
PD&E STUDY REEVALUATION

DRAINAGE MAP

FIGURE 9

S.R. 200 PD&E Study
Reevaluation
From U.S. 41 to N. of Marion County Line
Citrus County
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Under the proposed conditions, the stormwater runoff from the roadway will be conveyed in a closed conveyance system along the urban and sub-urban typical sections and an open conveyance system along the rural typical section to stormwater management facilities that will ultimately discharge to the existing drainage outfalls within the project limits. The treatment system will target the majority of the critical roadway pollutants in the form of suspended heavy metals and toxicants. The offsite flow will be routed through back-of-sidewalk inlets in urban areas where fill is inevitable.

As noted in the previously approved FDOT District 5 Report, the proposed improvements will have minimal impact to wetland areas identified along S.R. 200. To be consistent with permitting requirements of the SWFWMD, it is desirable to minimize, or avoid if possible, impacts to existing wetlands by keeping all proposed drainage systems such as conveyance, ponds and outfalls associated with the S.R. 200 improvements outside their jurisdictional limits. However, should there be any wetland impact, mitigation in the form of a transfer of funds to the FDEP at $82,281.00 per acre is available. These funds are to be used to finance mitigation programs. This mitigation policy is acceptable to the State of Florida and the Federal Agencies.

There are seven existing, 2-foot by 2-foot, concrete box culverts (CBC) and one double 10-foot by 6-foot CBC cross under S.R. 200 within the limits of the project. In addition, the project includes a 299-foot bridge structure over the Withlacoochee River. A Bridge Hydraulics Report will be prepared in the design phase of this project. Since the proposed improvements will replace the existing rural typical section with new rural, urban and suburban typical sections, it is anticipated that the final design may call for some existing cross drains to be incorporated into the proposed storm sewer drain systems.

On-site and off-site sub-basin areas that affect the conveyance of runoff from the S.R. 200 right-of-way between U.S. 41 and the Withlacoochee River were determined for the purpose of estimating the proposed stormwater management facility needs for each sub-basin. Further discussion of this preliminary analysis is contained in Section 5 of this report.

Based on interpretation of limited data and in concurrence with the previously approved FDOT Report, it is anticipated that dry detention will be used in the design of the required stormwater

management facilities for Sub-basins A, B, C, D, E, F, G, HS, HN and I. A wet detention/retention facility may be warranted for Sub-basin J due to soils and groundwater conditions. Sub-basins B and G have no positive outfall. They discharge into isolated/depressional areas (closed basins). Discharge is accomplished through percolation into the ground and evapo-transpiration. Sub-basins A, C, D, E, F, HS, HN, I and J discharge to Lake Tsala Apopka and the river, which is considered to have a positive outfall due to its hydrologic connection to the Withlacoochee River, and ultimately to the Gulf of Mexico. Lake Tsala Apopka generally lies to the east of the project right-of-way at an elevation of about 39 feet. The alternative pond sites evaluated in the FDOT District 5 approved original PD&E study are identified in parentheses and have been renamed in this report to correspond to their respective sub-basins.

Sub-basin A extends approximately 2,600 feet and outfalls to Tsala Apopka Lake. The soil type consists of Lake and Arredondo fine sands, hydrological soil group (HSG) "A". The contributing drainage area is approximately 86.37 ac. Four pond site locations, labeled A1 (F alt), A2, A3 (F) and A4, were preliminary identified for this sub-basin. However, Pond Site A2 was eliminated due to high ground elevation and distance from outfall. A1 (F alt), A3 (F) and A4 were selected for the final pond alternative studies, which included two pond sites from the previous PD&E study.

Sub-basin B extends approximately 4,600 feet and has no positive outfall. The soil type consists of Arredondo, Udorthents and Candler fine sands, HSG "A", and Lake fine sand, HSG "C". The contributing drainage area is approximately 90.77 ac. Four pond site locations, labeled B1, B2 (A), B3 and B4 (A alt), were preliminary identified for this sub-basin. However, Pond Site B1 was eliminated due to high ground elevation. B2 (A), B3 and B4 (A alt) were selected for the final pond alternative studies, which included two pond sites from the previous PD&E study.

Sub-basin C extends approximately 2,470 feet and outfalls to Tsala Apopka Lake. The soil type consists of Candler and Tavares fine sands, HSG "A". The contributing drainage area is approximately 100.82 ac. However, a portion of the drainage area flows into an existing 1.26 ac FDOT pond located between East Buffalo Lane and East Millwood Lane on the west side of S.R. 200 at Station 112+00. Four pond site locations, labeled C1, C2, C3 and C4 (B alt), were preliminary identified to handle the remaining drainage area for this sub-basin. However, Pond Sites

C3 and C4 (B alt) were eliminated due to high ground elevation and distance from outfall. A vacant land, labeled C, located at Station 112+00 left, was introduced to allow expansion of the existing FDOT pond to the west to store the remaining drainage area. In addition to Pond Site C, C1 and C2 were selected for the final pond alternative studies.

Sub-basin D extends approximately 2,050 feet and outfalls to Tsala Apopka Lake. The soil type consists of Lake, Candler and Tavares fine sands, HSG "A". The contributing drainage area is approximately 71.65 ac. Four pond site locations, labeled D1, D2, D3 (G) and D4 (G alt), were preliminary identified for this sub-basin. However, Pond Site D1 was eliminated due to high ground elevation. D2, D3 (G) and D4 (G alt) were selected for the final pond alternative studies, which included two pond sites from the previous PD&E study.

Sub-basin E extends approximately 1,900 feet and outfalls to Tsala Apopka Lake. The soil type consists of Lake fine sand, HSG "A". The contributing drainage area is approximately 85.90 ac. Three pond site locations, labeled E1, E2 and E3 (H), were preliminary identified and evaluated for this sub-basin, which included one pond site from the previous PD&E study.

Sub-basin F extends approximately 3,800 feet and outfalls to Tsala Apopka Lake. The soil type consists of Tavares and Candler fine sands, HSG "A", and Basinger fine sand, HSG "B/D". The contributing drainage area is approximately 113.91 ac. Three pond site locations, labeled F1 (H alt), F2 (C alt) and F3 (C), were preliminary identified and evaluated for this sub-basin, which were all included from the previous PD&E study.

Sub-basin G extends approximately 1,400 feet and has no positive outfall. The soil type consists of Tavares fine sand, HSG "A", and Basinger fine sand, HSG "B/D". The contributing drainage area is approximately 73.22 ac. Three pond site locations, labeled G1, G2 and G3, were preliminary identified and evaluated for this sub-basin.

Sub-basin HS extends approximately 1,922 feet and outfalls to Twomile Prairie Lake. The soil type consists of Arredondo, Tavares and Candler fine sands, HSG "A". The contributing drainage area is approximately 8.33 ac. Two pond site locations, labeled H1 and H2 (D) were preliminary identified

and evaluated for this sub-basin, which included one site from the previous PD&E study. In addition, one floodplain compensation site, labeled FP1, was introduced as a result of floodplain impact.

Sub-basin HN extends approximately 3,828 feet and outfalls to Two-mile Prairie Lake. The soil type consists of Candler fine sand, HSG "A", Adamsville and Pomello fine sands, HSG "C", Basinger fine sand, HSG "D", and Myakka fine sand, HSG "B/D". The contributing drainage area is approximately 23.86 ac. Two pond site locations, labeled H3 and H4 (D alt) were preliminary identified and evaluated for this sub-basin, which included one site from the previous PD&E study. In addition, one floodplain compensation site, labeled FP2, was introduced as a result of floodplain impact.

Sub-basin I extends approximately 1,450 feet and outfalls to the Withlacoochee River. The soil type consists of Candler fine sand, HSG "A". The contributing drainage area is approximately 39.41 ac. Two pond site locations, labeled I1 and I2, were preliminary identified and evaluated for this sub-basin.

Sub-basin J extends approximately 5,050 feet and outfalls to the Withlacoochee River. The soil type consists of Candler and Tavares fine sands, HSG "A", Pomello fine sand, HSG "C", Basinger fine sand, HSG "D" and Myakka fine sand HSG "B/D". The contributing drainage area is approximately 48.86 ac. Six pond site locations, labeled J1 (I), J2 (I alt), J3 (J), J4 (J alt), J5 (K) and J6 (K alt), were preliminary identified for this sub-basin. However, Pond Sites J2 (I alt), J3 (J) and J6 (K alt) were eliminated due to high ground elevation and distance from outfall. J1 (I), J4 (J alt) and J5 (K) were selected for the final pond alternative studies, which were all included from the previous PD&E study. In addition, two floodplain compensation sites, labeled FP3 and FP4, were introduced as a result of floodplain impact.

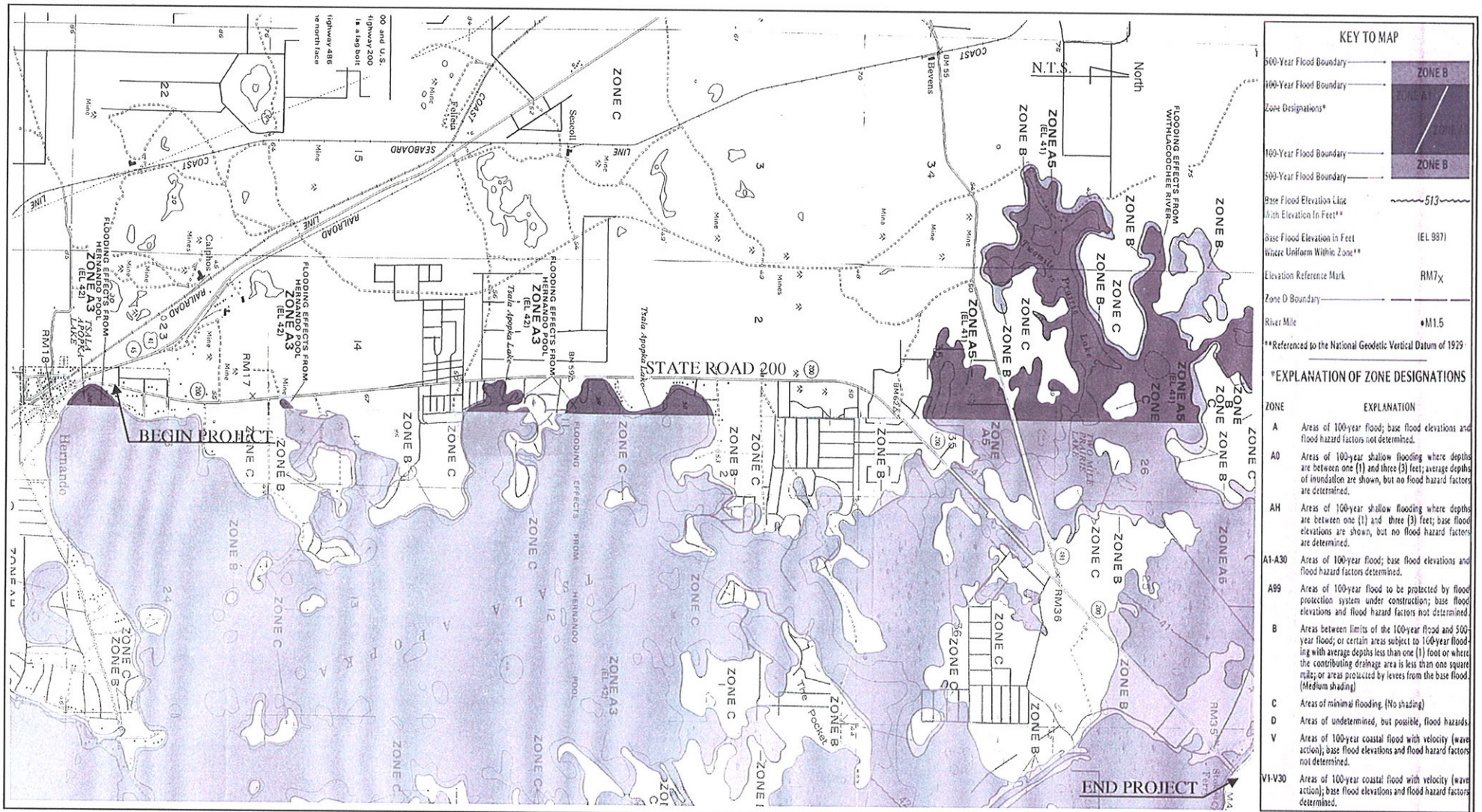
The results of the alternative evaluation are presented in the Alternate Pond Site Matrix provided in Section 5 of this report.

4.2 FLOODPLAIN INVOLVEMENT AND CLASSIFICATION

The National Flood Insurance Program (NFIP), through the Federal Emergency Management Agency (FEMA), has established the 100-year base floodplain limits for Citrus County, which include the boundaries shown in the Flood Insurance Rate Maps (FIRM) referenced below for the S.R. 200 study area. The FIRMs for the study area include Community Panel Numbers 120063 0150 B and 120063 0175 B (dated August 15, 1984). Figure 10 indicates the limits of the FIRM 100- and 500-year floodplains within the study area.

Portions of the proposed roadway widening will encroach upon the 100-year base floodplain. Several depressional areas located within the vicinity of Sub-basins HS and J that lies within the existing project right-of-way were identified to be in the 100-year base floodplain. Right-of-way constraints made avoidance of these base floodplain areas infeasible. The flood plain volume impact was estimated to be 2,448 yd^3 and 362 yd^3 for Sub-basins HS and J, respectively. The calculations are included in Appendix C.

The SWFWMD Environmental Resource Permit (ERP) Information Manual (Section 4.4, 10/96 version) states that no net encroachment into the floodplain, up to that encompassed by the 100-year event, which will adversely effect either conveyance, storage, water quality or adjacent lands will be allowed and the required compensating storage shall be equivalently provided. There are no local floodplain criteria currently in effect. Compliance with "Historic Basin Storage" (Section 4.7, ERP) and "Offsite Lands" (Section 4.8, ERP) criteria will also be necessary. Therefore, floodplain-compensating storage will be provided as required by the SWFWMD.



S.R. 200
PD&E STUDY REEVALUATION

FEMA MAP

FIGURE 10

S.R. 200 PD&E Study
Reevaluation
From U.S. 41 to N. of Marion County Line
Citrus County
WPI Seg. No. 257188 1; FAP No. FL62-020R

5.0 ALTERNATIVE POND SITES ANALYSES

The alternative pond sites evaluated in the FDOT District 5 approved original PD&E study for the purposes of identifying right-of-way requirements have been renamed to correspond with their respective sub-basins and have been reevaluated for their applicability. In addition, new pond sites were added and identified for consideration based on field visits, ground elevations and outfall locations. A combination of the original and newly identified sites included at least two pond sites per sub-basin. A total of thirty pond sites and four floodplain compensation sites were considered for this PD&E Study Reevaluation. Appendix D provides aerial photos showing the approximate locations of the investigated pond sites. Level I and Level II analyses were conducted to evaluate the most feasible pond site for each sub-basin.

5.1 LEVEL I ANALYSIS

Level I analysis consisted of a preliminary review of all available records and a literature search with limited field review data to determine, preliminarily, if any adverse environmental impact would result from the construction of stormwater facilities.

The selection of the pond locations and the preliminary estimates of their areas and volumes were based on the best available information and current data. The project will require stormwater management facilities for treatment, attenuation and compensating storage volume for floodplain impacts. The method used to determine the estimated pond volumes is more basin specific than that used in the previously approved PD&E Study, yet is still preliminary given the existing edge of pavement (EOP) elevation, time of concentration, survey elevation, SHW table depth, percolation rate and floodplain volume impacts.

The SCS Soil Survey Maps for Citrus County were used to identify and verify the soil types found

within the S.R. 200 right-of-way and in the areas of the alternative pond sites. The existing time of concentration for the pre-development condition and onsite and offsite curve numbers associated with pre- and post-development conditions were calculated using SCS procedures described in TR-55 (SCS, 1986).

The analyses were performed for the previously recommended and new pond sites using the existing data mentioned previously in Section 3.2. In addition, coordination with the SWFWMD staff was documented regarding additional design criteria and pond site locations/recommendations, respectively. The alternative pond locations were evaluated and ranked none, low, medium and high based upon the following potential for impacts and on physical characteristics. The following items were considered:

- Cultural resources (archaeological and historical)
- Ecological impacts (wetland, protected species and upland habitat)
- Petroleum and hazardous material contamination sites
- Hydraulics
- Hydrology

5.2 LEVEL II ANALYSIS

The Level II analysis was based on field surveys of the remaining possible pond sites subsequent to the Level I analysis to determine the recommended pond site and the most feasible alternative for each sub-basin.

The onsite and offsite runoffs were based on the directly connected impervious area (DCIA) and routed in the pond design analyses. The pond designs were based on the selected typical sections previously mentioned in Section 1.0. SUPRA-3 Program was used for the design to determine the critical duration analysis, which simulates runoff hydrographs resulting from storms of different frequencies (2-year through 100-year) with different durations (1-hour through 10-day). For the post-development condition, the hydrograph and the peak discharge rate were determined by the modified rational method. Pond routing was performed by the storage-indication method. The

treatment volume was stored above the SHW elevation. The pond routing started at the top of the treatment volume. The proposed pond area for each sub-basin was sized based on the onsite drainage area and was included in the total pre-development and post-development sub-basin areas used in the pond sizing calculations. Appendices E and F include the time of concentration calculations and the critical duration analysis and design calculations, respectively, in determining the minimum required areas for the recommended pond sites.

The design criterion used to compare the proposed pond sites were based on the following constraints:

- The calculated DHW, must be less than the lowest EOP elevation within the respective sub-basin to insure positive flow to the selected stormwater pond.
- A minimum of 1-foot must be provided between the maximum elevation (E. Max) DHW for the 100-year design and the top of bank (TOB) elevation within the stormwater pond.
- A maximum of 1.5-foot must be provided between the SHW table elevation and the weir discharge elevation for a wet pond.
- A minimum of two feet must be provided between the SHW table elevation and the pond bottom elevation for a dry pond.

The selected pond sites are reasonable worst-case scenarios and that during design phase, efficacy of treatment within right-of-way will be evaluated and negotiated with SWFWMD. The summary of the alternative matrix analyses as well as the right-of-way cost estimates and other relevant factors associated with the pond sites are shown in Table 3. The right-of-way cost estimates are included in Appendix G.

TABLE 3

ALTERNATIVES EVALUATION MATRIX

	ALTERNATE POND SITES																																
	SUB-BASIN A			SUB-BASIN B			SUB-BASIN C			SUB-BASIN D			SUB-BASIN E			SUB-BASIN F			SUB-BASIN G			SUB-BASIN HS			SUB-BASIN HN			SUB-BASIN I		SUB-BASIN J				
	A1 (Falt)	A3 (F)	A4	B2 (A)	B3	B4 (Aalt)	C	C1	C2	D2	D3 (G)	D4 (Galt)	E1	E2	E3 (H)	F1 (Halt)	F2 (Calt)	F3 (C)	G1	G2	G3	H1	H2 (D)	FP1	FP2	H3	H4 (Dalt)	I1	I2	J1 (I)	FP3	FP4	J4 (Jalt)	J5 (K)
LOCATION (Station)	24+50	34+00	41+50	59+00	73+50	80+50	112+00	124+75	130+25	149+50	156+00	156+50	159+50	164+50	175+25	181+50	191+50	208+00	217+00	221+00	225+50	243+50	248+00	250+50	265+25	268+50	275+50	290+75	297+50	303+75	331+25	331+25	333+00	339+00
SIDE (LT, RT)	LT	LT	RT	RT	RT	RT	LT	LT	RT	LT	LT	RT	RT	LT	LT	RT	RT	LT	RT	LT	LT	LT	LT	LT	LT	LT	LT	LT	RT	RT	LT	LT	LT	LT
POND AREA (ac)	1.15	2.87	1.41	4.91	5.17	3.67	1.12	1.03	0.80	1.32	3.10	2.07	1.47	2.42	1.33	5.17	2.27	2.01	2.63	2.63	4.02	0.80	0.80	1.52	1.52	2.07	2.07	0.92	0.92	5.45	0.22	0.22	1.61	1.61
EST. GROUND ELEVATION (ft)	50.00	60.00	52.50	50.00	40.00	45.00	50.00	50.00	40.00	46.00	55.00	53.00	48.00	55.00	52.50	47.00	40.00	40.00	42.50	42.50	52.50	47.00	45.00	40.00	40.00	45.00	45.00	55.00	55.00	52.00	40.00	40.00	43.00	43.00
EST. SHW TABLE DEPTH (ft)	> 6.00	> 6.00	> 6.00	> 6.00	> 6.00	> 6.00	> 6.00	> 6.00	3.5 - 6.0	3.5 - 6.0	> 6.00	> 6.00	> 6.00	> 6.00	> 6.00	3.5 - 6.0	3.5 - 6.0	> 6.00	> 6.00	> 6.00	> 6.00	> 6.00	3.5 - 6.0	3.5 - 6.0	0.0 - 1.0	0.0 - 1.0	2.0 - 3.5	> 6.00	> 6.00	> 6.00	3.5 - 6.0	3.5 - 6.0	3.5 - 6.0	3.5 - 6.0
SOILS NAME	Udorthents	Lake	Arredondo	Udorthents	Udorthents	Lake	Candler	Lake	Tavares	Tavares	Lake	Lake	Lake	Lake	Lake	Tavares	Tavares	Candler	Candler	Candler	Candler	Candler	Tavares	Tavares	Basinger	Basinger	Adamsville	Candler	Candler	Candler	Tavares	Tavares	Tavares	Tavares
HYDROLOGICAL SOIL GROUP	N/A	A	A	N/A	N/A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B/D	B/D	C	A	A	A	A	A	A	A
LAND USE	Open sink	Forested	Open Field	Forested	Forested	Forested	Open Field	Forested	Forested	Frstd/Field	Forested	Forested	Forested	Pine Plantation	Forested	Frstd/Field	Frstd/Resid.	Forested	Residential	Frstd/Resid	Residential	Residential	Forested	Forested	Forested	Forested	Forested	Forested	Forested	Frstd/Field	Pasture	Pasture	Pasture	Pasture	Pasture
ARCHEOLOGICAL POTENTIAL	Low	High	High	Low	Low	Low	N/A	High	Medium	High	High	High	High	High	Medium	Medium	High	High	Medium	Medium	High	High	Medium	Medium	Low	Low	High	Medium	Medium	High	High	High	High	High
HISTORICAL RESOURCES	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	Unrecorded	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
CONTAMINATION RISK	High	Low	None	None	None	None	N/A	None	None	None	None	None	None	None	None	Low	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
T & E SPECIES	None	Yes	None	None	Potential	Yes	None	None	Yes	Yes	Yes	None	None	None	None	None	None	Yes	None	None	None	None	Yes	Yes	None	None	Yes	Potential	None	None	None	None	Potential	None
WETLANDS	None	None	None	None	None	None	None	None	None	None	None	None	Possibly	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
WETLAND MITIGATION COST [1]	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
PROXIMITY TO OUTFALL (ft) [2]	900.00	300.00	1100.00	400.00	475.00	550.00	0.00	150.00	80.00	130.00	600.00	75.00	450.00	450.00	450.00	520.00	800.00	700.00	600.00	720.00	150.00	100.00	575.00	0.00	0.00	420.00	60.00	60.00	475.00	375.00	0.00	0.00	575.00	575.00
PIPE COST ESTIMATE [3]	$42,300	$14,100	$51,700	$18,800	$22,325	$25,850	$0	$7,050	$3,760	$6,110	$28,200	$3,525	$21,150	$21,150	$21,150	$24,440	$37,600	$32,900	$28,200	$33,840	$7,050	$4,700	$27,025	$0	$0	$19,740	$2,820	$2,820	$22,325	$17,625	$0	$0	$27,025	$27,025
LINER COST ESTIMATE [4]	$0	$24,204	$0	$0	$0	$0	$0	$0	$0	$0	$35,201	$0	$0	$0	$0	$51,352	$0	$0	$0	$0	$0	$0	$0	$0	$0	$28,110	$29,522	$0	$0	$68,328	$0	$0	$0	$0
ROW COST ESTIMATE	$320,900	$505,000	$194,800	$181,300	$232,500	$181,300	$193,200	$100,000	$309,300	$159,100	$190,400	$711,700	$626,700	$51,800	$39,000	$1,158,400	$401,600	$64,700	$1,580,900	$661,100	$1,211,400	$133,300	$126,200	$150,300	$859,600	$909,500	$122,900	$139,500	$273,500	$408,400	$40,500	$41,600	$114,000	$44,400
TOTAL ESTIMATED COSTS	$363,200	$543,304	$246,500	$200,100	$254,825	$207,150	$193,200	$107,050	$313,060	$165,210	$253,801	$715,225	$647,850	$72,950	$60,150	$1,234,192	$439,200	$97,600	$1,609,108	$694,940	$1,218,450	$138,000	$153,225	$150,300	$859,600	$957,350	$155,242	$142,320	$295,825	$494,353	$40,500	$41,600	$141,025	$71,425

NOTE:

The shaded columns indicate the recommended pond and floodplain compensation sites

A1 (F alt) - "F alt" is the original FDOT 5 PD&E study

N/A - Not Available

FPx - Floodplain x

The estimated ground elevations are based on the USGS and SWFWMD maps.

The estimated SHW table depth are based on the SCS soil Survey of Citrus County

The sites with marginal wetland impacts could be moved a sufficient amount with minor adjustments to avoid jurisdictional wetlands, with no loss of treatment capacity.

[1] Wetland mitigation cost equivalent to $80,000/acre

[2] Pipe lengths estimated from ROW to pond and to outfall

[3] Assume 36" Class II concrete pipe @ $47/lf

[4] 30 mil HDPE pond liner

6.0 REGULATORY AGENCIES AND PERMITTING

Citrus County is the local agency with jurisdictions over the proposed improvements. Coordination with this agency will occur during preliminary and final design stages to address floodplain and stormwater impacts, and proposed changes to the existing drainage system.

State agencies that would issue permits for the proposed improvements include the SWFWMD, which requires an Environmental Resource Permit (ERP) for all dredge and fill activities conducted in areas either in or connected to Waters of the State, as outlined in *Chapter 17-4.48, Florida Administrative Code (FAC).* SWFWMD also requires an Environmental Resource Permit (ERP) for the construction or alteration of any surface water system according to *Chapter 40C-4 FAC.* The intent is to regulate new systems and their impact on water quantity, water quality, wetlands and other environmental features, and to insure that discharges will meet applicable State Water Quality Standards as stated in *Chapter 17-3 and Section 17.4.242 FAC.* Coordination with the SWFWMD will occur during preliminary and final design to address stormwater management issues.

Federal agencies that may require permits for the proposed improvements include the United States Army Corps of Engineers (ACOE) and the EPA. The ACOE requires permits for dredge and fill activities in waters of the United States. EPA requires a Notice of Intent (NOI) for construction under the State of Florida General Permit for NPDES Stormwater Permit for construction impacts greater than one acre. This NOI will require a site-specific pollution prevention plan that incorporates current FDOT standards. Coordination with Federal agencies will occur during preliminary and/or final design of the proposed improvements.

7.0 SUMMARY AND RECOMMENDATIONS

Based on the previously approved FDOT Report, and subsequent office and field investigations, alternative pond sites described above have been located for Sub-basins A through G, HS, HN, I and J along S.R. 200 within the project limits. The recommended pond sites selected for the aforementioned sub-basins are A4, B2 (A), C1, D2, E3 (H), F3 (C), G2, H1, H4 (D alt) I1, and J5 (K). The existing FDOT pond would have been too costly to expand to the west due to a right-of-way cost estimate of $193,200 versus a right-of-way cost estimates of $107,050 for Pond Site C1. The recommended floodplain compensation sites are FP1 in Sub-basin HS and FP3 in Sub-basin J. Table 4 shows the recommended pond sites and provides the design summary of the study. Although, the ponds function hydraulically, the recommendation was based on the least right-of-way cost estimates. The method of stormwater treatment for the pond sites within Sub-basins A through I is dry retention and wet detention for Sub-basin J only due to the shallow SHW table.

The ponds were sized using the critical duration analysis in SUPRA-3 Program developed for the FDOT. The rational method was used to compute the pre development peak discharge rate. For the post development condition, the hydrograph and the peak discharge rate were determined by the modified rational method. Runoff coefficients were estimated using SCS curve number methodology. Pond routing was performed by the storage-indication method. The storage-area data for a retention/detention pond was provided in each calculation and pre and post development conditions were compared. All pond areas include a 20-foot maintenance berm surrounding the pond perimeter.

The SWFWMD requirements will be addressed in the permitting phase of the project development. The design criteria for the stormwater management facilities will be the more stringent of the FDOT and SFWMD requirements.

TABLE 4
RECOMMENDED POND SITES AND DESIGN SUMMARY

Sub-basin Name	Pond Site	Drainage Area (ac)	Pond Size (ac)	Curve Number		Treatment Volume (ac-ft)	Weir Elevation (ft)	Flowrate		Elevation		
				Pre	Post			Pre (cfs)	Post (cfs)	DHW (ft)	TOB (ft)	LEOP (ft)
A	A1 (F alt)	86.37	1.15	53.9	55.8	1.18	46.46	67.54	122.79	48.37 < TOB & EOP	50.00	51.80
	A3 (F)	86.37	2.87	53.9	56.2	1.63	50.47	47.97	121.14	51.78 < TOB & EOP	60.00	51.80
	A4	**86.37**	**1.41**	**53.9**	**55.8**	**1.22**	**48.57**	**67.54**	**106.19**	**50.77 < TOB & EOP**	**52.50**	**51.80**
B	**B2 (A)**	**90.77**	**4.91**	**47.1**	**52.5**	**1.99**	**N/A**	**218.70**	**0.00**	**48.78 < TOB & EOP**	**50.00**	**54.80**
	B3	90.77	5.17	47.1	52.6	2.01	N/A	218.70	0.00	38.38 < TOB & EOP	40.00	54.80
	B4 (A alt)	90.77	3.67	47.1	51.8	1.89	N/A	218.70	0.00	43.45 < TOB & EOP	45.00	54.80
C	C	100.82	2.07	59.2	62.2	3.16	46.77	119.70	139.64	48.94 < TOB & EOP	50.00	50.30
	C1	**100.82**	**2.30**	**59.2**	**62.4**	**3.20**	**46.51**	**119.70**	**141.05**	**48.94 < TOB & EOP**	**50.00**	**50.30**
	C2	100.82	2.07	59.2	62.4	3.16	37.39	119.70	188.82	38.99 < TOB & EOP	40.00	50.30
D	**D2**	**71.65**	**1.32**	**43.0**	**45.3**	**1.64**	**43.67**	**51.98**	**45.59**	**45.00 < TOB & EOP**	**46.00**	**49.31**
	D3 (G)	71.65	3.10	43.0	46.1	1.92	48.19	51.98	38.98	49.22 < TOB & EOP	55.00	49.31
	D4 (G alt)	71.65	2.07	43.0	45.6	1.76	48.74	51.98	55.38	49.30 < TOB & EOP	55.00	49.31
E	E1	85.90	1.47	42.6	44.3	1.56	44.57	64.59	44.93	46.60 < TOB & EOP	48.00	50.52
	E2	85.90	2.42	42.6	44.8	1.72	49.15	64.59	50.48	50.20 < TOB & EOP	55.00	50.52
	E3 (H)	**85.90**	**1.33**	**42.6**	**44.3**	**1.52**	**48.65**	**64.59**	**64.58**	**49.53 < TOB & EOP**	**52.50**	**50.52**
F	F1 (H alt)	113.91	5.17	41.1	49.2	3.48	35.08	61.07	73.96	36.13 < TOB & EOP	47.00	37.68
	F2 (C alt)	113.91	2.27	41.1	48.8	3.00	35.93	85.05	98.55	37.10 < TOB & EOP	40.00	37.68
	F3 (C)	**113.91**	**2.01**	**41.1**	**48.8**	**2.96**	**35.94**	**85.05**	**71.77**	**37.49 < TOB & EOP**	**40.00**	**37.68**
G	G1	73.22	2.63	42.2	44.6	0.70	N/A	95.17	0.00	42.47 < TOB & EOP	43.00	47.87
	G2	**73.22**	**2.63**	**42.2**	**44.5**	**0.70**	**N/A**	**95.17**	**0.00**	**41.48 < TOB & EOP**	**42.50**	**47.87**
	G3	73.22	4.02	42.2	45.4	0.82	N/A	95.17	0.00	47.81 < TOB & EOP	52.50	47.87
HS	**H1**	**8.33**	**0.80**	**49.8**	**64.1**	**0.73**	**43.62**	**15.03**	**9.07**	**44.24 < TOB & EOP**	**47.00**	**44.66**
	H2 (D)	8.33	0.80	49.8	64.4	0.73	42.51	15.03	12.32	43.19 < TOB & EOP	45.00	44.66
HN	H3	23.86	2.07	76.7	82.7	1.64	41.86	46.31	40.86	43.91 < TOB & EOP	45.00	44.66
	H4 (D alt)	**23.86**	**2.07**	**76.1**	**82.6**	**1.64**	**41.64**	**45.58**	**39.23**	**43.79 < TOB & EOP**	**45.00**	**44.66**
I	**I1**	**39.41**	**0.92**	**45.3**	**47.8**	**0.63**	**50.91**	**61.08**	**22.97**	**52.74 < TOB & EOP**	**55.00**	**53.47**
	I2	39.41	0.92	45.3	47.8	0.63	50.91	61.08	22.97	52.74 < TOB & EOP	55.00	53.47
J	J1 (I)	48.86	5.45	72.6	81.5	2.39	42.76	97.67	97.67	44.03 < TOB & EOP	52.00	44.19
	J4 (J alt)	48.86	1.61	75.9	80.4	2.07	40.08	111.39	226.71	41.97 < TOB & EOP	43.00	44.19
	J5 (K)	**48.86**	**1.61**	**75.9**	**80.4**	**2.07**	**40.08**	**111.39**	**226.71**	**41.97 < TOB & EOP**	**43.00**	**44.19**

NOTE:

The bolded information are for the recommended pond sites

The pond site areas shown in Sub-basin C accounted for all the stormwater runoff, which was included in the analyses. The proposed required pond site areas after considering storage in the existing FDOT pond are shown in Table 3 and on the proposed location map of which the ROW cost estimates was based on.

The LEOP elevations are based on the FDOT roadway construction plans, dated 1936.

APPENDIX A

EXCERPTS FROM THE SCS SOIL SURVEY OF CITRUS COUNTY

United States Department of Agriculture

Soil Conservation Service

In cooperation with University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations and Soil Science Department, and Florida Department of Agriculture and Consumer Services

Soil Survey of Citrus County, Florida

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
2	0-7	1-8	1.35-1.65	6.0-20	0.05-0.10	4.5-7.8	<2	Low	0.10	5	2	<2
Adamsville	7-80	1-7	1.35-1.65	6.0-20	0.03-0.08	4.5-7.8	<2	Low	0.10			
3	0-72	<3	1.35-1.55	6.0-20	0.04-0.08	4.5-6.0	<2	Low	0.10	5	2	.5-2
Candler	72-80	<3	1.50-1.65	6.0-20	0.02-0.06	4.5-6.0	<2	Low	0.10			
4	0-60	<3	1.35-1.55	6.0-20	0.04-0.08	4.5-6.0	<2	Low	0.10	5	2	.5-2
Candler	60-80	<3	1.50-1.65	6.0-20	0.02-0.06	4.5-6.0	<2	Low	0.10			
5	0-8	0-4	1.40-1.55	6.0-20	0.03-0.07	3.6-8.4	<2	Low	0.10	5	2	.5-2
Basinger	8-24	0-4	1.40-1.55	6.0-20	0.05-0.10	3.6-7.3	<2	Low	0.10			
	24-80	1-6	1.40-1.65	6.0-20	0.10-0.15	3.6-7.3	<2	Low	0.10			
	36-60	1-3	1.50-1.70	6.0-20	0.05-0.10	3.6-7.3	<2	Low	0.10			
6	0-19	0-4	1.40-1.55	6.0-20	0.05-0.10	3.6-7.3	<2	Low	0.10	5	2	1-8
Basinger	19-31	0-4	1.40-1.55	6.0-20	0.05-0.10	3.6-7.3	<2	Low	0.10			
	31-80	1-3	1.40-1.65	6.0-20	0.10-0.15	3.6-7.3	<2	Low	0.10			
	42-80	1-3	1.50-1.70	6.0-20	0.05-0.10	3.6-7.3	<2	Low	0.10			
7	0-27	<2	1.35-1.55	6.0-20	0.02-0.05	3.6-6.5	<2	Low	0.10	5	2	<2
Myakka	27-55	1-8	1.45-1.60	0.6-6.0	0.10-0.20	3.6-6.5	<2	Low	0.15			
	55-80	<2	1.48-1.70	6.0-20	0.02-0.10	3.6-6.5	<2	Low	0.10			
8	0-26	0-2	1.20-1.45	>20	0.02-0.05	3.6-7.3	<2	Low	0.10	5	1	<.5
Paola	26-80	0-2	1.45-1.60	>20	0.02-0.05	3.6-7.3	<2	Low	0.10			
	25-80	0-3	1.45-1.60	>20	0.02-0.05	3.6-7.3	<2	Low	0.10			
9, 10	0-80	0-5	1.30-1.65	6.0-20	0.02-0.05	4.5-7.8	<2	Low	0.10	5	2	1-5
Pompano												
11	0-3	0-4	1.25-1.60	>6.0	0.05-0.10	3.6-6.0	<2	Low	0.10	5	2	.5-2
Tavares	3-80	0-4	1.40-1.70	>6.0	0.02-0.05	3.6-6.0	<2	Low	0.10			
12	0-6	1-5	1.20-1.50	6.0-20	0.05-0.10	3.6-6.0	<2	Low	0.10	5	2	1-2
Immokalee	6-33	1-5	1.45-1.70	6.0-20	0.02-0.05	3.6-6.0	<2	Low	0.10			
	33-52	2-7	1.30-1.60	0.6-2.0	0.10-0.25	3.6-6.0	<2	Low	0.15			
	52-80	1-5	1.40-1.60	6.0-20	0.02-0.05	3.6-6.0	<2	Low	0.10			
13	0-38	---	0.22-0.38	6.0-20	0.30-0.50	4.5-6.5	<2	Low	---	---	2	60-90
Okeelanta	38-80	1-5	1.30-1.55	6.0-20	0.05-0.10	5.1-7.8	<2	Low	0.15			
14, 15	0-80	1-3	1.45-1.65	>6.0	0.03-0.08	4.5-5.5	<2	Low	0.10	5	2	.5-1
Lake												
16	0-65	5-12	1.25-1.65	6.0-20	0.05-0.10	4.5-6.0	<2	Low	0.10	5	2	<2
Arredondo	65-80	15-40	1.55-1.70	0.04-0.6	0.15-0.20	4.5-6.0	<2	Low	0.24			
17	0-54	5-12	1.25-1.65	6.0-20	0.05-0.10	4.5-6.0	<2	Low	0.10	5	2	<2
Arredondo	54-57	10-18	1.45-1.60	2.0-6.0	0.08-0.15	4.5-6.0	<2	Low	0.20			
	57-80	15-40	1.55-1.70	0.04-0.6	0.15-0.20	4.5-6.0	<2	Low	0.24			
18	0-21	1-7	1.25-1.50	6.0-20	0.05-0.07	4.5-6.0	<2	Low	0.10	5	2	<2
Kendrick	21-45	15-25	1.55-1.70	0.6-6.0	0.10-0.15	4.5-6.0	<2	Low	0.24			
	45-80	20-40	1.55-1.75	0.06-2.0	0.12-0.20	4.5-6.0	<2	Low	0.32			

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
19----------	0-26	1-7	1.25-1.50	6.0-20	0.05-0.07	4.5-6.0	<2	Low--------	0.10	5	2	<2
Kendrick	26-30	15-25	1.55-1.70	0.6-6.0	0.10-0.15	4.5-6.0	<2	Low--------	0.24			
	30-56	20-40	1.55-1.75	0.06-2.0	0.12-0.20	4.5-6.0	<2	Low--------	0.32			
	56-80	15-25	1.55-1.75	<0.0-2.0	0.12-0.15	4.5-6.0	<2	Low--------	0.32			
20*.												
Pits												
22.												
Quartzipsamments												
23:												
Weekiwachee-----	0-34	---	0.25-0.35	2.0-6.0	0.20-0.25	6.1-7.8	>16	Low--------	----	---	2	20-74
	34-38	1-7	1.50-1.65	2.0-6.0	0.10-0.15	6.1-7.8	>16	Low--------	0.10			
	38-41	---	---	---	---	---	---	----------	----			
	41	---	---	---	---	---	---	----------	----			
Durbin----------	0-80	---	0.20-0.50	6.0-20	0.20-0.25	3.6-7.3	>16	Low--------	----	2	2	40-65
24:												
Okeelanta-------	0-32	---	0.22-0.38	6.0-20	0.30-0.50	4.5-6.5	<2	Low--------	----	---	2	60-90
	32-80	1-5	1.30-1.55	6.0-20	0.05-0.10	5.1-7.8	<2	Low--------	0.15			
Lauderhill------	0-26	---	0.15-0.35	6.0-20	0.30-0.50	5.6-7.8	<2	Low--------	----	---	2	60-90
	26	---	---	---	---	---	---	----------	----			
Terra Ceia------	0-80	---	0.15-0.35	6.0-20	0.30-0.50	4.5-8.4	<2	Low--------	----	---	2	60-90
	65-80	2-10	1.35-1.50	6.0-20	0.02-0.08	4.5-8.4	<2	Low--------	----			
25----------	0-27	2-12	1.35-1.65	2.0-20	0.05-0.20	4.5-5.5	<2	Low--------	0.10	5	2	1-4
Lochloosa	27-37	13-20	1.55-1.70	0.6-6.0	0.10-0.15	4.5-5.5	<2	Low--------	0.24			
	37-48	15-35	1.55-1.70	0.6-0.2	0.12-0.15	4.5-5.5	<2	Low--------	0.28			
	48-63	20-45	1.60-1.70	0.06-0.2	0.13-0.18	4.5-5.5	<2	Low--------	0.28			
	63-80	15-35	1.55-1.70	0.06-0.2	0.10-0.15	4.5-5.5	<2	Low--------	0.28			
26:												
Williston-------	0-14	10-14	1.30-1.45	6.0-20	0.08-0.10	5.1-7.3	<2	Low--------	0.15	2	2	0-2
	14-24	35-55	1.60-1.70	0.2-0.6	0.14-0.18	6.1-7.8	<2	Moderate	0.28			
	24	---	---	---	---	---	---	----------	----			
Pedro-----------	0-15	1-5	1.36-1.55	6.0-20	0.03-0.08	5.1-6.5	<2	Low--------	0.10	1	2	.5-2
	15-18	20-35	1.55-1.70	2.0-6.0	0.10-0.15	6.1-7.8	<2	Low--------	0.28			
	18	---	---	---	---	---	---	----------	----			
Rock outcrop.												
27----------	0-31	<2	1.35-1.65	>20	0.02-0.05	4.5-6.0	<2	Very low	0.10	5	1	<1
Pomello	31-52	<2	1.45-1.60	2.0-6.0	0.10-0.30	4.5-6.0	<2	Very low	0.15			
	52-80	<2	1.35-1.65	6.0-20	0.02-0.05	4.5-6.0	<2	Very low	0.10			
28----------	0-7	1-2	1.30-1.50	6.0-20	0.05-0.10	4.5-8.4	<2	Low--------	0.10	4	2	.5-2
Redlevel	7-55	2-7	1.50-1.60	6.0-20	0.05-0.10	4.5-8.4	<2	Low--------	0.10			
	55	---	---	---	---	---	---	----------	----			
29----------	0-5	1-3	1.25-1.50	>20	0.04-0.10	4.5-6.5	<2	Low--------	0.10	5	2	.5-2
Astatula	5-80	1-3	1.45-1.60	>20	0.02-0.05	4.5-6.5	<2	Low--------	0.10			
30----------	0-2	1-3	1.25-1.50	>20	0.04-0.10	4.5-6.5	<2	Low--------	0.10	5	2	.5-2
Astatula	2-80	1-3	1.45-1.60	>20	0.02-0.05	4.5-6.5	<2	Low--------	0.10			

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
31----------	0-8	1-5	1.20-1.50	6.0-20	0.08-0.12	3.6-6.5	<2	Low--------	0.10	5	2	<3
Sparr	8-45	1-5	1.45-1.70	6.0-20	0.05-0.08	3.6-6.5	<2	Low--------	0.10			
	45-51	15-32	1.55-1.80	0.6-2.0	0.10-0.15	3.6-6.5	<2	Low--------	0.20			
	51-80	12-38	1.55-1.80	0.06-0.6	0.10-0.18	3.6-6.5	<2	Low--------	0.24			
32:												
Candler----------	0-60	<3	1.35-1.55	6.0-20	0.04-0.08	4.5-6.0	<2	Low--------	0.10	5	2	.5-2
	60-80	<3	1.50-1.65	6.0-20	0.02-0.06	4.5-6.0	<2	Low--------	0.10			
	95-99	14-30	1.55-1.65	2.0-6.0	0.10-0.15	4.5-6.0	<2	Low--------	0.20			
Urban land.												
33----------	0-15	3-12	1.50-1.65	6.0-20	0.05-0.10	3.6-6.0	<2	Low--------	0.15	5	2	1-5
Micanopy	15-25	20-38	1.50-1.65	0.6-2.0	0.10-0.15	3.6-6.0	<2	Moderate	0.32			
	25-55	40-60	1.55-1.70	0.06-0.2	0.10-0.18	3.6-6.0	<2	High-------	0.28			
	55-63	25-38	1.55-1.70	0.06-0.2	0.10-0.15	3.6-6.0	<2	High-------	0.32			
35----------	0-8	1-5	1.20-1.50	6.0-20	0.08-0.12	3.6-6.5	<2	Low--------	0.10	5	2	<3
Sparr	8-61	1-5	1.45-1.70	6.0-20	0.05-0.08	3.6-6.5	<2	Low--------	0.10			
	61-71	15-32	1.55-1.80	0.6-2.0	0.10-0.15	3.6-6.5	<2	Low--------	0.20			
	71-80	12-38	1.55-1.80	0.06-0.6	0.10-0.18	3.6-6.5	<2	Low--------	0.24			
36----------	0-22	<5	1.25-1.50	6.0-20	0.02-0.07	4.5-6.0	<2	Low--------	0.10	5	2	2-8
EauGallie	22-53	1-8	1.45-1.60	0.6-6.0	0.15-0.25	4.5-6.5	<2	Low--------	0.15			
	53-80	13-31	1.55-1.70	0.06-2.0	0.10-0.20	4.5-7.8	<2	Low--------	0.20			
37:												
Matlacha---------	0-42	3-8	1.65-1.75	2.0-6.0	0.05-0.10	5.6-8.4	<2	Low--------	0.10	5	2	---
	42-60	1-2	1.40-1.65	6.0-20	0.03-0.05	5.6-7.3	<2	Low--------	0.17			
	60	---	---	---	---	---	---	----------	----			
Urban land.												
38:												
Rock outcrop.												
Homosassa--------	0-8	10-18	1.25-1.45	2.0-20	0.20-0.25	6.1-7.8	>16	Low--------	0.10	2	2	10-15
	8-21	3-12	1.45-1.60	2.0-20	0.10-0.15	6.1-7.8	>16	Low--------	0.17			
	21	---	---	---	---	---	---	----------	----			
Lacoochee--------	0-8	13-19	1.55-1.65	0.6-2.0	0.15-0.20	7.9-8.4	>16	Low--------	0.20	1	3	---
	8-13	3-12	1.50-1.65	2.0-6.0	0.10-0.15	6.6-8.4	>16	Low--------	0.17			
	13-21	---	---	---	---	---	---	----------	----			
	21	---	---	---	---	---	---	----------	----			
39:												
Hallandale------	0-2	<3	1.35-1.45	6.0-20	0.05-0.11	5.1-6.5	<2	Low--------	0.10	2	2	2-5
	2-6	<3	1.50-1.60	6.0-20	0.03-0.08	6.1-6.5	<2	Low--------	0.10			
	6-8	<3	1.50-1.60	0.6-6.0	0.03-0.08	5.6-8.4	<2	Low--------	0.10			
	8-10	<5	1.50-1.60	6.0-20	0.05-0.10	6.6-8.4	<2	Low--------	0.10			
	10	---	---	---	---	---	---	----------	----			
Rock outcrop.												
40----------	0-10	10-18	1.25-1.45	2.0-20	0.20-0.25	6.1-7.8	>16	Low--------	0.10	2	2	10-15
Homosassa	10-18	3-12	1.45-1.60	2.0-20	0.10-0.15	6.1-7.8	>16	Low--------	0.17			
	18-31	3-12	---	2.0-20	0.07-0.12	6.1-7.8	>16	Low--------	0.17			
	31-35	---	---	---	---	---	---	----------	----			
	35	---	---	---	---	---	---	----------	----			

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
41----------	0-4	<3	1.35-1.55	6.0-20	0.04-0.08	4.5-6.0	<2	Low-------	0.10	5	2	.5-2
Candler	4-67	<3	1.50-1.65	6.0-20	0.02-0.06	4.5-6.0	<2	Low-------	0.10			
	67-80	3-8	1.50-1.65	6.0-20	0.05-0.08	4.5-6.0	<2	Low-------	0.10			
46----------	0-21	0-5	1.25-1.50	6.0-20	0.02-0.07	4.5-6.0	<2	Low-------	0.10	5	2	2-8
EauGallie	21-32	1-8	1.45-1.60	0.6-6.0	0.15-0.25	4.5-6.5	<2	Low-------	0.15			
	32-46	1-5	1.45-1.65	6.0-20	0.02-0.05	4.5-7.8	<2	Low-------	0.10			
	46-80	13-31	1.55-1.70	0.06-2.0	0.10-0.20	4.5-7.8	<2	Low-------	0.20			
47----------	0-13	3-13	1.15-1.55	6.0-20	0.08-0.15	5.1-7.3	<2	Low-------	0.15	5	2	1-5
Fort Meade	13-80	3-13	1.20-1.65	6.0-20	0.06-0.10	4.5-6.0	<2	Low-------	0.15			
48. Arents												
49:												
Terra Ceia------	0-80	---	0.15-0.35	6.0-20	0.30-0.50	4.5-8.4	<2	Low-------	----	2	2	>60
Okeelanta-------	0-27	---	0.15-0.35	6.0-20	0.20-0.45	6.6-7.3	<2	Low-------	----	---	2	60-85
	27-65	1-5	1.30-1.55	6.0-20	0.05-0.10	6.6-8.4	<2	Low-------	0.10			
50----------	0-45	2-6	1.55-1.75	2.0-6.0	0.03-0.10	4.5-6.0	<2	Low-------	0.10	5	2	.5-4
Kanapaha	45-72	15-32	1.50-1.65	0.06-0.6	0.10-0.15	4.5-6.0	<2	Low-------	0.24			
51:												
Boca----------	0-3	<2	1.30-1.55	6.0-20	0.05-0.10	5.1-8.4	<2	Low-------	0.10	5	2	1-3
	3-22	<2	1.50-1.60	6.0-20	0.02-0.05	5.1-8.4	<2	Low-------	0.17			
	22-32	14-30	1.55-1.65	0.6-2.0	0.10-0.15	5.1-8.4	<2	Low-------	0.20			
	32	---	---	---	---	---	---	----------	----			
Pineda----------	0-28	1-3	1.40-1.65	6.0-20	0.02-0.05	5.6-6.5	<2	Low-------	0.15	5	2	1-2
	28-42	17-35	1.65-1.75	0.06-0.2	0.10-0.15	6.6-7.8	<2	Low-------	0.24			
	42	---	---	---	---	---	---	----------	----			
52----------	0-14	2-8	1.30-1.45	6.0-20	0.10-0.15	5.1-8.4	<2	Low-------	0.10	5	2	2-10
Anclote	14-80	1-13	1.50-1.65	6.0-20	0.03-0.10	5.1-8.4	<2	Low-------	0.10			
53----------	0-5	<2	1.30-1.55	6.0-20	0.05-0.10	5.1-8.4	<2	Low-------	0.10	5	2	1-3
Boca	5-21	<2	1.50-1.60	6.0-20	0.02-0.05	5.1-8.4	<2	Low-------	0.17			
	21-38	14-30	1.55-1.65	0.6-2.0	0.10-0.15	5.1-8.4	<2	Low-------	0.20			
	38	---	---	---	---	---	---	----------	----			
54----------	0-50	<3	1.45-1.60	6.0-20	0.03-0.05	4.5-6.0	<2	Low-------	0.10	5	2	<2
Apopka	50-80	18-35	1.55-1.75	0.6-2.0	0.12-0.17	4.5-6.0	<2	Low-------	0.24			
55. Udorthents												
56----------	0-11	35-75	1.45-1.65	0.06-0.2	0.15-0.20	4.5-7.8	<2	High------	0.32	5	4	---
Lake	11-80	1-3	1.45-1.65	>6.0	0.03-0.08	4.5-5.5	<2	Low-------	0.10			
57----------	0-8	1-7	1.40-1.55	6.0-20	0.10-0.15	3.6-6.0	<2	Low-------	0.10	5	2	1-5
Ona	8-20	3-8	1.50-1.65	0.6-2.0	0.10-0.15	3.6-6.0	<2	Low-------	0.15			
	20-80	1-4	1.50-1.65	6.0-20	0.03-0.08	3.6-6.0	<2	Low-------	0.10			
58:												
Myakka----------	0-23	0-2	1.35-1.55	6.0-20	0.02-0.05	5.1-7.8	<2	Low-------	0.10	5	2	<2
	23-34	1-8	1.45-1.60	0.6-6.0	0.10-0.20	5.1-7.8	<2	Low-------	0.15			
	34-62	0-2	1.48-1.70	6.0-20	0.10-0.20	5.1-7.8	<2	Low-------	0.10			
	62	---	---	---	---	---	---	----------	----			

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cc	In/hr	In/in	pH	mmho/cm					Pct
58:												
EauGallie-------	0-25	<5	1.25-1.50	6.0-20	0.02-0.05	4.5-6.0	<2	Low--------	0.10	5	2	2-8
	25-33	1-8	1.45-1.60	0.6-6.0	0.05-0.10	4.5-6.5	<2	Low--------	0.15			
	33-57	1-5	1.45-1.65	6.0-20	0.02-0.05	5.1-7.8	<2	Low--------	0.10			
	57-63	13-31	1.55-1.70	0.2-6.0	0.10-0.15	5.1-7.8	<2	Low--------	0.20			
	63	---	---	---	---	---	---	----------	----			
59----------	0-8	0-2	1.30-1.55	6.0-20	0.05-0.10	5.1-7.8	<2	Low--------	0.10	5	2	1-3
Boca	8-21	0-2	1.50-1.60	6.0-20	0.02-0.05	5.1-8.4	<2	Low--------	0.10			
	21-27	15-30	1.55-1.65	0.6-2.0	0.10-0.15	5.1-8.4	<2	Low--------	0.20			
	27	---	---	---	---	---	---	----------	----			
60----------	0-5	2-8	1.35-1.45	6.0-20	0.05-0.10	5.6-8.4	<2	Low--------	0.10	2	2	<1
Broward	5-35	1-7	1.50-1.60	6.0-20	0.03-0.08	5.6-8.4	<2	Low--------	0.10			
	26	---	---	---	---	---	---	----------	----			
61----------	0-14	<1	1.35-1.55	>20	0.02-0.08	3.6-6.0	<2	Low--------	0.10	5	2	<1
Orsino	14-80	<2	1.35-1.55	>20	0.02-0.08	3.6-6.0	<2	Low--------	0.10			
62----------	0-15	0-4	1.35-1.55	6.0-20	0.03-0.08	5.1-8.4	<2	Low--------	0.10	5	2	1-2
Malabar	15-44	1-5	1.35-1.70	6.0-20	0.05-0.10	5.1-8.4	<2	Low--------	0.10			
	44-80	12-25	1.55-1.75	<0.2	0.10-0.15	5.1-8.4	<2	Low--------	0.24			
63----------	0-15	2-8	1.35-1.45	6.0-20	0.05-0.08	4.5-6.5	<2	Low--------	0.10	5	2	1-4
Paisley	15-80	45-65	1.55-1.65	0.06-0.2	0.15-0.18	5.6-8.4	<2	High-------	0.28			
64----------	0-2	1-2	1.30-1.50	0.6-6.0	0.05-0.10	5.1-8.4	<2	Low--------	0.10	4	2	.5-2
Citronelle	2-9	2-5	1.50-1.60	0.6-6.0	0.05-0.10	5.1-8.4	<2	Low--------	0.10			
	9	---	---	---	---	---	---	----------	----			

TABLE 15.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
2---------- Adamsville	C	None----	---	---	2.0-3.5	Apparent	Jun-Nov	>60	---	---	---	Low-----	Moderate.
3, 4---------- Candler	A	None----	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
5---------- Basinger	B/D	None----	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High----	Moderate.
6*---------- Basinger	D	None----	---	---	+2-1.0	Apparent	Jun-Feb	>60	---	---	---	High----	Moderate.
7---------- Myakka	B/D	None----	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High----	High.
8---------- Paola	A	None----	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
9---------- Pompano	B/D	None----	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High----	Moderate.
10*---------- Pompano	D	None----	---	---	+2-1.0	Apparent	Jun-Feb	>60	---	---	---	High----	Moderate.
11---------- Tavares	A	None----	---	---	3.5-6.0	Apparent	Jun-Dec	>60	---	---	---	Low-----	High.
12---------- Immokalee	B/D	None----	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High----	High.
13*---------- Okeelanta	B/D	None----	---	---	+1-0	Apparent	Jun-Jan	>60	---	16-20	16-30	High----	Moderate.
14, 15---------- Lake	A	None----	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
16, 17---------- Arredondo	A	None----	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
18, 19---------- Kendrick	A	None----	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.

See footnote at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
20. Pits													
22. Quartzipsamments													
23:													
Weekiwachee	D	Frequent	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	40-51	Hard	---	---	High	Low.
Durbin	D	Frequent	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	>60	---	12-14	15-24	High	High.
24*:													
Okeelanta	B/D	None	---	---	+1-0	Apparent	Jun-Jan	>60	---	16-20	16-30	High	Moderate.
Lauderhill	B/D	None	---	---	+1-1.0	Apparent	Jun-Feb	20-40	Hard	8-12	16-36	High	Moderate.
Terra Ceia	B/D	None	---	---	+1-1.0	Apparent	Jan-Dec	>60	---	16-20	50-60	Moderate	Moderate.
25--- Lochloosa	C	None	---	---	2.5-5.0	Apparent	Jul-Oct	>60	---	---	---	High	High.
26:													
Williston	C	None	---	---	>6.0	---	---	20-40	Hard	---	---	High	Moderate.
Pedro	C	None	---	---	>6.0	---	---	10-30	Hard	---	---	Moderate	Moderate.
Rock outcrop.													
27--- Pomello	C	None	---	---	2.0-3.5	Apparent	Jul-Nov	>60	---	---	---	Low	High.
28--- Redlevel	C	None	---	---	2.0-3.0	Apparent	Jun-Nov	40-60	Hard	---	---	High	High.
29, 30--- Astatula	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
31--- Sparr	C	None	---	---	1.5-3.5	Apparent	Jul-Oct	>60	---	---	---	Moderate	High.

See footnote at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
32: Candler	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
Urban land.													
33 Micanopy	C	None	---	---	1.5-2.5	Perched	Jul-Nov	>60	---	---	---	High	High.
35 Sparr	C	None	---	---	1.5-3.5	Apparent	Jul-Oct	>60	---	---	---	Moderate	High.
36 EauGallie	B/D	None	---	---	0-1.0	Apparent	Jun-Oct	>60	---	---	---	High	Moderate.
37: Matlacha	C	None	---	---	2.0-3.0	Apparent	Jun-Oct	40-60	Hard	---	---	High	Low.
Urban land.													
38: Rock outcrop.													
Homosassa	D	Frequent	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	23-40	Hard	---	---	High	Low.
Lacoochee	D	Frequent	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	20-40	Hard	---	---	High	Low.
39: Hallandale	B/D	Rare	---	---	0-1.0	Apparent	Jun-Nov	7-20	Hard	---	---	High	Low.
Rock outcrop.													
40 Homosassa	D	Frequent	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	23-40	Hard	---	---	High	Low.
41 Candler	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
46* EauGallie	D	None	---	---	+2-1.0	Apparent	Jun-Feb	>60	---	---	---	High	Moderate.
47 Fort Meade	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
48. Arents													

See footnote at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
49:													
Terra Ceia	D	Frequent	Long	Jun-Nov	0-1.0	Apparent	Jan-Dec	>60	---	16-20	50-60	Moderate	Moderate.
Okeelanta	D	Frequent	Very long	Mar-Sep	0-1.0	Apparent	Jan-Dec	>60	---	4-8	10-18	High	Moderate.
50--- Kanapaha	B/D	None	---	---	0-1.0	Apparent	Jul-Sep	>60	---	---	---	High	High.
51:													
Boca	B/D	None	---	---	0-1.0	Apparent	Jun-Feb	24-40	Hard	---	---	High	Moderate.
Pineda	B/D	None	---	---	0-1.0	Apparent	Jun-Nov	40-80	Hard	---	---	High	Low.
52*--- Anclote	D	None	---	---	+2-0	Apparent	Jun-Mar	>60	---	---	---	High	Moderate.
53--- Boca	B/D	None	---	---	0-1.0	Apparent	Jun-Feb	24-40	Hard	---	---	High	Moderate.
54--- Apopka	A	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
55. Udorthents													
56--- Lake	C	None	---	---	>6.0	---	---	>60	---	---	---	High	Moderate.
57--- Ona	B/D	None	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High	High.
58:													
Myakka	B/D	None	---	---	0-1.0	Apparent	Jun-Oct	40-80	Hard	---	---	High	High.
EauGallie	B/D	None	---	---	0-1.0	Apparent	Jun-Oct	50-80	Hard	---	---	High	Moderate.
59*--- Boca	D	None	---	---	+2-1.0	Apparent	Jun-Feb	24-40	Hard	---	---	High	Moderate.
60--- Broward	C	None	---	---	1.5-2.5	Apparent	Jun-Nov	20-40	Hard	---	---	Low	Low.
61--- Orsino	A	None	---	---	3.5-5.0	Apparent	Jun-Dec	>60	---	---	---	Low	Moderate.

See footnote at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
62---------- Malabar	B/D	None---------	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High-----	Low.
63---------- Paisley	D	Rare---------	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High-----	Moderate.
64---------- Citronelle	D	None---------	---	---	2.0-3.0	Apparent	Jun-Sep	5-20	Hard	---	---	High-----	High.

* In the "High water table--Depth" column, a plus sign preceding the range in depth indicates that the high water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

APPENDIX B

CORRESPONDENCE

ARCADIS
Infrastructure, buildings, environment, communications

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TRANSPORTATION

Mark Clasgens, E.I.
Project Manager
FDOT, District 7
Environmental Management Office (EMO), MS 7-500
11201 N. McKinley Drive
Tampa, FL 33612-6456

Subject: S.R. 200 PD&E Study Reevaluation
SR 200, from US 41 to North of Marion County Line
FPN: 257188-1-22-01

Date:
7 June 2002

Contact:
Sam Aref

Phone:
(813)264-3416

Email:
saref@arcadis-us.com

Dear Mark:

We have received and reviewed the additional comments on the Pond Siting Report submitted for the subject project and offer the following responses:

Comment numbers correspond to original numbers.

1. Verify that the LEOP is the lowest pavement elevation in proposed conditions within the basin and is not the elevation at which the outfall to the pond is located.

   The LEOP elevations used in the analyses are based on the existing FDOT roadway construction plans, dated 1936. There has not been any roadway widening along the project limits since 1936 except within Subbasins B and C. A line and grade was not included in the scope of work. Therefore, it is assumed that the proposed LEOP will not be lower than the existing LEOP.

3. Response didn't address the issue regarding viability of B3.
   (Previous comment: Alternate B3 may not be feasible due to deep ditch near Station 75+00 necessary to drain from low point near Station 60+00. Several other sites near the roadway appear viable)

   Pond Site B3 is not recommended due to the right-of-way cost estimates. It is ranked last. However, Figure 4 of the Pond Siting Report shows that the existing ditch will be re-graded within the proposed 180 ft. right-of-way section. This section of SR 200 will include a suburban typical section that will have a storm sewer system outfalling to a pond. The attached HGL calculations indicate that Pond Site B3 is hydraulically feasible.

4. Verify that the LEOP of 50.3, as shown in Table 4, is the lowest point that will drain to SMF. The SWFWM contour maps indicate the pavement is below elevation 48.

   The LEOP elevations used in the analyses are based on the existing FDOT roadway construction plans, dated 1936, and not the SWFWMD maps. The attached HGL calculations indicate that Pond Site C2 is hydraulically feasible.

5. If dry treatment is used, which will allow several feet treatment depth, the existing pond in basin C may be viable. If the required pond size is 2.3 as asserted in response, then C and C2 aren't large enough (see Table 4). Also see "Sheet 5", Appendix E, which scales 1.0 acre for C1.

   Although, Pond Sites C, C1 and C2 are shown as a small area on the aerial, the analysis was based on the entire stormwater runoff within Sub-basin C. Currently, portion of the stormwater runoff outfall to the existing 1.26 ac FDOT pond located between East Buffalo Lane and East Millwood Lane on the west side of S.R. 200 at Station 112+00. The remaining portion of the roadway and the offsite runoffs will outfall to the recommended Pond Site C1.

7. Response didn't address issue. Clarify disposition of C3. It isn't shown on aerials or included in Table. Has it been removed?
   (Previous comment: C3 not identified on aerials)

   Pond Site C3 has been deleted. The disposition is included on Page 22 of the Pond Siting Report. Per a meeting with FDOT staff on November 26, 2001, it was decided to analyze and include on the aerials no more than 3 potential pond sites. Therefore, Pond Sites C3 and C4 were eliminated. However, per FDOT staff direction, they remain as part of the preliminary analyses.

8. Apparently the problem with the elevation of D3 is addressed by lining pond. Since lining is a significant construction cost, it should be factored in recommendations (see footnote for Table 4, page 35).

   The liner cost estimates are shown on Table 3. With the addition of the liner cost estimates, there are no changes in the pond site recommendation.

9. The response is unclear. There is only one economically viable site included in report for Basin F, whereas there are other obvious sites, which are economical, which are not included. Shouldn't there be at least 2 economical sites in each basin? The response included the statement "This current study is to reevaluate the previous study and recommend alternative pond sites accordingly." Why isn't this being done for this basin?
   (Previous comment: Site E1 isn't feasible due to R/W and construction cost. Why weren't sites west of the road near the profile low point considered? They are developed (mobile homes), but will be considerably more economical and hydraulically superior to E1.

   Sub-basin E includes Pond Site E1, E2 and a reevaluation of E3. Pond Site E3 was the only analyzed alternative in the sub-basin in the previous PD&E study. The current study includes two economical alternatives per the February 18, 2002 right-of-way cost estimates, E2 and E3. However, Pond Site E3 is the

recommended alternative. The attached HGL calculations indicate that all the pond sites within Sub-basin E are hydraulically feasible.

10. Response didn't address issue.
(Previous comment: F1 isn't feasible due to R/W cost, distance from profile low point, and elevation with respect to LEOP. However there appears to be several attractive sites near the low point near the roadway profile low point)

The current study is a reevaluation study. Sub-basin F includes the same 3 pond sites, which are hydraulically feasible and were evaluated in the previous PD&E study. The recommended alternative per the February 18, 2002 right-of-way cost estimate is Pond Site F3. The attached HGL calculations indicate that all the pond sites within Sub-basin F are hydraulically adequate.

11. Response didn't address issue. As an example of the problems in this basin consider:
G1 calculations show DHW higher than local adjacent road, which must drain into the low.
(Previous comment: F3 is configured in a way that places it on high terrain. Why not situate south of current location?)

The DHW elevation is lower than the local adjacent road. Based on the SWFWMD maps, the lowest adjacent local road elevation is 42.5. The Pond Site G1 DHW elevation is 41.48. The attached HGL calculations indicate that Pond Site G1 is hydraulically feasible.

DHW depends on 6 inches per hour percolation for duration of event. This isn't reasonable for 10-day event. Modret should be used to more accurately assess percolation.

Per the SCS Soil Survey of Citrus County, Candler fine sand exhibits a permeability rate of 6 to 20 in/hr. The analysis for all the ponds design included a maximum of 6 in/hr when a range of 6 to 20 in/hr is giving and none when only 6 in/hr is given. It is recommended that Modret be used in the design phase of this project when roadway survey and onsite geotechnical investigation is available.

Begin water elevation in G1 is 36.76. This is lower than water level in Tsala Apopka. It is expected to be several feet higher than lake level.

Actual soil borings taken on September 20, 2001 on adjacent land indicated that the measured groundwater elevation depth is greater than 10 feet and preliminary estimated seasonal high groundwater depth is 6±0.5. Per the District staff direction, it was decided to use the published SCS Soil Survey of Citrus County instead of the actual soil borings. The SCS Soil Survey of Citrus County indicates a seasonal high groundwater depth of >6.0 ft. for Candler fine sand,

which would be at a maximum elevation of 37 for Pond Site G1. Since this elevation is below Tsala Apopka Lake elevation of 38.5 per the SWFWMD contour maps, Pond Site G1 analysis has been revised to include a SHW elevation of 38.5, which would the pond bottom.

Drainage area used in calculations for all ponds is same. Since most ponds encroach into depressions, the total impacts must include drainage areas to the lows as well as the area diverted to the lows. If ponds encroach into lows and are to be separated from lows, then the effects of reducing existing storage must be accounted for.

The contributing drainage area included all low lying areas, worst case scenario, that will reach the pond site and was constant for all the pond analyses within Sub-basin G for a conservative approach.

22. Response didn't address issues.
(Previous comment: Neither Table 4 nor the report includes enough information to support the selection of J5. It appears to be too remote and doesn't include an easement for outfall. If an easement is not proposed because the outfall will be back down the roadway alignment, a significant construction cost will be incurred. If the basin south of the cross drain can be carried to J5, why not also carry Basin I to one site in Basin J? The report should discuss other alternatives in more detail for Basin J)

Sub-basin J includes the same 3 pond sites evaluated in the previous PD&E study. The current study is a reevaluation study. The right-of-way cost estimates, shown in Table 3 of the Pond Siting Report, support the selection of Pond Site J5. Although, all the pond sites are hydraulically functional, there are 2 economical sites within Sub-basin J. It was agreed during the scoping meeting of this project, compensatory treatment would not be analyzed to include worst-case scenario. There is a potential of doing compensatory treatment in the design phase of this project to determine if Sub-basin I can be eliminated.

24. Since documentation in report (October 25 meeting minutes) conflicts with criteria used (0.5 inches treatment in dry ponds vs. 1"), superceding documentation should be included in report.

The stormwater ponds have been designed for 1" of treatment and doubled if outfalling to Tsala Apopka Lake.

New comment: The report included floodplain impact volume calculations and depiction of mitigation sites on aerials but didn't include data necessary to evaluate floodplain mitigation site selection. Coordinate with Project Manager to clarify scope of report.

The floodplain analyses were deleted from the scope of services and acknowledged by FDOT staff. However, the District staff later requested that the floodplain volume impact calculations be included in the Pond Siting Report and potential mitigation locations be shown on the aerials. This request was after the stormwater pond site investigations were completed. It should be noted that the floodplain mitigation locations abut the currently investigated sites that included the necessary data.

Should you have any questions, please let me know.

Sincerely,

ARCADIS G&M, Inc.

Sam Aref
Project Engineer

ARCADIS
GERAGHTY & MILLER

SUBJECT: HGL Calculations

JOB NO: TF001173.0000

BY: Sam Aref
DATE: April 12, 2002
CHKD:
DATE:

	POTENTIAL POND SITE								
	B3	C2	E1	E2	E3	F1	F2	F3	G1
3-year TW Elevation, ft (a)	34.46	37.89	44.92	49.32	48.79	35.25	35.59	35.28	38.66
Horizontal Distance between Pond to LEOP, ft (b)	450.00	50.00	1000.00	330.00	1050.00	2140.00	1360.00	940.00	540.00
Slope of Pipe, % (c)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Required HGL Vertical Rise, ft (d) [b x c]	0.27	0.03	0.60	0.20	0.63	1.28	0.82	0.56	0.32
Clearance Depth between U/S HGL & Gutter, ft (e)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3-year TW + U/S HGL + Clearance Elevation, ft (f) [a + d + e]	35.73	38.92	46.52	50.52	50.42	37.53	37.41	36.84	39.98
LEOP Elevation, ft	54.80	50.30	50.52	50.52	50.52	37.68	37.68	37.68	47.87
HGL + Clearance Elevation < LEOP?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

NOTE:

The slope of pipe is based on a minimum velocity of 2.5 ft/sec for 36" RCP

TW - Tailwater
LEOP - Low Edge of Pavement
HGL - Hydraulic Grade Line
U/S - Upstream

ARCADIS
3903 Northdale Boulevard
Suite 120
Tampa
Florida 33624
Tel 813 961 1921
Fax 813 961 2599

TRANSPORTATION

Mark Clasgens, E.I.
Project Manager
FDOT, District 7
Environmental Management Office (EMO), MS 7-500
11201 N. McKinley Drive
Tampa, FL 33612-6456

Subject: S.R. 200 PD&E Study Reevaluation – Response to comments on the Pond Siting Report, dated December 6, 2001

Tampa
March 6, 2002

Contact:
Sam Aref

Extension:
813-264-3416

Dear Mark:

We have received and reviewed the December 6, 2001 comments made by Larry Gaddy, on the Pond Siting Report submitted for the subject project and offer the following responses:

It is important to note that the low edge of pavement (LEOP) elevations are based on the existing FDOT roadway construction plans, dated 1936, and not the SWFWMD maps.

1. **Table 5 indicates DHW for A4 at 51.52. Per SWFWMD contours, this appears to be above EOP, unless roadway profile is to be raised significantly. This may not be a problem since attenuation isn't necessary, thus allowing the DHW to be lowered by widening the weir. There may be other problems at this site, however. The SHWT may be too high with respect to the low edge of pavement (LEOP), thus rendering this site unfeasible. Since A3 also appears unfeasible based on a ground elevation reported to be at 60.0. It is possible that none of the sites selected are viable. Normally, 3 viable sites per basin are desired. The lack of adequate ground elevation data makes the task more difficult. Areas not covered by SWFWMD contours must be handled by USGS maps and/or field observations. Problems with A4 could possibly be overcome by configuring the shape to be elongated in the east/west direction so as to reduce the average SHWT elevation. Another option, if no other sites at lower elevations are available, is use of liner.**
   Per the existing construction plans from FDOT, the LEOP is 51.80. Three alternative pond sites have been designed for Sub-basin A. In all cases, the USGS maps were used in lieu of the SWFWMD maps where no contour elevations were provided.
2. **Table 5 indicates LEOP in Basin B is 51.8. This conflicts with existing roadway per SWFWMD contours. What is source of this elevation? This is a common issue throughout report.**
   The LEOP in Sub-basin B is 54.80 as shown in Table 4. All LEOPs are taken from the existing FDOT roadway construction plans.
3. **Alternate B3 may not be feasible due to deep ditch near Station 75+00 necessary to drain from low point near Station 60+00. Several other sites near the roadway appear viable.**

B2, B3 and B4 were selected for the design. B2 is the recommended alternative.

4. **Alternatives C2 and C4 appear too high to serve as a stand-alone SMF.**
Pond site alternatives C2 and C4 have an estimated existing ground elevation of 40 and 50, respectively. However, all pond site alternatives have been analyzed to ensure that they are hydraulically functional. Pond Site C4 was eliminated from further analysis.

5. **More information should be included regarding the existing SMF in Basin C. It would be expected to have been designed for future improvements. If it wasn't, was it designed to include attenuation? If it was, more capacity is available for treatment. If not and it is maximized, is the treatment depth 1.5'? If it isn't, then liner may allow more treatment. Based on the size depicted in report, it seems more than ample to handle the additional two lanes.**
Sub-basin C included onsite and offsite stormwater runoff. The required pond site area for this runoff is approximately 2.30 ac. The existing FDOT pond is approximately 1.26 ac. The right-of-way cost estimate for the adjacent land to expand the existing pond is $193,200. Pond site C1 however, is $107,050 and can handle the additional runoff. A pond liner is certainly an option, which will require permit modification and coordination in the design phase of the project.

6. **SMF C size is larger than necessary since the treatment depth is less than the 1.5' allowed and attenuation isn't necessary. This results in the need for more than one parcel at C1 and thus renders R/W estimates incorrect. This is a common issue throughout report.**
The original pond site areas were estimated based on 15 to 20% of the right-of-way. All pond sites have been redesigned and new right-of-way cost estimates have been provided and included in Appendix K. Pond Site C1 was identified as having the lease right-of-was cost estimate.

7. **C3 not identified on aerials.**
All pond site alternatives have been shown on the aerials.

8. **D3 appears too high. Why not move to south property line, where terrain is lower, and closer to project?**
Per meeting with FDOT and Citrus County, it was agreed to relocate pond sites away from the project corridor right-of-way for aesthetic issues. All possible pond sites were relocated with the exception of few.

9. **Site E1 isn't feasible due to R/W and construction cost. Why weren't sites west of the road near the profile low point considered? They are developed (mobile homes), but will be considerably more economical and hydraulically superior to E1.**
Three pond site alternatives were selected within Sub-basin E. E1 was selected due to the proximity of the outfall to Tsala Apopka Lake. The right-of-way cost estimate was not known at the time of the selection.

10. **F1 isn't feasible due to R/W cost, distance from profile low point, and elevation with respect to LEOP. However there appears to be several attractive sites near the low point near the roadway profile low point.**

The selected pond sites were based on the previous approved FDOT District 5 study. This current study is to reevaluate the previous study and recommend alternative pond sites accordingly.

11. **F3 is configured in a way that places it on high terrain. Why not situate south of current location?**
Pond Site F3 estimated ground elevation is 40, which the average ground elevation within the area.

12. **G1 not shown on aerial.**
All pond site alternatives have been shown on the aerials.

13. **There is insufficient information to evaluate Basin G. If SHWT and pop-off elevations aren't favorable, the roadway will flood for long periods of time. The ideal site would be the existing low point to which the roadway now discharges and it would have a pop-off elevation that would maintain a DHW lower than the roadway. This would limit FDOT responsibility to simply enlarging the storage to accommodate the volume increase and to assure the pond recovers per criteria. Percolation shouldn't be considered during the event unless a groundwater modeling program is used (Modret, for example). Are original FDOT drainage maps available? If not, field inspections and Quad maps must be used. The report should provide narrative describing terrain as observed on field review.**
The evaluation of Sub-basin G was based on the USGS Quadrangle maps. There are no available FDOT drainage maps. SUPRA 3 program, per FDOT approval, was used for the analyses, which considers percolation rate. It is understood, however, that other programs such as ICPR for routing analyses and Modret for percolation analyses will be used to secure an ERP permit.

14. **The report asserts (page 26) that Two-mile Prairie Lake has no positive outfall. Isn't it connected to Tsala Apopka at the 100-year elevation?**
Two-mile Prairie Lake has a positive outfall and therefore, the report has been revised.

15. **Aerial sheet 11 is missing from report.**
All aerial sheets have been included.

16. **Why is H2 shown as such a large area on aerial sheet 10?**
All pond sites have been redesigned from the original estimates and do not include floodplain compensation. The actual pond size has been redrawn on the aerial.

17. **Why is only one alternative site shown for south side of Basin H?**
Other alternative pond sites have been shown.

18. **Aerials maps in report should show H3 (H4 is assumed to be included on missing Sheet 11).**
All aerial sheets have been included.

19. **H4 appears too high and remote from outfall to be practical. Why not add alternatives near H3 as well as on opposite side of roadway?**
The existing ground elevation at H4 is approximately 45, which is close to H3 that also has a ground elevation of 45. The opposite side of the roadway would be within the 100-year floodplain.

20. **H3 not shown on report aerials.**
All pond site alternatives have been shown on the aerials.

21. **Table 5 doesn't include cost for H3 and H4.**
Table 5 has been revised to include costs for all pond sites alternatives. It is now labeled Table 3.

22. **Neither Table 4 nor the report includes enough information to support the selection of J5. It appears to be too remote and doesn't include an easement for outfall. If an easement is not proposed because the outfall will be back down the roadway alignment, a significant construction cost will be incurred. If the basin south of the cross drain can be carried to J5, why not also carry Basin I to one site in Basin J? The report should discuss other alternatives in more detail for Basin J.**
The selected pond sites were based on the previous approved FDOT District 5 study. This current study is to reevaluate the previous study and recommend alternative pond sites accordingly. Per FDOT Compensatory treatment was not considered in this study.

23. **Consider adding a comment that ponds sites are reasonable worst case scenarios and that during design phase, efficacy of treatment within R/W will be evaluated and negotiations with SFWMD will be conducted with a goal toward elimination of some SMF by use of substitute treatment.**
Agreed and has been included in the report. The negotiations will be with SWFWMD.

24. **Dry treatment has been assumed to be viable in all basins except J. Meeting minutes for October 25, 2000 drainage meeting, item 6, asserts treatment will be based on 1" runoff, except where outfalling into Tsala Apopka Lake or Withlacoochee River, where it will be 1.5 to 2 times initial treatment volume. This was probably required because D-7 has experienced problems with dry treatment not complying with recovery criteria in ponds. This has created problems where the site has insufficient R/W to allow expansion as a remedy. Why was 0.5" used in all but Basin J?**
The treatment will be based on 1" of runoff for wet ponds and 1/2" of runoff for dry ponds, except where outfalling into Tsala Apopka Lake or the Withlacoochee River, where it will be 1.5 to 2 times the initial treatment volume.

Should you have any questions, please let me know.

Sincerely,
ARCADIS G&M, Inc.

Sam Aref
Project Engineer

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TRANSPORTATION

Mark Clasgens, E.I.
Project Manager
FDOT, District 7
Environmental Management Office (EMO), MS 7-500
11201 N. McKinley Drive
Tampa, FL 33612-6456

Subject: S.R. 200 PD&E Study Reevaluation – Response to comments on the Pond Siting Report, dated December 4, 2001

Dear Mark:

We have received and reviewed the December 4, 2001 comments made by Frank Ghadimi, on the Pond Siting Report submitted for the subject project and offer the following responses:

1. **Has Roadway design approved the use of suburban typical section (Fig. 7) for this project?**
   Yes
2. **On sheet #20, please explain why SWFWMD does not require attenuation. (last paragraph).**
   The text has been revised to include the explanation, as requested.
3. **Sheet #25 discusses Sub-basins, the maps discuss basins. Are these the same? Need to be consistent.**
   The basin references, with the exception of the Withlacoochee Basin, have been changed to sub-basins.
4. **All alternatives evaluated must meet the basic requirements of meeting hydraulic, soil, size, haz mat, etc. before they are considered a viable alternative. The others can be discarded but discussed in the text as to why they were not pursued further. Revise sheet #36 recommendation also.**
   All pond site alternatives have been hydraulically re-evaluated and included in the report.
5. **On sheet #25, the existing FDOT pond is discussed. However, Plan Exhibit #5 shows existing pond can be expanded to the west. Please modify the drawing, which appears to be in error.**
   Sub-basin C included onsite and offsite stormwater runoff. The required pond site area for this runoff is approximately 2.30 ac. The existing FDOT pond is approximately 1.26 ac. The right-of-way cost estimate for the adjacent land to expand the existing pond is $193,200. Pond site C1 however, is $107,050 and can handle the additional runoff. The drawing depicts the correct existing pond location.
6. **Sheet #27 uses the word "significant" leading one to assume some change in flooding. Is this what is intended? If not, revise paragraph. Also, this discusses backwater surface elevations, what about additional flooding that may occur downstream. Please address.**
   The report has been revised.

Tampa
March 6, 2002

Contact:
Sam Aref

Extension:
813-264-3416

7. **Sheet #30 first paragraph, indicates "at least three pond sites per basin". This is not true for Basin I, where we have two sites only.**
   The text has been revised.
8. **Sheet #32 last paragraph, why was offsite run-off commingled? Check with FDOT drainage design.**
   Per FDOT drainage design recommendation, offsite runoff was commingled.
9. **Table #4 matrix (sheet 33) does not discuss construction or utility relocation costs. It is conceivable that at some locations it may change the outcome, i.e. where an in-flow has to be carried a long way or utilities are present. Please discuss with drainage design.**
   Per FDOT drainage design, construction or utility costs are not included in the matrix. The matrix table has been revised according to the Drainage Department recommendations.
10. **Table #4 matrix – where are R/W costs for A-1, C-3, H-3 and H-4?**
    All right-of-way cost estimates have been included.
11. **Sheet #34 – does the 1.0 clearance pertain to the 100-year design? If so, please state.**
    A minimum of 1-foot must be provided between the maximum elevation (E. Max) DHW for the 100-year design and the top of bank (TOB) elevation within the stormwater pond. The text has been revised.
    Table #5 (sheet 37) – how can H-4 be recommended without a cost estimate on Table #4?
    All right-of-way cost estimates have been included.
12. **Table #4 (proposed detention/retention ponds) – the stations do not match plans. Also, pond designations do not match. Need to show appropriate stations.**
    The matrix table has been revised. It is now Table 3.
13. **Sheet #16 (Risk Assessment) is the clearance mentioned in last paragraph to the base or PG?**
    Sheet #16 refers to the original FDOT District 5 approved PD&E study. It is presented for reference only and cannot be revised.
14. **Telephone conversation record – have you talked with long-time residents in addition to FDOT maintenance?**
    Yes. ARCADIS interviewed residents and business owners in February 2000. However, no names were taken.
15. **Are all ponds stormwater management ponds or are flood plain mitigations? Need to assess the later also.**
    In addition to the stormwater management ponds, floodplain compensation sites have been included.
16. **Aerials – color code legends, do not match colors shown.**
    Color code legends have been revised.
17. **Aerial sheet #3 – the easement for access and drainage needs to extend to the pond site.**
    All drainage easements have been included on the aerials and in the right-of-way cost estimates.

18. **Aerial sheet #3 – is East Lake Drive (access to B-2) a public road? If not, the easement does not need to extend that far east. (reduces cost)**
East Lake Drive is a public road and county maintained, therefore no easement is needed.
19. **Aerial sheet #3 – A-1 is not shown, but C-4 is shown and neither one is viable!**
All pond site alternatives have been shown.
20. **Aerial sheet #10 - Can access to H-2 be provided on the same property in lieu of property to the south?**
No. This is due to the adjacent residents and a creek that outfall into Two-mile Prairie Lake.
21. **Writer needs aerial sheet #1. (two 12's were provided)**
All aerial sheets have been provided in the report.

Should you have any questions, please let me know.

Sincerely,

ARCADIS G&M, Inc.

Sam Aref
Project Engineer

ARCADIS GERAGHTY & MILLER

TELEPHONE CONVERSATION RECORD

DATE: December 4, 2001 TIME: 10:00 A.M. PROJECT: SR 200 PD&E

FROM: Sam Aref TO: Jerry Sanford

COMPANY: ARCADIS COMPANY: FDOT Licanto Maintenance office

TELE NO: 813. 961. 1921 TELE NO: 352. 527. 9350

RE: Flooding Issues

Jerry indicated that he does not believe there are drainage problems along the subject roadway. He did confirm, however, that he is not sure. He recommended to call Don Higinbotham. He stated that Don is very familiar with the area.

Note:

ARCADIS contacted Don Higinbotham on 2/5/01. Don indicated that there are no flooding problems.
The call to Jerry Sanford was a request from the FDOT District 7 Drainage Dept.

ARCADIS G&M, Inc.
3903 Northdale Boulevard
Suite 120
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Florida 33624
Tel 813 961 1921
Fax 813 961 2599

MEETING REPORT

TRANSPORTATION
DECEMBER 10, 2001

Participants:

Steve Thomas	ARCADIS G&M
Mark Clasgens	FDOT
Joe Thompson	FDOT
Megan Arasteh	FDOT
Frank Ghadimi	FDOT
Mike Coleman	ARCADIS G&M
Sam Aref	ARCADIS G&M

Copies:

Place/date of meeting:
FDOT District 7
November 26, 2001

Minutes by:
Steve Thomas

Subject:
SR 200 Reevaluation meeting on Pond Siting Report

ARCADIS Project No.:
TF001173.0001

All recipients should review this document. Any additions, revisions, or deletions should be called to the attention of the writer within ten (10) days.

The meeting was held to discuss the draft Pond Siting Report. Comments from the meeting are as follows:

- On the plan sheets, the labels will be changed from "Basin" to "Sub-Basin".
- Only three ponds per basin will be included in the report. Those ponds are to be evaluated throughout the report, including right of way cost estimates.
- Local access roads were used for access to and from the ponds. FDOT requested that ARCADIS determine if these access roads are privately owned or publicly owned. If private, then ARCADIS is to show additional right of way needed.
- Megan asked if there was any compensatory treatment for Sub-basin G. Sam Aref explained that during the scoping of this project, it was agreed not to analyze ponds for compensatory treatment.
- FDOT asked ARCADIS to include in the report a statement indicating mitigation for wetland impacts would be handled through the purchase of these wetlands at $85,000/acre of impacted wetlands through SWFWMD program.

- FDOT requested that ARCADIS include an additional TELEPHONE CONVERSATION RECORD regarding any flooding from Jerry Sanford of the FDOT Maintenance office in Appendix C.

- Megan requested that ARCADIS remove the cross drain text in Section 4.2 from the Pond Siting Report since it is included in the Location Hydraulics Report.

- Sam to revise Table 4 to include the combination of pond sites for Sub-basin H and add the new stations call out.

- FDOT requested ARCADIS to include floodplain impact volume calculations in the report.

- Sam stated that this issue was discussed during the man-hour negotiation and that it was agreed not to include. However, should FDOT require the calculations, ARCADIS will do it.

- All drainage easements to be included in the right-of-way cost estimates.

- FDOT requested that ARCADIS include flow arrows on all existing cross drains.

- FDOT requested that ARCADIS include SWFWMD maps showing sub-basin names and limits and dimensions of all pond sites.

- Megan requested that ARCADIS calculate floodplain impacts. Sam explained that this is outside of the scope. FDOT will discuss internally and direct ARCADIS on what methodology to use.

- Megan stated that PBS&J will review the report and provide comments.

FDOT made several comments regarding the text of the report and requested broader explanation of attenuation requirements, sub-basins discussions, floodwater elevations and floodplain impact. Frank Ghadimi addressed these comments and others in writing on December 4, 2001.

Should you have any questions or wish to discuss these minutes further, please feel free to call.

ARCADIS GERAGHTY & MILLER

TELEPHONE CONVERSATION RECORD

DATE: 2/5/2001 TIME: 9:15 A.M. PROJECT: SR 200 PD&E

FROM: Sam Aref TO: Don Higinbotham

COMPANY: ARCADIS COMPANY: FDOT Licanto Maintenance office

TELE NO: 813.961.1921 TELE NO: 352.527.9350

RE: Flooding Problems

According to Don Higinbotham, there are no flooding observed or reported along SR 200 between US 41 and the Marion County line. Don suggested that this maybe due to high sandy area. He did report, however, that Marion County is experiencing some flooding in their areas.

DRAINAGE
MEETING MINUTES
for
SR 200 PD&E Reevaluation
from US 41 to north of the Marion County Line

A meeting took place on the above referenced project at the FDOT District 7 Drainage Office on October 25, 2000. The subject of the meeting was to discuss methodology issues regarding the Location Hydraulics and Pond Siting Reports. In attendance were: Megan Arasteh, P.E., FDOT District Drainage Engineer and Sam Aref of ARCADIS Geraghty & Miller, Inc. The following subjects were discussed:

1 The limits of the project were identified from US 41 on the south terminus to north of the Marion County Line on the north terminus, as shown on the provided location map.

2 The project will include eleven sub-basins. ARCADIS Geraghty & Miller to contact SWFWMD to confirm open and closed basins.

3 Per the PD&E scope of work, a minimum of two and preferably three stormwater pond site alternatives shall be submitted for each basin. The pond designs will be based on the selected typical sections, which are currently under review. Supra-3 Model will be used for the pond designs. The calculated DHW for the 3-year storm event for the urban section, 10-year storm event for the rural section shall be less than the lowest edge of pavement elevation within the sub-basin in question to insure positive flow to the selected pond sites.

4 Megan suggested that wherever urban typical sections are considered, the offsite runoff should be accommodated for.

5 Per the PD&E scope of work, the alternative analyses for stormwater runoff will evaluate storage in stormwater ponds.

6 Water quality treatment will be based on 1 inch of runoff. However, if outfalling to Withlacoochee River and Tsala Apopka Lake, water quality treatment will be 1.5 and 2 times the initial treatment volume, respectively. SWFWMD considers Tsala Apopka Lake to be a sink hole and, therefore, the 2 times the initial treatment volume will be required.

7 Per the PD&E scope of work, a Bridge Hydraulics Report (BHR) will not be prepared for this project.

8 The preliminary cross-drain replacements and extensions will be based on the velocity of six feet per second as discussed in the FDOT Drainage Manual. The proposed cross drain sizes will be compared to the December 1993 PD&E study as part of the current PD&E reevaluation study.

9 During a separate phone conversation on November 9, 2000, between Megan Arasteh, Sam Aref and Panos Kontses, the drainage design for a future six-lane typical section was discussed. This

issue has arisen because FDOT District 5 has designed the drainage facilities for S.R. 200 in Marion County to accommodate a six-lane typical section even though the design plans show S.R. 200 as a four-lane facility. Megan, after consulting with Dwayne Kile, District Design Engineer, responded that the drainage facilities for S.R. 200 should be designed to accommodate the lane requirements suggested by the Long Range Transportation Plan (LRTP) of Citrus County. It should be noted that Citrus County has recently agreed to update its LRTP to include S.R. 200 as a four-lane facility. Therefore, it was agreed that the drainage facilities reflect the approved four-lane typical sections for this study.

THIS FORM IS INTENDED TO FACILITATE AND GUIDE THE DIALOGUE DURING A PREAPPLICATION MEETING BY PROVIDING A PARTIA "PROMPT LIST" OF DISCUSSION SUBJECTS. IT IS NOT A LIST OF REQUIREMENTS FOR SUBMITTAL BY THE APPLICANT.**

Southwest Florida Water Management District
Resource Regulation Division
ERP Preapplication Meeting PROMPT LIST

CT #

MEETING INFORMATION

Service Office/ Meeting Location: ☐ Bartow ☐ Brooksville ☐ Tampa ☐ Venice ☐ Other Location

Meeting Time: 9:00 A.M.

Meeting Date: 2/29/2000

Attendees:	Name	Affiliation	Mailing Address	Phone Number
1.	Sam Arce	ARCADIS Geraghty & Miller	14497 N. Dale Mabry suite 115 Tampa 33618	264.3416
2.	Ramos Kontses	ARCADIS Geraghty & Miller	14497 N. Dale Mabry suite 115 Tampa 33618	264.3459
3.				
4.				
5.				

Types of documents to be reviewed during the meeting:
☒ Aerial Maps ☐ Soil Surveys ☐ Wildlife Surveys ☒ FEMA Maps ☐ Drainage Calculations ☐ Title/Lease/Ownership ☐ Geotechnical Reports/Models ☐ Topographic Maps ☐ Const. Drawings/Site Plans ☐ Land Surveys ☒ Wetland Surveys ☐ Other/ No Documents

PROJECT BACKGROUND AND HISTORICAL INFORMATION

Project Name: SR 200 PD&E Proposal

Project Location: County: Citrus Section: See below Twnshp Range

Other Agency Involvement (circle all that apply): ACOE EPA DEP DCA FGFWFC Dept of State Local Other

Prior Onsite and Adjacent Property Permit Activity:

Onsite Permit/Activity	Permit, CT, or FI #	Prior Eng/ES
☐ WUP		
☐ Prior Surface Permit		
☐ Dredge and Fill		
☐ Enforcement Action		

Adjacent Property Permit #s
☐ WUP
☐ Surface
☐ Eng/ES/Hydro

WUCA, MFL, SWA, or other area of resource concern (identify)

Ownership/Perpetual Control: ☐ Ownership ☐ Eminent Domain ☐ Specific use easements ☐ Environmental/Conservation easements ☐ Right-of-way easements ☐ Ingress/egress easements ☐ Transmission easements ☐ Drainage easements

Project Overview: ☐ Total Land acreage: ☐ Project acreage: ☐ Impervious acreage: ☐ Wetlands acreage: ☒ Wetlands identified? (yes or no) ☐ Wetlands delineated/surveyed? (yes or no)

Notes/Comments:

Sections: 2, 11, 14 & 23 of TWP 18S & Range 19E
Sections: 25, 35 & 36 of TWP 17S & Range 19E
Section: 30 of TWP 17S & Range 20E

Southwest Florida Water Management District
Resource Regulation Division
ERP Preapplication Meeting PROMPT LIST

CT #

SITE INFORMATION DISCUSSION

Seasonal High Water Level (a.k.a., Seasonal High Ground Water Table):

1. ☐ Site topography
2. ☐ Soil surveys
3. ☐ Soils type calculations for dual classifications? ☐ Yes ☐ No
4. ☐ SHWL/SHGWT set by actual elevation (NGVD); or relative elevation (depth below land surface) (circle one)
5. ☐ Soil borings necessary, and at least 2 feet below proposed pond bottom elevation? ☐ Yes ☐ No
6. ☐ Ground penetrating radar from NRCS
7. ☐ NRCS SHWL/SHGWT determination
8. ☐ Sinkholes/Karst Formations
9. ☐ Field site visit is recommended? ☐ Yes ☐ No

Purpose(s)_____

Flood Plain and Tailwater Conditions:

10. ☐ Tailwater analysis and evaluations (i.e., stage/time data)
11. ☐ The project is within 100 year flood plain?
12. ☐ FEMA maps are provided? ☐ Yes ☐ No
13. ☐ FEMA panel No: _____ ☐ Yes ☐ No
14. ☐ FEMA maps are best evidence available?
15. ☐ Other, better data needed? ☐ Yes ☐ No
15A. ☐ Do flood plain elevations need establishment for apparent flood hazard zones? ☐ Yes ☐ No ☐ Yes ☐ No

Adjacent Offsite Contributing Sources:

16. ☐ Identify offsite contributing sources
17. ☐ Discuss prior permitting history of adjacent projects
18. ☐ Identify historical activity on GIS

Receiving Waterbody:

19. ☐ Identify classification of receiving waterbody: OFW Class I (circle one)
20. ☐ Identify quantity capacity of receiving waterbody
21. ☐ Aquatic Preserve? ☐ Yes ☐ No

Sovereign Submerged Lands:

22. ☐ Has a title determination been made? ☐ Yes ☐ No
23. ☐ Does the project exceed the delegation authority thresholds in ss. 18-21.0051, F.A.C.? ☐ Yes ☐ No
23A. ☐ Can the project be reasonably expected to have heightened public concern because of potential effect on the environment, natural resources, or controversial nature or location? ☐ Yes ☐ No

Notes/Comments:

Southwest Florida Water Management District
Resource Regulation Division
ERP Preapplication Meeting PROMPT LIST

CT #

WATER QUANTITY DISCUSSION

Basin Description:	24. ☒ Open ☐ Closed ☐ Special Basin Criteria
Storm Event Information:	25. ☒ Designed Storm Event (25 and/or 100 years) 26. ☐ Rainfall depths for 25 and 100 year events
Pre/Post Volume:	27. ☐ Difference for closed basins (100 year storm event)
Pre/Post Discharge:	28. ☐ Discussion of raising or lowering groundwater levels 29. ☐ Discussion of 36 hour initial stage (DLW) 30. ☐ Discussion of necessity to maintain points/method of discharge 31. ☐ Discussion of effects of previously recorded drainage easements or permits (onsite and adjacent) 32. ☐ Pre/post discharge rates 33. ☐ Applicant proposes to lower groundwater? ☐ Yes ☐ No 34. ☐ If 33 marked yes, are drainage pumps planned? 35. ☐ If 33 marked yes, discuss radius of influence and drawdown calculations 36. ☐ If 33 marked yes, how will proposed system be effectively maintained to prevent adverse impacts ?
Range of Rates Discussed:	Pre/Post rates _____ Rainfall depths 25 year event _____ 36 hour DLW _____

Notes/Comments: Compensate
COMPENSATE FOR 100 YR FLOODPLAIN
ENCROACHMENT
TSALA APOPKA – Treat THAT DISCHARGE
THE VOLUME
IF DISCHARGE DIRECTLY INTO THE
LAKE – NO ATTENUATION

If discharge directly into the lake – No attenuation

Southwest Florida Water Management District
Resource Regulation Division
ERP Preapplication Meeting PROMPT LIST

CT #

WATER QUALITY DISCUSSION

Type of Water Quality Treatment: ☐ Wet Detention ☐ Wetland Treatment ☐ Dry Retention ☐ Effluent Filtration ☐ Other

Technical Characteristics:

37. ☐ Contributing area
38. ☐ Required volume
39. ☐ Provided volume
40. ☐ Fluctuation (hydroperiod elevations) ☐ Different from 18"? ☐ Yes ☐ No
41. ☐ Drawdown; OR residence time for "Conservation" design alternative
42. ☐ 35% Littoral & 1' Pool depth; OR "Conservation" design alternatives
43. ☐ Separate inflow/outflow
44. ☐ Mounding analysis
45. ☐ Filter drain calculations
46. ☐ Impacts to wetland hydroperiods
47. ☐ 2' Minimum filter material
48. ☐ Skimmers
49. ☐ Erosion controls
50. ☐ Special criteria (Outstanding Florida Waters)
51. ☐ Public road requirements
52. ☐ Equivalent treatment
53. ☐ Discussion of reporting cycles requires for treatment types

Non-Presumptive Treatment Alternatives (a.k.a., "Rule Alternative Equivalent Criteria"[1])

Notes/Comments:

[1] Sections 1.1, 1.3 and 5.1 of the "Basis of Review" (BOR) for Environmental Resource Permitting applications refer to "criteria flexibility," "other methods of meeting overall objectives," and "equivalent treatment" as alternative ways to demonstrate reasonable assurance of compliance with the ERP Conditions for Issuance of Permits. This introduces a concept of "Rule Alternative Equivalent Criteria," which means dimensional design and performance standards that are technically, scientifically and functionally equivalent to, and may be voluntarily substituted for, specific criteria already in District BOR Rules for determining compliance with the Conditions for Issuance of Permits. Using this concept, alternative criteria can be voluntarily used in the application IF the criteria: 1) are proven to be technically, scientifically and functionally equivalent to criteria already in the BOR, 2) are appropriate for the site conditions, and 3) are agreed to by the District on a case by case basis and prior to permitting.

Southwest Florida Water Management District
Resource Regulation Division
ERP Preapplication Meeting PROMPT LIST

CT #

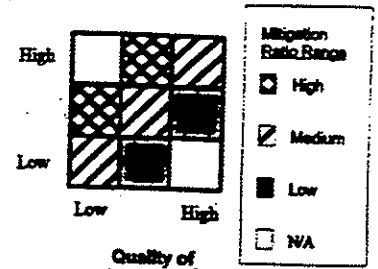
ENVIRONMENTAL DISCUSSION

Wetlands On the Proposed Site, or On Adjacent Properties: ☑ Yes ☐ No

Technical Characteristics:

54. ☑ Identification of wetlands on site
55. ☐ Identification of wetlands on adjacent properties
56. ☑ Known T&E species
57. ☐ Environmental easements
58. ☐ Preservation of wetlands and drawdown issues
59. ☑ Ponds/Ditch setbacks from wetlands
60. ☑ Elimination/Reduction strategies
61. ☐ Permanently impacted acres
62. ☐ Temporarily impacted acres
63. ☑ Secondary and cumulative impacts
64. ☑ Mitigation options
65. ☐ Mitigation acres/criteria
66. ☐ Wetland treatment and oil/grease
67. ☐ Maintenance requirements

Relationship between the quality of wetland impact, the quality of mitigation and the mitigation ratio range.



Site Visit and Verification:

		Yes	No
68.	☑ ES site visit necessary?	☑ Yes	☐ No
69.	☑ Wetland verification necessary?	☑ Yes	☐ No
70.	☑ Seasonal High Water verification necessary?	☑ Yes	☐ No
71.	☐ Upland SHWL elevation verification necessary?	☐ Yes	☐ No
72.	☐ Normal Pool (NP) verification necessary?	☐ Yes	☐ No
73.	☐ Other ____________?	☐ Yes	☐ No

Notes/Comments:

WITHLACOOCHEE RIVER — SFW — NEEDS WIDER BRIDGE CROSSING FOR WILDLIFE.
— SIMILAR AREAS TO SW MAY NEED WILDLIFE CROSSING WITHIN FIRST 2-3 MILES FROM BRIDGE
— SCRUB JAYS IN AREA OF CR 37 & 41
— ARROWHEAD FLOODING — TSALA APOPKA OUTFALL CANAL
— NEEDS WET. DEL.
— DOT MITIGATION BILL FOR MITIGATION
— SOV. LANDS — PUBLIC EASEMENT FOR BRIDGE IF NOT ALREADY IN PLACE

CT #

OPERATION AND MAINTENANCE, AND OTHER ISSUES FOR DISCUSSION

Necessary Permit Application Information:

74. ☐ Applicant ownership or perpetual control of entire project area
75. ☐ Name O&M entity
76. ☐ Specific O&M instructions
77. ☐ Homeowner Association documents
78. ☐ Coastal Zone management requirements
79. ☐ Division of Historic Resources

Notes/Comments:

____

____

____

____

ERP APPLICATION/REVIEW/APPROVAL DISCUSSIONS

uture Preapplication Meeting:

80. ☐ Will there be another preapplication meeting? ☐ Yes ☐ No
81. ☐ Field or Office Meeting: ____________
82. ☐ Tentative Date: ____________
83. ☐ Tentative Attendees: ____________

nticipated Permit ype and Fee equired:

☐ Conceptual ☐ Individual ☐ Standard General ☐ Standard General (minor) ☐ Noticed General
☐ Formal Modification ☐ Letter Modification ☐ Site Condition Assessment ☐ None ☐ Other

84. ☐ Estimated Fee $ [ ]

☐ ERP ☐ MSSW ☐ W.O.D. ☐ Exemption

ast Track:

85. ☐ Is Fast Track appropriate? ☐ Yes ☐ No
86. ☐ Are applicant and consultant committed to the Fast Track process? ☐ Yes ☐ No

Some necessary conditions for Fast Track:

____

____

____

nticipated Permit mittal Date:

en is permit eded?

☑ ERP Preapplication Meeting record and/or associated notes completed by: ____________

☐ Copies provided to Attendees on this date: ____________

ISCLAIMER: The District ERP preapplication meeting process is a service made available to the public to assist interested parties in preparing submittal of a permit application. Information shared at preapplication meetings is superseded by the actual permit application submittal. District nit decisions are based upon information submitted during the application process and Rules in effect at the time the application is complete.

© SWFWMD. STATE. FL

APPENDIX C

FLOODPLAIN IMPACT VOLUME CALCULATIONS

ARCADIS
GERAGHTY & MILLER

SUBJECT: Floodplain Impact Calculations

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

SUB-BASIN HS - FLOODPLAIN IMPACTS

Station	to	Station	Side	Length	Width	Area	Ex. Gr. EL	FEMA El.	FP Depth		Volume	
				ft	ft	ac	ft	ft	ft	ac-ft	cy	cf
24780.00		26350.00	Lt	1570.00	21.00	0.76	40.00	41.00	1.00	0.76	1,221.11	32,970.00
26350.00		27675.00	Lt	1325.00	25.00	0.76	40.00	41.00	1.00	0.76	1,226.85	33,125.00
Total						1.52				1.52	2,447.96	66,095.00

SUB-BASIN J - FLOODPLAIN IMPACTS

Station	to	Station	Side	Length	Width	Area	Ex. Gr. EL	FEMA El.	FP Depth		Volume	
				ft	ft	ac	ft	ft	ft	ac-ft	cy	cf
34975.00		35626.64	Lt	651.64	15.00	0.22	40.00	41.00	1.00	0.22	362.02	9,774.60
Total						0.22				0.22	362.02	9,774.60

APPENDIX D

PROPOSED POND LOCATIONS

FLIGHT DATE : 09-12-2000

0 20' 100'

BEGIN PROJECT
STA. (17+67.66) MATCH U.S. 41 (S.R. 45)
PD&E STUDY (W.P.I. NO. 257165-1)
RECOMMENDED IMPROVEMENTS

A3

U.S. 41/S.R. 45 - N. FLORIDA AVE.

THE PARTY STORE

CAR WASH

J. PADTRICK MCELROY ATTORNEY AT LAW

CRAVEN REALTY PROFESSIONAL SERVICES

THE SHED STORE

EASY WHEELS

S.R. 200 - N. CARL G. ROSE HIGHWAY

JC K. DEMARCUS REALTY

WETLAND

ELLY MAY'S FURNITURE

DON'S FRONT END SERVICE

GENE'S HAIR STYLING

FOREIGN AUTOMOTIVE SERVICE

BIG LAWNMOWERS AND POWER SPORTS

SCOTT'S COMPLETE AUTO REPAIRS

Curve 1

Curve 1 Data
D = [illegible]
Delta = 14° 41' 28.5"

PC 30+00.952

LAKE TSALA APOPKA

URBAN ALTERNATIVE

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT
IMPROVEMENTS FOR S.R. 45 (US 41) (PD&E STUDY-WPI NO. 257165-1)

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2399

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 2

CAD\SR200\SHEET02SU.dgn 01/15/02 03:54:22 PM

FLIGHT DATE : 09-12-2000

0 20' 100'

SEGMENT 1 URBAN

SEGMENT 2 SUBURBAN

SUBBASIN A | SUBBASIN B

EAST WHEELS

ROBERTS AUTOMOTIVE

VENTURA VILLAGE

E. LAKE PARK DRIVE

S.R. 200 - N. CARL G. ROSE HIGHWAY

N 41° 29' 05.8" W

Curve 1

Curve 1 Data
D = 1°
Delta = 14° 41' 28.8"

PT 44+70.56

PT 37+39.80

A4

B2

URBAN TO SUBURBAN ALTERNATIVE

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2999

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 3

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FLIGHT DATE : 09-12-2000

0 20' 100'

N

SUBBASIN B

SUBBA

VACANT

N 7° 29'05.8" W

S.R. 200 - N. CARL G. ROSE HIGHWAY

B3

B3

B4

E. ARBOR LAKES DRIVE

ARBOR LAKES

E. BAMPFIRE COURT

URBAN TO SUBURBAN ALTERNATIVE

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 4

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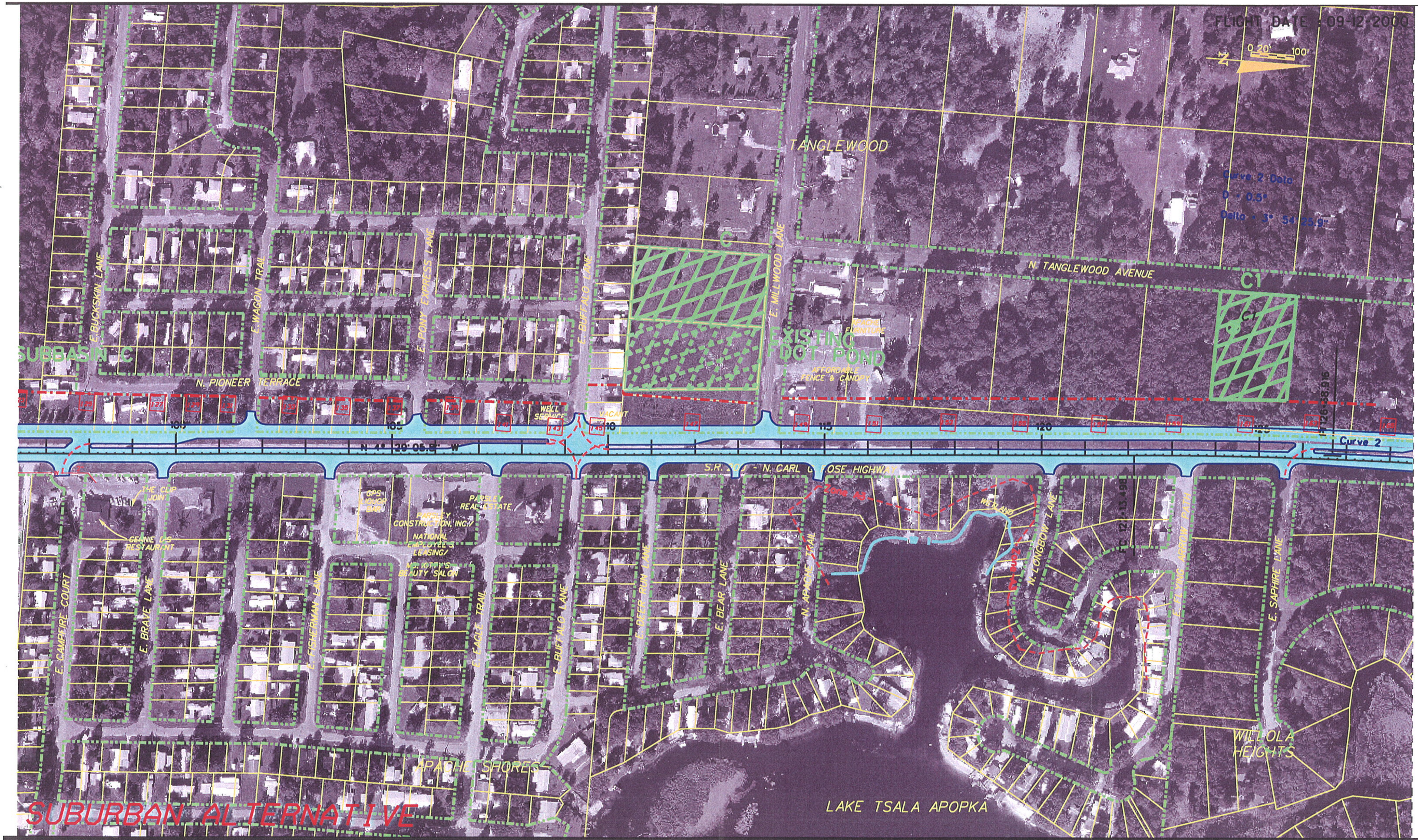

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO.
5

FLIGHT DATE : 09-12-2000

0 20' 100'

SEGMENT 3
SUBURBAN

SEGMENT 2
SUBURBAN

D3

D2

D2

N. TANGLEWOOD AVENUE

Curve 2 Data
D = 0.5°
Delta = 3° 54' 25.9"

SUBBASIN C | SUBBASIN D

SUBBASIN D | SUBB

D3

130 135 140 145 150 155

Curve 2

N 0° 04' 02.0" E

S.R. 200 - N. CARL G. ROSE HIGHWAY

C2

C2

E. RUBY LANE

E. IVORY LANE

N. TIGER EYE DRIVE

E. CHAPPELL COURT

E1

D4

E1

LAKE TSALA APOPKA

WILLOLA HEIGHTS

SUBURBAN ALTERNATIVE

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO.
6

FLIGHT DATE : 09-12-2000

0 20' 100'

E2

E3

E1

F1

SUBBASIN E

SUBBASIN E

SUBBASIN F

A-PLUS 500

S.R. 200 - N. CARL G. ROSE HIGHWAY

TRI-DOCKS RESORT

ARMANTE'S RESTAURANT

KINGS GRAPHICS & SILK SCREENING

BUILDINGS ON WATER RESTAURANT

LAKE TSALA APOPKA

PROFESSIONAL PEST CONTROL

FEED & TACK SHOP

SUBURBAN ALTERNATIVE

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 7

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FLIGHT DATE : 09-12-2000

N

0 20' 100'

SUBBASIN F

SUBBASIN G

F3

F2

Curve 3 Data

D = 1° 08' 33.7"

Delta = 41° 59' 42.0"

WETLAND

S.R. 200 - N. CARL G. ROSE HIGHWAY

N 0° 04' 02.0" E

PC 205+97.02

E. DELIGHT STREET

HERNANDO VETERINARY CLINIC

GARY & CAROL'S WILDLIFE MART

VACANT

SUBURBAN ALTERNATIVE (WIDENING WEST)

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2399

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 8

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PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO.
9

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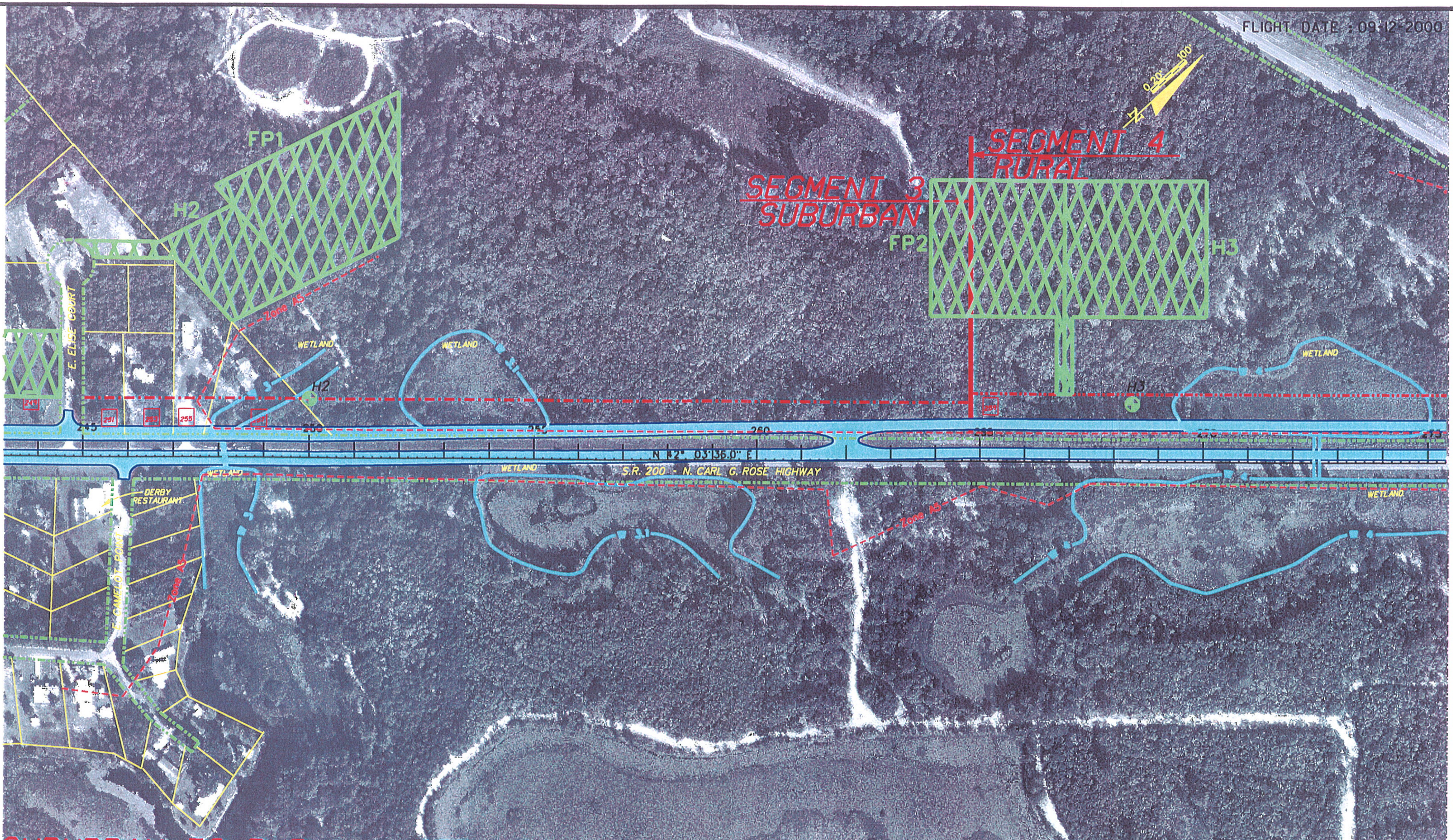

SUBURBAN TO RURAL ALTERNATIVE

- PROPERTY LINES
- CENTERLINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 10

FLIGHT DATE : 09-12-2000

Zone A5

C.R. 491 - N. LECANTO HIGHWAY

H4

H4

Zone A5

H1

SRB TELESCRIBE

Curve 4 Data

D = 0° 30' 07.4"

Delta = 4° 45' 0.2"

SUBBASIN I

SUBBASIN J

Curve 4

275 280 285 290 295 300 305

N 42° 03' 36.0" E

S.R. 200 - N. CARL G. ROSE HIGHWAY

CITRUS CAFE FAMILY SEW & VAC CENTER

NORTHEAST HARDWARE STORE

Zone A5

SUBBASIN H

SUBBASIN I

E. POSSUM DRIVE

GRIFFIN'S TRADING POST

RIVERSIDE CHRISTIAN FELLOWSHIP

I2

J1

RURAL ALTERNATIVE

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2999

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 11

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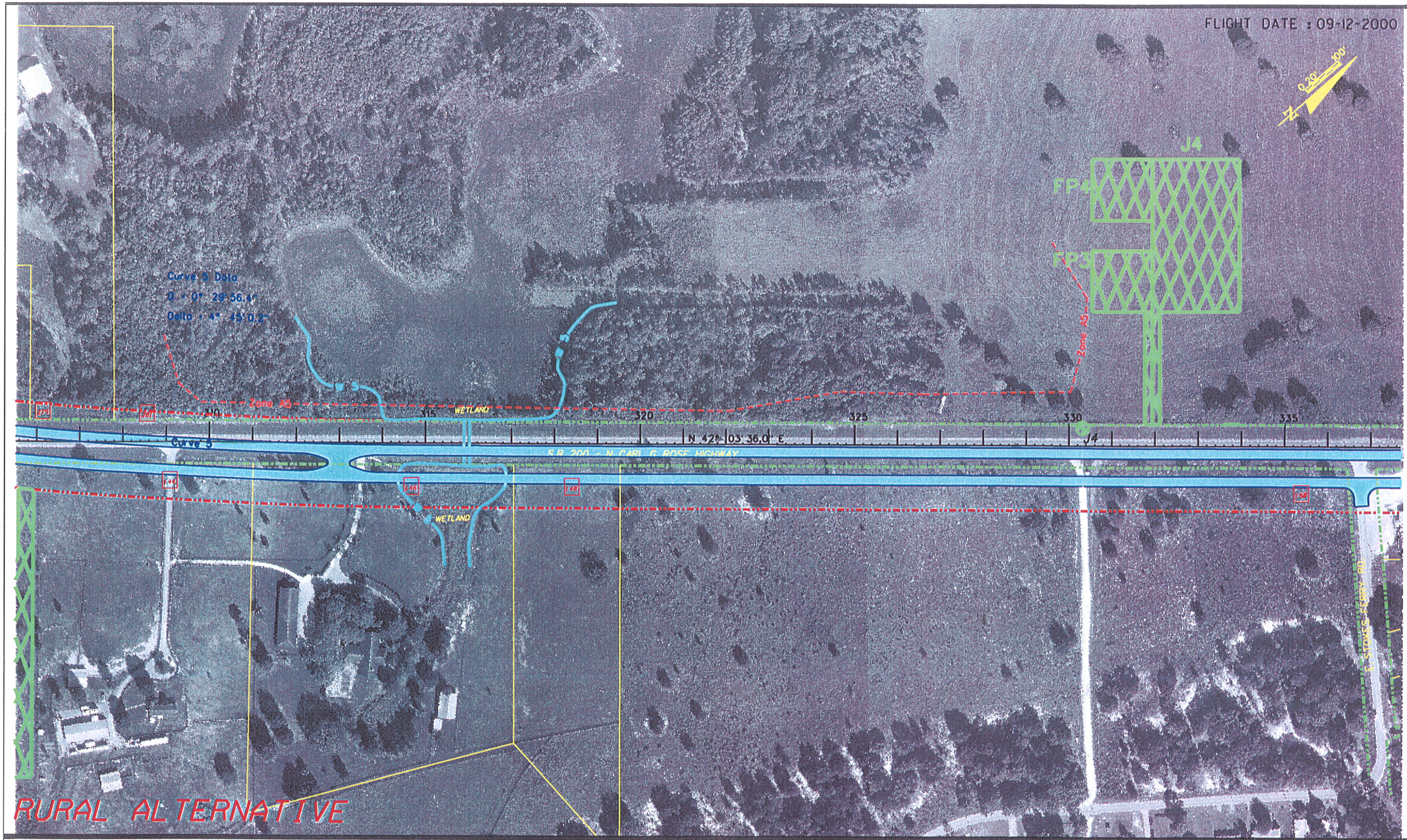

PROPERTY LINES
CENTERLINE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED EDGE OF PAVEMENT

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO.
12

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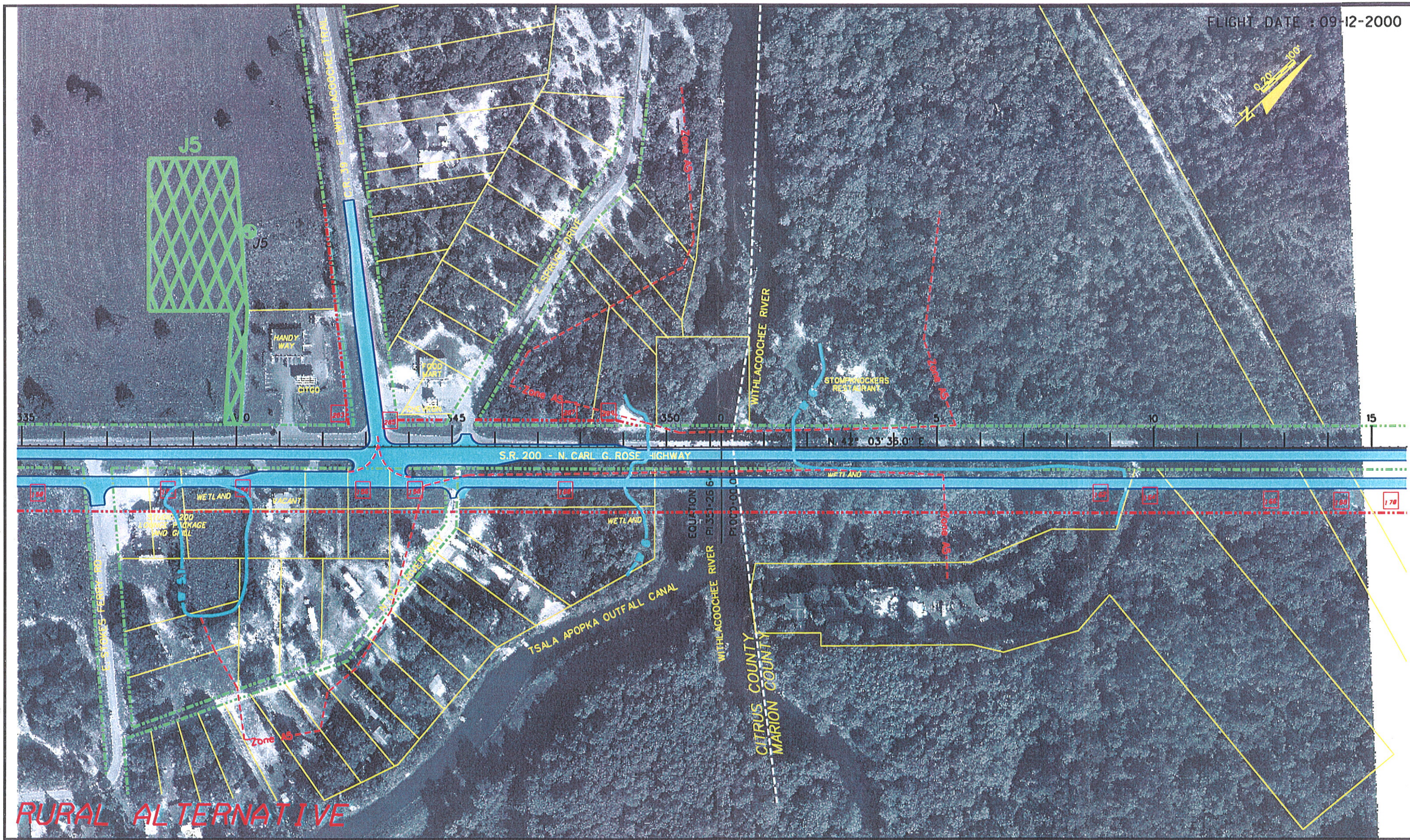

Legend	
	PROPERTY LINES
	CENTERLINE
	EXISTING RIGHT-OF-WAY
	PROPOSED RIGHT-OF-WAY
	PROPOSED EDGE OF PAVEMENT
	COUNTY LINE

ARCADIS GERAGHTY & MILLER
3903 NORTHDALE BLVD. SUITE 120
TAMPA, FLORIDA 33624
TEL: 813/961-1921 FAX: 813/961-2599

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 200	CITRUS	257188-1-22-01

S.R. 200 (N. CARL G. ROSE HWY)
FROM US 41/S.R. 45 TO NORTH
OF THE MARION COUNTY LINE
CITRUS COUNTY, FLORIDA

SHEET NO. 13

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APPENDIX E

TIME OF CONCENTRATION CALCULATIONS

ARCADIS
GERAGHTY & MILLER

SUBJECT: Time of Concentrations Summary

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

SUB-BASIN NAME	TIME OF CONCENTRATION (min.)
A	73.80
B	55.80
C	60.60
D	74.40
E	68.40
F	58.80
G	114.60
HS	15.00
HN	94.80
I	22.80
J	49.20

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked ____ Date ____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea A

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)	Segment ID	1-2	
1. Surface description (table 3-1)		Short Grass	
2. Manning's roughness coeff., n (table 3-1)		0.15	
3. Flow length, L (total L ≤ 300 ft) ft		300.00	
4. Two-yr 24-hr rainfall, P_2 in		4.10	
5. Land slope, s ft/ft		0.0067	
6. $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$ Compute T_t hr		0.54	+ ____ = ____

Shallow concentrated flow	Segment ID	2-3	
7. Surface description (paved or unpaved)		Unpaved	
8. Flow length, L ft		1700.00	
9. Watercourse slope, s ft/ft		0.0018	
10. Average velocity, V (figure 3-1) ft/s		0.68	
11. $T_t = \frac{L}{3600\,V}$ Compute T_t hr		0.69	+ ____ = ____

Channel flow	Segment ID		
12. Cross sectional flow area, a ft^2			
13. Wetted perimeter, p_w ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft			
15. Channel slope, s ft/ft			
16. Manning's roughness coeff., n			
17. $V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$ Compute V ft/s			
18. Flow length, L ft			
19. $T_t = \frac{L}{3600\,V}$ Compute T_t hr		____	+ ____ = ____

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 1.23

Min. 73.80

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked _____ Date _____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea B

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)		Segment ID	1-2	
1. Surface description (table 3-1)			Woods L. underbrush	
2. Manning's roughness coeff., n (table 3-1)			0.40	
3. Flow length, L (total L ≤ 300 ft)	ft		300.00	
4. Two-yr 24-hr rainfall, P_2	in		4.10	
5. Land slope, s	ft/ft		0.0200	
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t	hr		0.76	+ =

Shallow concentrated flow		Segment ID	2-3	
7. Surface description (paved or unpaved)			Unpaved	
8. Flow length, L	ft		1100.00	
9. Watercourse slope, s	ft/ft		0.0127	
10. Average velocity, V (figure 3-1)	ft/s		1.82	
11. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		0.17	+ =

Channel flow		Segment ID		
12. Cross sectional flow area, a	ft^2			
13. Wetted perimeter, p_w	ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft			
15. Channel slope, s	ft/ft			
16. Manning's roughness coeff., n				
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V	ft/s			
18. Flow length, L	ft			
19. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		+	=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ..... hr 0.93

min. 55.80

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked ____ Date ____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea C

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)	Segment ID	1-2	
1. Surface description (table 3-1)		Short grass	
2. Manning's roughness coeff., n (table 3-1)		0.15	
3. Flow length, L (total L ≤ 300 ft) ft		300.00	
4. Two-yr 24-hr rainfall, P_2 in		4.10	
5. Land slope, s ft/ft		0.0067	
6. $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$ Compute T_t hr		0.54	+ ____ = ____

Shallow concentrated flow	Segment ID	2-3	
7. Surface description (paved or unpaved)		Unpaved	
8. Flow length, L ft		1800.00	
9. Watercourse slope, s ft/ft		0.0044	
10. Average velocity, V (figure 3-1) ft/s		1.07	
11. $T_t = \frac{L}{3600\ V}$ Compute T_t hr		0.47	+ ____ = ____

Channel flow	Segment ID		
12. Cross sectional flow area, a ft^2			
13. Wetted perimeter, p_w ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft			
15. Channel slope, s ft/ft			
16. Manning's roughness coeff., n			
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s			
18. Flow length, L ft			
19. $T_t = \frac{L}{3600\ V}$ Compute T_t hr		____	+ ____ = ____

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 1.01

Min. 60.60

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked ____ Date ____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea D

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)		Segment ID	1-2	
1. Surface description (table 3-1)			Woods, L. Underbrush	
2. Manning's roughness coeff., n (table 3-1) ..			0.40	
3. Flow length, L (total L ≤ 300 ft)	ft		300.00	
4. Two-yr 24-hr rainfall, P_2	in		4.10	
5. Land slope, s	ft/ft		0.0200	
6. $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$ Compute T_t	hr		0.76	+ ____ = ____

Shallow concentrated flow		Segment ID	2-3	
7. Surface description (paved or unpaved)			Unpaved	
8. Flow length, L	ft		2450.00	
9. Watercourse slope, s	ft/ft		0.0078	
10. Average velocity, V (figure 3-1)	ft/s		1.42	
11. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		0.48	+ ____ = ____

Channel flow		Segment ID		
12. Cross sectional flow area, a	ft^2			
13. Wetted perimeter, p_w	ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft			
15. Channel slope, s	ft/ft			
16. Manning's roughness coeff., n				
17. $V = \frac{1.49\, r^{2/3}\, s^{1/2}}{n}$ Compute V	ft/s			
18. Flow length, L	ft			
19. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		____	+ ____ = ____

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ..... hr 1.24

min. 74.40

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked ____ Date ____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea F

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)		Segment ID	1-2	
1. Surface description (table 3-1)			Woods L. Underbrush	
2. Manning's roughness coeff., n (table 3-1)			0.40	
3. Flow length, L (total L ≤ 300 ft)	ft		300.00	
4. Two-yr 24-hr rainfall, P_2	in		4.10	
5. Land slope, s	ft/ft		0.0333	
6. $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$ Compute T_t	hr		0.62	+ ____ = ____

Shallow concentrated flow		Segment ID	2-3	
7. Surface description (paved or unpaved)			Unpaved	
8. Flow length, L	ft		2050.00	
9. Watercourse slope, s	ft/ft		0.0098	
10. Average velocity, V (figure 3-1)	ft/s		1.60	
11. $T_t = \frac{L}{3600\, V}$ Compute T_t	hr		0.36	+ ____ = ____

Channel flow		Segment ID		
12. Cross sectional flow area, a	ft^2			
13. Wetted perimeter, p_w	ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft			
15. Channel slope, s	ft/ft			
16. Manning's roughness coeff., n				
17. $V = \frac{1.49\, r^{2/3}\, s^{1/2}}{n}$ Compute V	ft/s			
18. Flow length, L	ft			
19. $T_t = \frac{L}{3600\, V}$ Compute T_t	hr			+ ____ = ____

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ..... hr 0.98

min. 58.80

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked _____ Date _____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea E

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)		Segment ID	1-2	
1. Surface description (table 3-1)			Woods L. underbrush	
2. Manning's roughness coeff., n (table 3-1) ..			0.40	
3. Flow length, L (total L ≤ 300 ft)	ft		300.00	
4. Two-yr 24-hr rainfall, P_2	in		4.10	
5. Land slope, s	ft/ft		0.0133	
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t	hr		0.90 +	=

Shallow concentrated flow		Segment ID	Z-3	
7. Surface description (paved or unpaved)			Unpaved	
8. Flow length, L	ft		1700.00	
9. Watercourse slope, s	ft/ft		0.0153	
10. Average velocity, V (figure 3-1)	ft/s		2.00	
11. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		0.24 +	=

Channel flow		Segment ID		
12. Cross sectional flow area, a	ft^2			
13. Wetted perimeter, p_w	ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft			
15. Channel slope, s	ft/ft			
16. Manning's roughness coeff., n				
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V	ft/s			
18. Flow length, L	ft			
19. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		+	=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ..... hr 1.14

min. 68.40

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked _____ Date _____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea G

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)	Segment ID	1-2	
1. Surface description (table 3-1)		Woods L. underbrush	
2. Manning's roughness coeff., n (table 3-1)		0.40	
3. Flow length, L (total L ≤ 300 ft)	ft	300.00	
4. Two-yr 24-hr rainfall, P_2	in	4.10	
5. Land slope, s	ft/ft	0.0067	
6. $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$ Compute T_t	hr	1.18	+ _____ = _____

Shallow concentrated flow	Segment ID	2-3	
7. Surface description (paved or unpaved)		Unpaved	
8. Flow length, L	ft	1770.00	
9. Watercourse slope, s	ft/ft	0.0017	
10. Average velocity, V (figure 3-1)	ft/s	0.67	
11. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr	0.73	+ _____ = _____

Channel flow	Segment ID		
12. Cross sectional flow area, a	ft^2		
13. Wetted perimeter, p_w	ft		
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft		
15. Channel slope, s	ft/ft		
16. Manning's roughness coeff., n			
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V	ft/s		
18. Flow length, L	ft		
19. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr	_____ + _____ = _____	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ..... hr 1.91

min. 114.60

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/17/01

Location Citrus County, Florida Checked ____ Date ____

Circle one: Present Developed

Circle one: T_c T_t through subarea HS

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)		Segment ID	1-2	
1. Surface description (table 3-1)			Short grass	
2. Manning's roughness coeff., n (table 3-1) ..			0.15	
3. Flow length, L (total L ≤ 300 ft)	ft		300.00	
4. Two-yr 24-hr rainfall, P_2	in		4.10	
5. Land slope, s	ft/ft		0.0513	
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t	hr		0.24 +	=

Shallow concentrated flow		Segment ID		
7. Surface description (paved or unpaved)				
8. Flow length, L	ft			
9. Watercourse slope, s	ft/ft			
10. Average velocity, V (figure 3-1)	ft/s			
11. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		+	=

Channel flow		Segment ID		
12. Cross sectional flow area, a	ft^2			
13. Wetted perimeter, p_w	ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft			
15. Channel slope, s	ft/ft			
16. Manning's roughness coeff., n				
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V	ft/s			
18. Flow length, L	ft			
19. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		+	=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ..... hr 0.24

min. 14.30

Use 15.00 min.

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked ____ Date ____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea HN

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)		Segment ID	1-2		
1. Surface description (table 3-1)			Woods D. Underbrush		
2. Manning's roughness coeff., n (table 3-1) ..			0.80		
3. Flow length, L (total L ≤ 300 ft)	ft		300.00		
4. Two-yr 24-hr rainfall, P_2	in		4.10		
5. Land slope, s	ft/ft		0.0133		
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	Compute T_t	hr	1.56	+	=
Shallow concentrated flow		Segment ID	2-3		
7. Surface description (paved or unpaved)			Unpaved		
8. Flow length, L	ft		200.00		
9. Watercourse slope, s	ft/ft		0.0200		
10. Average velocity, V (figure 3-1)	ft/s		2.28		
11. $T_t = \frac{L}{3600\ V}$	Compute T_t	hr	0.02	+	=
Channel flow		Segment ID			
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, p_w	ft				
14. Hydraulic radius, $r = \frac{a}{p_w}$	Compute r	ft			
15. Channel slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$	Compute V	ft/s			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	Compute T_t	hr		+	=
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)		hr			1.58

min. 94.80

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Aref Date 12/4/2000

Location Citrus County, Florida Checked ____ Date ____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea I

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

		Segment ID				
Sheet flow (Applicable to T_c only)		1-2				
1. Surface description (table 3-1)		Range				
2. Manning's roughness coeff., n (table 3-1) ..		0.13				
3. Flow length, L (total L ≤ 300 ft)	ft	30000				
4. Two-yr 24-hr rainfall, P_2	in	4.10				
5. Land slope, s	ft/ft	0.0173				
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t	hr	0.33	+		=	
Shallow concentrated flow		Segment ID				
7. Surface description (paved or unpaved)		2-3				
8. Flow length, L	ft	Unpaved				
9. Watercourse slope, s	ft/ft	470.00				
10. Average velocity, V (figure 3-1)	ft/s	0.0287				
11. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr	2.73				
		0.05	+		=	
Channel flow		Segment ID				
12. Cross sectional flow area, a	ft^2					
13. Wetted perimeter, p_w	ft					
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft					
15. Channel slope, s	ft/ft					
16. Manning's roughness coeff., n						
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V	ft/s					
18. Flow length, L	ft					
19. $T_t = \frac{L}{3600\ V}$ Compute T_t	hr		+		=	
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr					0.38

Min. 22.80

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project SR 200 By Sam Arif Date 12/4/2000

Location Citrus County, Florida Checked ____ Date ____

Circle one: (Present) Developed

Circle one: T_c T_t through subarea J

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)	Segment ID	1-2	
1. Surface description (table 3-1)		Range	
2. Manning's roughness coeff., n (table 3-1)		0.13	
3. Flow length, L (total L ≤ 300 ft) ft		300.00	
4. Two-yr 24-hr rainfall, P_2 in		4.10	
5. Land slope, s ft/ft		0.0043	
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t hr		0.57 +	=

Shallow concentrated flow	Segment ID	2-3	
7. Surface description (paved or unpaved)		Unpaved	
8. Flow length, L ft		800.00	
9. Watercourse slope, s ft/ft		0.0031	
10. Average velocity, V (figure 3-1) ft/s		0.90	
11. $T_t = \frac{L}{3600\ V}$ Compute T_t hr		0.25 +	=

Channel flow	Segment ID		
12. Cross sectional flow area, a ft^2			
13. Wetted perimeter, p_w ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft			
15. Channel slope, s ft/ft			
16. Manning's roughness coeff., n			
17. $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s			
18. Flow length, L ft			
19. $T_t = \frac{L}{3600\ V}$ Compute T_t hr		+	=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.82

min. 49.20

APPENDIX F

PRE- & POST-DEVELOPMENT

&

POND SIZING CALCULATIONS

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin A; Pond Site A1 (Falt)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	133750.00	to Station	131150.00
Basin length, L =	2600.00 ft		
Average basin width, W =	100.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	70.00 ft		
Driveway areas =	0.40 ac		
Offsite impervious area =	19.69 ac		
Offsite pervious area =	59.56 ac		
Pond area, P =	1.15 ac		
Total drainage area, DA =	86.37 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake & Arredondo fine sands	A	14 & 16	21.88	98	24.8
Grass	Lake & Arredondo fine sands	A	14 & 16	63.34	39	28.6
Pond site	Udorthents fine sand	-	55	1.15	39	0.5
				86.37		53.9

TIME OF CONCENTRATION = 73.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Assumed per the SCS of Citrus County*

PERMEABILITY RATE = N/A in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	133750.00	to Station	131150.00
Basin length, L =	2600.00 ft		
Average basin width, W =	100.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	26.00 ft		
Offsite impervious area =	19.69 ac		
Offsite pervious area =	59.56 ac		
Proposed pond area, P =	1.15 ac		
Total drainage area, DA =	86.37 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake & Arredondo fine sands	A	14 & 16	24.11	98	27.4
Grass	Lake & Arredondo fine sands	A	14 & 16	61.11	39	27.6
Pond berm	Udorthents fine sand	-	55	0.73	39	0.3
Pond	Udorthents fine sand	-	55	0.42	100	0.5
				86.37		55.8

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	7.12 ac	
1/2" of runoff from the onsite area =	0.30 ac-ft	
Required treatment volume (doubled) =	0.60 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	0.66 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A1, Falt

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	2.48	6.62	12.10	18.68	31.28
	Q-post	5.78	10.77	11.68	14.85	8.64
	E-max	45.84	46.06	46.09	46.19	45.97
5-Year	Q-pre	10.08	18.41	27.55	38.16	56.49
	Q-post	23.02	30.86	25.06	30.24	15.65
	E-max	46.45	46.67	46.51	46.65	46.22
10-Year	Q-pre	16.31	28.56	40.36	54.41	77.93
	Q-post	38.57	50.34	37.78	46.21	23.69
	E-max	46.86	47.13	46.84	47.04	46.47
25-Year	Q-pre	25.50	39.26	53.44	71.81	96.37
	Q-post	60.33	66.87	47.76	60.23	28.04
	E-max	47.35	47.48	47.07	47.34	46.59
50-Year	Q-pre	35.39	52.97	69.79	87.60	117.35
	Q-post	83.68	90.79	62.43	71.76	34.06
	E-max	47.81	47.94	47.39	47.58	46.75
100-Year	Q-pre	47.97	67.54	90.32	109.28	144.62
	Q-post	114.19	114.96	82.74	91.11	43.62
	E-max	48.35	48.36	47.79	47.94	46.98

Critical Duration: **** 2-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 67.54
Q-post (cfs) = 114.96
E-max (ft) = 48.36

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A1, Falt

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 45.46
Weir length (ft)	= 7.50
Top bank elevation (ft)	= 50.00
Pond area at top bank (acres)	= .770
Pond perimeter at top bank (ft)	= 740.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 45.46
Discharge elevation (ft)	= 45.46
Treatment volume (ac-ft)	= .660
Percolation rate (in/hr)	= .00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
45.46	.492	.000	.00	.00	.00
45.46	.492	.000	.00	.00	.00
45.76	.508	.150	.00	3.82	3.82
46.06	.525	.305	.00	10.81	10.81
46.36	.542	.465	.00	19.85	19.85
46.66	.559	.630	.00	30.56	30.56
46.96	.577	.801	.00	42.71	42.71
47.26	.595	.977	.00	56.15	56.15
47.56	.613	1.158	.00	70.75	70.75
47.86	.631	1.344	.00	86.44	86.44
48.16	.650	1.537	.00	103.15	103.15
48.46	.669	1.734	.00	120.81	120.81

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A1, Falt

**** 2-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 86.37
Curve Numner (CN)	= 53.90
Runoff coefficient	= .206
Time of concentration (min.)	= 73.8
Rainfall intensity (in/hr)	= 3.80
Peak flow rate (cfs)	= 67.54

Post-development Condition:

Drainage area (acres)	= 86.37
Curve Numner (CN)	= 55.80
Runoff coefficient	= .230
Rainfall zone number	= 5
Total rainfall depth (inches)	= 5.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	45.46	.00	.00	.00
.2	.500	53.57	46.12	12.67	.00	12.67
.4	.750	80.36	47.15	51.44	.00	51.44
.6	1.000	107.15	47.84	85.49	.00	85.49
.8	1.250	133.93	48.36	114.96	.00	114.96
1.0	.500	53.57	48.05	97.05	.00	97.05
1.2	.300	32.14	47.19	52.97	.00	52.97
1.4	.250	26.79	46.77	35.11	.00	35.11
1.6	.200	21.43	46.56	27.17	.00	27.17
1.8	.150	16.07	46.40	21.29	.00	21.29
2.0	.000	.00	46.12	12.73	.00	12.73

Output Summary

Peak flow (cfs)	= 114.96
Peak stage (ft)	= 48.36
Peak Storage (ac-ft)	= 1.669
Time to peak (hrs)	= .8

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin A; Pond Site A3 (F)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	133750.00	to Station	131150.00
Basin length, L =	2600.00 ft		
Average basin width, W =	100.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	70.00 ft		
Driveway areas =	0.40 ac		
Offsite impervious area =	19.69 ac		
Offsite pervious area =	57.84 ac		
Pond area, P =	2.87 ac		
Total drainage area, DA =	86.37 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake & Arredondo fine sands	A	14 & 16	21.88	98	24.8
Grass	Lake & Arredondo fine sands	A	14 & 16	61.62	39	27.8
Pond site	Lake fine sand	A	14	2.87	39	1.3
				86.37		53.9

TIME OF CONCENTRATION = 73.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	133750.00	to Station	131150.00
Basin length, L =	2600.00 ft		
Average basin width, W =	100.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	26.00 ft		
Offsite impervious area =	19.69 ac		
Offsite pervious area =	57.84 ac		
Proposed pond area, P =	2.87 ac		
Total drainage area, DA =	86.37 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake & Arredondo fine sands	A	14 & 16	24.11	98	27.4
Grass	Lake & Arredondo fine sands	A	14 & 16	59.39	39	26.8
Pond berm	Lake fine sand	A	14	1.83	39	0.8
Pond	Lake fine sand	A	14	1.04	100	1.2
				86.37		56.2

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	8.84 ac	
1" of runoff from the onsite area =	0.74 ac-ft	
Required treatment volume (doubled) =	1.48 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	1.63 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A3 (F)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	2.48	6.62	12.10	18.68	31.28
	Q-post	6.71	11.17	11.92	14.49	8.71
	E-max	50.62	50.72	50.74	50.79	50.67
5-Year	Q-pre	10.08	18.41	27.55	38.16	56.49
	Q-post	24.31	32.13	25.74	31.10	15.89
	E-max	50.91	51.00	50.92	50.99	50.80
10-Year	Q-pre	16.31	28.56	40.36	54.41	77.93
	Q-post	40.36	52.91	38.79	47.93	24.16
	E-max	51.10	51.22	51.08	51.17	50.91
25-Year	Q-pre	25.50	39.26	53.44	71.81	96.37
	Q-post	63.58	69.56	48.90	61.97	28.46
	E-max	51.32	51.38	51.18	51.30	50.96
50-Year	Q-pre	35.39	52.97	69.79	87.60	117.35
	Q-post	88.60	95.22	64.33	73.72	34.43
	E-max	51.53	51.58	51.33	51.41	51.03
100-Year	Q-pre	47.97	67.54	90.32	109.28	144.62
	Q-post	121.14	120.25	85.10	93.57	44.26
	E-max	51.78	51.77	51.50	51.57	51.14

Critical Duration: **** 1-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 47.97
Q-post (cfs) = 121.14
E-max (ft) = 51.78

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A3 (F)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 50.47
Weir length (ft)	= 26.00
Top bank elevation (ft)	= 60.00
Pond area at top bank (acres)	= 2.220
Pond perimeter at top bank (ft)	=1340.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 50.47
Discharge elevation (ft)	= 50.47
Treatment volume (ac-ft)	= 1.630
Percolation rate (in/hr)	= .00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
50.47	1.181	.000	.00	.00	.00
50.47	1.181	.000	.00	.00	.00
50.77	1.209	.359	.00	13.24	13.24
51.07	1.238	.726	.00	37.46	37.46
51.37	1.268	1.102	.00	68.82	68.82
51.67	1.297	1.486	.00	105.95	105.95
51.97	1.327	1.880	.00	148.07	148.07
52.27	1.357	2.282	.00	194.64	194.64
52.57	1.387	2.694	.00	245.28	245.28
52.87	1.417	3.114	.00	299.67	299.67
53.17	1.448	3.544	.00	357.58	357.58
53.47	1.479	3.983	.00	418.81	418.81

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A3 (F)

**** 1-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 86.37
Curve Numner (CN)	= 53.90
Runoff coefficient	= .146
Time of concentration (min.)	= 73.8
Rainfall intensity (in/hr)	= 3.80
Peak flow rate (cfs)	= 47.97

Post-development Condition:

Drainage area (acres)	= 86.37
Curve Numner (CN)	= 56.20
Runoff coefficient	= .173
Rainfall zone number	= 5
Total rainfall depth (inches)	= 4.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	50.47	.00	.00	.00
.1	.200	13.11	50.51	1.74	.00	1.74
.2	.600	39.34	50.66	8.22	.00	8.22
.3	1.200	78.68	50.94	26.88	.00	26.88
.4	2.100	137.68	51.35	66.48	.00	66.48
.5	2.150	140.96	51.68	107.89	.00	107.89
.6	1.800	118.01	51.78	121.14	.00	121.14
.7	1.100	72.12	51.66	105.20	.00	105.20
.8	.700	45.89	51.45	78.86	.00	78.86
.9	.100	6.56	51.20	50.86	.00	50.86
1.0	.000	.00	50.96	28.27	.00	28.27

Output Summary

Peak flow (cfs)	= 121.14
Peak stage (ft)	= 51.78
Peak Storage (ac-ft)	= 1.628
Time to peak (hrs)	= .6

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin A; Pond Site A4
JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	133750.00	to Station	131150.00
Basin length, L =	2600.00 ft		
Average basin width, W =	100.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	70.00 ft		
Driveway areas =	0.40 ac		
Offsite impervious area =	19.69 ac		
Offsite pervious area =	59.31 ac		
Pond area, P =	1.41 ac		
Total drainage area, DA =	86.37 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake & Arredondo fine sands	A	14 & 16	21.88	98	24.8
Grass	Lake & Arredondo fine sands	A	14 & 16	63.09	39	28.5
Pond site	Arredondo fine sands	A	16	1.41	39	0.6
				86.37		53.9

TIME OF CONCENTRATION = 73.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*
Use 6.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	133750.00	to Station	131150.00
Basin length, L =	2600.00 ft		
Average basin width, W =	100.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	26.00 ft		
Offsite impervious area =	19.69 ac		
Offsite pervious area =	59.31 ac		
Proposed pond area, P =	1.41 ac		
Total drainage area, DA =	86.37 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake & Arredondo fine sands	A	14 & 16	24.11	98	27.4
Grass	Lake & Arredondo fine sands	A	14 & 16	60.86	39	27.5
Pond berm	Arredondo fine sands	A	16	0.88	39	0.4
Pond	Arredondo fine sands	A	16	0.52	100	0.6
				86.37		55.8

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	7.37 ac	
1/2" of runoff from the onsite area =	0.31 ac-ft	
Required treatment volume (doubled) =	0.62 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	0.68 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A4

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	2.48	6.62	12.10	18.68	31.28
	Q-post	2.77	6.40	7.35	9.40	4.56
	E-max	47.98	48.19	48.24	48.34	48.09
5-Year	Q-pre	10.08	18.41	27.55	38.16	56.49
	Q-post	15.76	22.76	20.71	23.46	11.16
	E-max	48.61	48.85	48.78	48.88	48.41
10-Year	Q-pre	16.31	28.56	40.36	54.41	77.93
	Q-post	28.43	39.80	33.39	38.72	18.93
	E-max	49.03	49.37	49.19	49.34	48.72
25-Year	Q-pre	25.50	39.26	53.44	71.81	96.37
	Q-post	46.27	54.79	43.41	52.00	23.16
	E-max	49.54	49.76	49.47	49.69	48.86
50-Year	Q-pre	35.39	52.97	69.79	87.60	117.35
	Q-post	66.19	76.69	57.89	62.92	29.00
	E-max	50.04	50.28	49.84	49.96	49.05
100-Year	Q-pre	47.97	67.54	90.32	109.28	144.62
	Q-post	93.01	98.90	77.54	81.15	38.27
	E-max	50.63	50.76	50.30	50.38	49.32

Critical Duration: **** 2-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 67.54
Q-post (cfs) = 98.90
E-max (ft) = 50.76

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A4

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 47.71
Weir length (ft)	= 6.00
Top bank elevation (ft)	= 52.50
Pond area at top bank (acres)	= .960
Pond perimeter at top bank (ft)	= 890.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 47.71
Discharge elevation (ft)	= 47.71
Treatment volume (ac-ft)	= .680
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
47.71	.602	.000	.00	.00	.00
47.71	.602	.000	.00	.00	.00
48.01	.623	.184	3.77	3.06	6.82
48.31	.643	.374	3.89	8.64	12.54
48.61	.664	.570	4.02	15.88	19.90
48.91	.686	.772	4.15	24.45	28.60
49.21	.707	.981	4.28	34.17	38.45
49.51	.729	1.197	4.41	44.92	49.33
49.81	.751	1.418	4.54	56.60	61.15
50.11	.773	1.647	4.68	69.16	73.83
50.41	.796	1.882	4.81	82.52	87.33
50.71	.818	2.124	4.95	96.65	101.60

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin A; Pond Site A4

**** 2-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 86.37
Curve Numner (CN)	= 53.90
Runoff coefficient	= .206
Time of concentration (min.)	= 73.8
Rainfall intensity (in/hr)	= 3.80
Peak flow rate (cfs)	= 67.54

Post-development Condition:

Drainage area (acres)	= 86.37
Curve Numner (CN)	= 55.80
Runoff coefficient	= .230
Rainfall zone number	= 5
Total rainfall depth (inches)	= 5.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	47.71	.00	.00	.00
.2	.500	53.57	48.27	11.71	3.87	7.83
.4	.750	80.36	49.27	40.49	4.30	36.19
.6	1.000	107.15	50.09	73.05	4.67	68.38
.8	1.250	133.93	50.76	103.88	4.97	98.90
1.0	.500	53.57	50.62	97.24	4.91	92.34
1.2	.300	32.14	49.84	62.34	4.56	57.79
1.4	.250	26.79	49.32	42.47	4.33	38.15
1.6	.200	21.43	49.01	31.98	4.19	27.79
1.8	.150	16.07	48.78	24.83	4.09	20.73
2.0	.000	.00	48.47	16.40	3.96	12.44

Output Summary

Peak flow (cfs)	= 98.90
Peak stage (ft)	= 50.76
Peak Storage (ac-ft)	= 2.163
Time to peak (hrs)	= .8

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin B; Pond Site B2 (A)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	131150.00	to Station	126550.00
Basin length, L =	4600.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.14 ac		
Offsite impervious area =	9.08 ac		
Offsite pervious area =	57.77 ac		
Pond area, P =	4.91 ac		
Total drainage area, DA =	90.77 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	12.39	98	13.4
Grass	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	73.47	39	31.6
Pond site	Udorthents fine sand	-	55	4.91	39	2.1
				90.77		47.1

TIME OF CONCENTRATION = 55.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = >6.00 ft *Assumed Per the SCS of Citrus County*

PERMEABILITY RATE = 3.00 in/hr *Assumed*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	131150.00	to Station	126550.00
Basin length, L =	4600.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	9.08 ac		
Offsite pervious area =	57.77 ac		
Proposed pond area, P =	4.91 ac		
Total drainage area, DA =	90.77 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	17.42	98	18.8
Grass	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	68.44	39	29.4
Pond berm	Udorthents fine sand	-	55	1.69	39	0.7
Pond	Udorthents fine sand	-	55	3.22	100	3.5
				90.77		52.5

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	23.92 ac
1/2" of runoff from the onsite area =	1.00 ac-ft
Required treatment volume =	1.00 ac-ft
Provided treatment volume =	1.00 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B2 (A)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 3-Day	7-Day	10-Day
2-Year	Q-pre	34.06	48.07	55.09
	Q-post	0.00	0.00	0.00
	E-max	44.52	44.51	44.61
5-Year	Q-pre	62.98	83.39	96.47
	Q-post	0.00	0.00	0.00
	E-max	44.68	44.65	45.03
10-Year	Q-pre	84.11	108.78	121.86
	Q-post	0.00	0.00	0.00
	E-max	44.88	44.79	45.83
25-Year	Q-pre	117.26	144.08	167.23
	Q-post	0.00	0.00	0.00
	E-max	45.67	45.31	47.87
50-Year	Q-pre	147.82	175.61	195.84
	Q-post	0.00	0.00	0.00
	E-max	46.35	45.77	48.55
100-Year	Q-pre	173.87	204.92	218.70
	Q-post	0.00	0.00	0.00
	E-max	46.93	46.43	48.91

Critical Duration: **** 10-DAY,100-YEAR STORM ****

Q-pre (cfs) = 218.70
Q-post (cfs) = .00
E-max (ft) = 48.91

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B2 (A)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 44.31
Weir length (ft)	= .00
Top bank elevation (ft)	= 50.00
Pond area at top bank (acres)	= 4.090
Pond perimeter at top bank (ft)	=1690.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 44.31
Discharge elevation (ft)	= 44.31
Treatment volume (ac-ft)	= 1.000
Percolation rate (in/hr)	= 3.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
44.31	3.255	.000	.00	.00	.00
44.31	3.255	.000	.00	.00	.00
44.76	3.317	1.479	10.04	.00	10.04
45.21	3.380	2.986	10.23	.00	10.23
45.66	3.444	4.521	10.42	.00	10.42
46.11	3.509	6.085	10.61	.00	10.61
46.56	3.574	7.679	10.81	.00	10.81
47.01	3.639	9.302	11.01	.00	11.01
47.46	3.705	10.954	11.21	.00	11.21
47.91	3.772	12.637	11.41	.00	11.41
48.36	3.839	14.349	11.62	.00	11.62
48.81	3.907	16.092	11.82	.00	11.82

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B2 (A)

**** 10-DAY,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 90.77
Curve Numner (CN)	= 47.10
Runoff coefficient	= .528
Time of concentration (min.)	= 55.8
Rainfall intensity (in/hr)	= 4.56
Peak flow rate (cfs)	=218.70

Post-development Condition:

Drainage area (acres)	= 90.77
Curve Numner (CN)	= 52.50
Runoff coefficient	= .593
Rainfall zone number	= 5
Total rainfall depth (inches)	= 19.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	44.31	.00	.00	.00
8.0	.002	2.04	44.37	1.41	1.41	.00
16.0	.002	2.04	44.41	2.29	2.29	.00
24.0	.002	2.04	44.40	1.95	1.95	.00
32.0	.005	5.11	44.50	4.20	4.20	.00
40.0	.019	19.42	45.48	10.34	10.34	.00
48.0	.004	4.09	45.75	10.46	10.46	.00
56.0	.003	3.07	44.66	7.80	7.80	.00
64.0	.003	3.07	44.37	1.25	1.25	.00
72.0	.003	3.07	44.48	3.76	3.76	.00
80.0	.001	1.02	44.37	1.39	1.39	.00
88.0	.001	1.02	44.35	.88	.88	.00
96.0	.001	1.02	44.36	1.08	1.08	.00
104.0	.001	1.02	44.35	1.00	1.00	.00
112.0	.001	1.02	44.36	1.03	1.03	.00
120.0	.001	1.02	44.36	1.02	1.02	.00
128.0	.001	1.02	44.36	1.02	1.02	.00
136.0	.001	1.02	44.36	1.02	1.02	.00
144.0	.001	1.02	44.36	1.02	1.02	.00
152.0	.003	3.07	44.42	2.44	2.44	.00
160.0	.003	3.07	44.46	3.31	3.31	.00
168.0	.003	3.07	44.44	2.97	2.97	.00
176.0	.009	9.20	44.64	7.35	7.35	.00
184.0	.035	35.78	47.16	11.08	11.08	.00
192.0	.007	7.16	48.91	11.87	11.87	.00
200.0	.004	4.09	47.87	11.40	11.39	.00
208.0	.004	4.09	46.61	10.83	10.83	.00
216.0	.004	4.09	45.38	10.30	10.30	.00
224.0	.002	2.04	44.52	4.60	4.60	.00
232.0	.002	2.04	44.36	1.07	1.07	.00
240.0	.000	.00	44.36	1.01	1.01	.00

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B2 (A)

Output Summary
==========

Peak flow (cfs)	=	.00
Peak stage (ft)	=	48.91
Peak Storage (ac-ft)	=	16.472
Time to peak (hrs)	=	192.0

ARCADIS
GERAGHTY&MILLER

SUBJECT: Sub-basin B; Pond Site B3
JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	131150.00	to Station	126550.00
Basin length, L =	4600.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.14 ac		
Offsite impervious area =	9.08 ac		
Offsite pervious area =	57.52 ac		
Pond area, P =	5.17 ac		
Total drainage area, DA =	90.77 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	12.39	98	13.4
Grass	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	73.22	39	31.5
Pond site	Udorthents fine sand	-	55	5.17	39	2.2
				90.77		47.1

TIME OF CONCENTRATION = 55.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = >6.00 ft *Assumed Per the SCS of Citrus County*

PERMEABILITY RATE = 3.00 in/hr *Assumed*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	131150.00	to Station	126550.00
Basin length, L =	4600.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	9.08 ac		
Offsite pervious area =	57.52 ac		
Proposed pond area, P =	5.17 ac		
Total drainage area, DA =	90.77 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	17.42	98	18.8
Grass	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	68.19	39	29.3
Pond berm	Udorthents fine sand	-	55	1.74	39	0.7
Pond	Udorthents fine sand	-	55	3.42	100	3.8
				90.77		52.6

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	24.17 ac
1/2" of runoff from the onsite area =	1.01 ac-ft
Required treatment volume =	1.01 ac-ft
Provided treatment volume =	1.01 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B3

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 3-Day	7-Day	10-Day
2-Year	Q-pre	34.06	48.07	55.09
	Q-post	0.00	0.00	0.00
	E-max	34.50	34.49	34.58
5-Year	Q-pre	62.98	83.39	96.47
	Q-post	0.00	0.00	0.00
	E-max	34.65	34.62	34.93
10-Year	Q-pre	84.11	108.78	121.86
	Q-post	0.00	0.00	0.00
	E-max	34.81	34.73	35.58
25-Year	Q-pre	117.26	144.08	167.23
	Q-post	0.00	0.00	0.00
	E-max	35.50	35.19	37.53
50-Year	Q-pre	147.82	175.61	195.84
	Q-post	0.00	0.00	0.00
	E-max	36.15	35.55	38.18
100-Year	Q-pre	173.87	204.92	218.70
	Q-post	0.00	0.00	0.00
	E-max	36.66	36.16	38.52

Critical Duration: **** 10-DAY,100-YEAR STORM ****

Q-pre	(cfs)	=	218.70
Q-post	(cfs)	=	.00
E-max	(ft)	=	38.52

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B3

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 34.30
Weir length (ft)	= .00
Top bank elevation (ft)	= 40.00
Pond area at top bank (acres)	= 4.330
Pond perimeter at top bank (ft)	=1740.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 34.30
Discharge elevation (ft)	= 34.30
Treatment volume (ac-ft)	= 1.010
Percolation rate (in/hr)	= 3.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
34.30	3.467	.000	.00	.00	.00
34.30	3.467	.000	.00	.00	.00
34.75	3.532	1.575	10.68	.00	10.68
35.20	3.597	3.179	10.88	.00	10.88
35.65	3.663	4.812	11.08	.00	11.08
36.10	3.729	6.475	11.28	.00	11.28
36.55	3.796	8.168	11.48	.00	11.48
37.00	3.864	9.892	11.69	.00	11.69
37.45	3.932	11.646	11.90	.00	11.90
37.90	4.001	13.431	12.10	.00	12.10
38.35	4.070	15.247	12.31	.00	12.31
38.80	4.140	17.094	12.53	.00	12.53

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B3

**** 10-DAY,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 90.77
Curve Numner (CN)	= 47.10
Runoff coefficient	= .528
Time of concentration (min.)	= 55.8
Rainfall intensity (in/hr)	= 4.56
Peak flow rate (cfs)	=218.70

Post-development Condition:

Drainage area (acres)	= 90.77
Curve Numner (CN)	= 52.60
Runoff coefficient	= .594
Rainfall zone number	= 5
Total rainfall depth (inches)	= 19.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	34.30	.00	.00	.00
8.0	.002	2.05	34.36	1.42	1.42	.00
16.0	.002	2.05	34.40	2.29	2.29	.00
24.0	.002	2.05	34.38	1.96	1.96	.00
32.0	.005	5.12	34.48	4.21	4.21	.00
40.0	.019	19.46	35.35	10.95	10.95	.00
48.0	.004	4.10	35.50	11.01	11.01	.00
56.0	.003	3.07	34.56	6.26	6.26	.00
64.0	.003	3.07	34.38	1.85	1.85	.00
72.0	.003	3.07	34.45	3.54	3.54	.00
80.0	.001	1.02	34.36	1.48	1.48	.00
88.0	.001	1.02	34.34	.85	.85	.00
96.0	.001	1.02	34.35	1.09	1.09	.00
104.0	.001	1.02	34.34	1.00	1.00	.00
112.0	.001	1.02	34.34	1.03	1.03	.00
120.0	.001	1.02	34.34	1.02	1.02	.00
128.0	.001	1.02	34.34	1.03	1.03	.00
136.0	.001	1.02	34.34	1.02	1.02	.00
144.0	.001	1.02	34.34	1.02	1.02	.00
152.0	.003	3.07	34.40	2.44	2.44	.00
160.0	.003	3.07	34.44	3.32	3.32	.00
168.0	.003	3.07	34.43	2.98	2.98	.00
176.0	.009	9.22	34.61	7.36	7.36	.00
184.0	.035	35.85	36.95	11.67	11.67	.00
192.0	.007	7.17	38.52	12.40	12.40	.00
200.0	.004	4.10	37.45	11.90	11.90	.00
208.0	.004	4.10	36.16	11.31	11.31	.00
216.0	.004	4.10	34.90	10.75	10.75	.00
224.0	.002	2.05	34.35	1.23	1.23	.00
232.0	.002	2.05	34.40	2.36	2.36	.00
240.0	.000	.00	34.32	.51	.51	.00

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B3

Output Summary
==============

Peak flow (cfs)	=	.00
Peak stage (ft)	=	38.52
Peak Storage (ac-ft)	=	15.962
Time to peak (hrs)	=	192.0

ARCADIS GERAGHTY&MILLER

SUBJECT: Sub-basin B; Pond Site B4 (Aalt)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	131150.00	to Station	126550.00
Basin length, L =	4600.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.14 ac		
Offsite impervious area =	9.08 ac		
Offsite pervious area =	59.01 ac		
Pond area, P =	3.67 ac		
Total drainage area, DA =	90.77 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	12.39	98	13.4
Grass	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	74.71	39	32.1
Pond site	Lake fine sand	A	14	3.67	39	1.6
				90.77		47.1

TIME OF CONCENTRATION = 55.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = >6.00 ft *Assumed Per the SCS of Citrus County*

PERMEABILITY RATE = >6.00 in/hr *Assumed Per the SCS of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	131150.00	to Station	126550.00
Basin length, L =	4600.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	9.08 ac		
Offsite pervious area =	59.01 ac		
Proposed pond area, P =	3.67 ac		
Total drainage area, DA =	90.77 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	17.42	98	18.8
Grass	Arredondo, Lke, Udorthents & Candler	A	16, 14, 55, 4 & 15	69.68	39	29.9
Pond berm	Lake fine sand	A	14	1.44	39	0.6
Pond	Lake fine sand	A	14	2.23	100	2.5
				90.77		51.8

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	22.68 ac
1/2" of runoff from the onsite area =	0.95 ac-ft
Required treatment volume =	0.95 ac-ft
Provided treatment volume =	0.95 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B4 (Aalt)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 3-Day	7-Day	10-Day
2-Year	Q-pre	34.06	48.07	55.09
	Q-post	0.00	0.00	0.00
	E-max	39.57	39.57	39.65
5-Year	Q-pre	62.98	83.39	96.47
	Q-post	0.00	0.00	0.00
	E-max	39.68	39.68	39.84
10-Year	Q-pre	84.11	108.78	121.86
	Q-post	0.00	0.00	0.00
	E-max	39.77	39.78	40.35
25-Year	Q-pre	117.26	144.08	167.23
	Q-post	0.00	0.00	0.00
	E-max	40.24	40.05	42.25
50-Year	Q-pre	147.82	175.61	195.84
	Q-post	0.00	0.00	0.00
	E-max	41.13	40.55	43.09
100-Year	Q-pre	173.87	204.92	218.70
	Q-post	0.00	0.00	0.00
	E-max	41.82	41.01	43.54

Critical Duration: **** 10-DAY,100-YEAR STORM ****

Q-pre (cfs) = 218.70
Q-post (cfs) = .00
E-max (ft) = 43.54

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B4 (Aalt)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 39.42
Weir length (ft)	= .00
Top bank elevation (ft)	= 45.00
Pond area at top bank (acres)	= 2.980
Pond perimeter at top bank (ft)	=1440.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 39.42
Discharge elevation (ft)	= 39.42
Treatment volume (ac-ft)	= .950
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
39.42	2.288	.000	.00	.00	.00
39.42	2.288	.000	.00	.00	.00
39.87	2.340	1.041	14.16	.00	14.16
40.32	2.393	2.106	14.48	.00	14.48
40.77	2.447	3.195	14.81	.00	14.81
41.22	2.501	4.309	15.13	.00	15.13
41.67	2.556	5.447	15.46	.00	15.46
42.12	2.611	6.609	15.80	.00	15.80
42.57	2.667	7.797	16.14	.00	16.14
43.02	2.724	9.010	16.48	.00	16.48
43.47	2.781	10.249	16.83	.00	16.83
43.92	2.839	11.513	17.18	.00	17.18

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B4 (Aalt)

**** 10-DAY,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 90.77
Curve Numner (CN)	= 47.10
Runoff coefficient	= .528
Time of concentration (min.)	= 55.8
Rainfall intensity (in/hr)	= 4.56
Peak flow rate (cfs)	=218.70

Post-development Condition:

Drainage area (acres)	= 90.77
Curve Numner (CN)	= 51.80
Runoff coefficient	= .585
Rainfall zone number	= 5
Total rainfall depth (inches)	= 19.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	39.42	.00	.00	.00
8.0	.002	2.02	39.47	1.65	1.65	.00
16.0	.002	2.02	39.49	2.25	2.25	.00
24.0	.002	2.02	39.48	1.87	1.87	.00
32.0	.005	5.04	39.57	4.59	4.59	.00
40.0	.019	19.16	40.29	14.46	14.46	.00
48.0	.004	4.03	39.81	12.19	12.19	.00
56.0	.003	3.02	39.62	6.42	6.42	.00
64.0	.003	3.02	39.45	.87	.87	.00
72.0	.003	3.02	39.56	4.40	4.40	.00
80.0	.001	1.01	39.44	.50	.50	.00
88.0	.001	1.01	39.46	1.33	1.33	.00
96.0	.001	1.01	39.45	.80	.80	.00
104.0	.001	1.01	39.46	1.14	1.14	.00
112.0	.001	1.01	39.45	.93	.93	.00
120.0	.001	1.01	39.45	1.06	1.06	.00
128.0	.001	1.01	39.45	.97	.97	.00
136.0	.001	1.01	39.45	1.03	1.03	.00
144.0	.001	1.01	39.45	.99	.99	.00
152.0	.003	3.02	39.50	2.67	2.67	.00
160.0	.003	3.02	39.52	3.25	3.25	.00
168.0	.003	3.02	39.51	2.88	2.88	.00
176.0	.009	9.07	39.68	8.07	8.07	.00
184.0	.035	35.29	42.38	16.00	16.00	.00
192.0	.007	7.06	43.54	16.88	16.88	.00
200.0	.004	4.03	40.93	14.92	14.92	.00
208.0	.004	4.03	39.52	3.27	3.27	.00
216.0	.004	4.03	39.56	4.52	4.52	.00
224.0	.002	2.02	39.49	2.08	2.08	.00
232.0	.002	2.02	39.48	1.98	1.98	.00
240.0	.000	.00	39.43	.39	.39	.00

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin B; Pond Site B4 (Aalt)

Output Summary
==========

Peak flow (cfs)	=	.00
Peak stage (ft)	=	43.54
Peak Storage (ac-ft)	=	10.435
Time to peak (hrs)	=	192.0

ARCADIS
GERAGHTY&MILLER

SUBJECT: Sub-basin C; Pond Site C
JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	126550.00	to Station	122450.00
Basin length, L =	4100.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.38 ac		
Offsite impervious area =	31.33 ac		
Offsite pervious area =	50.48 ac		
Pond area, P =	2.07 ac		
Total drainage area, DA =	100.82 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	34.53	98	33.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	64.22	39	24.8
Pond site	Candler fine sand	A	3	2.07	39	0.8
				100.82		59.2

TIME OF CONCENTRATION = 60.60 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*
Use 6.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	126550.00	to Station	122450.00
Basin length, L =	4100.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	31.33 ac		
Offsite pervious area =	50.48 ac		
Proposed pond area, P =	2.07 ac		
Total drainage area, DA =	100.82 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	38.77	98	37.7
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	59.99	39	23.2
Pond berm	Candler fine sand	A	3	1.29	39	0.5
Pond	Candler fine sand	A	3	0.78	100	0.8
				100.82		62.2

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	19.01 ac	
1/2" of runoff from the onsite area =	0.79 ac-ft	
Required treatment volume (doubled) =	1.58 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	1.74 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	10.02	18.21	27.68	38.22	57.10
	Q-post	6.60	11.29	12.65	15.67	6.32
	E-max	43.79	44.13	44.23	44.41	43.77
5-Year	Q-pre	25.96	39.88	54.11	69.82	95.68
	Q-post	22.38	31.13	30.50	33.33	14.51
	E-max	44.79	45.23	45.20	45.34	44.34
10-Year	Q-pre	37.58	57.03	74.68	94.80	127.01
	Q-post	35.48	50.11	47.37	50.62	23.90
	E-max	45.44	46.07	45.96	46.09	44.87
25-Year	Q-pre	53.55	74.51	95.09	120.67	153.50
	Q-post	53.43	66.11	60.41	65.16	28.92
	E-max	46.21	46.69	46.48	46.66	45.13
50-Year	Q-pre	70.99	97.24	121.27	145.85	185.40
	Q-post	72.78	88.72	78.91	76.97	35.87
	E-max	46.94	47.53	47.17	47.09	45.46
100-Year	Q-pre	91.29	119.70	151.38	176.89	222.78
	Q-post	97.20	110.73	103.07	96.16	46.68
	E-max	47.84	48.34	48.05	47.80	45.93

Critical Duration: **** 2-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 119.70
Q-post (cfs) = 110.73
E-max (ft) = 48.34

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 43.00
Weir length (ft)	= 3.00
Top bank elevation (ft)	= 50.00
Pond area at top bank (acres)	= 1.550
Pond perimeter at top bank (ft)	=1040.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 43.00
Discharge elevation (ft)	= 43.00
Treatment volume (ac-ft)	= 1.740
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
43.00	.953	.000	.00	.00	.00
43.00	.953	.000	.00	.00	.00
43.40	.984	.387	5.95	2.35	8.30
43.80	1.014	.787	6.14	6.65	12.79
44.20	1.046	1.199	6.33	12.23	18.55
44.60	1.077	1.624	6.52	18.82	25.34
45.00	1.109	2.061	6.71	26.30	33.02
45.40	1.142	2.511	6.91	34.58	41.49
45.80	1.175	2.974	7.11	43.57	50.68
46.20	1.208	3.451	7.31	53.24	60.55
46.60	1.242	3.941	7.52	63.52	71.04
47.00	1.277	4.445	7.72	74.40	82.13

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C

**** 2-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	=100.82
Curve Numner (CN)	= 59.20
Runoff coefficient	= .274
Time of concentration (min.)	= 60.6
Rainfall intensity (in/hr)	= 4.33
Peak flow rate (cfs)	=119.70

Post-development Condition:

Drainage area (acres)	=100.82
Curve Numner (CN)	= 62.20
Runoff coefficient	= .316
Rainfall zone number	= 5
Total rainfall depth (inches)	= 5.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	43.00	.00	.00	.00
.2	.500	86.02	43.63	10.92	6.06	4.86
.4	.750	129.03	44.98	32.62	6.70	25.91
.6	1.000	172.04	46.41	66.10	7.42	58.68
.8	1.250	215.05	47.83	105.20	8.16	97.04
1.0	.500	86.02	48.34	119.15	8.42	110.73
1.2	.300	51.61	47.78	103.66	8.13	95.53
1.4	.250	43.01	47.15	86.32	7.80	78.52
1.6	.200	34.41	46.62	71.67	7.53	64.14
1.8	.150	25.81	46.15	59.20	7.28	51.92
2.0	.000	.00	45.59	45.85	7.00	38.85

Output Summary

Peak flow (cfs)	= 110.73
Peak stage (ft)	= 48.34
Peak Storage (ac-ft)	= 6.128
Time to peak (hrs)	= 1.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin C; Pond Site C1
JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	126550.00	to Station	122450.00
Basin length, L =	4100.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.38 ac		
Offsite impervious area =	31.33 ac		
Offsite pervious area =	50.25 ac		
Pond area, P =	2.30 ac		
Total drainage area, DA =	100.82 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	34.53	98	33.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	63.99	39	24.8
Pond site	Lake fine sand	A	14	2.30	39	0.9
				100.82		59.2

TIME OF CONCENTRATION = 60.60 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	126550.00	to Station	122450.00
Basin length, L =	4100.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	31.33 ac		
Offsite pervious area =	50.25 ac		
Proposed pond area, P =	2.30 ac		
Total drainage area, DA =	100.82 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	38.77	98	37.7
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	59.76	39	23.1
Pond berm	Lake fine sand	A	14	1.14	39	0.4
Pond	Lake fine sand	A	14	1.16	100	1.2
				100.82		62.4

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	19.24 ac	
1/2" of runoff from the onsite area =	0.80 ac-ft	
Required treatment volume (doubled) =	1.60 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	1.76 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C1

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	10.02	18.21	27.68	38.22	57.10
	Q-post	8.34	13.09	13.12	14.93	5.45
	E-max	45.98	46.18	46.18	46.26	45.86
5-Year	Q-pre	25.96	39.88	54.11	69.82	95.68
	Q-post	27.51	36.45	32.63	32.89	13.26
	E-max	46.67	46.92	46.81	46.82	46.19
10-Year	Q-pre	37.58	57.03	74.68	94.80	127.01
	Q-post	44.25	58.81	50.83	50.13	23.34
	E-max	47.13	47.48	47.29	47.27	46.54
25-Year	Q-pre	53.55	74.51	95.09	120.67	153.50
	Q-post	67.23	77.62	64.86	65.21	28.50
	E-max	47.67	47.90	47.62	47.62	46.70
50-Year	Q-pre	70.99	97.24	121.27	145.85	185.40
	Q-post	91.66	104.41	84.82	78.44	35.90
	E-max	48.18	48.43	48.04	47.91	46.90
100-Year	Q-pre	91.29	119.70	151.38	176.89	222.78
	Q-post	123.51	130.99	111.40	100.54	47.12
	E-max	48.79	48.92	48.56	48.36	47.20

Critical Duration: **** 2-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 119.70
Q-post (cfs) = 130.99
E-max (ft) = 48.92

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C1

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 45.44
Weir length (ft)	= 6.50
Top bank elevation (ft)	= 50.00
Pond area at top bank (acres)	= 1.740
Pond perimeter at top bank (ft)	=1140.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 45.44
Discharge elevation (ft)	= 45.44
Treatment volume (ac-ft)	= 1.760
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
45.44	1.293	.000	.00	.00	.00
45.44	1.293	.000	.00	.00	.00
45.84	1.330	.525	8.05	5.10	13.14
46.24	1.367	1.064	8.27	14.42	22.69
46.64	1.405	1.618	8.50	26.49	34.99
47.04	1.443	2.188	8.73	40.78	49.51
47.44	1.482	2.773	8.96	56.99	65.96
47.84	1.521	3.373	9.20	74.92	84.12
48.24	1.560	3.990	9.44	94.41	103.85
48.64	1.600	4.622	9.68	115.35	125.03
49.04	1.641	5.270	9.93	137.64	147.56
49.44	1.682	5.935	10.18	161.20	171.38

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C1

**** 2-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	=100.82
Curve Numner (CN)	= 59.20
Runoff coefficient	= .274
Time of concentration (min.)	= 60.6
Rainfall intensity (in/hr)	= 4.33
Peak flow rate (cfs)	=119.70

Post-development Condition:

Drainage area (acres)	=100.82
Curve Numner (CN)	= 62.40
Runoff coefficient	= .319
Rainfall zone number	= 5
Total rainfall depth (inches)	= 5.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	45.44	.00	.00	.00
.2	.500	86.79	45.89	14.44	8.08	6.36
.4	.750	130.19	46.85	42.66	8.62	34.04
.6	1.000	173.58	47.84	84.34	9.20	75.13
.8	1.250	216.98	48.76	131.94	9.76	122.18
1.0	.500	86.79	48.92	140.84	9.85	130.99
1.2	.300	52.08	48.35	109.42	9.50	99.92
1.4	.250	43.40	47.83	83.45	9.19	74.25
1.6	.200	34.72	47.43	65.71	8.96	56.75
1.8	.150	26.04	47.11	52.38	8.77	43.61
2.0	.000	.00	46.74	38.46	8.56	29.90

Output Summary

Peak flow (cfs)	= 130.99
Peak stage (ft)	= 48.92
Peak Storage (ac-ft)	= 5.077
Time to peak (hrs)	= 1.0

ARCADIS GERAGHTY & MILLER

SUBJECT: Sub-basin C; Pond Site C2

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	126550.00	to Station	122450.00
Basin length, L =	4100.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.38 ac		
Offsite impervious area =	31.33 ac		
Offsite pervious area =	50.48 ac		
Pond area, P =	2.07 ac		
Total drainage area, DA =	100.82 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	34.53	98	33.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	64.22	39	24.8
Pond site	Tavares fine sand	A	11	2.07	39	0.8
				100.82		59.2

TIME OF CONCENTRATION = 60.60 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 3.50 - 6.00 ft *Per the Soil Survey of Citrus County*
Use 4.75

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	126550.00	to Station	122450.00
Basin length, L =	4100.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	31.33 ac		
Offsite pervious area =	50.48 ac		
Proposed pond area, P =	2.07 ac		
Total drainage area, DA =	100.82 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	38.77	98	37.7
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	59.99	39	23.2
Pond berm	Tavares fine sand	A	11	0.93	39	0.4
Pond	Tavares fine sand	A	11	1.13	100	1.1
				100.82		62.4

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	19.01 ac	
1/2" of runoff from the onsite area =	0.79 ac-ft	
Required treatment volume (doubled) =	1.58 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	1.74 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C2

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	10.02	18.21	27.68	38.22	57.10
	Q-post	14.59	19.90	16.50	18.96	8.99
	E-max	37.14	37.23	37.17	37.21	36.99
5-Year	Q-pre	25.96	39.88	54.11	69.82	95.68
	Q-post	44.90	50.87	37.00	40.25	15.81
	E-max	37.61	37.69	37.51	37.55	37.16
10-Year	Q-pre	37.58	57.03	74.68	94.80	127.01
	Q-post	69.43	79.85	55.81	62.16	26.21
	E-max	37.92	38.03	37.75	37.83	37.33
25-Year	Q-pre	53.55	74.51	95.09	120.67	153.50
	Q-post	103.25	104.34	69.95	80.87	31.65
	E-max	38.28	38.30	37.93	38.04	37.42
50-Year	Q-pre	70.99	97.24	121.27	145.85	185.40
	Q-post	138.68	138.59	90.06	96.33	39.21
	E-max	38.62	38.62	38.14	38.21	37.54
100-Year	Q-pre	91.29	119.70	151.38	176.89	222.78
	Q-post	183.74	172.72	116.58	122.00	51.67
	E-max	39.02	38.92	38.41	38.46	37.70

Critical Duration: **** 1-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 91.29
Q-post (cfs) = 183.74
E-max (ft) = 39.02

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C2

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 36.72
Weir length (ft)	= 17.00
Top bank elevation (ft)	= 40.00
Pond area at top bank (acres)	= 1.550
Pond perimeter at top bank (ft)	=1040.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 36.72
Discharge elevation (ft)	= 36.72
Treatment volume (ac-ft)	= 1.740
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
36.72	1.253	.000	.00	.00	.00
36.72	1.253	.000	.00	.00	.00
37.12	1.287	.508	7.79	13.33	21.12
37.52	1.322	1.030	8.00	37.71	45.71
37.92	1.358	1.566	8.21	69.28	77.49
38.32	1.394	2.116	8.43	106.66	115.09
38.72	1.430	2.681	8.65	149.06	157.71
39.12	1.467	3.260	8.88	195.94	204.82
39.52	1.504	3.855	9.10	246.92	256.02
39.92	1.542	4.464	9.33	301.67	311.01

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin C; Pond Site C2

**** 1-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	=100.82
Curve Numner (CN)	= 59.20
Runoff coefficient	= .209
Time of concentration (min.)	= 60.6
Rainfall intensity (in/hr)	= 4.33
Peak flow rate (cfs)	= 91.29

Post-development Condition:

Drainage area (acres)	=100.82
Curve Numner (CN)	= 62.40
Runoff coefficient	= .252
Rainfall zone number	= 5
Total rainfall depth (inches)	= 4.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	36.72	.00	.00	.00
.1	.200	22.32	36.78	3.27	1.21	2.07
.2	.600	66.97	37.01	15.40	5.68	9.72
.3	1.200	133.93	37.47	42.49	7.97	34.51
.4	2.100	234.38	38.16	99.97	8.34	91.62
.5	2.150	239.96	38.78	164.35	8.68	155.67
.6	1.800	200.90	39.02	192.55	8.82	183.74
.7	1.100	122.77	38.88	177.10	8.75	168.36
.8	.700	78.13	38.55	139.60	8.56	131.04
.9	.100	11.16	38.12	95.98	8.32	87.66
1.0	.000	.00	37.68	58.43	8.09	50.35

Output Summary

Peak flow (cfs)	= 183.74
Peak stage (ft)	= 39.02
Peak Storage (ac-ft)	= 3.109
Time to peak (hrs)	= .6

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin D; Pond Site D2
JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	122450.00	to Station	120400.00
Basin length, L =	2050.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.13 ac		
Offsite impervious area =	3.28 ac		
Offsite pervious area =	58.58 ac		
Pond area, P =	1.32 ac		
Total drainage area, DA =	71.65 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	4.82	98	6.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	65.51	39	35.7
Pond site	Tavares fine sand	A	11	1.32	39	0.7
				71.65		43.0

TIME OF CONCENTRATION = 74.40 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 3.50 - 6.00 ft *Per the Soil Survey of Citrus County*
Use 4.75 ft

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	122450.00	to Station	120400.00
Basin length, L =	2050.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	3.28 ac		
Offsite pervious area =	58.58 ac		
Proposed pond area, P =	1.32 ac		
Total drainage area, DA =	71.65 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	7.00	98	9.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	63.33	39	34.5
Pond berm	Tavares fine sand	A	11	0.72	39	0.4
Pond	Tavares fine sand	A	11	0.60	100	0.8
				71.65		45.3

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	9.79 ac	
1/2" of runoff from the onsite area =	0.41 ac-ft	
Required treatment volume (doubled) =	0.82 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	0.90 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D2

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	0.73	0.02	1.08	3.55	10.08
	Q-post	0.05	0.13	0.51	0.96	0.94
	E-max	42.66	42.67	42.74	42.83	42.82
5-Year	Q-pre	0.18	2.38	6.28	11.91	23.40
	Q-post	0.37	1.41	2.19	4.35	2.21
	E-max	42.72	42.91	43.03	43.24	43.03
10-Year	Q-pre	1.33	6.07	12.16	20.62	36.85
	Q-post	1.18	4.44	6.72	10.86	6.02
	E-max	42.87	43.25	43.45	43.76	43.39
25-Year	Q-pre	3.90	10.25	18.24	30.03	47.74
	Q-post	3.27	8.67	11.34	17.12	8.59
	E-max	43.13	43.60	43.79	44.15	43.59
50-Year	Q-pre	7.37	16.53	26.79	38.81	61.05
	Q-post	7.27	16.17	18.80	22.47	12.18
	E-max	43.49	44.09	44.24	44.45	43.84
100-Year	Q-pre	12.53	23.64	38.45	51.98	79.63
	Q-post	14.20	24.90	29.76	31.65	18.07
	E-max	43.97	44.57	44.82	44.91	44.20

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 51.98
Q-post (cfs) = 31.65
E-max (ft) = 44.91

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D2

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 42.65
Weir length (ft)	= 3.00
Top bank elevation (ft)	= 46.00
Pond area at top bank (acres)	= .920
Pond perimeter at top bank (ft)	= 800.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 42.65
Discharge elevation (ft)	= 42.65
Treatment volume (ac-ft)	= .900
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
42.65	.690	.000	.00	.00	.00
42.65	.690	.000	.00	.00	.00
43.00	.713	.246	4.31	1.93	6.24
43.35	.736	.499	4.45	5.45	9.90
43.70	.759	.761	4.59	10.01	14.60
44.05	.782	1.030	4.73	15.41	20.14
44.40	.806	1.308	4.88	21.53	26.41
44.75	.830	1.595	5.02	28.30	33.33
45.10	.855	1.890	5.17	35.66	40.84
45.45	.880	2.193	5.32	43.57	48.90
45.80	.905	2.506	5.48	51.99	57.47

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D2

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 71.65
Curve Numner (CN)	= 43.00
Runoff coefficient	= .192
Time of concentration (min.)	= 74.4
Rainfall intensity (in/hr)	= 3.77
Peak flow rate (cfs)	= 51.98

Post-development Condition:

Drainage area (acres)	= 71.65
Curve Numner (CN)	= 45.30
Runoff coefficient	= .221
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	42.65	.00	.00	.00
1.0	.020	2.53	42.72	1.30	.90	.40
2.0	.060	7.59	42.94	5.15	3.56	1.59
3.0	.150	18.98	43.49	11.75	4.51	7.25
4.0	.420	53.15	44.82	34.88	5.06	29.83
5.0	.160	20.25	44.91	36.75	5.09	31.65
6.0	.060	7.59	43.70	14.57	4.59	9.98
7.0	.050	6.33	43.20	8.31	4.39	3.92
8.0	.000	.00	42.86	3.81	2.63	1.17

Output Summary

Peak flow (cfs)	= 31.65
Peak stage (ft)	= 44.91
Peak Storage (ac-ft)	= 1.729
Time to peak (hrs)	= 5.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin D; Pond Site D3 (G)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	122450.00	to Station	120400.00
Basin length, L =	2050.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.13 ac		
Offsite impervious area =	3.28 ac		
Offsite pervious area =	56.80 ac		
Pond area, P =	3.10 ac		
Total drainage area, DA =	71.65 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	4.82	98	6.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	63.73	39	34.7
Pond site	Lake fine sand	A	14	3.10	39	1.7
				71.65		43.0

TIME OF CONCENTRATION = 74.40 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	122450.00	to Station	120400.00
Basin length, L =	2050.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	3.28 ac		
Offsite pervious area =	56.80 ac		
Proposed pond area, P =	3.10 ac		
Total drainage area, DA =	71.65 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	7.00	98	9.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	61.55	39	33.5
Pond berm	Lake fine sand	A	14	1.54	39	0.8
Pond	Lake fine sand	A	14	1.56	100	2.2
				71.65		46.1

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	11.57 ac	
1" of runoff from the onsite area =	0.96 ac-ft	
Required treatment volume (doubled) =	1.92 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	2.11 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D3 (G)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	0.73	0.02	1.08	3.55	10.08
	Q-post	0.04	0.67	2.05	3.60	3.31
	E-max	48.30	48.31	48.34	48.38	48.37
5-Year	Q-pre	0.18	2.38	6.28	11.91	23.40
	Q-post	1.77	5.49	7.50	9.84	7.06
	E-max	48.34	48.42	48.46	48.51	48.45
10-Year	Q-pre	1.33	6.07	12.16	20.62	36.85
	Q-post	4.87	11.56	13.62	17.26	11.76
	E-max	48.41	48.55	48.60	48.66	48.56
25-Year	Q-pre	3.90	10.25	18.24	30.03	47.74
	Q-post	10.13	17.96	19.90	25.60	14.39
	E-max	48.52	48.67	48.70	48.76	48.61
50-Year	Q-pre	7.37	16.53	26.79	38.81	61.05
	Q-post	16.75	29.05	28.27	32.74	18.69
	E-max	48.66	48.81	48.80	48.85	48.68
100-Year	Q-pre	12.53	23.64	38.45	51.98	79.63
	Q-post	29.58	40.53	40.21	44.97	25.42
	E-max	48.81	48.94	48.94	49.00	48.76

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 51.98
Q-post (cfs) = 44.97
E-max (ft) = 49.00

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D3 (G)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 48.30
Weir length (ft)	= 25.00
Top bank elevation (ft)	= 55.00
Pond area at top bank (acres)	= 2.450
Pond perimeter at top bank (ft)	=1340.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 48.30
Discharge elevation (ft)	= 48.30
Treatment volume (ac-ft)	= 2.110
Percolation rate (in/hr)	= .00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
48.30	1.692	.000	.00	.00	.00
48.30	1.692	.000	.00	.00	.00
48.65	1.728	.598	.00	16.05	16.05
49.00	1.765	1.210	.00	45.39	45.39
49.35	1.802	1.834	.00	83.38	83.38
49.70	1.839	2.471	.00	128.38	128.38
50.05	1.877	3.121	.00	179.41	179.41
50.40	1.915	3.785	.00	235.85	235.85
50.75	1.954	4.462	.00	297.20	297.20
51.10	1.992	5.152	.00	363.11	363.11
51.45	2.032	5.857	.00	433.28	433.28
51.80	2.071	6.575	.00	507.46	507.46

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D3 (G)

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 71.65
Curve Numner (CN)	= 43.00
Runoff coefficient	= .192
Time of concentration (min.)	= 74.4
Rainfall intensity (in/hr)	= 3.77
Peak flow rate (cfs)	= 51.98

Post-development Condition:

Drainage area (acres)	= 71.65
Curve Numner (CN)	= 46.10
Runoff coefficient	= .231
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	48.30	.00	.00	.00
1.0	.020	2.65	48.33	1.39	.00	1.39
2.0	.060	7.94	48.42	5.49	.00	5.49
3.0	.150	19.85	48.61	14.33	.00	14.33
4.0	.420	55.58	49.00	44.97	.00	44.97
5.0	.160	21.18	48.89	36.21	.00	36.21
6.0	.060	7.94	48.50	9.23	.00	9.23
7.0	.050	6.62	48.46	7.18	.00	7.18
8.0	.000	.00	48.37	3.11	.00	3.11

Output Summary

Peak flow (cfs)	= 44.97
Peak stage (ft)	= 49.00
Peak Storage (ac-ft)	= 1.201
Time to peak (hrs)	= 4.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin D; Pond Site D4 (Galt)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	122450.00	to Station	120400.00
Basin length, L =	2050.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.13 ac		
Offsite impervious area =	3.28 ac		
Offsite pervious area =	57.83 ac		
Pond area, P =	2.07 ac		
Total drainage area, DA =	71.65 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	4.82	98	6.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	64.76	39	35.3
Pond site	Lake fine sand	A	14	2.07	39	1.1
				71.65		43.0

TIME OF CONCENTRATION = 74.40 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	122450.00	to Station	120400.00
Basin length, L =	2050.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	3.28 ac		
Offsite pervious area =	57.83 ac		
Proposed pond area, P =	2.07 ac		
Total drainage area, DA =	71.65 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake, Candler & Tavares	A	15, 14, 3 & 11	7.00	98	9.6
Grass	Lake, Candler & Tavares	A	15, 14, 3 &11	62.58	39	34.1
Pond berm	Lake fine sand	A	14	1.14	39	0.6
Pond	Lake fine sand	A	14	0.93	100	1.3
				71.65		45.6

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	10.54 ac	
1/2" of runoff from the onsite area =	0.44 ac-ft	
Required treatment volume (doubled) =	0.88 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	0.97 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D4 (Galt)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	0.73	0.02	1.08	3.55	10.08
	Q-post	0.08	0.34	1.14	2.20	1.96
	E-max	48.19	48.21	48.25	48.30	48.29
5-Year	Q-pre	0.18	2.38	6.28	11.91	23.40
	Q-post	1.03	3.32	4.41	6.20	4.25
	E-max	48.24	48.35	48.40	48.49	48.40
10-Year	Q-pre	1.33	6.07	12.16	20.62	36.85
	Q-post	3.07	7.20	8.14	12.59	7.13
	E-max	48.34	48.54	48.59	48.71	48.54
25-Year	Q-pre	3.90	10.25	18.24	30.03	47.74
	Q-post	6.62	12.71	13.37	19.78	9.08
	E-max	48.51	48.71	48.73	48.90	48.61
50-Year	Q-pre	7.37	16.53	26.79	38.81	61.05
	Q-post	12.91	22.35	21.39	26.18	12.95
	E-max	48.71	48.97	48.94	49.05	48.72
100-Year	Q-pre	12.53	23.64	38.45	51.98	79.63
	Q-post	23.47	34.28	33.23	37.58	19.10
	E-max	48.99	49.22	49.19	49.28	48.88

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 51.98
Q-post (cfs) = 37.58
E-max (ft) = 49.28

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D4 (Galt)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 48.19
Weir length (ft)	= 10.50
Top bank elevation (ft)	= 55.00
Pond area at top bank (acres)	= 1.510
Pond perimeter at top bank (ft)	=1140.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 48.19
Discharge elevation (ft)	= 48.19
Treatment volume (ac-ft)	= .970
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
48.19	.865	.000	.00	.00	.00
48.19	.865	.000	.00	.00	.00
48.59	.899	.353	5.44	8.23	13.68
48.99	.934	.720	5.65	23.29	28.94
49.39	.969	1.100	5.86	42.79	48.65
49.79	1.004	1.495	6.08	65.88	71.95
50.19	1.040	1.904	6.30	92.07	98.36
50.59	1.077	2.327	6.52	121.02	127.54
50.99	1.114	2.765	6.74	152.51	159.25
51.39	1.151	3.218	6.97	186.33	193.29
51.79	1.189	3.687	7.19	222.33	229.53
52.19	1.227	4.170	7.43	260.40	267.83

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin D; Pond Site D4 (Galt)

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 71.65
Curve Numner (CN)	= 43.00
Runoff coefficient	= .192
Time of concentration (min.)	= 74.4
Rainfall intensity (in/hr)	= 3.77
Peak flow rate (cfs)	= 51.98

Post-development Condition:

Drainage area (acres)	= 71.65
Curve Numner (CN)	= 45.60
Runoff coefficient	= .225
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	48.19	.00	.00	.00
1.0	.020	2.57	48.24	1.58	.63	.95
2.0	.060	7.72	48.36	5.97	2.38	3.60
3.0	.150	19.31	48.63	15.30	5.46	9.84
4.0	.420	54.06	49.28	43.39	5.81	37.58
5.0	.160	20.59	49.12	35.13	5.72	29.41
6.0	.060	7.72	48.43	8.31	3.31	5.00
7.0	.050	6.44	48.39	6.80	2.70	4.09
8.0	.000	.00	48.26	2.39	.95	1.44

Output Summary

Peak flow (cfs)	= 37.58
Peak stage (ft)	= 49.28
Peak Storage (ac-ft)	= .999
Time to peak (hrs)	= 4.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin E; Pond Site E1
JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	120400.00	to Station	118500.00
Basin length, L =	1900.00	ft	
Average basin width, W =	180.00	ft	
Average impervious/road width =	30.00	ft	
Average pervious width =	150.00	ft	
Driveway areas =	0.15	ac	
Offsite impervious area =	3.74	ac	
Offsite pervious area =	72.84	ac	
Pond area, P =	1.47	ac	
Total drainage area, DA =	85.90	ac	

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake fine sand	A	14	5.20	98	5.9
Grass	Lake fine sand	A	14	79.23	39	36.0
Pond site	Lake fine sand	A	14	1.47	39	0.7
				85.90		42.6

TIME OF CONCENTRATION = 68.40 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	120400.00	to Station	118500.00
Basin length, L =	1900.00	ft	
Average basin width, W =	180.00	ft	
Average impervious/road width =	79.00	ft	
Average pervious width =	101.00	ft	
Offsite impervious area =	3.74	ac	
Offsite pervious area =	72.84	ac	
Proposed pond area, P =	1.47	ac	
Total drainage area, DA =	85.90	ac	

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake fine sand	A	14	7.19	98	8.2
Grass	Lake fine sand	A	14	77.25	39	35.1
Pond berm	Lake fine sand	A	14	0.95	39	0.4
Pond	Lake fine sand	A	14	0.52	100	0.6
				85.90		44.3

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	9.32	ac	
1/2" of runoff from the onsite area =	0.39	ac-ft	
Required treatment volume (doubled) =	0.78	ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	0.82	ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E1

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	1.14	0.00	1.17	4.16	12.30
	Q-post	0.12	0.05	0.36	0.78	0.80
	E-max	43.48	43.46	43.55	43.66	43.67
5-Year	Q-pre	0.14	2.68	7.46	14.46	28.90
	Q-post	0.20	1.04	2.18	4.97	2.82
	E-max	43.50	43.73	43.93	44.30	44.03
10-Year	Q-pre	1.42	7.17	14.75	25.37	45.89
	Q-post	0.80	3.98	6.92	12.11	7.54
	E-max	43.67	44.19	44.52	45.01	44.58
25-Year	Q-pre	4.46	12.27	22.21	37.02	59.38
	Q-post	2.63	8.08	11.77	19.09	10.23
	E-max	44.00	44.64	44.98	45.57	44.85
50-Year	Q-pre	8.71	20.10	33.00	48.19	76.43
	Q-post	6.33	15.42	19.59	25.16	14.21
	E-max	44.46	45.28	45.60	45.99	45.19
100-Year	Q-pre	15.01	28.88	47.51	64.59	99.68
	Q-post	12.83	23.89	31.22	35.64	20.80
	E-max	45.07	45.91	46.39	46.66	45.69

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 64.59
Q-post (cfs) = 35.64
E-max (ft) = 46.66

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E1

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 43.45
Weir length (ft)	= 2.00
Top bank elevation (ft)	= 48.00
Pond area at top bank (acres)	= .990
Pond perimeter at top bank (ft)	= 960.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 43.45
Discharge elevation (ft)	= 43.45
Treatment volume (ac-ft)	= .820
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
43.45	.619	.000	.00	.00	.00
43.45	.619	.000	.00	.00	.00
43.80	.646	.221	3.91	1.28	5.19
44.15	.672	.452	4.07	3.63	7.70
44.50	.699	.692	4.23	6.67	10.90
44.85	.727	.942	4.40	10.27	14.67
45.20	.755	1.201	4.57	14.35	18.92
45.55	.783	1.470	4.74	18.87	23.60
45.90	.811	1.749	4.91	23.78	28.68
46.25	.840	2.038	5.08	29.05	34.13
46.60	.869	2.337	5.26	34.66	39.92
46.95	.899	2.647	5.44	40.60	46.04

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E1

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 85.90
Curve Numner (CN)	= 42.60
Runoff coefficient	= .187
Time of concentration (min.)	= 68.4
Rainfall intensity (in/hr)	= 4.01
Peak flow rate (cfs)	= 64.59

Post-development Condition:

Drainage area (acres)	= 85.90
Curve Numner (CN)	= 44.30
Runoff coefficient	= .208
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	43.45	.00	.00	.00
1.0	.020	2.86	43.54	1.41	1.06	.35
2.0	.060	8.59	43.84	5.48	3.93	1.56
3.0	.150	21.47	44.60	12.03	4.28	7.75
4.0	.420	60.11	46.37	36.20	5.15	31.05
5.0	.160	22.90	46.66	40.93	5.29	35.64
6.0	.060	8.59	45.21	19.07	4.57	14.50
7.0	.050	7.16	44.43	10.30	4.20	6.10
8.0	.000	.00	43.88	5.80	3.95	1.85

Output Summary

Peak flow (cfs)	= 35.64
Peak stage (ft)	= 46.66
Peak Storage (ac-ft)	= 2.388
Time to peak (hrs)	= 5.0

ARCADIS GERAGHTY&MILLER

SUBJECT: Sub-basin E; Pond Site E2

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	120400.00	to Station	118500.00
Basin length, L =	1900.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.15 ac		
Offsite impervious area =	3.74 ac		
Offsite pervious area =	71.88 ac		
Pond area, P =	2.42 ac		
Total drainage area, DA =	85.90 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake fine sand	A	14	5.20	98	5.9
Grass	Lake fine sand	A	14	78.27	39	35.5
Pond site	Lake fine sand	A	14	2.42	39	1.1
				85.90		42.6

TIME OF CONCENTRATION = 68.40 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	120400.00	to Station	118500.00
Basin length, L =	1900.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	3.74 ac		
Offsite pervious area =	71.88 ac		
Proposed pond area, P =	2.42 ac		
Total drainage area, DA =	85.90 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake fine sand	A	14	7.19	98	8.2
Grass	Lake fine sand	A	14	76.29	39	34.6
Pond berm	Lake fine sand	A	14	1.14	39	0.5
Pond	Lake fine sand	A	14	1.29	100	1.5
				85.90		44.9

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	10.28 ac	
1/2" of runoff from the onsite area =	0.43 ac-ft	
Required treatment volume (doubled) =	0.86 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	0.90 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E2

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	1.14	0.00	1.17	4.16	12.30
	Q-post	0.23	0.27	1.15	2.44	2.23
	E-max	49.70	49.70	49.72	49.76	49.75
5-Year	Q-pre	0.14	2.68	7.46	14.46	28.90
	Q-post	0.93	3.60	4.86	7.16	4.93
	E-max	49.72	49.79	49.82	49.89	49.82
10-Year	Q-pre	1.42	7.17	14.75	25.37	45.89
	Q-post	3.20	8.17	9.19	12.70	8.35
	E-max	49.78	49.91	49.94	50.04	49.92
25-Year	Q-pre	4.46	12.27	22.21	37.02	59.38
	Q-post	7.34	12.58	12.95	21.31	10.28
	E-max	49.89	50.03	50.04	50.17	49.97
50-Year	Q-pre	8.71	20.10	33.00	48.19	76.43
	Q-post	12.50	24.37	22.41	28.79	13.18
	E-max	50.03	50.21	50.18	50.28	50.05
100-Year	Q-pre	15.01	28.88	47.51	64.59	99.68
	Q-post	25.15	37.15	35.91	42.10	20.71
	E-max	50.22	50.40	50.38	50.46	50.16

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 64.59
Q-post (cfs) = 42.10
E-max (ft) = 50.46

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E2

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 49.69
Weir length (ft)	= 20.00
Top bank elevation (ft)	= 55.00
Pond area at top bank (acres)	= 1.860
Pond perimeter at top bank (ft)	=1140.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 49.69
Discharge elevation (ft)	= 49.69
Treatment volume (ac-ft)	= .900
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
49.69	1.346	.000	.00	.00	.00
49.69	1.346	.000	.00	.00	.00
50.04	1.377	.476	8.33	12.84	21.17
50.39	1.409	.964	8.52	36.31	44.83
50.74	1.441	1.463	8.72	66.71	75.42
51.09	1.473	1.972	8.91	102.70	111.62
51.44	1.506	2.494	9.11	143.53	152.64
51.79	1.539	3.027	9.31	188.68	197.99
52.14	1.573	3.571	9.52	237.76	247.27
52.49	1.607	4.128	9.72	290.49	300.21
52.84	1.641	4.696	9.93	346.62	356.55
53.19	1.675	5.276	10.14	405.97	416.10

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E2

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 85.90
Curve Numner (CN)	= 42.60
Runoff coefficient	= .187
Time of concentration (min.)	= 68.4
Rainfall intensity (in/hr)	= 4.01
Peak flow rate (cfs)	= 64.59

Post-development Condition:

Drainage area (acres)	= 85.90
Curve Numner (CN)	= 44.90
Runoff coefficient	= .216
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	49.69	.00	.00	.00
1.0	.020	2.97	49.72	1.92	.76	1.16
2.0	.060	8.90	49.81	7.11	2.80	4.31
3.0	.150	22.24	49.99	18.06	7.11	10.95
4.0	.420	62.27	50.46	50.66	8.56	42.10
5.0	.160	23.72	50.32	40.03	8.48	31.54
6.0	.060	8.90	49.83	8.75	3.45	5.31
7.0	.050	7.41	49.82	7.98	3.14	4.84
8.0	.000	.00	49.73	2.45	.96	1.48

Output Summary

Peak flow (cfs)	= 42.10
Peak stage (ft)	= 50.46
Peak Storage (ac-ft)	= 1.059
Time to peak (hrs)	= 4.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin E; Pond Site E3 (H)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	120400.00	to Station	118500.00
Basin length, L =	1900.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.15 ac		
Offsite impervious area =	3.74 ac		
Offsite pervious area =	72.98 ac		
Pond area, P =	1.33 ac		
Total drainage area, DA =	85.90 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake fine sand	A	14	5.20	98	5.9
Grass	Lake fine sand	A	14	79.37	39	36.0
Pond site	Lake fine sand	A	14	1.33	39	0.6
				85.90		42.6

TIME OF CONCENTRATION = 68.40 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	120400.00	to Station	118500.00
Basin length, L =	1900.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	3.74 ac		
Offsite pervious area =	72.98 ac		
Proposed pond area, P =	1.33 ac		
Total drainage area, DA =	85.90 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Lake fine sand	A	14	7.19	98	8.2
Grass	Lake fine sand	A	14	77.39	39	35.1
Pond berm	Lake fine sand	A	14	0.80	39	0.4
Pond	Lake fine sand	A	14	0.52	100	0.6
				85.90		44.3

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	9.18 ac	
1/2" of runoff from the onsite area =	0.38 ac-ft	
Required treatment volume (doubled) =	0.76 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*
Provided treatment volume =	0.80 ac-ft	

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E3 (H)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	1.14	0.00	1.17	4.16	12.30
	Q-post	0.26	0.11	0.71	1.54	1.54
	E-max	47.94	47.92	47.99	48.08	48.08
5-Year	Q-pre	0.14	2.68	7.46	14.46	28.90
	Q-post	0.43	2.15	3.30	6.12	3.70
	E-max	47.96	48.14	48.27	48.43	48.29
10-Year	Q-pre	1.42	7.17	14.75	25.37	45.89
	Q-post	1.76	6.90	9.54	13.98	8.76
	E-max	48.10	48.48	48.63	48.84	48.59
25-Year	Q-pre	4.46	12.27	22.21	37.02	59.38
	Q-post	5.21	13.15	15.46	22.18	11.95
	E-max	48.38	48.80	48.90	49.17	48.74
50-Year	Q-pre	8.71	20.10	33.00	48.19	76.43
	Q-post	11.80	23.69	24.63	29.56	16.31
	E-max	48.74	49.23	49.27	49.44	48.94
100-Year	Q-pre	15.01	28.88	47.51	64.59	99.68
	Q-post	22.81	35.42	37.91	42.36	23.66
	E-max	49.20	49.64	49.72	49.86	49.23

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 64.59
Q-post (cfs) = 42.36
E-max (ft) = 49.86

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E3 (H)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 47.91
Weir length (ft)	= 5.00
Top bank elevation (ft)	= 52.50
Pond area at top bank (acres)	= .920
Pond perimeter at top bank (ft)	= 810.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 47.91
Discharge elevation (ft)	= 47.91
Treatment volume (ac-ft)	= .800
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
47.91	.610	.000	.00	.00	.00
47.91	.610	.000	.00	.00	.00
48.26	.631	.217	3.82	3.21	7.03
48.61	.653	.442	3.95	9.08	13.03
48.96	.675	.674	4.08	16.68	20.76
49.31	.698	.914	4.22	25.68	29.90
49.66	.721	1.163	4.36	35.88	40.24
50.01	.744	1.419	4.50	47.17	51.67
50.36	.768	1.683	4.64	59.44	64.08
50.71	.792	1.956	4.79	72.62	77.41
51.06	.816	2.238	4.94	86.66	91.59
51.41	.841	2.527	5.09	101.49	106.58

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin E; Pond Site E3 (H)

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 85.90
Curve Numner (CN)	= 42.60
Runoff coefficient	= .187
Time of concentration (min.)	= 68.4
Rainfall intensity (in/hr)	= 4.01
Peak flow rate (cfs)	= 64.59

Post-development Condition:

Drainage area (acres)	= 85.90
Curve Numner (CN)	= 44.30
Runoff coefficient	= .208
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	47.91	.00	.00	.00
1.0	.020	2.86	47.99	1.64	.89	.75
2.0	.060	8.59	48.22	6.32	3.43	2.88
3.0	.150	21.47	48.73	15.77	4.00	11.78
4.0	.420	60.11	49.86	46.80	4.44	42.36
5.0	.160	22.90	49.65	39.94	4.36	35.59
6.0	.060	8.59	48.48	10.82	3.90	6.92
7.0	.050	7.16	48.30	7.73	3.83	3.89
8.0	.000	.00	48.06	3.04	1.65	1.39

Output Summary

Peak flow (cfs)	= 42.36
Peak stage (ft)	= 49.86
Peak Storage (ac-ft)	= 1.310
Time to peak (hrs)	= 4.0

ARCADIS
GERAGHTY&MILLER

SUBJECT: Sub-basin F; Pond Site F1 (Halt)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	118500.00	to Station	114700.00
Basin length, L =	3800.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.15 ac		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	93.04 ac		
Pond area, P =	5.17 ac		
Total drainage area, DA =	113.91 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares & Candler fine sands	A	11 & 3	2.37	98	2.0
Pavement	Basinger fine sand	B/D	5	0.39	98	0.3
Grass	Tavares & Candler fine sands	A	11 & 3	104.01	39	35.6
Grass	Basinger fine sand	B/D	5	1.96	80	1.4
Pond site	Tavares fine sand	A	11	5.17	39	1.8
				113.91		41.1

TIME OF CONCENTRATION = 58.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 3.50 - 6.00 ft *Per the Soil Survey of Citrus County*
Use 4.75 ft

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	118500.00	to Station	114700.00
Basin length, L =	3800.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	93.04 ac		
Proposed pond area, P =	5.17 ac		
Total drainage area, DA =	113.91 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares & Candler fine sands	A	11 & 3	5.86	98	5.0
Pavement	Basinger fine sand	B/D	5	1.03	98	0.9
Grass	Tavares & Candler fine sands	A	11 & 3	86.57	39	29.6
Grass	Basinger fine sand	B/D	5	15.28	80	10.7
Pond berm	Tavares fine sand	A	11	2.89	39	1.0
Pond	Tavares fine sand	A	11	2.28	100	2.0
				113.91		49.3

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	20.87 ac	
1" of runoff from the onsite area =	1.74 ac-ft	
Required treatment volume (doubled) =	3.48 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F1 (Halt)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	3.10	0.15	0.77	4.22	14.87
	Q-post	0.34	2.53	5.07	8.18	6.46
	E-max	36.23	36.29	36.37	36.46	36.41
5-Year	Q-pre	0.00	2.25	8.07	17.24	37.00
	Q-post	4.87	10.90	16.19	20.60	13.58
	E-max	36.36	36.53	36.62	36.69	36.57
10-Year	Q-pre	0.86	7.56	17.42	31.82	60.49
	Q-post	9.81	24.10	28.29	33.64	21.83
	E-max	36.51	36.74	36.81	36.88	36.71
25-Year	Q-pre	4.08	13.84	27.05	47.37	78.79
	Q-post	20.95	36.33	39.06	46.46	26.35
	E-max	36.69	36.91	36.95	37.04	36.78
50-Year	Q-pre	9.13	24.02	41.60	62.78	102.93
	Q-post	34.73	55.18	54.25	57.64	33.20
	E-max	36.89	37.14	37.13	37.17	36.87
100-Year	Q-pre	16.93	35.42	61.07	85.05	135.12
	Q-post	54.89	75.29	76.13	77.28	44.03
	E-max	37.14	37.35	37.36	37.38	37.01

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 85.05
Q-post (cfs) = 77.28
E-max (ft) = 37.38

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F1 (Halt)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 36.22
Weir length (ft)	= 20.00
Top bank elevation (ft)	= 47.00
Pond area at top bank (acres)	= 4.240
Pond perimeter at top bank (ft)	=1940.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 36.22
Discharge elevation (ft)	= 36.22
Treatment volume (ac-ft)	= 3.480
Percolation rate (in/hr)	= .00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
36.22	2.490	.000	.00	.00	.00
36.22	2.490	.000	.00	.00	.00
36.52	2.534	.754	.00	10.19	10.19
36.82	2.579	1.521	.00	28.81	28.81
37.12	2.623	2.301	.00	52.94	52.94
37.42	2.668	3.095	.00	81.50	81.50
37.72	2.713	3.902	.00	113.90	113.90
38.02	2.759	4.723	.00	149.73	149.73
38.32	2.804	5.557	.00	188.68	188.68
38.62	2.850	6.405	.00	230.52	230.52
38.92	2.897	7.267	.00	275.07	275.07
39.22	2.943	8.143	.00	322.16	322.16

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F1 (Halt)

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	=113.91
Curve Numner (CN)	= 41.10
Runoff coefficient	= .169
Time of concentration (min.)	= 58.8
Rainfall intensity (in/hr)	= 4.41
Peak flow rate (cfs)	= 85.05

Post-development Condition:

Drainage area (acres)	=113.91
Curve Numner (CN)	= 49.30
Runoff coefficient	= .272
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	36.22	.00	.00	.00
1.0	.020	4.96	36.27	1.78	.00	1.78
2.0	.060	14.88	36.44	7.61	.00	7.61
3.0	.150	37.19	36.76	25.04	.00	25.04
4.0	.420	104.14	37.38	77.28	.00	77.28
5.0	.160	39.67	37.31	70.85	.00	70.85
6.0	.060	14.88	36.71	21.71	.00	21.71
7.0	.050	12.40	36.58	13.62	.00	13.62
8.0	.000	.00	36.44	7.32	.00	7.32

Output Summary

Peak flow (cfs)	= 77.28
Peak stage (ft)	= 37.38
Peak Storage (ac-ft)	= 2.977
Time to peak (hrs)	= 4.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin F; Pond Site F2 (Calt)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	118500.00	to Station	114700.00
Basin length, L =	3800.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.15 ac		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	95.93 ac		
Pond area, P =	2.27 ac		
Total drainage area, DA =	113.91 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares & Candler fine sands	A	11 & 3	2.37	98	2.0
Pavement	Basinger fine sand	B/D	5	0.39	98	0.3
Grass	Tavares & Candler fine sands	A	11 & 3	106.90	39	36.6
Grass	Basinger fine sand	B/D	5	1.96	80	1.4
Pond site	Tavares fine sand	A	11	2.27	39	0.8
				113.91		41.1

TIME OF CONCENTRATION = 58.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 3.50 - 6.00 ft *Per the Soil Survey of Citrus County*
Use 4.75 ft

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	118500.00	to Station	114700.00
Basin length, L =	3800.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	95.93 ac		
Proposed pond area, P =	2.27 ac		
Total drainage area, DA =	113.91 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares & Candler fine sands	A	11 & 3	5.86	98	5.0
Pavement	Basinger fine sand	B/D	5	1.03	98	0.9
Grass	Tavares & Candler fine sands	A	11 & 3	89.03	39	30.5
Grass	Basinger fine sand	B/D	5	15.71	80	11.0
Pond berm	Tavares fine sand	A	11	0.99	39	0.3
Pond	Tavares fine sand	A	11	1.28	100	1.1
				113.91		48.9

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	17.98 ac	
1/2" of runoff from the onsite area =	0.75 ac-ft	
Required treatment volume (doubled) =	1.50 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F2 (Calt)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	3.10	0.15	0.77	4.22	14.87
	Q-post	0.23	1.88	3.14	4.88	3.63
	E-max	36.39	36.44	36.48	36.54	36.50
5-Year	Q-pre	0.00	2.25	8.07	17.24	37.00
	Q-post	4.30	8.34	9.10	13.94	7.27
	E-max	36.52	36.65	36.68	36.77	36.62
10-Year	Q-pre	0.86	7.56	17.42	31.82	60.49
	Q-post	8.90	20.80	20.93	28.19	13.86
	E-max	36.67	36.89	36.89	37.01	36.76
25-Year	Q-pre	4.08	13.84	27.05	47.37	78.79
	Q-post	21.64	34.11	31.27	42.01	18.50
	E-max	36.90	37.09	37.05	37.20	36.85
50-Year	Q-pre	9.13	24.02	41.60	62.78	102.93
	Q-post	38.08	55.56	46.20	54.11	25.06
	E-max	37.15	37.37	37.26	37.36	36.96
100-Year	Q-pre	16.93	35.42	61.07	85.05	135.12
	Q-post	62.83	79.01	67.41	75.14	36.44
	E-max	37.46	37.64	37.51	37.60	37.13

Critical Duration: **** 2-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 35.42
Q-post (cfs) = 79.01
E-max (ft) = 37.64

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F2 (Calt)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 36.38
Weir length (ft)	= 18.00
Top bank elevation (ft)	= 40.00
Pond area at top bank (acres)	= 1.730
Pond perimeter at top bank (ft)	=1100.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 36.38
Discharge elevation (ft)	= 36.38
Treatment volume (ac-ft)	= 1.500
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
36.38	1.384	.000	.00	.00	.00
36.38	1.384	.000	.00	.00	.00
36.68	1.411	.419	8.54	9.17	17.70
36.98	1.438	.847	8.70	25.93	34.64
37.28	1.466	1.282	8.87	47.64	56.51
37.58	1.494	1.726	9.04	73.35	82.39
37.88	1.522	2.179	9.21	102.51	111.72
38.18	1.551	2.640	9.38	134.75	144.14
38.48	1.580	3.109	9.56	169.81	179.37
38.78	1.609	3.588	9.73	207.47	217.20
39.08	1.638	4.075	9.91	247.56	257.47
39.38	1.668	4.571	10.09	289.94	300.04

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F2 (Calt)

**** 2-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	=113.91
Curve Numner (CN)	= 41.10
Runoff coefficient	= .070
Time of concentration (min.)	= 58.8
Rainfall intensity (in/hr)	= 4.41
Peak flow rate (cfs)	= 35.42

Post-development Condition:

Drainage area (acres)	=113.91
Curve Numner (CN)	= 48.90
Runoff coefficient	= .147
Rainfall zone number	= 5
Total rainfall depth (inches)	= 5.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	36.38	.00	.00	.00
.2	.500	45.35	36.58	11.73	5.66	6.08
.4	.750	68.03	36.97	34.19	8.70	25.49
.6	1.000	90.70	37.33	61.05	8.90	52.14
.8	1.250	113.38	37.64	88.08	9.07	79.01
1.0	.500	45.35	37.58	82.03	9.04	72.99
1.2	.300	27.21	37.23	52.70	8.84	43.86
1.4	.250	22.68	37.00	36.42	8.72	27.70
1.6	.200	18.14	36.87	28.24	8.64	19.60
1.8	.150	13.61	36.76	22.14	8.58	13.56
2.0	.000	.00	36.62	14.42	6.95	7.47

Output Summary

Peak flow (cfs)	= 79.01
Peak stage (ft)	= 37.64
Peak Storage (ac-ft)	= 1.814
Time to peak (hrs)	= .8

ARCADIS GERAGHTY & MILLER

SUBJECT: Sub-basin F; Pond Site F3 (C)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	118500.00	to Station	114700.00
Basin length, L =	3800.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.15 ac		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	96.20 ac		
Pond area, P =	2.01 ac		
Total drainage area, DA =	113.91 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares & Candler fine sands	A	11 & 3	2.37	98	2.0
Pavement	Basinger fine sand	B/D	5	0.39	98	0.3
Grass	Tavares & Candler fine sands	A	11 & 3	107.17	39	36.7
Grass	Basinger fine sand	B/D	5	1.96	80	1.4
Pond site	Candler fine sand	A	3	2.01	39	0.7
				113.91		41.1

TIME OF CONCENTRATION = 58.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*

Use 6.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	118500.00	to Station	114700.00
Basin length, L =	3800.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	96.20 ac		
Proposed pond area, P =	2.01 ac		
Total drainage area, DA =	113.91 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares & Candler fine sands	A	11 & 3	5.86	98	5.0
Pavement	Basinger fine sand	B/D	5	1.03	98	0.9
Grass	Tavares & Candler fine sands	A	11 & 3	89.26	39	30.6
Grass	Basinger fine sand	B/D	5	15.75	80	11.1
Pond berm	Candler fine sand	A	3	1.03	39	0.4
Pond	Candler fine sand	A	3	0.97	100	0.9
				113.91		48.8

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	17.71 ac	
1/2" of runoff from the onsite area =	0.74 ac-ft	
Required treatment volume (doubled) =	1.48 ac-ft	*Outfall to Tsala Apopka Lake (sinkhole)*

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F3 (C)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	3.10	0.15	0.77	4.22	14.87
	Q-post	0.13	1.25	2.20	3.31	2.57
	E-max	35.46	35.54	35.61	35.69	35.64
5-Year	Q-pre	0.00	2.25	8.07	17.24	37.00
	Q-post	2.75	7.28	9.43	12.87	6.42
	E-max	35.65	35.88	35.97	36.09	35.84
10-Year	Q-pre	0.86	7.56	17.42	31.82	60.49
	Q-post	7.36	19.02	21.06	26.01	14.54
	E-max	35.88	36.28	36.35	36.48	36.14
25-Year	Q-pre	4.08	13.84	27.05	47.37	78.79
	Q-post	17.92	30.90	31.17	39.28	19.22
	E-max	36.25	36.61	36.61	36.80	36.29
50-Year	Q-pre	9.13	24.02	41.60	62.78	102.93
	Q-post	31.81	49.53	46.20	50.77	25.82
	E-max	36.63	37.03	36.96	37.06	36.47
100-Year	Q-pre	16.93	35.42	61.07	85.05	135.12
	Q-post	52.56	69.22	67.44	70.32	36.44
	E-max	37.10	37.43	37.40	37.45	36.74

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 85.05
Q-post (cfs) = 70.32
E-max (ft) = 37.45

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F3 (C)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 35.45
Weir length (ft)	= 8.00
Top bank elevation (ft)	= 40.00
Pond area at top bank (acres)	= 1.490
Pond perimeter at top bank (ft)	=1040.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 35.45
Discharge elevation (ft)	= 35.45
Treatment volume (ac-ft)	= 1.480
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
35.45	1.086	.000	.00	.00	.00
35.45	1.086	.000	.00	.00	.00
35.75	1.111	.329	6.72	4.08	10.79
36.05	1.136	.666	6.87	11.53	18.40
36.35	1.161	1.011	7.02	21.17	28.20
36.65	1.187	1.363	7.18	32.60	39.78
36.95	1.212	1.723	7.34	45.56	52.90
37.25	1.238	2.091	7.49	59.89	67.38
37.55	1.265	2.466	7.65	75.47	83.12
37.85	1.291	2.849	7.81	92.21	100.02
38.15	1.318	3.241	7.98	110.03	118.00
38.45	1.346	3.641	8.14	128.86	137.00

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin F; Pond Site F3 (C)

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	=113.91
Curve Numner (CN)	= 41.10
Runoff coefficient	= .169
Time of concentration (min.)	= 58.8
Rainfall intensity (in/hr)	= 4.41
Peak flow rate (cfs)	= 85.05

Post-development Condition:

Drainage area (acres)	=113.91
Curve Numner (CN)	= 48.80
Runoff coefficient	= .266
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	35.45	.00	.00	.00
1.0	.020	4.84	35.53	2.78	1.73	1.05
2.0	.060	14.52	35.75	10.72	6.67	4.05
3.0	.150	36.30	36.27	25.69	6.99	18.71
4.0	.420	101.65	37.45	77.92	7.60	70.32
5.0	.160	38.72	37.26	68.11	7.50	60.61
6.0	.060	14.52	36.08	19.27	6.89	12.39
7.0	.050	12.10	35.85	13.43	6.77	6.65
8.0	.000	.00	35.60	5.45	3.39	2.06

Output Summary

Peak flow (cfs)	= 70.32
Peak stage (ft)	= 37.45
Peak Storage (ac-ft)	= 2.342
Time to peak (hrs)	= 4.0

ARCADIS
GERAGHTY&MILLER

SUBJECT: Sub-basin G; Pond Sites G1 & G2

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	114700.00	to Station	113300.00
Basin length, L =	1400.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.14 ac		
Offsite impervious area =	2.86 ac		
Offsite pervious area =	61.94 ac		
Pond area, P =	2.63 ac		
Total drainage area, DA =	73.22 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares fine sand	A	11	3.96	98	5.3
Grass	Tavares fine sand	A	11	66.62	39	35.5
Pond site	Candler fine sand	A	3	2.63	39	1.4
				73.22		42.2

TIME OF CONCENTRATION = 114.60 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = >6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*

Use 6.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	114700.00	to Station	113300.00
Basin length, L =	1400.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	2.86 ac		
Offsite pervious area =	61.94 ac		
Proposed pond area, P =	2.63 ac		
Total drainage area, DA =	73.22 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares fine sand	A	11	5.40	98	7.2
Grass	Tavares fine sand	A	11	65.19	39	34.7
Pond berm	Candler fine sand	A	3	1.25	39	0.7
Pond	Candler fine sand	A	3	1.39	100	1.9
				73.22		44.5

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	8.42 ac
1/2" of runoff from the onsite area =	0.35 ac-ft
Required treatment volume =	0.35 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Sites G1 & G2

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 3-Day	7-Day	10-Day
2-Year	Q-pre	10.83	16.77	19.87
	Q-post	0.00	0.00	0.00
	E-max	36.79	36.79	36.81
5-Year	Q-pre	22.62	31.94	38.10
	Q-post	0.00	0.00	0.00
	E-max	36.82	36.82	36.91
10-Year	Q-pre	32.32	44.15	50.61
	Q-post	0.00	0.00	0.00
	E-max	36.85	36.85	37.58
25-Year	Q-pre	46.87	60.04	71.75
	Q-post	0.00	0.00	0.00
	E-max	37.38	37.40	39.90
50-Year	Q-pre	60.49	74.35	84.68
	Q-post	0.00	0.00	0.00
	E-max	38.30	37.94	40.91
100-Year	Q-pre	72.36	88.06	95.17
	Q-post	0.00	0.00	0.00
	E-max	39.00	38.37	41.42

Critical Duration: **** 10-DAY,100-YEAR STORM ****

Q-pre (cfs) = 95.17
Q-post (cfs) = .00
E-max (ft) = 41.42

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Sites G1 & G2

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 36.76
Weir length (ft)	= .00
Top bank elevation (ft)	= 42.50
Pond area at top bank (acres)	= 2.020
Pond perimeter at top bank (ft)	=1250.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 36.76
Discharge elevation (ft)	= 36.76
Treatment volume (ac-ft)	= .350
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
36.76	1.410	.000	.00	.00	.00
36.76	1.410	.000	.00	.00	.00
36.86	1.419	.141	8.59	.00	8.59
36.96	1.429	.284	8.65	.00	8.65
37.06	1.439	.427	8.71	.00	8.71
37.16	1.449	.572	8.77	.00	8.77
37.26	1.459	.717	8.83	.00	8.83
37.36	1.469	.863	8.89	.00	8.89
37.46	1.479	1.011	8.95	.00	8.95
37.56	1.489	1.159	9.01	.00	9.01
37.66	1.499	1.309	9.07	.00	9.07
37.76	1.509	1.459	9.13	.00	9.13

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Sites G1 & G2

**** 10-DAY,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 73.22
Curve Numner (CN)	= 42.20
Runoff coefficient	= .465
Time of concentration (min.)	= 114.6
Rainfall intensity (in/hr)	= 2.80
Peak flow rate (cfs)	= 95.17

Post-development Condition:

Drainage area (acres)	= 73.22
Curve Numner (CN)	= 44.50
Runoff coefficient	= .495
Rainfall zone number	= 5
Total rainfall depth (inches)	= 19.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	36.76	.00	.00	.00
8.0	.002	1.38	36.78	1.31	1.31	.00
16.0	.002	1.38	36.78	1.44	1.44	.00
24.0	.002	1.38	36.78	1.32	1.32	.00
32.0	.005	3.44	36.80	3.39	3.39	.00
40.0	.019	13.08	37.71	9.10	9.10	.00
48.0	.004	2.75	37.25	8.82	8.82	.00
56.0	.003	2.07	36.81	4.55	4.55	.00
64.0	.003	2.07	36.79	2.89	2.89	.00
72.0	.003	2.07	36.78	1.32	1.32	.00
80.0	.001	.69	36.78	1.43	1.43	.00
88.0	.001	.69	36.76	.02	.02	.00
96.0	.001	.69	36.78	1.30	1.30	.00
104.0	.001	.69	36.76	.14	.14	.00
112.0	.001	.69	36.77	1.19	1.19	.00
120.0	.001	.69	36.76	.24	.24	.00
128.0	.001	.69	36.77	1.10	1.10	.00
136.0	.001	.69	36.76	.32	.32	.00
144.0	.001	.69	36.77	1.02	1.02	.00
152.0	.003	2.07	36.78	1.70	1.70	.00
160.0	.003	2.07	36.79	2.40	2.40	.00
168.0	.003	2.07	36.78	1.76	1.76	.00
176.0	.009	6.20	36.83	6.27	6.27	.00
184.0	.035	24.09	39.85	10.40	10.40	.00
192.0	.007	4.82	41.42	11.36	11.36	.00
200.0	.004	2.75	38.49	9.57	9.57	.00
208.0	.004	2.75	36.80	3.47	3.47	.00
216.0	.004	2.75	36.78	2.10	2.10	.00
224.0	.002	1.38	36.78	2.03	2.03	.00
232.0	.002	1.38	36.77	.78	.78	.00
240.0	.000	.00	36.77	.60	.60	.00

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Sites G1 & G2

Output Summary
==========

Peak flow (cfs)	=	.00
Peak stage (ft)	=	41.42
Peak Storage (ac-ft)	=	6.966
Time to peak (hrs)	=	192.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin G; Pond Site G3

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	114700.00	to Station	113300.00
Basin length, L =	1400.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	150.00 ft		
Driveway areas =	0.14 ac		
Offsite impervious area =	2.86 ac		
Offsite pervious area =	60.56 ac		
Pond area, P =	4.02 ac		
Total drainage area, DA =	73.22 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares fine sand	A	11	3.96	98	5.3
Grass	Tavares fine sand	A	11	65.24	39	34.7
Pond site	Candler fine sand	A	3	4.02	39	2.1
				73.22		42.2

TIME OF CONCENTRATION = 114.60 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = >6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*

Use 6.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	114700.00	to Station	113300.00
Basin length, L =	1400.00 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	2.86 ac		
Offsite pervious area =	60.56 ac		
Proposed pond area, P =	4.02 ac		
Total drainage area, DA =	73.22 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Tavares fine sand	A	11	5.40	98	7.2
Grass	Tavares fine sand	A	11	63.81	39	34.0
Pond berm	Candler fine sand	A	3	1.54	39	0.8
Pond	Candler fine sand	A	3	2.48	100	3.4
				73.22		45.4

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	9.80 ac
1/2" of runoff from the onsite area =	0.41 ac-ft
Required treatment volume =	0.41 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Site G3

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 3-Day	7-Day	10-Day
2-Year	Q-pre	10.83	16.77	19.87
	Q-post	0.00	0.00	0.00
	E-max	46.69	46.69	46.70
5-Year	Q-pre	22.62	31.94	38.10
	Q-post	0.00	0.00	0.00
	E-max	46.71	46.71	46.73
10-Year	Q-pre	32.32	44.15	50.61
	Q-post	0.00	0.00	0.00
	E-max	46.72	46.72	46.75
25-Year	Q-pre	46.87	60.04	71.75
	Q-post	0.00	0.00	0.00
	E-max	46.75	46.75	47.34
50-Year	Q-pre	60.49	74.35	84.68
	Q-post	0.00	0.00	0.00
	E-max	46.78	46.76	47.65
100-Year	Q-pre	72.36	88.06	95.17
	Q-post	0.00	0.00	0.00
	E-max	46.99	46.97	47.82

Critical Duration: **** 10-DAY,100-YEAR STORM ****

Q-pre	(cfs)	=	95.17
Q-post	(cfs)	=	.00
E-max	(ft)	=	47.82

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Site G3

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 46.67
Weir length (ft)	= .00
Top bank elevation (ft)	= 52.50
Pond area at top bank (acres)	= 3.270
Pond perimeter at top bank (ft)	=1540.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 46.67
Discharge elevation (ft)	= 46.67
Treatment volume (ac-ft)	= .410
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
46.67	2.495	.000	.00	.00	.00
46.67	2.495	.000	.00	.00	.00
46.77	2.508	.250	15.17	.00	15.17
46.87	2.520	.502	15.25	.00	15.25
46.97	2.533	.754	15.33	.00	15.33
47.07	2.545	1.008	15.40	.00	15.40
47.17	2.558	1.263	15.48	.00	15.48
47.27	2.571	1.520	15.55	.00	15.55
47.37	2.583	1.777	15.63	.00	15.63
47.47	2.596	2.036	15.71	.00	15.71
47.57	2.609	2.297	15.78	.00	15.78
47.67	2.621	2.558	15.86	.00	15.86

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Site G3

**** 10-DAY,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 73.22
Curve Numner (CN)	= 42.20
Runoff coefficient	= .465
Time of concentration (min.)	= 114.6
Rainfall intensity (in/hr)	= 2.80
Peak flow rate (cfs)	= 95.17

Post-development Condition:

Drainage area (acres)	= 73.22
Curve Numner (CN)	= 45.40
Runoff coefficient	= .506
Rainfall zone number	= 5
Total rainfall depth (inches)	= 19.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	46.67	.00	.00	.00
8.0	.002	1.41	46.68	1.34	1.34	.00
16.0	.002	1.41	46.68	1.47	1.47	.00
24.0	.002	1.41	46.68	1.35	1.35	.00
32.0	.005	3.52	46.69	3.47	3.47	.00
40.0	.019	13.39	46.76	12.96	12.96	.00
48.0	.004	2.82	46.69	3.70	3.70	.00
56.0	.003	2.11	46.68	1.35	1.35	.00
64.0	.003	2.11	46.69	2.81	2.81	.00
72.0	.003	2.11	46.68	1.49	1.49	.00
80.0	.001	.70	46.68	1.34	1.34	.00
88.0	.001	.70	46.67	.13	.13	.00
96.0	.001	.70	46.68	1.22	1.22	.00
104.0	.001	.70	46.67	.23	.23	.00
112.0	.001	.70	46.68	1.13	1.13	.00
120.0	.001	.70	46.67	.32	.32	.00
128.0	.001	.70	46.68	1.05	1.05	.00
136.0	.001	.70	46.67	.39	.39	.00
144.0	.001	.70	46.68	.99	.99	.00
152.0	.003	2.11	46.68	1.79	1.79	.00
160.0	.003	2.11	46.69	2.41	2.41	.00
168.0	.003	2.11	46.68	1.85	1.85	.00
176.0	.009	6.34	46.71	6.38	6.38	.00
184.0	.035	24.66	47.82	15.98	15.98	.00
192.0	.007	4.93	47.55	15.77	15.77	.00
200.0	.004	2.82	46.72	7.84	7.84	.00
208.0	.004	2.82	46.70	4.49	4.49	.00
216.0	.004	2.82	46.68	1.30	1.30	.00
224.0	.002	1.41	46.69	2.85	2.85	.00
232.0	.002	1.41	46.67	.11	.11	.00
240.0	.000	.00	46.68	1.24	1.24	.00

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin G; Pond Site G3

Output Summary
==========

Peak flow (cfs)	=	.00
Peak stage (ft)	=	47.82
Peak Storage (ac-ft)	=	2.961
Time to peak (hrs)	=	184.0

ARCADIS
GERAGHTY&MILLER

SUBJECT: Sub-basin HS; Pond Site H1

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	113300.00	to Station	111378.30
Basin length, L =	1921.70 ft		
Average basin width, W =	170.70 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	140.70 ft		
Driveway areas =	0.20 ac		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	0.00 ac		
Pond area, P =	0.80 ac		
Total drainage area, DA =	8.33 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	1.52	98	17.9
Grass	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	6.01	39	28.1
Pond site	Candler fine sand	A	3	0.80	39	3.8
				8.33		49.8

TIME OF CONCENTRATION = 15.00 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = >6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*
Use 6.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	113300.00	to Station	111378.30
Basin length, L =	1921.70 ft		
Average basin width, W =	180.00 ft		
Average impervious/road width =	79.00 ft		
Average pervious width =	101.00 ft		
Offsite impervious area =	0.00 ac		
Offsite pervious area =	0.00 ac		
Proposed pond area, P =	0.80 ac		
Total drainage area, DA =	8.74 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	3.49	98	39.1
Grass	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	4.46	39	19.9
Pond berm	Candler fine sand	A	3	0.58	39	2.6
Pond	Candler fine sand	A	3	0.22	100	2.6
				8.74		64.1

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	8.74 ac
1/2" of runoff from the onsite area =	0.36 ac-ft
Required treatment volume =	0.36 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HS; Pond Site H1

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	0.10	0.69	1.67	2.97	5.65
	Q-post	0.43	0.56	0.50	0.51	0.28
	E-max	42.67	42.74	42.71	42.72	42.59
5-Year	Q-pre	1.04	2.44	4.11	6.16	9.86
	Q-post	1.34	1.83	1.58	1.83	0.46
	E-max	42.99	43.12	43.06	43.12	42.69
10-Year	Q-pre	1.95	4.09	6.29	9.03	13.81
	Q-post	2.28	3.19	2.84	3.24	0.92
	E-max	43.23	43.43	43.36	43.44	42.85
25-Year	Q-pre	3.43	5.96	8.69	12.37	17.47
	Q-post	3.59	4.39	3.88	4.47	1.30
	E-max	43.52	43.68	43.58	43.69	42.98
50-Year	Q-pre	4.99	8.25	11.50	15.05	21.19
	Q-post	5.01	6.15	5.38	5.50	1.87
	E-max	43.79	44.00	43.86	43.88	43.13
100-Year	Q-pre	6.99	10.63	15.03	18.80	26.05
	Q-post	6.88	7.93	7.41	7.19	2.74
	E-max	44.12	44.29	44.21	44.17	43.34

Critical Duration: **** 2-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 10.63
Q-post (cfs) = 7.93
E-max (ft) = 44.29

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HS; Pond Site H1

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 42.42
Weir length (ft)	= 1.00
Top bank elevation (ft)	= 47.00
Pond area at top bank (acres)	= .500
Pond perimeter at top bank (ft)	= 590.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 42.42
Discharge elevation (ft)	= 42.42
Treatment volume (ac-ft)	= .360
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
42.42	.283	.000	.00	.00	.00
42.42	.283	.000	.00	.00	.00
42.72	.295	.087	1.79	.51	2.29
43.02	.308	.177	1.86	1.44	3.30
43.32	.321	.271	1.94	2.65	4.59
43.62	.334	.369	2.02	4.08	6.09
43.92	.347	.472	2.10	5.70	7.79
44.22	.361	.578	2.18	7.49	9.67
44.52	.375	.688	2.27	9.43	11.70
44.82	.389	.803	2.35	11.53	13.88
45.12	.403	.921	2.44	13.75	16.19
45.42	.418	1.045	2.53	16.11	18.64

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HS; Pond Site H1

**** 2-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 8.33
Curve Numner (CN)	= 49.80
Runoff coefficient	= .157
Time of concentration (min.)	= 15.0
Rainfall intensity (in/hr)	= 8.10
Peak flow rate (cfs)	= 10.63

Post-development Condition:

Drainage area (acres)	= 8.74
Curve Numner (CN)	= 64.10
Runoff coefficient	= .343
Rainfall zone number	= 5
Total rainfall depth (inches)	= 5.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	42.42	.00	.00	.00
.2	.500	8.10	42.61	1.45	1.13	.32
.4	.750	12.15	43.04	3.37	1.87	1.51
.6	1.000	16.20	43.54	5.67	2.00	3.68
.8	1.250	20.25	44.07	8.73	2.14	6.59
1.0	.500	8.10	44.29	10.13	2.20	7.93
1.2	.300	4.86	44.14	9.18	2.16	7.02
1.4	.250	4.05	43.95	7.98	2.11	5.87
1.6	.200	3.24	43.77	6.92	2.06	4.86
1.8	.150	2.43	43.59	5.94	2.01	3.93
2.0	.000	.00	43.38	4.88	1.95	2.92

Output Summary

Peak flow (cfs)	= 7.93
Peak stage (ft)	= 44.29
Peak Storage (ac-ft)	= .603
Time to peak (hrs)	= 1.0

ARCADIS
GERAGHTY&MILLER

SUBJECT: Sub-basin HS; Pond Site H2 (D)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	113300.00 to Station 111378.30
Basin length, L =	1921.70 ft
Average basin width, W =	170.70 ft
Average impervious/road width =	30.00 ft
Average pervious width =	140.70 ft
Driveway areas =	0.20 ac
Offsite impervious area =	0.00 ac
Offsite pervious area =	0.00 ac
Pond area, P =	0.80 ac
Total drainage area, DA =	8.33 ac

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	1.52	98	17.9
Grass	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	6.01	39	28.1
Pond site	Tavares fine sand	A	11	0.80	39	3.8
				8.33		49.8

TIME OF CONCENTRATION = 15.00 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 3.50 - 6.00 ft *Per the Soil Survey of Citrus County*
Use 4.75 ft

PERMEABILITY RATE = > 6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	113300.00 to Station 111378.30
Basin length, L =	1921.70 ft
Average basin width, W =	180.00 ft
Average impervious/road width =	79.00 ft
Average pervious width =	101.00 ft
Offsite impervious area =	0.00 ac
Offsite pervious area =	0.00 ac
Proposed pond area, P =	0.80 ac
Total drainage area, DA =	8.74 ac

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	3.49	98	39.1
Grass	Candler, Tavares & Arredondo fine sands	A	3, 11 & 16	4.46	39	19.9
Pond berm	Tavares fine sand	A	11	0.53	39	2.4
Pond	Tavares fine sand	A	11	0.27	100	3.1
				8.74		64.4

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	8.74 ac
1/2" of runoff from the onsite area =	0.36 ac-ft
Required treatment volume =	0.36 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HS; Pond Site H2 (D)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	0.10	0.69	1.67	2.97	5.65
	Q-post	0.39	0.49	0.46	0.46	0.26
	E-max	41.68	41.74	41.72	41.72	41.60
5-Year	Q-pre	1.04	2.44	4.11	6.16	9.86
	Q-post	1.16	1.54	1.34	1.56	0.42
	E-max	41.96	42.07	42.02	42.08	41.70
10-Year	Q-pre	1.95	4.09	6.29	9.03	13.81
	Q-post	1.96	2.74	2.47	2.91	0.72
	E-max	42.18	42.37	42.31	42.41	41.82
25-Year	Q-pre	3.43	5.96	8.69	12.37	17.47
	Q-post	3.14	3.84	3.44	4.09	1.06
	E-max	42.45	42.60	42.52	42.65	41.93
50-Year	Q-pre	4.99	8.25	11.50	15.05	21.19
	Q-post	4.42	5.45	4.85	5.11	1.59
	E-max	42.71	42.90	42.79	42.84	42.09
100-Year	Q-pre	6.99	10.63	15.03	18.80	26.05
	Q-post	6.11	7.10	6.77	6.77	2.46
	E-max	43.02	43.18	43.13	43.13	42.30

Critical Duration: **** 2-HOUR,100-YEAR STORM ****

Q-pre	(cfs)	=	10.63
Q-post	(cfs)	=	7.10
E-max	(ft)	=	43.18

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HS; Pond Site H2 (D)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 41.45
Weir length (ft)	= 1.00
Top bank elevation (ft)	= 45.00
Pond area at top bank (acres)	= .500
Pond perimeter at top bank (ft)	= 590.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 41.45
Discharge elevation (ft)	= 41.45
Treatment volume (ac-ft)	= .360
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
41.45	.326	.000	.00	.00	.00
41.45	.326	.000	.00	.00	.00
41.75	.339	.100	2.05	.51	2.56
42.05	.353	.204	2.14	1.44	3.58
42.35	.367	.312	2.22	2.65	4.87
42.65	.381	.424	2.30	4.08	6.38
42.95	.395	.540	2.39	5.70	8.09
43.25	.410	.661	2.48	7.49	9.97
43.55	.425	.786	2.57	9.43	12.00
43.85	.440	.916	2.66	11.53	14.19
44.15	.455	1.050	2.75	13.75	16.51
44.45	.471	1.189	2.85	16.11	18.96

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HS; Pond Site H2 (D)

**** 2-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 8.33
Curve Numner (CN)	= 49.80
Runoff coefficient	= .157
Time of concentration (min.)	= 15.0
Rainfall intensity (in/hr)	= 8.10
Peak flow rate (cfs)	= 10.63

Post-development Condition:

Drainage area (acres)	= 8.74
Curve Numner (CN)	= 64.40
Runoff coefficient	= .348
Rainfall zone number	= 5
Total rainfall depth (inches)	= 5.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	41.45	.00	.00	.00
.2	.500	8.20	41.62	1.44	1.15	.29
.4	.750	12.31	42.00	3.40	2.12	1.28
.6	1.000	16.41	42.45	5.39	2.25	3.14
.8	1.250	20.51	42.96	8.14	2.39	5.75
1.0	.500	8.20	43.18	9.56	2.46	7.10
1.2	.300	4.92	43.08	8.87	2.43	6.45
1.4	.250	4.10	42.92	7.89	2.38	5.51
1.6	.200	3.28	42.76	6.98	2.33	4.65
1.8	.150	2.46	42.60	6.11	2.29	3.83
2.0	.000	.00	42.40	5.13	2.23	2.90

Output Summary

Peak flow (cfs)	= 7.10
Peak stage (ft)	= 43.18
Peak Storage (ac-ft)	= .635
Time to peak (hrs)	= 1.0

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin HN; Pond Site H3

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	111378.30	to Station	107550.00
Basin length, L =	3828.30 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	170.00 ft		
Driveway areas =	0.10 ac		
Offsite impervious area =	2.98 ac		
Offsite pervious area =	1.24 ac		
Pond area, P =	2.07 ac		
Total drainage area, DA =	23.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler fine sand	A	3	0.66	98	2.7
Pavement	Adamsville & Pomello fine sands	C	2 & 27	0.66	98	2.7
Pavement	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	4.40	98	18.1
Grass	Candler fine sand	A	3	3.74	39	6.1
Grass	Adamsville & Pomello fine sands	C	2 & 27	4.88	74	15.1
Grass	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	7.47	80	25.0
Pond site	Basinger fine sand	B/D	5	2.07	80	6.9
				23.86		76.7

TIME OF CONCENTRATION = 94.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 0.00 - 1.00 ft *Per the Soil Survey of Citrus County*
Use 0.50 ft

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*
Use 0.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	111378.30	to Station	107550.00
Basin length, L =	3828.30 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	126.00 ft		
Offsite impervious area =	2.98 ac		
Offsite pervious area =	1.24 ac		
Proposed pond area, P =	2.07 ac		
Total drainage area, DA =	23.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler fine sand	A	3	1.63	98	6.7
Pavement	Adamsville & Pomello fine sands	C	2 & 27	1.63	98	6.7
Pavement	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	6.23	98	25.6
Grass	Candler fine sand	A	3	2.77	39	4.5
Grass	Adamsville & Pomello fine sands	C	2 & 27	2.77	74	8.6
Grass	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	6.78	80	22.7
Pond berm	Basinger fine sand	B/D	5	0.83	80	2.8
Pond	Basinger fine sand	B/D	5	1.24	100	5.2
				23.86		82.7

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	19.64 ac
1" of runoff from the onsite area =	1.64 ac-ft
Required treatment volume =	1.64 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HN; Pond Site H3

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	9.96	12.32	14.58	16.78	20.17
	Q-post	30.20	26.84	18.30	16.22	7.01
	E-max	43.30	43.26	43.15	43.12	42.95
5-Year	Q-pre	16.54	19.76	22.63	25.45	29.56
	Q-post	49.62	42.15	26.59	24.84	9.93
	E-max	43.52	43.44	43.26	43.24	43.01
10-Year	Q-pre	20.65	24.76	28.03	31.37	36.10
	Q-post	61.88	54.59	33.35	32.45	12.98
	E-max	43.64	43.56	43.35	43.33	43.08
25-Year	Q-pre	25.79	29.92	33.52	37.56	42.17
	Q-post	77.49	63.39	38.38	38.69	14.86
	E-max	43.78	43.65	43.40	43.41	43.11
50-Year	Q-pre	30.93	35.75	39.69	43.36	48.68
	Q-post	91.67	75.91	44.90	43.43	17.38
	E-max	43.89	43.76	43.47	43.45	43.14
100-Year	Q-pre	36.47	41.40	46.31	49.91	55.77
	Q-post	108.94	87.92	53.16	50.72	20.45
	E-max	44.03	43.86	43.55	43.53	43.18

Critical Duration: **** 1-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 36.47
Q-post (cfs) = 108.94
E-max (ft) = 44.03

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HN; Pond Site H3

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 42.78
Weir length (ft)	= 25.00
Top bank elevation (ft)	= 45.00
Pond area at top bank (acres)	= 1.550
Pond perimeter at top bank (ft)	=1040.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 42.78
Discharge elevation (ft)	= 42.78
Treatment volume (ac-ft)	= 1.640
Percolation rate (in/hr)	= .00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
42.78	1.345	.000	.00	.00	.00
42.78	1.345	.000	.00	.00	.00
43.08	1.372	.408	.00	12.73	12.73
43.38	1.399	.823	.00	36.02	36.02
43.68	1.426	1.247	.00	66.17	66.17
43.98	1.454	1.679	.00	101.88	101.88
44.28	1.482	2.120	.00	142.38	142.38
44.58	1.510	2.568	.00	187.16	187.16
44.88	1.539	3.026	.00	235.85	235.85

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HN; Pond Site H3

**** 1-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 23.86
Curve Numner (CN)	= 76.70
Runoff coefficient	= .479
Time of concentration (min.)	= 94.8
Rainfall intensity (in/hr)	= 3.19
Peak flow rate (cfs)	= 36.47

Post-development Condition:

Drainage area (acres)	= 23.86
Curve Numner (CN)	= 82.70
Runoff coefficient	= .593
Rainfall zone number	= 5
Total rainfall depth (inches)	= 4.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	42.78	.00	.00	.00
.1	.200	12.46	42.81	1.42	.00	1.42
.2	.600	37.37	42.94	6.80	.00	6.80
.3	1.200	74.74	43.19	21.49	.00	21.49
.4	2.100	130.79	43.57	55.38	.00	55.38
.5	2.150	133.90	43.91	93.26	.00	93.26
.6	1.800	112.10	44.03	108.94	.00	108.94
.7	1.100	68.51	43.96	98.92	.00	98.92
.8	.700	43.60	43.77	77.10	.00	77.10
.9	.100	6.23	43.54	52.21	.00	52.21
1.0	.000	.00	43.31	30.96	.00	30.96

Output Summary

Peak flow (cfs)	= 108.94
Peak stage (ft)	= 44.03
Peak Storage (ac-ft)	= 1.756
Time to peak (hrs)	= .6

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin HN; Pond Site H4 (Dalt)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	111378.30	to Station	107550.00
Basin length, L =	3828.30 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	170.00 ft		
Driveway areas =	0.10 ac		
Offsite impervious area =	2.98 ac		
Offsite pervious area =	1.24 ac		
Pond area, P =	2.07 ac		
Total drainage area, DA =	23.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler fine sand	A	3	0.66	98	2.7
Pavement	Adamsville & Pomello fine sands	C	2 & 27	0.66	98	2.7
Pavement	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	4.40	98	18.1
Grass	Candler fine sand	A	3	3.74	39	6.1
Grass	Adamsville & Pomello fine sands	C	2 & 27	4.88	74	15.1
Grass	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	7.47	80	25.0
Pond site	Adamsville fine sand	C	2	2.07	74	6.4
				23.86		76.1

TIME OF CONCENTRATION = 94.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 2.00 - 3.50 ft *Per the Soil Survey of Citrus County*
Use 2.75 ft

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*
Use 0.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	111378.30	to Station	107550.00
Basin length, L =	3828.30 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	126.00 ft		
Offsite impervious area =	2.98 ac		
Offsite pervious area =	1.24 ac		
Proposed pond area, P =	2.07 ac		
Total drainage area, DA =	23.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler fine sand	A	3	1.63	98	6.7
Pavement	Adamsville & Pomello fine sands	C	2 & 27	1.63	98	6.7
Pavement	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	6.23	98	25.6
Grass	Candler fine sand	A	3	2.77	39	4.5
Grass	Adamsville & Pomello fine sands	C	2 & 27	2.77	74	8.6
Grass	Basinger & Myakka fine sands	D & B/D	5, 6 & 7	6.78	80	22.7
Pond berm	Adamsville fine sand	C	2	0.77	74	2.4
Pond	Adamsville fine sand	C	2	1.30	100	5.4
				23.86		82.6

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	19.64 ac
1" of runoff from the onsite area =	1.64 ac-ft
Required treatment volume =	1.64 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HN; Pond Site H4 (Dalt)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	9.55	11.89	14.15	16.35	19.77
	Q-post	33.31	28.96	18.02	16.60	7.17
	E-max	43.91	43.87	43.77	43.75	43.59
5-Year	Q-pre	15.99	19.21	22.09	24.93	29.09
	Q-post	53.15	44.34	26.52	25.25	10.16
	E-max	44.09	44.01	43.85	43.84	43.64
10-Year	Q-pre	20.03	24.16	27.44	30.82	35.62
	Q-post	66.87	56.77	33.56	33.10	13.24
	E-max	44.19	44.12	43.91	43.91	43.69
25-Year	Q-pre	25.09	29.24	32.88	36.96	41.64
	Q-post	82.39	66.82	38.29	39.36	14.79
	E-max	44.30	44.19	43.96	43.97	43.72
50-Year	Q-pre	30.17	35.02	39.00	42.72	48.12
	Q-post	97.45	79.32	44.71	44.29	16.88
	E-max	44.40	44.28	44.02	44.01	43.75
100-Year	Q-pre	35.65	40.61	45.58	49.25	55.22
	Q-post	115.47	90.74	53.08	52.19	20.46
	E-max	44.51	44.36	44.09	44.08	43.79

Critical Duration: **** 1-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 35.65
Q-post (cfs) = 115.47
E-max (ft) = 44.51

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HN; Pond Site H4 (Dalt)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 43.47
Weir length (ft)	= 35.00
Top bank elevation (ft)	= 45.00
Pond area at top bank (acres)	= 1.550
Pond perimeter at top bank (ft)	=1040.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 43.47
Discharge elevation (ft)	= 43.47
Treatment volume (ac-ft)	= 1.640
Percolation rate (in/hr)	= .00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
43.47	1.407	.000	.00	.00	.00
43.47	1.407	.000	.00	.00	.00
43.77	1.435	.426	.00	17.83	17.83
44.07	1.462	.861	.00	50.43	50.43
44.37	1.490	1.304	.00	92.64	92.64
44.67	1.519	1.755	.00	142.63	142.63
44.97	1.547	2.215	.00	199.33	199.33

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin HN; Pond Site H4 (Dalt)

**** 1-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 23.86
Curve Numner (CN)	= 76.10
Runoff coefficient	= .468
Time of concentration (min.)	= 94.8
Rainfall intensity (in/hr)	= 3.19
Peak flow rate (cfs)	= 35.65

Post-development Condition:

Drainage area (acres)	= 23.86
Curve Numner (CN)	= 82.60
Runoff coefficient	= .591
Rainfall zone number	= 5
Total rainfall depth (inches)	= 4.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	43.47	.00	.00	.00
.1	.200	12.41	43.50	1.83	.00	1.83
.2	.600	37.24	43.61	8.61	.00	8.61
.3	1.200	74.48	43.84	25.38	.00	25.38
.4	2.100	130.34	44.17	64.05	.00	64.05
.5	2.150	133.45	44.44	103.47	.00	103.47
.6	1.800	111.72	44.51	115.47	.00	115.47
.7	1.100	68.28	44.41	99.48	.00	99.48
.8	.700	43.45	44.24	74.15	.00	74.15
.9	.100	6.21	44.04	46.95	.00	46.95
1.0	.000	.00	43.85	26.20	.00	26.20

Output Summary

Peak flow (cfs)	= 115.47
Peak stage (ft)	= 44.51
Peak Storage (ac-ft)	= 1.510
Time to peak (hrs)	= .6

ARCADIS GERAGHTY&MILLER

SUBJECT: Sub-basin I; Pond Sites I1 & I2

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	107550.00	to Station	106100.00
Basin length, L =	1450.00 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	170.00 ft		
Driveway areas =	0.10 ac		
Offsite impervious area =	3.09 ac		
Offsite pervious area =	28.74 ac		
Pond area, P =	0.92 ac		
Total drainage area, DA =	39.41 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler fine sand	A	3	4.19	98	10.4
Grass	Candler fine sand	A	3	34.30	39	33.9
Pond site	Candler fine sand	A	3	0.92	39	0.9
				39.41		45.3

TIME OF CONCENTRATION = 22.80 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = > 6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*

Use 6.00 in/hr

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	107550.00	to Station	106100.00
Basin length, L =	1450.00 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	126.00 ft		
Offsite impervious area =	3.09 ac		
Offsite pervious area =	28.74 ac		
Proposed pond area, P =	0.92 ac		
Total drainage area, DA =	39.41 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler fine sand	A	3	5.55	98	13.8
Grass	Candler fine sand	A	3	32.93	39	32.6
Pond berm	Candler fine sand	A	3	0.63	39	0.6
Pond	Candler fine sand	A	3	0.29	100	0.7
				39.41		47.8

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	7.58 ac
1/2" of runoff from the onsite area =	0.32 ac-ft
Required treatment volume =	0.32 ac-ft
Provided treatment volume =	0.35 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin I; Pond Sites I1 & I2

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	0.14	0.44	2.62	6.29	14.94
	Q-post	0.01	0.35	0.71	1.14	0.91
	E-max	50.12	50.19	50.26	50.34	50.30
5-Year	Q-pre	1.00	4.53	9.64	16.46	29.74
	Q-post	0.83	2.21	2.99	4.26	2.22
	E-max	50.28	50.49	50.58	50.71	50.49
10-Year	Q-pre	3.05	9.36	16.69	26.39	44.33
	Q-post	2.19	6.08	6.80	8.75	4.91
	E-max	50.49	50.87	50.93	51.08	50.77
25-Year	Q-pre	6.86	14.86	24.28	37.67	57.18
	Q-post	5.67	9.98	10.10	13.20	6.53
	E-max	50.83	51.16	51.17	51.38	50.90
50-Year	Q-pre	11.53	22.57	34.37	47.81	72.05
	Q-post	10.31	16.08	15.04	17.07	8.71
	E-max	51.19	51.56	51.49	51.62	51.07
100-Year	Q-pre	17.62	30.31	46.58	61.08	90.06
	Q-post	17.15	22.55	21.99	23.62	12.31
	E-max	51.62	51.92	51.89	51.98	51.33

Critical Duration: **** 8-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 61.08
Q-post (cfs) = 23.62
E-max (ft) = 51.98

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin I; Pond Sites I1 & I2

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 50.12
Weir length (ft)	= 3.00
Top bank elevation (ft)	= 55.00
Pond area at top bank (acres)	= .590
Pond perimeter at top bank (ft)	= 640.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 50.12
Discharge elevation (ft)	= 50.12
Treatment volume (ac-ft)	= .350
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
50.12	.338	.000	.00	.00	.00
50.12	.338	.000	.00	.00	.00
50.42	.352	.103	2.13	1.53	3.66
50.72	.365	.211	2.21	4.32	6.53
51.02	.379	.323	2.30	7.94	10.24
51.32	.394	.439	2.38	12.23	14.61
51.62	.408	.559	2.47	17.09	19.55
51.92	.423	.684	2.56	22.46	25.02
52.22	.438	.813	2.65	28.30	30.95
52.52	.453	.946	2.74	34.58	37.32
52.82	.469	1.085	2.84	41.26	44.10
53.12	.485	1.228	2.93	48.32	51.26

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin I; Pond Sites I1 & I2

**** 8-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 39.41
Curve Numner (CN)	= 45.30
Runoff coefficient	= .221
Time of concentration (min.)	= 22.8
Rainfall intensity (in/hr)	= 7.02
Peak flow rate (cfs)	= 61.08

Post-development Condition:

Drainage area (acres)	= 39.41
Curve Numner (CN)	= 47.80
Runoff coefficient	= .253
Rainfall zone number	= 5
Total rainfall depth (inches)	= 8.00

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	50.12	.00	.00	.00
1.0	.020	1.59	50.20	.95	.55	.40
2.0	.060	4.78	50.42	3.60	2.10	1.51
3.0	.150	11.95	50.91	8.82	2.26	6.55
4.0	.420	33.45	51.98	26.19	2.58	23.62
5.0	.160	12.74	51.76	22.19	2.51	19.67
6.0	.060	4.78	50.65	5.84	2.19	3.65
7.0	.050	3.98	50.49	4.31	2.15	2.16
8.0	.000	.00	50.25	1.64	.96	.69

Output Summary

Peak flow (cfs)	= 23.62
Peak stage (ft)	= 51.98
Peak Storage (ac-ft)	= .709
Time to peak (hrs)	= 4.0

ARCADIS GERAGHTY&MILLER

SUBJECT: Sub-basin J; Pond Site J1 (I)

JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	106100.00	to Station	101050.00
Basin length, L =	5050.00 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	170.00 ft		
Driveway areas =	0.20 ac		
Offsite impervious area =	3.03 ac		
Offsite pervious area =	17.19 ac		
Pond area, P =	5.45 ac		
Total drainage area, DA =	48.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler & Tavares fine sands	A	3 & 11	1.04	98	2.1
Pavement	Pomello fine sand	C	27	0.52	98	1.0
Pavement	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	5.14	98	10.3
Grass	Candler & Tavares fine sands	A	3 & 11	5.91	39	4.7
Grass	Pomello fine sand	C	27	2.96	75	4.5
Grass	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	27.83	80	45.6
Pond site	Candler fine sand	A	3	5.45	39	4.4
				48.86		72.6

TIME OF CONCENTRATION = 49.20 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = >6.00 ft *Per the Soil Survey of Citrus County*

PERMEABILITY RATE = 6.00 - 20.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	106100.00	to Station	101050.00
Basin length, L =	5050.00 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	126.00 ft		
Offsite impervious area =	3.03 ac		
Offsite pervious area =	17.19 ac		
Proposed pond area, P =	5.45 ac		
Total drainage area, DA =	48.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler & Tavares fine sands	A	3 & 11	2.57	98	5.2
Pavement	Pomello fine sand	C	27	1.29	98	2.6
Pavement	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	7.75	98	15.5
Grass	Candler & Tavares fine sands	A	3 & 11	4.38	39	3.5
Grass	Pomello fine sand	C	27	2.19	75	3.4
Grass	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	25.22	80	41.3
Pond berm	Candler fine sand	A	3	0.86	39	0.7
Pond	Candler fine sand	A	3	4.59	100	9.4
				48.86		81.5

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	28.64 ac
1" of runoff from the onsite area =	2.39 ac-ft
Required treatment volume =	2.39 ac-ft
Provided treatment volume =	2.63 ac-ft

NOTE

Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin J; Pond Site J1 (I)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	24.25	31.59	38.89	46.15	57.73
	Q-post	47.39	44.85	33.42	28.70	13.41
	E-max	43.37	43.35	43.27	43.23	43.02
5-Year	Q-pre	41.44	51.55	60.80	70.14	84.09
	Q-post	78.35	71.11	51.39	43.75	19.14
	E-max	43.60	43.54	43.40	43.34	43.10
10-Year	Q-pre	51.90	64.80	75.32	86.35	102.38
	Q-post	99.69	91.57	65.04	58.44	25.04
	E-max	43.73	43.68	43.50	43.45	43.18
25-Year	Q-pre	67.10	80.39	92.30	105.92	121.91
	Q-post	125.17	108.50	74.79	70.19	28.03
	E-max	43.87	43.78	43.57	43.54	43.22
50-Year	Q-pre	82.28	98.10	111.35	123.96	142.64
	Q-post	148.89	132.06	88.51	79.44	32.70
	E-max	44.01	43.91	43.66	43.60	43.26
100-Year	Q-pre	97.67	113.89	130.46	142.89	163.54
	Q-post	179.88	152.70	105.99	94.97	40.56
	E-max	44.16	44.03	43.76	43.70	43.32

Critical Duration: **** 1-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 97.67
Q-post (cfs) = 179.88
E-max (ft) = 44.16

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin J; Pond Site J1 (I)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 42.84
Weir length (ft)	= 38.00
Top bank elevation (ft)	= 52.00
Pond area at top bank (acres)	= 4.590
Pond perimeter at top bank (ft)	=1790.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 42.84
Discharge elevation (ft)	= 42.84
Treatment volume (ac-ft)	= 2.630
Percolation rate (in/hr)	= .00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
42.84	3.208	.000	.00	.00	.00
42.84	3.208	.000	.00	.00	.00
43.24	3.263	1.294	.00	29.80	29.80
43.64	3.319	2.610	.00	84.29	84.29
44.04	3.375	3.949	.00	154.85	154.85
44.44	3.431	5.310	.00	238.41	238.41
44.84	3.488	6.694	.00	333.19	333.19
45.24	3.546	8.101	.00	437.99	437.99
45.64	3.604	9.531	.00	551.93	551.93
46.04	3.663	10.984	.00	674.33	674.33
46.44	3.722	12.461	.00	804.64	804.64
46.84	3.781	13.962	.00	942.41	942.41

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin J; Pond Site J1 (I)

**** 1-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 48.86
Curve Numner (CN)	= 72.60
Runoff coefficient	= .407
Time of concentration (min.)	= 49.2
Rainfall intensity (in/hr)	= 4.91
Peak flow rate (cfs)	= 97.67

Post-development Condition:

Drainage area (acres)	= 48.86
Curve Numner (CN)	= 81.50
Runoff coefficient	= .569
Rainfall zone number	= 5
Total rainfall depth (inches)	= 4.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	42.84	.00	.00	.00
.1	.200	24.48	42.87	2.13	.00	2.13
.2	.600	73.44	42.98	10.27	.00	10.27
.3	1.200	146.87	43.21	27.62	.00	27.62
.4	2.100	257.03	43.59	77.07	.00	77.07
.5	2.150	263.15	43.96	140.92	.00	140.92
.6	1.800	220.31	44.16	179.88	.00	179.88
.7	1.100	134.63	44.16	178.91	.00	178.91
.8	.700	85.68	44.02	151.52	.00	151.52
.9	.100	12.24	43.81	114.83	.00	114.83
1.0	.000	.00	43.59	77.48	.00	77.48

Output Summary

Peak flow (cfs)	= 179.88
Peak stage (ft)	= 44.16
Peak Storage (ac-ft)	= 4.357
Time to peak (hrs)	= .6

ARCADIS
GERAGHTY & MILLER

SUBJECT: Sub-basin J; Pond Sites J4 (Jalt) & J5 (k)
JOB NO: TF001173.0000

BY: Sam Aref
DATE: Dec. 17, 2001
CHKD:
DATE:

I. PROJECT SITE PRE-DEVELOPMENT CALCULATIONS

Existing basin drains from Station	106100.00	to Station	101050.00
Basin length, L =	5050.00 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	30.00 ft		
Average pervious width =	170.00 ft		
Driveway areas =	0.20 ac		
Offsite impervious area =	3.03 ac		
Offsite pervious area =	21.04 ac		
Pond area, P =	1.61 ac		
Total drainage area, DA =	48.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler & Tavares fine sands	A	3 & 11	1.04	98	2.1
Pavement	Pomello fine sand	C	27	0.52	98	1.0
Pavement	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	5.14	98	10.3
Grass	Candler & Tavares fine sands	A	3 & 11	5.91	39	4.7
Grass	Pomello fine sand	C	27	2.96	75	4.5
Grass	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	31.68	80	51.9
Pond site	Tavares fine sand	A	11	1.61	39	1.3
				48.86		75.9

TIME OF CONCENTRATION = 49.20 min *See attached TR-55 calculations*

SEASONAL HIGH WATER DEPTH = 3.50 - 6.00 ft *Per the Soil Survey of Citrus County*
Use 4.75 ft

PERMEABILITY RATE = >6.00 in/hr *Per the Soil Survey of Citrus County*

II. PROJECT SITE POST-DEVELOPMENT CALCULATIONS

Proposed basin drains from Station	106100.00	to Station	101050.00
Basin length, L =	5050.00 ft		
Average basin width, W =	200.00 ft		
Average impervious/road width =	74.00 ft		
Average pervious width =	126.00 ft		
Offsite impervious area =	3.03 ac		
Offsite pervious area =	21.04 ac		
Proposed pond area, P =	1.61 ac		
Total drainage area, DA =	48.86 ac		

WEIGHTED CURVE NUMBER

Land Use	Soil Name	Hyd. Grp.	Map No.	Area (ac)	CN	Weighted CN
Pavement	Candler & Tavares fine sands	A	3 & 11	2.57	98	5.2
Pavement	Pomello fine sand	C	27	1.29	98	2.6
Pavement	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	7.75	98	15.5
Grass	Candler & Tavares fine sands	A	3 & 11	4.38	39	3.5
Grass	Pomello fine sand	C	27	2.19	75	3.4
Grass	Myakka & Basinger fine sands	B/D & D	7, 6 & 5	29.07	80	47.6
Pond berm	Tavares fine sand	A	11	0.47	39	0.4
Pond	Tavares fine sand	A	11	1.14	100	2.3
				48.86		80.4

III. WATER QUALITY TREATMENT VOLUME CALCULATIONS

Proposed onsite drainage area, (DA=L*W+P) =	24.79 ac
1/2" of runoff from the onsite area =	1.03 ac-ft
Required treatment volume =	1.03 ac-ft
Provided treatment volume =	1.13 ac-ft

NOTE
Station call outs are based on the existing plans

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin J; Pond Sites J4 (Jalt) & J5 (K)

Summary of Critical Duration Analysis

Frequency	Peak Values	Duration 1-Hour	2-Hour	4-Hour	8-Hour	24-Hour
2-Year	Q-pre	31.08	38.80	46.27	53.54	64.86
	Q-post	38.75	36.63	26.39	21.97	7.35
	E-max	41.27	41.21	40.90	40.75	40.17
5-Year	Q-pre	50.43	60.70	69.89	79.00	92.30
	Q-post	67.47	61.13	42.79	36.93	13.32
	E-max	42.00	41.85	41.38	41.22	40.43
10-Year	Q-pre	61.88	74.78	85.06	95.64	110.68
	Q-post	86.34	80.43	56.11	50.33	19.36
	E-max	42.42	42.29	41.73	41.58	40.66
25-Year	Q-pre	78.55	91.68	103.21	116.15	131.02
	Q-post	108.91	95.28	65.81	61.25	22.52
	E-max	42.90	42.61	41.96	41.85	40.77
50-Year	Q-pre	95.04	110.49	123.17	135.05	152.31
	Q-post	130.26	114.92	78.94	69.77	26.64
	E-max	43.35	43.03	42.26	42.05	40.91
100-Year	Q-pre	111.39	127.07	142.78	154.36	173.28
	Q-post	155.66	133.35	95.64	83.52	33.05
	E-max	43.89	43.42	42.62	42.36	41.11

Critical Duration: **** 1-HOUR,100-YEAR STORM ****

Q-pre (cfs) = 111.39
Q-post (cfs) = 155.66
E-max (ft) = 43.89

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin J; Pond Sites J4 (Jalt) & J5 (K)

***** Weir Structure *****

Number of weirs	= 1
Weir coefficient	= 3.1
Exponential constant	= 1.5
Weir elevation (ft)	= 39.64
Weir length (ft)	= 6.00
Top bank elevation (ft)	= 43.00
Pond area at top bank (acres)	= 1.140
Pond perimeter at top bank (ft)	= 940.0
Side slope of pond	= 4.0
Design normal water elevation (ft)	= 39.64
Discharge elevation (ft)	= 39.64
Treatment volume (ac-ft)	= 1.130
Percolation rate (in/hr)	= 6.00

*** Stage/Storage/Discharge Data ****

Stage (ft)	Area (acres)	Storage (ac-ft)	Percolation Flow	Connected Outflow	Total Outflow
39.64	.867	.000	.00	.00	.00
39.64	.867	.000	.00	.00	.00
39.94	.890	.263	5.38	3.06	8.44
40.24	.913	.534	5.52	8.64	14.17
40.54	.937	.811	5.67	15.88	21.55
40.84	.960	1.096	5.81	24.45	30.26
41.14	.985	1.388	5.96	34.17	40.13
41.44	1.009	1.687	6.10	44.92	51.02
41.74	1.034	1.993	6.25	56.60	62.86
42.04	1.058	2.307	6.40	69.16	75.56
42.34	1.084	2.628	6.56	82.52	89.08
42.64	1.109	2.957	6.71	96.65	103.36

Note: The stage-storage data is computed by using the double-end area method and a rectangular approximation. The other option should be used for pond with highly irregular shape or with nonuniform side slope.

Supra-3 (V5.60) - Critical Duration Analysis Date: 1/29/02

License To: ARCADIS Geraghty & Miller, Inc.

Sub-basin J; Pond Sites J4 (Jalt) & J5 (K)

**** 1-HOUR,100-YEAR STORM ****

Pre-development Condition:

Drainage area (acres)	= 48.86
Curve Number (CN)	= 75.90
Runoff coefficient	= .464
Time of concentration (min.)	= 49.2
Rainfall intensity (in/hr)	= 4.91
Peak flow rate (cfs)	=111.39

Post-development Condition:

Drainage area (acres)	= 48.86
Curve Number (CN)	= 80.40
Runoff coefficient	= .548
Rainfall zone number	= 5
Total rainfall depth (inches)	= 4.40

Time (hrs)	I/Ptotal Ratio	Inflow (cfs)	Stage (ft)	Total Outflow	Percolation Flow	Connected Outflow
.0	.000	.00	39.64	.00	.00	.00
.1	.200	23.56	39.74	2.75	1.76	1.00
.2	.600	70.67	40.11	11.67	5.46	6.20
.3	1.200	141.33	40.86	30.93	5.82	25.11
.4	2.100	247.33	42.02	74.69	6.39	68.30
.5	2.150	253.22	43.15	127.69	6.97	120.72
.6	1.800	212.00	43.82	159.61	7.32	152.30
.7	1.100	129.55	43.89	163.01	7.35	155.66
.8	.700	82.44	43.53	145.66	7.17	138.50
.9	.100	11.78	42.90	115.68	6.84	108.83
1.0	.000	.00	42.19	82.45	6.48	75.97

Output Summary

Peak flow (cfs)	= 155.66
Peak stage (ft)	= 43.89
Peak Storage (ac-ft)	= 4.331
Time to peak (hrs)	= .7

APPENDIX G

RIGHT-OF-WAY

COST ESTIMATES

RECEIVED R/W
2002 FEB 20 P 3:43

HDR

MEMORANDUM

Date: February 18, 2002

To: Aurelie J. Anthony, Deputy District Right-of-Way Manager, Operations, FDOT District Seven

From: Marilyn Jackson, Right-of-Way Program Manager MJ

CC: Mark Clasgens
Toni Loyd
FDOT File Copy
HDR File Copy

Re: Cost Estimate

FP#:	257188 1
WPI#:	N/A
County:	Citrus
Description:	SR 200 from US 41 to N. of Withlacoochee Bridge PD&E Reevaluation – Pond Sites
Purpose:	Special Purpose
HDR#:	06694-979-096-22

Per your request, please find copies of the above referenced cost estimates submitted for distribution. A list of the ponds with the total of all phases is attached.

Thank you for the opportunity to provide this service, and please feel free to call with questions or concerns.

HDR Engineering, Inc.
Employee Owned

Suite 250
2202 North Westshore Blvd.
Tampa, Florida
33607-5755

Telephone
813 282-2300
Fax
813 282-2430

[illegible]	[illegible]
A1	$320,900
A3	$505,000
A4	$194,800
B2	$181,300
B3	$232,500
B4	$181,300
C	$193,200
C1	$100,000
C2	$309,300
D2	$159,100
D3	$190,400
D4	$711,700
E1	$626,700
E2	$51,800
E3	$39,000
F1	$1,158,400
F2	$401,600
F3	$64,700
G1	$1,580,900
G2	$661,100
G3	$1,211,400
H1	$133,300
H2	$126,200
H3	$909,500
H4	$122,900
I1	$139,500
I2	$273,500
J1	$408,400
J4	$114,000
J5	$44,400
FP1	$150,300
FP2	$859,600
FP3	$40,500
FP4	$41,600

APPROVED

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond A1	C.E. Sequence	N/A

Project Des.: SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge

Parcels	Gross	Net
Commercial	0	0
Residential	2	2
Unimproved	0	0
Total Parcels	2	2

Estimated Relocatees:	
Business	0
Residential	1
Signs	0
Special	0
Total Relocatees	1

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	2	x	6,500 =	Rate)	13,000
2. Indirect Overhead	(Parcels	2	x	0 =	Rate)	0
3.						

TOTAL PHASE 41: $13,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					2	Parcels	x 12,000 =	24,000
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x 2	=	2	Parcels	x 500 =	1,000	
7. Expert Witness	75%	x 2	=	2	Parcels	x 30,000 =	60,000	
8. Mediators	50%	x 2	=	1	Parcels	x 2,400 =	2,400	
9. Demolition, Asb. Abate., Survey, etc.				1	Imprvmet	x 15,000 =	15,000	
10. Miscellaneous Contracts				1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review				1	Parcels	x 5,000 =	5,000	
12.								

TOTAL PHASE 4B: $122,400

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x 130%	* Design plan stage	=	0	
14. Water Retention & Mit.	57,597	x 130%	(0 Parcels w/o R/W Acq)	=	74,876	
15. SUBTOTAL			(Lines 13 &14)			74,876
16. Admin. Settlements (Factor	45%	x 30%	of Line 15)	=	10,100	
17. Litigation Awards (Factor	60%	x 70%	of Line 15)	=	31,400	
18. Business Damages (Claims	0	x $0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x $ -	)	=	0	
20. Owner Appr. Fees (Parcels	2	x $10,000	)	=	20,000	
21. Owner CPA Fees (Claims	0	x $10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	41,500	x 40%	)	=	16,600	
23. Owner Expert Witne (Comm.+Unimp.)	0	+ 0	) 18,000	=	0	
24. Other Condemn. Costs	2	x $500		=	1,000	
25. SUBTOTAL			(Lines 16 thru 24)	=		79,100
26.						

TOTAL PHASE 43: $154,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels: $20,000 x 1

TOTAL PHASE 42: $20,000

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number	=	Amount
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	1	=	10,000
Move Costs					
30. Residential	$1,500	x	1	=	1,500
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$1,150	(Not in Phase Total)	

TOTAL PHASE 45: $11,500

35.
36.
37.

(All Phases) TOTAL ESTIMATE: $320,900

Appraisal:	Daniel Trosper	Signed:	Daniel L Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:	Daniel Trosper	Signed:	Daniel L Trosper	Date: 2/8/02
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS:

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond A3	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	1
Total Parcels	2	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)		6,500	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$6,500

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 12,000 =	12,000	
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	50%	x	1	=	1	Parcels	x 2,400 =	2,400	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0	
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B		$64,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% *	*Design plan stage*	=	0		
14. Water Retention & Mit.	161,000	x	130%	(0 Parcels w/o R/W Acq)		209,300		
15. SUBTOTAL				(Lines 13 &14)			209,300	
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0		
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	125,600		
18. Business Damages (Claims	0	x	$0	)	=	0		
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$10,000	)	=	10,000		
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	125,600	x	40%	)	=	50,200		
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1	) x 18,000	=	18,000		
24. Other Condemn. Costs	1	x	$500		=	500		
25. SUBTOTAL				(Lines 16 thru 24)	=		204,300	
26.						TOTAL PHASE 43		$413,600

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

			Number		Amount	
Replacement Housing						
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
Move Costs						
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)						TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.				(All Phases)		TOTAL ESTIMATE $505,000
37.						

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam, :		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond A4	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	1
Total Parcels	2	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount	
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)	6,500	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0	
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

							Amount	
4. Appraisal Fees Through Trial					1 Parcels	x 12,000 =	12,000	
5. Business Damage CPA Fees Through Trail					0 Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	1	=	1 Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1 Parcels	x 30,000 =	30,000	*
8. Mediators	50%	x	1	=	1 Parcels	x 2,400 =	2,400	
9. Demolition, Asb. Abate., Survey, etc.					0 Imprvmet	x 15,000 =	0	
10. Miscellaneous Contracts					1 Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					1 Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B	$64,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	31,311	x	130%	(0 Parcels w/o R/W Acq)		40,705	
15. SUBTOTAL				(Lines 13 &14)			40,705
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	24,400	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$10,000	)	=	10,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	24,400	x	40%	)	=	9,800	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	1	) x 18,000	=	18,000	
24. Other Condemn. Costs	1	x	$500		=	500	
25. SUBTOTAL				(Lines 16 thru 24)	=		62,700
26.						TOTAL PHASE 43	$103,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
	Move Costs				
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.				(All Phases)	TOTAL ESTIMATE $194,800
37.					

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam.:		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond B2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)		6,500	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$6,500

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 12,000 =	12,000	
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	50%	x	1	=	1	Parcels	x 2,400 =	2,400	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0	
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B		$64,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage	=		0		
14. Water Retention & Mit.	25,668	x	130% (0 Parcels w/o R/W Acq)	=		33,365		
15. SUBTOTAL			(Lines 13 &14)				33,365	
16. Admin. Settlements (Factor	0%	x	0% of Line 15)	=		0		
17. Litigation Awards (Factor	60%	x	100% of Line 15)	=		20,000		
18. Business Damages (Claims	0	x	$0)	=		0		
19. Bus. Damages Incr (Factor	25%	x	$ -)	=		0		
20. Owner Appr. Fees (Parcels	1	x	$10,000)	=		10,000		
21. Owner CPA Fees (Claims	0	x	$10,000)	=		0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	20,000	x	40%)	=		8,000		
23. Owner Expert Witne (Comm.+Unimp.)	0	+	1) x 18,000	=		18,000		
24. Other Condemn. Costs	1	x	$500	=		500		
25. SUBTOTAL			(Lines 16 thru 24)	=			56,500	
26.						TOTAL PHASE 43		$89,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

			Number		Amount	
Replacement Housing						
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
Move Costs						
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)					TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.				(All Phases)	TOTAL ESTIMATE	$181,300
37.						

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/12/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond B3	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	1
Total Parcels	2	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount	
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)	6,500	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0	
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

							Amount	
4. Appraisal Fees Through Trial				1	Parcels	x 12,000 =	12,000	
5. Business Damage CPA Fees Through Trail				0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x 1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x 1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	50%	x 1	=	1	Parcels	x 2,400 =	2,400	
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x 15,000 =	0	
10. Miscellaneous Contracts				1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review				1	Parcels	x 5,000 =	5,000	
12.						TOTAL PHASE 4B		$64,900

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x 130%	* Design plan stage	=	0		
14. Water Retention & Mit.	47,039	x 130%	(0 Parcels w/o R/W Acq)		61,151		
15. SUBTOTAL			(Lines 13 &14)			61,151	
16. Admin. Settlements (Factor	0%	x 0%	of Line 15)	=	0		
17. Litigation Awards (Factor	60%	x 100%	of Line 15)	=	36,700		
18. Business Damages (Claims	0	x $0	)	=	0		
19. Bus. Damages Incr (Factor	25%	x $ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x $10,000	)	=	10,000		
21. Owner CPA Fees (Claims	0	x $10,000	)	=	0		
22. Defend Atty Fees (Sum of Lines 16, 17 & 19)	36,700	x 40%	)	=	14,700		
23. Owner Expert Witne (Comm.+Unimp.)	0	+ 1	) x 18,000	=	18,000		
24. Other Condemn. Costs	1	x $500		=	500		
25. SUBTOTAL			(Lines 16 thru 24)	=		79,900	
26.					TOTAL PHASE 43		$141,100

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x 1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount	
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
	Move Costs					
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)					TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.				(All Phases)	TOTAL ESTIMATE	$232,500
37.						

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond B4	C.E. Sequence	N/A

Project Des.: SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	1
Total Parcels	2	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)		6,500
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

							Amount
4. Appraisal Fees Through Trial				1	Parcels	x 12,000 =	12,000
5. Business Damage CPA Fees Through Trail				0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x 1	=	1	Parcels	x 500 =	500
7. Expert Witness	75%	x 1	=	1	Parcels	x 30,000 =	30,000
8. Mediators	50%	x 1	=	1	Parcels	x 2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x 15,000 =	0
10. Miscellaneous Contracts				1	Per Project	x 15,000 =	15,000
11. Appraisal Fee Review				1	Parcels	x 5,000 =	5,000
12.						TOTAL PHASE 4B	$64,900

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x 130%	* Design plan stage	=	0	
14. Water Retention & Mit.	25,668	x 130%	(0 Parcels w/o R/W Acq)		33,368	
15. SUBTOTAL			(Lines 13 &14)			33,368
16. Admin. Settlements (Factor	0%	x 0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x 100%	of Line 15)	=	20,000	
18. Business Damages (Claims	0	x $0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x $ -	)	=	0	
20. Owner Appr. Fees (Parcels	1	x $10,000	)	=	10,000	
21. Owner CPA Fees (Claims	0	x $10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	20,000	x 40%	)	=	8,000	
23. Owner Expert Witne (Comm.+Unimp.)	0	+ 1	) 18,000	=	18,000	
24. Other Condemn. Costs	1	x $500		=	500	
25. SUBTOTAL			(Lines 16 thru 24)	=		56,500
26.					TOTAL PHASE 43	$89,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x 1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

			Number		Amount	
Replacement Housing						
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
Move Costs						
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)						TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.						
37.				(All Phases)		TOTAL ESTIMATE $181,300

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06894-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond C	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	1
Total Parcels	2	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)	6,500
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0
3.					TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x	12,000 =	12,000
5. Business Damage CPA Fees Through Trail					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	75%	x	1	=	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1	=	1	Parcels	x	30,000 =	30,000
8. Mediators	50%	x	1	=	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts					1	Per Project	x	15,000 =	15,000
11. Appraisal Fee Review					1	Parcels	x	5,000 =	5,000
12.								TOTAL PHASE 4B	$64,900

R/W LAND COSTS (PHASE 43)

							Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=		0	
14. Water Retention & Mit.	30,577	x	130%	(0 Parcels w/o R/W Acq)	=		39,750	
15. SUBTOTAL				(Lines 13 &14)	=			39,750
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=		0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=		23,900	
18. Business Damages (Claims	0	x	$0	)	=		0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=		0	
20. Owner Appr. Fees (Parcels	1	x	$10,000	)	=		10,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=		0	
22. Defend Atty Fees (Sum of Lines 16, 17 & 19)	23,900	x	40%	)	=		9,560	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1	) x 18,000	=		18,000	
24. Other Condemn. Costs	1	x	$500		=		500	
25. SUBTOTAL				(Lines 16 thru 24)	=			62,000
26.						TOTAL PHASE 43		$101,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 258 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

					Number		Amount	
	Replacement Housing							
28. Owner	$20,000	x		0	=		0	
29. Tenant	$10,000	x		0	=		0	
	Move Costs							
30. Residential	$1,500	x		0	=		0	
31. Business/Farm	$20,000	x		0	=		0	
32. Personal Property	$2,000	x		0	=		$0	
33. (Lines 28 thru 32)							TOTAL PHASE 45	$0
34. Relocation Services Cost				$0	(Not in Phase Total)			

35.			
36.			
37.	(All Phases)	TOTAL ESTIMATE	$193,200

Appraisal:	Daniel Trosper	Signed:	Daniel Trosper	Date: 2/8/02
Bus. Dam.:		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond C1	C.E. Sequence	N/A

Project Des. SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	0
Total Parcels	1	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $0

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					0	Parcels	x 12,000 =	0
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x	0	=	0	Parcels	x 500 =	0
7. Expert Witness	75%	x	0	=	0	Parcels	x 30,000 =	0
8. Mediators	50%	x	0	=	0	Parcels	x 2,400 =	0
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0
12.								

TOTAL PHASE 4B $15,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	35,560	x	130%	(0 Parcels w/o R/W Acq)		46,228	
15. SUBTOTAL				(Lines 13 &14)			46,228
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	27,700	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	27,700	x	40%	)	=	11,100	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0	) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		38,800
26.							

TOTAL PHASE 43 $85,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.				(All Phases)	
37.					

TOTAL PHASE 45 $0

TOTAL ESTIMATE $100,000

Appraisal:	Daniel Trosper	Signed:	Bob Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. Balance of pond requirements in Basin C are fulfilled by existing FDOT pond site located on E. Millwood Lane, per Steve Thomas of Arcadis, Geraghty, and Miller.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond C2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	2
Total Parcels	2	2

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	2	x	6,500 =	Rate)	13,000
2. Indirect Overhead	(Parcels	2	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $13,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					2	Parcels	x 12,000 =	24,000
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x	2	= 2	Parcels	x 500 =		1,000
7. Expert Witness	75%	x	2	= 2	Parcels	x 30,000 =		60,000
8. Mediators	50%	x	2	= 1	Parcels	x 2,400 =		2,400
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x 15,000 =		0
10. Miscellaneous Contracts				1	Per Project	x 15,000 =		15,000
11. Appraisal Fee Review				1	Parcels	x 5,000 =		5,000
12.								

TOTAL PHASE 4B $107,400

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	47,385	x	130%	(0 Parcels w/o R/W Acq)		61,601	
15. SUBTOTAL				(Lines 13 &14)			61,601
16. Admin. Settlements (Factor	45%	x	30%	of Line 15)	=	10,000	
17. Litigation Awards (Factor	60%	x	70%	of Line 15)	=	25,900	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incrt (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	2	x	$10,000	)	=	20,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	35,900	x	40%	)	=	14,400	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	2	) x 18,000	=	36,000	
24. Other Condemn. Costs	2	x	$500		=	1,000	
25. SUBTOTAL				(Lines 16 thru 24)	=		107,300
26.							

TOTAL PHASE 43 $168,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 258 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 1

TOTAL PHASE 42 $20,000

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	

TOTAL PHASE 45 $0

35.
36.
37.

(All Phases) TOTAL ESTIMATE $309,300

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date:	2/8/02
Bus. Dam. :		Signed:		Date:	
Relocation:		Signed:		Date:	
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date:	2/8/02

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

REMARKS: Balance of pond requirements in Basin C are fulfilled by existing FDOT pond site located on E. Millwood Lane, per Steve Thomas of Arcadis, Geraghty, and Miller.

Line 16 has been adjusted to reflect the Department's minimum of $10,000.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond D2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)		0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage		=	0	
14. Water Retention & Mit.	60,230	x	130% (0 Parcels w/o R/W Acq)		=	78,299	
15. SUBTOTAL			(Lines 13 &14)				78,299
16. Admin. Settlements (Factor	0%	x	0% of Line 15)		=	0	
17. Litigation Awards (Factor	60%	x	100% of Line 15)		=	47,000	
18. Business Damages (Claims	0	x	$0)		=	0	
19. Bus. Damages Incrs (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)		=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	47,000	x	40%)		=	18,800	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0)	18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		65,800
26.						TOTAL PHASE 43	$144,100

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
	Move Costs					
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)						TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.				(All Phases)		TOTAL ESTIMATE $159,100
37.						

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam.:		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.
These parcels are not counted because of mainline take of Parcel 183 (same ownership).

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond D3	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	3	1
Total Parcels	3	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount	
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)	6,500	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0	
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

							Amount	
4. Appraisal Fees Through Trial					1	Parcels x	12,000 =	12,000
5. Business Damage CPA Fees Through Trail					0	Claims x	19,000 =	0
6. Court Reporter & Process Servers	75%	x	1	=	1	Parcels x	500 =	500
7. Expert Witness	75%	x	1	=	1	Parcels x	30,000 =	30,000
8. Mediators	50%	x	1	=	1	Parcels x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet x	15,000 =	0
10. Miscellaneous Contracts					1	Per Project x	15,000 =	15,000
11. Appraisal Fee Review					1	Parcels x	5,000 =	5,000
12.							TOTAL PHASE 4B	$64,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% *	Design plan stage	=	0	
14. Water Retention & Mit.	29,437	x	130%	(0 Parcels w/o R/W Acq)	=	38,268	
15. SUBTOTAL				(Lines 13 &14)			38,268
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	23,000	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$10,000	)	=	10,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	23,000	x	40%	)	=	9,200	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1	) ; 18,000	=	18,000	
24. Other Condemn. Costs	1	x	$500		=	500	
25. SUBTOTAL				(Lines 16 thru 24)	=		60,700
26.						TOTAL PHASE 43	$99,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.				(All Phases)	TOTAL ESTIMATE $190,400
37.					

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam.:		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Parcel 1 of this pond site is counted in the mainline take. Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond D4	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	1	1
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	1
Signs	0
Special	1
Total Relocatees	2

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)		6,500
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 12,000 =	12,000	
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	50%	x	1	=	1	Parcels	x 2,400 =	2,400	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0	
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B		$64,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	245,080	x	130%	(0 Parcels w/o R/W Acq)		318,604	
15. SUBTOTAL				(Lines 13 &14)			318,604
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	191,200	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$10,000	)	=	10,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	191,200	x	40%	)	=	76,500	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0	) 18,000	=	0	
24. Other Condemn. Costs	1	x	$500		=	500	
25. SUBTOTAL				(Lines 16 thru 24)	=		278,200
26.						TOTAL PHASE 43	$596,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

			Number		Amount		
Replacement Housing							
28. Owner	$20,000	x	1	=	20,000		
29. Tenant	$10,000	x	0	=	0		
Move Costs							
30. Residential	$1,500	x	1	=	1,500		
31. Business/Farm	$20,000	x	0	=	0		
32. Personal Property	$2,000	x	1	=	$2,000		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$23,500
34. Relocation Services Cost			$2,350	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)		TOTAL ESTIMATE	$711,700

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam. :		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond E1	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	3	2
Total Parcels	3	2

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount	
1. Direct Labor Cost	(Parcels	2	x	6,500 =	Rate)	13,000	
2. Indirect Overhead	(Parcels	2	x	0 =	Rate)	0	
3.						TOTAL PHASE 41	$13,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					2	Parcels	x	12,000 =	24,000
5. Business Damage CPA Fees Through Trail					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	75%	x	2	=	2	Parcels	x	500 =	1,000
7. Expert Witness	75%	x	2	=	2	Parcels	x	30,000 =	60,000
8. Mediators	50%	x	2	=	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts					1	Per Project	x	15,000 =	15,000
11. Appraisal Fee Review					1	Parcels	x	5,000 =	5,000
12.								TOTAL PHASE 4B	$107,400

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* *Design plan stage*	=	0	
14. Water Retention & Mit.	185,838	x	130%	(0 Parcels w/o R/W Acq)		241,589	
15. SUBTOTAL				(Lines 13 &14)			241,589
16. Admin. Settlements (Factor	45%	x	30%	of Line 15)	=	32,600	
17. Litigation Awards (Factor	60%	x	70%	of Line 15)	=	101,500	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	2	x	$10,000	)	=	20,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend Atty Fees (Sum of Lines 16, 17 & 19)	134,100	x	40%	)	=	53,600	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	2	) x 18,000	=	36,000	
24. Other Condemn. Costs	2	x	$500		=	1,000	
25. SUBTOTAL				(Lines 16 thru 24)	=		244,700
26.						TOTAL PHASE 43	$486,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

						Number		Amount	
	Replacement Housing								
28. Owner		$20,000	x		0	=		0	
29. Tenant		$10,000	x		0	=		0	
	Move Costs								
30. Residential		$1,500	x		0	=		0	
31. Business/Farm		$20,000	x		0	=		0	
32. Personal Property		$2,000	x		0	=		$0	
33. (Lines 28 thru 32)								TOTAL PHASE 45	$0
34. Relocation Services Cost						$0	(Not in Phase Total)		

35.			
36.			
37.	(All Phases)	TOTAL ESTIMATE	$626,700

Appraisal:	Daniel Trosper	Signed:	Dd Trosper	Date:	2/8/02
Bus. Dam.:		Signed:		Date:	
Relocation:		Signed:		Date:	
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date:	2/8/02

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

REMARKS:

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond E2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $0

R/W OPS (PHASE 4B)

							Amount
4. Appraisal Fees Through Trial				0	Parcels	x 12,000 =	0
5. Business Damage CPA Fees Through Trail				0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x 0 =		0	Parcels	x 500 =	0
7. Expert Witness	75%	x 0 =		0	Parcels	x 30,000 =	0
8. Mediators	50%	x 0 =		0	Parcels	x 2,400 =	0
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x 15,000 =	0
10. Miscellaneous Contracts				1	Per Project	x 15,000 =	15,000
11. Appraisal Fee Review				0	Parcels	x 5,000 =	0
12.							

TOTAL PHASE 4B $15,000

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage	=	0	
14. Water Retention & Mit.	15,943	x	130% (0 Parcels w/o R/W Acq)		20,726	
15. SUBTOTAL			(Lines 13 &14)			20,726
16. Admin. Settlements (Factor	45%	x	30% of Line 15)	=	2,800	
17. Litigation Awards (Factor	60%	x	70% of Line 15)	=	8,700	
18. Business Damages (Claims	0	x	$0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	11,500	x	40%)	=	4,600	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500	=	0	
25. SUBTOTAL			(Lines 16 thru 24)	=		16,100
26.						

TOTAL PHASE 43 $36,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	

TOTAL PHASE 45 $0

35.
36.
37.

(All Phases) TOTAL ESTIMATE $51,800

Appraisal:	Daniel Trosper	Signed:		Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:		Date: 2/8/02

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

REMARKS:

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WP#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond E3	C.E. Sequence	N/A

Project Des.: SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)		0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	7,719	x	130%	(0 Parcels w/o R/W Acq)		10,035	
15. SUBTOTAL				(Lines 13 &14)			10,035
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	10,000	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr: (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	10,000	x	40%	)	=	4,000	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0	) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		14,000
26.						TOTAL PHASE 43	$24,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.				(All Phases)	TOTAL ESTIMATE $39,000
37.					

Appraisal:	Daniel Trosper	Signed:	Date: 2/5/02
Bus. Dam.:		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. This pond site is counted as a parcel in the mainline take. Line 17 has been adjusted to the Department minimum of $10,000.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond F1	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	1	1
Residential	2	2
Unimproved	0	0
Total Parcels	3	3

Estimated Relocatees:	
Business	0
Residential	1
Signs	0
Special	0
Total Relocatees	1

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	3	x	6,500	=	Rate)	19,500	
2. Indirect Overhead	(Parcels	3	x	0	=	Rate)	0	
3.							TOTAL PHASE 41	$19,500

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					3	Parcels	x 12,000 =	36,000	
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	3	=	2	Parcels	x 500 =	1,000	
7. Expert Witness	75%	x	3	=	2	Parcels	x 30,000 =	60,000	
8. Mediators	50%	x	3	=	2	Parcels	x 2,400 =	4,800	
9. Demolition, Asb. Abate., Survey, etc.					1	Imprvmet	x 15,000 =	15,000	
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					2	Parcels	x 5,000 =	10,000	
12.							TOTAL PHASE 4B		$141,800

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0		
14. Water Retention & Mit.	392,245	x	130%	(0 Parcels w/o R/W Acq)		509,918		
15. SUBTOTAL				(Lines 13 &14)			509,918	
16. Admin. Settlements	(Factor 45%	x	30%	of Line 15)	=	68,800		
17. Litigation Awards	(Factor 60%	x	70%	of Line 15)	=	214,200		
18. Business Damages	(Claims 0	x	$0	)	=	0		
19. Bus. Damages Incrt	(Factor 25%	x	$ -	)	=	0		
20. Owner Appr. Fees	(Parcels 2	x	$10,000	)	=	20,000		
21. Owner CPA Fees	(Claims 0	x	$10,000	)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19) 283,000	x	40%	)	=	113,200		
23. Owner Expert Witne	(Comm.+Unimp.) 1	+	0	) x 18,000	=	18,000		
24. Other Condemn. Costs	3	x	$500		=	1,500		
25. SUBTOTAL				(Lines 16 thru 24)	=		435,700	
26.						TOTAL PHASE 43		$945,600

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	2	TOTAL PHASE 42	$40,000

RELOCATION COSTS (PHASE 45)

			Number		Amount		
Replacement Housing							
28. Owner	$20,000	x	0	=	0		
29. Tenant	$10,000	x	1	=	10,000		
Move Costs							
30. Residential	$1,500	x	1	=	1,500		
31. Business/Farm	$20,000	x	0	=	0		
32. Personal Property	$2,000	x	0	=	$0		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$11,500
34. Relocation Services Cost			$1,150	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)		TOTAL ESTIMATE	$1,158,400

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date:	2/8/02
Bus. Dam. :		Signed:		Date:	
Relocation:	Daniel Trosper	Signed:	Dan Trosper	Date:	2/8/02
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date:	2/8/02

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

REMARKS: The easement taking appears to go through residence on the first parcel, although the map is unclear.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond F2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	1	1
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)		6,500
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					1	Parcels x	12,000 =	12,000
5. Business Damage CPA Fees Through Trail					0	Claims x	19,000 =	0
6. Court Reporter & Process Servers	75%	x	1	= 1	Parcels x	500 =	500
7. Expert Witness	75%	x	1	= 1	Parcels x	30,000 =	30,000
8. Mediators	50%	x	1	= 1	Parcels x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet x	15,000 =	0
10. Miscellaneous Contracts					1	Per Project x	15,000 =	15,000
11. Appraisal Fee Review					1	Parcels x	5,000 =	5,000
12.							TOTAL PHASE 4B	$64,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	125,281	x	130%	(0 Parcels w/o R/W Acq)		162,865	
15. SUBTOTAL				(Lines 13 &14)			162,865
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	97,700	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$10,000	)	=	10,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	97,700	x	40%	)	=	39,100	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0	) x 18,000	=	0	
24. Other Condemn. Costs	1	x	$500		=	500	
25. SUBTOTAL				(Lines 16 thru 24)	=		147,300
26.						TOTAL PHASE 43	$310,200

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Data -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

				Number		Amount	
	Replacement Housing						
28. Owner	$20,000	x	0	=	0		
29. Tenant	$10,000	x	0	=	0		
	Move Costs						
30. Residential	$1,500	x	0	=	0		
31. Business/Farm	$20,000	x	0	=	0		
32. Personal Property	$2,000	x	0	=	$0		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)			

35.		
36.		
37.	(All Phases)	TOTAL ESTIMATE $401,600

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam. :		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond F3	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)		0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage		=	0	
14. Water Retention & Mit.	20,800	x	130% (0 Parcels w/o R/W Acq)		=	27,041	
15. SUBTOTAL			(Lines 13 &14)				27,041
16. Admin. Settlements (Factor	0%	x	0% of Line 15)		=	0	
17. Litigation Awards (Factor	60%	x	100% of Line 15)		=	16,200	
18. Business Damages (Claims	0	x	$0)		=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)		=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	16,200	x	40%)		=	6,500	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0)	18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL			(Lines 16 thru 24)		=		22,700
26.						TOTAL PHASE 43	$49,700

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

Replacement Housing			Number		Amount	
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
Move Costs						
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)						TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.						
37.				(All Phases)		TOTAL ESTIMATE $64,700

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam. :		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. This pond site was counted as a parcel in the mainline take.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond G1	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	1	1
Residential	3	3
Unimproved	5	5
Total Parcels	9	9

Estimated Relocatees:	
Business	1
Residential	3
Signs	0
Special	2
Total Relocatees	6

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	9	x	6,500 =	Rate)	58,500
2. Indirect Overhead	(Parcels	9	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$58,500

R/W OPS (PHASE 4B)

							Amount
4. Appraisal Fees Through Trial					9 Parcels	x 12,000 =	108,000
5. Business Damage CPA Fees Through Trail					1 Claims	x 19,000 =	19,000
6. Court Reporter & Process Servers	75%	x	9	=	7 Parcels	x 500 =	3,500
7. Expert Witness	75%	x	9	=	7 Parcels	x 30,000 =	210,000
8. Mediators	50%	x	9	=	5 Parcels	x 2,400 =	12,000
9. Demolition, Asb. Abate., Survey, etc.					4 Imprvmet	x 15,000 =	60,000
10. Miscellaneous Contracts					1 Per Project	x 15,000 =	15,000
11. Appraisal Fee Review					5 Parcels	x 5,000 =	25,000
12.						TOTAL PHASE 4B	$452,500

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	270,814	x	130%	(0 Parcels w/o R/W Acq)		352,058	
15. SUBTOTAL				(Lines 13 &14)			352,058
16. Admin. Settlements (Factor	45%	x	30%	of Line 15)	=	47,500	
17. Litigation Awards (Factor	60%	x	70%	of Line 15)	=	147,900	
18. Business Damages (Claims	1	x	$0	)	=	69,000	
19. Bus. Damages Incr (Factor	25%	x	$ 69,000	)	=	17,300	
20. Owner Appr. Fees (Parcels	7	x	$10,000	)	=	70,000	
21. Owner CPA Fees (Claims	1	x	$10,000	)	=	10,000	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	212,700	x	40%	)	=	85,100	
23. Owner Expert Witn (Comm.+Unimp.)	1	+	5	) 18,000	=	108,000	
24. Other Condemn. Costs	9	x	$500		=	4,500	
25. SUBTOTAL				(Lines 16 thru 24)	=		559,300
26.						TOTAL PHASE 43	$911,400

** Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	5	TOTAL PHASE 42	$100,000

RELOCATION COSTS (PHASE 45)

					Number		Amount
	Replacement Housing						
28. Owner	$20,000	x		0	=		0
29. Tenant	$10,000	x		3	=		30,000
	Move Costs						
30. Residential	$1,500	x		3	=		4,500
31. Business/Farm	$20,000	x		1	=		20,000
32. Personal Property	$2,000	x		2	=		$4,000
33. (Lines 28 thru 32)						TOTAL PHASE 45	$58,500
34. Relocation Services Cost				$5,850	(Not in Phase Total)		
35.							
36.							
37.					(All Phases)	TOTAL ESTIMATE	$1,580,900

Appraisal:	Daniel Trosper	Signed:	Daniel Trosper	Date: 2/8/02
Bus. Dam.:	Gerson Preston Robinson	Signed:	By Attachment	Date: 2/7/02
Relocation:	Daniel Trosper	Signed:	Daniel Trosper	Date: 2/8/02
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date:

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

REMARKS:

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL52-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond G2	C.E. Sequence	N/A

Project Des.: SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge

Parcels	Gross	Net
Commercial	0	0
Residential	3	3
Unimproved	0	0
Total Parcels	3	3

Estimated Relocatees:	
Business	0
Residential	3
Signs	0
Special	3
Total Relocatees	6

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	3	x	6,500 =	Rate)		19,500
2. Indirect Overhead	(Parcels	3	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$19,500

R/W OPS (PHASE 48)

								Amount
4. Appraisal Fees Through Trial					3	Parcels	x 12,000 =	36,000
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x	3	=	2	Parcels	x 500 =	1,000
7. Expert Witness	75%	x	3	=	2	Parcels	x 30,000 =	60,000
8. Mediators	50%	x	3	=	2	Parcels	x 2,400 =	4,800
9. Demolition, Asb. Abate., Survey, etc.					3	Imprvmet	x 15,000 =	45,000
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000
11. Appraisal Fee Review					2	Parcels	x 5,000 =	10,000
12.							TOTAL PHASE 48	$171,800

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% *	*Design plan stage*	=	0	
14. Water Retention & Mit.	146,238	x	130%	(0 Parcels w/o R/W Acq)		190,109	
15. SUBTOTAL				(Lines 13 &14)			190,109
16. Admin. Settlements (Factor	45%	x	30%	of Line 15)	=	25,700	
17. Litigation Awards (Factor	60%	x	70%	of Line 15)	=	79,800	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incrs (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	2	x	$10,000	)	=	20,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	105,500	x	40%	)	=	42,200	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0	) x 18,000	=	0	
24. Other Condemn. Costs	3	x	$500		=	1,500	
25. SUBTOTAL				(Lines 16 thru 24)	=		169,200
26.						TOTAL PHASE 43	$359,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	2	TOTAL PHASE 42	$40,000

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	3	=	60,000
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	3	=	4,500
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	3	=	$6,000
33. (Lines 28 thru 32)					TOTAL PHASE 45 $70,500
34. Relocation Services Cost			$7,050	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	TOTAL ESTIMATE $661,100

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date:	2/8/02
Bus. Dam. :		Signed:		Date:	
Relocation:	Daniel Trosper	Signed:	Dan Trosper	Date:	2/8/02
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date:	2/8/02

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

REMARKS:

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond G3	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	1	0
Residential	8	7
Unimproved	1	1
Total Parcels	10	8

Estimated Relocatees:	
Business	0
Residential	5
Signs	0
Special	2
Total Relocatees	7

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	8	x	6,500 =	Rate)		52,000	
2. Indirect Overhead	(Parcels	8	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$52,000

R/W OPS (PHASE 48)

								Amount	
4. Appraisal Fees Through Trial					8	Parcels	x 12,000 =	96,000	
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	8	=	6	Parcels	x 500 =	3,000	
7. Expert Witness	75%	x	8	=	6	Parcels	x 30,000 =	180,000	
8. Mediators	50%	x	8	=	4	Parcels	x 2,400 =	9,600	
9. Demolition, Asb. Abate., Survey, etc.					6	Imprvmet	x 15,000 =	90,000	
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					4	Parcels	x 5,000 =	20,000	
12.							TOTAL PHASE 48		$413,600

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage		=	0		
14. Water Retention & Mit.	221,801	x	130% (0 Parcels w/o R/W Acq)		=	288,342		
15. SUBTOTAL			(Lines 13 &14)				288,342	
16. Admin. Settlements (Factor	45%	x	30% of Line 15)		=	38,900		
17. Litigation Awards (Factor	60%	x	70% of Line 15)		=	121,100		
18. Business Damages (Claims	0	x	$0)		=	0		
19. Bus. Damages Incr (Factor	25%	x	$ -)		=	0		
20. Owner Appr. Fees (Parcels	6	x	$10,000)		=	60,000		
21. Owner CPA Fees (Claims	0	x	$10,000)		=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	160,000	x	40%)		=	64,000		
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1) x 18,000		=	18,000		
24. Other Condemn. Costs	8	x	$500		=	4,000		
25. SUBTOTAL			(Lines 16 thru 24)		=		306,000	
26.						TOTAL PHASE 43		$594,300

** Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 258 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	4	TOTAL PHASE 42	$80,000

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$20,000	x	1	=	20,000		
29. Tenant	$10,000	x	4	=	40,000		
	Move Costs						
30. Residential	$1,500	x	5	=	7,500		
31. Business/Farm	$20,000	x	0	=	0		
32. Personal Property	$2,000	x	2	=	$4,000		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$71,500
34. Relocation Services Cost			$7,150	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)		TOTAL ESTIMATE	$1,211,400

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:	Daniel Trosper	Signed:	Dan Trosper	Date: 2/8/02
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS: Two of these parcels had takings on the mainline and were not included in the parcel count for this estimate. Road will remain open.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond H1	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $0

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					0	Parcels	x 12,000 =	0
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x	0	=	0	Parcels	x 500 =	0
7. Expert Witness	75%	x	0	=	0	Parcels	x 30,000 =	0
8. Mediators	50%	x	0	=	0	Parcels	x 2,400 =	0
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0
12.								

TOTAL PHASE 4B $15,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	49,472	x	130%	(0 Parcels w/o R/W Acq)		64,313	
15. SUBTOTAL				(Lines 13 &14)			64,313
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	38,600	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	38,600	x	40%	)	=	15,400	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0	) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		54,000
26.							

TOTAL PHASE 43 $118,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	

TOTAL PHASE 45 $0

TOTAL ESTIMATE $133,300

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date: 2/8/02
Bus. Dam.:		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS: Parcel counts for the parcels on this estimate are included with the mainline take. The remainder of parcels 1 and 2 total slightly less than the requested .80 acre. The remaining .75 acre has been approved by Arcadis.

Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond H2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	2	1
Unimproved	0	0
Total Parcels	2	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)		6,500
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					1	Parcels	x 12,000 =	12,000
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	75%	x	1	=	1	Parcels	x 500 =	500
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000
8. Mediators	50%	x	1	=	1	Parcels	x 2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000
12.							TOTAL PHASE 4B	$64,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage	=	0		
14. Water Retention & Mit.	7,945	x	130% (0 Parcels w/o R/W Acq)	=	10,329		
15. SUBTOTAL			(Lines 13 &14)				10,329
16. Admin. Settlements (Factor	0%	x	0% of Line 15)	=	0		
17. Litigation Awards (Factor	60%	x	100% of Line 15)	=	10,000		
18. Business Damages (Claims	0	x	$0)	=	0		
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$10,000)	=	10,000		
21. Owner CPA Fees (Claims	0	x	$10,000)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	10,000	x	40%)	=	4,000		
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) 18,000	=	0		
24. Other Condemn. Costs	1	x	$500	=	500		
25. SUBTOTAL			(Lines 16 thru 24)	=			24,500
26.						TOTAL PHASE 43	$34,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42 $20,000

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
	Move Costs				
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0		(Not In Phase Total)

35.		
36.		
37.	(All Phases)	TOTAL ESTIMATE $126,200

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam.:		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value.

Line 17 has been adjusted to reflect the Department minimum of $10,000.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond H3	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $0

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				0	Parcels	x	12,000 =	0
5. Business Damage CPA Fees Through Trail				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	75%	x	0 =	0	Parcels	x	500 =	0
7. Expert Witness	75%	x	0 =	0	Parcels	x	30,000 =	0
8. Mediators	50%	x	0 =	0	Parcels	x	2,400 =	0
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts				1	Per Project	x	15,000 =	15,000
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.								

TOTAL PHASE 4B $15,000

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage	=	0	
14. Water Retention & Mit.	373,917	x	130% (0 Parcels w/o R/W Acq)		486,092	
15. SUBTOTAL			(Lines 13 &14)			486,092
16. Admin. Settlements (Factor	0%	x	0% of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100% of Line 15)	=	291,700	
18. Business Damages (Claims	0	x	$0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	291,700	x	40%)	=	116,700	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0) : 18,000	=	0	
24. Other Condemn. Costs	0	x	$500	=	0	
25. SUBTOTAL			(Lines 16 thru 24)	=		408,400
26.						

TOTAL PHASE 43 $894,500

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	

TOTAL PHASE 45 $0

35.
36.
37. (All Phases) TOTAL ESTIMATE $909,500

Appraisal:	Daniel Trosper	Signed:	Daniel Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. The parcel on this cost estimate has a mainline take and is not included in the parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond H4	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	0
Total Parcels	1	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.					TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage		=	0	
14. Water Retention & Mit.	45,085	x	130% (0 Parcels w/o R/W Acq)			58,610	
15. SUBTOTAL			(Lines 13 &14)				58,610
16. Admin. Settlements (Factor	0%	x	0% of Line 15)		=	0	
17. Litigation Awards (Factor	60%	x	100% of Line 15)		=	35,200	
18. Business Damages (Claims	0	x	$0)		=	0	
19. Bus. Damages Incrs (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)		=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	35,200	x	40%)		=	14,100	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0) > 18,000		=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL			(Lines 16 thru 24)		=		49,300
26.						TOTAL PHASE 43	$107,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
	Move Costs					
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)					TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)		

35.			
36.			
37.	(All Phases)	TOTAL ESTIMATE	$122,900

Appraisal:	Daniel Trosper	Signed:		Date:	2/8/02
Bus. Dam. :		Signed:		Date:	
Relocation:		Signed:		Date:	
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date:	2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. The parcel on this cost estimate has a mainline take and is not included in the parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond f1	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	0
Total Parcels	1	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * *Design plan stage*		=	0	
14. Water Retention & Mit.	52,098	x	130% (0 Parcels w/o R/W Acq)		=	67,727	
15. SUBTOTAL			(Lines 13 &14)				67,727
16. Admin. Settlements (Factor	0%	x	0% of Line 15)		=	0	
17. Litigation Awards (Factor	60%	x	100% of Line 15)		=	40,600	
18. Business Damages (Claims	0	x	$0)		=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)		=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	40,600	x	40%)		=	16,200	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0) +	18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		56,800
26.						TOTAL PHASE 43	$124,500

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

				Number		Amount
	Replacement Housing					
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
	Move Costs					
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)						TOTAL PHASE 45 $0
34. Relocation Services Cost				$0	(Not in Phase Total)	
35.						
36.						
37.					(All Phases)	TOTAL ESTIMATE $139,500

Appraisal:	Daniel Trosper	Signed:	Daniel Trosper	Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. The parcel on this cost estimate has a mainline take and is not included in the parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond I2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	3	0
Total Parcels	3	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.					TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	108,057	x	130%	(0 Parcels w/o R/W Acq)		140,474	
15. SUBTOTAL				(Lines 13 &14)			140,474
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	84,300	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	84,300	x	40%	)	=	33,700	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0	) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		118,000
26.						TOTAL PHASE 43	$258,500

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases) TOTAL ESTIMATE	$273,500

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam. :		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/13/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. This pond site has a mainline taking, so there are no parcels included in the net parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond J1	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $0

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				0	Parcels	x	12,000 =	0
5. Business Damage CPA Fees Through Trail				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	75%	x	0 =	0	Parcels	x	500 =	0
7. Expert Witness	75%	x	0 =	0	Parcels	x	30,000 =	0
8. Mediators	50%	x	0 =	0	Parcels	x	2,400 =	0
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts				1	Per Project	x	15,000 =	15,000
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.								

TOTAL PHASE 4B $15,000

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage	=	0	
14. Water Retention & Mit.	164,456	x	130% (0 Parcels w/o R/W Acq)		213,793	
15. SUBTOTAL			(Lines 13 &14)			213,793
16. Admin. Settlements (Factor	0%	x	0% of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100% of Line 15)	=	128,300	
18. Business Damages (Claims	0	x	$0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	128,300	x	40%)	=	51,300	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500	=	0	
25. SUBTOTAL			(Lines 16 thru 24)	=		179,600
26.						

TOTAL PHASE 43 $393,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,009	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	

TOTAL PHASE 45 $0

35.
36.
37. (All Phases) TOTAL ESTIMATE $408,400

Appraisal:	Daniel Trosper	Signed:		Date: 2/08/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:		Date: 2/08/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. There was a mainline taking for these parcels and they are not included in the net parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond J4	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)	0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $0

R/W OPS (PHASE 4B)

								Amount	Subtotal
4. Appraisal Fees Through Trial					0	Parcels	x 12,000 =	0	
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	0	=	0	Parcels	x 500 =	0	
7. Expert Witness	75%	x	0	=	0	Parcels	x 30,000 =	0	
8. Mediators	50%	x	0	=	0	Parcels	x 2,400 =	0	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0	
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.									

TOTAL PHASE 4B $15,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage	=	0		
14. Water Retention & Mit.	41,347	x	130% (0 Parcels w/o R/W Acq)		53,751		
15. SUBTOTAL			(Lines 13 &14)			53,751	
16. Admin. Settlements (Factor	0%	x	0% of Line 15)	=	0		
17. Litigation Awards (Factor	60%	x	100% of Line 15)	=	32,300		
18. Business Damages (Claims	0	x	$0)	=	0		
19. Bus. Damages Incrn (Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees (Parcels	0	x	$10,000)	=	0		
21. Owner CPA Fees (Claims	0	x	$10,000)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	$2,300	x	40%)	=	12,900		
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0) x 18,000	=	0		
24. Other Condemn. Costs	0	x	$500	=	0		
25. SUBTOTAL			(Lines 16 thru 24)	=		45,200	
25.							

TOTAL PHASE 43 $99,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	

TOTAL PHASE 45 $0

TOTAL ESTIMATE $114,000

Appraisal:	Daniel Trosper	Signed:	Date:	2/8/02
Bus. Dam. :		Signed:	Date:	
Relocation:		Signed:	Date:	
Overall Review:	Marilyn Jackson	Signed:	Date:	2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. There was a mainline taking for these parcels and they are not included in the net parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	Pond J5	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)		0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% *	Design plan stage	=	0	
14. Water Retention & Mit.	11,822	x	130%	(0 Parcels w/o R/W Acq)		15,369	
15. SUBTOTAL				(Lines 13 &14)			15,369
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	10,000	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	10,000	x	40%	)	=	4,000	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0	) x 18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		14,000
26.						TOTAL PHASE 43	$29,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 258 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount	
28. Owner	$20,000	x	0	=	0	
29. Tenant	$10,000	x	0	=	0	
Move Costs						
30. Residential	$1,500	x	0	=	0	
31. Business/Farm	$20,000	x	0	=	0	
32. Personal Property	$2,000	x	0	=	$0	
33. (Lines 28 thru 32)						TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)		

35.		
36.		
37.	(All Phases)	TOTAL ESTIMATE $44,400

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam. :		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. There was a mainline taking for this site and it is not included in the net parcel count.

Line 17 has been adjusted to reflect the District minimum of $10,000.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	FP1	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	1	1
Unimproved	2	0
Total Parcels	3	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	1	x	6,500 =	Rate)		6,500
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$6,500

R/W OPS (PHASE 4B)

								Amount	Subtotal
4. Appraisal Fees Through Trial					1	Parcels	x 12,000 =	12,000	
5. Business Damage CPA Fees Through Trail					0	Claims	x 19,000 =	0	
6. Court Reporter & Process Servers	75%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	50%	x	1	=	1	Parcels	x 2,400 =	2,400	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 15,000 =	0	
10. Miscellaneous Contracts					1	Per Project	x 15,000 =	15,000	
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B		$64,900

R/W LAND COSTS (PHASE 43)

							Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage		=	0	
14. Water Retention & Mit.	20,212	x	130%	(0 Parcels w/o R/W Acq)		=	26,275	
15. SUBTOTAL				(Lines 13 &14)				26,275
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)		=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)		=	15,800	
18. Business Damages (Claims	0	x	$0	)		=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)		=	0	
20. Owner Appr. Fees (Parcels	1	x	$10,000	)		=	10,000	
21. Owner CPA Fees (Claims	0	x	$10,000	)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	15,800	x	40%	)		=	6,300	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0	)	18,000	=	0	
24. Other Condemn. Costs	1	x	$500			=	500	
25. SUBTOTAL				(Lines 16 thru 24)		=		32,600
26.							TOTAL PHASE 43	$58,900

** Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	1	TOTAL PHASE 42	$20,000

RELOCATION COSTS (PHASE 45)

						Number		Amount	
	Replacement Housing								
28. Owner		$20,000	x			0	=	0	
29. Tenant		$10,000	x			0	=	0	
	Move Costs								
30. Residential		$1,500	x			0	=	0	
31. Business/Farm		$20,000	x			0	=	0	
32. Personal Property		$2,000	x			0	=	$0	
33. (Lines 28 thru 32)								TOTAL PHASE 45	$0
34. Relocation Services Cost						$0	(Not in Phase Total)		
35.									
36.									
37.							(All Phases)	TOTAL ESTIMATE	$150,300

Appraisal:	Daniel Trosper	Signed:		Date:	2/8/02
Bus. Dam. :		Signed:		Date:	
Relocation:		Signed:		Date:	
Overall Review:	Marilyn Jackson	Signed:		Date:	2/12/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. The fee and easement parcel on this site which has a mainline taking is not included in the net parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	FP2	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)		0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130% * Design plan stage	=	0	
14. Water Retention & Mit.	353,082	x	130% (0 Parcels w/o R/W Acq)		459,007	
15. SUBTOTAL			(Lines 13 &14)			459,007
16. Admin. Settlements (Factor	0%	x	0% of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100% of Line 15)	=	275,400	
18. Business Damages (Claims	0	x	$0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	275,400	x	40%)	=	110,200	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs	0	x	$500	=	0	
25. SUBTOTAL			(Lines 16 thru 24)	=		385,600
26.					TOTAL PHASE 43	$844,600

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

					Number		Amount	
	Replacement Housing							
28. Owner	$20,000	x		0	=		0	
29. Tenant	$10,000	x		0	=		0	
	Move Costs							
30. Residential	$1,500	x		0	=		0	
31. Business/Farm	$20,000	x		0	=		0	
32. Personal Property	$2,000	x		0	=		$0	
33. (Lines 28 thru 32)								TOTAL PHASE 45 $0
34. Relocation Services Cost					$0	(Not in Phase Total)		
35.								
36.								
37.						(All Phases)		TOTAL ESTIMATE $859,600

Appraisal:	Daniel Trosper	Signed:		Date: 2/8/02
Bus. Dam. :		Signed:		Date:
Relocation:		Signed:		Date:
Overall Review:	Marilyn Jackson	Signed:		Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. There was a mainline taking for this site and it is not included in the net parcel count.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06694-979-096-22

FM#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	FP3	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)		0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* *Design plan stage*	=	0	
14. Water Retention & Mit.	8,881	x	130%	(0 Parcels w/o R/W Acq)		11,546	
15. SUBTOTAL				(Lines 13 &14)			11,546
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	10,000	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend Atty Fees (Sum of Lines 16, 17 & 19)	10,000	x	40%	)	=	4,000	
23. Owner Expert Witne (Comm.+Unimp.)	0	+	0	) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		14,000
26.						TOTAL PHASE 43	$25,500

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$20,000	x	0	=	0
29. Tenant	$10,000	x	0	=	0
Move Costs					
30. Residential	$1,500	x	0	=	0
31. Business/Farm	$20,000	x	0	=	0
32. Personal Property	$2,000	x	0	=	$0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	TOTAL ESTIMATE $40,500

Appraisal:	Daniel Trosper	Signed:	Dan Trosper	Date:	2/8/02
Bus. Dam. :		Signed:		Date:	
Relocation:		Signed:		Date:	
Overall Review:	Marilyn Jackson	Signed:	Marilyn Jackson	Date:	2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. This site has a mainline take and is not included in the net parcel count.

Line 17 has been increased to reflect the Department minimum of $10,000.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 06894-979-096-22

WPI#:	257188 1	Former WPI#:	N/A	District:	Seven
County:	Citrus	FAP No.:	FL62-020R	Date:	8-Feb-02
State Rd.:	200	Alternate:	FP4	C.E. Sequence	N/A
Project Des.	SR 200 PD&E Reevaluation Study fm US 41 to N. of the Withlacoochee Bridge				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	2	0
Total Parcels	2	0

Estimated Relocatees:

Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	0	x	6,500 =	Rate)		0
Indirect Overhead	(Parcels	0	x	0 =	Rate)		0
						TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

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

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	130%	* Design plan stage	=	0	
14. Water Retention & Mit.	9,694	x	130%	(0 Parcels w/o R/W Acq)		12,602	
15. SUBTOTAL				(Lines 13 &14)			12,602
16. Admin. Settlements (Factor	0%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	60%	x	100%	of Line 15)	=	10,000	
18. Business Damages (Claims	0	x	$0	)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$10,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$10,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	10,000	x	40%	)	=	4,000	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0	) 18,000	=	0	
24. Other Condemn. Costs	0	x	$500		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		14,000
26.						TOTAL PHASE 43	$26,600

* *Design contingency for design plan stage:*
(1) PD&E plans - 130% (2) 30% plans - 125% (3) 60% plans - 120% (4) 90% plans -115% (5) 268 Date -110%

R/W ACQUISITION CONSULTANT (PHASE 42)

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

RELOCATION COSTS (PHASE 45)

						Number		Amount
	Replacement Housing							
28. Owner		$20,000	x	0	=	0		
29. Tenant		$10,000	x	0	=	0		
	Move Costs							
30. Residential		$1,500	x	0	=	0		
31. Business/Farm		$20,000	x	0	=	0		
32. Personal Property		$2,000	x	0	=	$0		
33. (Lines 28 thru 32)							TOTAL PHASE 45	$0
34. Relocation Services Cost				$0	(Not in Phase Total)			
35.								
36.						(All Phases)	TOTAL ESTIMATE	$41,600
37.								

Appraisal:	Daniel Trosper	Signed:	Date: 2/8/02
Bus. Dam. :		Signed:	Date:
Relocation:		Signed:	Date:
Overall Review:	Marilyn Jackson	Signed:	Date: 2/8/02

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

REMARKS: Administrative settlements and litigation awards have been changed to reflect one ownership. Administrative settlements are considered to be zero, while litigation is factored at 60% of land and improvement value. This site has a mainline take and is not included in the net parcel count.

Line 17 has been increased to reflect the Department minimum of $10,000.

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

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

APPROVED

Future Value Factors @	10%
Year One	1.1000
Year Two	1.2100
Year Three	1.3310
Year Four	1.4641
Year Five	1.6105

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

APPENDIX H

TABLES & NOMOGRAPHS

DESIGN AIDS

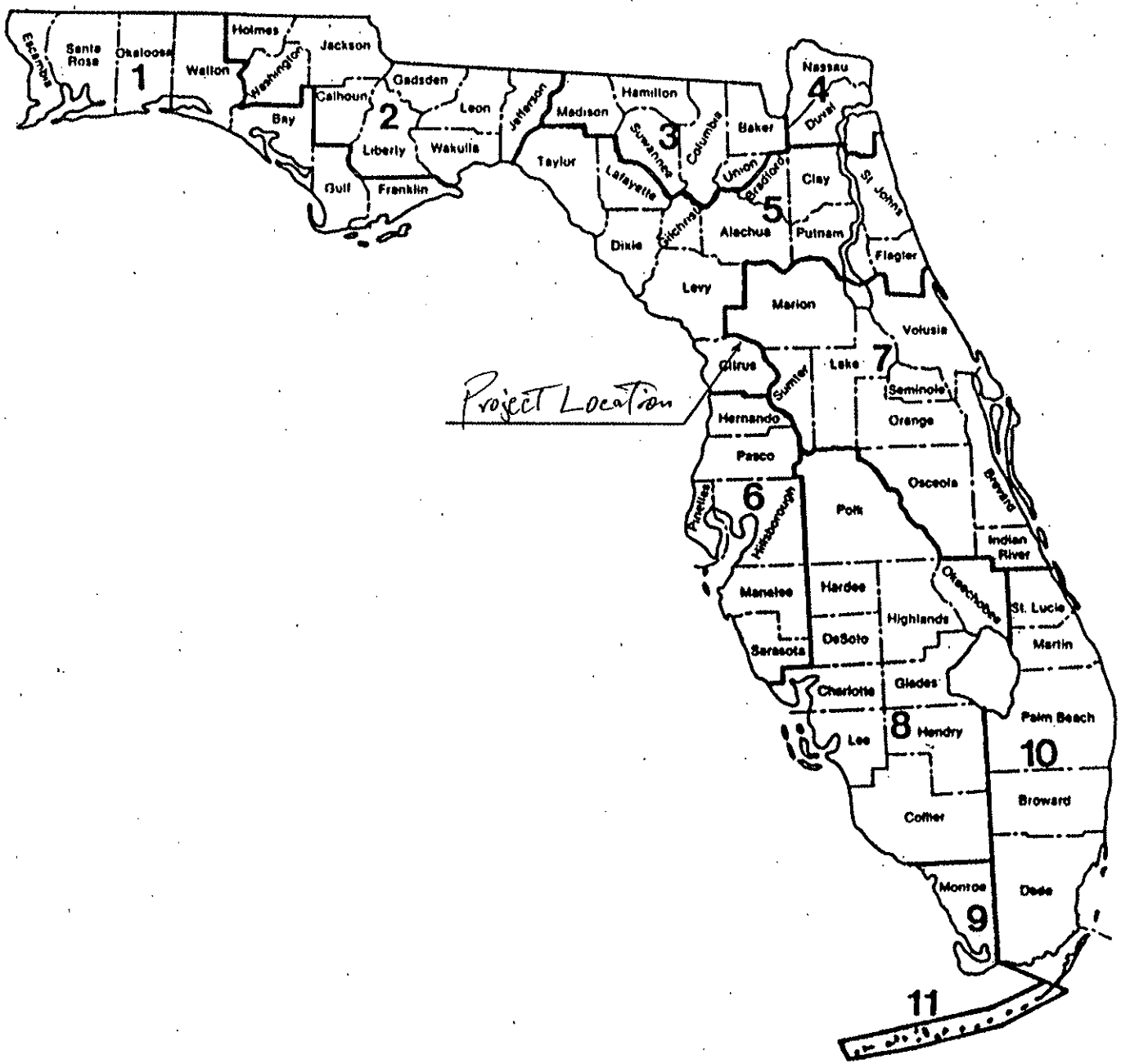

FIGURE 5-1
Zones for Precipitation Intensity-Duration-Frequency (IDF) Curves Developed by the Department

Table 5-8
SCS RUNOFF CURVE NUMBERS FOR SELECTED AGRICULTURAL, SUBURBAN, AND URBAN LAND USE

Land Use Description	Hydrologic Soil Group A	B	C	D
Cultivated Land[a]:				
Without conservation treatment	72	81	88	91
With conservation treatment	62	71	78	81
Pasture or range land:				
Poor condition	68	79	86	89
Good condition	39	61	74	80
Meadow: good condition	30	58	71	78
Wood or Forest Land:				
Thin stand, poor cover, no mulch	45	66	77	83
Good cover[b]	25	55	70	77
Open Spaces, Lawns, Parks, Golf Courses, Cemeteries:				
Good condition: grass cover on 75% or more of the area	39	61	74	80
Fair condition: grass cover on 50% to 75% of the area	49	69	79	84
Poor condition: grass cover on 50% or less of the area	68	79	86	89
Commercial and Business Areas (85% impervious)	89	92	94	95
Industrial Districts (72% impervious)	81	88	91	93
Residential[c]:				
Average lot size — Average % Impervious[d]				
1/8 acre or less — 65	77	85	90	92
1/4 acre — 38	61	75	83	87
1/3 acre — 30	57	72	81	86
1/2 acre — 25	54	70	80	85
1 acre — 20	51	68	79	84
Paved Parking Lots, Roofs, Driveways[e]:	98	98	98	98
Streets and Roads:				
Paved with curbs and storm sewers[e]	98	98	98	98
Gravel	76	85	89	91
Dirt	72	82	87	89
Paved with open ditches	83	89	92	93
Newly graded area (no vegetation established)[f]	77	86	91	94

[a]For a more detailed description of agricultural land use curve numbers, refer to Table 5-9.

[b]Good cover is protected from grazing and litter and brush cover soil.

[c]Curve numbers are computed assuming the runoff from the house and driveway is directed toward the street with a minimum of roof water directed to lawns where additional infiltration could occur.

[d]The remaining pervious areas (lawn) are considered to be in good pasture condition for these curve numbers.

[e]In some warmer climates of the country, a curve number of 96 may be used.

[f]Use for temporary conditions during grading and construction.

Note: These values are for Antecedent Moisture Condition II, and $I_a = 0.2S$.

Reference: USDA, SCS, TR-55 (1984).

APPENDIX I

SWFWMD CONTOUR MAPS