I-75 REST AREAS
PROJECT DEVELOPMENT
AND ENVIRONMENT (PD&E)
STUDY

SARASOTA AND CHARLOTTE COUNTIES

DRAFT STORMWATER
MANAGEMENT
FACILITY REPORT

FINANCIAL PROJECT NO.: 436602-1-22-01

MARCH 2017





I-75 REST AREAS
PROJECT DEVELOPMENT
AND ENVIRONMENT (PD&E)
STUDY

SARASOTA AND CHARLOTTE COUNTIES

DRAFT STORMWATER
MANAGEMENT
FACILITY REPORT

FINANCIAL PROJECT NO.: 436602-1-22-01

MARCH 2017

Prepared for:

Florida Department of Transportation

District One

801 North Broadway

Bartow, Florida 33830

Prepared by:

RS&H, Inc.

1715 N. Westshore Blvd., Suite 500

Tampa, Florida 33607





Table of Contents

1	E	Exec	cutive Summary	4
2	ı	Intro	oduction	5
	2.1		Report Purpose	
	2.2		Project Description	
	2.3	3	Future Land Use	7
3	[Data	a Collection	7
4	F	Regu	ulatory Agency Coordination	7
5	9	Site	Locations and Existing Conditions	8
6	F	Prop	oosed Condition	9
	6.1	L	Design Criteria	9
	6.2	<u>)</u>	Pond Sizing	9
7	(Cond	clusion	. 17
8	ſ	Refe	erences	. 18

List of Figures

Figure 2-1: Project Location Map	6
Figure 6-1: NB-2B & SB-2 Rest Area Sites	14
Figure 6-2: NB-2 Rest Area Site	15
Figure 6-3: NB & SB WIM Rest Area Sites	16
List of Tables	
Table 2-1: Future Land Use	7
Table 3-1: Data Collected	7
Table 6-1: Pond Sizong Requirements	13
Table 6-2: Floodplain Impacts and Sizing of Compensation Sites	13

List of Appendices

Appendix

- A FEMA FIRM Maps & Soils Maps
- B Pond Sizing Calculations
- C Floodplain Impacts and Compensation Site Sizing
- D Excerpts from Existing Permits

1 Executive Summary

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to identify sites for the placement of one northbound (NB) and one southbound (SB) rest area facility along I-75. In April of 2015, the FDOT closed the Jones Loop Rest Area at exit 161 in Charlotte County. This facility was an "off-system" rest area that serviced vehicles in both directions of I-75. The proposed rest areas will serve as a replacement for this recently closed rest area thus reducing the distances between rest area facilities. The study limits extend from the Charlotte/Lee County line north to the interchange of SR 681 and I-75. The total study corridor length is approximately 51 miles (22 miles in Charlotte County and 29 miles in Sarasota County). A preliminary investigation was conducted to determine potential rest area sites. The results of this preliminary investigation are detailed in the site selection report that was prepared in March of 2016.

This project will identify two sites for new rest areas along I-75, one each in the northbound and southbound direction. After the preliminary analysis, five rest area sites were identified for farther evaluation. Three of these sites are located off of NB I-75 (NB-2, NB-2B & NB-WIM) and the other two sites are located off of SB I-75 (SB-2 & SB-WIM).

Treatment and attenuation volumes for each rest area alternative have been calculated and one pond location as well as one floodplain compensation site have been identified for each alternative where appropriate. SWFWMD will require treatment and attenuation for all proposed impervious area at the selected site. It was assumed that 1 inch over the total site area would be required for treatment sizing at all locations were wet ponds are proposed. 0.5 inches of treatment will be provided for treatment sizing where dry retention is proposed. In addition, attenuation will be based on a volumetric comparison between pre/post runoff for the 25-yr/24-hr frequency storm event. A critical duration analysis was not considered to be necessary based on the location of the proposed rest areas and since a critical duration analysis was not performed for the adjacent I-75 widening project. Floodplain impacts and compensation were calculated utilizing "cup for cup" methodology.

This analysis assumed that the rest area sites would be implemented as a pair that had to be within relatively close proximity of each other. As such, the WIM sites were included as one pair with the SB-2 site included with both the NB-2 site and the NB-2B site to form an additional two pairs. Based solely on stormwater management requirements, the WIM sites are the best alternative for the following reasons.

- All stormwater management can be accomplished within the proposed footprint requiring no additional R/W.
- The additional R/W required for pond sites and floodplain compensation is the smallest of any of the northbound/southbound alternatives
- Dry retention can be used for treatment based on the existing permitted systems, which will reduce long-term maintenance and provide better water quality than traditional wet detention.

2 Introduction

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to identify sites for the placement of one northbound (NB) and one southbound (SB) rest area facility along I-75. In April of 2015, the FDOT closed the Jones Loop Rest Area at exit 161 in Charlotte County. This facility was an "off-system" rest area that serviced vehicles in both directions of I-75. The proposed rest area will serve as a replacement for this recently closed rest area thus reducing the distances between rest area facilities.

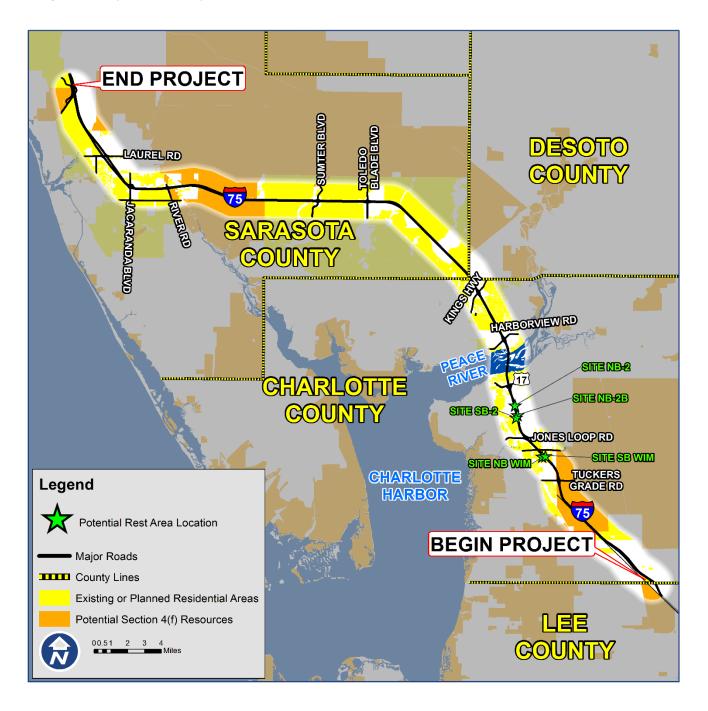
2.1 Report Purpose

This Stormwater Management Facility Report (SMFR) was prepared as part of the I-75 Rest Areas PD&E Study. A summary of the drainage requirements have been compiled as part of this study to ensure that the preferred alternative takes all aspects of the project into account. Treatment and attenuation volumes for each rest area alternatives have been calculated, and one pond location, as well as one floodplain compensation site have been identified for each alternative.

2.2 Project Description

The study limits extend from the Charlotte/Lee County line north to the interchange of SR 681 and I-75, see **Figure 2-1**. The total study corridor length is approximately 51 miles (22 miles in Charlotte County and 29 miles in Sarasota County). Note that there is a very small portion (approximately 0.214 miles) of I-75 located in DeSoto County between Charlotte County and Sarasota County. For this study, this portion is included with the Sarasota County section of the project. The project will identify two sites for new rest areas along I-75, one each in the northbound and southbound direction. After the preliminary analysis, five rest area sites were identified for farther evaluation. Three of these sites are located off of NB I-75 (NB-2, NB-2B & NB-WIM) and the other two sites are located off of SB I-75 (SB-2 & SB-WIM). These sites have been shown on **Figure 2-1**.

Figure 2-1: Project Location Map



2.3 Future Land Use

Future land uses for this project are taken from the following data sources: City of North Port, 2015; Sarasota County GIS, 2015; and Charlotte County GIS, 2015. **Table 2-1** summarizes the future land uses for each of the alternatives.

Table 2-1: Future Land Use

Rest Area Alternative	Future Land Uses		
SB-2	High Density Residential/ Commercial		
SB-WIM	Low Density Residential		
NB-2	Industrial		
NB-2B	Industrial		
NB-WIM	High Density Residential		

3 Data Collection

Data was obtained from a variety of sources in order to complete the analysis. A list of the data collected and the source of the data is provided in **Table 3-1**.

Table 3-1: Data Collected

FEATURE DATASET	SOURCE		
GIS Base Layers	Florida Geographic Data Library, 2015		
Existing Land Use	Charlotte County Property Appraiser, 2015; Southwest Florida Water		
	Management District, 2011; Aerial Imagery, 2014		
Future Land Use	City of North Port, 2015; Sarasota County GIS, 2015; Charlotte County GIS,		
	2015		
Section 4(f)	Florida Natural Areas Inventory, 2014		
Resources			
Wetlands	Southwest Florida Water Management District, 2011		
	Federal Emergency Management Agency (FEMA) Statewide National Flood		
Flood Zones	Hazard Layer (NFHL), 2015; FEMA Sarasota County Preliminary NFHL, 2014		

4 Regulatory Agency Coordination

This project will require coordination with the Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD) and the U.S. Army Corps of Engineers (USACE). RS&H did not coordinate with the water management district for this specific project, however, RS&H has coordinated with the water management district on a current I-75 widening project (FPID No. 413042-4-52-01) that overlaps three of the five rest area alternatives. The other two rest area sites are located approximately one mile south of the southern end of the I-75 widening project.

5 Site Locations and Existing Conditions

I-75 (SR 93) is one of two major north-south limited access interstates that connect south Florida with the state of Georgia. As noted previously, in April of 2015 the FDOT closed the Jones Loop Rest Area at exit 161 in Charlotte County. This facility was an "off-system" rest area that serviced vehicles in both directions of I-75. The next closest rest area is the Lee County Rest Area, located at exit 131 on Daniel's Parkway. However, this site is planned for closure as it is also an "off-system" site. With the planned closure of the Lee County Rest Area, the nearest adjacent rest areas on I-75 are the Hillsborough County Rest Area, located at mile marker 238, and the Collier County Rest Area, located at mile marker 63. The distance between these two rest area facilities is approximately 175 miles. The American Association of State Highway and Transportation Officials (AASHTO) guidelines recommend rest areas should be spaced approximately a one-hour drive between appropriate stopping opportunities. At interstate speeds, this equates to approximately 70 miles between stopping opportunities. It is important to note that one set of rest areas will not meet the recommended spacing of 70 miles between the stopping opportunities. One of the considerations for the placement of the new rest area facilities will be that they are as equidistant to the existing rest area sites as possible.

A preliminary investigation was conducted to determine potential rest area sites. These sites were chosen from the segments identified in the Site Selection Report prepared in March of 2016. Five alternatives were selected for a more detailed analysis; SB-2, SB-WIM, NB-2, NB-2B and NB-WIM. Each of these five alternatives are described in greater detail below.

SB-2

Alternative SB-2 is located approximately 1500 feet south of Airport Road. The existing land use is pasture and the future land use has been defined as commercial on the north end of the rest area and residential on the south end of the rest area. There are no wetlands located at this site. The majority of this rest area is located within FEMA Flood Zone AE (Elev. 12.0-feet) with the southern end of the site located within FEMA Flood Zone X which is defined as an area of minimal flooding with no established base flood elevation. SB-2 is located in the Broad Creek Basin and WBID No. 2062 which is not impaired for either total phosphorus or total nitrogen

<u>NB-2</u>

Alternative NB-2 is located approximately 2000 feet north of Airport Road. The existing land use is industrial and the future land use has also been defined as industrial. There are no wetlands located at NB-2. There is a permitted floodplain compensation facility (SWFWMD Permit No. 43000164.038) located on this site and NB-2 is located within FEMA Flood Zone AE (Elev. 10.5-feet). As such, impacts for fill material placed below the base flood elevation will need to be accounted for. NB-2 is located in the Broad Creek Basin and WBID No. 2062 which is not impaired for total phosphorus or total nitrogen.

<u>NB-2B</u>

Alternative NB-2B is located approximately 700 feet south of Airport Road. The existing land use is industrial and the future land use has also been defined as industrial. There are no wetlands located at

this site. The majority of this rest area is located within FEMA Flood Zone AE (Elev. 12.0-feet) with the southern end of the site located within FEMA Flood Zone X which is defined as an area of minimal flooding with no established base flood elevation. NB-2B is located in the Broad Creek Basin and WBID No. 2062 which is not impaired for total phosphorus or total nitrogen.

SB-WIM

Alternative SB-WIM is located approximately 2500 feet south of South Jones Loop Road directly west of the existing SB weigh in motion station. The existing land use is pasture and the future land use has been defined as residential. There are no wetlands located at this site. SB-WIM is located within FEMA Flood Zone X which is defined as an area of minimal flooding with no established base flood elevation. SB-WIM is located in the Alligator Creek Basin and WBID No. 2074 which is currently impaired for dissolved solids, but not total phosphorus or total nitrogen.

NB-WIM

Alternative NB-WIM is located approximately 2500 feet south of South Jones Loop Road directly east of the existing NB weigh in motion station. The existing land use is pasture and the future land use has been defined as residential. There are no wetlands located at this site. The majority of the NB-WIM site is located within FEMA Flood Zone A. There is no established base flood elevation, but for the purposes of this report it has been estimated at elevation 20.7-feet based on an approximate elevation at the limits of the floodplain map obtained from GIS LiDAR topographic information. The on and off ramps to the rest area are located within FEMA Flood Zone X which is defined as an area of minimal flooding. NB-WIM is located in the Alligator Creek Basin and WBID No. 2074 which is currently impaired for dissolved solids.

6 Proposed Condition

6.1 Design Criteria

SWFWMD will require treatment and attenuation for all proposed impervious area at the selected site. It was assumed that 1 inch over the total site area would be utilized for treatment sizing at all locations were wet ponds are proposed. Since the site areas are all less than 100 acres, 0.5 inches was utilized to size all of the dry retention ponds. The pre/post volumetric differential for the SWFWMD 25-year 24 hour storm event was used for the preliminary attenuation calculations. Floodplain impacts and compensation were calculated utilizing "cup for cup" methodology.

6.2 Pond Sizing

SWFWMD and FDOT requirements were utilized for determining pond sizes. Topography and the seasonal high water elevation were also factored into the type of facility that was chosen for each rest area alternative. It was assume that all ponds would have a 15 foot maintenance berm, 1 foot of freeboard

and 1:4 side slopes for the interior of the pond. The attenuation depth was conservatively stacked on top of the treatment depth for both wet and dry ponds. Unless noted differently, all elevations are taken from the NGVD 29 Datum. Supporting calculations for the sizing of the pond and floodplain compensation sites are provided in **Appendix B and Appendix C** respectively. Each individual rest area site is discussed below.

SB-2

Alternative SB-2 is located approximately 1500 feet south of Airport Road. This site would be constructed on an existing pasture adjacent to the I-75 right of way. The seasonal high water table elevation was estimated at elevation 7.9-feet. This value is approximately 1.5-feet below existing ground and is comparable to the seasonal high water elevations established for the I-75 widening project currently under design (FPID – 413042-4-52-01). The preliminary pond sizing calculations assume that a wet pond will be constructed at this site and 1 inch over the entire site area was utilized to determine the treatment volume. Attenuation will be based on the pre/post volume differential for the 25-yr/24-hr frequency storm event. The low pavement elevation was estimated at 12.00 which is approximately four-feet above the seasonal high water table elevation to account for base clearance separation. Elevation 12.0 is comparable to the low pavement elevation associated with adjacent I-75 mainline widening design. Table 6-1 summarizes the right of way required to accommodate the stormwater management needs for SB-2. Since all of the land surrounding the SB-2 rest area is undeveloped pasture, land use did not play a factor in locating the pond. The elevation on the northern end of the rest area site is lower and thus it is more advantageous to drain the rest area site to the north. Other than the elevation differential, there are no other distinguishing features in the land surrounding the rest area site. Based solely on this parameter, the pond was placed adjacent to the ramp entering the facility on the northern end of the site. The location of rest area SB-2 and the pond associated with this rest area are shown on Figure 6-1.

The existing ground elevation at SB-2 is approximately 9.4. Since the base flood elevation is 12.0 at SB-2, compensation will be required for all fill placed within the floodplain. Two floodplain compensation sites have been identified between I-75 and Piper Road directly north of Airport Road. The site closest to Piper Road was sized to accommodate the needs for SB-2, however, the size of the site closest to I-75 could also be adjusted in order to meet all of the floodplain compensation requirements for SB-2. Both of these sites would require the purchase of additional right of way. The location of these two floodplain compensation sites are shown on **Figure 6-1**. Floodplain impacts and compensation requirements are summarized in **Table 6-2**.

NB-2

Alternative NB-2 is located approximately 2000 feet north of Airport Road. The majority of this rest area would be constructed on an existing permitted floodplain compensation site (SWFWMD Permit No. 43000164.038). Compensation for impacts to this facility will need to be provided. Excerpts from this permit are included in **Appendix D.** This land is currently owned by the Charlotte County Airport Authority. Per SWFWMD Permit No. 43000164.038, the seasonal high water elevation at NB-2 is at elevation 6.50 which is 1.5 feet below the existing ground. This value is comparable to the seasonal high

water elevations that were established near this location for the I-75 mainline widening design (FPID – 413042-4-52-01). The preliminary pond sizing calculations assume that a wet pond will be constructed at this site and 1 inch over the entire site area was utilized to determine the treatment volume. Attenuation was based on a volumetric comparison between the pre/post runoff for the 25-year/24-hour frequency storm event. The low pavement elevation was estimated at elevation 10.50 which is approximately four-feet above the seasonal high water table to account for base clearance. Elevation 10.5 is slightly lower, but still comparable to the low edge of pavement associated with the existing I-75 mainline. **Table 6-1** summarizes the right of way requirements to accommodate the stormwater management needs for NB-2. There is enough area between the NB-2 rest area site and the adjacent borrow pit, located directly to the east, to accommodate a pond large enough to meet the treatment and attenuation requirements for NB-2. It should be noted that NB-2 would have to be configured so as to accommodate Broad Creek which is located between I-75 and the borrow pit. This may require the construction of several hundred feet of box culvert extension to carry Broad Creek beneath, or adjacent to, the rest area. The location of rest area NB-2 and the pond associated with this rest area are shown on **Figure 6-2**.

The existing ground elevation at NB-2 is approximately 8.5. Since the base flood elevation is 10.5 at NB-2, compensation will be required for all fill placed within the floodplain and all impacts to the existing floodplain compensation sites. Two proposed floodplain compensation sites have been identified between I-75 and Piper Road directly north of Airport Road. The site closest to I-75 was sized to accommodate the needs for NB-2, however, the size of the site closest to Piper Road, which was sized for SB-2, could also be adjusted in order to meet all of the floodplain compensation requirements for NB-2. Both of these sites woud require the purchase of additional right of way. The location of these two floodplain compensation sites are shown on **Figure 6-2**. Floodplain impacts and compensation requirements are summarized in **Table 6-2**.

NB-2B

Alternative NB-2B is located approximately 700 feet south of Airport Road. This site would be constructed on an existing pasture adjacent to the I-75 right of way. The seasonal high water table elevation was estimated at elevation 9.4-feet. This value is approximately 1.5-feet below existing ground and is comparable to the seasonal high water elevations established for the I-75 widening project currently under design (FPID – 413042-4-52-01). The preliminary pond sizing calculations assume that a wet pond will be constructed at this site and 1 inch over the entire site area was utilized to determine the treatment volume. Attenuation will be based on the volumetric difference between the pre/post runoff for the 25-yr/24-hr frequency storm event. The low edge of pavement was estimated at elevation 13.4, which is approximately 4-feet above the seasonal high water table which is needed for base clearance and also comparable to the I-75 mainline low edge of pavement in this location. **Table 6-1** summarizes the right of way requirements to accommodate the stormwater management needs for NB-2B. The pond for NB-2B was located on the remnant parcel directly north of the rest area. The elevation on the northern end of the rest area site is lower than the southern end of the rest area which will make it easier to drain the site into the existing conveyance system. The location of rest area NB-2B and the pond associated with this rest area are shown on **Figure 6-1**.

The majority of this rest area is located within FEMA Flood Zone AE with the southern end of the site located within FEMA Flood Zone X which is defined as an area of minimal flooding. Two proposed floodplain compensation sites have been identified between I-75 and Piper Road directly north of Airport Road. The site closest to I-75 was sized to accommodate the needs for NB-2B, however, the floodplain compensation requirements could also be met at the site closest to Piper Road. Both of these sites woud require the purchase of additional right of way. The location of these two floodplain compensation sites are shown on **Figure 6-1**. Floodplain impacts and compensation requirements are summarized in **Table 6-2**.

SB-WIM

Alternative SB-WIM is located approximately 2500 feet south of South Jones Loop Road directly west of the existing SB weigh in motion station. This site would be constructed on an existing pasture adjacent to the I-75 SB weigh in motion station. The seasonal high water table was estimated at elevation 19.5-feet which is approximately the same elevation used for the existing WIM stations (SWFWMD Permit No. 409592). The preliminary pond sizing calculations assume that a dry retention pond will be constructed at this site. Since the drainage area at this site is less than 100 acres, 0.5 inches over the entire site area was utilized to determine the treatment volume. Attenuation will be based on the volumetric comparison of pre/post runoff for the 25-yr/24-hr frequency storm event. The existing pond bottom was set at elevation 22.0-feet which matches the dry retention pond elevations used for the existing WIM station. **Table 6-1** summarizes the right of way requirements to accommodate the stormwater management needs for SB-WIM. In order to meet storage requirements, two pond sites were selected. The pond locations were incorporated into the rest area site and placed adjacent to the entrance and exit ramps. The location of rest area SB-WIM and the ponds associated with this rest area are shown on Figure 6-3. SB-WIM is located within FEMA Flood Zone X which is defined as an area of minimal flooding with no base flood elevations established. Since the existing ground elevation at the SB WIM site is approximately the same as the floodplain elevation at the NB WIM site, no impacts to the floodplain are anticipated at the SB-WIM site.

NB-WIM

Alternative NB-WIM is located approximately 2500 feet south of South Jones Loop Road directly east of the existing NB weigh in motion station. This site would be constructed on an existing pasture adjacent to the I-75 NB weigh in motion station. The seasonal high water table elevation was set at 19.5-feet which is approximately the same elevation used for the existing WIM stations. The preliminary pond sizing calculations assume that a dry retention pond will be constructed at this site. Since the drainage area at this site is less than 100 acres, 0.5 inches over the entire site area was utilized to determine the treatment volume. Attenuation will be based on a volumetric comparison of pre/post runoff for the 25-yr/24-hr frequency storm event. The existing pond bottom was set at elevation 22.0-feet which matches the dry retention pond elevations used for the existing WIM station. **Table 6-1** summarizes the right of way requirements to accommodate the stormwater management needs for NB-WIM. The pond for NB-WIM was located between the rest area and the I-75 on ramp. The location of rest area NB-WIM and the pond associated with this rest area are shown on **Figure 6-3**.

The existing ground elevation at the NB-WIM rest area site varies from approximately 18.0 to 23.0. The majority of the NB-WIM site is located within FEMA Flood Zone A which has no established base flood elevation. However, for the purposes of this evaluation, the base flood elevation has been set at 20.7-feet based on an approximate elevation near the edge of the floodplain shape based on GIS LiDAR topographical data. Compensation will be required for all fill placed within the floodplain. The on and off ramps to the rest area are located within FEMA Flood Zone X which is defined as an area of minimal flooding. The floodplain compensation site for NB-WIM is located between the I-75 on ramp and an existing borrow pit lake at the southern end of the rest area site in what has been classified as existing pasture land. The location of the floodplain compensation site is shown on Figure 6-3. Floodplain impacts and compensation requirements are summarized in Table 6-2.

Table 6-1: Pond Sizing Requirements

REST AREA SITE	REQUIRED TREATMENT & ATTENUATION VOLUME (ACRE-FT)	AREA REQUIRED (ACRES)	POND AREA PROVIDED (ACRES)
SB-2	2.34	1.66	1.95
NB-2	2.47	1.58	2.26
NB-2B	2.73	2.60	2.60
SB-WIM	1.75	2.86	3.78
NB-WIM	1.82	2.20	2.68

Table 6-2: Floodplain Impacts and Sizing of Compensation Sites

REST AREA SITE	VOLUME IMPACTED (ACRE-FT)	AREA REQUIRED TO ACCOMMODATE IMPACTED VOLUME (ACRES)
SB-2	17.52	6.09
NB-2	28.99	8.54
NB-2B	10.29	3.46
SB-WIM	N/A	N/A
NB-WIM	4.88	4.12

The pond area provided for SB-2 and NB-2 is greater than what is required to avoid a remnant parcel or to create more of a rectangular shape for the purpose of determining R/W cost. The pond area provided for the WIM sites is also greater than what is required in order to utilize all available space within the rest area footprint. These differences are graphically illustrated on **Figures 6-1, 6-2 and 6-3**.

Figure 6-1: NB-2B & SB-2 Rest Area Sites



Figure 6-2: NB-2 Rest Area Site



Figure 6-3: NB & SB WIM Rest Area Sites



7 Conclusion

The proposed project involves siting and preliminary design for new rest areas on I-75 between the Charlotte/Lee County line and SR 681 in Sarasota County. As part of this analysis stormwater management volumes were tabulated and factored into the decision matrix. Treatment, attenuation and floodplain impact volumes were all utilized to preliminarily locate ponds for each rest area site and, where applicable, floodplain compensation sites. This analysis assumed that the rest area sites would be implemented as a pair that had to be within relatively close proximity of each other. As such, the WIM sites were included as one pair while the SB-2 site was included with both the NB-2 site and the NB-2B site to form an additional two pairs.

NB-WIM and SB-WIM are the only northbound/southbound alternative pair that was capable of accommodating stormwater management within the existing footprint of the proposed rest areas and associated ramps. The NB-2 and SB-2 northbound/southbound alternative pair had the smallest requirement for stormwater management, but any proposed ponds would have to be located beyond the footprint of the rest area. The NB-2B alternative has the largest treatment and attenuation requirement for the northbound alternatives and stormwater management cannot be accommodated within the existing footprint of NB-2B.

NB-WIM and SB-WIM are the northbound/southbound alternative pair that required the smallest footprint for compensatory floodplain volume. This is mainly due to the fact that the SB-WIM does not encroach into the floodplain and that NB-WIM site is located in Zone A which has a very shallow floodplain depth relative to the existing ground. The alternative that required the largest compensatory floodplain volume was the NB-2 and SB-2 northbound/southbound alternative pair because the largest elevation difference between the existing ground and the 100-year floodplain occurred in this location.

Based solely on stormwater management and floodplain compensation requirements, the WIM sites are the best alternative for the following reasons.

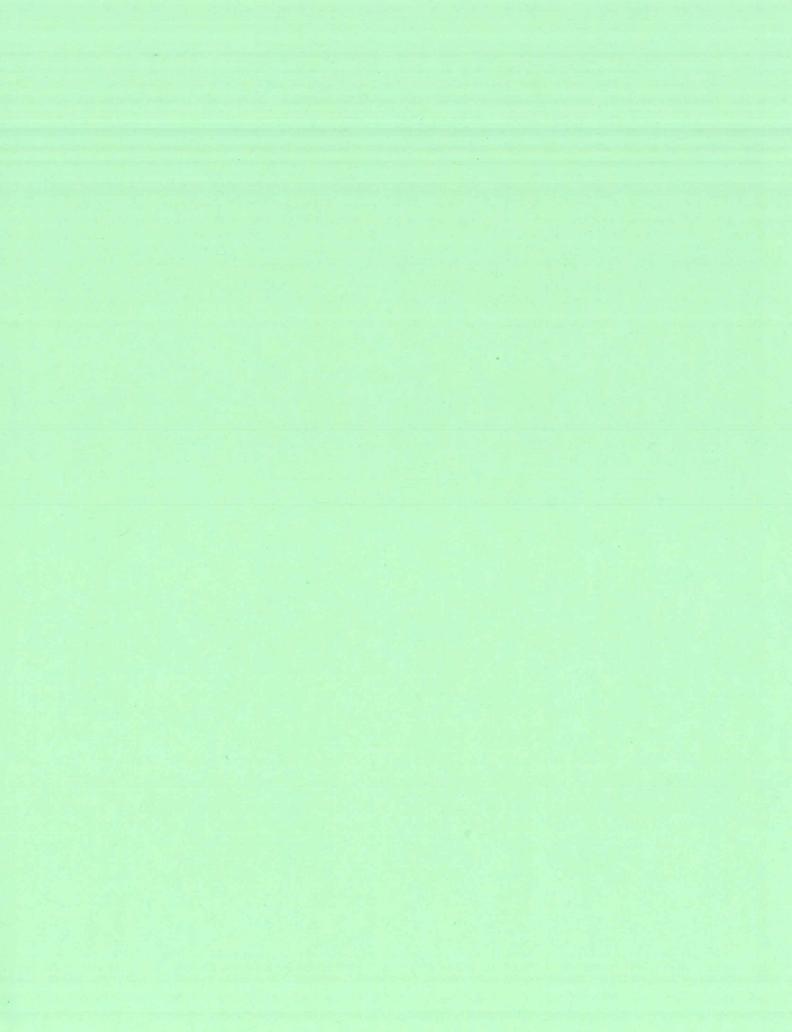
- All stormwater management can be accomplished within the proposed footprint requiring no additional R/W exclusively for stormwater management.
- The additional R/W required for pond sites and floodplain compensation is the smallest of any of the northbound/southbound alternatives
- Dry retention will be used for treatment which will reduce long-term maintenance and provide better water quality than traditional wet detention.

It should be noted that significant engineering judgement was required to arrive at the recommended alternative. Estimates were made as to the average elevation of the existing ground, the seasonal high water table and proposed profile gradeline. As much as possible these estimates are supported by existing permitted infrastructure and GIS data. However, the pond sizes are deemed to be reasonable in that each required pond footprint between 10% and 20% of the total contributing area. With respect to the

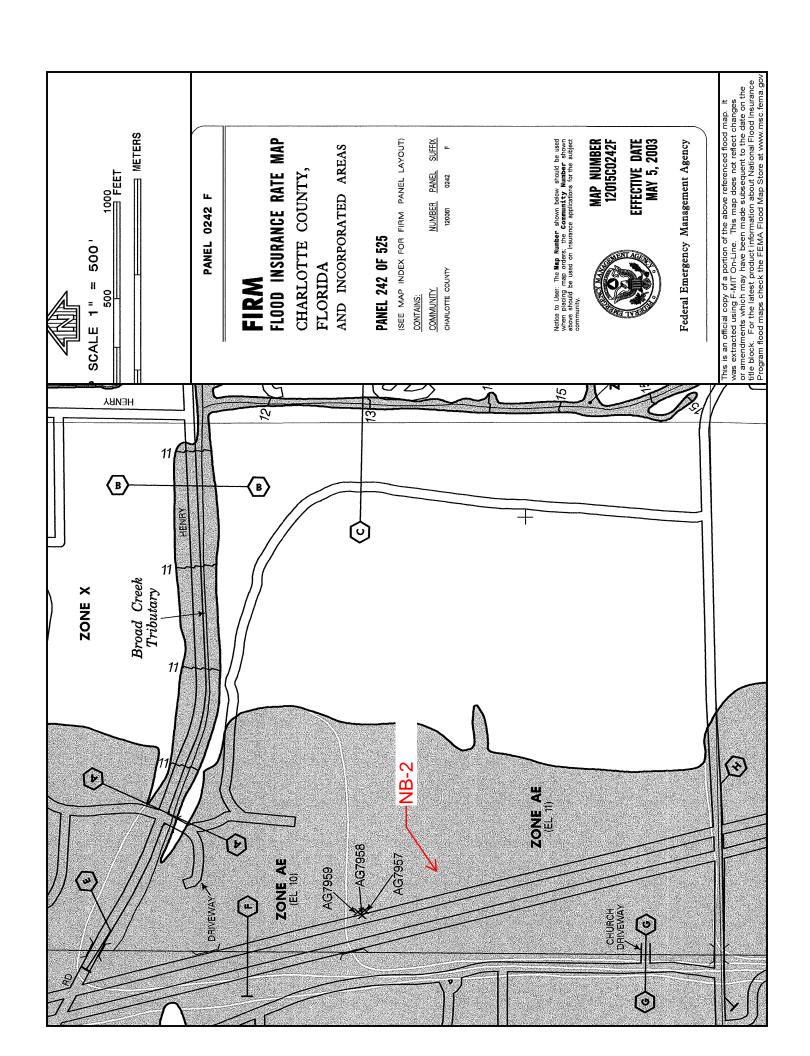
floodplain compensation sites, these sites may ultimately become smaller during final design once additional engineering information has been obtained.

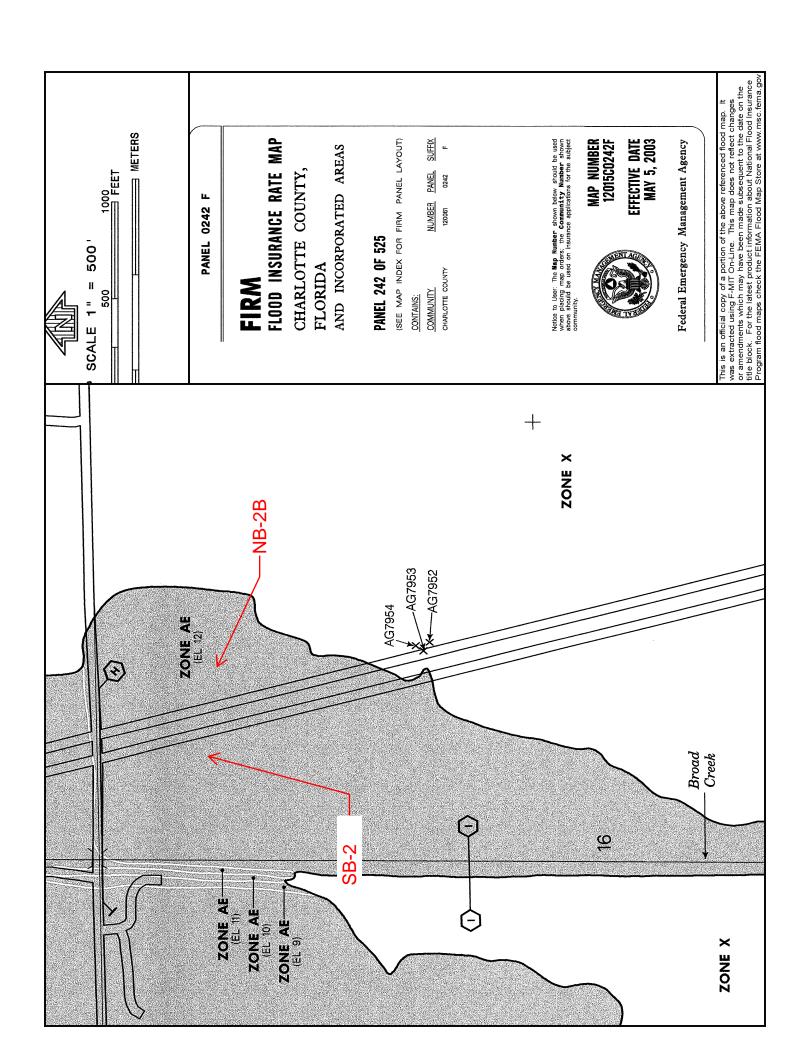
8 References

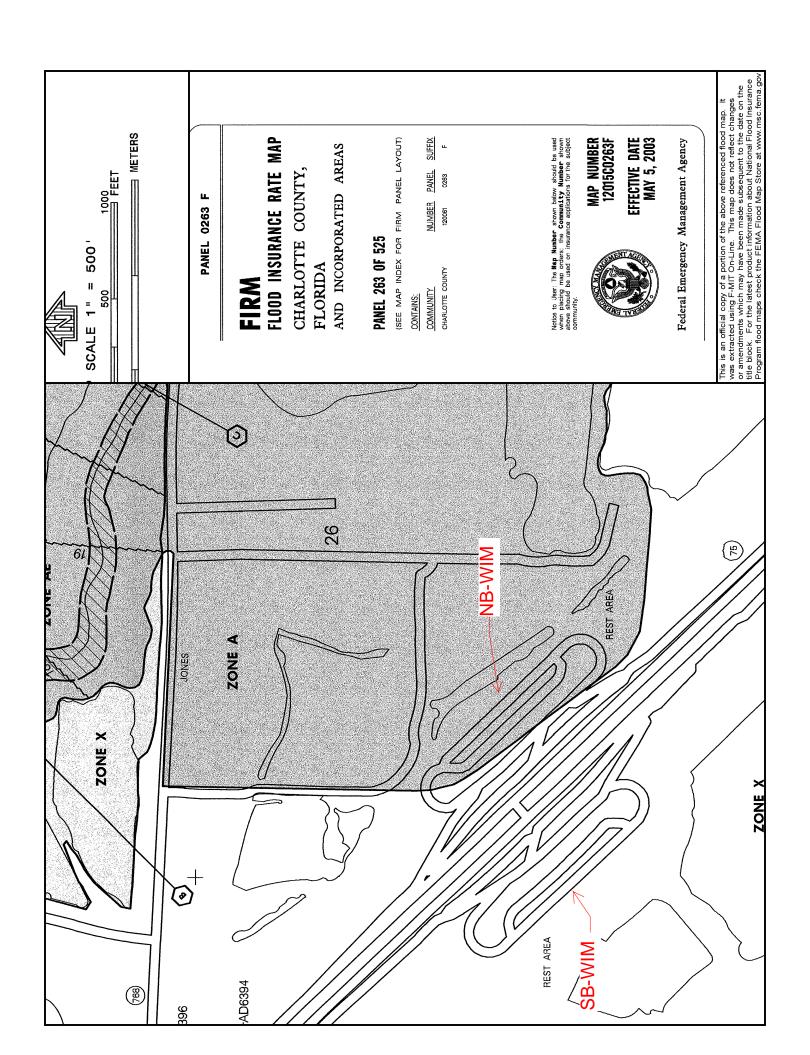
- Federal Emergency Management Agency, Flood Insurance Rate Map for Charlotte County, Florida, Panels 242 & 263, May 5, 2003.
- Florida Department of Transportation, *Drainage Manual*, 2016.
- Florida Department of Transportation, Stormwater Management Facilities Handbook, 2004.
- Florida Department of Transportation, PD&E Manual, Part 2, Chapter 24-Floodplains, August 17, 2016.
- Florida Department of Transportation, Culvert Handbook, 2004.
- Southwest Florida Water Management District, *Environmental Resource Permit Applicant's Handbook Volume II*, October 1, 2013.
- United States Department of Agriculture, *Soil Survey Geographic Database for Charlotte County, Florida*, November 19, 2015.

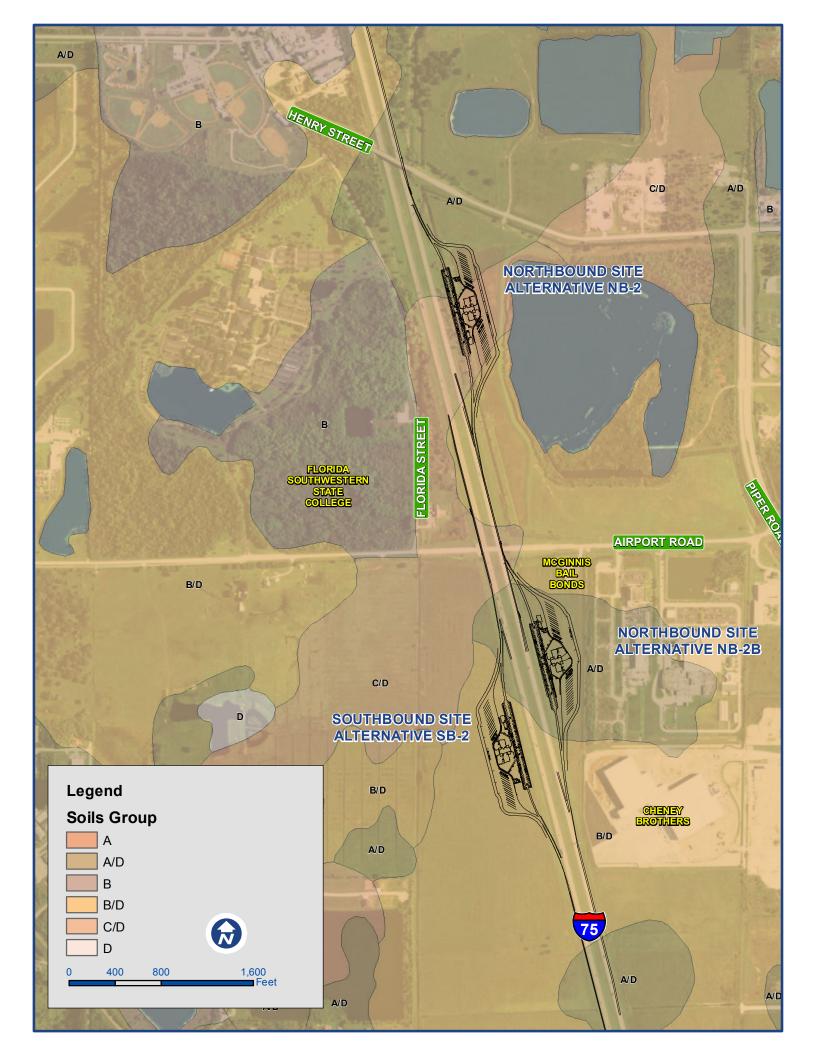


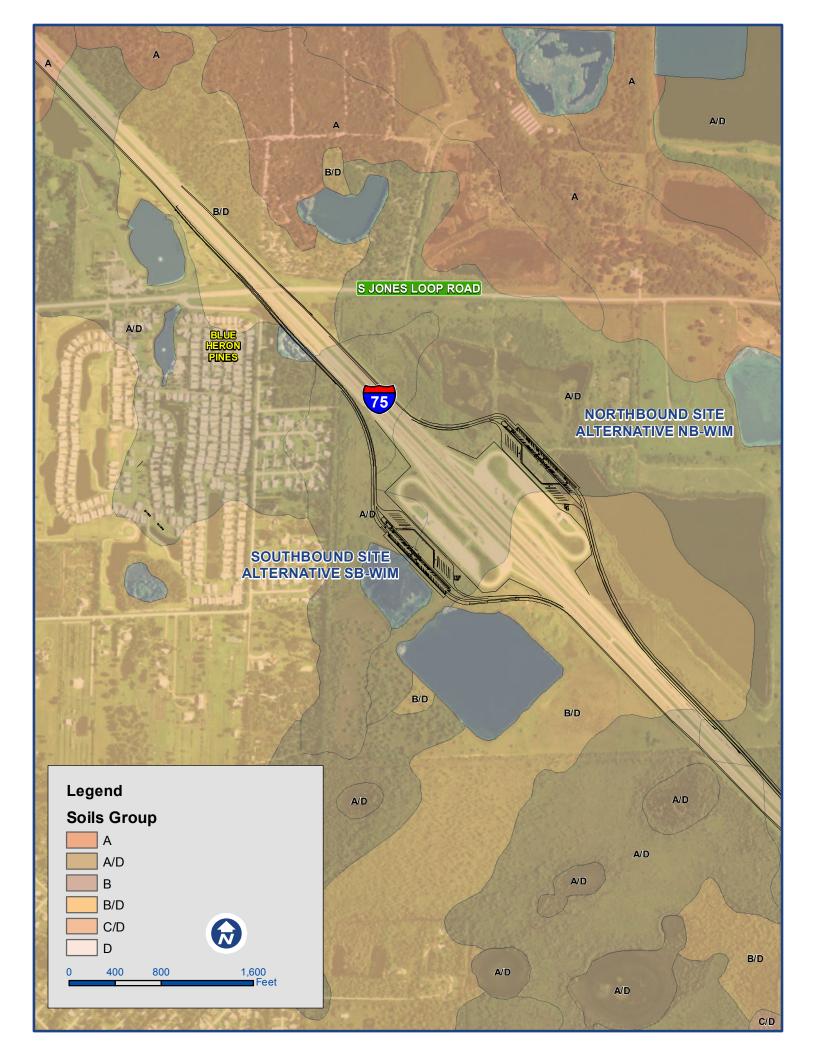
APPENDIX A FEMA FIRM Maps & Soils Maps







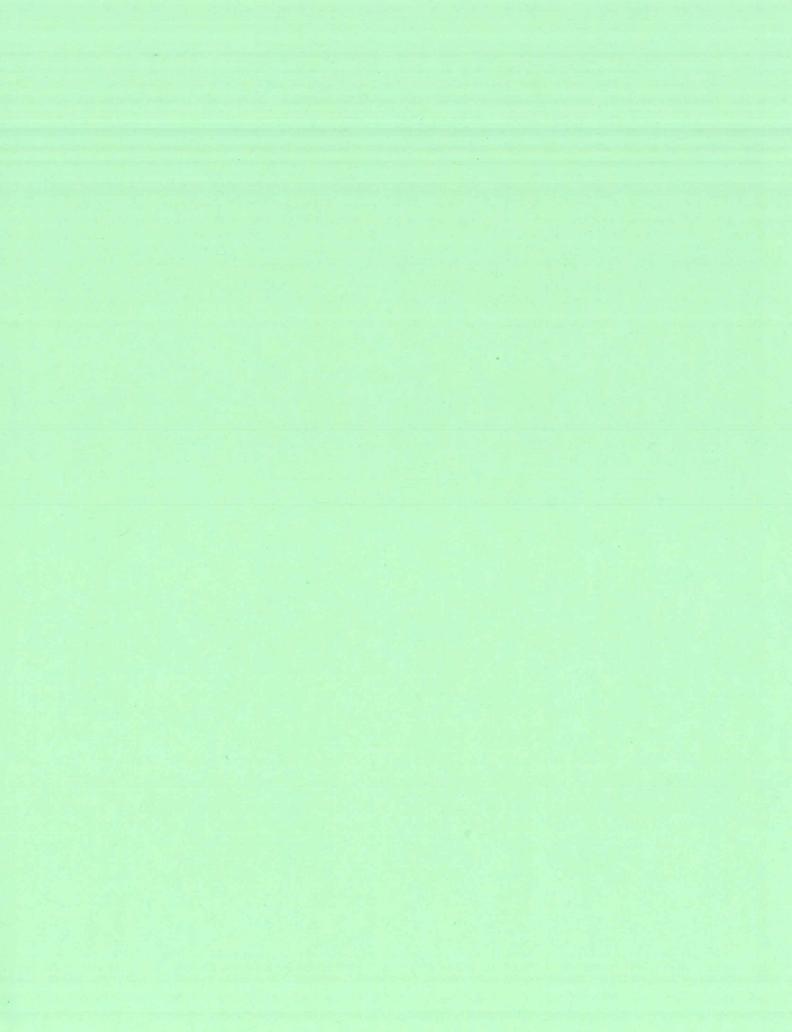




Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Charlotte County, Florida (FL015)								
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI				
6	Hallandale fine sand, wet, 0 to 2 percent slopes	B/D	1,745.1	1.9%				
7	Matlacha-Urban land complex	В	1,066.9	1.2%				
8	Hallandale fine sand, tidal	B/D	275.6	0.3%				
9	EauGallie sand, 0 to 2 percent slopes	A/D	862.8	0.9%				
10	Pompano fine sand, 0 to 2 percent slopes	A/D	377.1	0.4%				
11	Myakka fine sand, 0 to 2 percent slopes	A/D	1,877.4	2.0%				
12	Felda fine sand, 0 to 2 percent slopes	A/D	4,322.6	4.7%				
13	Boca fine sand, 0 to 2 percent slopes	A/D	4,447.3	4.9%				
14	Valkaria fine sand, 0 to 2 percent slopes	A/D	696.9	0.8%				
16	Peckish mucky fine sand	A/D	115.8	0.1%				
17	Daytona sand	A	379.0	0.4%				
18	Matlacha gravelly fine sand, limestone substratum	В	301.2	0.3%				
19	Gator muck, frequently ponded, 0 to 1 percent slopes	C/D	54.0	0.1%				
23	Wulfert muck	A/D	1,196.5	1.3%				
24	Kesson fine sand	A/D	408.9	0.4%				
26	Pineda fine sand, 0 to 2 percent slopes	A/D	5,286.7	5.8%				
27	Pompano fine sand, depressional	A/D	68.2	0.1%				
28	Immokalee sand, 0 to 2 percent slopes	B/D	7,834.6	8.6%				
33	Oldsmar sand, 0 to 2 percent slopes	A/D	7,823.2	8.5%				
34	Malabar fine sand, 0 to 2 percent slopes	A/D	1,906.5	2.1%				
35	Wabasso sand, 0 to 2 percent slopes	C/D	7,488.5	8.2%				

Hydrologic Soil Group— Summary by Map Unit — Charlotte County, Florida (FL015)							
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI			
36	Immokalee-Urban land complex	B/D	76.8	0.1%			
37	Satellite fine sand, 0 to 2 percent slopes	A/D	1.0	0.0%			
38	Isles fine sand, slough	B/D	10.8	0.0%			
39	Isles fine sand, depressional	B/D	294.2	0.3%			
40	Anclote sand, depressional, 0 to 1 percent slopes	A/D	66.4	0.1%			
42	Wabasso sand, limestone substratum, 0 to 2 percent slopes	C/D	2,630.6	2.9%			
43	Smyrna fine sand, 0 to 2 percent slopes	A/D	2,126.5	2.3%			
44	Malabar fine sand, depressional, 0 to 1 percent slopes	A/D	77.9	0.1%			
45	Copeland sandy loam, depressional	D	82.9	0.1%			
49	Felda fine sand, depressional	A/D	3,515.0	3.8%			
51	Floridana sand, depressional	C/D	345.6	0.4%			
53	Myakka fine sand, depressional	A/D	193.6	0.2%			
55	Cocoa fine sand	A	10.8	0.0%			
56	Isles muck	B/D	2,705.5	3.0%			
57	Boca fine sand, tidal	A/D	853.6	0.9%			
59	Urban land		483.1	0.5%			
61	Orsino fine sand	A	351.1	0.4%			
62	Winder sand, depressional	C/D	2,257.6	2.5%			
63	Malabar fine sand, high, 0 to 2 percent slopes	A/D	1,378.1	1.5%			
67	Smyrna-Urban land complex	A/D	619.9	0.7%			
69	Matlacha gravelly fine sand	В	2,650.0	2.9%			
70	Heights fine sand	B/D	4,786.6	5.2%			
73	Pineda fine sand, depressional, 0 to 1 percent slopes	A/D	1,364.2	1.5%			
74	Boca fine sand, slough	A/D	18.3	0.0%			
77	Pineda fine sand, limestone substratum	C/D	368.3	0.4%			



APPENDIX B Pond Sizing Calculations



Project Name: I-75 Rest Areas PD&E

Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirements

Prepared by: FAM Checked by: RMG

Date: 11/17/2016

		Alternative SB 2			
Basin		Pre-Development Condition		Post Development Condition	
Total Area, acre	10.87	CN	10.87	CN	
Pond Area, ac	1.66	80	1.66	91	
Impervious Area, ac	0.00	98	7.10	98	
Pervious Area, ac	9.21		2.11		
CN	80	80.0		93.4	
Attenuation Volume-25yr24hr					
Precipitation	8.	00	8.	00	
Potential Maximum Retention (S)	2.	50	0.	70	
Runoff Depth (Q), in	5.	63	7.	21	
Runoff Volume, acre-ft	5.	5.10		6.53	
Volume Differential, acre-ft		1.	44		
Treatment Volume					
1-in. (1ft./12 in.) x Total Area (ac.) = acre-ft			0.	91	
Total Volume Required, acre-ft	2.34				



Project Name: I-75 Rest Areas PD&E

Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirements

Prepared by: FAM RMG Checked by: Date: 11/17/2016

POND ROW REQUIREMENTS - Alternate SB 2

Total Pond Width (including maintenance berm and adjustments)

Existing Ground at Pond site = 9.40 NGVD (Estimated From GIS Topographic Information) ELEV EXST EOP @ Low Point = 12.00 NGVD (Assumed to be approximately 4-feet above SHW to accommodate base clearance)

Elev SHW = 7.90 NGVD (Estimated From NRCS Soil Survey at 1.5-feet below grade)

208 FT.

0.91 AC-FT. Water Quality Volume Re uired based on 1 inch over total site area Attenuation Volume 1.44 AC-FT. Pond Area Based on treatment volume 0.91 AC

Assume 1 foot of pond freeboard 1.00 FT.

Treatment Depth 1.00 FT. < 1.5 ft - OK Total Attenuation Depth based on Pond Area

1.59 FT. Total Depth from SHWL to Top of Berm 3.59 FT.

Elev SHW= 7.90 NGVD Top of Berm Elevation given a total depth = 11.49 NGVD

Unit Length Based on L/W = 2 281 FT. Unit Width Based on L/W = 2 140 FT. Maintenance Berm Width of 15-ft 30 FT. Grade Adjustment Width Assumed 1:2 8 FT. Horizontal Distance Based on a 1:4 Slope and total Depth 29 FT. Total Pond Length (including maintenance berm and adjustments) 348 FT

Preliminary Property Size Re uired 1.66 AC.

PROPERTY SIZE FOR TREATMENT & ATTENUATION 1.66 AC. SHAPE AREA LOCATED ADJACENT TO REST AREA 1.95 AC

Note: NAVD88 + 1.1 = NGVD29 (Approximate). All GIS data increased by 1.1-feet to convert to NGVD29



Project Name: I-75 Rest Areas PD&E
Project Number: 104-0007-000
Task Description: Estimation of ROW Re uirements

 Prepared by:
 FAM

 Checked by:
 RMG

 Date:
 11/18/2016

Danin	,	Alternative NB 2			
Basin		elopment lition	Post Deve Cond	•	
Total Area, acre	11.83	CN	11.83	CN	
Pond Area, ac	1.43	80	1.43	91	
Impervious Area, ac	0.00	98	7.47	98	
Pervious Area, ac	10.40	80	2.93	80	
CN	80	0.0	92.8		
Attenuation Volume-25yr24hr					
Precipitation	8.	00	8.0	00	
Potential Maximum Retention (S)	2.	50	0.7	78	
Runoff Depth (Q), in	5.	63	7.1	13	
Runoff Volume, acre-ft	5.	5.55		7.03	
Volume Differential, acre-ft		1.	49		
Treatment Volume					
1-in. (1ft./12 in.) x Total Area (ac.) = acre-ft			0.0	99	
Total Volume Required, acre-ft	, acre-ft 2.47				



Preliminary Property Size Re uired

Project Name: I-75 Rest Areas PD&E

Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirements

Prepared by: FAM
Checked by: RMG
Date: 11/18/2016

POND ROW REQUIREMENTS - Alternate NB 2

Existing Ground at Pond site = 8.50 NGVD (Estimated From GIS Topographic Information)

ELEV EXST EOP @ Low Point = 10.50 NGVD (Assumed to be approximately 4-feet above SHW to accommodate base clearance)

Elev SHW = 6.50 NGVD based on SWFWMD Permit No. 43000164.038

1.58 AC.

Water Quality Volume Re uired based on 1 inch over total site area 0.99 AC-FT.
Attenuation Volume 1.49 AC-FT.
Pond Area Based on treatment volume 0.82 AC

Assume 1 foot of pond freeboard 1.00 FT.

Treatment Depth 1.20 FT. < 1.5 ft - OK

Total Attenuation Depth based on Pond Area

1.81 FT.

Total Depth from SHWL to Top of Berm

4.01 FT.

Elev SHW= 6.50 NGVD
Top of Berm Elevation given a total depth = 10.51 NGVD
Unit Length Based on L/W = 2 268 FT.

Unit Width Based on L/W = 2

Maintenance Berm Width of 15-ft

Grade Adjustment Width Assumed 1:2

Horizontal Distance Based on a 1:4 Slope and total Depth

Total Pond Length (including maintenance berm and adjustments)

Total Pond Width (including maintenance berm and adjustments)

204 FT.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION 1.58 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION 1.58 AC. SHAPE AREA IDENTIFIED ON MAPS INCLUDES REM. OF EXISTING COMP SITE 2.26 AC.

Note: NAVD88 + 1.1 = NGVD29 (Approximate). All GIS data increased by 1.1-feet to convert to NGVD29



Project Name: I-75 Rest Areas PD&E

Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirements

Prepared by: FAM
Checked by: RMG

Date: 11/18/2016

Basin	P	Alternative NB 2B			
		elopment dition	Post Deve	elopment lition	
Total Area, acre	12.92	CN	12.92	CN	
Pond Area, ac	2.57	80	2.57	94	
Impervious Area, ac	0.00	98	7.31	98	
Pervious Area, ac	10.35	80	3.04	80	
CN	80	0.0	93.0		
Attenuation Volume-25yr24hr					
Precipitation	8.	00	8.	00	
Potential Maximum Retention (S)	2.	50	0.	76	
Runoff Depth (Q), in	5.	63	7.	16	
Runoff Volume, acre-ft	6.	06	7.	7.71	
Volume Differential, acre-ft		1.	.65		
Treatment Volume					
1-in. (1ft./12 in.) x Total Area (ac.) = acre-ft			1.	08	
Total Volume Required, acre-ft	2.73				



 Project Name:
 I-75 Rest Areas PD&E

 Project Number:
 104-0007-000

Task Description: Estimation of ROW Re uirements

 Prepared by:
 FAM

 Checked by:
 RMG

 Date:
 11/18/2016

POND ROW REQUIREMENTS - Alternate NB 2B

Existing Ground at Pond site = 10.90 NGVD (Estimated From GIS Topographic Information)

ELEV EXST EOP @ Low Point = 13.40 NGVD (Assumed to be approximately 4-feet above SHW to accommodate base clearance)

Elev SHW = 9.40 NGVD (Estimated From NRCS Soil Survey at 1.5-feet below grade)

Water Quality Volume Re uired based on 1 inch over total site area

1.08 AC-FT.

Attenuation Volume
1.65 AC-FT.

Pond Area Based on treatment volume
1.79 AC

Assume 1 foot of pond freeboard
1.00 FT.

Treatment Depth
0.60 FT. < 1.5 ft - OK

Total Attenuation Depth based on Pond Area 0.92 FT.
Total Depth from SHWL to Top of Berm 2.52 FT.

Elev SHW= 9.40 NGVD
Top of Berm Elevation given a total depth = 11.92 NGVD

Unit Length Based on L/W = 2 198 FT.
Unit Width Based on L/W = 2 198 FT.
Maintenance Berm Width of 15-ft 30 FT.
Grade Adjustment Width Assumed 1:2 4 FT.
Horizontal Distance Based on a 1:4 Slope and total Depth 20 FT.
Total Pond Length (including maintenance berm and adjustments) 450 FT.
Total Pond Width (including maintenance berm and adjustments) 252 FT.

Preliminary Property Size Re uired 2.60 AC.

SHAPE AREA IDENTIFIED ON MAPS FILLS IN REMNANT PARCEL 2.60 AC.

Note: NAVD88 + 1.1 = NGVD29 (Approximate). All GIS data increased by 1.1-feet to convert to NGVD29



Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirements

Prepared by: FAM Checked by: RMG

Date: 11/18/2016

	Α	Alternative SB WIM		
Basin		elopment dition	Post Deve Cond	
Total Area, acre	12.70	CN	12.70	CN
Pond Area, ac	2.83	80	2.83	80
Impervious Area, ac	0.00	98	6.91	98
Pervious Area, ac	9.87		2.96	
CN	80	0.0	89	9.8
Attenuation Volume-25yr24hr				
Precipitation	8.	00	8.	00
Potential Maximum Retention (S)	2.	50	1.	14
Runoff Depth (Q), in	5.	63	6.	78
Runoff Volume, acre-ft	5.	95	7.	18
Volume Differential, acre-ft	1.22			
Treatment Volume				
0.5-in. (1ft./12 in.) x Total Area (ac.) = acre-ft			0.	53
Total Volume Required, acre-ft		1.	.75	



Project Name: I-75 Rest Areas PD&E
Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirements

Prepared by: FAM
Checked by: RMG
Date: 11/18/2016

POND ROW REQUIREMENTS - Alternate SB WIM

	Existing Ground at Pond site = ELEV EXST EOP @ Low Point = Elev SHW =	 21.00 NGVD (Estimated From GIS Topographic Information) 24.50 NGVD (Matches approximate low pavement from Permit No. 409592) 19.50 NGVD (Estimated From NRCS Soil Survey at 1.5-feet below grade) (Value also approximates SHWT El. In Permit No. 409592)
Water Quality Volume Re uired based on 0.5 inch Attenuation Volume Pond Area Based on treatment volume Adjusted pond area to minimize attenuation depth Assume 1 foot of pond freeboard	over total site area	0.53 AC-FT. 1.22 AC-FT. 0.76 AC 1.90 AC 1.00 FT.
Treatment Depth Total Attenuation Depth based on Pond Area Total Depth from SHWL to Top of Berm		0.70 FT. < 1.5 ft - OK 0.64 FT. 2.34 FT.
Pond Bottom = Top of Berm Elevation given a total depth =		22.00 NGVD (Based on SWFWMD Weigh Station Permit No. 409592) 24.34 NGVD
Unit Length Based on L/W = 2 Unit Width Based on L/W = 2 Maintenance Berm Width of 15-ft Grade Adjustment Width Assumed 1:2 Horizontal Distance Based on a 1:4 Slope and tota Total Pond Length (including maintenance berm a Total Pond Width (including maintenance berm and	nd adjustments)	407 FT. 203 FT. 30 FT. 13 FT. 19 FT. 469 FT. 266 FT.
Preliminary Property Size Re uired		2.86 AC.
PROPERTY SIZE FOR TREATMENT & ATTENUA SHAPE AREA LOCATED WITHIN WIM FOOTPRI		2.86 AC. 3.78 AC.

Note: NAVD88 + 1.1 = NGVD29 (Approximate). All GIS data increased by 1.1-feet to convert to NGVD29



Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirements

Prepared by: FAM Checked by: RMG

Date: 11/18/2016

Basin	Al	Alternative NB WIM		
		elopment dition	Post Deve Cond	-
Total Area, acre	13.24	CN	13.24	CN
Pond Area, ac	2.65	80	2.65	80
Impervious Area, ac	0.00	98	7.16	98
Pervious Area, ac	10.59	80	3.43	80
CN	80	0.0	89).7
Attenuation Volume-25yr24hr				
Precipitation	8.	00	8.0	00
Potential Maximum Retention (S)	2.	50	1.1	14
Runoff Depth (Q), in	5.	63	6.	77
Runoff Volume, acre-ft	6.	21	7.4	47
Volume Differential, acre-ft		1.27		
Treatment Volume				
0.5-in. (1ft./12 in.) x Total Area (ac.) = acre-ft			0.9	55
Total Volume Required, acre-ft		1.	.82	



Project Name: I-75 Rest Areas PD&E
Project Number: 104-0007-000

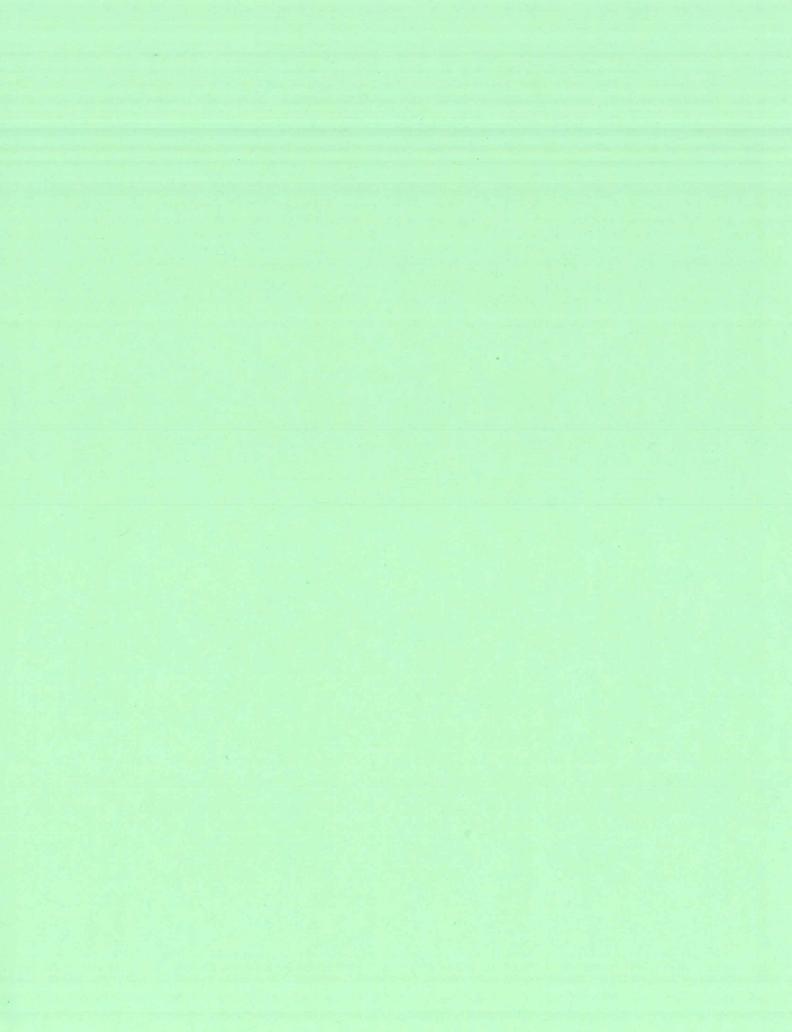
Task Description: Estimation of ROW Re uirements

Prepared by: FAM
Checked by: RMG
Date: 11/18/2016

POND ROW REQUIREMENTS - Alternate NB WIM

Existing Ground at Pond site = 21.00 NGVD (Estimated From GIS Topographic Information) ELEV EXST EOP @ Low Point = 24.50 NGVD (Matches approximate low pavement from Permit No. 409592) Elev SHW = 19.50 NGVD (Estimated From NRCS Soil Survey at 1.5-feet below grade) (Value also approximates SHWT El. In Permit No. 409592) Water Quality Volume Re uired based on 0.5-inches over total site area 0.55 AC-FT. Attenuation Volume 1.27 AC-FT. Pond Area Based on treatment volume 1.38 AC Assume 1 foot of pond freeboard 1.00 FT. Treatment Depth 0.40 FT. < 1.5 ft - OK Total Attenuation Depth based on Pond Area 0.92 FT. Total Depth from SHWL to Top of Berm 2.32 FT. Elev. Existing Ground For Dry Pond 22.00 NGVD Top of Berm Elevation given a total depth = 24.32 NGVD 347 FT. Unit Length Based on L/W = 2 173 FT. Unit Width Based on L/W = 2 Maintenance Berm Width of 15-ft 30 FT. Grade Adjustment Width Assumed 1:2 13 FT. Horizontal Distance Based on a 1:4 Slope and total Depth 19 FT. Total Pond Length (including maintenance berm and adjustments) 408 FT Total Pond Width (including maintenance berm and adjustments) 235 FT. 2.20 AC. Preliminary Property Size Re uired PROPERTY SIZE FOR TREATMENT & ATTENUATION 2.20 AC. SHAPE AREA IS LOCATED WITHIN WIM FOOTPRINT 2.68 AC.

Note: NAVD88 + 1.1 = NGVD29 (Approximate). All GIS data increased by 1.1-feet to convert to NGVD29



APPENDIX C Floodplain Impacts and Compensation Site Sizing



Project Number: 104-0007-000

Task Description: Floodplain Comp

Prepared by: FAM
Checked by: RMG
Date: 11/17/2016

SB-2 Rest Area			
	Area (ac.)	Depth (ft)	Volume (ac-ft)
Impact	6.74	2.6	17.52

SB-2 EXISTING GROUND/S	HWT ELEVATIONS
Floodplain Impa	ct Area
Floodplain Elev.	12.00'
Existing Ground Elev.	9.40'

SB-2 TOTAL COMP. REQ. =	17.52 ac.ft.



Project Name: I-75 Rest Areas PD&E
Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirement

 Prepared by:
 FAM

 Checked by:
 RMG

 Date:
 11/17/2016

Floodplain ROW REQUIREMENTS - Alternate SB 2

	FEMA Floodplain Elevation at Comp Site Existing Ground at Comp Site Elev SHW =	11.00 NGVD (Zone AE From FEMA Map) 14.40 NGVD (Estimated From GIS Topographic Information) 6.50 NGVD based on SWFWMD Permit No. 43000164.038
Floodplain Impact		17.52 AC-FT.
FPC Site Bottom Area at SHWT		4.00 AC
Storage Depth		4.50 FT.
Unit Length Based on L/W = 2		590 FT.
Unit Width Based on L/W = 2		295 FT.
Horizontal Distance Based on a 1:4 Slope and Storage Depth		36 FT.
Total Pond Length (including grade adjustments)		626 FT.
Total Pond Width (including grade adjustments)		331 FT.
Top Area (including grade adjustments but no berms	and no grading to existing grnd.)	4.76 AC.
Compensation Provided		19.71 ac.ft.
Maintenance Berm Width of 15-ft		30 FT.
Grading to Existing Ground		27.20 FT.
Total Pond Length (including maintenance berm)		683.52 FT
Total Pond Width (including maintenance berm)		388.36 FT
Preliminary Property Size Required		6.09 AC.

6.09 AC.

Note: The floodplain compensation site for this alternative is located north of Airport Road

MINIMUM PROPERTY SIZE FOR FLOODPLAIN COMPENSATION



Project Number: 104-0007-000

Task Description: Floodplain Comp

Prepared by: FAM
Checked by: RMG

Date: 11/17/2016

NB-2 Rest Area (Impact from Proposed Footprint)			
	Area (ac.)	Depth (ft)	Volume (ac-ft)
Impact	11.41	2.00	22.82

NB-2 Rest Area (Impact from Existing Floodplain Comp.)			
	Area (ac.)	Depth (ft)	Volume (ac-ft)
Impact	4.11	1.50	6.17

NB-2 EXISTING GROUND	SHWT ELEVATIONS
Floodplain Imp	oact Area
Floodplain Elev.	10.50'
Existing Ground Elev.	8.50'

Note: The impact to the existing permitted floodplain compensation site is based on a SHWT Elev. of 6.5 and an existing ground elevation of 8.5. These variables were taken from the existing permitted plansheets.



Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirement

Prepared by: FAM
Checked by: RMG
Date: 11/17/2016

FLOODPLAIN ROW REQUIREMENTS - Alternate NB 2

FEMA Floodplain Elevation	10.50 NGVD (Estimated From FEMA Map)
Existing Ground at Comp Site	10.50 NGVD (Estimated From GIS Topographic Information)
Elev SHW =	6.50 NGVD based on SWFWMD Permit No. 43000164.038

	Elev SHW -	0.50	NGVDD
Floodplain Impact		28 90	AC-FT.
FPC Site Bottom Area at SHWT		6.81	
Storage Depth		4.00	
Unit Length Based on L/W = 2		770	FT.
Unit Width Based on L/W = 2		385	FT.
Horizontal Distance Based on a 1:4 Slo	pe and Storage Depth	32	FT.
Total Pond Length (including grade adju	ustments)	802	FT.
Total Pond Width (including grade adju	stments)	417	FT.
Total Area (including grade adjustments	s but no berms)	7.68	AC.
Compensation Provided		28.99	AC.FT.
Maintenance Berm Width of 15-ft		30	FT.
Total Pond Length (including maintenar	nce berm)	832.31	FT.
Total Pond Width (including maintenan	•	447.15	FT.
Preliminary Property Size Required		8.54	AC.
MINIMUM PROPERTY SIZE FOR FLOO	ODPLAIN COMPENSATION	8.54	AC.



Project Number: 104-0007-000

Task Description: Floodplain Comp

Prepared by: FAM Checked by: RMG

Date: 11/17/2016

NB-2B Rest Area											
Area (ac.) Depth (ft) Volume (ac-ft)											
Impact	9.35	1.1	10.29								

NB-2B EXISTING GROUND/	SHWT ELEVATIONS
Floodplain Impa	ict Area
Floodplain Elev.	12.00'
Existing Ground Elev.	10.90'

NB-2B TOTAL COMP. REQ. =	10.29 ac.ft.
--------------------------	--------------

Note: The floodplain compensation site for this alternative is located north of Airport Road



Project Name: I-75 Rest Areas PD&E **Project Number:** 104-0007-000

Task Description: Estimation of ROW Re uirement

Prepared by: RMG Checked by: Date: 11/17/2016

FLOODPLAIN ROW REQUIREMENTS - Alternate NB 2B

FEMA Floodplain Elevation 11.00 NGVD (Zone AE From FEMA Map) **Existing Ground at Comp Site** 10.50 NGVD (Estimated From GIS Topographic Information) 6.50 NGVD based on SWFWMD Permit No. 43000164.038

3.46 AC.

Elev SHW = 10.29 AC-FT. Floodplain Impact 2.40 AC FPC Site Bottom Area at SHWT Storage Depth 4.00 FT. Unit Length Based on L/W = 2 457 FT. Unit Width Based on L/W = 2 229 FT. Horizontal Distance Based on a 1:4 Slope and Storage Depth 32 FT. Total Pond Length (including grade adjustments) 489 FT. Total Pond Width (including grade adjustments) 261 FT. Top Area (including grade adjustments but no berms) 2.93 AC. Compensation Provided 10.65 AC.FT. Maintenance Berm Width of 15-ft 30 FT. Total Pond Length (including maintenance berm) 519.26 Total Pond Width (including maintenance berm) 290.63 **Preliminary Property Size Required** 3.46 AC. MINIMUM PROPERTY SIZE FOR FLOODPLAIN COMPENSATION



Project Number: 104-0007-000

Task Description: Floodplain Comp

 Prepared by:
 FAM

 Checked by:
 RMG

 Date:
 11/17/2016

NB WIM Rest Area										
Area (ac.) Depth (ft) Volume (ac-ft)										
Impact	6.97	0.70	4.88							

NB-WIM EXISTING GROUN	ID/SHWT ELEVATIONS
Floodplain Im	pact Area
Floodplain Elev.	20.70'
Existing Ground Elev.	20.00'

NB-WIM TOTAL COMP. REQ. =	4.88 ac.ft.



Project Name: I-75 Rest Areas PD&E
Project Number: 104-0007-000

Task Description: Estimation of ROW Re uirement

 Prepared by:
 FAM

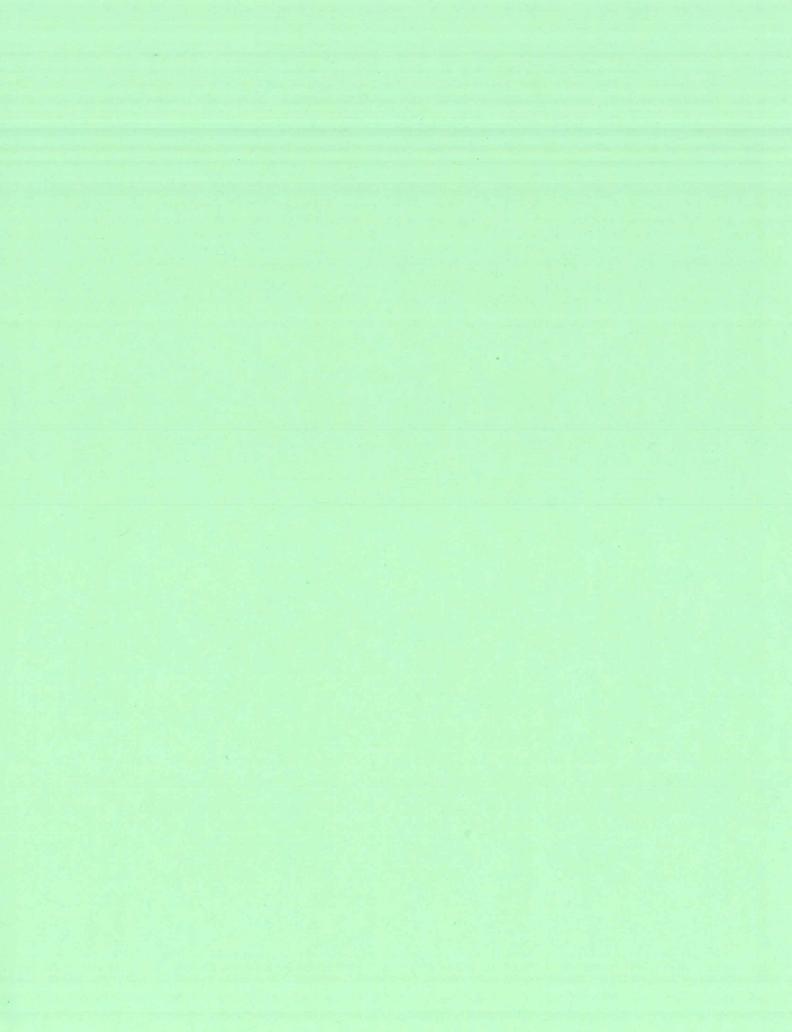
 Checked by:
 RMG

 Date:
 11/17/2016

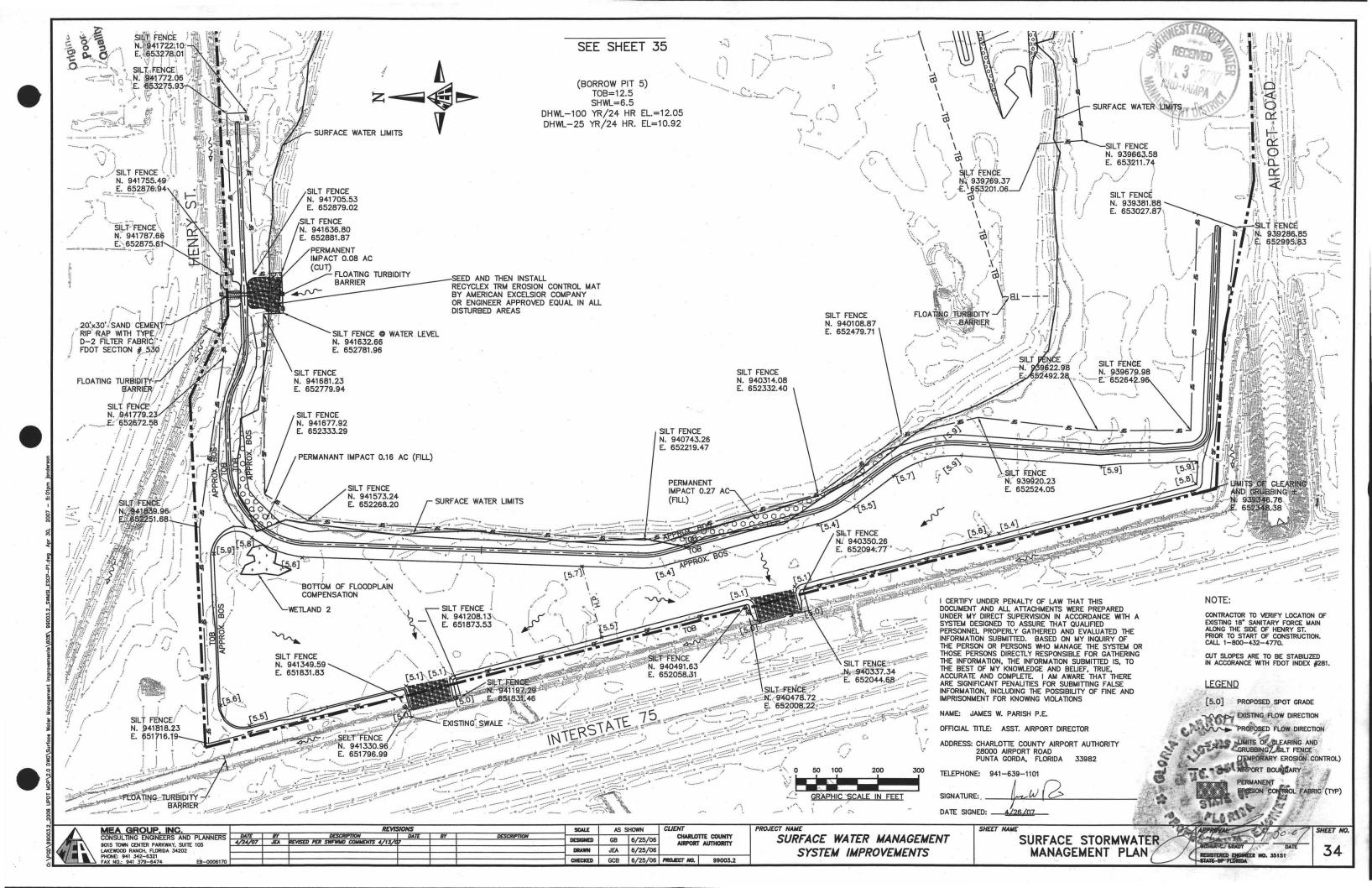
FLOODPLAIN ROW REQUIREMENTS - Alternate NB WIM

	FEMA Floodplain Elevation Existing Ground at Comp Site Elev SHW =	21.00 NGVD (E	one A Estimated From FEMA Map) stimated From GIS Topographic Information) GVD (Estimated From NRCS Soil Survey)
Floodplain Impact		4.88 AC-FT.	
FPC Site Bottom Area at SHWT		3.30 AC	
Storage Depth		1.50 FT.	
Unit Length Based on L/W = 2		536 FT.	
Unit Width Based on L/W = 2		268 FT.	
Horizontal Distance Based on a 1:4 Slope and Storag	e Depth	12 FT.	
Total Pond Length (including grade adjustments)		548 FT.	
Total Pond Width (including grade adjustments)		280 FT.	
Top Area (including grade adjustments but no berms)		3.52 AC.	
Compensation Provided		5.12 ac.ft.	
Maintenance Berm Width of 15-ft		30 FT.	
Total Pond Length (including maintenance berm)		578.19	
Total Pond Width (including maintenance berm)		310.09	
Preliminary Property Size Required		4.12 AC.	
MINIMUM PROPERTY SIZE FOR FLOODPLAIN CO	MPENSATION	4.12 AC.	

Note: Compensation site at higher elevation than location where impacts occur



APPENDIX D Excerpts from Existing Permits



THIS CONTRACT PLAN SET INCLUDES SUMMARY OF PAY ITEMS (SHEETS) ROADWAY PLANS SIGNING AND PAVEMENT MARKING PLANS SIGNALIZATION PLANS WEIGH IN MOTION PLANS

LIGHTNING PROTECTION PLANS A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH GROUP OF PLANS.

ROADWAY LIGHTING PLANS

BUILDING RENOVATIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED

STATE HIGHWAY

CHARLOTTE COUNTY

I-75 PUNTA GORDA WEIGH STATION

W.P.I. No. 1141032 F.A.PROJ.No.IR-75-5 (56) 159 [STATE PROJ.No.01075-3427] LOCATION OF PROJECT

REVISIONS
BY DESCRIPTION

ROADWAY PLANS APPROVED BY:

DATE: 12/0/91

P.E. NO: 39406

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
/	KEY SHEET
2	DRAINAGE MAP
3-5	TYPICAL SECTIONS
	SUMMARY OF QUANTITIES
	SUMMARY OF DRAINAGE STRUCTURES
6-15	PLAN AND PROFILES
16-17	SPECIAL PROFILES
18-19	SUPERELEVATION PROFILES
20-25	DRAINAGE STRUCTURES
26-29	JOINT DETAILS
30	DRAINAGE DETAILS.
_	ROADWAY DETAILS
-	SOIL SURVEY
31-59	CROSS SECTIONS
_	TRAFFIC CONTROL PLANS
_	UTILITY ADJUSTMENTS

ROADWAY AND TRAFFIC DESIGN STANDARDS (BOOKLET DATED JANUARY, 1990)

INDEX NO.	
001	300
002	302
102	305
104	400
105	415
200	451
201	500
205	505
211	510
231	511
232	513
272	517
273	525
280	600
281	610
286	611
290	613
	630

END PROJECT STA. 71+57.16 & SURVEY TO NORTH PORT T 40 5 TO MOORE HAVEN 11" = 2 Mi. STA 0+00.00 AH EQUATION STA 400+00.00 BK T 41 S T 41 S T 42 S T 42 S T 42 S TO CAPE CORAL TO FORT MYERS BEGIN PROJECT STA. 399+38.31 & SURVEY

PROJECT LIN. FT. MILES 7218.85 1.367 ROADWAY BRIDGES 0.00 0.000 NET LENGTH OF PROJECT 7218.85 1.367 EXCEPTIONS 0.00 0.000 1.367 GROSS LENGTH OF PROJECT 7218.85

> H. MICHAEL DOWELL PROJECT MANAGER

BOYLE ENGINEERING

TAMPA, FLORIDA 33610

(813) 621-7900

CORPORATION OF FLORIDA 5912-A BRECKENRIDGE PARKWAY

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

GOVERNING SPECIFICATIONS: STATE OF FLORIDA. DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, DATED 1991 AND SUPPLEMENTS THERETO IF NOTED IN THE SPECIAL PROVISIONS FOR THIS PROJECT.

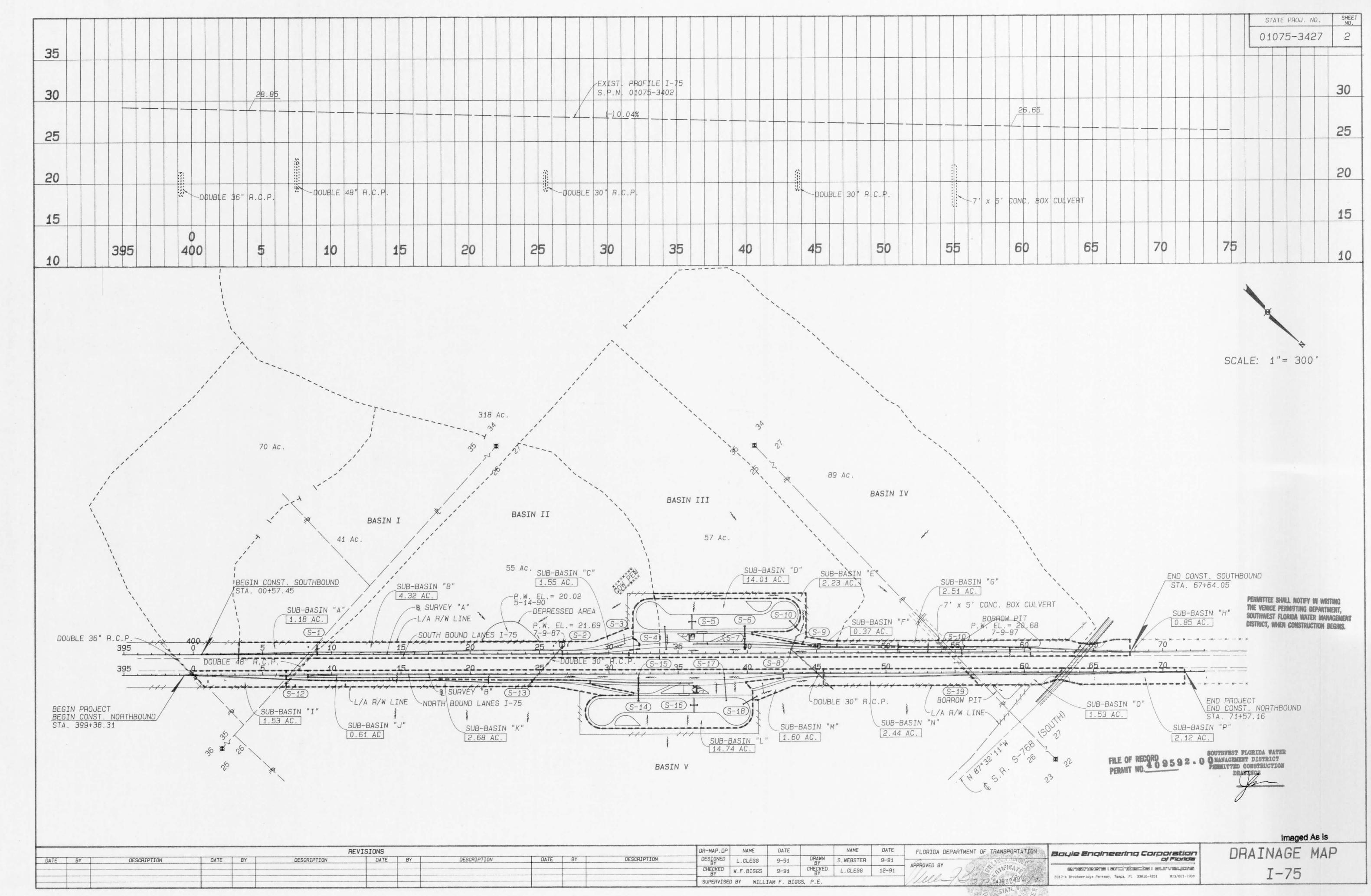
> PERMITTEE SHALL NOTIFY IN WRITING THE VENICE PERMITTING DEPARTMENT, SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, WHEN CONSTRUCTION BEGINS.

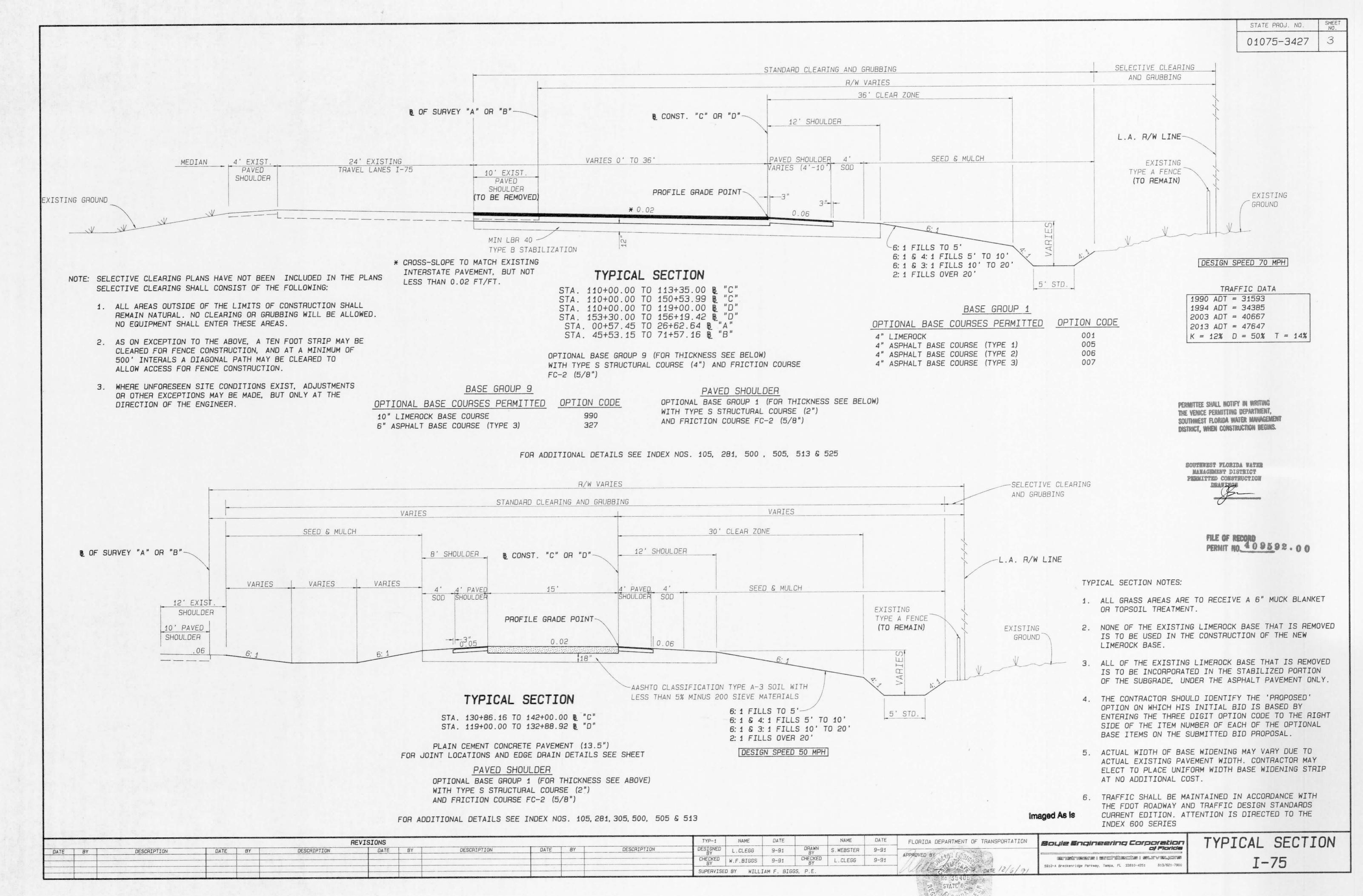
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

imaged As is

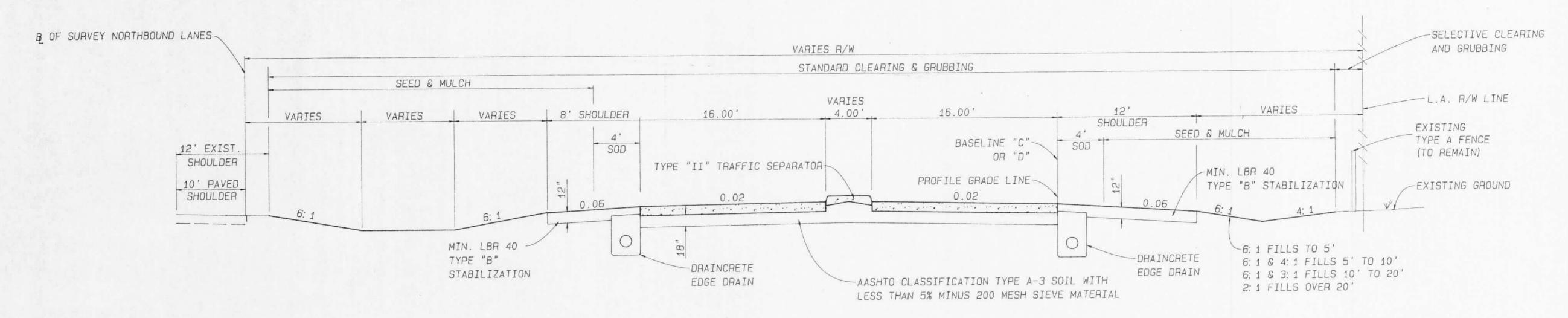
MASCOVSHT

409592





STATE PROJ. NO. SHEET NO. 01075-3427 4

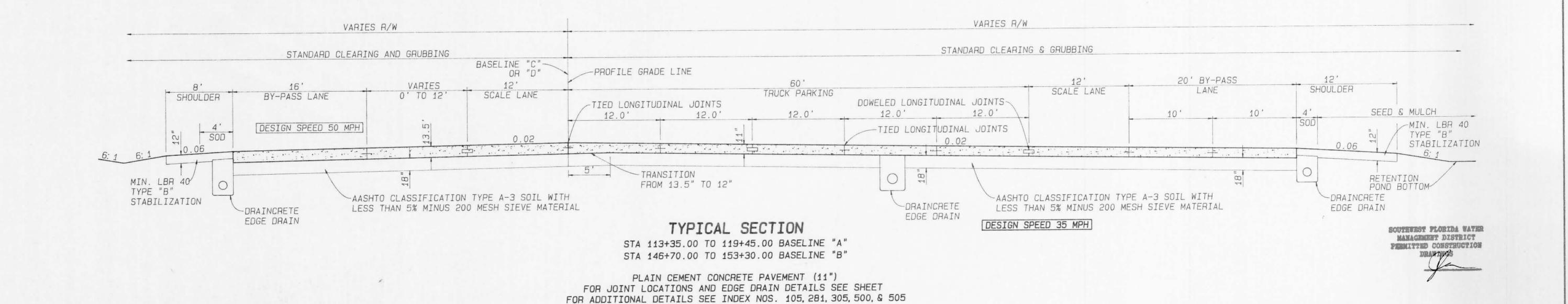


TYPICAL SECTION

STA 119+45.00 TO 130+86.16 BASELINE "A" STA 132+88.92 TO 146+70.00 BASELINE "B"

PLAIN CEMENT CONCRETE PAVEMENT (11")
FOR JOINT LOCATIONS AND EDGE DRAIN DETAILS SEE SHEET
FOR ADDITIONAL DETAILS SEE INDEX NOS. 105, 281, 305, 500, & 505

DESIGN SPEED 50 MPH



TYPICAL SECTION FLORIDA DEPARTMENT OF TRANSPORTATION NAME DATE NAME DATE Boule Engineering Corporation REVISIONS DESIGNED L.CLEGG 9-91 DESCRIPTION S. WEBSTER 9-91 DESCAIPTION DESCRIPTION DATE BY DESCRIPTION L.CLEGG 9-91 CHECKED W.F.BIGGS 9-91 ensineers | architects | surveyors I - 755912-A Breckenridge Parkway. Tampa, FL 33510-4251 813/621-7900 Ull 7 DATE 2 SUPERVISED BY WILLIAM F. BIGGS, P.E.

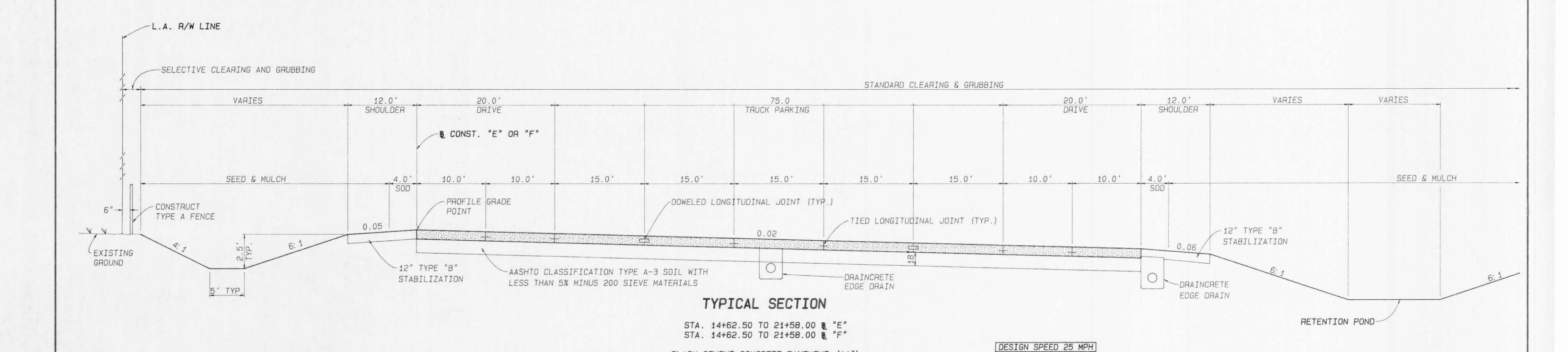
PERMIT NO. 409592.00

imaged As is

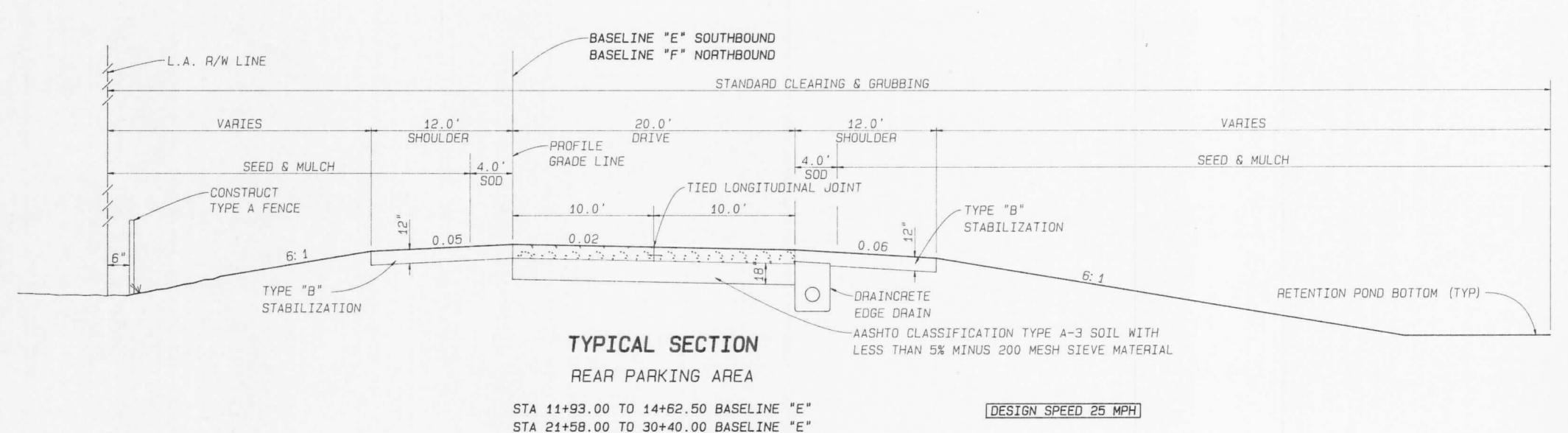
PERMITTEE SHALL NOTIFY IN WRITING THE VENICE PERMITTING DEPARTMENT,

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, WHEN CONSTRUCTION BEGINS.

STATE PROJ. NO. SHEET NO. 5



PLAIN CEMENT CONCRETE PAVEMENT (11")
FOR JOINT LOCATIONS AND EDGE DRAIN DETAILS SEE SHEET
FOR ADDITIONAL DETAILS SEE INDEX NOS. 105, 281, 305, 500, & 505



PLAIN CEMENT CONCRETE PAVEMENT (11")
FOR JOINT LOCATIONS AND EDGE DRAIN DETAILS SEE SHEET
FOR ADDITIONAL DETAILS SEE INDEX NOS. 105, 281, 305, 500, & 505

STA 11+93.00 TO 14+62.50 BASELINE "F"

STA 21+58.00 TO 30+40.00 BASELINE "F"

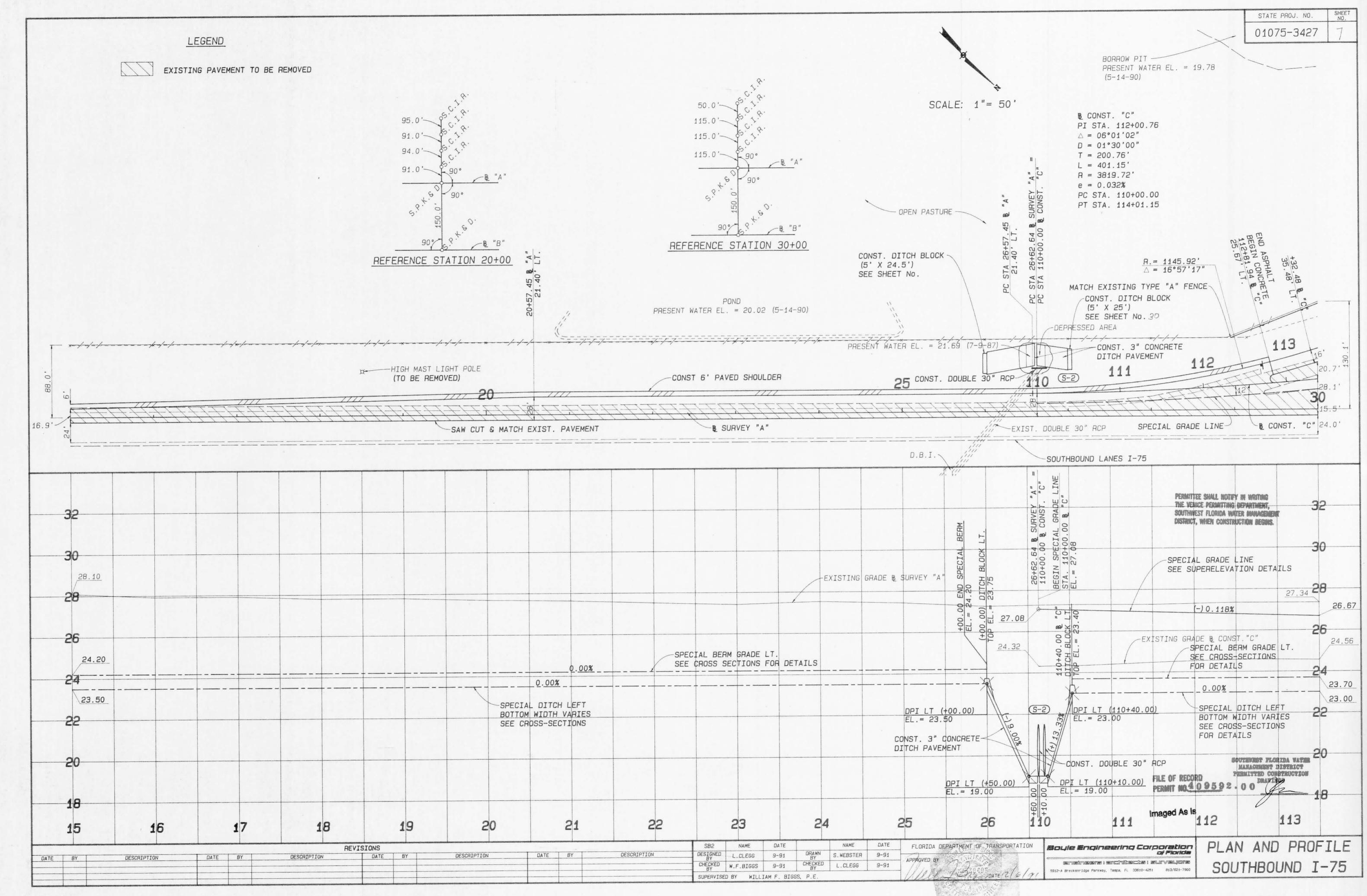
SOUTHWEST PLORIDA WATER
MANAGEMENT DISTRICT
PRIMITTED CONSTRUCTION
DRAFING

PERMITTEE SHALL NOTIFY IN WRITING THE VENICE PERMITTING DEPARTMENT, SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, WHEN CONSTRUCTION BEGINS.

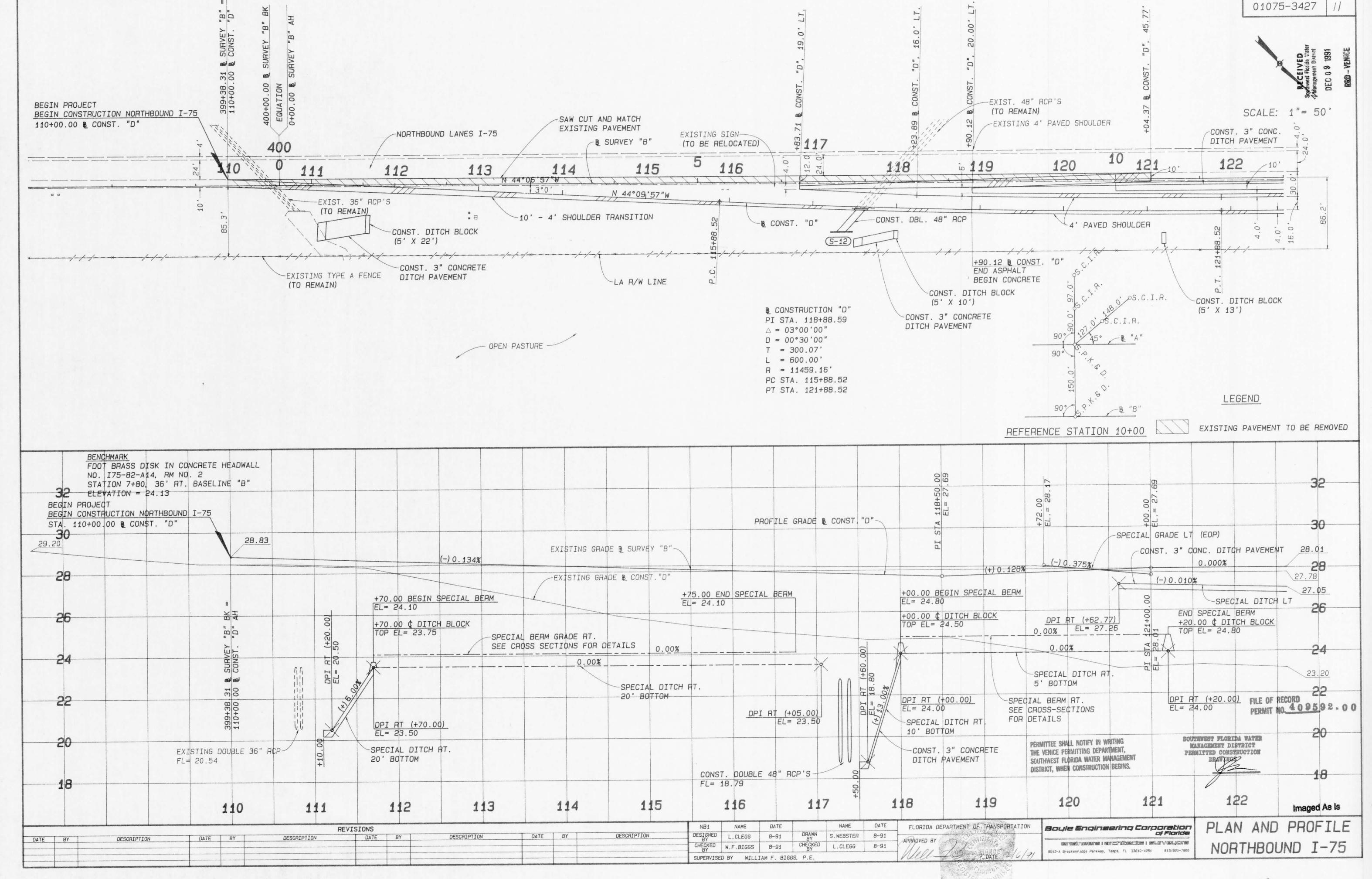
FILE OF RECORD 9592.00

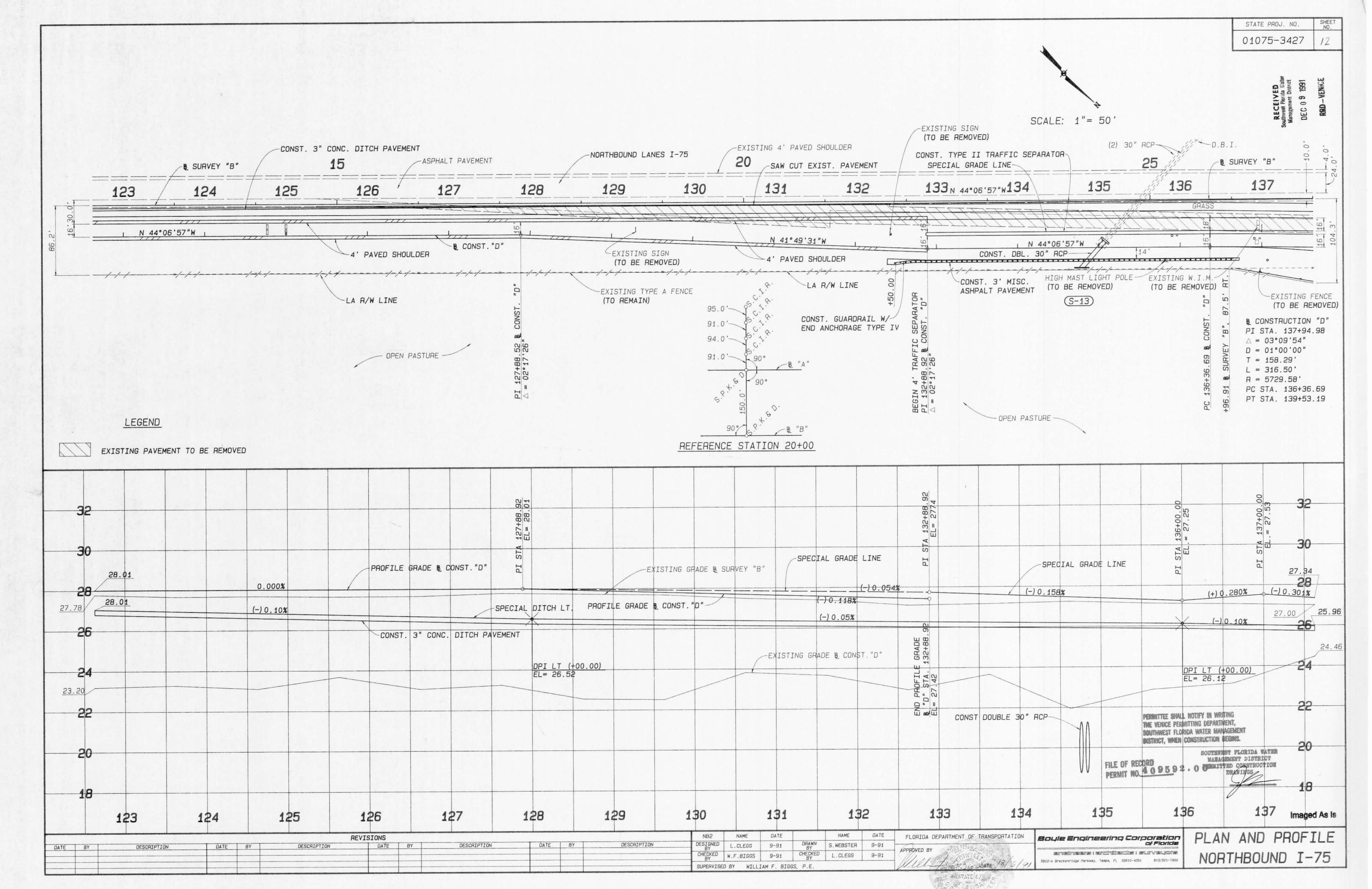
Ir	na	ge	d A	\s	ls	
-	0	-	~	^		

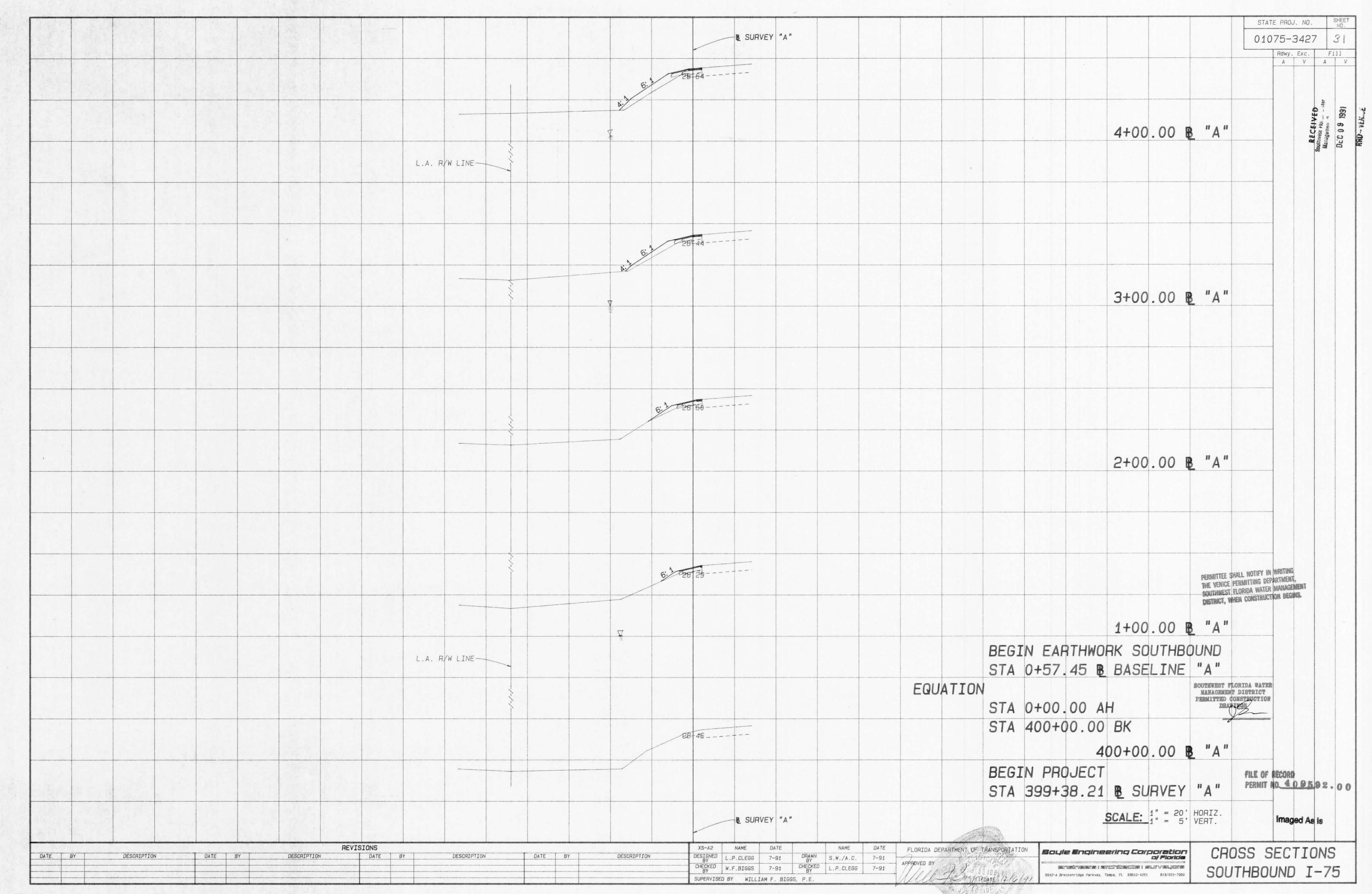
				R	EVISIONS						TYP-3	NAME	DATE		NAME	DATE	FLORIDA DEPARTMENT OF TRANSPORTATION	Boule Engineering Formoration	TYDICAL SECTION
DATE BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DESIGNED	L.CLEGG	9-91	DRAWN	S. WEBSTER	9-91	+POPOVED RV	Boyle Engineering Corporation of Florida	TIPICAL SECTION
											CHECKED	W.F.BIGGS	9-91	CHECKED	L.CLEGG	9-91	APPHOVED BY	engineers : architects : survetions	T 75
						-						D BY WILL					Mill 700 30 BATE 12/6/91	5912-A Breckenridge Parkway. Tampa, FL 33610-4251 813/621-7900	1-/5



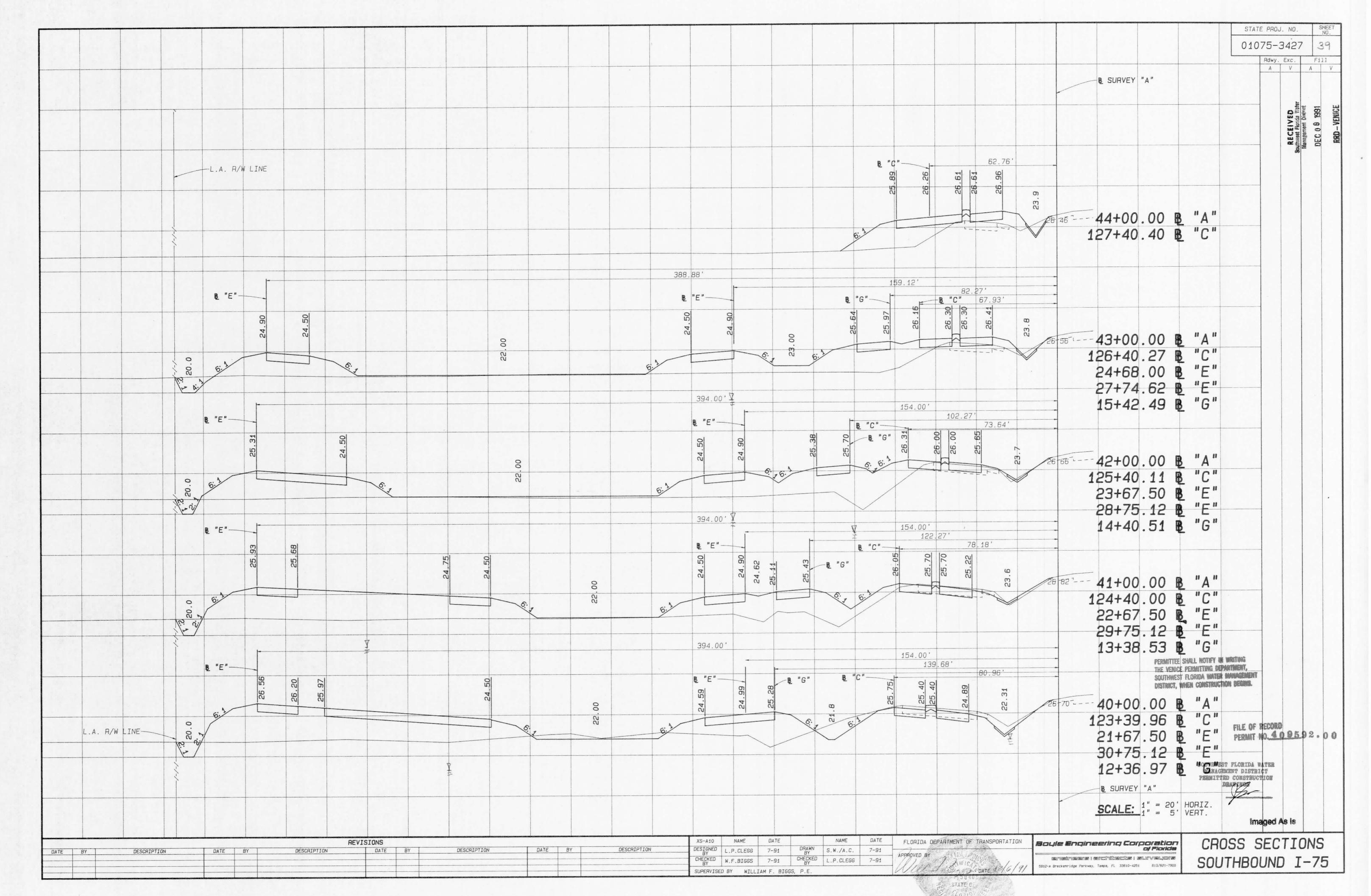
STATE PROJ. NO.

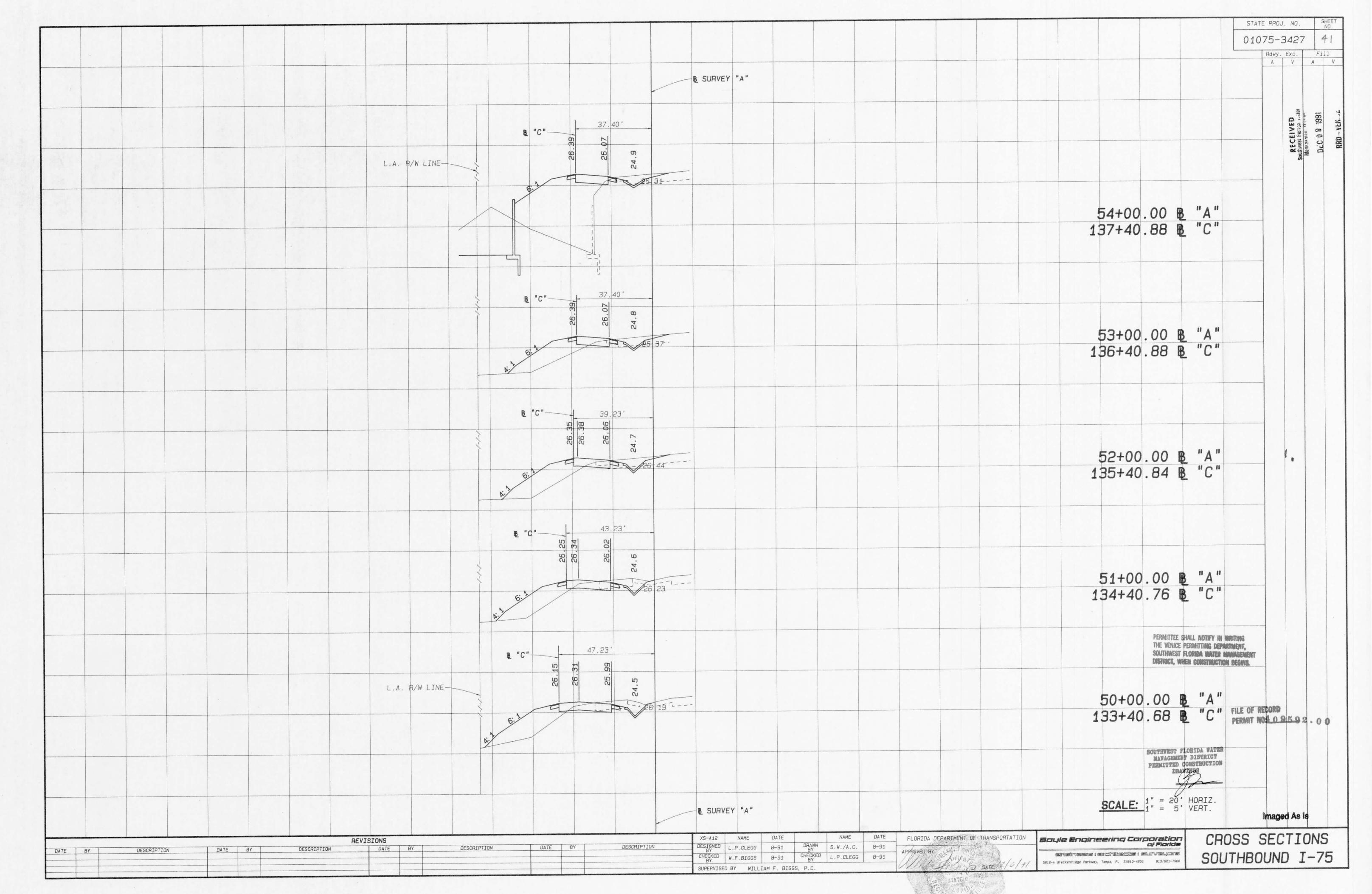






SUPERVISED BY WILLIAM F. BIGGS, P.E.



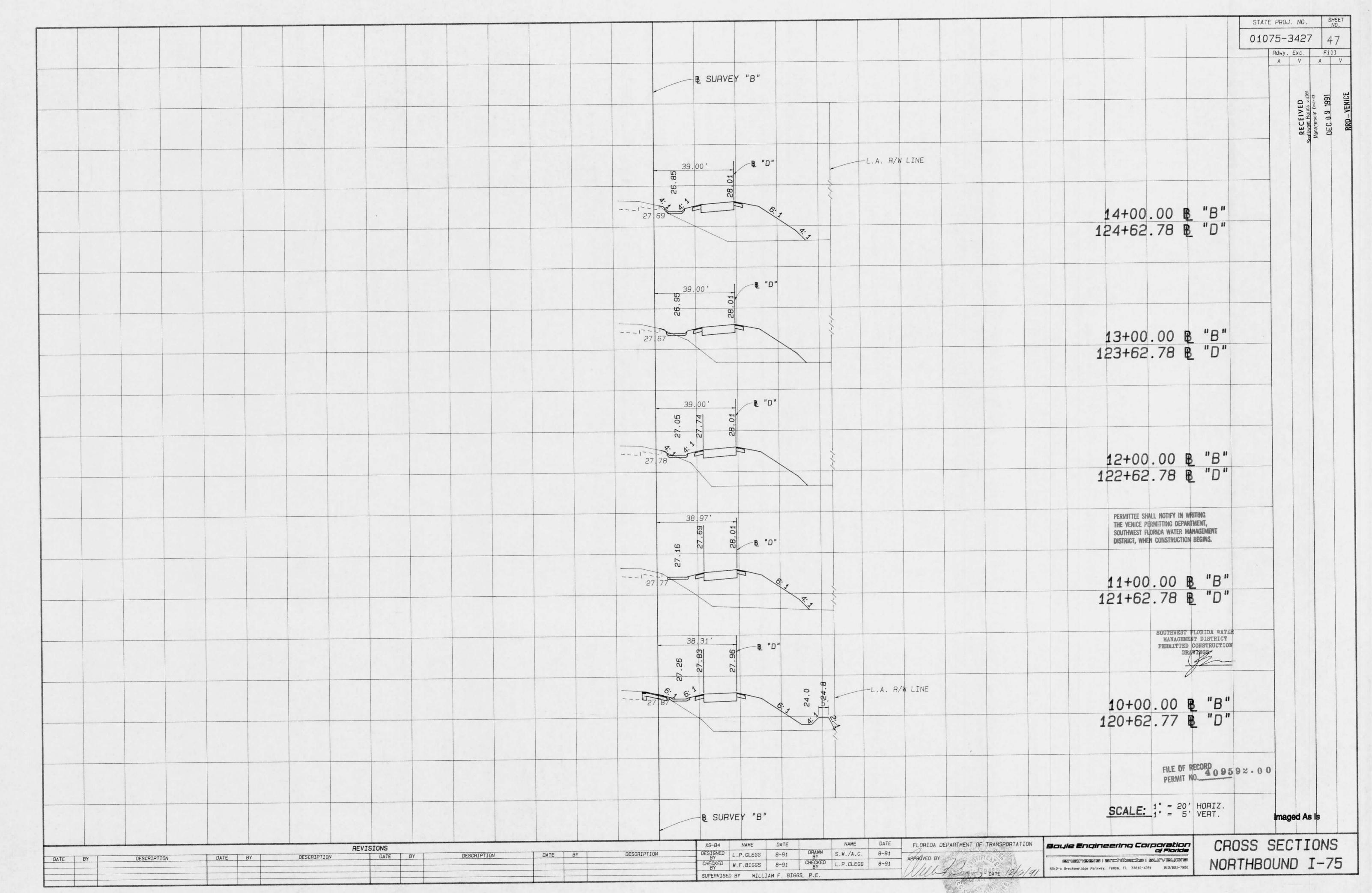


409592 .00

GGS>WEIGH>PUNTA>S.XS-A13 SPOOLED BY COE ON OG SEP 1991

409592 .00

42



409592 .00

SUPERVISED BY WILLIAM F. BIGGS, P.E.

SUPERVISED BY WILLIAM F. BIGGS, P.E.

