FINAL POND SITING REPORT

Florida Department of Transportation
District One

CR 887 (Old US 41)
Project Development and Environment Study

From US 41 To Lee County Line
From Collier County Line to Bonita Beach Road

Collier County and Lee County, Florida

FPID: 435110-1-22-01 & 435347-1-22-01
ETDM Number: 14339

July 2025

Prepared by:

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The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.

PROFESSIONAL ENGINEER CERTIFICATION

CR 887 (Old US 41) from US 41 to Lee County Line

CR 887 (Old US 41) from Collier County Line to Bonita Beach Road

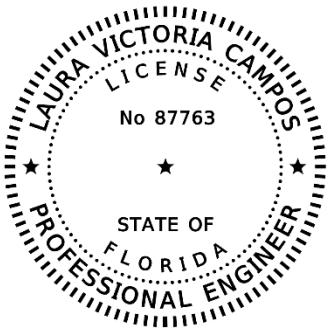
Collier and Lee Counties, Florida

Financial Project ID 435110-1-22-01 & 435347-1-22-01

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This Pond Siting Report includes a summary of data collection efforts and design analysis for a possible stormwater management design as part of the CR 887 (Old US 41) Project Development & Environment Study from US 41 in Collier County to Bonita Beach Road in Lee County in Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of civil engineering as applied through design standards and criteria set forth by the federal, state, and local regulatory agencies as well as professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with HNTB Corporation, a corporation authorized to operate as an engineering business, Certificate of Authorization No. 6500, by the State of Florida, Department of Professional Regulation, and Board of Professional Engineers. I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice as documented in this report.



This item has been digitally signed and sealed by ***Laura Victoria Campos*** on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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Executive Summary

The Florida Department of Transportation is conducting a Project Development and Environmental Study to evaluate the costs and impacts of constructing roadway capacity improvements to County Road 887, also known as Old US 41, from US 41 (Tamiami Trail North) in Collier County to a New Quadrant Roadway connecting Old US 41 to Bonita Beach Road in Lee County, approximately 2.7 miles. The primary purpose of this project is to increase the capacity of the roadway in order to improve traffic safety along the corridor. These improvements along the corridor will require addressing stormwater management. Wet detention ponds are anticipated to be required within the project limits due to the shallow water table elevations in the region.

The purpose of this Pond Siting Report is to discuss, analyze, and identify the stormwater management facilities required for the proposed roadway improvements based on environmental, hydrologic, hydraulic, and economic factors. Stormwater management for water quality treatment and runoff attenuation will be provided using wet detention ponds. The design of the drainage and stormwater facilities will comply with the standards set forth by the Florida Department of Transportation Drainage Manual and the South Florida Water Management District's Environmental Resource Permit Applicant's Handbook Volume II.

Alternative pond sites have been identified along the project limits. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. The total pond cost estimate found in this document includes construction costs of the stormwater facility, any costs associated with mitigation of wetland impacts, and preliminary right-of-way cost estimates based on information from the Collier and Lee County Property Appraiser websites. This information is used to estimate total acquisition costs associated with each pond site and to budget the appropriate funds for acquisition.

It should be noted that the volumetric analysis of the pond sites was performed with preliminary data. Pond sites and configurations may change during the design phase as more detailed information on seasonal high water tables, wetland information, and roadway design is finalized. Please refer to **Table E-1** below for a *Summary of Recommended Stormwater Management Alternatives.* A more detailed breakdown of costs and comparisons with other alternatives is available in the *Pond Siting Matrix* in **Figure 7-1**. An official right-of-way cost estimate prepared by the Department is provided in **Appendix F**.

Table E-1: Summary of Recommended Stormwater Management Alternatives

Basin	Recommended Preferred Pond Alternative	Pond Area (ac)	Total Required Right-of-Way Acquisition (ac)	Total Applicable Costs
Basin 1	1A	2.42	2.29	$12,572,982.41
Basin 3	3B	3.09	3.53	$4,947,872.88

1. Introduction

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environmental (PD&E) Study to evaluate the costs and impacts of constructing roadway capacity improvements to County Road (CR) 887 (Old US 41) from US 41 (Tamiami Trail N) to a New Quadrant Roadway connecting Old US 41 to Bonita Beach Road, approximately 2.7 miles. A map of the PD&E Study area is provided in **Figure 1-1**. The project is located within Collier and Lee Counties, as shown in **Figure 1-2**. The project resides within Sections 2, 3, 10, and 15 of Township 48 South, Range 25 East, and within the Bonita Springs United States Geological Survey (USGS) 7.5-minute (1:24,000) quadrangle map, which may be found in **Appendix A.**

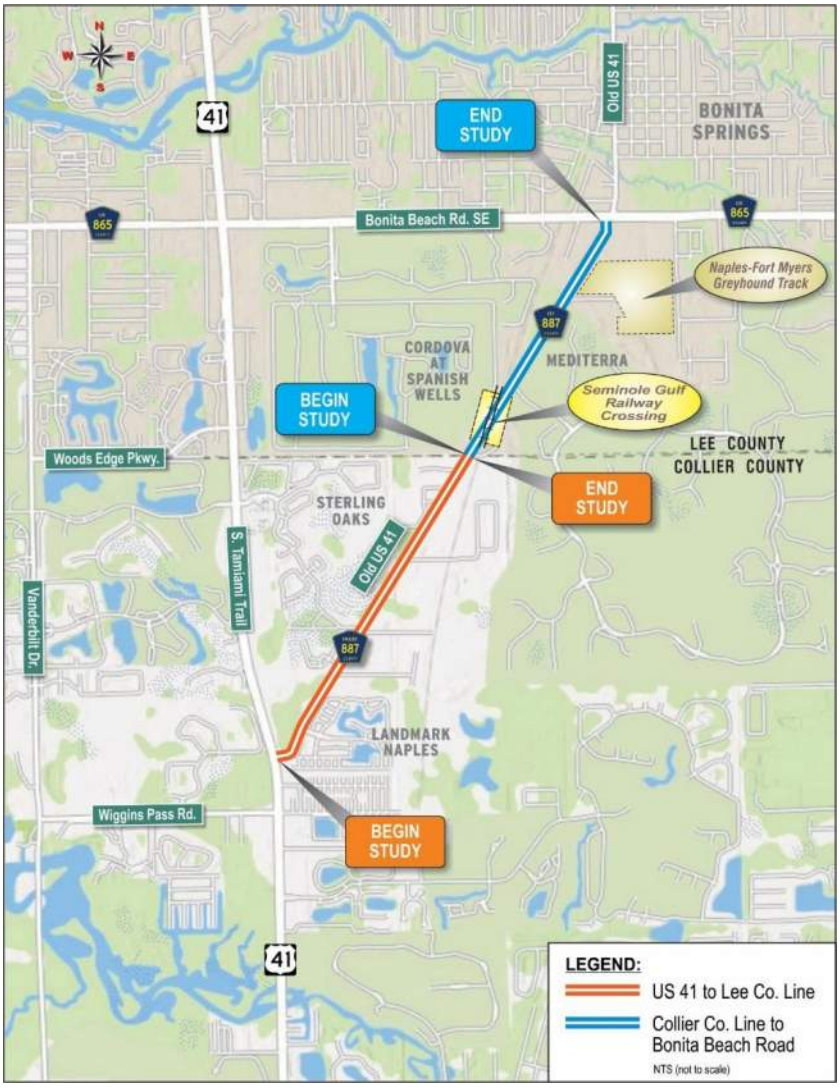


Figure 1-1: PD&E Project Study Area

All elevations and stages shown in this document are referenced to the North American Vertical Datum of 1988 (NAVD 88). When converting elevations in the project area from the National Geodetic Vertical Datum of 1929 (NGVD 29) to NAVD 88, the following conversion factor should be used: *NAVD 88 = NGVD 29 – 1.214 feet*. See **Appendix F** for more information on the datum conversion.



Figure 1-2: Project Location Map

2. Project Description

CR 887 is an existing two-lane undivided rural roadway within a 105-ft to 150-ft wide right-of-way corridor. The existing typical sections for CR 887 are shown in **Figures 2-1**, **-2**, and **-3**. CR 887 is not part of the National Highway System or the Strategic Intermodal System (SIS), it is not a designated Emergency Evacuation Route, and is classified as a major collector by Collier County and Lee County. Existing land uses within the study area include residential, commercial, recreational, industrial, conservation, and limited vacant land. Residential subdivisions and commercial businesses access CR 887 throughout the corridor. The posted speed limit is 45 miles per hour (mph). No bridges or bridge culverts exist within the project limits.

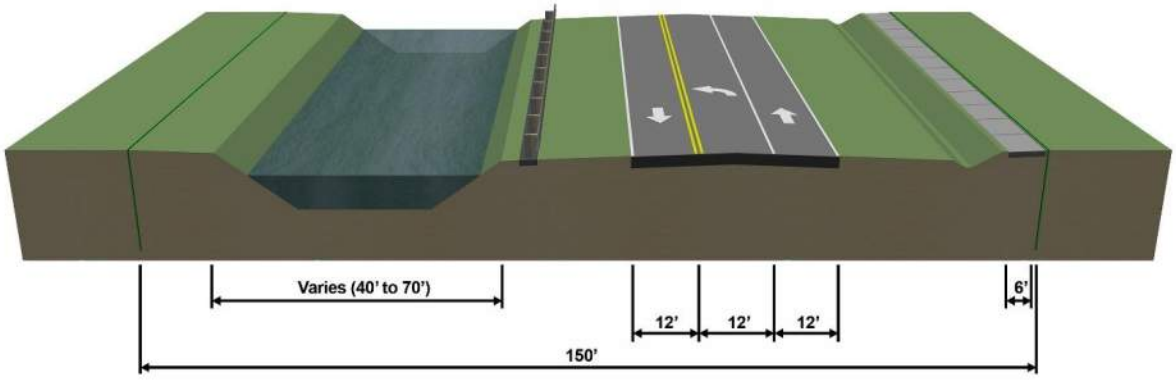


Figure 2-1: Existing Typical Section from US 41 to Florida Power & Light (FPL) Easement

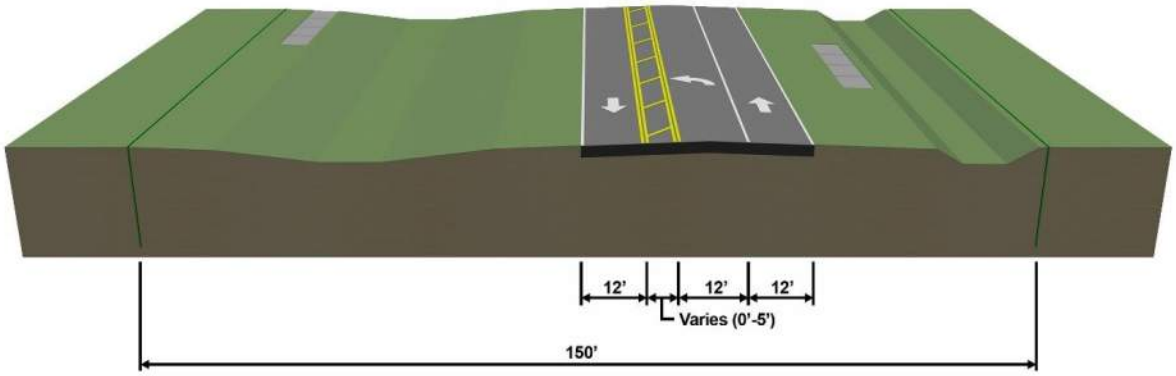


Figure 2-2: Existing Typical Section from FPL Easement to Lee County Line

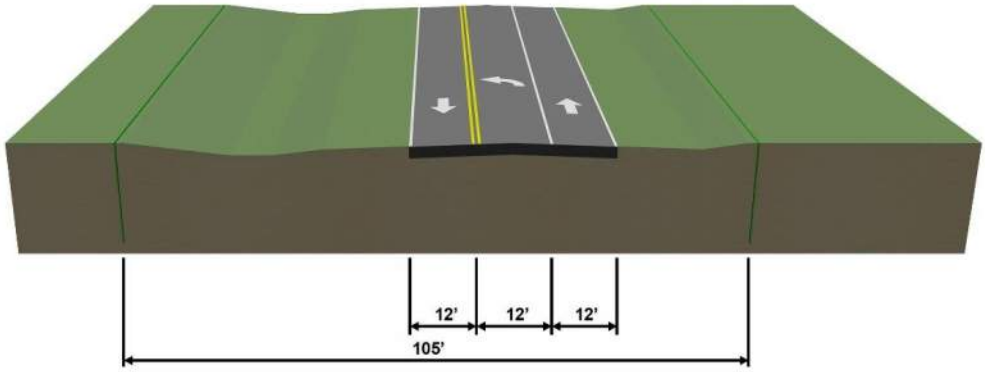


Figure 2-3: Existing Typical Section from Collier County Line to Bonita Beach Road

The proposed improvements involve widening CR 887 from a two-lane undivided facility to a four-lane divided facility and constructing a New Quadrant Roadway connecting CR 887 to Race Track Road. The proposed typical sections include five-foot bicycle lanes in both directions, a six-foot sidewalk on the east side, and a 10-foot shared use path on the west side throughout the Collier County portion of CR 887. Within Bonita Springs (Lee County), seven-foot bicycle lanes in both directions and a 12-foot shared use path on the west side are proposed for CR 887, and the New Quadrant Roadway includes a two-lane divided typical section with a 16-foot sod median, 11-foot travel lanes, and established 7-foot bicycle lanes. On the southeast side is an 8-foot concrete sidewalk with a 11-foot sod barrier between the roadway. On the northwest side there is 12-foot shared use path with a 7-foot barrier between the roadways. The proposed roadway typical sections are provided in **Appendix A**. The *SFWMD Pre-Application Meeting Minutes* included in **Appendix E** provide insights into how they typical section in Collier County was selected. Off-site stormwater management facilities are anticipated to treat and attenuate stormwater runoff from the proposed improvements.

2.1 Purpose and Need

The primary purpose of this project is to increase the capacity of CR 887 from US 41 to Bonita Beach Road in order to improve traffic safety along the roadway. See the *Preliminary Engineering Report (PER)* under separate cover for the formal project purpose and need.

The purpose of this PD&E Study is to evaluate engineering and environmental data and document information that will aid FDOT and Collier and Lee Counties in determining the type, preliminary design,

and location of proposed improvements. The study is being conducted to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws.

The purpose of this Pond Siting Report is to study the existing drainage characteristics for the project and evaluate potential stormwater management design concepts. This report estimates the general size and potential location of stormwater management facilities that meet regulatory requirements.

3. Data Collection

Data was collected and reviewed from the following sources:

- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) 12021C0183J & 12021C0191J (eff. 2/8/2024); 12071C0658G & 12071C0659G (eff. 11/17/2022)
- Natural Resources Conservation Service (NRCS) Web Soil Surveys
- Florida Land Use Cover and Classification System (FLUCCS)
- SFWMD Environmental Resource Permit Applicant's Handbook Vol. I (June 28, 2024)
- SFWMD Environmental Resource Permit Applicant's Handbook Vol. II (May 22, 2016)
- SFWMD Appendix 2 Allowable Discharge Values For Projects Within The South Florida Water Management District (January 31, 1994)
- FDOT Drainage Manual (2025)
- FDOT Drainage Design Guide (2025)
- NOAA Atlas 14 Volume 9, Version 2 Precipitation Frequency Data Server (PFDS)
- Collier County Code of Ordinances (December 10, 2024)
- U.S. Fish and Wildlife Service National Wetland Inventory (NWI)
- Digital Elevation Model (DEM) of Collier and Lee Counties (Spot Elevations 2007)
- Correspondence with Collier and Lee Counties, SFWMD Staff, City of Bonita Springs, and Seminole Gulf/CSX Railroad

4. Design Criteria

The design of the stormwater management facilities for the project is governed by the rules set forth by the South Florida Water Management District (SFWMD) and the FDOT. An Environmental Resource Permit (ERP) will need to be approved by the SFWMD during the design phase of the project.

In accordance with the *2024 SFWMD ERP Applicant's Handbook Volume I*, the new stormwater quality nutrient requirements in section 8.3 of the handbook shall not apply to public transportation projects which have completed a PD&E Study prior to June 28, 2026. For public transportation projects that have completed a PD&E Study or are in the design or construction phases, stormwater design and performance criteria in effect prior to June 28, 2024, shall apply. The stormwater treatment systems for this project shall provide a level of treatment sufficient to accomplish a reduction such that the post-development condition average annual loading of nutrients does not exceed the pre-development condition nutrient loading.

The project and surrounding areas consist of high water elevations, therefore wet detention stormwater management facilities are anticipated. Wet detention ponds will provide for water quality improvements as well as water quantity attenuation for the project runoff. The stormwater ponds are designed and sized for the recommended typical section for each segment. **Table 4-1** summarizes the criteria used for preliminary pond sizing.

Table 4-1: Design Criteria

Criteria	Reference	Requirement
Water Quantity	2016 SFWMD Applicant's Handbook Vol. II, Section 3.3	The total post-development peak discharge rate shall not exceed the pre-development peak discharge rate for a storm event of 3 day duration and 25 year return frequency.
Water Quality	2016 SFWMD Applicant's Handbook Vol. II, Section 4.1.3	Systems which have a direct discharge to an OFW, must provide an additional fifty percent of the required treatment.
	2016 SFWMD Applicant's Handbook Vol. II, Section 4.2.1	Wet detention volume shall be provided for the first inch of runoff from the developed project, or the total runoff of 2.5 inches times the percentage of imperviousness, whichever is greater.
Pond Configuration	2016 SFWMD Applicant's Handbook Vol. II, Section 5.4.1	The flow path of water from the inlets to the outlet of the pond must be maximized to promote good mixing with no dead spots, minimize short circuiting, and maximize pollutant removal efficiency and mixing.

Since this is a preliminary analysis for pond sizing capacity, recovery calculations for orifice sizing, permanent pool calculations, and pollutant loading analysis are not included in the pond sizing analysis.

5. Existing Drainage Conditions

CR 887 is a two-lane undivided facility with 12-foot travel lanes. The existing right-of-way is 150-feet wide throughout the Collier County portion of the project corridor, and 105-feet wide throughout the Lee County portion. The project can be divided into two major basins and one minor basin, designated in existing conditions as *EX_Basin 1*, *EX_Basin 3*, and *EX_Basin 2*, respectively.

A large, permanently inundated canal, referred to in this document as Dunruss Creek, but also known as Wiggins Bay or Old US 41 Canal, is located on the west side of CR 887 in the Collier County segment of the project. Within the project limits it is located from the CR 887-US 41 intersection to approximately 300 feet south of Rail Head Boulevard, where it cuts north into a Florida Power & Light (FPL) utility easement and continues outside of the study area. Dunress Creek flows southwest within the project limits and flows west under US 41 out of the study area. Within the study area, Dunress Creek flows under cross streets via mitered end sections. The canal was regraded in 2010 under SFWMD Permit #11-01984-P (Old 41 Stormwater Improvements). The project traverses four Waterbody IDs (WBIDs). **Table 5-1** lists the WBIDs by watershed, as well as their respective waterbody name and impairments.

Table 5-1: Project WBIDs by Watershed

WBID	Waterbody Name	Impairments
West Cocohatchee River Watershed		
3278C	Wiggins Bay Outlet	Low Oxygen, Metals
3278D	Cocohatchee (Inland Segment)	Bacteria and Other Microbes, Low Oxygen
Imperial River Watershed		
3258F	Oak Creek	Bacteria and Other Microbes, Low Oxygen
3258EB	Imperial River (Marine Segment)	Algae, Bacteria and Other Microbes, Low Oxygen, Mercury, Metals, Nitrogen and/or Phosphorus

Both the Cocohatchee and Imperial Rivers are identified as Outstanding Florida Waters (OFW) and therefore require that projects discharging to them account for an additional 50% treatment of the required treatment volume, as outlined in **Table 4-1**. The allowable discharge rates as established by the 1994 SFWMD Appendix 2 *Allowable Discharge Values For Projects Within The South Florida Water Management District* are 25.6 cubic-feet-per-second-per-square-mile (CSM) for the Cocohatchee River and 25 CSM for the Imperial River.

5.1 Existing Basin One (EX_Basin 1)

EX_Basin 1 is approximately 8,175 feet long, extending from the southern project limits on CR 887 to the Lee County line (Sta. 100+00 to Sta. 181+75). Generally, stormwater runoff in this basin sheet flows from the roadway into roadside ditches on the east and into the roadside portion of Dunruss Creek on the west side. The eastern roadside ditches collect runoff from the roadway and other offsite areas and convey it southwest towards two existing cross drains (EX_CD-1 & EX_CD-2), which outfall into Dunruss Creek. The creek collects runoff from the roadway and other adjacent offsite areas, primarily from the Spanish Wells stormwater management system, which outfalls into a ditch within the FPL utility easement and conveys the water south into Dunruss Creek. The creek conveys this collection of flows southwest towards a double 4'x10' bridge culvert crossing under US 41, where it ultimately outfalls to the Cocohatchee River before discharging into the Gulf of America (*also known as the Gulf of Mexico*) with no formal treatment or attenuation.

5.2 Existing Basin Two (EX_Basin 2)

EX_Basin 2 is approximately 1,241 feet long, extending from the Collier County line to the Seminole Gulf/CSX Railroad crossing (Sta. 181+75 to Sta. 194+16). On-site stormwater runoff is conveyed in an open drainage system before being collected by the adjacent Spanish Wells surface water management system via ditch bottom inlets. The stormwater is treated and attained in one of the development's nearby wet detention ponds, designated in existing conditions as *EX_Pond 2* (Pond L2 in SFWMD permit #36-00067-S-02 *Cordova At Spanish Wells FKA Valencia At Spanish Wells*). The Spanish Wells system ultimately discharges to the south, then flows through an existing FPL ditch into Dunruss Creek, and then flows south and west, ultimately into the Cocohatchee River and into the Gulf.

5.3 Existing Basin Three

5.3.1 (EX_Basin 3-1)

EX_Basin 3-1 extends approximately 3,814 feet along CR 887 from the Seminole Gulf/CSX Railroad crossing to just south of the intersection with Bonita Beach Road (Sta. 194+16 to Sta. 232+30). Generally, stormwater runoff from CR 887 sheet flows from the existing roadway into roadside ditches that directly convey the runoff northeast toward a culvert crossing (EX_CD-3) near Sta. 225+00. The culvert discharges into a ditch with no formal treatment or attenuation. The ditch conveys runoff west to a ditch parallel to the CSX railroad, which flows north under Bonita Beach Road and ultimately outfalls to Oak Creek. This culvert crossing also accepts discharge from the Mediterra stormwater management system, located east of CR 887, and other offsite areas. Oak Creek converges with Imperial River and ultimately outfalls into the Gulf.

5.3.2 (EX_Basin 3-2)

EX_Basin 3-2 includes areas from the old *Naples-Fort Myers Greyhound Track* compound that will encompass the future New Quadrant Roadway. Runoff from the future New Quadrant Roadway areas sheet

flows from the existing impervious areas either directly into the grated parking lot inlets or into roadside pervious areas before converging into a ditch that runs north under Bonita Beach Road and ultimately outfalling to Oak Creek.

5.4 Existing Cross Drains

There are three (3) existing reinforced concrete pipe (RCP) cross drains within the project limits. These cross drains are summarized in **Table 5-2** below and studied in greater detail in the *Location Hydraulics Report* for this project.

Table 5-2: Summary of Existing Cross Drains

Cross Drain	Size	Length	Location
EX_CD-01	2 - 24" RCP	100 ft	Sta. 103+45
EX_CD-02	2 - 30" RCP	53 ft	Sta. 143+58
EX_CD-03	2 – 36" RCP	65 ft	Sta. 224+20

5.5 Soils Data

The NRCS Web Soil Survey of Collier and Lee Counties was used to determine the soil types within the project limits. A Soils Map is provided in **Appendix A**. The soils along the project are estimated to be mostly Hydrologic Soil Group B/D. When a soil is assigned a dual hydrologic group, the first letter is for drained areas and the second letter is for undrained areas. Soils in a dual hydrologic group including group D are typically assumed to have Group D properties, unless improvements have been made to improve drainage of the soils. Group A soils have a high infiltration rate. They consist of sands or gravelly sands with a high rate of water transmission. Group B soils have a moderate infiltration rate. They consist of soils with a moderately fine to moderately coarse texture and a moderate rate of water transmission. Group D soils have very slow infiltration rates and a high runoff potential. They are primarily clays with a high shrink-swell potential and a slow rate of water transmission. **Table 5-3** classifies the majority of soils and applicable hydrologic groups within the limits of the project.

Table 5-3: SCS Soil Survey

Soil Name	Hydrologic Soil Group
Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B/D
Copeland fine sandy loam, ponded-Urban land complex, 0 to 1 percent slopes	D
Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A/D
Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D
Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes	B/D
Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A
Urban land, 0 to 2 percent slopes	-

5.6 Existing Permitted Facilities

There are several existing SFWMD ERPs along the project corridor. SFWMD Permit #11-01984-P (Old 41 Stormwater Improvements) permitted the regrading of the Dunruss Canal along CR 887. SFWMD Permit #11-01042-S (Sterling Oaks) permitted the creation of a control structure regulating the water level in a conservation area on the west side of the road and discharging into the canal along CR 887. SFWMD Permit #36-00067-S-02 (Cordova at Spanish Wells FKA Valencia at Spanish Wells) permitted the construction of a

wet detention pond, which includes collection, treatment, and attenuation for a portion of a future four-laning of CR 887 along the project's frontage. A summary of relevant ERPs along the project corridor is included below in **Table 5-4**.

Table 5-4: Summary of Relevant SFWMD Permits

Permit No.	Project Name
11-01042-S	Sterling Oaks
11-01367-P	Meadowbrook Preserve FKA Turtle Creek Apartments
11-01368-P	US 41 (SR 45) from CR 887 to Myrtle Road
11-01542-P	Somerset Palms Apartment Homes FKA Arbor View
11-01644-P	North Collier Industrial Center
11-01702-P	Busk Nursery
11-01761-P	Mediterra
11-01765-P	Gateway Shoppes at North Bay Plaza
11-01984-P	Old 41 Stormwater Improvements
11-02000-P	Old 41 T Corp
11-02061-P-02	Germain Storage Lot
11-02242-P	North Naples Research and Technology Park
11-02353-P	Triangle Parcel
11-02803-P	US 41 Intersection Improvements at Old US 41
11-03268-P	Old US 41 Intersection Improvements at Rail Head Blvd
11-103545-P	Landmark Naples
36-00067-S	Spanish Wells
36-00067-S-02	Cordova at Spanish Wells FKA Valencia at Spanish Wells
36-02687-S	Bonita Beach Road
36-03821-P	Bonita Business Park
36-04608-P	Constitution Center
36-05633-P	Bonita Plaza
36-100490-P	Causeway Commerce Park
36-100709-P	South Depot
81-00290-S	Railhead Industrial Park
87-00020-S	Bonita Beach Road Improvements

5.7 Floodplains and Floodways

The project is located within FEMA Flood Insurance Rate Maps (FIRMs) 12021C0183J and 12021C0191J in Collier County (effective February 8th,2024), and within FIRMs 12071C0658G and 12071C0659G in Lee County (effective November 17th, 2022). The FIRMs in Collier County contain several Zone AE and AH flood zones. The FIRMs in Lee County are from an earlier map revision date and do not show any Zone A, AE, or AH flood zones within the project limits. FEMA Flood Zones A, AH, and AE represent a 1% annual chance of flooding, which is commonly referred to as the 100-year (base) flood. The FEMA FIRMs are provided in **Appendix B**. Both Collier County and the City of Bonita Springs participate in the National

Flood Insurance Program (NFIP) Community Ranking System (CRS). Collier County (NFIP #120067) and the City of Bonita Springs (NFIP #120680) are CRS Class 5 communities. Participation in the CRS has the effect of limiting changes to the 100-year floodplain similar to that of a floodway.

6. Proposed Stormwater Management Facilities

The proposed stormwater management facility (SMF) alternatives were sized based on FDOT and SFWMD design criteria for water quality and quantity. All SMF alternatives are designed as wet detention facilities due to the high groundwater table. The pond sizing calculations assume treatment of *the first 1.5 inches of runoff from the right-of-way area* or *3.75 inches of runoff from impervious area*, whichever is greater. These water quality criteria address the additional 50% increase to SFWMD's treatment volume criteria required to account for the project basins ultimately outfalling to Outstanding Florida Waters (OFW) (Cocohatchee River). Preliminary stormwater runoff volumes were estimated based on the NRCS Runoff Curve Number method. Attenuation volumes were estimated with the SCS method. Treatment Volumes were increased by an additional 20% as a conservative contingency due to the preliminary nature of this study and should be revised during design when survey information and geotechnical data are available. Three (3) SMF alternatives are given for the treatment and attenuation of runoff from each basin, as detailed in this report. Additional information on SMF pond sizing is provided in **Appendix D**. For information on the project's floodplain compensation pond sites, see the *Location Hydraulics Report* prepared as part of this PD&E Study under separate cover.

Wetland and other surface water boundaries were approximated using Florida Land Use Cover and Classification System (FLUCCS) data, the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI) data, and field verification performed in conformance with the methodology set forth within the FDOT PD&E Manual, Part 2, Chapter 9 (2019). An elevation difference check between the pond control elevations and the estimated lowest edge of pavement (LEOP) of each basin is provided in the stage-storage calculations to ensure that it is feasible to convey the runoff from the roadway to the pond site. Since this is a preliminary analysis for pond sizing capacity, recovery calculations for orifice sizing, permanent pool calculations, and pollutant loading analysis are not included in the pond sizing analysis.

6.1 Basin One (1) Alternatives

In the post-development condition, improvements within Basin 1 are routed to an SMF via a closed drainage system. Further design considerations will need to be considered in order to maintain existing offsite drainage patterns. Post-development discharge rates to Dunruss Creek canal shall be less than or equal to pre-development discharge rates. The locations of the SMF alternatives, designated as Pond 1A, Pond 1B, and Pond 1C, are shown in the post-development drainage maps presented in **Appendix D**. The cross-sections from SFWMD Permit #11-01984-P (Old 41 Stormwater Improvements) were taken into consideration when designing the alternative in Basin 1 and may be found in **Appendix F**.

Pond 1A is a 2.42-acre wet detention pond on the south side of CR 887 near Sta. 103+00 on parcel #00152280008 and a portion of parcel #00153360008. Both parcels are privately owned at the time of the pond siting analysis. The remaining portion of the pond footprint is within an existing Collier County right-of-way easement and does not require acquisition. This pond alternative is directly adjacent to the outfall location and outfalls to CD-1. The exact outfall conveyance design will need to be assessed during the design phase when survey information, geotechnical data, and proposed cross-sections are available. No wetland or floodplain impacts are anticipated, based on the NWI and relevant FIRM. Soils within the pond area are

primarily in Hydrologic Soil Group B/D with a control elevation estimated at 5.79 ft (NAVD), based on the SFWMD Permit #11-103545-P (Landmark Naples).

Pond 1B is a 2.73-acre wet detention pond located southwest of the US 41-CR 887 intersection on parcels #00155884100 and #65997500027. Both parcels are privately owned at the time of the pond siting analysis. This pond alternative is not directly adjacent to the outfall location and additional considerations will need to be made during the design phase to avoid utility and other conflicts within the existing right-of-way of US 41. No wetland or floodplain impacts are anticipated, based on the NWI and relevant FIRM. Soils within the pond area are primarily in Hydrologic Soil Group B/D with some A/D soils. Pond 1B has a control elevation estimated at 5.79 ft (NAVD), based on SFWMD Permit #11-01765-P (Gateway Shoppes).

Pond 1C is a 4.97-acre wet detention pond on the east side of CR 887 near Sta. 130+00 on parcel #00145120007 and a portion of parcel #00145080008. Both parcels are privately owned at the time of the pond siting analysis. This pond site would modify an existing unpermitted borrow pit pond by expanding the pond's footprint. This pond alternative outfalls directly into the Dunruss Creek canal. The exact outfall conveyance design will need to be assessed during the design phase when survey information, geotechnical data, and proposed cross-sections are available in order to avoid utility and other conflicts within the existing right-of-way of CR 887. The proposed SMF parcel acquisition does overlap into Zone AE and AH floodplains, therefore, additional considerations will need to be made during the design phase to avoid any potential floodplain impacts. No wetland impacts are anticipated, based on the NWI. Soils within the pond area are in Hydrologic Soil Group B/D with a control elevation estimated at 8.99 ft (NAVD), based on SFWMD Permit #11-01644-P (North Collier Industrial Center).

6.2 Basin Two (2)

EX_Pond 2 is an existing 7.54-acre wet detention pond on the west side of CR 887 near Sta. 188+00 on parcel #03-48-25-B3-0190L.00CE that currently accepts runoff from the existing CR 887 right-of-way. This SMF is permitted with additional storage to accept runoff from a future-condition 3.10-acre area within the right-of-way of CR 887 under SFWMD permit #36-00067-S-02 (Cordova At Spanish Wells FKA Valencia At Spanish Wells). In the permit, the pond is referred to as Pond L2. The Surface Water Management Report for Valencia at Spanish Wells states that the existing pond accommodates the post-development attenuation and treatment volumes from Basin 2, therefore, no modifications are needed to continue to utilize this pond for the treatment and attenuation of the runoff from Basin 2.

6.3 Basin Three (3) Alternatives

In the post-development condition, improvements within Basin 3 are routed to an SMF via a closed drainage system. Post-development discharge rates to Oak Creek shall be less than or equal to pre-development discharge rates. The locations of pond alternatives 3A, 3B, and 3C, as well as existing SMF Pond 2, are shown in the post-development drainage maps presented in **Appendix D**.

Pond 3A is a 2.90-acre wet detention pond on the east side of CR 887 near Sta. 225+00 on parcels #02-48-25-B1-00011.0120, #02-48-25-B1-00011.0130, #02-48-25-B1-00014.0000, and #02-48-25-B2-00009.0000. All parcels are privately owned by the same entity (Bonita-Ft. Myers Corp.) at the time of the pond siting analysis. No wetland or floodplain impacts are anticipated, based on the NWI and relevant FIRM. Soils within the pond area are primarily in Hydrologic Soil Group B/D, with some Group D soils, and with a control elevation estimated at 7.80 ft (NAVD), based on SFWMD Permit #36-100490-P (Causeway Commerce Park).

Pond 3B is a 3.09-acre wet detention pond on the east side of CR 887 near Sta. 230+00 on parcels #02-48-25-B1-00011.0120, #02-48-25-B1-00014.0000, #02-48-25-B1-00007.0000, and #02-48-25-B1-00008.0000, which are all privately owned by the same entity (Bonita-Ft. Myers Corp.) at the time of the pond siting analysis; and on a portion of parcel #02-48-25-B1-00007.0000, which is also privately owned at the time of this analysis. The proposed SMF parcel acquisition does not overlap with any floodplains. Based on the NWI, wetland impacts are anticipated. However, the wetland area that overlaps with the pond footprint is already set to be impacted by the construction of the New Quadrant Roadway. Therefore, no additional net impacts are added to the project by this SMF alternative. Soils within the SMF area are primarily in Hydrologic Soil Group B/D with a control elevation estimated at 7.80 ft (NAVD), based on SFWMD Permit #36-100490-P (Causeway Commerce Park).

Pond 3C is a 3.02-acre wet detention pond on the west side of CR 887 near Sta. 222+00 on parcel #02-48-25-B1-16000.00CE. The parcel is privately owned at the time of the pond siting analysis. No wetland or floodplain impacts are anticipated, based on the NWI and relevant FIRM. Soils within the SMF area are in Hydrologic Soil Group B/D and A/D with a control elevation estimated at 7.80 ft (NAVD), based on SFWMD Permit #36-100490-P (Causeway Commerce Park).

7. Conclusion

This Pond Siting Report has been prepared as part of a PD&E Study for proposed improvements to CR 887 in Collier and Lee Counties. The project proposes to widen approximately 2.7 miles of CR 887 from a two-lane undivided facility to a four-lane divided facility and to construct a New Quadrant Roadway in Lee County, all of which will require addressing stormwater management. Wet detention ponds are anticipated to be required within the project limits. **Table 7-1** summarizes the stormwater management facility alternatives anticipated to be necessary for this project. A more detailed comparison of pond alternatives is available in the *Pond Siting Matrix* presented in **Table 7-2**. See **Appendix F** for a breakdown of estimated construction and FDOT-provided right-of-way acquisition costs.

Table 7-1: Stormwater Management Facility Alternatives Summary

Basin	Alternative	Pond Area (ac)	Construction Cost	ROW Cost
Basin One	**1A**	**2.42**	**$667,982.41**	**$11,885,000**
	1B	2.73	$840,537.79	$23,520,000
	1C	4.97	$920,211.66	$12,510,000
Basin Three	3A	2.90	$859,133.31	$3,870,000
	3B	**3.09**	**$627,872.88**	**$4,300,000**
	3C	3.02	$610,744.70	$22,300,000

Ponds 1A and 3B are the recommended preferred alternatives for this project. The preferred pond sites were chosen based on their costs, minimal impacts to existing businesses, and proximity to the project area and outfall location. The results of this report are based on readily available information at the time of the analysis without the benefits of detailed survey information, a geotechnical investigation, formal wetland delineation, detailed field investigation, or other information that would be necessary to prepare a complete stormwater management design. Pond sizes and configurations may change during the final design as more detailed information becomes available.

Table 7-2: Pond Siting Matrix

Project Name CR 887 (Old US 41) Project Development and Environment Study
FPID 435110-1-22-01 & 435347-1-22-01

Pond Siting Evaluation Matrix		CR 887 (Old US 41)					
Factor		**Basin 1**			**Basin 3**		
Basin Information	Basin STA. (From / To)	100+00 to 181+75			194+16 to 244+00		
	Basin Size (ac)	28.17			17.29		
	Receiving Waterbody	Dunruss Creek			Oak Creek		
	Impairments or Special Designations	OFW			OFW		
	Previous Permits (Y/N)	N			N		
Site Name		***1A***	***1B***	***1C***	***3A***	***3B***	***3C***
Site Details	Brief Description	Wet Detention	Wet Detention	Wet Detention	Wet Detention	Wet Detention	Wet Detention
	Pond STA.	103+00	100+00	130+00	225+00	230+00	222+00
	Side of Road (LT/RT)	RT	LT	RT	RT	RT	LT
	Est. Volume Required (ac-ft)	2.78	2.08	2.44	1.75	1.77	2.85
	Est. Volume Provided (ac-ft)	4.81	5.92	8.56	5.46	5.90	5.79
	Est. ROW Required (ac)	2.29	2.77	5.58	3.14	3.53	3.90
	Est. Access / Conveyance Easement Required (ac)	0.00	0.25	0.00	1.26	0.00	0.00
Estimated Construction Costs		$667,982.41	$840,537.79	$920,211.66	$859,133.31	$627,872.88	$610,744.70
Parcel Information	Parcel Number(s)	#00152280008; #00153360008	#00155884100; #65997500027	#00145120007; #00145080008	#02-48-25-B1-00011.0120; #02-48-25-B1-00011.0130; #02-48-25-B1-00014.0000; #02-48-25-B2-00009.0000	#02-48-25-B1-00011.0120; #02-48-25-B1-00014.0000; #02-48-25-B1-00007.0000; #02-48-25-B1-00008.0000	02-48-25-B1-16000.00CE (Various parcel splits)
	Parcel Owner(s)	4141 Baldridge LLC; Caribbean MHC Owner LLC	13555 TTN LLC	Extra Space Properties 124 LLC; Bradco Supply Corp.	Bonita-Ft. Myers Corp.	Bonita-Ft. Myers Corp.	Constitution Plaza (Various building owners)
	Land Use (Zoning)	C-4: Commercial	PUD: Planned Unit Development	I: Industrial	AG-2: Agricultural	AG-2: Agricultural / CPD: Commercial PD	CPD: Commercial PD
	Land Use	1411: Shopping Centers	1411: Shopping Centers	1400: Commercial and Services	1330: Multiple Dwelling Units, Low Rise	1900: Open Land	1400: Commercial and Services
	Building/Improvements Impacted (Y/N)	Y	Y	Y	N	N	Y
Estimated Right-of-Way Costs (Provided by FDOT)		$11,885,000.00	$23,520,000.00	$12,510,000.00	$3,870,000.00	$4,300,000.00	$22,300,000.00
Drainage Considerations	Average Ground EL.	11	10.29	13.31	12.5	12.5	12.5
	Estimated Depth to Water Table	5.21	4.50	4.32	4.70	4.70	4.70
	ESHWT (NAVD)	5.79	5.79	8.99	7.80	7.80	7.80
	Hydrologic Soil Group	B/D	B/D and A/D	B/D	B/D and D	B/D	B/D and A/D
FEMA Flood Zone	Flood Zone	X	X	AE and AH	X	X	X
	BFE or 100-yr Stage	N/A	N/A	11.5	N/A	N/A	N/A
	Floodplain Impacts/Benefit	N/A	N/A	Impacts	N/A	N/A	N/A
Public Wellfield Proximity (Y/N)		N	N/A	N	N	N	N
Contamination - Hazardous Materials	Level I Evaluation (Risk Rating)	Medium	Medium	Low	Medium	Low	Medium
	Additional Investigation (Level II or III)	Y	Y	N	Y	N	Y
Utilities (FPL , FGT) (Y/N)	**Utilities Present**	Y	Y	Y	Y	N	Y
	Potential Utilities Impacts	Y	Y	Y	Y	N	Y
Species	Threatened, Endangered, Protected	Florida bonneted bat, wood stork, state listed wading birds	Florida bonneted bat	Florida bonneted bat, wood stork, state listed wading birds	Florida bonneted bat	Florida bonneted bat, black rail, wood stork, state listed wading birds	N/A
	Estimated Species Impact Potential	Low	Low	Low	Low	Low	No
	Anticipated Mitigation Cost	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$0.00
Wetlands	Wetlands/Protected Uplands (Quality High/Med/Low)	No	No	No	No	No	No
	Estimated Wetland Impacts (ac)	0	0	0	0	0	0
	Estimated Wetland Mitigation Costs	$ -	$ -	$ -	$ -	$ -	$ -
Cultural Resources	Cultural Resources	Low archaeological potential / 0 historic resources	Low archaeological potential / 0 historic resources	Low archaeological potential / 0 historic resources	Low archaeological potential / 0 historic resources	Low archaeological potential / 0 historic resources	Low archaeological potential / 0 historic resources
Section 4(f)	Section 4(f) properties Present	N/A	N/A	N/A	N/A	N/A	N/A
	Estimate Impact (Y/N)	N	N	N	N	N	N
Conservation Lands	Conservation Lands Present (Y/N)	N	N	N	N	N	N
	Estimated Impact Area (ac)	0	0	0	0	0	0
	Estimated Mitigation Costs	$ -	$ -	$ -	$ -	$ -	$ -
Total Applicable Costs		**$12,572,982.41**	**$24,380,537.79**	**$13,450,211.66**	**$4,749,133.31**	**$4,947,872.88**	**$22,910,744.70**
Comments, Advantages, Disadvantages		Impacts existing building; pond sited partially on existing ROW	Impacts existing buildings and parking; possible utility impacts between pond and outfall	Impacts existing buildings; Impacts Floodplain; Utilizes existing borrow pit	Impacts existing building; drainage easement required to convey runoff from the road to the pond	No easements required beyond pond ROW	Fully urban site, impacts existing buildings
Ranking		**1**	**2**	**3**	**2**	**1**	**3**

Appendix A | Figures

USGS Quadrangle Map for Bonita Springs

Proposed Typical Sections for Collier County

Proposed Typical Sections for City of Bonita Springs

NRCS Soils Maps for Collier and Lee Counties

FLUCCS Land Use Map

USGS Quadrangle Map
for Bonita Springs

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

BONITA SPRINGS QUADRANGLE
FLORIDA
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 17R

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP,	November 2019
Roads	U.S. Census Bureau,	2016
Names	GNIS,	1979 - 2020
Hydrography	National Hydrography Dataset,	2002 - 2019
Contours	National Elevation Dataset,	2019
Boundaries	Multiple sources; see metadata file	2018 - 2019
Public Land Survey System	BLM,	2020
Wetlands	FWS National Wetlands Inventory	2002

MN
GN
5°51'
104 MILS
0°22'
7 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
MK
Grid Zone Designation
17R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

FLORIDA
QUADRANGLE LOCATION

1 2 3
4
5 6
ADJOINING QUADRANGLES

1 Fort Myers Beach
2 Estero
3 Corkscrew NW
4 Corkscrew SW
5 Naples North
6 Belle Meade NW

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

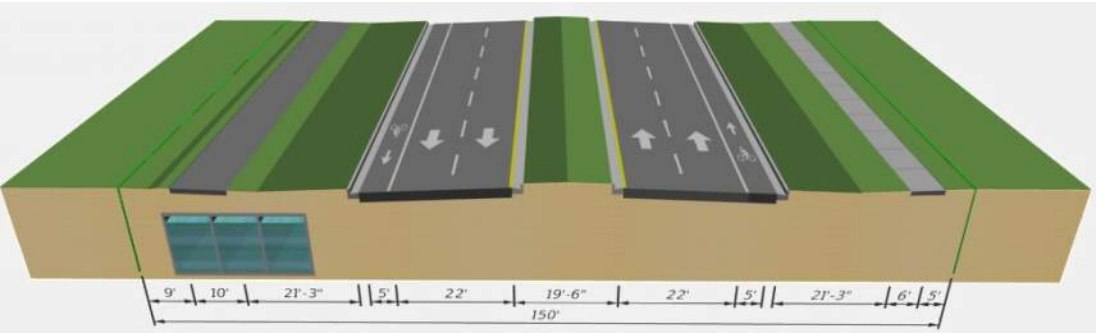
BONITA SPRINGS, FL
2021

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NSN 7 6430 16360317
NGA REF NO. USGSX24K4804

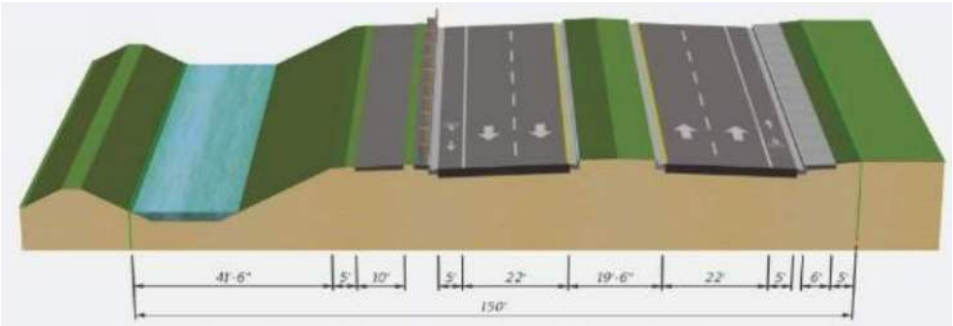
Proposed Typical Sections
for Collier County

FPID: 435110-1 Typical Sections

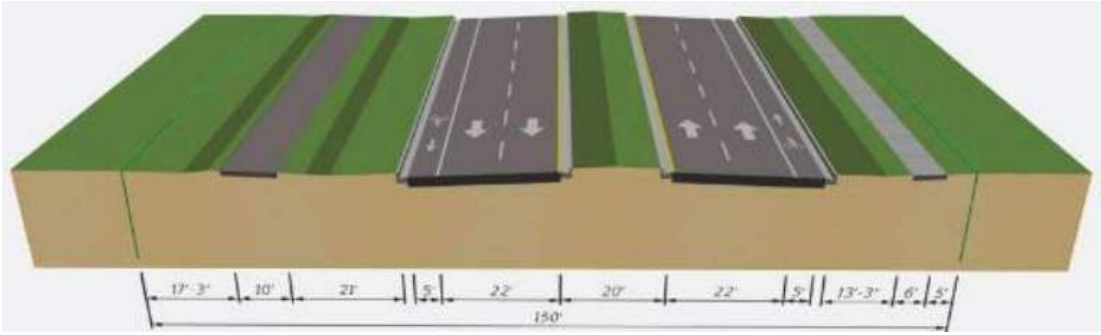
US 41 to 300’ North of Sterling Oaks Drive



300’ North of Sterling Oaks Drive to 1,000’ North of Sterling Oaks Drive



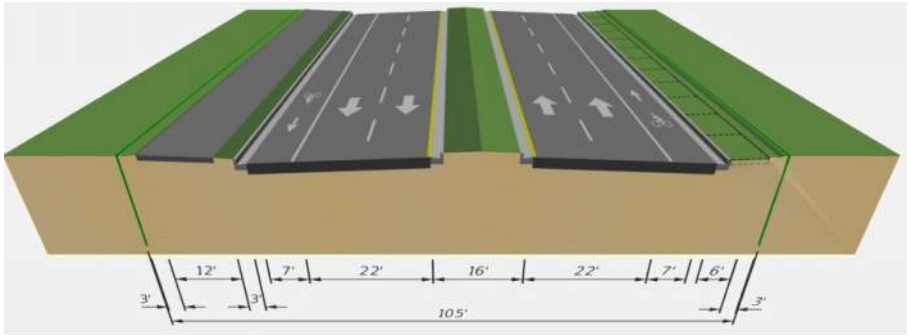
1,000’ North of Sterling Oaks Drive to Lee County Line



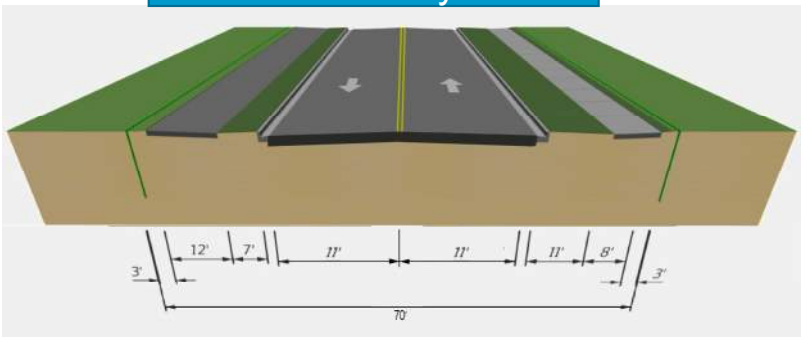
Proposed Typical Sections
for City of Bonita Springs

FPID: 435347-1 Typical Sections

Collier/Lee County Line to New Quadrant Roadway



New Quadrant Roadway



NRCS Soils Maps for
Collier County and Lee County



Legend

- Project Limits
- County Dividing Line

Collier County Soils

- 25 - Cypress Lake-Riviera-Copeland fine sands, frequently ponded, association, 0 to 1 perent slopes
- 32 - Urban land, 0 to 2 percent slopes
- 36 - Immokalee sand-Urban land complex, 0 to 2 percent slopes
- 39 - Satellite fine sand, 0 to 2 percent slopes
- 99 - Water
- 101 - Basinger fine sand-Urban land complex, 0 to 2 percent slopes
- 102 - Cypress Lake fine sand-Urban land complex, 0 to 2 percent slopes
- 103 - Cypress Lake-Riviera-Copeland fine sands, frequently ponded-Urban land association, 0 to 1 percent slopes
- 110 - Brynwood fine sand-Urban land complex, 0 to 2 percent slopes
- 111 - Brynwood-Cypress lake fine sands-Urban land association, 0 to 2 percent slopes
- 113 - Holopaw fine sand-Urban land complex, 0 to 2 percent slopes
- 115 - Holopaw-Basinger-Urban land complex, 0 to 2 perent slopes
- 116 - Holopaw-Okeelanta, ponded-Urban land assocaition, 0 to 1 percent slopes
- 117 - Immokalee fine sand-Urban land complex, 0 to 2 percent slopes
- 118 - Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes
- 120 - Malabar fine sand-Urban land complex, 0 to 2 percent slopes
- 121 - Matlacha-Cypress lake-Urban land complex, 0 to 2 percent slopes
- 122 - Myakka fine sand-Urban land complex, 0 to 2 percent slopes
- 124 - Myakka fine sand, ponded-Urban land complex, 0 to 1 percent slopes
- 128 - Pineda fine sand, limestone substratum-Urban land complex, 0 to 2 percent slopes
- 129 - Pineda-Riviera fine sands-Urban land association, 0 to 2 percent slopes
- 130 - Pomello fine sand-Urban land complex, 0 to 2 percent slopes
- 131 - Riviera fine sand, limestone substratum-Urban land complex, 0 to 2 percent slopes
- 132 - Riviera, limestone substratum-Copeland fine sand-Urban land association, 0 to 2 percent slopes
- 133 - Satellite fine sand-Urban land complex, 0 to 2 percent slopes

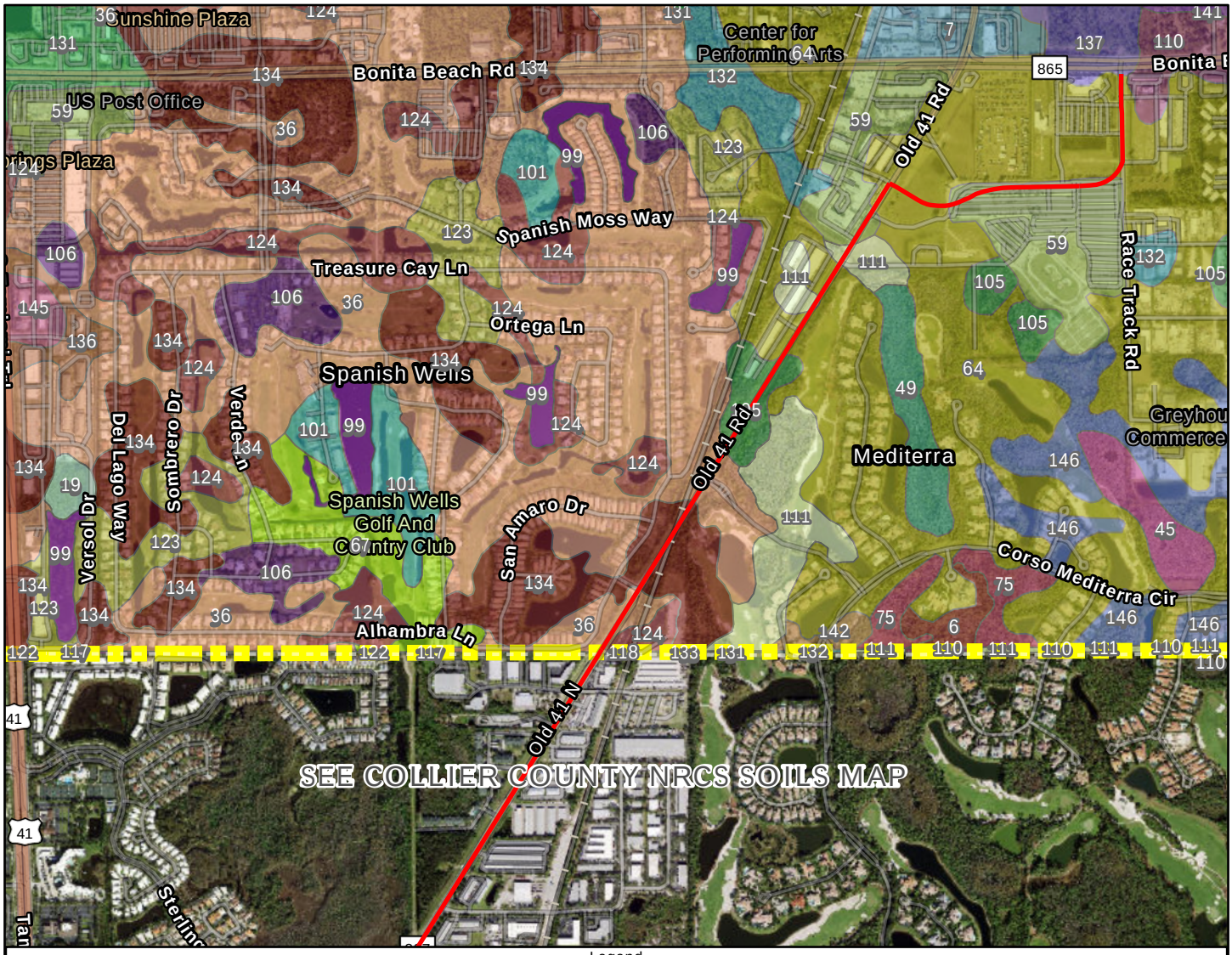
HNTB

CR 887 (Old US 41)
Project Development and Environment Study

NRCS Soils Map - Collier County

N

0 0.15 0.3 Mi



Legend

- Project Limits
- County Dividing Line

Lee County Soils

- 6 - Brynwood fine sand, wet, 0 to 2 percent slopes
- 7 - Matlacha gravelly fine sand-Urban land complex, 0 to 2 percent slopes
- 10 - Pompano fine sand, 0 to 2 percent slopes
- 19 - Gator muck, frequently ponded, 0 to 1 percent slopes
- 36 - Immokalee sand-Urban land complex, 0 to 2 percent slopes
- 45 - Copeland fine sandy loam, frequently ponded, 0 to 1 percent slopes
- 49 - Felda fine sand, frequently ponded, 0 to 1 percent slopes
- 53 - Myakka fine sand, frequently ponded, 0 to 1 percent slopes
- 59 - Urban land, 0 to 2 percent slopes
- 64 - Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes
- 67 - Smyrna fine sand-Urban land complex, 0 to 2 percent slopes
- 75 - Brynwood fine sand, slough, 0 to 1 percent slopes
- 99 - Water
- 101 - Anclote sand, ponded-Urban land complex, 0 to 1 percent slopes
- 105 - Copeland fine sandy loam, ponded-Urban land complex, 0 to 1 percent slopes
- 106 - Daytona sand-Urban land complex, 0 to 5 percent slopes
- 110 - Felda fine sand-Urban land complex, 0 to 2 percent slopes
- 111 - Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes
- 117 - Immokalee fine sand-Urban land complex, 0 to 2 percent slopes (Collier)
- 118 - Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes (Collier)
- 122 - Myakka fine sand-Urban land complex, 0 to 2 percent slopes (Collier)
- 123 - Myakka fine sand-Urban land complex, 0 to 2 percent slopes
- 124 - Myakka fine sand, ponded-Urban land complex, 0 to 1 percent slopes
- 127 - Orsino fine sand-Urban land complex, 0 to 5 percent slopes
- 131 - Pompano fine sand-Urban land compex, 0 to 2 percent slopes
- 132 - Pompano fine sand, ponded-Urban land complex, 0 to 1 percent slopes
- 133 - Satellite fine sand-Urban land complex, 0 to 2 percent slopes (Collier)
- 134 - Satellite fine sand-Urban land complex, 0 to 2 percent slopes
- 136 - Valkaria fine sand-Urban land complex, 0 to 2 percent slopes
- 137 - Wabasso sand-Urban land complex, 0 to 2 percent slopes
- 138 - Wabasso sand, limestone substratum-Urban land complex, 0 to 2 percent slopes
- 141 - Cocoa fine sand-Urban land complex, 0 to 2 percent slopes
- 142 - Cypress Lake fine sand, slough-Urban land complex, 0 to 1 percent slopes
- 145 - Gator muck, ponded-Urban land complex, 0 to 1 percent slopes
- 146 - Brynwood fine sand, slough-Urban land complex, 0 to 1 percent slopes
- 149 - Valkaria fine sand, ponded-Urban land complex, 0 to 1 percent slopes

HNTB

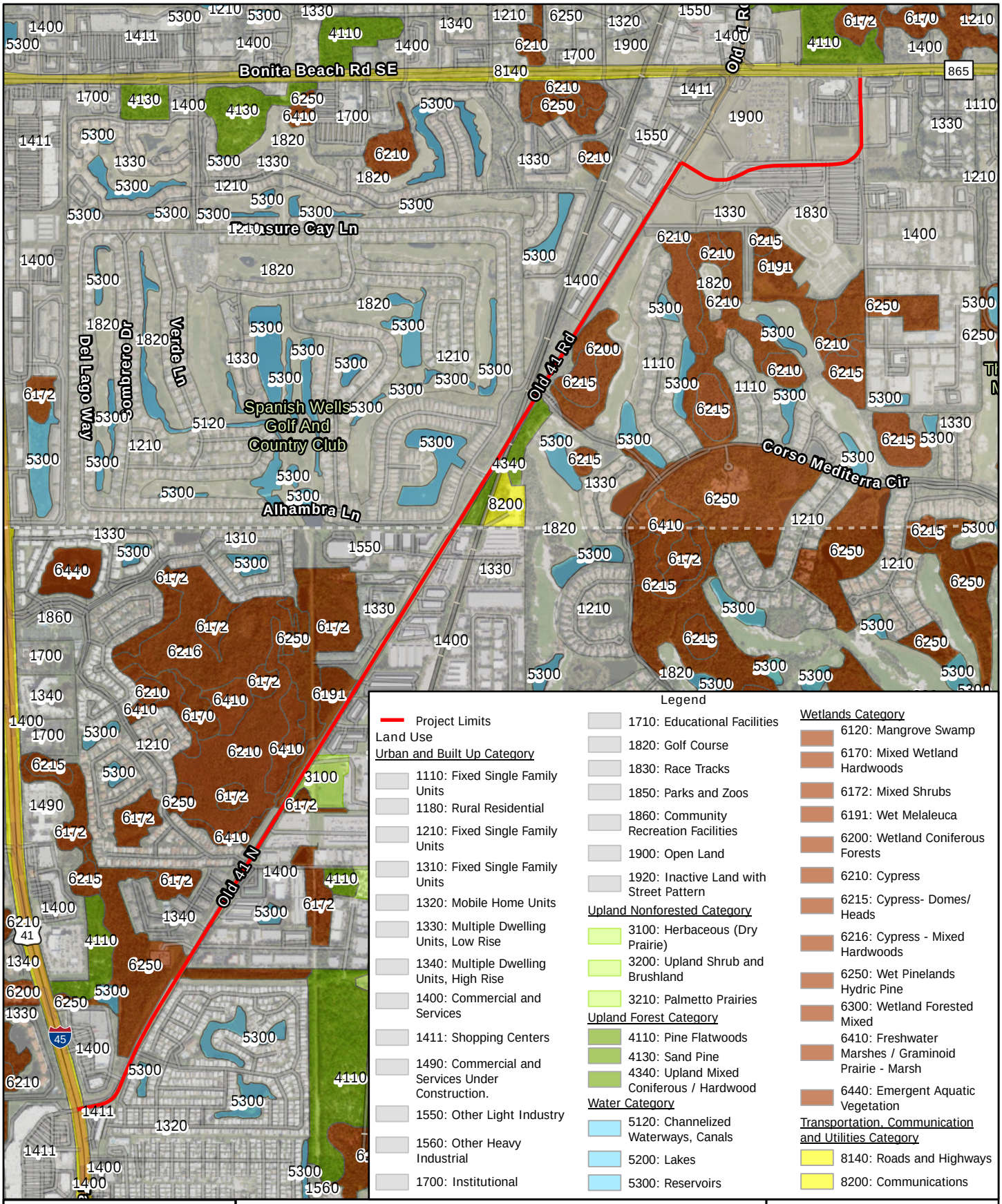
CR 887 (Old US 41)
Project Development and Environment Study

NRCS Soils Map - Lee County

N

0 0.15 0.3 Mi

FLUCCS Land Use Map



HNTB

CR 887 (Old US 41)
Project Development and Environment Study

FLUCCS Land Use Map

Appendix B | FEMA FIRMs

FIRM Panel 183

FIRM Panel 191

FIRM Panel 658

FIRM Panel 659



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the Collier County GIS Services, United States Bureau of Land Management, and Federal Emergency Management Agency. Ortho imagery was produced by the National Agricultural Imagery Program in 2017 and has a 1 meter ground sample distance.

SCALE

N

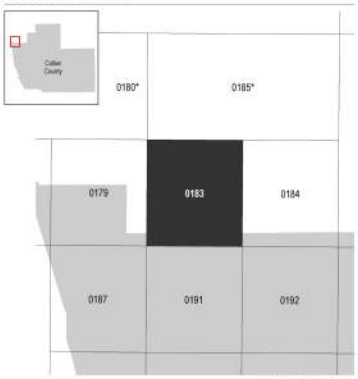
Map Projection: State Plane Transverse Mercator, Florida East Zone 0901; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



*PANEL NOT PRINTED

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

COLLIER COUNTY, FLORIDA

and Incorporated Areas

PANEL 183 OF 1225

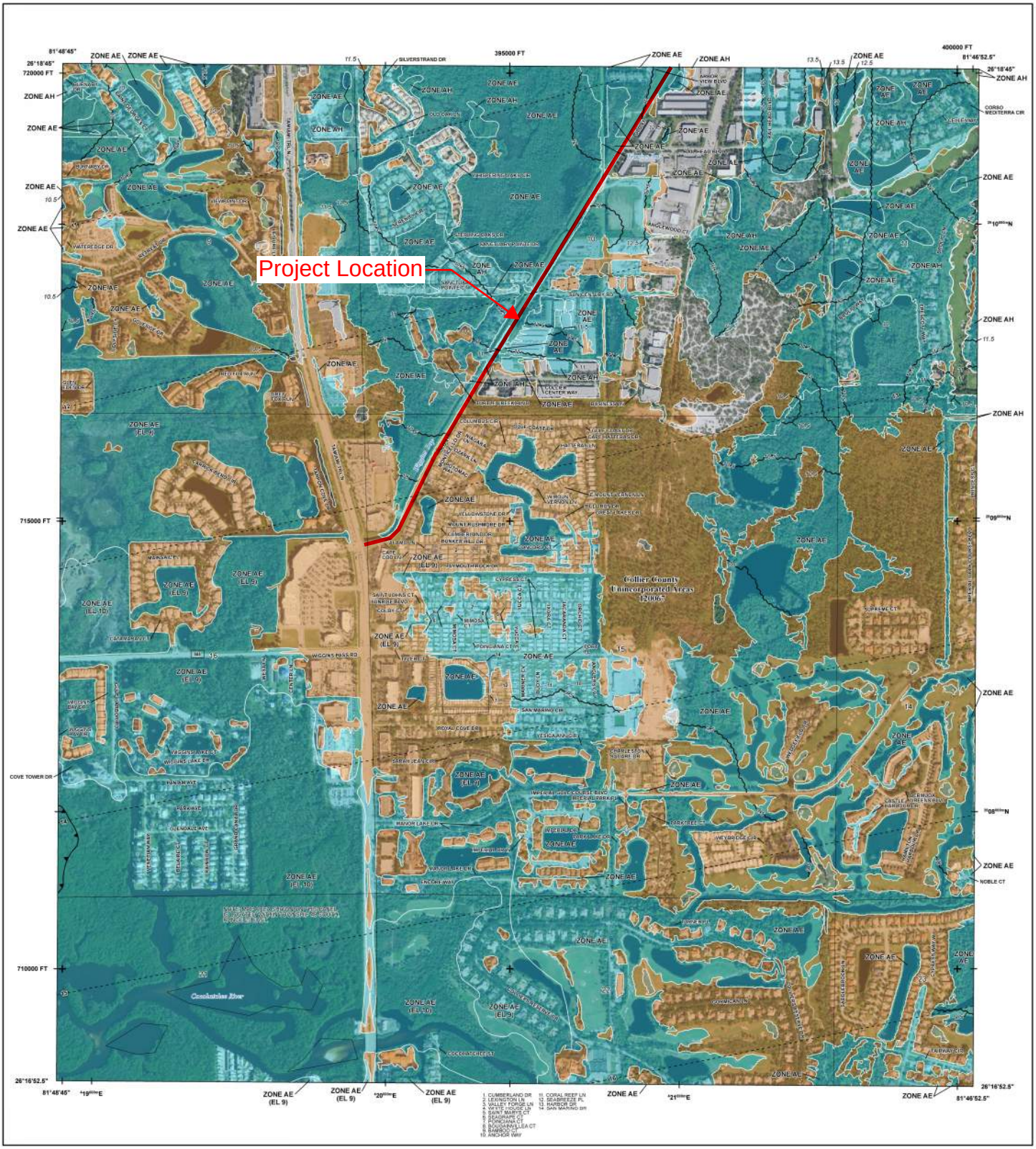
Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLLIER COUNTY	120067	0183	J

VERSION NUMBER 2.5.3.5

MAP NUMBER 12021C0183J

MAP REVISED FEBRUARY 8, 2024



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	Coastal Transect Baseline
OTHER FEATURES	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

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For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the Collier County GIS Services, United States Bureau of Land Management, and Federal Emergency Management Agency. Ortho imagery was produced by the National Agricultural Imagery Program in 2017 and has a 1 meter ground sample distance.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in the Zone VE.

Limit of Moderate Wave Action (LiMWA)

SCALE

Map Projection: State Plane Transverse Mercator, Florida East Zone 1901; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

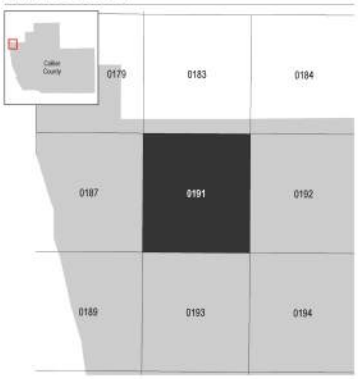
N

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

COLLIER COUNTY, FLORIDA

and Incorporated Areas

PANEL 191 OF 1225

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLLIER COUNTY	120067	0191	J

VERSION NUMBER 2.5.3.5

MAP NUMBER 12021C0191J

MAP REVISED FEBRUARY 8, 2024



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

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Base map information shown on this FIRM was provided by Lee County, dated 2008 and 2010; the Florida Department of Transportation, dated 2017 and 2018; the U.S. Department of Agriculture, dated 2018; and the U.S. Department of Transportation, dated 2017.

SCALE

Map Projection: State Plane Transverse Mercator, Florida West Zone 0902; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

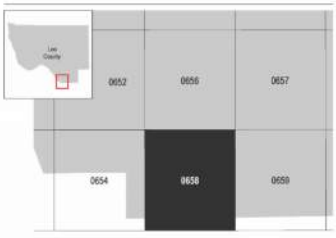
N

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

LEE COUNTY, FLORIDA and Incorporated Areas

PANEL 658 OF 685

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BONITA SPRINGS, CITY OF	120680	0658	G

VERSION NUMBER 2.4.3.5

MAP NUMBER 12071C0658G

MAP REVISED NOVEMBER 17, 2022



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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SPECIAL FLOOD HAZARD AREAS
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- With BFE or Depth Zone AE, AO, AH, VE, AR
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- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

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SCALE

Map Projection: State Plane Transverse Mercator, Florida West Zone 0902; North American Datum 1983; Vertical Datum: NAVD 88

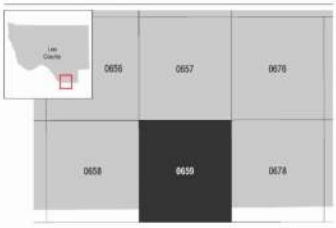
N

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

LEE COUNTY, FLORIDA and Incorporated Areas

PANEL 659 OF 685

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BONITA SPRINGS, CITY OF	120680	0659	G

VERSION NUMBER 2.4.3.5

MAP NUMBER 12071C0659G

MAP REVISED NOVEMBER 17, 2022

Appendix C | Pre-Development Calculations

Dunruss Creek Pre-Development Outfall Packages

EX_DITCH_1 Pre-Development Outfall Packages

EX_DITCH_2 Pre-Development Outfall Packages

Dunruss Creek
Pre-Development
Outfall Packages



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 1A MAP

SHEET NO.

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 1A			
POND DESIGNATION:	N/A	**MADE BY:**	JAG	3/15/2024
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	3/26/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	Water	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
			TOTALS	**0.00**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	6.76	628.68
Existing Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**6.76**	
EXISTING PERVIOUS AREAS					
Pervious Area	Urban land, 0 to 2 percent slopes	N/A	89	1.57	139.37
	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	17.30	1383.87
	Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes	A/D	80	2.83	226.40
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	2.14	83.46
			TOTALS	**23.83**	

ICPR DATA

* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**30.59**	**COMPOSITE CN**	**80.47**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

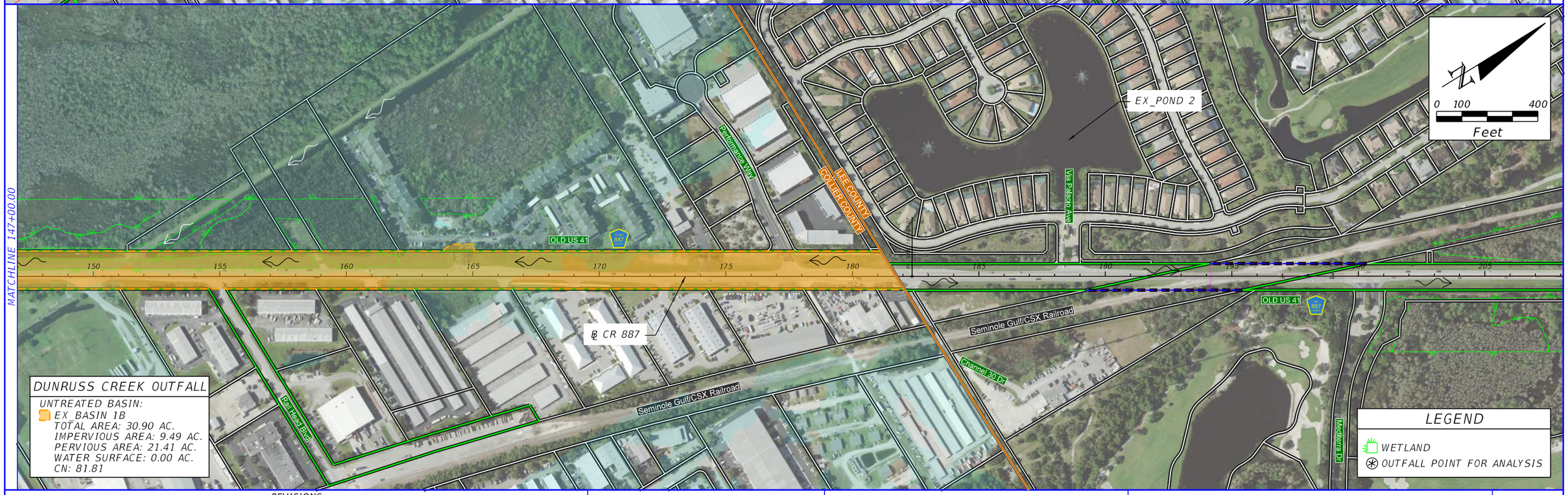
P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**80.47**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Collier County	25 yr/72 hr	11.20	2.43	8.74	**22.27**





REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 1B MAP

SHEET NO.

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 1B			
POND DESIGNATION:	N/A	**MADE BY:**	JAG	3/25/2025
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	3/26/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	Water	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
Commercial Space	N/A	N/A	98	2.73	267.54
			TOTALS	**2.73**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	6.76	628.68
Existing Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**6.76**	
EXISTING PERVIOUS AREAS					
Pervious Area	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	15.71	1256.80
	Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes	A/D	80	2.83	226.40
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	2.14	83.46
	Urban land, 0 to 2 percent slopes	N/A	89	0.73	64.97
			TOTALS	**21.41**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**30.90**	**COMPOSITE CN**	**81.81**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**81.81**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Collier County	25 yr/72 hr	11.20	2.22	8.91	**22.95**



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 1C MAP

SHEET NO.

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			
BASIN DESIGNATION:	EX_BASIN 1C			**DATE**
POND DESIGNATION:	N/A	**MADE BY:**	JAG	2/21/2024
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	3/25/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Borrow Pit NWL	Water	N/A	100	1.4	140.00
			TOTALS	**1.40**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
			TOTALS	**0.00**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	6.76	628.68
Existing Roadway (Treated)	N/A	N/A	93	0.00	0.00
Pond Area (Commercial Space)	N/A	N/A	93	3.57	332.06
			TOTALS	**10.33**	
EXISTING PERVIOUS AREAS					
Pervious Area	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	15.71	1256.80
	Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes	A/D	80	2.83	226.40
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	2.14	83.46
	Urban land, 0 to 2 percent slopes	N/A	89	0.73	64.97
			TOTALS	**21.41**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**33.14**	**COMPOSITE CN**	**82.45**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

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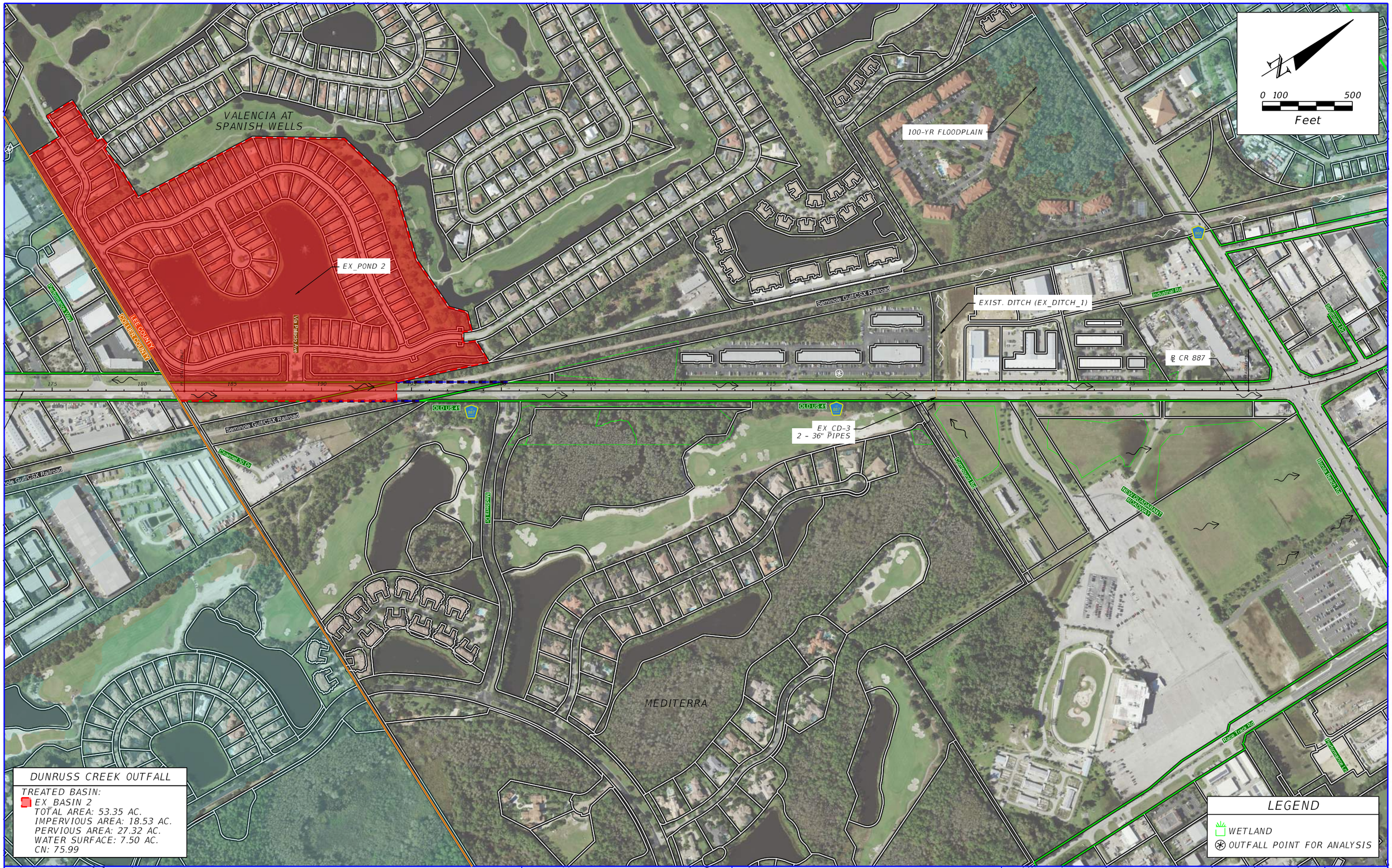
2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**82.45**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Collier County	25 yr/72 hr	11.20	2.13	9.00	**24.85**



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 2 MAP

SHEET NO.

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DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 2			
POND DESIGNATION:	EX_POND 2	**MADE BY:**	JAG	3/27/2025
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	3/27/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Lake Area (SFWMD Permit No. 36-00067-S-02)	Water	N/A	100	7.50	-
			TOTALS	**7.50**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
Roadway (SFWMD Permit No. 36-00067-S-02)	-	-	-	17.50	-
			TOTALS	**17.50**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	93	1.03	95.79
			TOTALS	**1.03**	
EXISTING PERVIOUS AREAS					
Pervious Area (SFWMD Permit No. 36-00067-S-02)	-	-	-	25.25	-
Pervious Area	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	1.44	115.20
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.63	24.57
			TOTALS	**27.32**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**53.35**	**COMPOSITE CN**	**75.99**

ESTIMATE OF RUNOFF VOLUME

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P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**75.99**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	3.16	8.14	**2.10**

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 2 / BASIN 2			
POND/NODE DESIGNATION:	EX_POND 2	**MADE BY:**	JAG	3/27/2025
BASIN ANALYSIS (PRE/POST):	PRE / POST	**CHECKED BY:**	LVC	3/27/2025

Stage Storage Calculations

ELEV. (ft, NAVD)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
VARIES	Top of Berm	7.54				35.75
			-	-	-	
12.02	ATT (25/72)	7.53				**28.19**
			-	-	-	
9.18	(TV)	7.51				**6.68**
			-	-	-	
8.29	(NWL)	7.50				0.00
VARIES	Pond Bottom	0.00				

Provided TV = **6.68** **ac-ft.**

Existing Pond 2 ("Valencia at Spanish Wells" Pond L2) Information

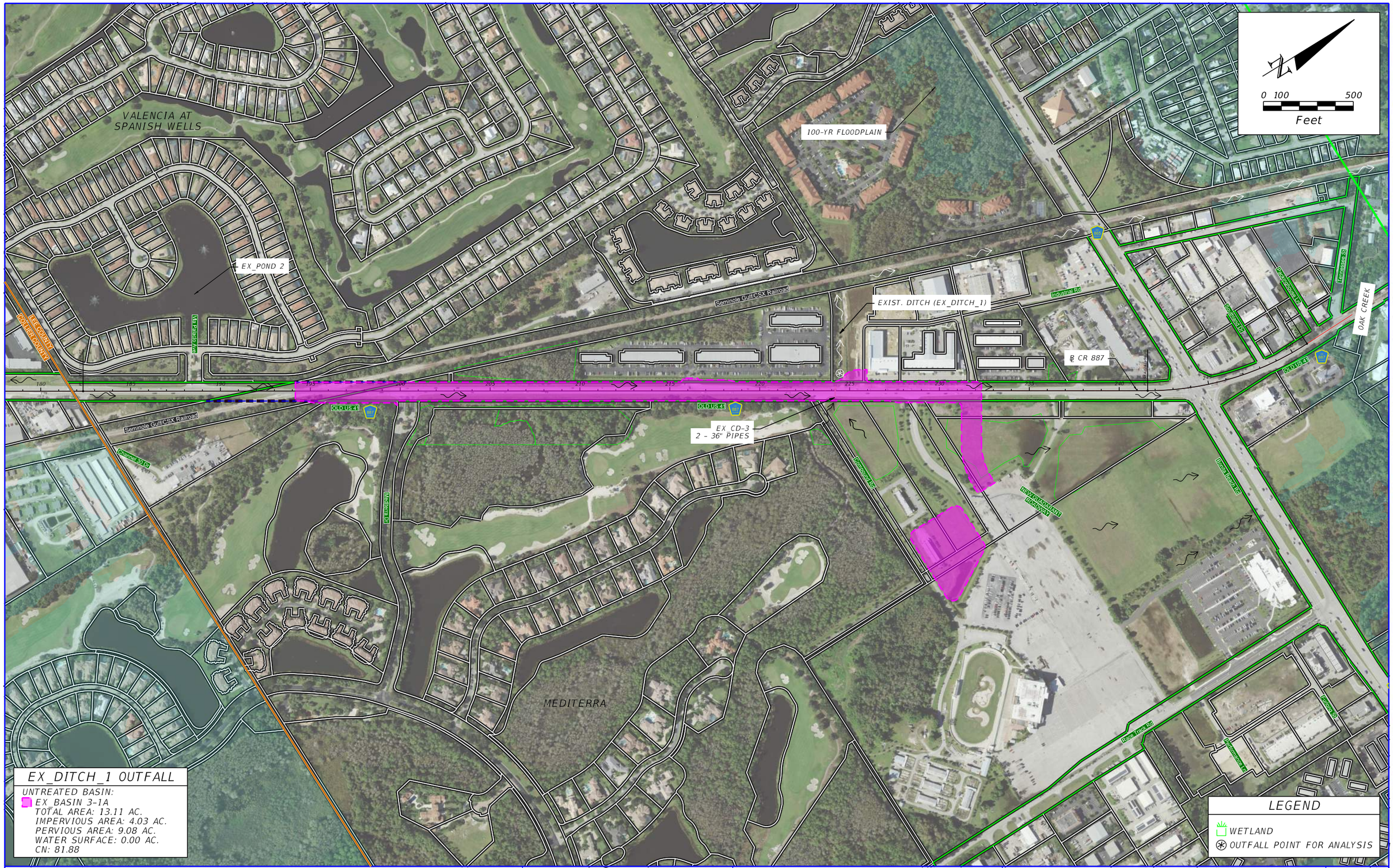
EX_POND 2 is equivalent to the permitted existing Spanish Wells Pond L2, which is located at approximately at Station 188+00 (CR 887 alignment) on the west side. All information provided on this sheet are for existing permitted conditions for the Spanish Wells Pond. The existing pond has a provided treatment volume of 6.68 ac-ft at 10.39 feet NGVD which was converted to 9.18 feet NAVD and outfalls into existing lakes that are part of the Spanish Wells surface water management system. The system ultimately discharges to the south, then flows through existing wetlands and ditches into the Old 41 conveyance system, and then flows south and west ultimately into the Cocohatchee River to the Gulf. To remain consistent with the current project, the conversion used from NGVD datum to NAVD88 datum is -1.214 ft. The Surface Water management Report for Valencia at Spanish Wells states that the exisiting pond accomodates the widening of CR 887, therefore no modifications are needed.

Please note that the information provided in the SFWMD Santa Barbara Worksheet accompaining these Stage Storage Calculations are provided for informational purposed only. Please refer to the The Storm Water Management Report from SFWMD Permit No. 36-00067-S-02 (130612-2) that was used to supplement these calculations for more details.

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **14.7** ESHWT= **8.29** Δ= **6.41**

EX_DITCH_1
Pre-Development
Outfall Packages



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 3-1A MAP

SHEET NO.

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 3-1A			
POND DESIGNATION:	N/A	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	5/8/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	Water	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
			TOTALS	**0.00**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	4.03	374.79
Existing Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**4.03**	
EXISTING PERVIOUS AREAS					
Pervious Area	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B/D	80	5.09	407.20
	Immokalee sand-Urban land complex, 0 to 2 percent slopes	B/D	80	0.79	63.20
	Copeland fine sandy loam, ponded-Urban land complex, 0 to 1% slopes	D	80	1.62	129.60
	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A/D	80	0.40	32.00
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.72	28.08
	Urban land, 0 to 2 percent slopes	N/A	84	0.46	38.64
			TOTALS	**9.08**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**13.11**	**COMPOSITE CN**	**81.88**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**81.88**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	2.21	8.92	**9.75**

VALENCIA AT SPANISH WELLS

EX_POND 2

100-YR FLOODPLAIN

EXIST. DITCH (EX_DITCH_1)

EX_CD-3
2 - 36" PIPES

MEDITERRA

Seminole Gulf/CSX Railroad

OLD US 41

CR 887

OAK CREEK

Industrial Rd

Mediterra Dr

Commerce Dr

Lee County Collier County

0 100 500
Feet

EX_DITCH_1 OUTFALL

UNTREATED BASIN:
EX_BASIN 3-1B
TOTAL AREA: 13.44 AC.
IMPERVIOUS AREA: 4.54 AC.
PERVIOUS AREA: 8.90 AC.
WATER SURFACE: 0.00 AC.
CN: 82.33

LEGEND
WETLAND
OUTFALL POINT FOR ANALYSIS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 3-1B MAP

SHEET NO.

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EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 3-1B			
POND DESIGNATION:	N/A	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	5/8/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	Water	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
			TOTALS	**0.00**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	4.54	422.22
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
			TOTALS	**4.54**	
EXISTING PERVIOUS AREAS					
Pervious Area	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B/D	80	4.96	396.80
	Immokalee sand-Urban land complex, 0 to 2 percent slopes	B/D	80	0.79	63.20
	Copeland fine sandy loam, ponded-Urban land complex, 0 to 1% slopes	D	80	1.56	124.80
	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A/D	80	0.40	32.00
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.72	28.08
	Urban land, 0 to 2 percent slopes	N/A	84	0.47	39.48
			TOTALS	**8.90**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**13.44**	**COMPOSITE CN**	**82.33**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

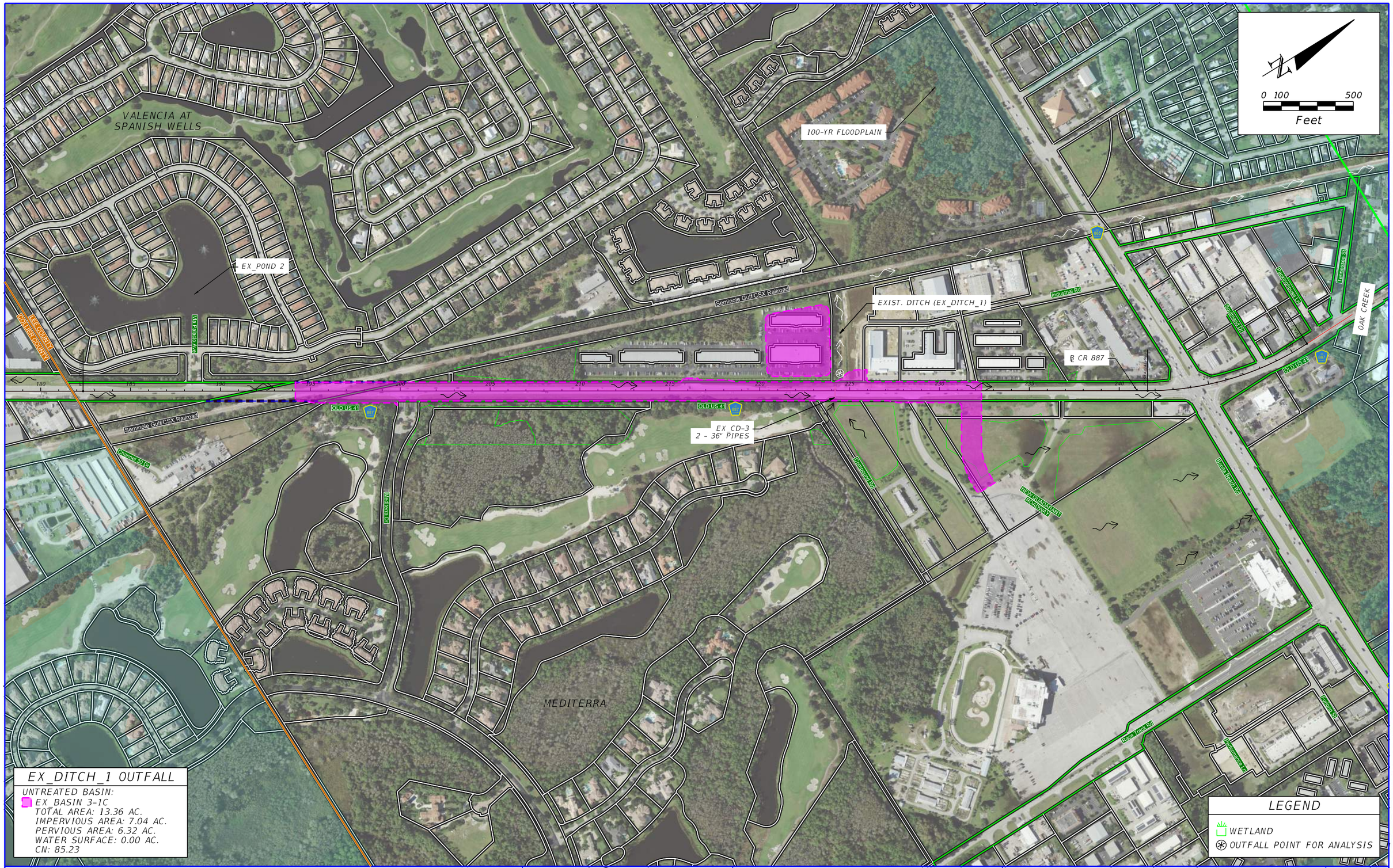
2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**82.33**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	2.15	8.98	**10.06**



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 3-1C MAP

SHEET NO.

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 3-1C			
POND DESIGNATION:	N/A	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	5/8/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	Water	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	0.00	0.00
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
			TOTALS	**0.00**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	4.03	374.79
Existing Roadway (Treated)	N/A	N/A	93	0.00	0.00
Commercial Space	N/A	N/A	95	3.01	285.95
			TOTALS	**7.04**	
EXISTING PERVIOUS AREAS					
Pervious Area	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B/D	80	2.39	191.20
	Immokalee sand-Urban land complex, 0 to 2 percent slopes	B/D	80	0.79	63.20
	Copeland fine sandy loam, ponded-Urban land complex, 0 to 1% slopes	D	80	1.56	124.80
	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A/D	80	0.40	32.00
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.72	28.08
	Urban land, 0 to 2 percent slopes	N/A	84	0.46	38.64
			TOTALS	**6.32**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**13.36**	**COMPOSITE CN**	**85.23**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**85.23**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	1.73	9.36	**10.42**

EX_DITCH_2
Pre-Development
Outfall Package



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

PRE-DEVELOPMENT EX_BASIN 3-2 MAP

SHEET NO.

EX DITCH 2 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 3-2			
POND DESIGNATION:	N/A	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	LVC	5/8/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	Water	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)	N/A	N/A	98	3.84	376.32
Existing Roadway (Treated)	N/A	N/A	98	0.00	0.00
			TOTALS	**3.84**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)	N/A	N/A	93	0.14	13.02
Existing Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**0.14**	
EXISTING PERVIOUS AREAS					
Pervious Area	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B/D	80	1.30	104.00
	Immokalee sand-Urban land complex, 0 to 2 percent slopes	B/D	80	0.00	0.00
	Copeland fine sandy loam, ponded-Urban land complex, 0 to 1% slopes	D	80	0.00	0.00
	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A/D	80	0.00	0.00
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.00	0.00
	Urban land, 0 to 2 percent slopes	N/A	84	0.15	12.60
			TOTALS	**1.45**	

ICPR DATA

* BASED ON TOTAL DRAINAGE AREA (ac)		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**5.43**	**COMPOSITE CN**	**93.17**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**93.17**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	0.73	10.37	**4.69**

Appendix D | Post-Development Calculations

Dunruss Creek Post-Development Outfall Packages

EX_DITCH_1 Post-Development Outfall Packages

Dunruss Creek
Post-Development
Outfall Packages

DUNRUSS CREEK

DUNRUSS CREEK

℄ CR 887

℄ CR 887

POND 1A

CD-1
2 - 30" PIPES

100-YR FLOODPLAIN

CD-2
2 - 36" PIPES

0 100 400
Feet

MATCHLINE 147+00.00

MATCHLINE 147+00.00

EX_POND 2

℄ CR 887

℄ CR 887

0 100 400
Feet

DUNRUSS CREEK OUTFALL

TREATED BASIN:
BASIN 1A
TOTAL AREA: 30.59 AC.
IMPERVIOUS AREA: 15.85 AC.
PERVIOUS AREA: 13.43 AC.
WATER SURFACE: 1.31 AC.
CN: 88.87

LEGEND

WETLAND

OUTFALL POINT FOR ANALYSIS

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

POST-DEVELOPMENT BASIN 1A MAP

SHEET NO.

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DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			
BASIN DESIGNATION:	BASIN 1A			**DATE**
POND DESIGNATION:	POND 1A	**MADE BY:**	JAG	3/15/2024
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	3/26/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Proposed Pond NWL	Water	N/A	100	1.31	131.23
			TOTALS	**1.31**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Treated)	N/A	N/A	98	6.76	662.48
Proposed Roadway Widening (Treated)	N/A	N/A	98	9.09	890.82
			TOTALS	**15.85**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)	N/A	N/A	93	0.00	0.00
Proposed Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Pervious Area	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	9.42	753.60
	Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes	A/D	80	1.63	130.40
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	1.23	47.97
	Urban land, 0 to 2 percent slopes	N/A	89	1.15	102.35
			TOTALS	**13.43**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**30.59**	**COMPOSITE CN**	**88.87**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**88.87**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Collier County	25 yr/72 hr	11.20	1.25	9.83	**25.05**

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E	FDOT		HNTB
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	BASIN 1A			
POND DESIGNATION:	POND 1A	**MADE BY:**	JAG	3/15/2024
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	3/26/2025

Water Quality

Total Basin Area =	30.59	ac
Pond Area at NWL =	1.31	ac
New Paved Area (Treated) =	9.09	ac
Paved Area (Untreated) =	0.00	ac

A.	1.5	" Over Total Basin Area =	3.82	Ac-Ft
B.	3.75	" Times New Treated Paved Area =	2.84	Ac-Ft
		Required TV* =	3.82	Ac-Ft
		20% Contingency TV=	**4.59**	**Ac-Ft**

*An additional 50% required Treatment Volume was added for ultimately outfalling to OFW.

Stage Storage Calculations

ELEV. (ft, NAVD)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
11.00	Outside Berm	2.42				8.66
			2.11	1.00	2.11	
10.00	Inside Berm	1.80				6.55
			1.74	1.00	1.74	
9.00	ATT (25/72)	1.68				**4.81**
			1.67	0.13	0.22	
8.87	(TV)	1.67				**4.59**
			1.49	3.08	4.59	
5.79	(NWL)†	1.31				0.00
3.79	Pond Bottom	1.10				

Provided TV = 4.59 ac-ft.

† SHWT elevation taken from SFWMD Permit No. 11-103545-P Landmark Naples

Water Quantity Estimate, Based on SCS Runoff Volume

Storage Required = Post V(R) - Pre V(R) + Existing Pond Att = **2.78 ac-ft.**

Storage Provided = **4.81 ac-ft.**

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **12.07** ESHWT= **5.79** Δ= **6.28**

DUNRUSS CREEK

POND 1B

EQUALIZER PIPE

DUNRUSS CREEK

℄ CR 887

℄ CR 887

100-YR FLOODPLAIN

CD-1
2 - 30" PIPES

CD-2
2 - 36" PIPES

0 100 400
Feet

MATCHLINE 147+00.00

EX_POND 2

℄ CR 887

℄ CR 887

0 100 400
Feet

MATCHLINE 147+00.00

DUNRUSS CREEK OUTFALL

TREATED BASIN:
BASIN 1B
TOTAL AREA: 30.90 AC.
IMPERVIOUS AREA: 15.85 AC.
PERVIOUS AREA: 13.60 AC.
WATER SURFACE: 1.45 AC.
CN: 88.03

LEGEND

WETLAND

OUTFALL POINT FOR ANALYSIS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

POST-DEVELOPMENT BASIN 1B MAP

SHEET NO.

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DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			
BASIN DESIGNATION:	BASIN 1B			**DATE**
POND DESIGNATION:	POND 1B	**MADE BY:**	JAG	3/25/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	3/26/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Proposed Pond NWL	Water	N/A	100	1.45	145.00
			TOTALS	**1.45**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Treated)	N/A	N/A	98	6.76	662.48
Proposed Roadway Widening (Treated)	N/A	N/A	98	9.09	890.82
			TOTALS	**15.85**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)	N/A	N/A	93	0.00	0.00
Proposed Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Pervious Area	Basinger fine sand-Urban land complex, 0 to 2 percent slopes	A/D	39	0.42	16.47
	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	9.90	791.81
	Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes	A/D	80	1.63	130.40
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	1.23	47.97
	Urban land, 0 to 2 percent slopes	N/A	84	0.42	35.28
			TOTALS	**13.60**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**30.90**	**COMPOSITE CN**	**88.03**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**88.03**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Collier County	25 yr/72 hr	11.20	1.36	9.72	**25.03**

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E	FDOT		HNTB
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	BASIN 1B			
POND DESIGNATION:	POND 1B	**MADE BY:**	JAG	3/25/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	3/26/2025

Water Quality

Total Basin Area =	30.90	ac
Pond Area at NWL =	1.45	ac
New Paved Area (Treated) =	9.09	ac
Paved Area (Untreated) =	0.00	ac

A.	1.5	" Over Total Basin Area =	3.86	Ac-Ft
B.	3.75	" Times New Treated Paved Area =	2.84	Ac-Ft
		Required TV* =	3.86	Ac-Ft
		20% Contingency TV=	**4.64**	**Ac-Ft**

*An additional 50% required Treatment Volume was added for ultimately outfalling to OFW.

Stage Storage Calculations

ELEV. (ft, NAVD)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
10.29	Outside Berm	2.73				8.25
			2.33	1.00	2.33	
9.29	Inside Berm	1.93				5.92
			1.93	0.00	0.00	
9.29	ATT (25/72)	1.93				**5.92**
			1.88	0.68	1.27	
8.61	(TV)	1.84				**4.64**
			1.64	2.82	4.64	
5.79	(NWL)†	1.45				0.00
3.79	Pond Bottom	1.19				

Provided TV = 4.64 ac-ft.

† SHWT elevation taken from SFWMD Permit No. #11-01765-P

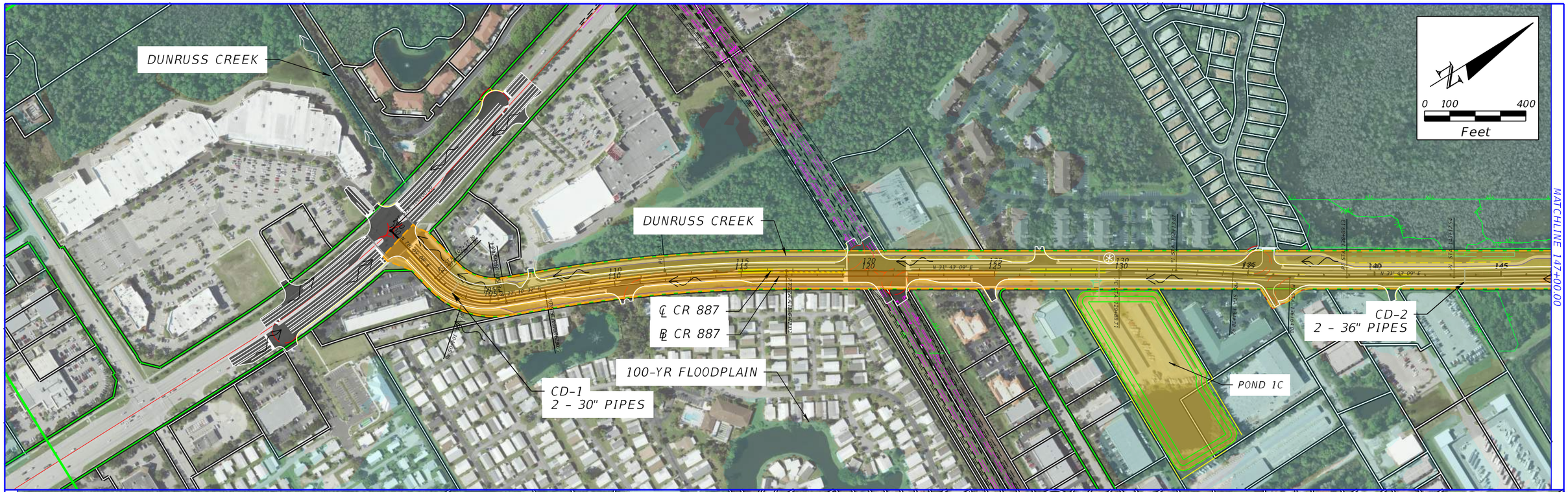
Water Quantity Estimate, Based on SCS Runoff Volume

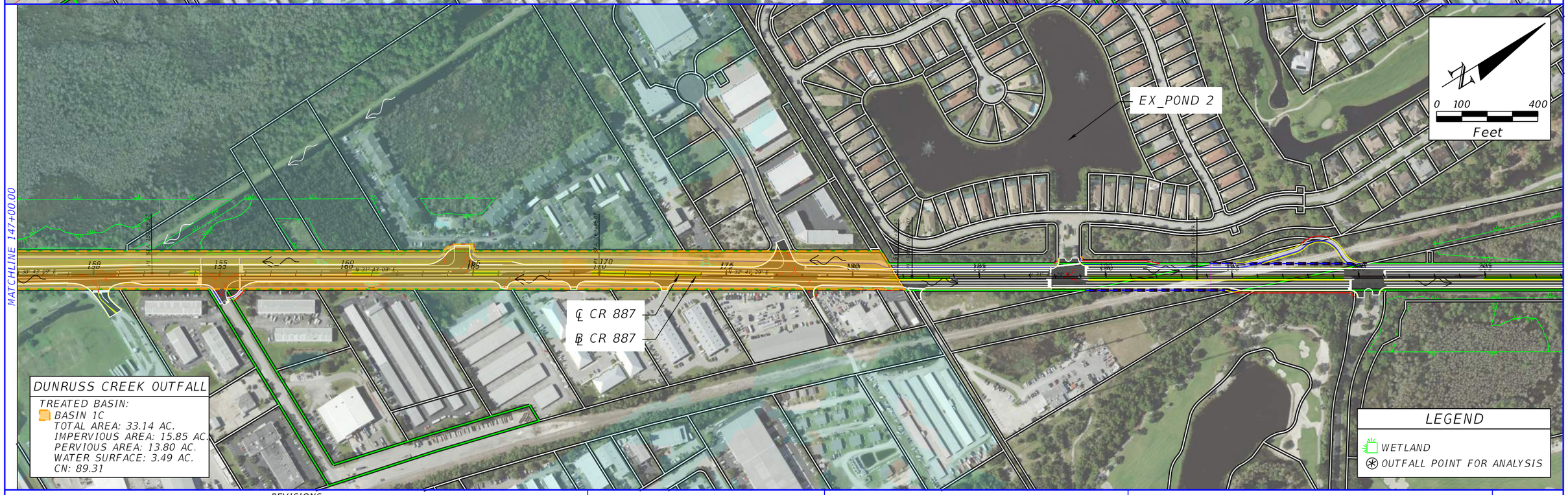
Storage Required = Post V(R) - Pre V(R) + Existing Pond Att = **2.08 ac-ft.**

Storage Provided = **5.92 ac-ft.**

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **12.07** ESHWT= **5.79** Δ= **6.28**





REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

POST-DEVELOPMENT BASIN 1C MAP

SHEET NO.

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	BASIN 1C			
POND DESIGNATION:	POND 1C	**MADE BY:**	JAG	3/14/2024
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	3/25/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Proposed Pond NWL	Water	N/A	100	3.49	348.81
			TOTALS	**3.49**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Treated)	N/A	N/A	98	6.76	662.48
Proposed Roadway Widening (Treated)	N/A	N/A	98	9.09	890.82
			TOTALS	**15.85**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)	N/A	N/A	93	0.00	0.00
Proposed Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Pervious Area	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	10.52	841.60
	Immokalee-Oldsmar, limestone substratum-Urban land complex, 0 to 2 percent slopes	A/D	80	1.63	130.40
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	1.23	47.97
	Urban land, 0 to 2 percent slopes	N/A	89	0.42	37.38
			TOTALS	**13.80**	

ICPR DATA

* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**33.14**	**COMPOSITE CN**	**89.31**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**89.31**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Collier County	25 yr/72 hr	11.20	1.20	9.88	**27.29**

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E	FDOT		HNTB
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	BASIN 1C			
POND DESIGNATION:	POND 1C	**MADE BY:**	JAG	3/14/2024
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	3/25/2025

Water Quality

Total Basin Area =	33.14	ac
Pond Area at NWL =	3.49	ac
New Paved Area (Treated) =	9.09	ac
Paved Area (Untreated) =	0.00	ac

A.	1.5	" Over Total Basin Area =	4.14	Ac-Ft
B.	3.75	" Times New Treated Paved Area =	2.84	Ac-Ft
		Required TV* =	4.14	Ac-Ft
		20% Contingency TV=	**4.97**	**Ac-Ft**

*An additional 50% required Treatment Volume was added for ultimately outfalling to OFW.

Stage Storage Calculations

ELEV. (ft, NAVD)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
13.31	Outside Berm	4.97				17.05
			4.52	1.00	4.52	
12.31	Inside Berm	4.06				12.53
			3.97	1.00	3.97	
11.31	ATT (25/72)	3.89				**8.56**
			3.81	0.94	3.58	
10.37	(TV)	3.73				**4.98**
			3.61	1.38	4.98	
8.99	(NWL)†	3.49				0.00
6.99	Pond Bottom	3.16				

Provided TV = 4.98 ac-ft.

† NWL elevation taken from SFWMD Permit No. #11-01644-P, North Collier Industrial Center.

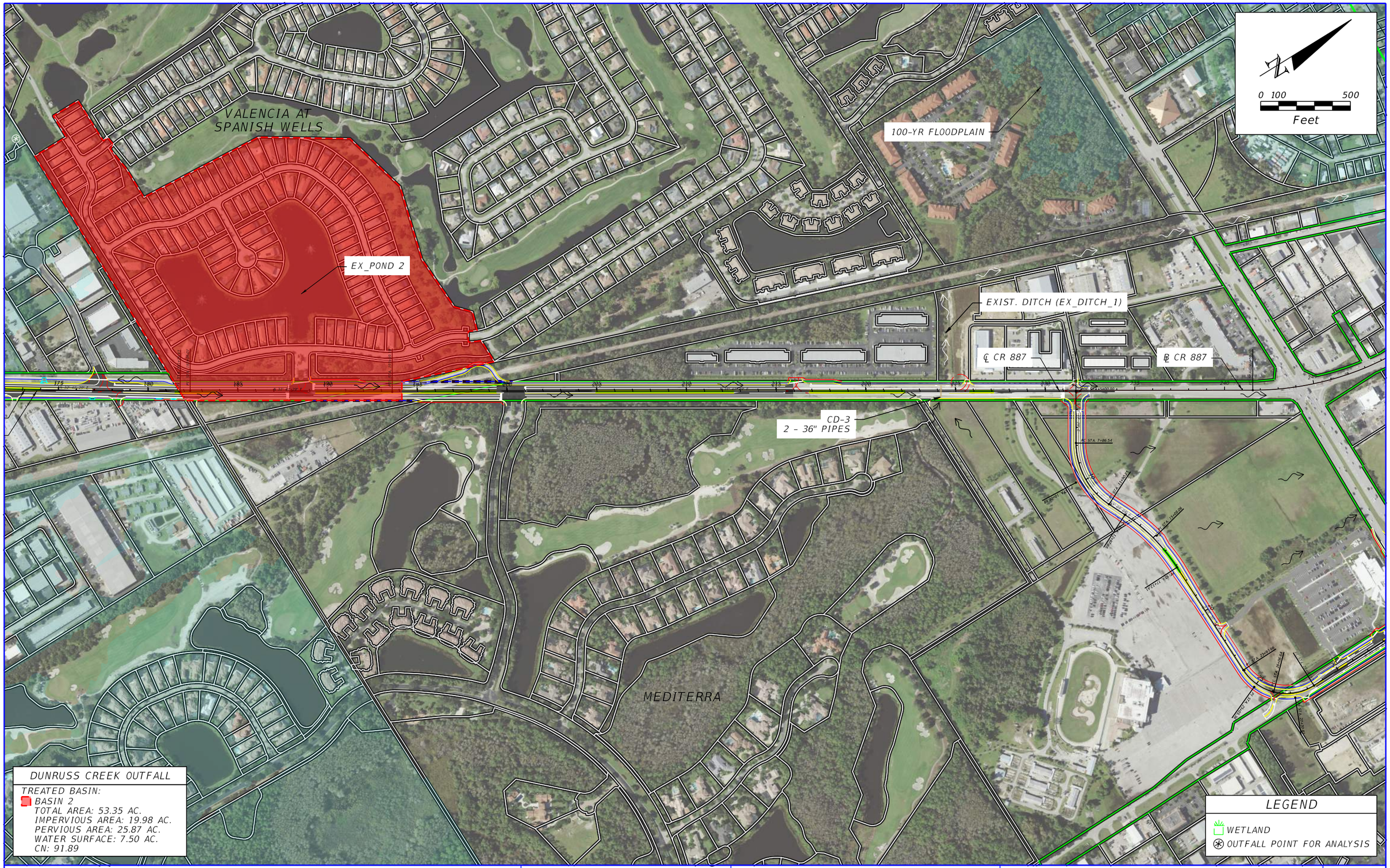
Water Quantity Estimate, Based on SCS Runoff Volume

Storage Required = Post V(R) - Pre V(R) + Existing Pond Att = **2.44 ac-ft.**

Storage Provided = **8.56 ac-ft.**

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **12.07** ESHWT= **8.99** Δ= **3.08**



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

POST-DEVELOPMENT BASIN 2 MAP

SHEET NO.

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			
BASIN DESIGNATION:	BASIN 2			**DATE**
POND DESIGNATION:	EX_POND 2	**MADE BY:**	JAG	3/27/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	3/27/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Lake Area (SFWMD Permit No. 36-00067-S-02)	Water	N/A	100	7.50	-
			TOTALS	**7.50**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Treated)	N/A	N/A	98	1.03	100.94
Proposed Roadway (Treated)	N/A	N/A	98	1.45	142.10
Roadway (SFWMD Permit No. 36-00067-S-02)	-	-	-	17.50	-
			TOTALS	**19.98**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)	N/A	N/A	93	0.00	0.00
Proposed Roadway (Treated)	N/A	N/A	93	0.00	0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Pervious Area (SFWMD Permit No. 36-00067-S-02)	-	-	-	25.25	-
Pervious Area	Immokalee fine sand-Urban land complex, 0 to 2 percent slopes	B/D	80	0.43	34.40
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.19	7.41
			TOTALS	**25.87**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**53.35**	**COMPOSITE CN**	**91.89**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**91.89**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	0.88	10.21	**2.64**

DUNRUSS CREEK OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	EX_BASIN 2 / BASIN 2			
POND/NODE DESIGNATION:	EX_POND 2	**MADE BY:**	JAG	3/27/2025
BASIN ANALYSIS (PRE/POST):	PRE / POST	**CHECKED BY:**	LVC	3/27/2025

Stage Storage Calculations

ELEV. (ft, NAVD)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
VARIES	Top of Berm	7.54				35.75
			-	-	-	
12.02	ATT (25/72)	7.53				**28.19**
			-	-	-	
9.18	(TV)	7.51				**6.68**
			-	-	-	
8.29	(NWL)	7.50				0.00
VARIES	Pond Bottom	0.00				

Provided TV = **6.68** **ac-ft.**

Existing Pond 2 ("Valencia at Spanish Wells" Pond L2) Information

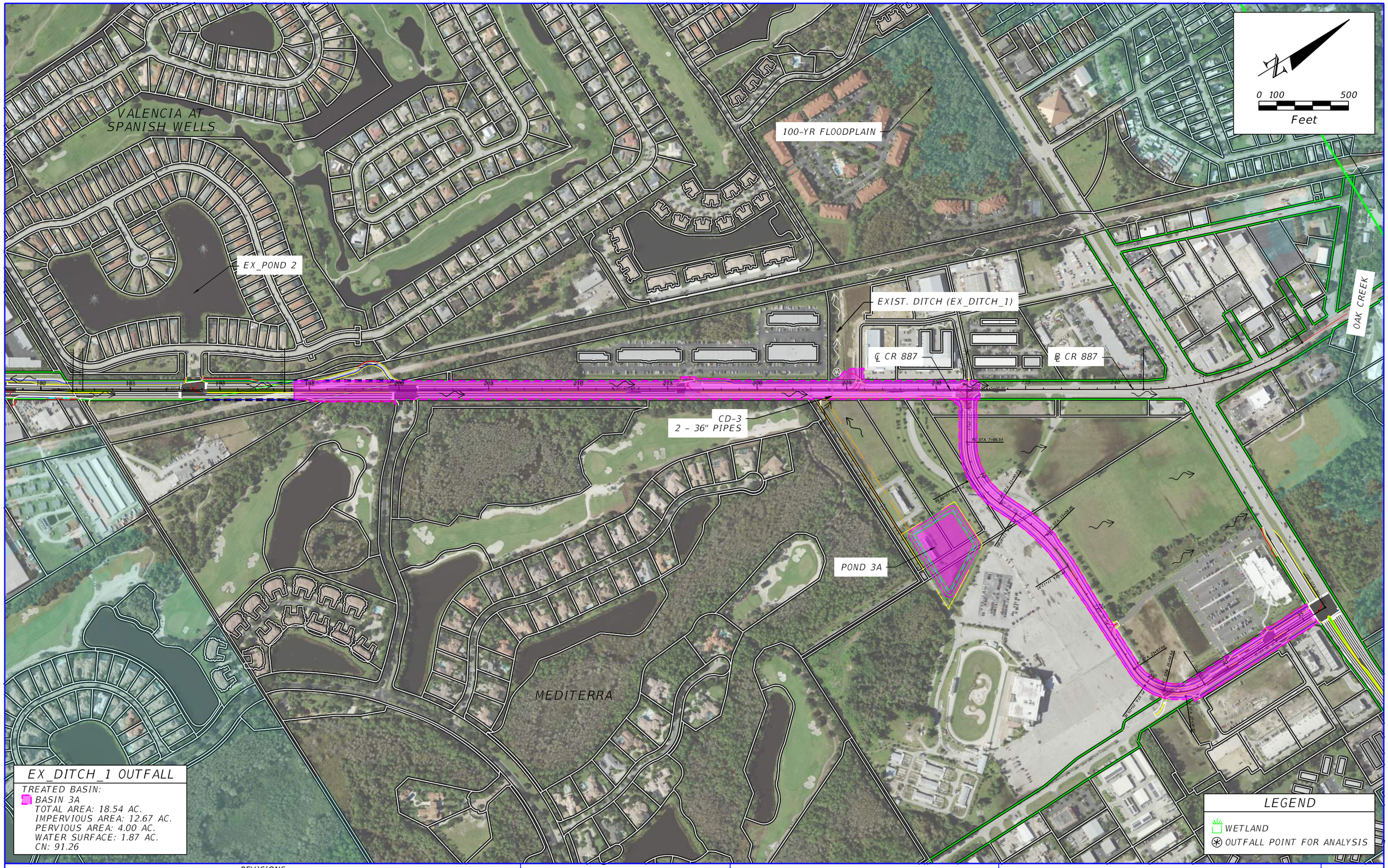
EX_POND 2 is equivalent to the permitted existing Spanish Wells Pond L2, which is located at approximately at Station 188+00 (CR 887 alignment) on the west side. All information provided on this sheet are for existing permitted conditions for the Spanish Wells Pond. The existing pond has a provided treatment volume of 6.68 ac-ft at 10.39 feet NGVD which was converted to 9.18 feet NAVD and outfalls into existing lakes that are part of the Spanish Wells surface water management system. The system ultimately discharges to the south, then flows through existing wetlands and ditches into the Old 41 conveyance system, and then flows south and west ultimately into the Cocohatchee River to the Gulf. To remain consistent with the current project, the conversion used from NGVD datum to NAVD88 datum is -1.214 ft. The Surface Water management Report for Valencia at Spanish Wells states that the exisiting pond accomodates the widening of CR 887, therefore no modifications are needed.

Please note that the information provided in the SFWMD Santa Barbara Worksheet accompaining these Stage Storage Calculations are provided for informational purposed only. Please refer to the The Storm Water Management Report from SFWMD Permit No. 36-00067-S-02 (130612-2) that was used to supplement these calculations for more details.

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **14.7** ESHWT= **8.29** Δ= **6.41**

EX_DITCH_1
Post-Development
Outfall Packages



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

POST-DEVELOPMENT BASIN 3A MAP

SHEET NO.

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			
BASIN DESIGNATION:	BASIN 3A			**DATE**
POND DESIGNATION:	POND 3A	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	5/8/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Proposed Pond NWL	Water	N/A	100	1.87	187.00
			TOTALS	**1.87**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Treated)	N/A	N/A	98	8.01	784.98
Proposed Roadway (Treated)	N/A	N/A	98	2.41	236.18
			TOTALS	**10.42**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Sidewalk (Treated)	N/A	N/A	93	2.25	209.25
			TOTALS	**2.25**	
PERVIOUS AREAS					
Pervious Area	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B	61	1.66	101.26
	Immokalee sand-Urban land complex, 0 to 2 percent slopes	B	61	0.27	16.47
	Copeland fine sandy loam, ponded-Urban land complex, 0 to 1% slopes	D	80	0.43	34.40
	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A	39	0.12	4.68
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.22	8.58
	Urban land, 0 to 2 percent slopes	N/A	84	1.30	109.20
			TOTALS	**4.00**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**18.54**	**COMPOSITE CN**	**91.26**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**91.26**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	0.96	10.13	**15.65**

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			
BASIN DESIGNATION:	BASIN 3A			**DATE**
POND DESIGNATION:	POND 3A	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	5/8/2025

Water Quality

Total Basin Area =	18.54	ac
Pond Area at NWL =	1.87	ac
New Paved Area (Treated) =	4.66	ac
Paved Area (Untreated) =	0.00	ac

A.	1.5	" Over Total Basin Area =	2.32	Ac-Ft
B.	3.75	" Times New Treated Paved Area =	1.46	Ac-Ft
		Required TV* =	2.32	Ac-Ft
		20% Contingency TV=	**2.78**	**Ac-Ft**

*An additional 50% required Treatment Volume was added for ultimately outfalling to OFW.

Stage Storage Calculations

ELEV. (ft) NAVD		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
12.50	Outside Berm	2.90				10.29
			2.60	1.00	2.60	
11.50	Inside Berm	2.29				7.70
			2.23	1.00	2.23	
10.50	ATT (25/72)	2.18				**5.46**
			2.11	1.17	2.47	
9.33	(TV)	2.04				**2.99**
			1.96	1.53	2.99	
7.80	(NWL)†	1.87				0.00
5.80	Pond Bottom	1.66				

Provided TV = 2.99 ac-ft.

† SHWT elevation taken from SFWMD Permit No. #36-04608-P

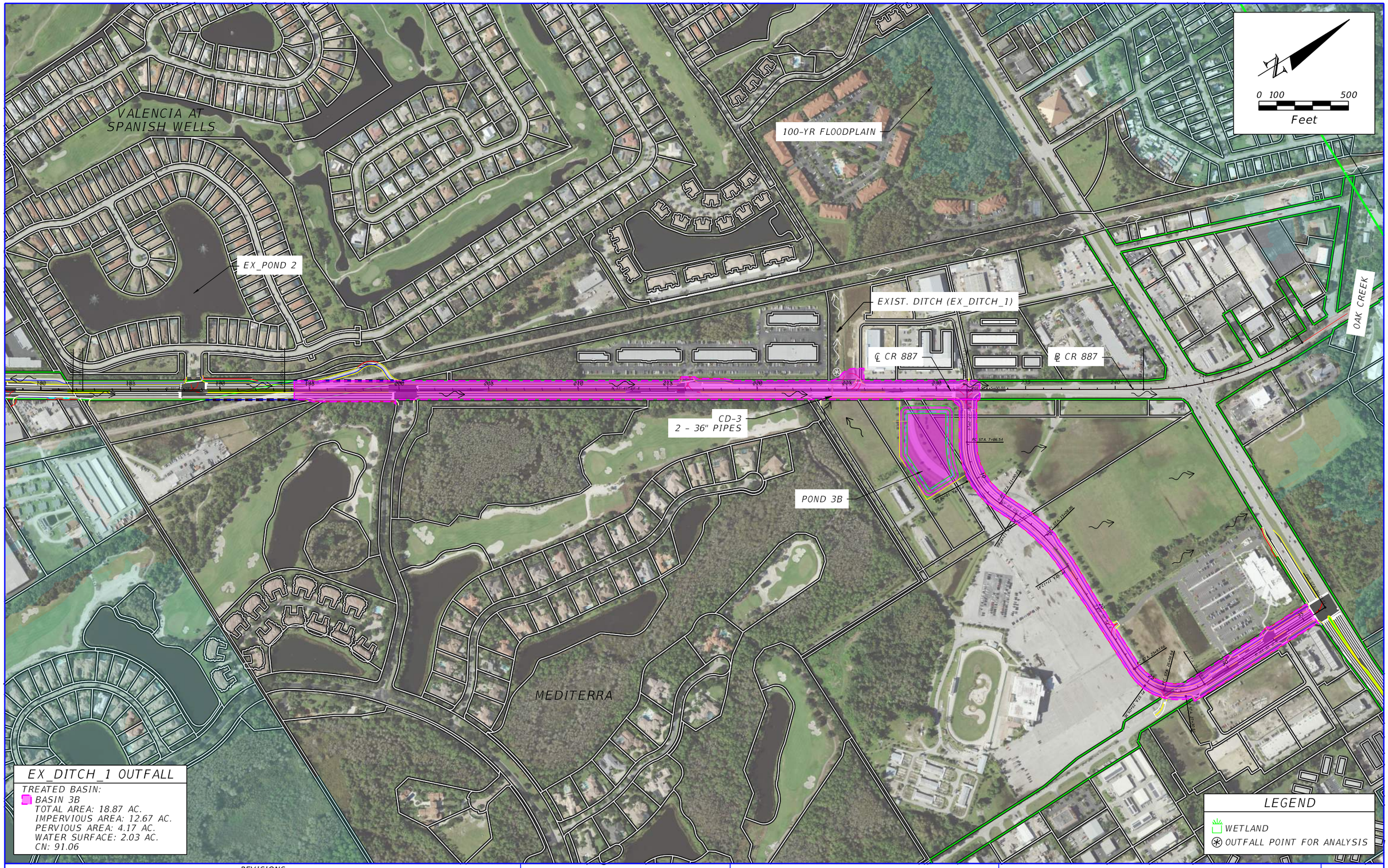
Water Quantity Estimate, Based on SCS Runoff Volume

Storage Required = Post V(R) - Pre V(R) + Existing Pond Att = **1.21 ac-ft.**

Storage Provided = **5.46 ac-ft.**

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **12.57** ESHWT= **7.80** Δ= **4.77**



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

POST-DEVELOPMENT BASIN 3B MAP

SHEET NO.

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	BASIN 3B			
POND DESIGNATION:	POND 3B	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	5/8/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Proposed Pond NWL	Water	N/A	100	2.03	203.00
			TOTALS	**2.03**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Treated)	N/A	N/A	98	8.01	784.98
Proposed Roadway (Treated)	N/A	N/A	98	2.41	236.18
			TOTALS	**10.42**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Sidewalk (Treated)	N/A	N/A	93	2.25	209.25
			TOTALS	**2.25**	
PERVIOUS AREAS					
Pervious Area	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B	61	1.83	111.63
	Immokalee sand-Urban land complex, 0 to 2 percent slopes	B	61	0.27	16.47
	Copeland fine sandy loam, ponded-Urban land complex, 0 to 1% slopes	D	80	0.43	34.40
	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A	39	0.12	4.68
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.22	8.58
	Urban land, 0 to 2 percent slopes	N/A	84	1.30	109.20
			TOTALS	**4.17**	

ICPR DATA

* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**18.87**	**COMPOSITE CN**	**91.06**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**91.06**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	0.98	10.10	**15.89**

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			HNTB
PROJECT NUMBER:	85808-DS-001			
BASIN DESIGNATION:	BASIN 3B			**DATE**
POND DESIGNATION:	POND 3B	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	5/8/2025

Water Quality

Total Basin Area =	18.87	ac
Pond Area at NWL =	2.03	ac
New Paved Area (Treated) =	4.66	ac
Paved Area (Untreated) =	0.00	ac

A.	1.5	" Over Total Basin Area =	2.36	Ac-Ft
B.	3.75	" Times New Treated Paved Area =	1.46	Ac-Ft
		Required TV* =	2.36	Ac-Ft
		20% Contingency TV=	**2.83**	**Ac-Ft**

*An additional 50% required Treatment Volume was added for ultimately outfalling to OFW.

Stage Storage Calculations

ELEV. (ft) NAVD		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
12.50	Outside Berm	3.09				11.08
			2.78	1.00	2.78	
11.50	Inside Berm	2.46				8.31
			2.40	1.00	2.40	
10.50	ATT (25/72)	2.34				**5.90**
			2.27	1.35	3.06	
9.15	(TV)	2.19				**2.85**
			2.11	1.35	2.85	
7.80	(NWL)†	2.03				0.00
5.80	Pond Bottom	1.81				

Provided TV = 2.85 ac-ft.

† SHWT elevation taken from SFWMD Permit No. #36-04608-P

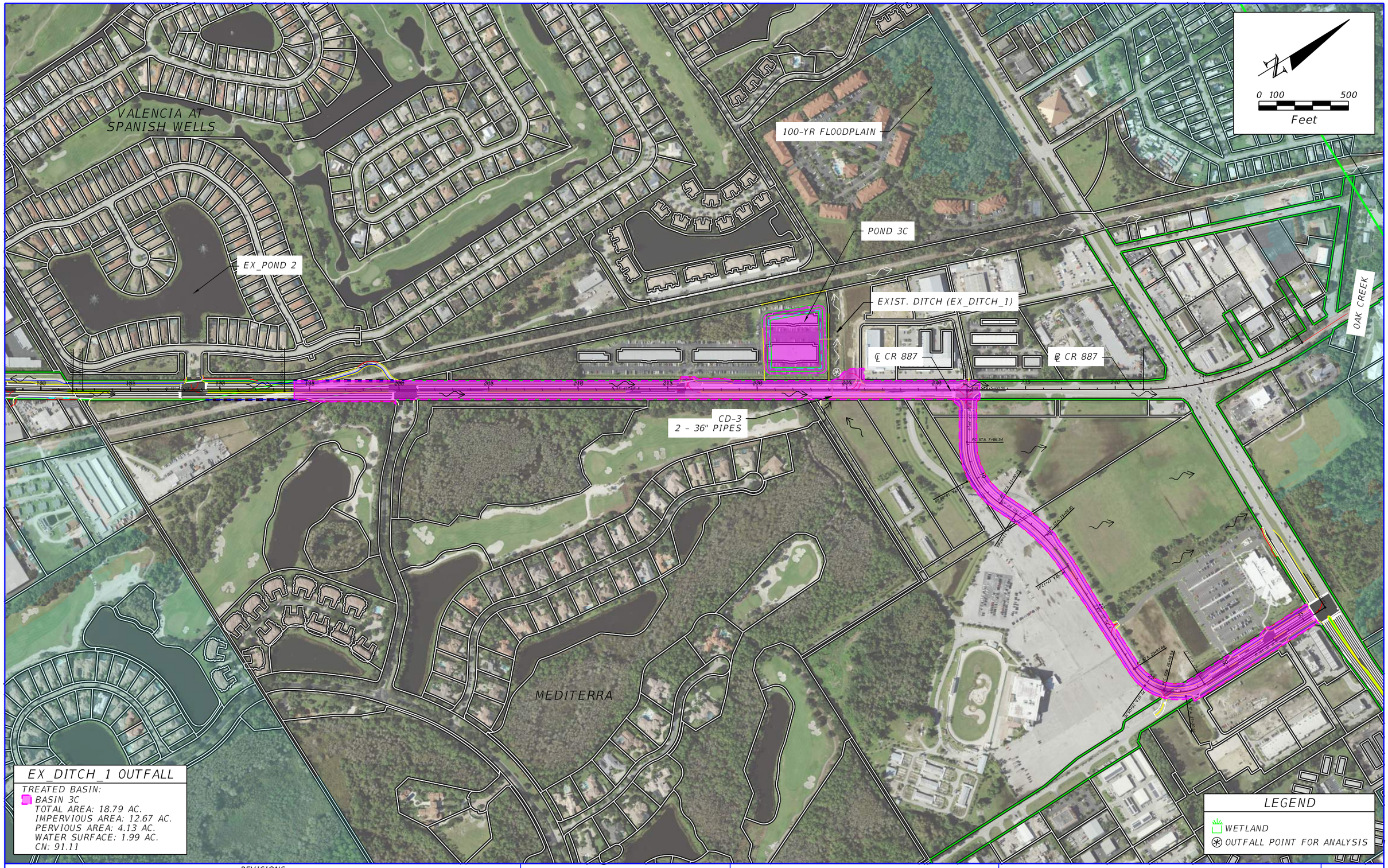
Water Quantity Estimate, Based on SCS Runoff Volume

Storage Required = Post V(R) - Pre V(R) + Existing Pond Att = **1.14 ac-ft.**

Storage Provided = **5.90 ac-ft.**

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **12.57** ESHWT= **7.80** Δ= **4.77**



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 887	COLLIER AND LEE	435110-1-22-01 435347-1-22-01

POST-DEVELOPMENT BASIN 3C MAP

SHEET NO.

jaglover 5/5/2025 11:01:47 AM Default U:\Jobs\85808 GFDOT D1 US 41 PDE_ PSR_LHR\Exhibits\DRMPRD03_POST.dgn

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	BASIN 3C			
POND DESIGNATION:	POND 3C	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	5/8/2025

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Proposed Pond NWL	Water	N/A	100	1.99	199.00
			TOTALS	**1.99**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Treated)	N/A	N/A	98	8.01	784.98
Proposed Roadway (Treated)	N/A	N/A	98	2.41	236.18
			TOTALS	**10.42**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Sidewalk (Treated)	N/A	N/A	93	2.25	209.25
			TOTALS	**2.25**	
PERVIOUS AREAS					
Pervious Area	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	B	61	1.79	109.19
	Immokalee sand-Urban land complex, 0 to 2 percent slopes	B	61	0.27	16.47
	Copeland fine sandy loam, ponded-Urban land complex, 0 to 1% slopes	D	80	0.43	34.40
	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	A	39	0.12	4.68
	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	A	39	0.22	8.58
	Urban land, 0 to 2 percent slopes	N/A	84	1.30	109.20
			TOTALS	**4.13**	

ICPR DATA			
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA	
TOTAL BASIN AREA	**18.79**	**COMPOSITE CN**	**91.11**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**91.11**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
SFWMD/Lee County	25 yr/72 hr	11.20	0.98	10.11	**15.83**

EX DITCH 1 OUTFALL

PROJECT TITLE:	Old US 41 PD&E			
PROJECT NUMBER:	85808-DS-001			**DATE**
BASIN DESIGNATION:	BASIN 3C			
POND DESIGNATION:	POND 3C	**MADE BY:**	JAG	5/1/2025
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	LVC	5/8/2025

Water Quality

Total Basin Area =	18.79	ac
Pond Area at NWL =	1.99	ac
New Paved Area (Treated) =	4.66	ac
Paved Area (Untreated) =	0.00	ac

A.	1.5	" Over Total Basin Area =	2.35	Ac-Ft
B.	3.75	" Times New Treated Paved Area =	1.46	Ac-Ft
		Required TV* =	2.35	Ac-Ft
		20% Contingency TV=	**2.82**	**Ac-Ft**

*An additional 50% required Treatment Volume was added for ultimately outfalling to OFW.

Stage Storage Calculations

ELEV. (ft) NAVD		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
12.50	Outside Berm	3.01				10.85
			2.71	1.00	2.71	
11.50	Inside Berm	2.41				8.14
			2.35	1.00	2.35	
10.50	ATT (25/72)	2.30				**5.79**
			2.22	1.33	2.95	
9.17	(TV)	2.15				**2.83**
			2.07	1.37	2.83	
7.80	(NWL)†	1.99				0.00
5.80	Pond Bottom	1.78				

Provided TV = 2.83 ac-ft.

† SHWT elevation taken from SFWMD Permit No. #36-04608-P

Water Quantity Estimate, Based on SCS Runoff Volume

Storage Required = Post V(R) - Pre V(R) + Existing Pond Att = **0.72 ac-ft.**

Storage Provided = **5.79 ac-ft.**

Estimated Lowest Edge of Pavement (LEOP) Elevation Check (ft-NAVD)

LEOP= **12.57** ESHWT= **7.80** Δ= **4.77**

Appendix E | Correspondence

SFWMD Pre-Application Meeting Minutes

SFWMD Pre-Application Meeting Minutes

CR 887 (Old US 41) PD&E Study

From US 41 to Lee County Line & From Collier County Line to Bonita Beach Road
FPIDs 435110-1-22-01 & 435347-1-22-01
Lee and Collier Counties

1/27/2021
10:00 AM
Teams Meeting (Virtual)

Meeting called by: Steven Andrews, FDOT
Type of meeting: SFWMD Pre-App

Facilitator: Nicole Monies, FDOT
Note taker: Matt Dockins, RK&K

Attendees:
Melissa Roberts, SFWMD
Laura Layman, SFWMD
Jonathon Wadas, SFWMD
Jewelene Harris, SFWMD
Angelica Hoffert, SFWMD
Andy Tilton, SFWMD
Kim Fikoski, SFWMD
Richard "OJ" Oujevolk, FDOT
Brent Setchell, FDOT
Matt Feeney, Bonita Springs
Trinity Scott, Collier County
Matt Dockins, RK&K PM
Joe Baan, RK&K Drainage
Gordon Mullen, RK&K Env.

Attachments: Presentation

Minutes

Summary:

1. Existing Conditions

Joe Baan summarized the project location and scope. The Old US 41 corridor is constrained in Collier County with an existing 2-lane undivided rural typical section and a large canal on the west side of the road. The canal is for conveyance only. It does not provide any formal stormwater treatment and has no in-line weirs or control structures. Old US 41 is less constrained in Lee County because the right-of-way (ROW) has no canal.

2. Future Conditions

This PD&E analyzes potential improvements to Old US 41 including widening to a 4-lane divided typical section south of the Racetrack driveway and a quadrant roadway north of the Racetrack driveway. Multimodal improvements are included in the typical section.

3. Stormwater Management

The project is anticipated to widen Old US 41 from a 2-lane undivided roadway to a 4-lane divided roadway in the Collier County segment. Approximately 21 parcels including 23 residences and 13 businesses would be partially or completely impacted to widen the roadway and leave the existing canal in its existing location. Alternatively, replacing the canal with a closed drainage system would allow proposed improvements to be located above the existing canal and eliminate property impacts associated with the roadway itself. The closed system is the recommended alternative. The canal will remain open wherever possible, but preliminary analysis only showed one 700-ft long area where that could be possible. Brent Setchell asked how the large offsite areas would be routed into the closed system. Joe explained that most of the stormwater discharges into the canal at several well-defined points where an inlet could be proposed. SFWMD staff were supportive of the idea to close the canal because it reduces potential impacts to adjacent conservation easements. SFWMD cautioned that tailwater conditions should not be impacted for adjacent developments. Joe stated that the conceptual

model of the closed system shows that peak stage increases can be avoided, which should preserve tailwater conditions. SFWMD requested analysis of the 5-yr, 25-yr, and 100-yr storm events for the proposed closing of the canal. Jewelene Harris asked if Tampon Creek Bypass was an existing channel. Joe responded that it is an existing channel with vegetated slopes. Jewelene requested cross sections of the channel for the design phase permit submittal. SFWMD also recommended coordinating with FDEP on the potential for sovereign submerged lands.

Joe summarized the three pond alternatives for Basin 1 in Collier County. This basin discharges south to the Cocohatchee River via Dunruss Creek. All properties along this basin are either conservation easement, future roadway corridor, or developed land. He explained that SMF 1A (Extra Space Storage) is the most desirable because it only impacts one business. It will provide compensatory treatment of the new impervious area and allow areas south of Collier Center Way to discharge directly into the canal, as they do in the existing condition. Jonathon Wadas was agreeable to this concept. Jon identified that WBID 3278C may be impaired for nutrients. Basins with roadway-related impairments will be analyzed with nutrient loading calculations while basins without roadway-related impairments will use SFWMD presumptive criteria.

Joe summarized the three pond alternatives for Basin 2 in Bonita Springs. This basin discharges north via a channel beside the railroad and a channel on the racetrack property to Oak Creek. Plenty of options exist on the racetrack property to locate a pond outside of existing wetlands. The quadrant roadway will require a segment of road through the racetrack property. If this segment is located in existing impervious areas, it will be allowed to discharge where it does in the existing condition. If it is located in existing pervious area then it will need it's own stormwater management pond discharging to the existing outfall. Jon pointed out that the existing racetrack permit includes a stormwater pond discharging north.

4. Floodplain Compensation

Joe pointed out that most of the existing Old US 41 in Collier County is within 100-yr floodplain. Most of the property adjacent to the corridor is either within 100-yr floodplain or preservation lands making it difficult to site floodplain compensation (FPC) sites. Five FPC sites were identified at or above the 100-yr floodplain that could achieve conventional cup-for-cup floodplain compensation. However, these FPC sites impact 8 property owners, several businesses, and are estimated to cost $36 million in ROW alone. RK&K identified an innovative alternative to slightly improve conveyance along Dunruss Creek, which will maintain or slightly improve 100-yr peak stages along Old US 41. This alternative involves adding riprap along the FDOT canal west of US 41 to Wiggins Pass Road, a new 48-in cross drain under Wiggins Pass Road, and an overflow structure/pipe along West Lane. This alternative will increase the 100-yr peak stage south of West Lane by approximately 0.5 ft. However, the 100-yr riverine peak stage is still estimated to be below 4 ft elevation and within the banks of the downstream channel. The manmade canal west of US 41 is within an FDOT easement. SFWMD was agreeable to the second alternative as a way to avoid substantial property impacts. SFWMD requested consideration of erosion protection at the south end of West Lane. This could include a spreader swale or an excavated permanent pool. SFWMD pointed out that improvements to the canal west of US 41 could be considered wetland impacts but Brent pointed out that it is a manmade canal. After a question from SFWMD, Joe clarified that the analysis was done for riverine floodplain impacts.

5. Regional Stormwater Management

Opportunities for regional stormwater management were discussed. Brent asked about the property west of the Tarpon Cove development. This area is already permitted as a proposed Cocohatchee PUD. Brent asked about the forested area west of West Lane. RK&K will conduct a preliminary analysis of a potential regional stormwater management facility on the parcel west of West Lane and on the parcels owned by Collier County at the south end of West Lane.

6. Environmental

Gordon emphasized the preliminary nature of this project with the alignment and typical section development in process. He discussed the local SFWMD conservation easements along the project

limits. Coordination with SFWMD did not identify any Section 4(f) recreational uses. The design will avoid impacts as much as feasible but impacts near the Veterans Memorial Blvd. intersection are possible. If impacts are unavoidable, FDOT will coordinate with SFWMD to discuss legal requirements for lifting easements and replacement of prior wetland mitigative functions as part of future mitigation. Melissa emphasized SFWMD's request that conservation easements be avoided at all costs and stated that the District's governing board is generally not in favor of releasing easements. Ample lead time is needed if unavoidable impacts are expected, so begin coordination early.

Gordon provided an overview of the preliminary wetland and surface water impacts calculated to date. These are approximately 2.94 acres and 5.4 acres, respectively. These impacts do not include any discussion of Floodplain Compensation Option 2 (i.e., potential drainage conveyance and storage improvements west of the US 41/Old US 41 (CR 887) intersection at the project's southern terminus or south of Wiggins Pass Road). The UMAM functional loss for these impacts has not yet been calculated. Gordon discussed that the project is within the geographic service areas of several mitigation banks for compensatory mitigation of wetland and species habitat impacts. The project's federal Clean Water Act Section 404 permitting is expected to be completed by the FDEP (provided the project continues not to impact any federally "retained" waters).

Potential involvement with approximately 14 federal and 50 state-protected species or their habitat is being evaluated for this project. Gopher tortoise and state-listed plants are most notable due to confirmed observations. Wetland impacts and mitigation along with protected species involvement will be discussed in the PD&E-phase Natural Resource Evaluation Report to be submitted by FDOT to the applicable federal and state resource/permitting agencies.

Jewelene Harris had no questions on environmental items. She commented it appears to be pretty straightforward. Laura Layman reiterated the project should avoid impacting conservation easements. She supports closing the canal to avoid conservation easement impacts.

Action items	**Person responsible**	**Deadline**
Check if WBID 3278C is impaired for roadway-related impairments. If so, PD&E will include nutrient loading calculations.	Joe Baan	
Check with DEP on sovereign submerged land limits.	Gordon Mullen	
Regional pond options – Look into options to west of Tarpon Cove Canal (may be under development now). Look into providing treatment to the west of West Lane in County property.	Joe Baan	



CR 887 (Old 41) PD&E Study

SFWMD Pre-Application Meeting

FPID: 435110-1-22-01 & 435347-1-22-01

FAP: D119 028 B & D119 027 B

1/27/2021

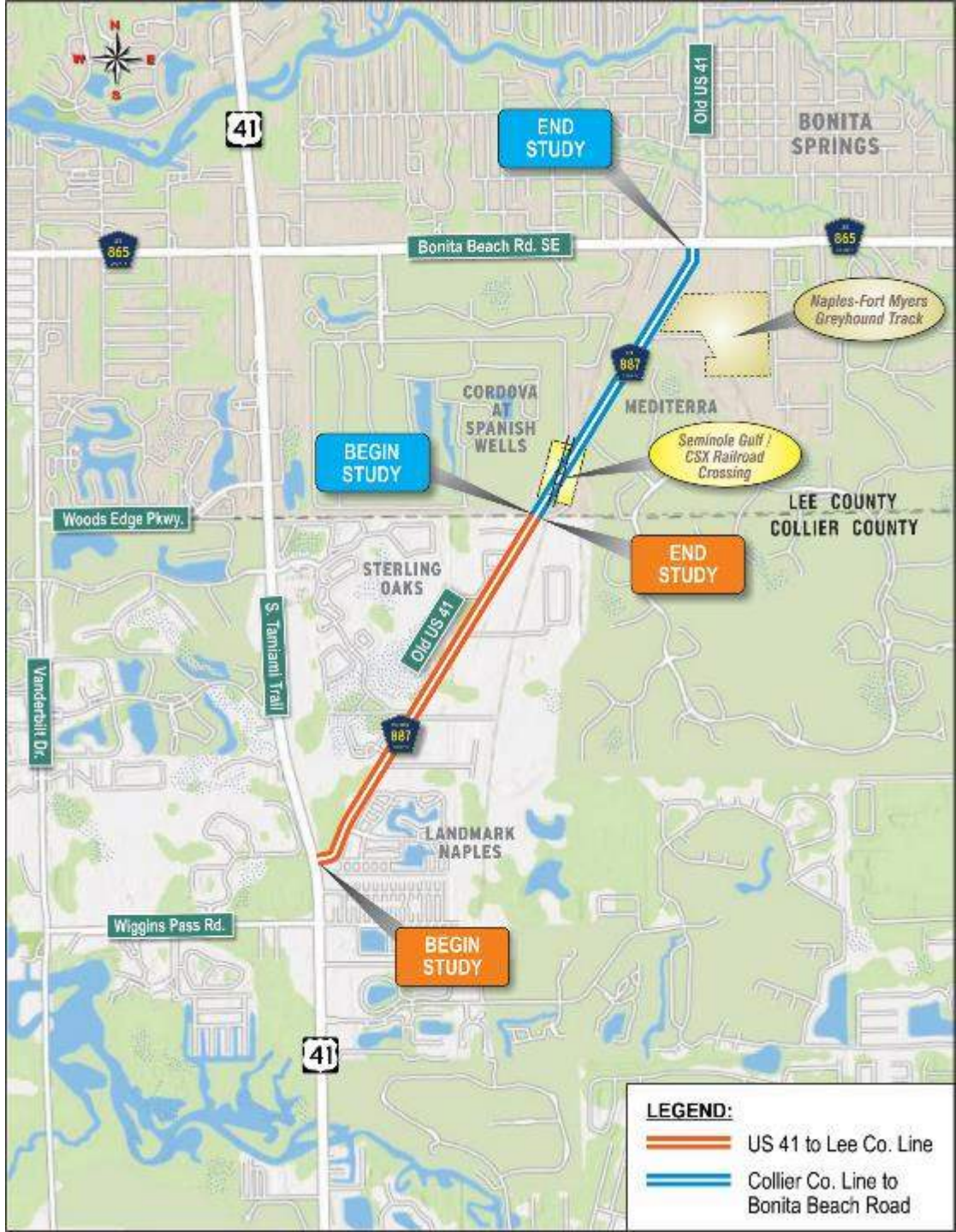
Agenda

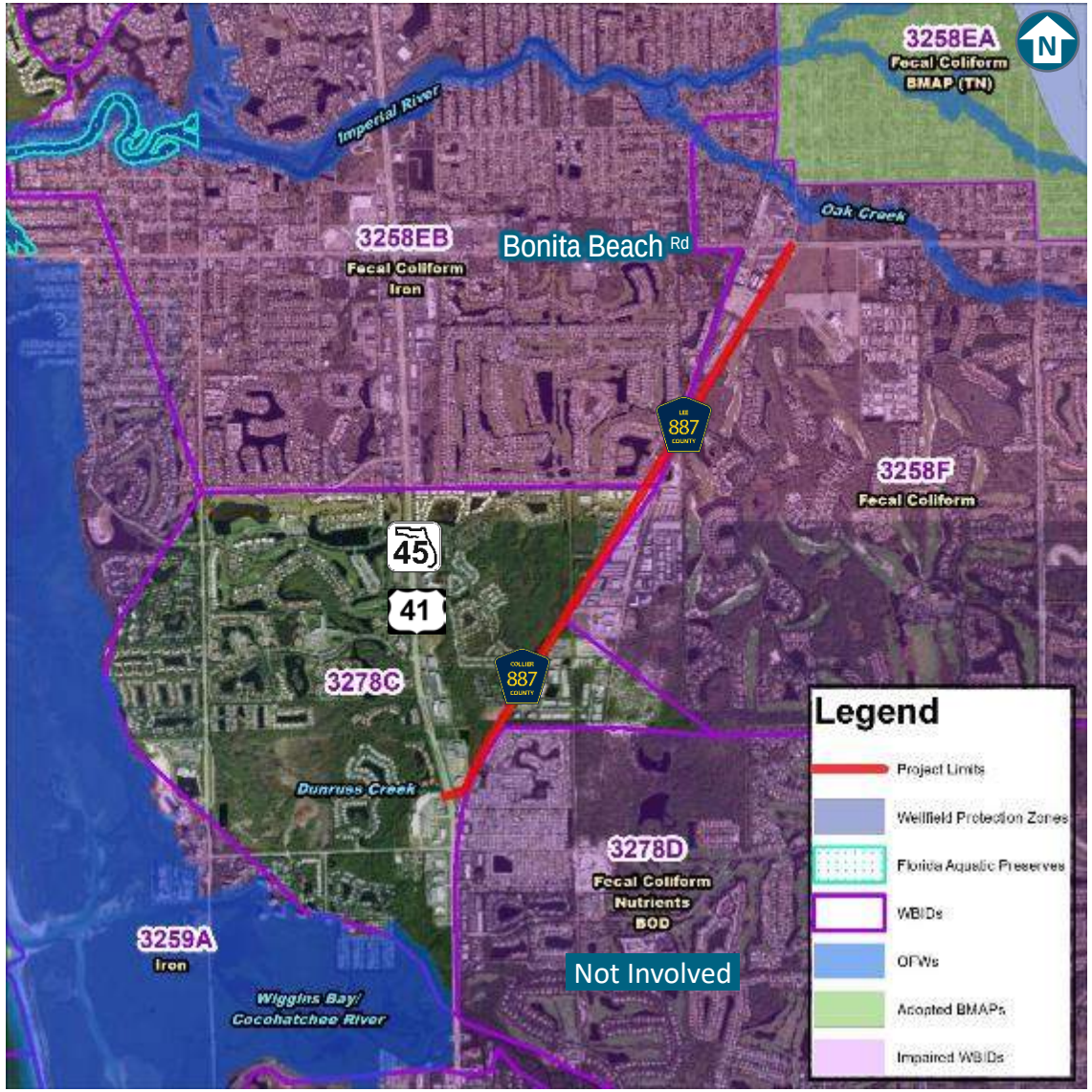
- Overview
- Stormwater
  - Dunruss Creek
  - Stormwater Ponds
  - Floodplain Compensation
- Environmental
  - Conservation Easements
  - Protected Species
  - Wetlands

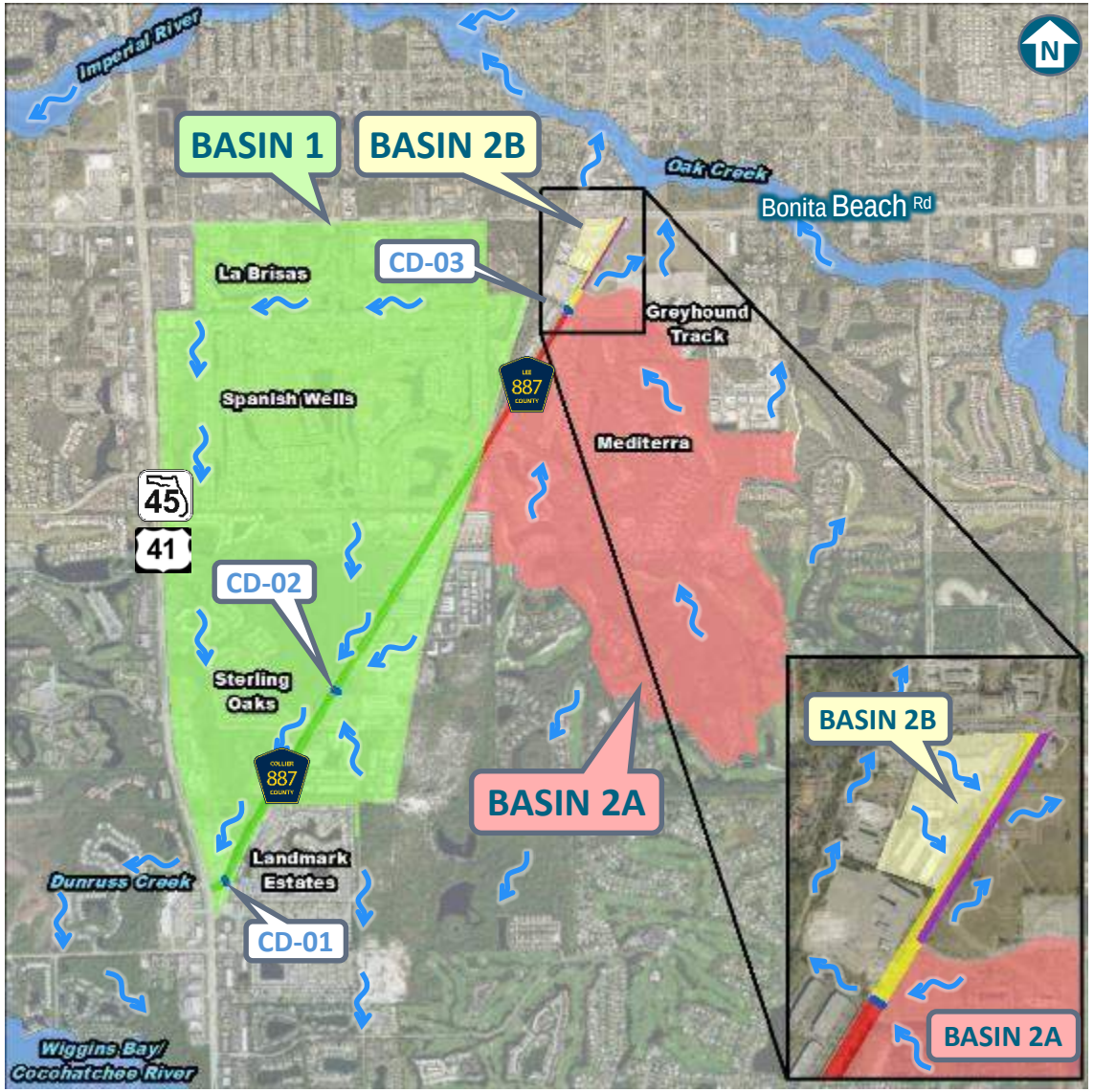


Project Overview






3258EA
Fecal Coliform
BMAP (TN)
Imperial River
Oak Creek
3258EB
Fecal Coliform
Iron
Bonita Beach Rd
887
3258F
Fecal Coliform
45
41
3278C
Dunruss Creek
3278D
Fecal Coliform
Nutrients
BOD
3259A
Iron
Wiggins Bay/
Cocohatchee River
Not Involved
Legend
Project Limits
Wellfield Protection Zones
Florida Aquatic Preserves
WBIDs
OFWs
Adopted BMAPs
Impaired WBIDs


Imperial River
BASIN 1
BASIN 2B
Oak Creek
Bonita Beach Rd
La Brisas
CD-03
Greyhound
Track
Spanish Wells
887
Mediterra
45
41
CD-02
Sterling
Oaks
BASIN 2A
Landmark
Estates
Dunruss Creek
CD-01
Wiggins Bay/
Cocohatchee River
BASIN 2B
BASIN 2A

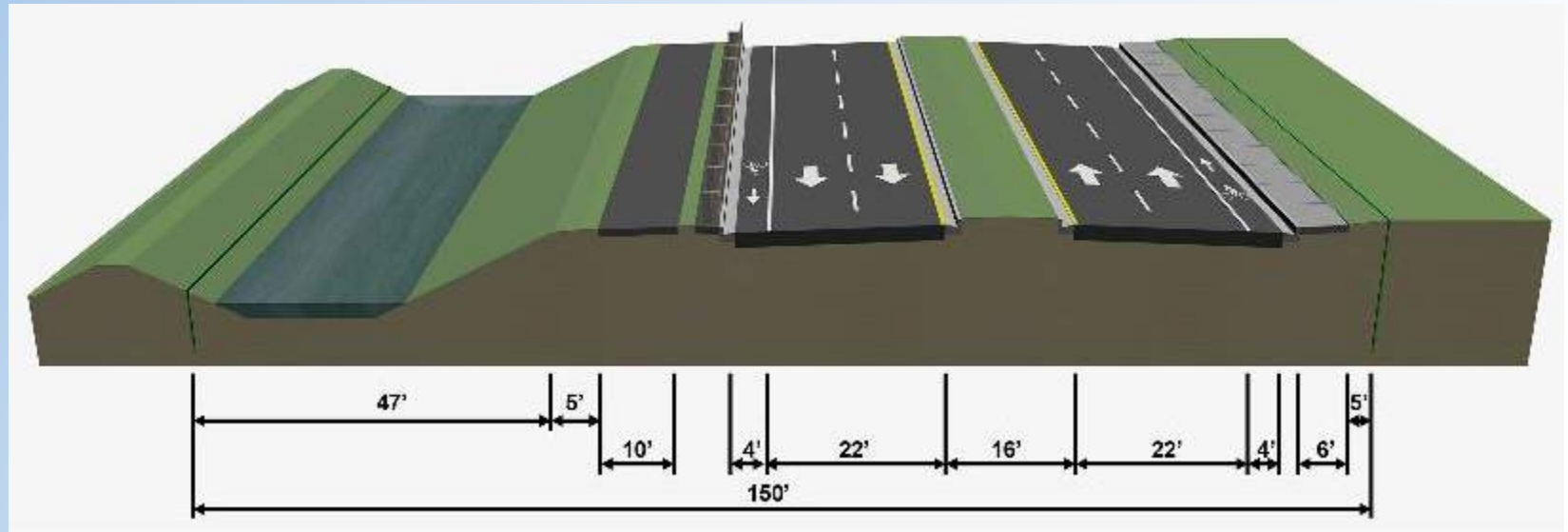
Stormwater

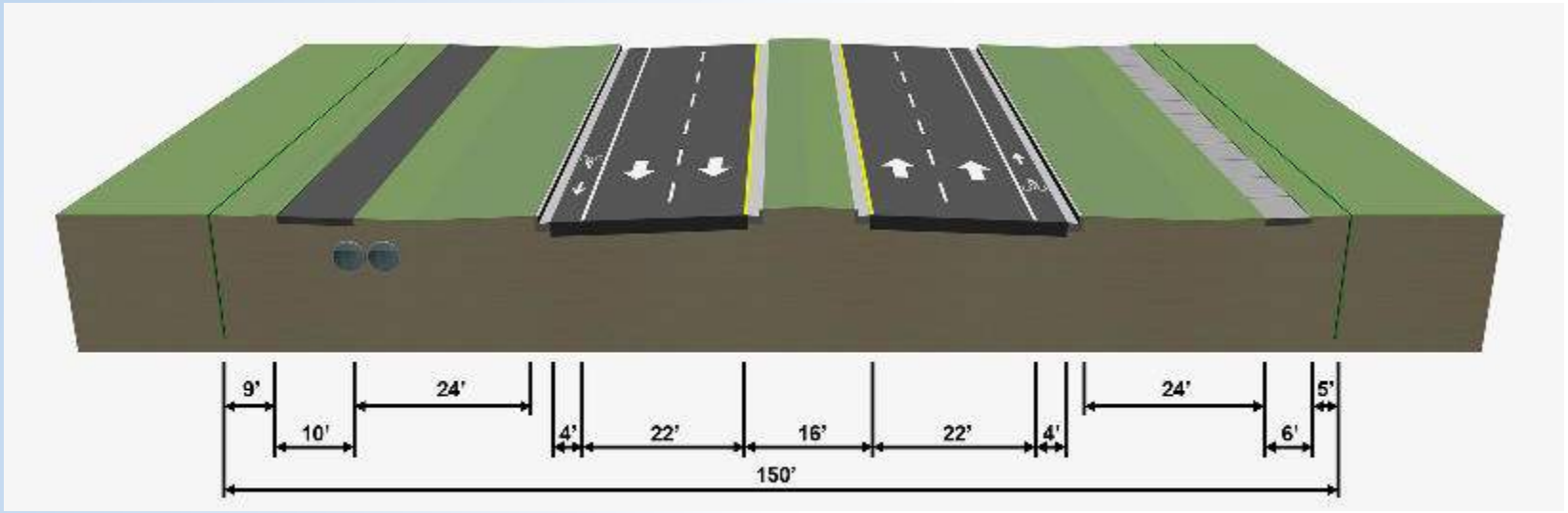
Dunruss Creek

- Existing open canal
- Alternative 1: Open Canal
  - 21 parcel impacts
    - 23 residences
    - 13 business parking/circulation
  - Moderate maintenance cost
  - Reduced safety
- Alternative 2: Closed Storm Drain
  - Double 4x10 CBC at US 41
  - Double 24” pipe at FP&L easement
  - Low maintenance
  - Maximum safety



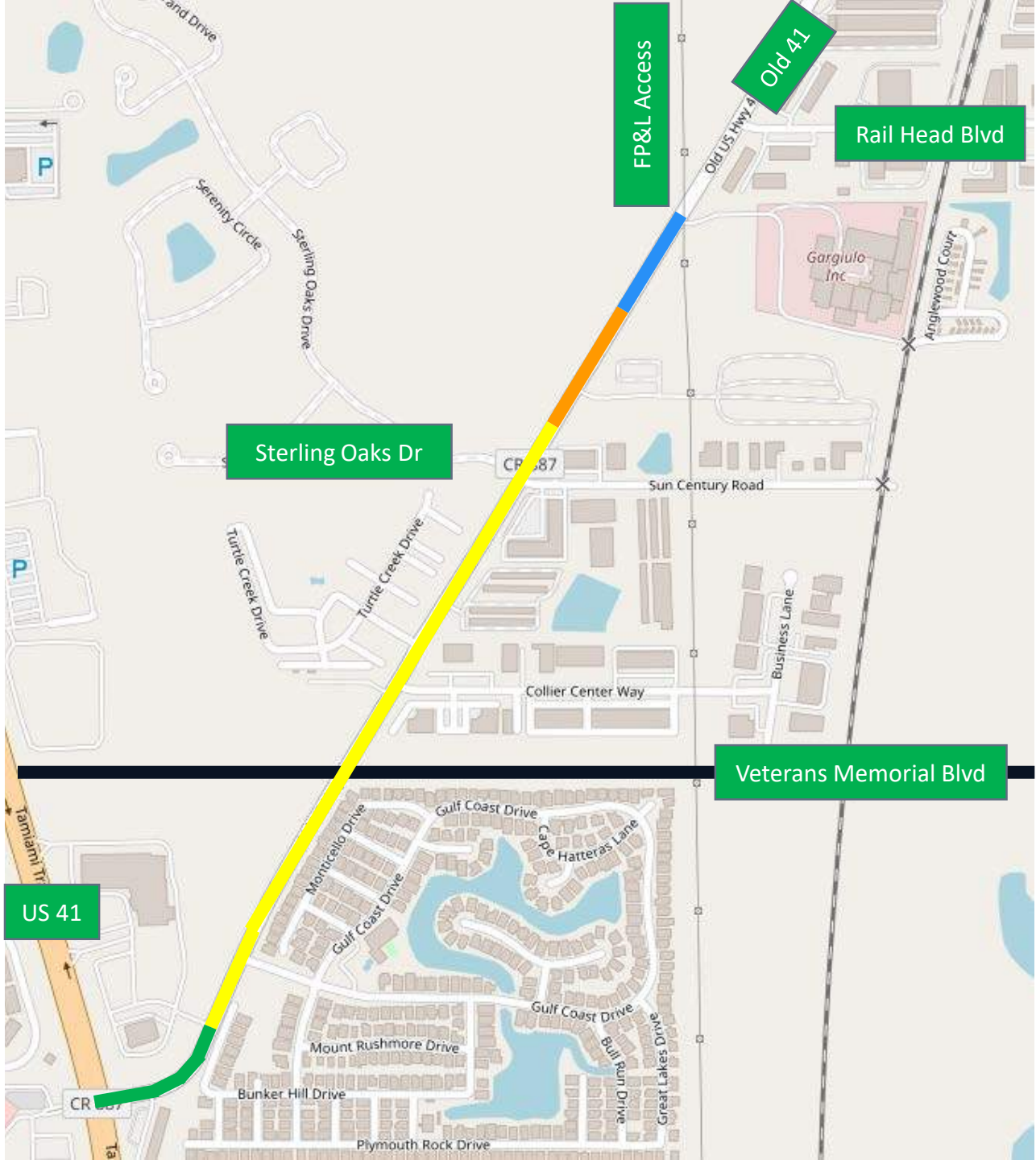
Typical Sections





Canal Segments

Canal Segment	Considerations
Segment A US 41 to CVS Driveway 500’	Numerous turn lanes at US 41 intersection. Proposed flattening of Old 41 curve approaching intersection.
Segment B CVS Driveway to N. of Sterling Oaks Dr 3,200’	Right turn lanes on east and west side of Old 41. Canal has 22’ or 16’ bottom and is typically located approx. 10’ off of ROW line.
Segment C N. of Sterling Oaks Dr to S. FP&L Access 700’	No turn lanes. Canal has 16’ bottom and is typically located at ROW line.
Segment D S. of FP&L Access to FP&L Access 600’	Includes roadway shift to accommodate right turn lane on east side at Rail Head Blvd.

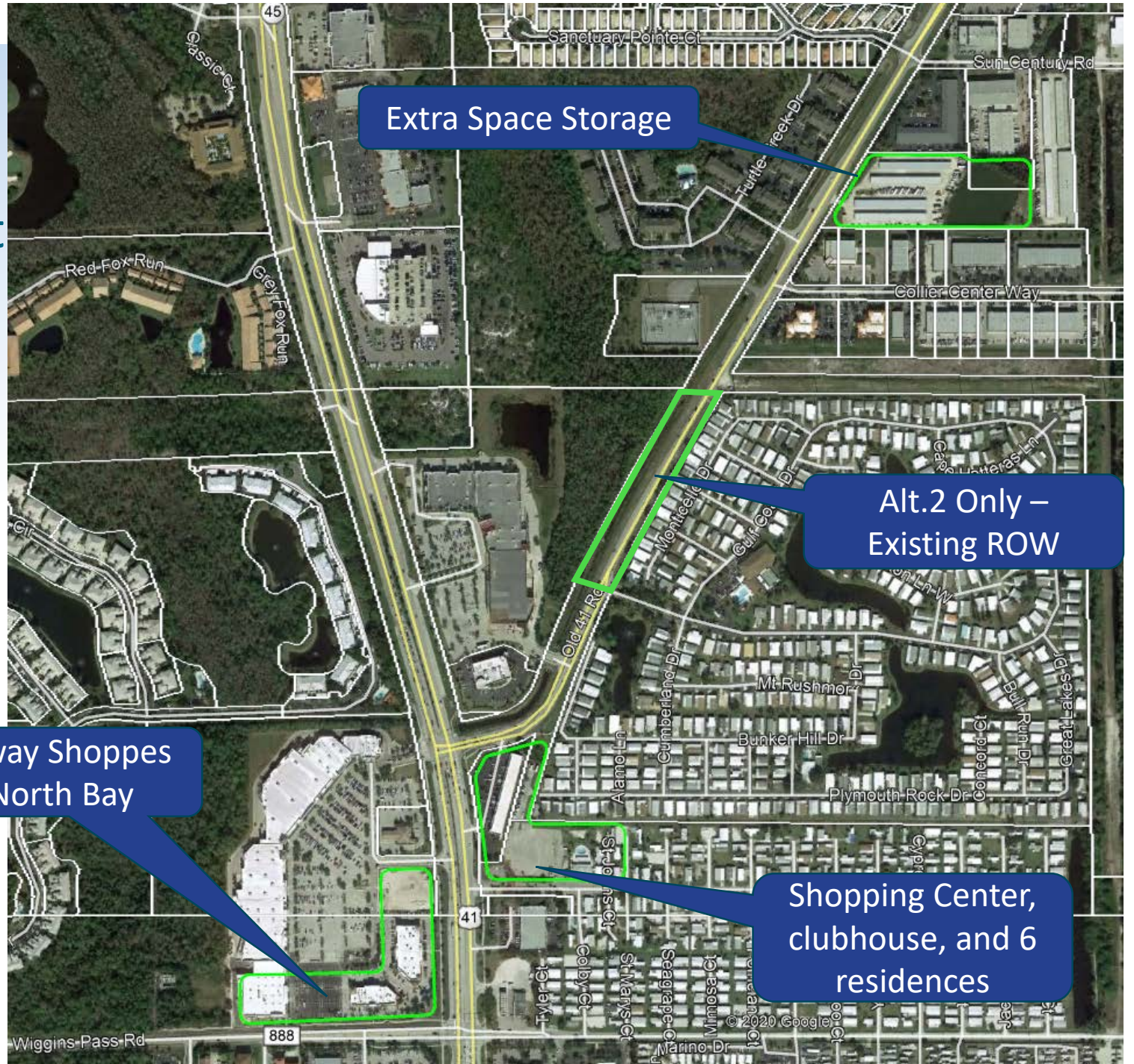


Does Open Canal plus Roadway Fit Within Existing ROW?

Canal Segment	Minimum Roadway + Path + Sidewalk Width	Required Open Canal Width	Total ROW Width Needed to Maintain Open Canal	Existing ROW	Canal Recommendation
Segment A - 500’ US 41 to CVS Driveway	125’ (SB turn lanes)	65’	190’	150’	Closed
Segment B - 3,200’ CVS Driveway to N. of Sterling Oaks Dr	125’ (NB and SB turn lanes)	45’ to 50’	170’ to 175’	150’	Closed
Segment C - 700’ N. of Sterling Oaks Dr to S. FP&L Access	103’ (no turn lanes)	32’ to 40’	135’ to 143’	150’	**Open**
Segment D - 600’ S. of FP&L Access to FP&L Access	114’ (NB turn lane)	45’	159’	150’	Closed

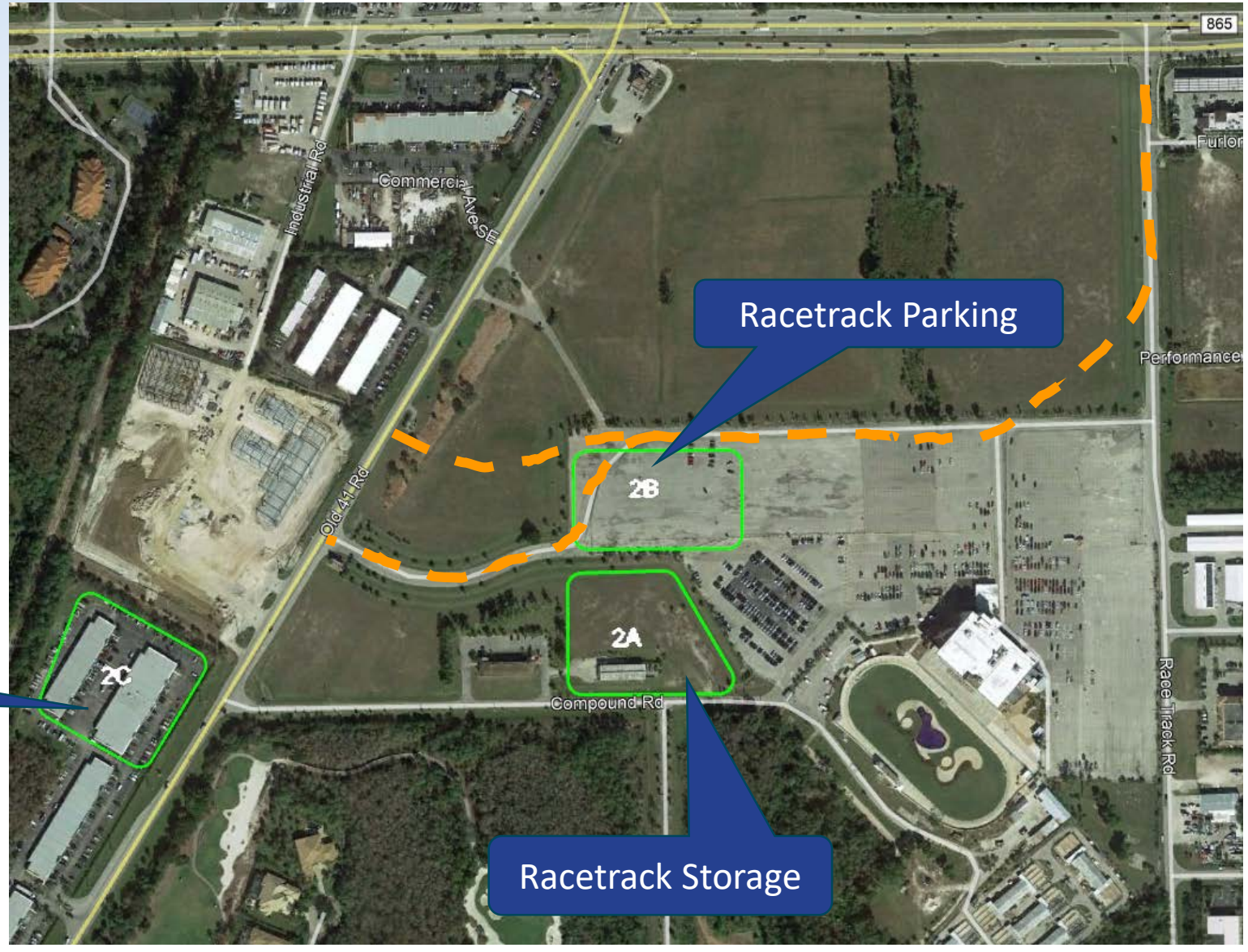
Ponds

- Compensatory Treatment
  - Collect pavement at least equivalent to new lanes
- Discharge to Dunruss Creek



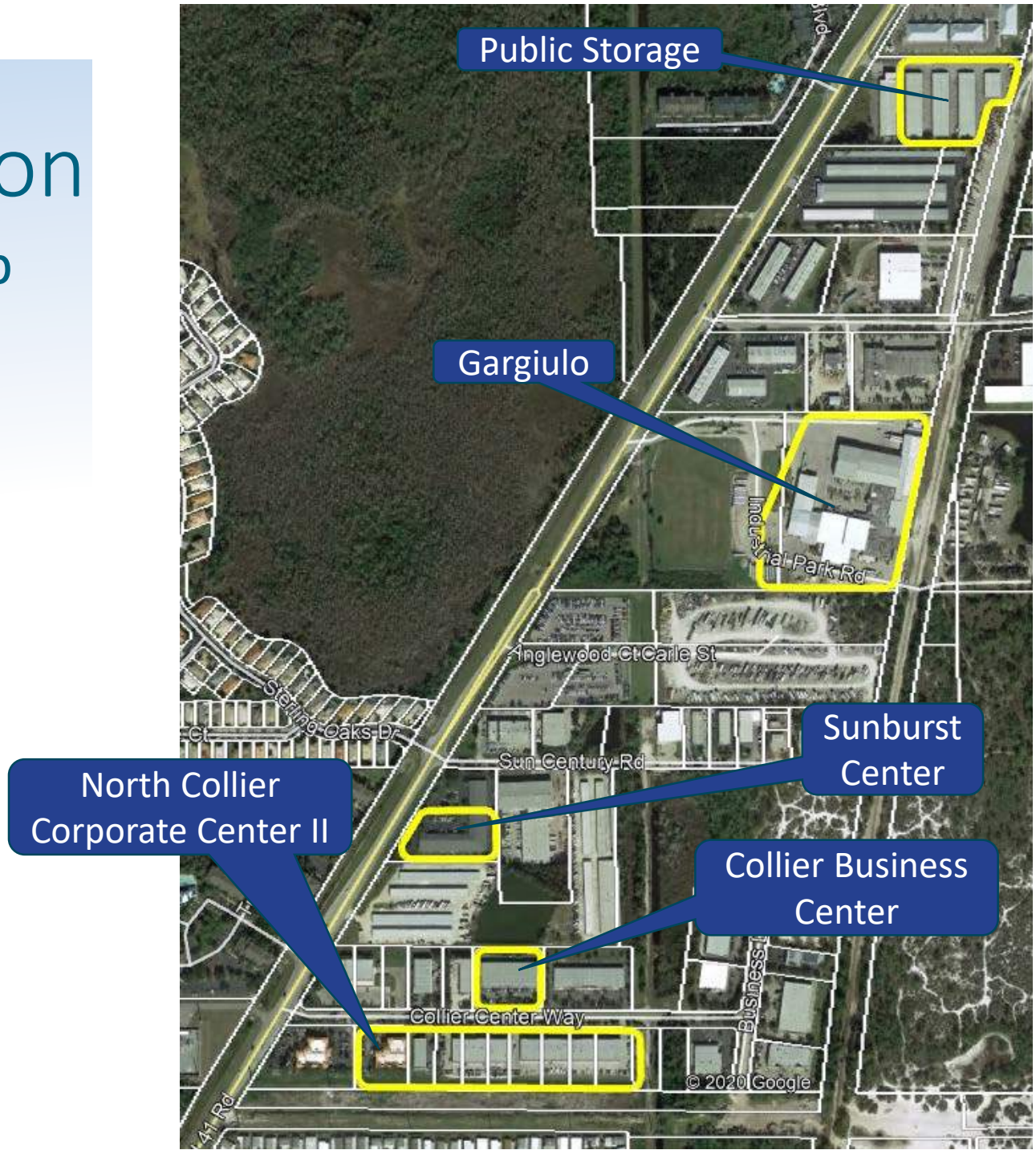
Ponds

- Preliminary evaluation
- Three options
  - Only one site needed
- Dependent on Quadrant Rd alignment and redevelopment



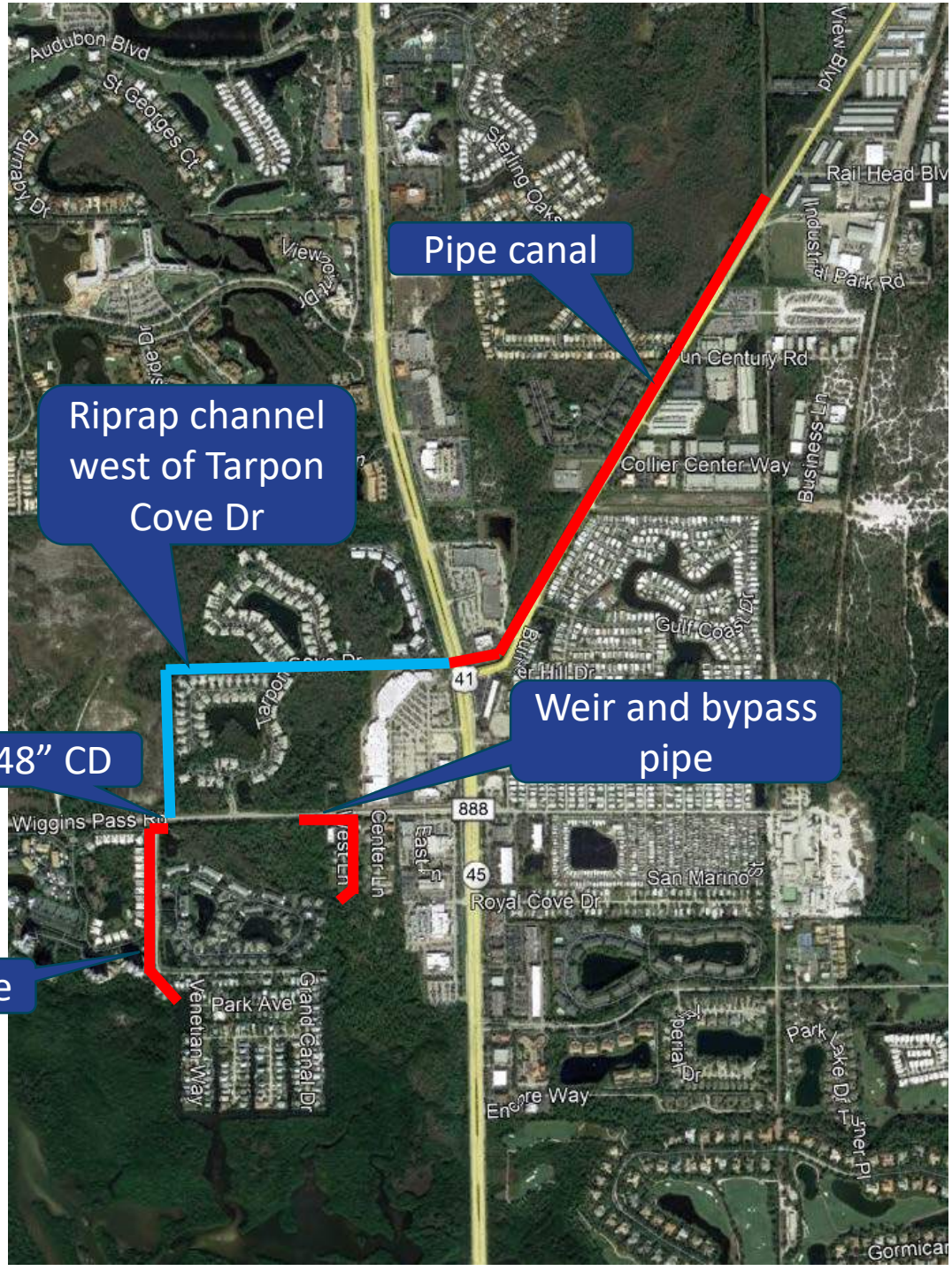
Floodplain Compensation

- Opt. 1: Conventional Cup-for-Cup
  - 17.3 acres of impacts
    - All sites shown
  - 15 Parcels
    - Eight property owners
    - Numerous businesses
  - $36 million in property acquisition



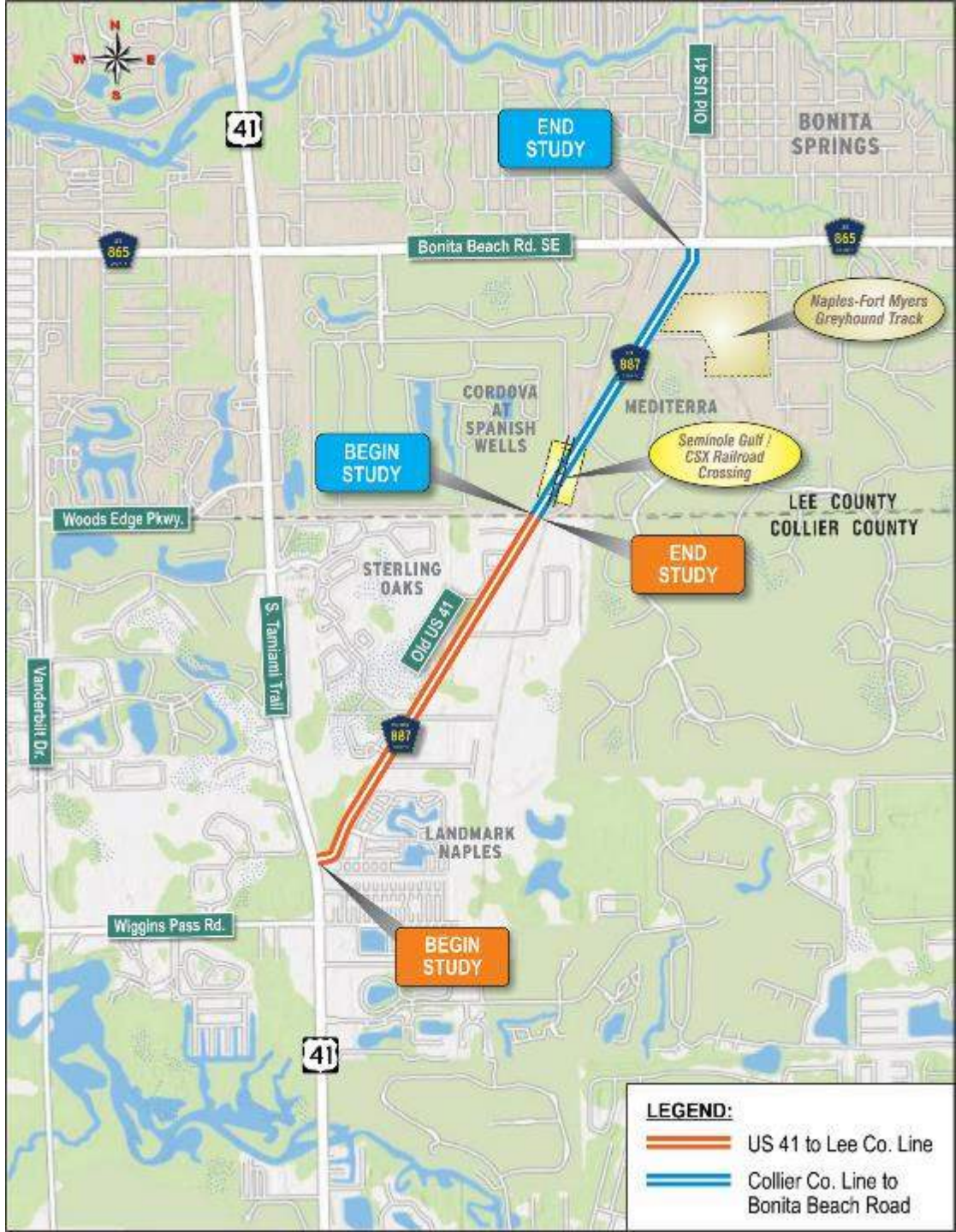
Floodplain Compensation

- Opt. 2: Improved Conveyance
  - Riprap lining from Tarpon Cove Dr. to Wiggins Pass Road
  - New 48” cross drain under Wiggins Pass Road
  - Weir and 800’ bypass pipe south of Wiggins Pass Road to West Lane
- No ROW impacts anticipated
- Approx. $1.1 million construction
- Lower flood stages along Old US 41
- Slightly higher flood stages south of West Lane



Regional Stormwater Management





Environmental

Conservation Easements

- Triangle Parcel
- Turtle Creek
- Sterling Oaks
- Constitution Center
- Mediterra Phase 2
- Avoid to the extent possible
  - If not possible, may need to lift/revise the CE legal document and replace the mitigation



Preliminary Wetland/ OSW impacts

- **Alignment/intersection development still in progress**
- Roadway
  - Wetlands – 2.94 ac.
  - OSWs – 5.26 ac.
- Stormwater Ponds (subject to change)
  - OSWs – Range from 0.13 – 1.5 ac.
- Impacts still to be developed in PD&E, with additional E&R during Design phase
- No UMAM FL calculated yet







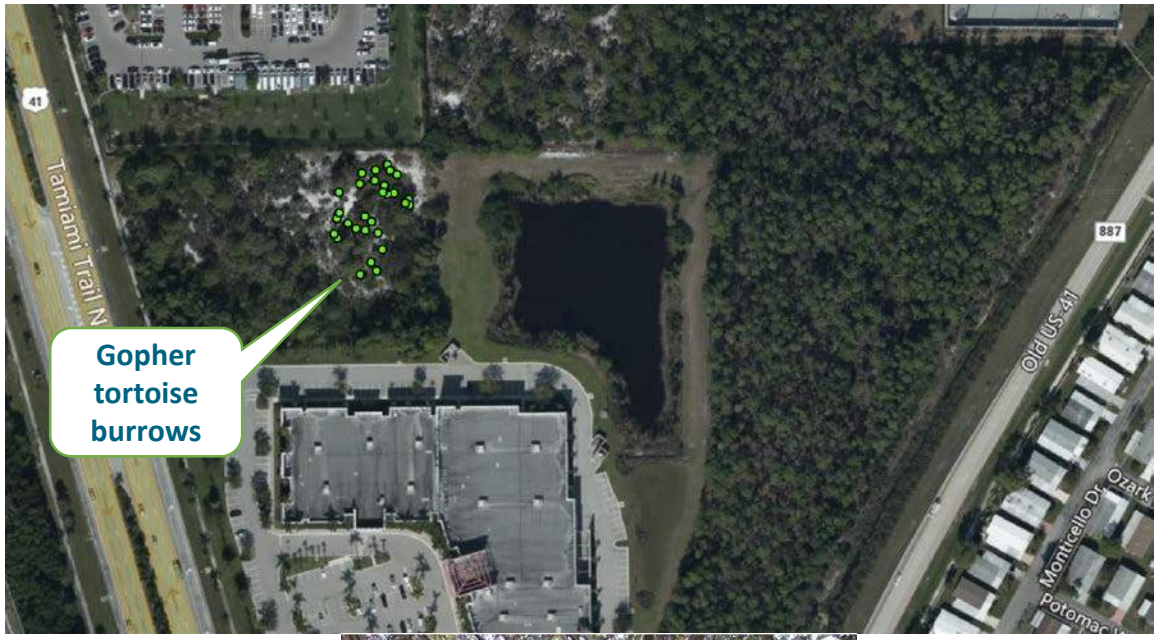
Preliminary Wetland/ OSW impacts

- Potential mitigation bank (MB) service area/options
  - Big Cypress – WRAP
  - Corkscrew Regional – WRAP
  - Panther Island/Expansion – M-WRAP
  - Little Pine Island – LPI funct. Assessment methodology
- ERP Permit through SFWMD, CWA 404 permit through FDEP
  - No involvement w/ retained waters



Protected Species

- NRE is evaluating involvement with:
  - 14 federally protected species (11 listed) – 4 plants, 10 vertebrates
  - 50 additional state protected species – 41 plants, 9 vertebrates
- Addressed in NRE Report
- Sent to USFWS, NMFS, USACE, USEPA, FWC, SFWMD, FDEP, FDACS during PD&E phase w/ follow-up as needed during Design & Construction phases





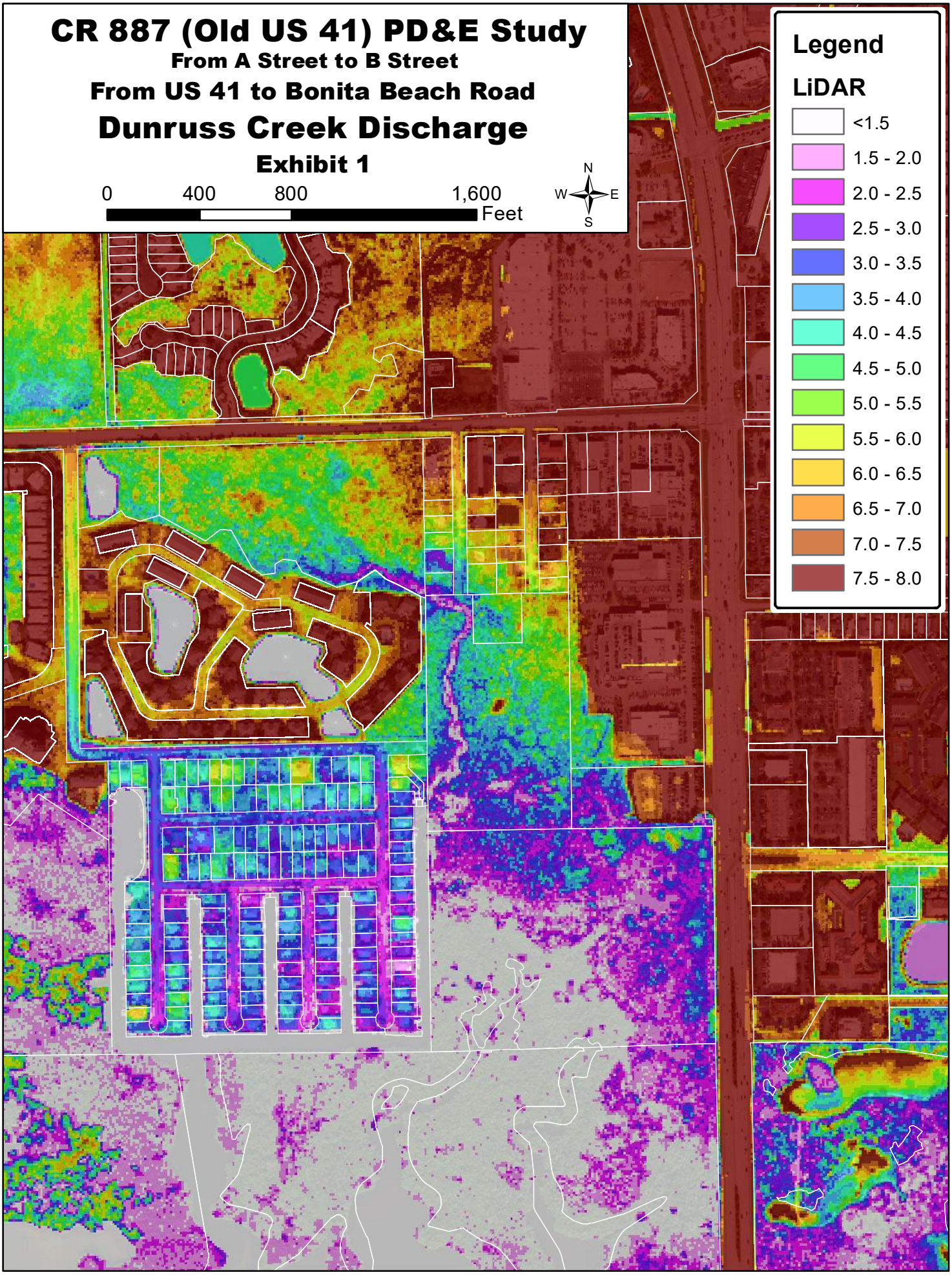
Thank You










CR 887 (Old US 41) PD&E Study
From A Street to B Street
From US 41 to Bonita Beach Road
Dunruss Creek Discharge
Exhibit 1
0
400
800
1,600
Feet
N
W
E
S
Legend
LiDAR
<1.5
1.5 - 2.0
2.0 - 2.5
2.5 - 3.0
3.0 - 3.5
3.5 - 4.0
4.0 - 4.5
4.5 - 5.0
5.0 - 5.5
5.5 - 6.0
6.0 - 6.5
6.5 - 7.0
7.0 - 7.5
7.5 - 8.0

Appendix F | Supporting Documentation

Estimated Right-of-Way Acquisition Costs by Pond Alternative

Estimated Construction Costs by Pond Alternative

NOAA Precipitation Frequency Data Server

NCAT Datum Conversion

Existing Permits

Estimated Right-of-Way Acquisition Costs by Pond Alternative

CONCEPTUAL ESTIMATE, ALTERNATES / SEGMENTS: PHASE COSTS SUMMARY

The basis for this estimate is "cost" not market value

**** EXEMPT FROM PUBLIC DISCLOSURE - FS: 337.168 ****

ITEM SEG: 4351101
4353471 **COUNTY:** Collier
Lee **LIMITS:** CR 887 (Old 41) from US 41 to Lee Co/L
CR 887 (Old 41) from Collier Co/L to BB Road

COST ESTIMATE NUMBER: 25044 **FAP No.** D119-027-B & D119-028-B STBG, GFSU

FOR: S. Andrews, FDOT Environmental Management

BY: J. Harper, A. Perry, FDOT Right of Way **DATE:** June 26, 2025

Alternate / Segment: Pond Siting Report - Stormwater Management & Floodplain Compensation Sites

Description:	Size Acres:	Parcels	Relo.Cnt	Phase: 4B	Phase: 41	Phase: 43	Phase: 45	Total:
Collier County								
SMF Alternative 1A	2.29	3	13	$210,000	$40,000	$10,915,000	$720,000	**$11,885,000**
SMF Alternative 1B	5.78	1	25	$225,000	$15,000	$21,950,000	$1,330,000	**$23,520,000**
SMF Alternative 1C	5.58	2	200	$210,000	$25,000	$11,275,000	$1,000,000	**$12,510,000**
FPC Site 1	7.32	3	18	$235,000	$40,000	$42,000,000	$950,000	**$43,225,000**
FPC Site 2	6.69	3	26	$260,000	$40,000	$20,600,000	$1,400,000	**$22,300,000**
FPC Site 3	3.53	2	2	$135,000	$30,000	$9,400,000	$105,000	**$9,670,000**
Lee County								
SMF Alternative 2A	4.40	1	1	$50,000	$12,000	$3,803,000	$5,000	**$3,870,000**
SMF Alternative 2B	3.53	1	0	$45,000	$12,000	$4,243,000	$0	**$4,300,000**
SMF Alternative 2C	3.90	24	23	$860,000	$265,000	$19,900,000	$1,275,000	**$22,300,000**

\Shared\Estimates\a-Estimates\Lee_12\25044 4351101 4353471 Old 41 Lee & Collier\Pond Sites\[4351101 and 4353471 - Old 41 - Pond Sites ROW Cost Estimates - June 2025 - CE 25044.xlsx]SUMMARY

Parcel Count reflects Right of Way Production Parcels, common ownerships have been combined.

Estimated Construction Costs by Pond Alternative

Estimated Construction Costs by Pond Alternative

Pond 1A Construction Cost Estimate

Pay Item	Description	Quantity	Unit	Source	Cost/unit	Total Cost
0120 1	REGULAR EXCAVATION	20,473	CY	Market Area 10	$ 11.77	$ 240,961.97
0570 1 2	PERFORMANCE TURF, SOD	48,352	SF	Market Area 10	$ 4.12	$ 199,208.59
0110 1 1	CLEARING & GRUBBING	2.42	AC	Market Area 10	$ 26,025.82	$ 62,982.48
0425 1549	INLETS, DT BOT, TYPE D, MODIFY	1	EA	Market Area 10	$ 7,850.52	$ 7,850.52
0425 2 61	MANHOLES, P-8, <10'	3	EA	Market Area 10	$ 8,725.95	$ 26,177.85
430174130	PIPE CULV, OPT MATL, ROUND,30"SD	718	LF	Market Area 10	$ 174.00	$ 124,932.00
430984133	MITERED END SECT, OPTIONAL RD, 30" SD	1	EA	Market Area 10	$ 5,869.00	$ 5,869.00
Source: FDOT Historical Item Average Cost Reports (Updated 02/24/2025)				**Total Constuction Costs for Pond 1A:**		**$ 667,982.41**

Pond 1B Construction Cost Estimate

Pay Item	Description	Quantity	Unit	Source	Cost/unit	Total Cost
0120 1	REGULAR EXCAVATION	20,554	CY	Market Area 10	$ 11.77	$ 241,919.01
0570 1 2	PERFORMANCE TURF, SOD	55,757	SF	Market Area 10	$ 4.12	$ 229,718.02
0110 1 1	CLEARING & GRUBBING	2.73	AC	Market Area 10	$ 26,025.82	$ 71,050.49
0425 1549	INLETS, DT BOT, TYPE D, MODIFY	1	EA	Market Area 10	$ 7,850.52	$ 7,850.52
0425 2 61	MANHOLES, P-8, <10'	5	EA	Market Area 10	$ 8,725.95	$ 43,629.75
430174130	PIPE CULV, OPT MATL, ROUND,30"SD	1,281	LF	Market Area 10	$ 174.00	$ 222,894.00
430984133	MITERED END SECT, OPTIONAL RD, 30" SD	4	EA	Market Area 10	$ 5,869.00	$ 23,476.00
Source: FDOT Historical Item Average Cost Reports (Updated 02/24/2025)				**Total Constuction Costs for Pond 1B:**		**$ 840,537.79**

Pond 1C Construction Cost Estimate

Pay Item	Description	Quantity	Unit	Source	Cost/unit	Total Cost
0120 1	REGULAR EXCAVATION	26,867	CY	Market Area 10	$ 11.77	$ 316,226.50
0570 1 2	PERFORMANCE TURF, SOD	64,469	SF	Market Area 10	$ 4.12	$ 265,611.46
0110 1 1	CLEARING & GRUBBING	4.97	AC	Market Area 10	$ 26,025.82	$ 129,348.33
0425 1549	INLETS, DT BOT, TYPE D, MODIFY	1	EA	Market Area 10	$ 7,850.52	$ 7,850.52
0425 2 61	MANHOLES, P-8, <10'	3	EA	Market Area 10	$ 8,725.95	$ 26,177.85
430174130	PIPE CULV, OPT MATL, ROUND,30"SD	972	LF	Market Area 10	$ 174.00	$ 169,128.00
430984133	MITERED END SECT, OPTIONAL RD, 30" SD	1	EA	Market Area 10	$ 5,869.00	$ 5,869.00
Source: FDOT Historical Item Average Cost Reports (Updated 02/24/2025)				**Total Constuction Costs for Pond 1C:**		**$ 920,211.66**

Pond 3A Construction Cost Estimate

Pay Item	Description	Quantity	Unit	Source	Cost/unit	Total Cost
0120 1	REGULAR EXCAVATION	24,645	CY	Market Area 10	$ 11.77	$ 290,074.95
0570 1 2	PERFORMANCE TURF, SOD	44,867	SF	Market Area 10	$ 4.12	$ 184,851.22
0110 1 1	CLEARING & GRUBBING	2.9	AC	Market Area 10	$ 26,025.82	$ 75,474.88
0425 1549	INLETS, DT BOT, TYPE D, MODIFY	1	EA	Market Area 10	$ 7,850.52	$ 7,850.52
0425 2 61	MANHOLES, P-8, <10'	5	EA	Market Area 10	$ 8,725.95	$ 43,629.75
430174130	PIPE CULV, OPT MATL, ROUND,30"SD	1,411	LF	Market Area 10	$ 174.00	$ 245,514.00
430984133	MITERED END SECT, OPTIONAL RD, 30" SD	2	EA	Market Area 10	$ 5,869.00	$ 11,738.00
Source: FDOT Historical Item Average Cost Reports (Updated 02/24/2025)				**Total Constuction Costs for Pond 3A:**		**$ 859,133.31**

Pond 3B Construction Cost Estimate

Pay Item	Description	Quantity	Unit	Source	Cost/unit	Total Cost
0120 1	REGULAR EXCAVATION	26,483	CY	Market Area 10	$ 11.77	$ 311,703.34
0570 1 2	PERFORMANCE TURF, SOD	46,174	SF	Market Area 10	$ 4.12	$ 190,235.23
0110 1 1	CLEARING & GRUBBING	3.09	AC	Market Area 10	$ 26,025.82	$ 80,419.78
0425 1549	INLETS, DT BOT, TYPE D, MODIFY	1	EA	Market Area 10	$ 7,850.52	$ 7,850.52
0425 2 61	MANHOLES, P-8, <10'	0	EA	Market Area 10	$ 8,725.95	$ -
430174130	PIPE CULV, OPT MATL, ROUND,30"SD	149	LF	Market Area 10	$ 174.00	$ 25,926.00
430984133	MITERED END SECT, OPTIONAL RD, 30" SD	2	EA	Market Area 10	$ 5,869.00	$ 11,738.00
Source: FDOT Historical Item Average Cost Reports (Updated 02/24/2025)				**Total Constuction Costs for Pond 3B:**		**$ 627,872.88**

Pond 3C Construction Cost Estimate

Pay Item	Description	Quantity	Unit	Source	Cost/unit	Total Cost
0120 1	REGULAR EXCAVATION	25,888	CY	Market Area 10	$ 11.77	$ 304,705.92
0570 1 2	PERFORMANCE TURF, SOD	44,431	SF	Market Area 10	$ 4.12	$ 183,056.54
0110 1 1	CLEARING & GRUBBING	3.01	AC	Market Area 10	$ 26,025.82	$ 78,337.72
0425 1549	INLETS, DT BOT, TYPE D, MODIFY	1	EA	Market Area 10	$ 7,850.52	$ 7,850.52
0425 2 61	MANHOLES, P-8, <10'	0	EA	Market Area 10	$ 8,725.95	$ -
430174130	PIPE CULV, OPT MATL, ROUND,30"SD	144	LF	Market Area 10	$ 174.00	$ 25,056.00
430984133	MITERED END SECT, OPTIONAL RD, 30" SD	2	EA	Market Area 10	$ 5,869.00	$ 11,738.00
Source: FDOT Historical Item Average Cost Reports (Updated 02/24/2025)				**Total Constuction Costs for Pond 3C:**		**$ 610,744.70**

Estimated Construction Costs by Pond Alternative

Excavation Quantities (CY)

POND 1A	EL	AREA	VOLUME		**POND 3A**	EL	AREA	VOLUME	
TOP	11	2.42	12.69	ac-ft	TOP	12.5	2.9	15.28	ac-ft
BOTTOM	3.79	1.1	0.00		BOTTOM	5.8	1.66	0.00	
	total excavation:	**20,473**	**CY**			total excavation:	**24,645**	**CY**	
POND 1B	EL	AREA	VOLUME		**POND 3B**	EL	AREA	VOLUME	
TOP	10.29	2.73	12.74	ac-ft	TOP	12.5	3.09	16.42	ac-ft
BOTTOM	3.79	1.19	0.00		BOTTOM	5.8	1.81	0.00	
	total excavation:	**20,554**	**CY**			total excavation:	**26,483**	**CY**	
POND 1C	EL	AREA	VOLUME		**POND 3C**	EL	AREA	VOLUME	
TOP	13.31	3.54	16.65	ac-ft	TOP	12.5	3.01	16.05	ac-ft
BOTTOM	6.99	1.73	0.00		BOTTOM	5.8	1.78	0.00	
	total excavation:	**26,867**	**CY**			total excavation:	**25,888**	**CY**	

C&G and Sod Quantities

	Site Area (C&G)	(-) NWL Area =	Sod Area (AC)	Sod (SF)
POND 1A	2.42	1.31	1.11	48,352
POND 1B	2.73	1.45	1.28	55,757
POND 1C	4.97	3.49	1.48	64,469
POND 3A	2.9	1.87	1.03	44,867
POND 3B	3.09	2.03	1.06	46,174
POND 3C	3.01	1.99	1.02	44,431

Drainage Structure Quantities

	30" RCP	30" MES	MH P-8
POND 1A	718	1	3
POND 1B	1,281	4	5
POND 1C	972	1	3
POND 3A	1,411	2	5
POND 3B	149	2	0
POND 3C	144	2	0

NOAA Precipitation Frequency Data Server

NOAA Atlas 14, Volume 9, Version 2
Location name: Naples, Florida, USA*
Latitude: 26.3164°, Longitude: -81.7886°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.576** (0.476-0.705)	**0.649** (0.536-0.797)	**0.771** (0.634-0.949)	**0.873** (0.714-1.08)	**1.02** (0.800-1.31)	**1.13** (0.865-1.48)	**1.24** (0.915-1.68)	**1.35** (0.954-1.91)	**1.51** (1.02-2.21)	**1.62** (1.07-2.43)
10-min	**0.843** (0.697-1.03)	**0.951** (0.785-1.17)	**1.13** (0.928-1.39)	**1.28** (1.04-1.58)	**1.49** (1.17-1.92)	**1.65** (1.27-2.17)	**1.81** (1.34-2.47)	**1.98** (1.40-2.80)	**2.21** (1.49-3.23)	**2.38** (1.56-3.56)
15-min	**1.03** (0.850-1.26)	**1.16** (0.957-1.42)	**1.38** (1.13-1.70)	**1.56** (1.27-1.93)	**1.81** (1.43-2.34)	**2.01** (1.54-2.65)	**2.21** (1.63-3.01)	**2.42** (1.70-3.41)	**2.69** (1.82-3.94)	**2.90** (1.90-4.35)
30-min	**1.60** (1.32-1.96)	**1.80** (1.49-2.21)	**2.14** (1.76-2.63)	**2.42** (1.98-3.00)	**2.82** (2.22-3.63)	**3.12** (2.40-4.11)	**3.44** (2.54-4.68)	**3.76** (2.65-5.30)	**4.18** (2.83-6.13)	**4.51** (2.96-6.76)
60-min	**2.12** (1.75-2.60)	**2.38** (1.97-2.93)	**2.83** (2.32-3.48)	**3.20** (2.61-3.96)	**3.71** (2.92-4.79)	**4.12** (3.16-5.42)	**4.53** (3.34-6.16)	**4.95** (3.49-6.99)	**5.51** (3.72-8.08)	**5.94** (3.90-8.90)
2-hr	**2.64** (2.20-3.22)	**2.97** (2.46-3.62)	**3.52** (2.90-4.30)	**3.97** (3.26-4.89)	**4.61** (3.65-5.91)	**5.11** (3.95-6.69)	**5.62** (4.18-7.60)	**6.14** (4.36-8.61)	**6.84** (4.65-9.95)	**7.37** (4.87-11.0)
3-hr	**2.88** (2.40-3.50)	**3.25** (2.71-3.95)	**3.87** (3.21-4.72)	**4.39** (3.62-5.39)	**5.13** (4.07-6.56)	**5.70** (4.42-7.44)	**6.29** (4.69-8.48)	**6.90** (4.92-9.65)	**7.72** (5.27-11.2)	**8.35** (5.54-12.4)
6-hr	**3.21** (2.69-3.87)	**3.70** (3.09-4.46)	**4.52** (3.76-5.47)	**5.23** (4.33-6.37)	**6.24** (4.99-7.95)	**7.04** (5.49-9.15)	**7.88** (5.91-10.6)	**8.74** (6.28-12.2)	**9.93** (6.83-14.3)	**10.9** (7.26-16.0)
12-hr	**3.47** (2.92-4.15)	**4.12** (3.46-4.94)	**5.26** (4.40-6.32)	**6.24** (5.19-7.55)	**7.69** (6.20-9.80)	**8.86** (6.95-11.5)	**10.1** (7.63-13.5)	**11.4** (8.24-15.8)	**13.2** (9.15-19.0)	**14.6** (9.85-21.4)
24-hr	**3.95** (3.34-4.69)	**4.69** (3.96-5.58)	**6.01** (5.05-7.17)	**7.21** (6.03-8.66)	**9.03** (7.35-11.5)	**10.6** (8.36-13.7)	**12.2** (9.30-16.3)	**14.0** (10.2-19.4)	**16.5** (11.5-23.7)	**18.5** (12.6-26.9)
2-day	**4.82** (4.09-5.69)	**5.53** (4.69-6.53)	**6.86** (5.80-8.14)	**8.14** (6.84-9.72)	**10.2** (8.36-12.9)	**11.9** (9.50-15.4)	**13.8** (10.6-18.4)	**15.9** (11.7-22.0)	**19.0** (13.4-27.2)	**21.5** (14.7-31.1)
3-day	**5.33** (4.54-6.27)	**6.15** (5.23-7.24)	**7.66** (6.49-9.05)	**9.07** (7.64-10.8)	**11.2** (9.26-14.2)	**13.1** (10.5-16.8)	**15.1** (11.7-20.0)	**17.3** (12.8-23.8)	**20.5** (14.5-29.1)	**23.1** (15.8-33.2)
4-day	**5.75** (4.90-6.74)	**6.66** (5.68-7.82)	**8.30** (7.05-9.78)	**9.80** (8.27-11.6)	**12.1** (9.94-15.2)	**14.0** (11.2-17.9)	**16.0** (12.4-21.2)	**18.3** (13.5-25.0)	**21.4** (15.2-30.4)	**24.0** (16.5-34.4)
7-day	**6.93** (5.93-8.08)	**7.90** (6.76-9.22)	**9.62** (8.20-11.3)	**11.2** (9.46-13.2)	**13.5** (11.1-16.8)	**15.4** (12.4-19.5)	**17.4** (13.5-22.8)	**19.6** (14.6-26.6)	**22.8** (16.2-32.0)	**25.3** (17.5-36.0)
10-day	**8.10** (6.95-9.40)	**9.07** (7.78-10.6)	**10.8** (9.22-12.6)	**12.3** (10.5-14.5)	**14.6** (12.0-18.0)	**16.4** (13.2-20.7)	**18.4** (14.3-23.9)	**20.5** (15.3-27.7)	**23.5** (16.8-32.9)	**25.9** (18.0-36.8)
20-day	**11.6** (10.0-13.4)	**12.7** (11.0-14.7)	**14.6** (12.5-16.9)	**16.1** (13.8-18.8)	**18.3** (15.2-22.2)	**20.0** (16.2-24.8)	**21.8** (17.0-28.0)	**23.6** (17.7-31.5)	**26.1** (18.8-36.1)	**28.0** (19.6-39.6)
30-day	**14.6** (12.6-16.7)	**15.9** (13.7-18.3)	**18.0** (15.5-20.8)	**19.7** (16.9-22.9)	**22.1** (18.2-26.5)	**23.8** (19.3-29.2)	**25.5** (19.9-32.4)	**27.2** (20.4-35.9)	**29.4** (21.2-40.3)	**31.0** (21.8-43.6)
45-day	**18.1** (15.7-20.7)	**19.9** (17.2-22.8)	**22.6** (19.5-26.0)	**24.7** (21.2-28.6)	**27.4** (22.6-32.6)	**29.3** (23.7-35.7)	**31.1** (24.3-39.2)	**32.8** (24.6-42.8)	**34.8** (25.1-47.2)	**36.1** (25.5-50.5)
60-day	**21.1** (18.3-24.0)	**23.2** (20.2-26.5)	**26.6** (23.0-30.5)	**29.1** (25.1-33.6)	**32.3** (26.7-38.3)	**34.5** (28.0-41.8)	**36.5** (28.6-45.7)	**38.2** (28.7-49.7)	**40.2** (29.1-54.3)	**41.4** (29.3-57.8)

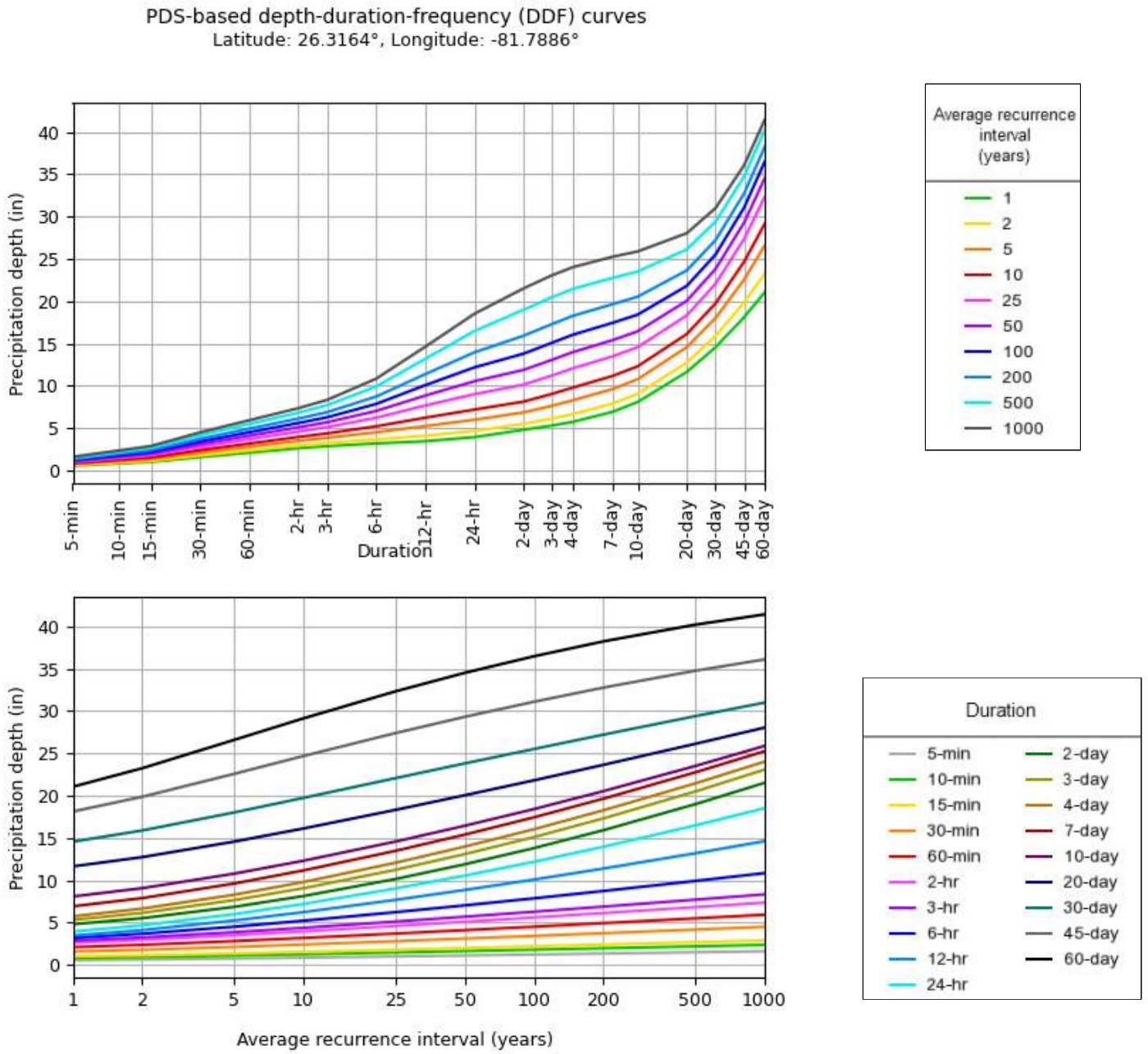
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



NOAA Atlas 14, Volume 9, Version 2

Created (GMT): Mon Feb 5 20:21:28 2024

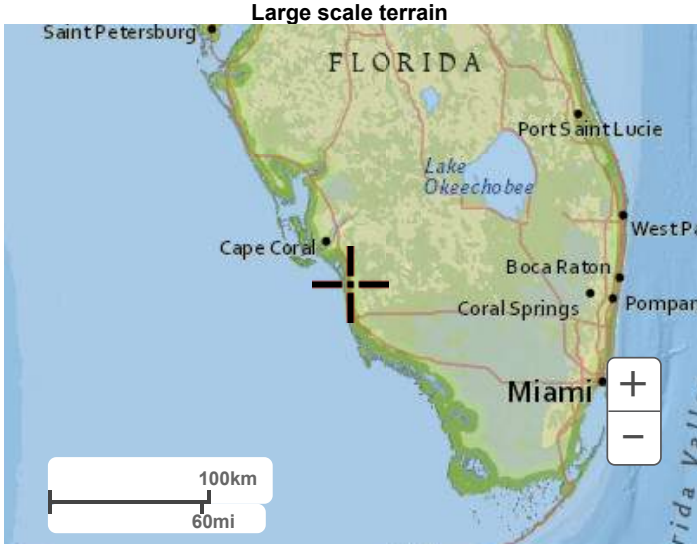
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Maps & aerials

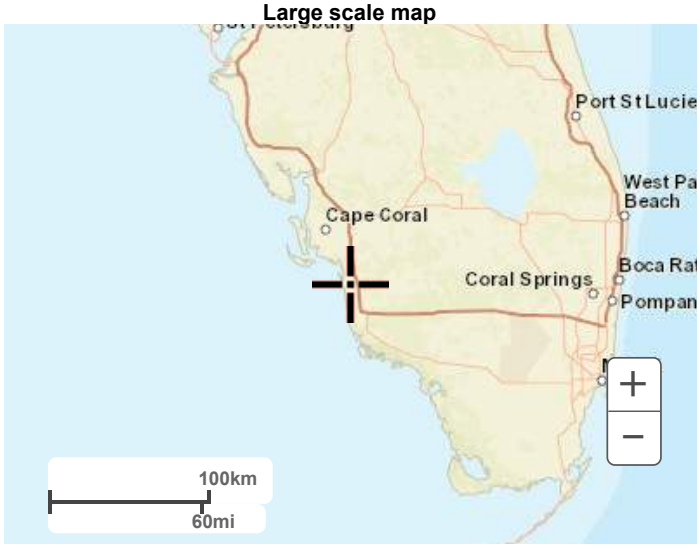
Small scale terrain



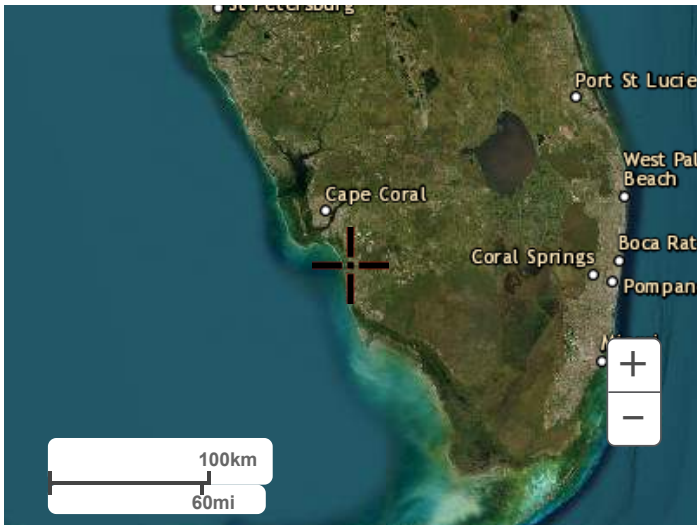
Large scale terrain



Large scale map



Large scale aerial



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Could not retrieve elevation data due to Cross-Origin permissions.

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NCAT Datum Conversion

Transformed Coordinate

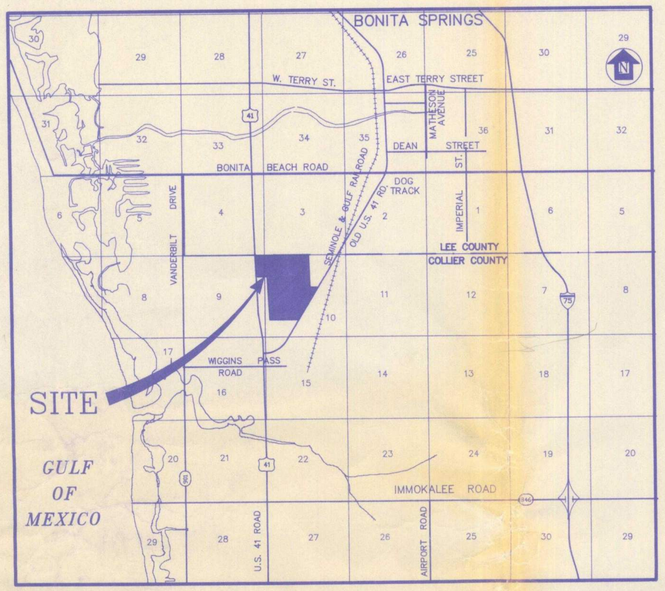
Input Coordinate		Output Coordinate		Total Change + Uncertainty	
Latitude	N26° 19′ 34.01155″ N261934.01155 26.3261143189	Latitude	N26° 19′ 34.01155″ N261934.01155 26.3261143189	Latitude	0.00000″ ±0.000000″ (0.000 m ±0.0000 m)*
Longitude	E278° 13′ 3.67538″ W0814656.32462 -81.7823123932	Longitude	E278° 13′ 3.67538″ W0814656.32462 -81.7823123932	Longitude	0.00000″ ±0.000000″ (0.000 m ±0.0000 m)*
Ellipsoid Height (usft)	Not given	Ellipsoid Height (usft)	Not given	Ellipsoid Height	Not given
Orthometric Height (usft)	1.001	Orthometric Height (usft)	-0.213	Orthometric Height	-1.214 usft ±0.023 usft
Reference Frame	NAD83(2011)	Reference Frame	NAD83(2011)		
Geopotential Datum	NGVD29	Geopotential Datum	NAVD88		

*Approximate value to aid interpretation and not an actual distance. See **TM NOS NGS 82** for more details.

Existing
Permits

Sterling Oaks ERP
SFWMD Permit No. 11-01042-2

11-01042-5



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:

COMMUNITY DEVELOPMENT CORPORATION
OF SOUTHWEST FLORIDA, INC.
1100 5th AVENUE SOUTH, #401
NAPLES, FLORIDA 33940
(813) 649-1952

STERLING OAKS

PHASE ONE

LOCATED IN SECTIONS 9 & 10, TOWNSHIP 48S, RANGE 25E

COLLIER COUNTY, FLORIDA

PREPARED FOR :

COMMUNITY DEVELOPMENT CORPORATION

The tradition of quality continues.

PREPARED BY :

Q. GRADY MINOR AND ASSOCIATES, P.A.

CIVIL ENGINEERS ▪ LAND SURVEYORS ▪ PLANNERS

3800 VIA DEL REY

BONITA SPRINGS, FLORIDA 33923 (813) 947-1144

INDEX OF DRAWINGS

Ranna 229-1399

DRAWING NUMBER	DESCRIPTION
1	COVER SHEET AND INDEX OF DRAWINGS
2	KEY MAP
3	MASTER DRAINAGE PLAN
4	TRACT 'H' AND VICINITY MASTER PLAN
5	TRACT 'C' MASTER PLAN
6	TRACT 'C' PLAN AND PROFILE
7	TRACT 'C' PLAN AND PROFILE
8	TRACT 'C' PLAN AND PROFILE
9	TRACT 'E' MASTER PLAN
10	TRACT 'E' PLAN AND PROFILE
11	TARCT 'E' PLAN AND PROFILE
12	TRACT 'E' PLAN AND PROFILE
13	STERLING OAKS DRIVE - CONSTRUCTION ENTRANCE PLAN AND PROFILE STA. (-)2+00 TO STA. 10+00
14	STERLING OAKS DRIVE - CONSTRUCTION ENTRANCE PLAN AND PROFILE STA. 10+00 TO STA. 20+00
15	STERLING OAKS DRIVE PLAN AND PROFILE STA. 20+00 TO STA. 31+00
16	STERLING OAKS DRIVE PLAN AND PROFILE STA. 31+00 TO STA. 42+50
17	STERLING OAKS DRIVE PLAN AND PROFILE STA. 42+50 TO STA. 54+61.93
18	STERLING OAKS BOULEVARD PLAN AND PROFILE
19	OLD U.S. 41 DRAINAGE IMPROVEMENTS PLAN
20	GRADING, PAVING AND DRAINAGE DETAILS
21	GRADING, PAVING AND DRAINAGE DETAILS
22	GRADING, PAVING AND DRAINAGE DETAILS
23	GRADING, PAVING AND DRAINAGE DETAILS
24	WATER DISTRIBUTION SYSTEM DETAILS
25	SEWAGE COLLECTION SYSTEM DETAILS
26	LIFT STATION DETAILS
27	CLEARING PLAN
28	SIGNAGE AND STRIPING PLAN

REG COMP FILES
5

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FT. MYERS SERVICE CENTER

PRINTED
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RECEIVED
JUL 11 1994
FT. MYERS SERVICE CENTER

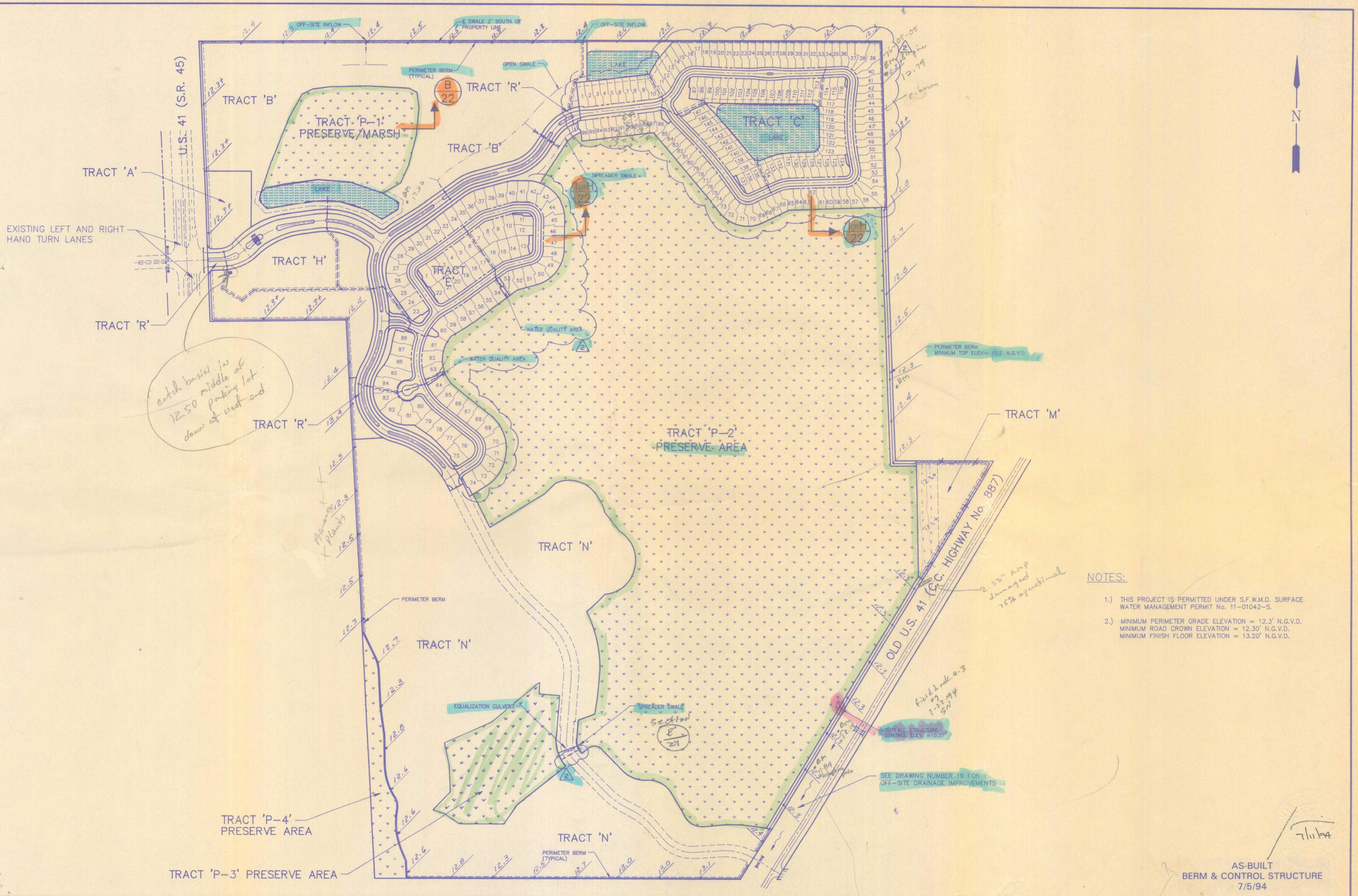
7/11/94

AS-BUILT WATER & SEWER FACILITIES, DRAINAGE STRUCTURES 6/3/94

AS-BUILT PVI GRADES 7-6-94

DATE: MARCH, 1993

DRAWING NUMBER 1 OF 28



NOTES:

1.) THIS PROJECT IS PERMITTED UNDER S.F.W.M.D. SURFACE WATER MANAGEMENT PERMIT No. 11-01042-S.

2.) MINIMUM PERIMETER GRADE ELEVATION = 12.3' N.G.V.D.
MINIMUM ROAD CROWN ELEVATION = 12.30' N.G.V.D.
MINIMUM FINISH FLOOR ELEVATION = 13.20' N.G.V.D.

AS-BUILT
BERM & CONTROL STRUCTURE
7/5/94

LEGEND

OWNER/DEVELOPER

COMMUNITY DEVELOPMENT CORPORATION OF SOUTHWEST FLORIDA, INC.
1100 5th AVENUE SOUTH, #401
NAPLES, FLORIDA 33940
(813) 649-1952

Revision	Date	Description	By
3	10/11/93	REVISE P-3	MWM
2	9/7/93	REVISED DRAINAGE IN TRACTS 'C' AND 'E' AND ADD CULVERT IN TRACT 'N' (SOUTH)	M.W.M.
1	6/14/93	ADDED SECTIONS 'B', 'H' & 'I' PER S.F.W.M.D.	M.W.M.

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JUL 08 1994
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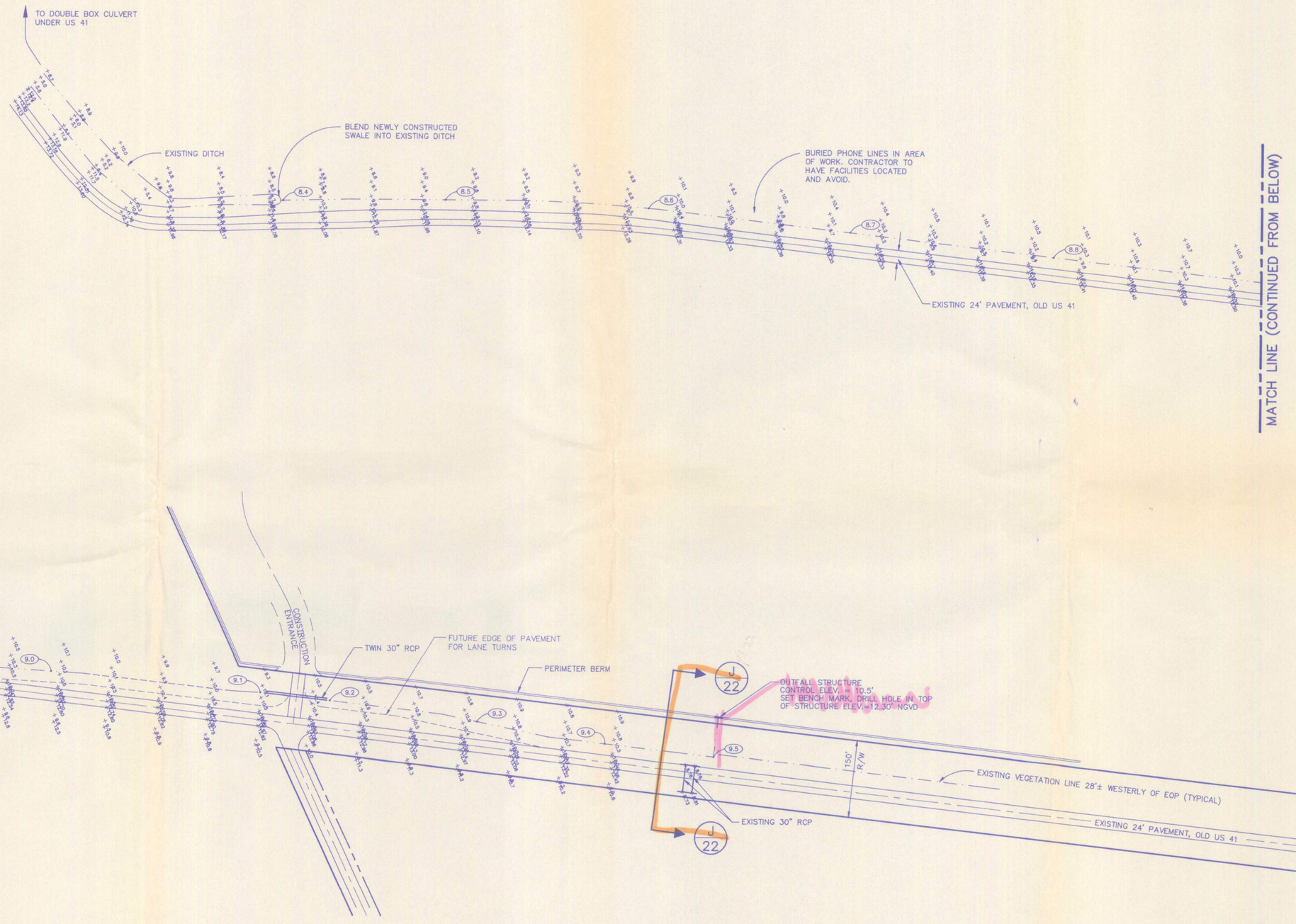
DESIGNED BY: M.W.M.
DRAWN BY: J.L.S.
APPROVED: M.W.M.
JOB CODE: SO.2
SCALE: 1"= 200'

Q. GRADY MINOR AND ASSOCIATES, P.A.
CIVIL ENGINEERS ■ LAND SURVEYORS ■ PLANNERS
3800 VIA DEL REY
BONITA SPRINGS, FLORIDA 33923 (813) 947-1144

STERLING OAKS – PHASE ONE

MASTER DRAINAGE PLAN

DATE: MARCH, 1993
FILE NAME: SO2DMAST
DRAWING NUMBER 3 OF 28



LEGEND

- —·—·— ℄ SWALE
- (9.3) FINISH GRADE, NGVD
- +10.3 EXISTING GRADE, NGVD

OWNER/DEVELOPER

COMMUNITY DEVELOPMENT CORPORATION
OF SOUTHWEST FLORIDA, INC.
1100 5th AVENUE SOUTH, #401
NAPLES, FLORIDA 33940
(813) 649-1952

Revision	Date	Description	By

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JUL 08 1994
Q. GRADY MINOR & ASSOCIATES, P.A.
CIVIL ENGINEERS • LAND SURVEYORS

DESIGNED BY:	M.W.M.
DRAWN BY:	J.L.S.
APPROVED:	M.W.M.
JOB CODE:	SO.2
SCALE:	1" = 100'

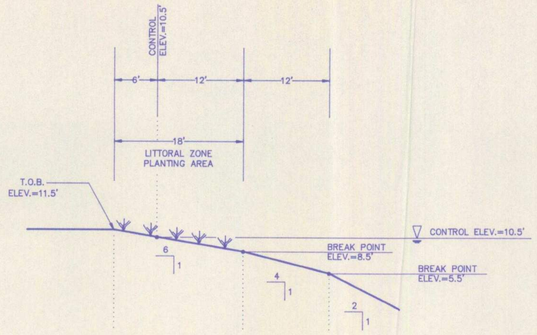
Q. GRADY MINOR AND ASSOCIATES, P.A.
CIVIL ENGINEERS ■ LAND SURVEYORS ■ PLANNERS
3800 VIA DEL REY
BONITA SPRINGS, FLORIDA 33923 (813) 947-1144

7/11/94

STERLING OAKS – PHASE ONE

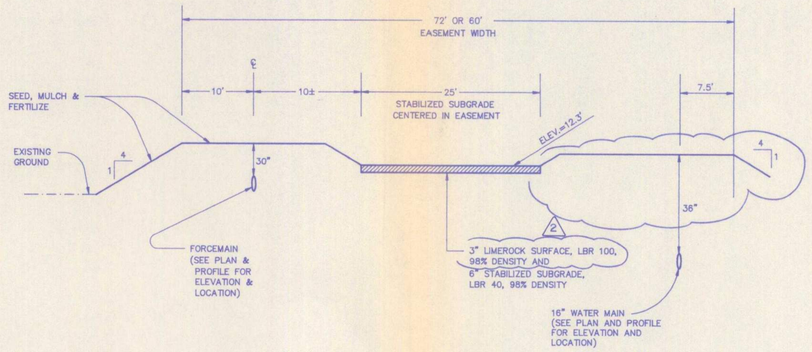
OLD U.S. 41 DRAINAGE IMPROVEMENTS PLAN

DATE:	FILE NAME:	DRAWING NUMBER
MARCH, 1993	SO2OLD41	19 OF 28

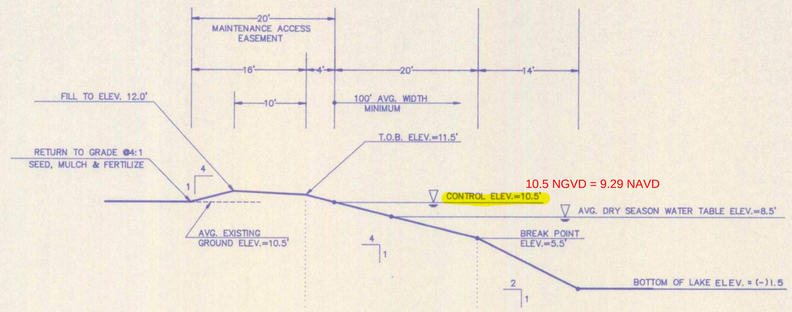


SECTION A/21

LAKE LITTORAL ZONE DETAIL

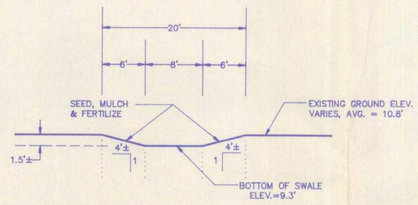


INGRESS/EGRESS, U.E. & D.E DETAIL THRU TRACT 'N'



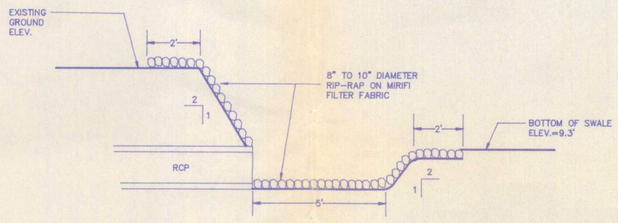
SECTION B/21

LAKE CROSS SECTION DETAIL

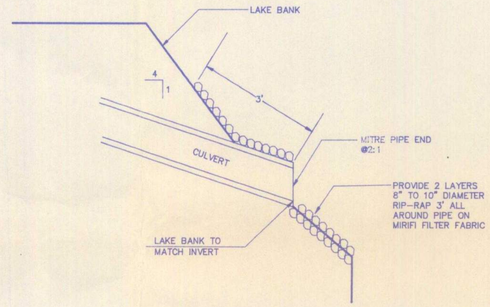


SECTION C/21

INTERIOR SWALE DETAIL

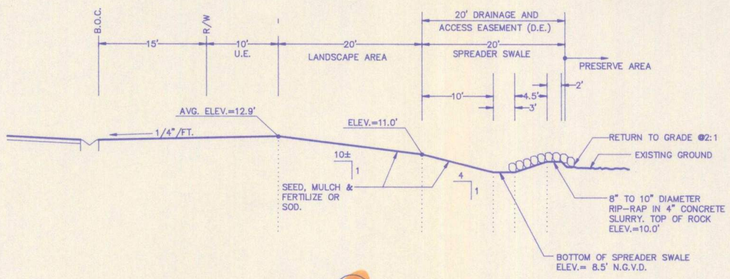


RIP-RAP SUMP DETAIL



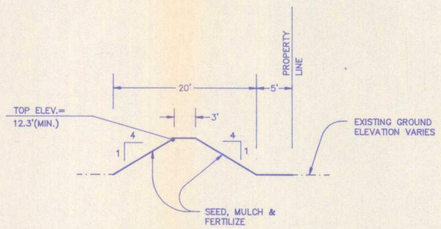
PIPE END TREATMENT AT LAKES

(N.T.S.)



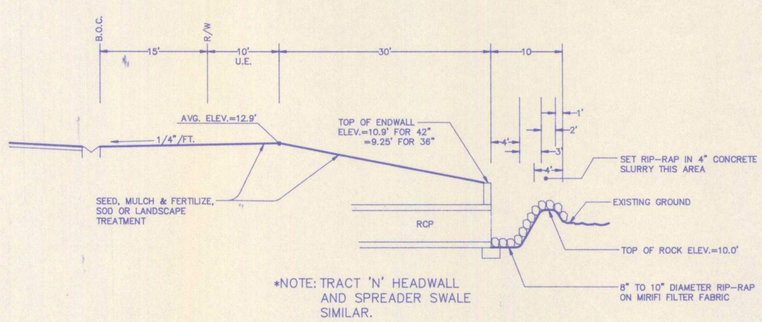
SECTION D/21

SPREADER SWALE AT LARGE PRESERVE



SECTION F/21

PERIMETER BERM DETAIL



*NOTE: TRACT 'N' HEADWALL AND SPREADER SWALE SIMILAR.

SECTION E/21

STRAIGHT ENDWALL AT SPREADER SWALE DETAIL

7/11/94

OWNER/DEVELOPER

COMMUNITY DEVELOPMENT CORPORATION OF SOUTHWEST FLORIDA, INC.
1100 5th AVENUE SOUTH, #401
NAPLES, FLORIDA 33940
(813) 649-1952

Revision	Date	Description	By
2	9/7/93	REVISE SECTION D/21 AND INGRESS/ EGRESS EASEMENT DETAIL	M.W.M.
1	6/15/93	REVISED PER COLLIER COUNTY COMMENTS	J.L.S.

PRINTED
JUL 08 1994
Q. GRADY MINOR & ASSOCIATES, P.A.
CIVIL ENGINEERS • LAND SURVEYORS

DESIGNED BY:	M.W.M.
DRAWN BY:	T.C.
APPROVED:	M.W.M.
JOB CODE:	SO.2
SCALE:	NONE

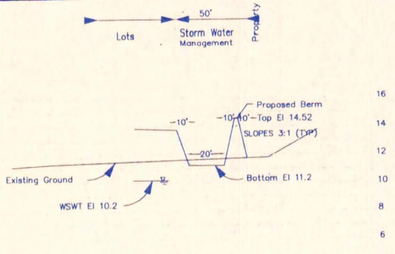
Q. GRADY MINOR AND ASSOCIATES, P.A.
CIVIL ENGINEERS ■ LAND SURVEYORS ■ PLANNERS
3800 VIA DEL REY
BONITA SPRINGS, FLORIDA 33923 (813) 947-1144

STERLING OAKS – PHASE ONE

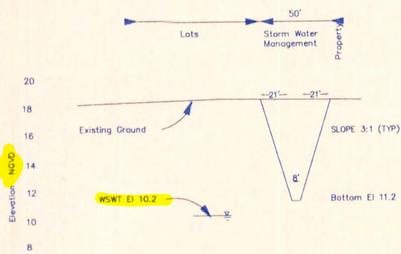
GRADING, PAVING & DRAINAGE DETAILS

DATE:	FILE NAME:	DRAWING NUMBER
MARCH, 1993	SO2GPDD2	21 OF 28

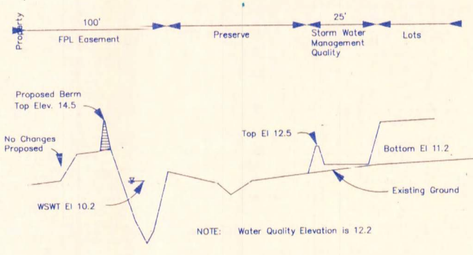
North Collier Industrial Center ERP
SFWMD Permit No. 11-01644-P



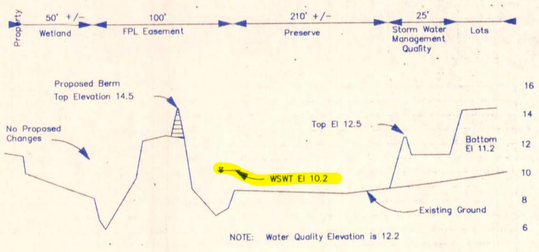
SECTION D–D



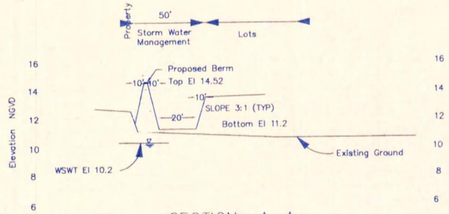
SECTION G–G



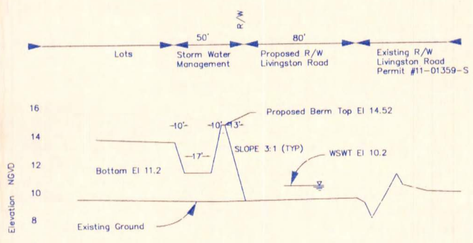
SECTION F–F



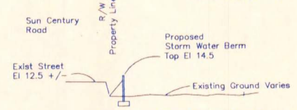
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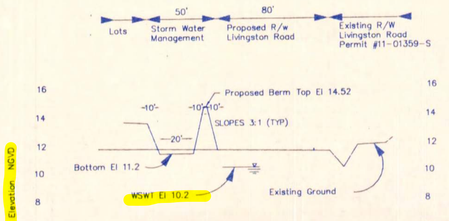
SECTION A–A



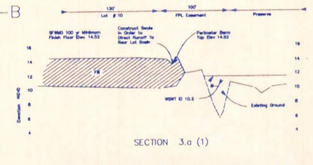
SECTION B–B



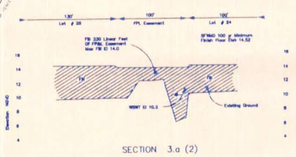
SECTION AT NORTHERN PROPERTY LINE
CUT NORTH–SOUTH
SECTION J–J
NTS



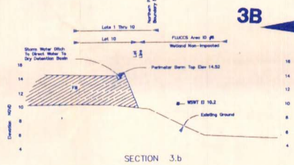
SECTION C–C



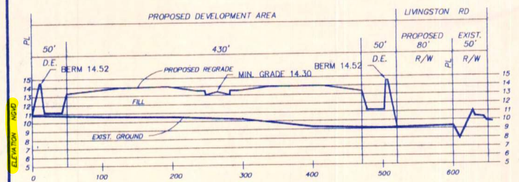
SECTION 3.a (1)



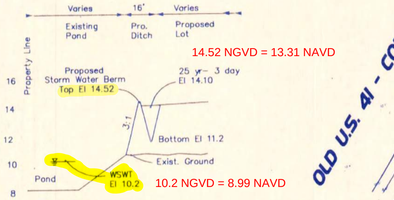
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SECTION 3.b

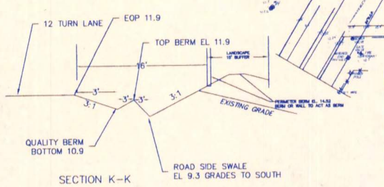


TYPICAL CROSS–SECTION
SECTION "H–H"

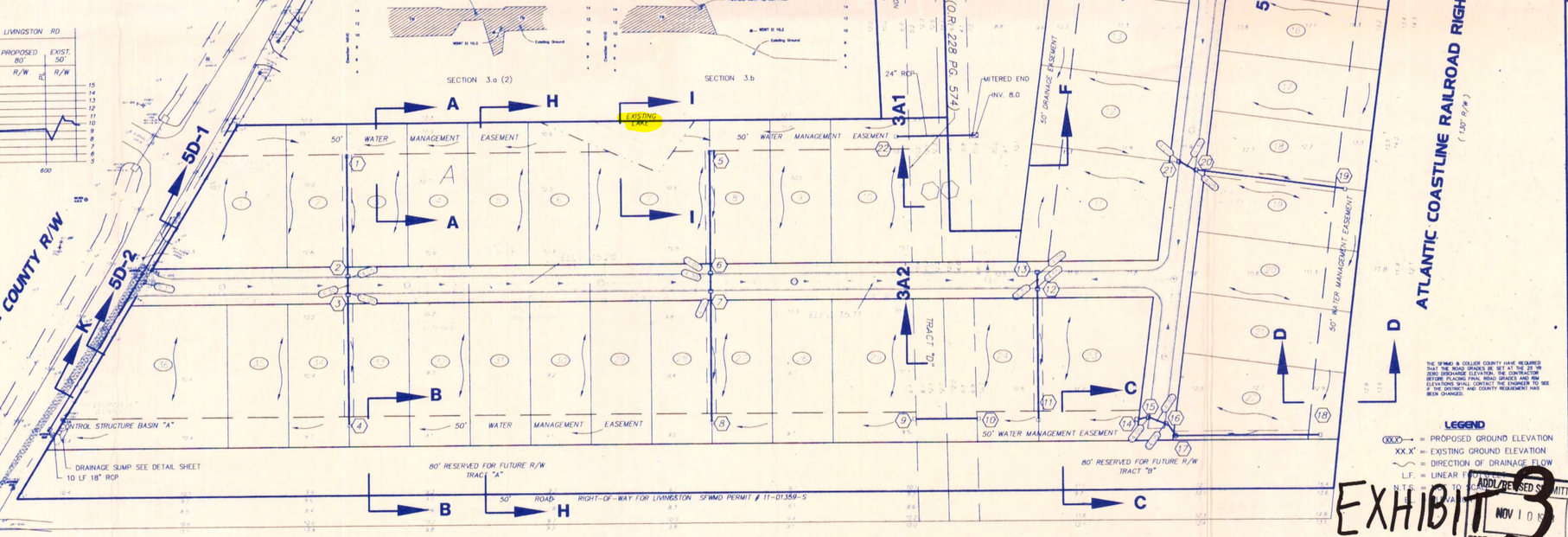


SECTION I–I

SECTION AT EXISTING POND
CUT PERPENDICTULAR TO BANK
TYPICAL EAST–WEST & NORTH–SOUTH



SECTION K–K



THE SFWMD & COLLIER COUNTY HAVE REQUIRED THAT THE ROAD GRADES BE SET AT THE 25 YR ZERO DISCHARGE ELEVATION. THE CONTRACTOR BEFORE PLACING FINAL ROAD GRADES AND RIM ELEVATIONS SHALL CONTACT THE ENGINEER TO SEE IF THE DISTRICT AND COUNTY REQUIREMENT HAS BEEN CHANGED.

LEGEND

- XX.X = PROPOSED GROUND ELEVATION
- XX.X' = EXISTING GROUND ELEVATION
- = DIRECTION OF DRAINAGE FLOW
- L.F. = LINEAR FEET
- N.T.S. = NOT TO SCALE

NUMBER	TYPE	FROM	TO	LENGTH	SIZE	INVERT	GRATE EL.
1	DITCH	1	2	200	24"	8.0'	11.20'
2	GUTTER	2	3	28	24"	5.7	13.88'
3	GUTTER	3	4	200	24"	5.7	13.88'
4	DITCH	–	–	–	–	6.5'	11.20'
5	DITCH	5	6	200	24"	8.0'	11.20'
6	GUTTER	6	7	28	24"	9.00'	13.88'
7	GUTTER	7	8	200	24"	9.00'	13.88'

NUMBER	TYPE	FROM	TO	LENGTH	SIZE	INVERT	GRATE EL.
8	DITCH	–	–	–	–	8.00'	11.20'
9	DITCH	9	10	100	30"	7.0'	11.20'
10	DITCH	–	–	–	–	7.0'	11.20'
11	DITCH	11	12	200	30"	8.00'	11.20'
12	GUTTER	12	13	50	24"	8.33'	13.88'
13	GUTTER	13	14	30	24"	8.33'	13.88'
14	DITCH	–	–	–	–	8.00'	11.20'
15	DITCH	15	16	20	30"	7.0'	13.88'

NUMBER	TYPE	FROM	TO	LENGTH	SIZE	INVERT	GRATE EL.
16	DITCH	16	17	28	30"	7.0'	13.88'
17	DITCH	17	18	240	30"	8.50	11.20'
18	DITCH	–	–	–	–	8.50'	11.20'
19	DITCH	19	20	235	24"	8.0'	11.20'
20	GUTTER	20	21	30	24"	5.10'/9.0'	13.88'
21	GUTTER	21	22	225	24"	9.0'/5.10'	13.88'
22	DITCH	–	–	130	24"	8.0	11.2

REVISIONS
REVISED FOR SFWMD 9/4/98

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CLIENT: **COMMERCIAL DEVELOPMENT COMPANY**

TITLE: **NORTH COLLIER INDUSTRIAL CENTER**
FINAL SUBDIVISION CONSTRUCTION PLANS
MASTER DRAINAGE PLAN

PURSE Associates, inc.
BONITA OAKS SQUARE - UNIT 9
4450 BONITA BEACH ROAD
BONITA SPRINGS, FLORIDA 34134
PH. (941) 948-2100 FAX (941) 948-2102

SCALE: 1" = 100' DATE: 04/1998
SHEET 4 OF 7
FILE NO.: REV.:
SHEET_4.DWG
ACAD FILE: C:\ACADDWGS\N.C.I.P.\FINAL_SUB

EXHIBIT 3
ADDL/REVISED SUBMITTAL
NOV 10 1998
FORT MYERS SERVICE CENTER

FINAL APPROVED BY GB
DEC 15 1998

APPLICATION NUMBER
980402-5
1101644P

WPB

Gateway Shoppes at North Bay Plaza ERP SFWMD Permit No. 11-01765-P

SITE DEVELOPMENT PLANS FOR:

GATEWAY SHOPPES AT NORTH BAY (LAWMETKA P.U.D.)

LOCATED IN SECTION 16, TOWNSHIP 48 SOUTH, RANGE 25 EAST COLLIER COUNTY, FLORIDA.

22 RECORD DRAWING NOTE

RECORD DRAWINGS - GRADING AND DRAINAGE ONLY.

* THESE RECORD DRAWINGS ARE INTENDED TO DISPLAY THE COMPLETED WORK SUBSTANTIALLY AS CONSTRUCTED. THE INFORMATION CONTAINED HEREIN IS BASED ON THE ENGINEER OF RECORDS' CERTIFICATION/OBSERVATIONS AS WELL AS INFORMATION PROVIDED BY THE PROJECT SURVEYOR. FIELD VERIFICATION OF CONDITIONS SHOULD BE UNDERTAKEN PRIOR TO ALTERATIONS OF CONSTRUCTION IN THE PROJECT AREA.

⚠17 RECORD DRAWING NOTE: 11/26-07 (PHASE 1 WATER AND SEWER ONLY)

THESE RECORD DRAWINGS ARE FOR WATER AND WASTEWATER AND ARE INTENDED TO DISPLAY THE SUBSTANTIALLY COMPLETED WORK AS CONSTRUCTED. THE INFORMATION IS BASED ON THE ENGINEER'S OBSERVATION AND DATA FURNISHED BY THE PROJECT SURVEYOR.

Utility Providers

TELEPHONE:
SPRINT FLORIDA INC.
P.O. BOX 2477
NAPLES, FL 34104
TEL: [239] 263-6319

ENVIRONMENTAL:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2295 VICTORIA AVENUE No. 364
FT. MYERS, FLORIDA 34113
TEL: [239] 332-6975

SEWER:
COLLIER COUNTY WASTEWATER DEPARTMENT
3301 TAMIAMI TRAIL EAST
NAPLES, FL 34113
TEL: [239] 732-2575

WATER MANAGEMENT:
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
2301 MCGREGOR BOULEVARD
FORT MYERS, FL 33901
TEL: [239] 338-2929

POWER:
FLORIDA POWER AND LIGHT COMPANY
4105 15TH AVENUE SOUTHWEST
NAPLES, FL 34116
[239] 353-6090

TELEVISION:
COMCAST
301 TOWER ROAD
NAPLES, FL 34113
TEL:[239] 793-3577

FIRE DISTRICT:
NORTH NAPLES FIRE CONTROL DISTRICT
1885 VETERANS PARK DR.
NAPLES, FL 34109
TEL: [239] 597-3222

WATER:
COLLIER COUNTY WATER DEPARTMENT
3301 TAMIAMI TRAIL EAST
NAPLES, FL 34113
TEL: [239] 732-2575

Reviewing Agency

COLLIER COUNTY
COLLIER COUNTY COMMUNITY DEVELOPMENT SERVICES
2800 NORTH HORSESHOE DRIVE
NAPLES, FL 34104
TEL: [239] 643-8400

PREPARED FOR:

WR - I ASSOCIATES, LTD.
8441 COOPER CREEK BLVD.
UNIVERSITY PARK, FL 34201
PHONE: (941) 359-8303
FAX: (941) 359-1836

⚠16 LEGAL DESCRIPTION (PER O.R. BOOK 1213, PGS. 2236-2237)

THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 16, TOWNSHIP 48 SOUTH, RANGE 25 EAST, LYING WEST OF RIGHT-OF-WAY OF NEW US 41, COLLIER COUNTY, FLORIDA, LESS AND EXCEPT THE 0.45 ACRE COLLIER COUNTY UTILITY PROPERTY.

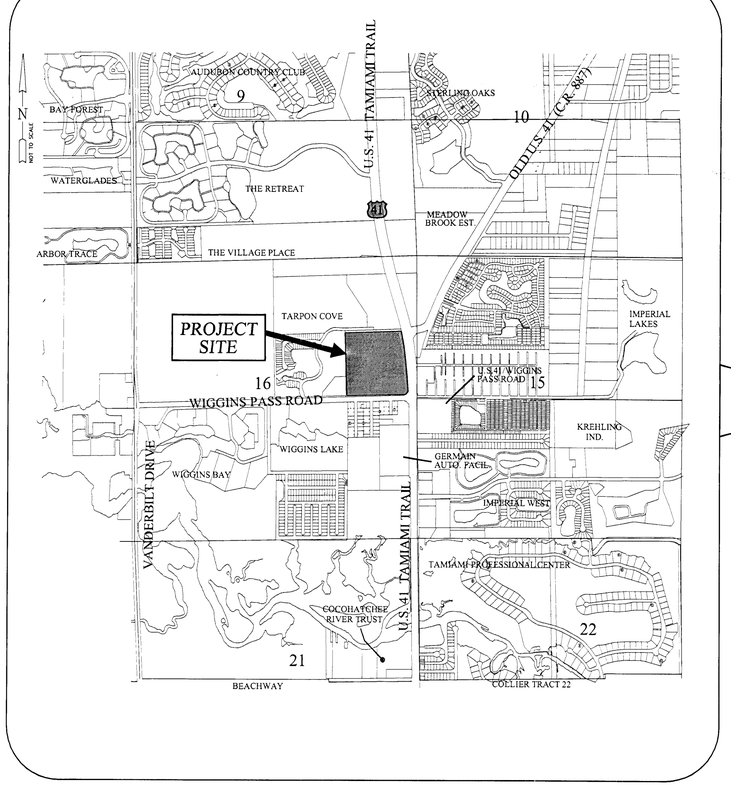
FOLIO NUMBER 00155884100

FIRE PROTECTION BUILDING INFORMATION		
Area Under Roof	Construction Type per 2004 FBC	Sprinklered
176,548	III B	YES

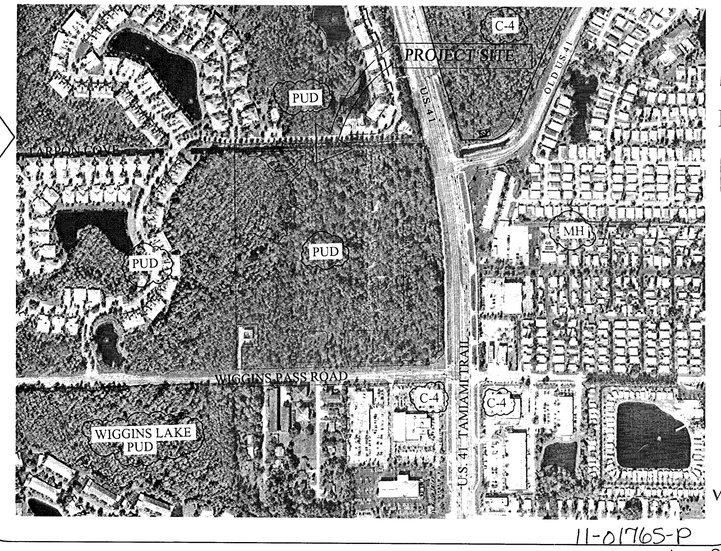
SHEET INDEX

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	PROJECT AERIAL \ EXISTING CONDITIONS MAP
3	MASTER SITE, CLEARING, SIGN & STRIPING PLAN
4	MASTER PAVING, GRADING, DRAINAGE SOIL, EROSION & SEDIMENT CONTROL PLAN
5	MASTER UTILITY PLAN
6	PLAN & PROFILE (1)
7	PLAN & PROFILE (2)
8	PLAN & PROFILE (3)
9	MASTER CONCEPT / PHASING PLAN
10	CONSTRUCTION DETAILS (1)
11	CONSTRUCTION DETAILS (2)
12	PAVING, GRADING & DRAINAGE DETAILS
13	SOIL EROSION & SEDIMENT CONTROL DETAILS & EXOTIC SPECIES REMOVAL, GOPHER TORTOISE RELOCATION PLAN
14	WATER SYSTEM DETAILS
15	SANITARY SEWER DETAILS
16	PUMP STATION DETAILS
17	OFF-SITE TURN LANES WIGGINS PASS ROAD
18	OFF-SITE TURN LANE U.S. 41
19	OFF-SITE TURN LANE OLD U.S. 41

VICINITY MAP



LOCATION MAP



LEGEND:

WATER DISTRIBUTION SYSTEM

- 12" WM — EXISTING WATER MAIN & PIPE SIZE
- 8" RW — EXISTING IRRIGATION MAIN & PIPE SIZE
- EXISTING FIRE HYDRANT
- F.D.C. BFP — PROPOSED BACKFLOW PREVENTOR & F.D.C.
- PROPOSED FIRE HYDRANT
- 12" WM — PROPOSED WATER MAIN, VALVE & PIPE SIZE
- 8" RW — PROPOSED IRRIGATION MAIN, VALVE & PIPE SIZE
- 1" W — PROPOSED WATER SERVICE & PIPE SIZE

SANITARY SEWER SYSTEM

- 8" SS — PROPOSED SEWER MAIN & PIPE SIZE
- EXISTING MANHOLE
- 8" SS — PROPOSED SEWER MAIN, MANHOLE & PIPE SIZE
- 4" FM — EXISTING SANITARY FORCE MAIN & PIPE SIZE
- 6" SL — PROPOSED 6" PVC SEWER LATERAL

STORM DRAINAGE SYSTEM

- CB-1 — PROPOSED CATCH BASIN W \ STRUTURE #
- EXISTING STORM DRAIN MANHOLE/HEADWALL
- 24 LF 15" RCP @ 0.2% — PROPOSED STORM DRAIN, INLET & PIPE INFO

⚠17 NOTE: THE ON-SITE WATER AND WASTEWATER FACILITIES ARE TO BE OWNED AND MAINTAINED BY THE PROJECT DEVELOPER

RECEIVED
JUL 14 2003
LWC SERVICE CENTER

✓ SCANNED

11-01765-P
050901-11 030801-10
97 1121-9

Coeplans-07 15 08

AGNOLI BARBER & BRUNDAGE, INC.
Professional engineers, planners, & land surveyors
Certificate of Authorization Nos. LB 3664 and EB 3664

Collier County:
7400 Tamiami Trail, North, Suite 200
Naples, FL 34108
Phone: (239)597-3111
Fax: (239)566-2203

Lee County:
9990 Coconut Road, Suite 103
Bonita Springs, FL 34135
Phone: (239)337-3111

CLIENT NAME: WR-I ASSOCIATES, LTD. 8441 COOPER CREEK BLVD. UNIVERSITY PARK, FL 34201

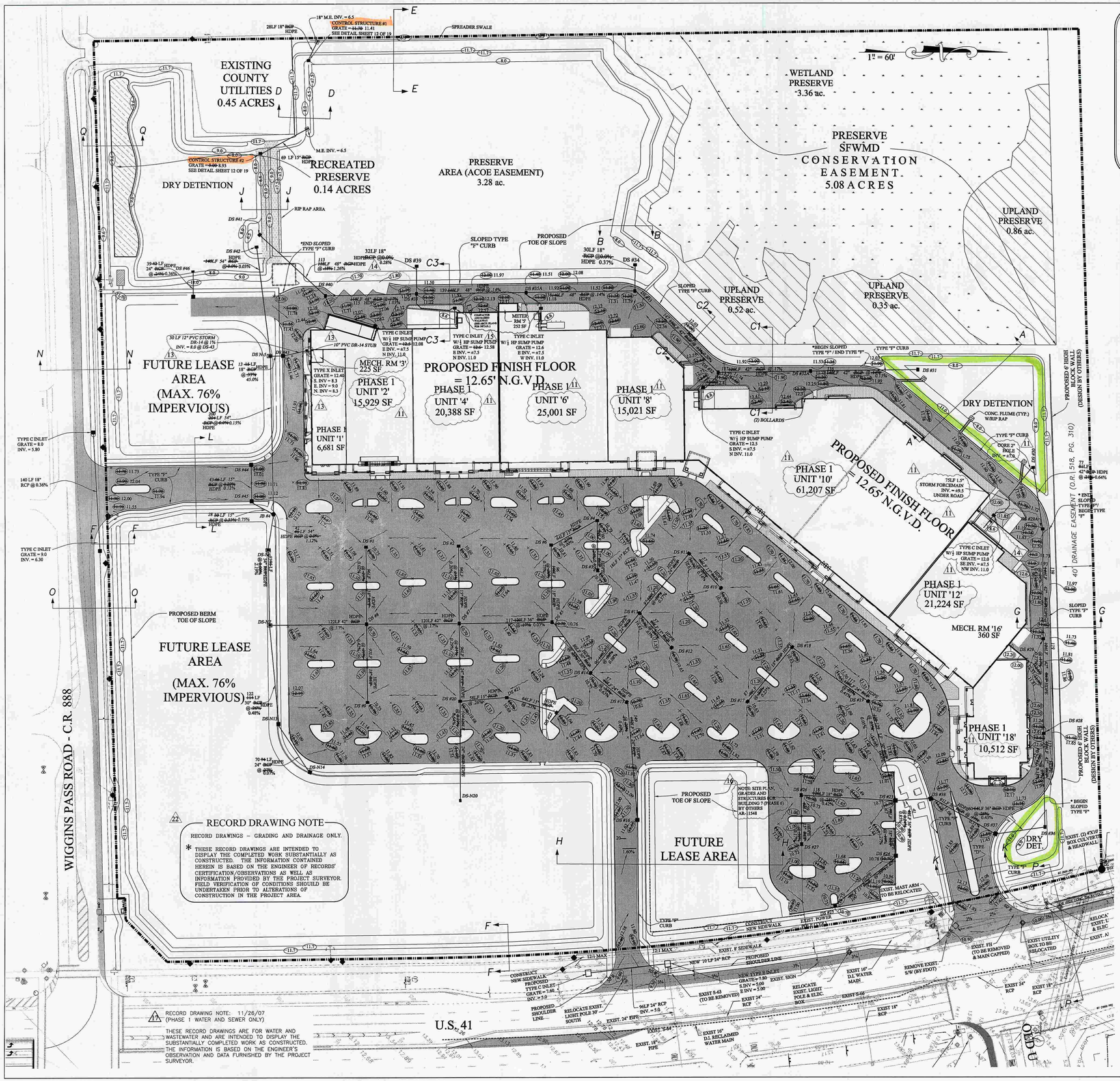
PROJECT NAME: GATEWAY SHOPPES AT NORTH BAY (LAWMETKA P.U.D.)

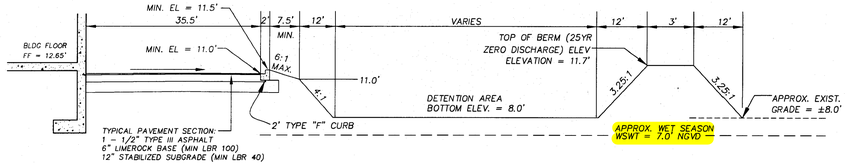
DRAWING TITLE: COVER SHEET

REVISION:
1. 8/02/05 ADD LEGAL DESC. & FOLIO, REV. PROJ. NAME
4. 7/14/04 REVISE PER COUNTY REVIEW
7. 7/22/05 REVISE BLDG. & PARKING CONFIGURATIONS
12. 05-21-07 REMOVE S.S. LATERAL UNDER TRUCK WELL
13. 09-05-07 REVISE FIRE PUMP CONNECTIONS & FDCS
14. 09-26-07 REVISED FLOWTEK ROTATION
15. 10-10-07 ADDED PHASE 6, BUILDING 7 TO PLAN
16. 11-12-07 ADDED PHASE 6, BUILDING 7 TO PLAN
17. 11-23-07 PHASE 1 WATER AND SEWER AS-BUILTS
22. 02-11-08 DRAINAGE AS-BUILTS

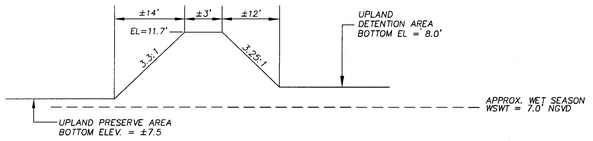
DESIGNED BY: JAC
DRAWN BY: TDB
CHECKED BY: JAC
REVIEWED BY: ABB
HORIZ. SCALE: AS NOTED
VERT. SCALE: NA
DATE: JAN. 2003

ACAD FILE NAME: 9913-Cvr
ABB PROJECT # 06-0003
PLOT VIEW \ LAYOUT Cover
SHEET 1 OF 19
Acad File # 9913


EXISTING COUNTY UTILITIES 0.45 ACRES
RECREATED PRESERVE 0.14 ACRES
PRESERVE AREA (ACOE EASEMENT) 3.28 ac.
WETLAND PRESERVE 3.36 ac.
PRESERVE SFWMD CONSERVATION EASEMENT 5.08 ACRES
UPLAND PRESERVE 0.86 ac.
UPLAND PRESERVE 0.52 ac.
UPLAND PRESERVE 0.35 ac.
DRY DETENTION
FUTURE LEASE AREA (MAX. 76% IMPERVIOUS)
PROPOSED FINISH FLOOR = 12.65' N.G.V.D.
PHASE 1 UNIT '1' 6,681 SF
PHASE 1 UNIT '2' 15,929 SF
PHASE 1 UNIT '4' 20,388 SF
PHASE 1 UNIT '6' 25,001 SF
PHASE 1 UNIT '8' 15,021 SF
PHASE 1 UNIT '10' 61,207 SF
PHASE 1 UNIT '12' 21,224 SF
PHASE 1 UNIT '18' 10,512 SF
MECH. RM '3' 225 SF
MECH. RM '16' 360 SF
WIGGINS PASS ROAD - C.R. 888
U.S. 41
PROPOSED BERM TOE OF SLOPE
PROPOSED TOE OF SLOPE
PROPOSED 6' HIGH BLOCK WALL (DESIGN BY OTHERS)
PROPOSED 6' HIGH BLOCK WALL (DESIGN BY OTHERS)
DRAINAGE EASEMENT (O.R. 518, PG. 310)
CONTROL STRUCTURE #1 GRATE = 11.41 SEE DETAIL SHEET 12 OF 19
CONTROL STRUCTURE #2 GRATE = 8.93 SEE DETAIL SHEET 12 OF 19
SPREADER SWALE
RIP RAP AREA
SLOPED TYPE "F" CURB
TYPE "F" CURB
TYPE C INLET W/ ½ HP SUMP PUMP
TYPE X INLET
TYPE C INLET W/ GRINDER SUMP PUMP
NOTE: SITE PLAN, GRADES AND STRUCTURES FOR BUILDING 7 (PHASE 6) BY OTHERS AR-11548
EXIST. MAST ARM TO BE RELOCATED
EXIST. 3"Ø FORCEMAIN
EXIST. 16" D.I. WATER MAIN
EXIST. 18" RCP
EXIST. 24" RCP
EXIST. 24" ERP
EXIST. 18" PIPE
EXIST. SIGN
EXIST. UTILITY BOX TO BE RELOCATED
EXIST. FH (TO BE REMOVED & MAIN CAPPED)
EXIST. 'U' & ELEC.
EXIST. 'A'
EXIST. 4"X10" BOX CULVERT & HEADWALL
EXIST. (2) 4'X10' BOX CULVERT & HEADWALL
EXIST. F SIDEWALK
EXIST. ROW
EXIST. 5-54 (TO BE REMOVED)
EXIST. 5-56
EXIST. 5-43 (TO BE REMOVED)
EXIST. 5-64
EXIST. 16" D.I. RECLAIMED WATER MAIN
EXIST. 96LF 24" RCP INV. = ±5.0
EXIST. 121 MAX
EXIST. 121 MAX
NEW 10' LF 24" RCP
NEW TYPE D INLET GRATE = 7.50 S.INV. = 5.00 E.INV. = 5.00
NEW SIDEWALK
PROPOSED SHOULDER LINE
CONSTRUCT NEW SIDEWALK
CONSTRUCT PROPOSED TYPE C INLET GRATE = 7.50 INV. = 5.0
RELOCATE EXIST. LIGHT POLE 30' SOUTH
RELOCATE EXIST. LIGHT POLE & ELEC. BOX
REMOVE EXIST. S/W (BY FDOT)
RELOCATE EXIST. 'U' & ELEC.
PROPOSED SHOULDER LINE
TYPE "F" CURB
CONC. FLUME (TYP.) W/RIP RAP
(2) BOLLARDS
75LF 1.5" STORM FORCEMAIN INV. = ±0.5 UNDER ROAD
DS #31
DS #32
DS #33
DS #34
DS #35
DS #36
DS #37
DS #38
DS #39
DS #40
DS #41
DS #42
DS #43
DS #44
DS #45
DS #46
DS #47
DS #48
DS #49
DS #50
DS



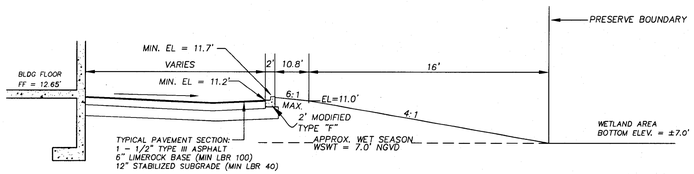
A SECTION THROUGH BUILDING AND DETENTION AREA
NTS



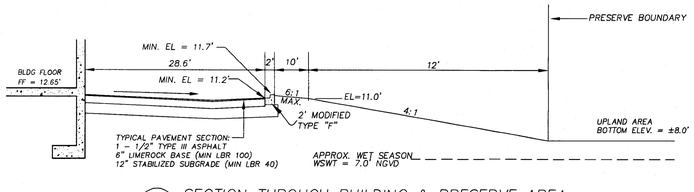
B SECTION THROUGH WATER MANAGEMENT & PRESERVE
NTS

NOTE:

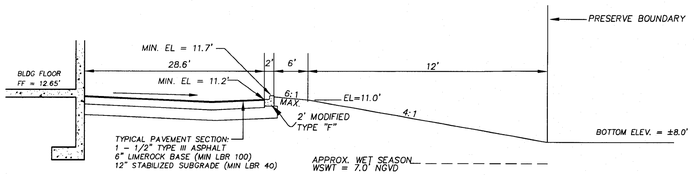
THE AREA WHERE ALL BERMS ARE TO BE CONSTRUCTED WILL BE CLEARED AND GRUBBED AND ALL UNSUITABLE MATERIAL IS TO BE REMOVED. FILL FOR BERM CONSTRUCTION WILL BE PLACED IN ONE (1) FT. MAXIMUM LIFTS AND COMPACTED TO 90% MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR. SOD WILL BE PLACED ON ALL BERMS UPON COMPLETION OF COMPACTION.



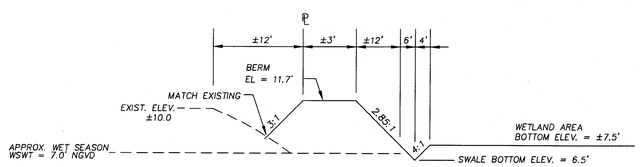
C1 SECTION THROUGH BUILDING & PRESERVE AREA
NTS



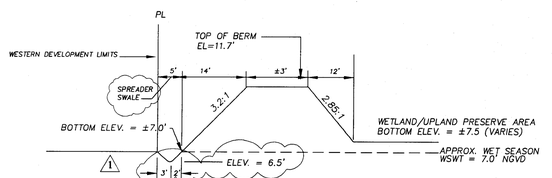
C2 SECTION THROUGH BUILDING & PRESERVE AREA
NTS



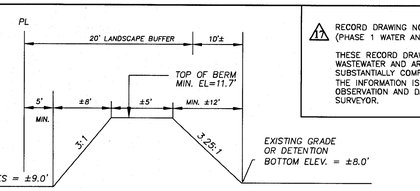
C3 SECTION THROUGH BUILDING & PRESERVE AREA
NTS



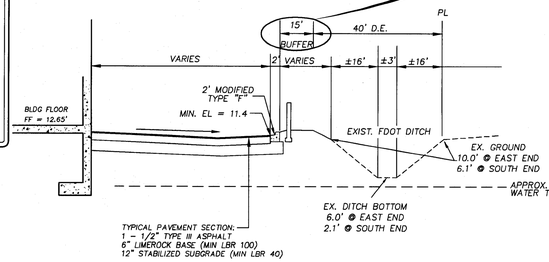
D SECTION THROUGH OUTFALL SWALE AND WETLAND AREA
NTS



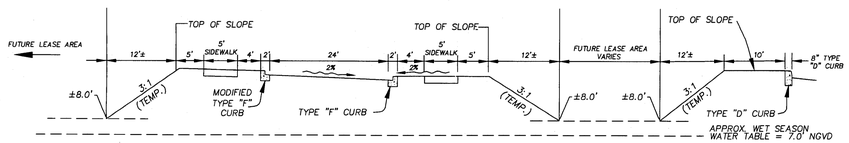
E SECTION THROUGH WESTERN PROPERTY LINE AND WETLAND\UPLAND AREA
NTS



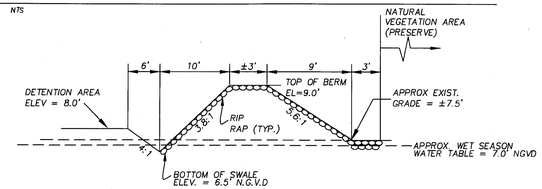
F TYPICAL SECTION THROUGH PERIMETER BERM
NTS



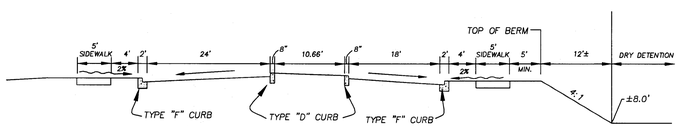
G SECTION THROUGH NORTHERN PROPERTY LINE AND EXISTING FDOT DRAINAGE DITCH
NTS

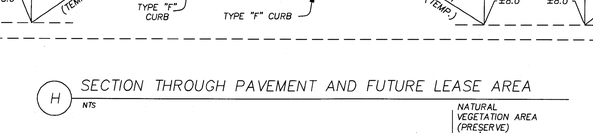


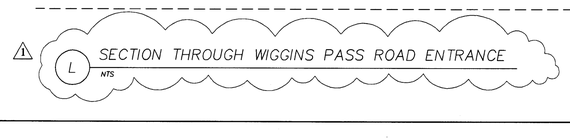
H SECTION THROUGH PAVEMENT AND FUTURE LEASE AREA
NTS



J SECTION THROUGH WATER QUALITY BERM
NTS

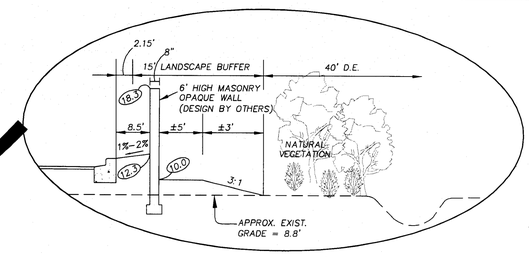




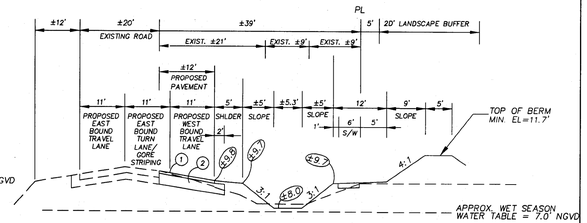


RECORD DRAWING NOTE: 11/26-07 (PHASE 1 WATER AND SEWER ONLY)

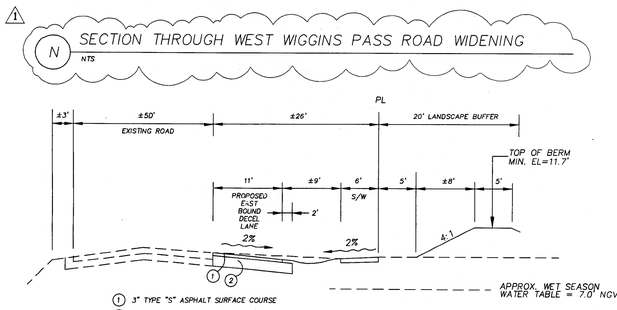
THESE RECORD DRAWINGS ARE FOR WATER AND WASTEWATER AND ARE INTENDED TO DISPLAY THE SUBSTANTIALLY COMPLETED WORK AS CONSTRUCTED. THE INFORMATION IS BASED ON THE ENGINEER'S OBSERVATION AND DATA FURNISHED BY THE PROJECT SURVEYOR.



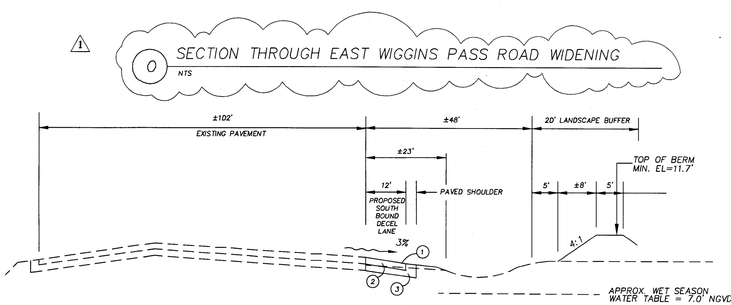
15' BUFFER AREA DETAIL



① 3" TYPE "S" ASPHALT SURFACE COURSE
② 8" ABC-3 ASPHALT (BLACK BASE)



① 3" TYPE "S" ASPHALT SURFACE COURSE
② 8" ABC-3 ASPHALT (BLACK BASE)



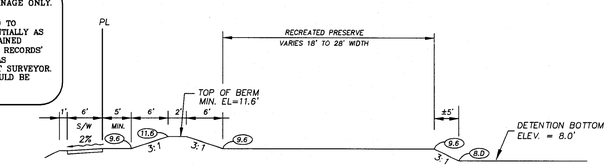
①②&③ MATCH TYPICAL SECTION OF FDOT PROJECT 19540G-1-52-01 PER FDOT STAFF INSTRUCTIONS

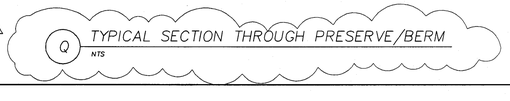


22 RECORD DRAWING NOTE

RECORD DRAWINGS - GRADING AND DRAINAGE ONLY.

* THESE RECORD DRAWINGS ARE INTENDED TO DISPLAY THE COMPLETED WORK SUBSTANTIALLY AS CONSTRUCTED. THE INFORMATION CONTAINED HEREIN IS BASED ON THE ENGINEER OF RECORDS' CERTIFICATION/OBSERVATIONS AS WELL AS INFORMATION PROVIDED BY THE PROJECT SURVEYOR. FIELD VERIFICATION OF CONDITIONS SHOULD BE UNDERTAKEN PRIOR TO ALTERATIONS OF CONSTRUCTION IN THE PROJECT AREA.





AGNOLI BARBER & BRUNDAGE, INC.
Professional engineers, planners, & land surveyors
Certificate of Authorization Nos. LB 3664 and EB 3664
Collier County:
7420 Tamiami Trail, North, Suite 200
Naples, FL 34108
Phone: (239)597-3111
Fax: (239)566-2203
Lee County:
1605 Jendry Street, Suite 101
Fort Myers, FL 33901
Phone: (239)337-3111

CLIENT NAME:
WMR - I ASSOCIATES, LTD.
570 DELWARE AVENUE
BUFFALO, NY 14202-1207

PROJECT NAME:
GATEWAY SHOPPES AT NORTH BAY (LAWMETKA P.U.D.)

DRAWING TITLE:
CONSTRUCTION DETAILS (2)

REVISION:
1. 8-02-03 ADD CUT DETAILS C2a, C2b, & K - P.
2. 9-11-03 ADD CUT DETAILS
3. 10-7-03 REVISE SECTION E
4. 11-14-03 REVISE SECTION M, UPDATE OTHER SECTIONS
5. 7-14-04 DELETE SECTION M, UPDATE OTHER SECTIONS
6. PER 2-24-05 REV PRESERVE
17. 11-26-07 PHASE 1, WATER AND SEWER AS-BUILTS
22. 02-11-08 DRAINAGE AS-BUILTS

JUL 10 2008

DESIGNED BY: DWB
DRAWN BY: MSK
CHECKED BY: SGS
REVIEWED BY:
HORIZ. SCALE: NA
VERT. SCALE:
DATE: JAN. 2003

ACAD FILE NAME: 9913-DET
ABB PROJECT # 06-0003
PLOT VIEW \ LAYOUT D2-CON

SHEET 11 OF 19

Acad File # 9913

SITE DEVELOPMENT PLANS FOR:

GATEWAY SHOPPES AT NORTH BAY PHASES 2-6 (LAWMETKA P.U.D.)

LOCATED IN SECTION 16, TOWNSHIP 48 SOUTH, RANGE 25 EAST COLLIER COUNTY, FLORIDA.

Utility Providers

TELEPHONE:
SPRINT FLORIDA INC.
P.O. BOX 2477
NAPLES, FL 34104
TEL: [239] 263-6319

ENVIRONMENTAL:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2295 VICTORIA AVENUE No. 364
FT. MYERS, FLORIDA 34113
TEL: [239] 332-6975

SEWER:
COLLIER COUNTY WASTEWATER DEPARTMENT
3301 TAMIAMI TRAIL EAST
NAPLES, FL 34113
TEL: [239] 732-2575

WATER MANAGEMENT:
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
2301 MCGREGOR BOULEVARD
FORT MYERS, FL 33901
TEL: [239] 338-2929

POWER:
FLORIDA POWER AND LIGHT COMPANY
4105 15TH AVENUE SOUTHWEST
NAPLES, FL 34116
[239] 353-6090

TELEVISION:
COMCAST
301 TOWER ROAD
NAPLES, FL 34113
TEL:[239] 793-3577

FIRE DISTRICT:
NORTH NAPLES FIRE CONTROL DISTRICT
1885 VETERANS PARK DR.
NAPLES, FL 34109
TEL: [239] 597-3222

WATER:
COLLIER COUNTY WATER DEPARTMENT
3301 TAMIAMI TRAIL EAST
NAPLES, FL 34113
TEL: [239] 732-2575

PREPARED FOR:

WR - I ASSOCIATES, LTD.
8441 COOPER CREEK BLVD.
UNIVERSITY PARK, FL 34201
PHONE: (941) 359-8303
FAX: (941) 359-1836

LEGAL DESCRIPTION (PER O.R. BOOK 1213, PGS. 2236-2237)

THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 16, TOWNSHIP 48 SOUTH, RANGE 25 EAST, LYING WEST OF RIGHT-OF-WAY OF NEW US 41, COLLIER COUNTY, FLORIDA, LESS AND EXCEPT THE 0.45 ACRE COLLIER COUNTY UTILITY PROPERTY.

FOLIO NUMBER 00155884100

Reviewing Agency

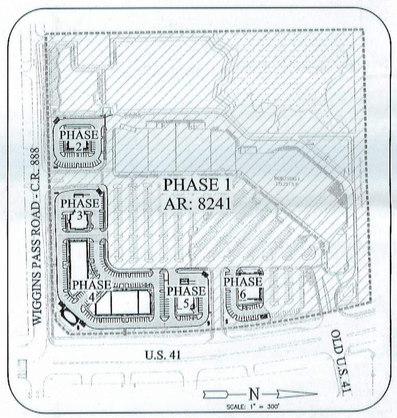
COLLIER COUNTY
COLLIER COUNTY COMMUNITY DEVELOPMENT SERVICES
2800 NORTH HORSESHOE DRIVE
NAPLES, FL 34104
TEL: [239] 643-8400

FIRE PROTECTION BUILDING INFORMATION			
Building #	Area Under Roof	Construction Type	Sprinklered
1	5,625	V	YES
2	4,103	V	NO
3	13,387	V	YES
4	19,170	V	YES
5	3,820	V	NO
6	8,000	V	YES

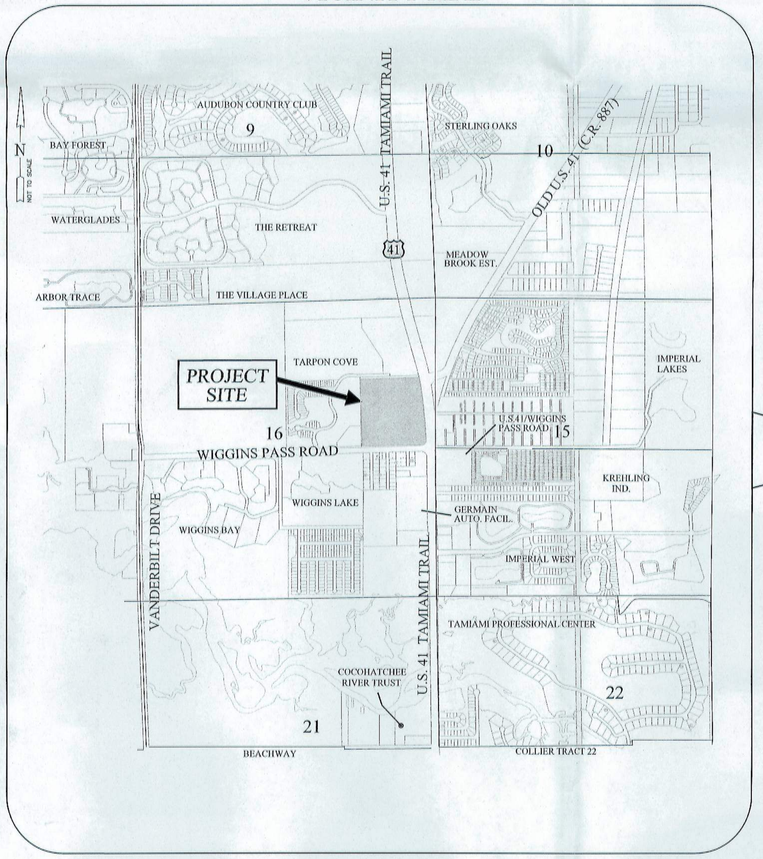
SHEET INDEX

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	PROJECT AERIAL \ EXISTING CONDITIONS MAP
3	MASTER PHASING PLAN
4	SITE, SIGN & STRIPING PLAN
5	PAVING, GRADING & DRAINAGE PLAN
6	MASTER UTILITY PLAN
7	PLAN & PROFILE
8	SOIL EROSION & SEDIMENT CONTROL DETAILS & CLEARING PLAN
9	CONSTRUCTION DETAILS (1)
10	WATER SYSTEM & SANITARY SEWER DETAILS

PHASING MAP



VICINITY MAP



LOCATION MAP



ORIGINAL SUBMITTALL
MAY 17 2006
LWC SERVICE CENTER

REG COMMENTS

PERMITTED PLANS

APPLICATION NUMBER
060517-18

LEGEND:

WATER DISTRIBUTION SYSTEM

- 12" WM — EXISTING WATER MAIN & PIPE SIZE
- 8" RW — EXISTING IRRIGATION MAIN & PIPE SIZE
- EXISTING FIRE HYDRANT
- F.D.C. BFP — PROPOSED BACKFLOW PREVENTOR & F.D.C.
- PROPOSED FIRE HYDRANT
- 12" WM — PROPOSED WATER MAIN, VALVE & PIPE SIZE
- 8" RW — PROPOSED IRRIGATION MAIN, VALVE & PIPE SIZE
- 1" W — PROPOSED WATER SERVICE & PIPE SIZE

SANITARY SEWER SYSTEM

- 8" SS — PROPOSED SEWER MAIN & PIPE SIZE
- EXISTING MANHOLE
- 8" SS — PROPOSED SEWER MAIN, MANHOLE & PIPE SIZE
- 4" FM — EXISTING SANITARY FORCE MAIN & PIPE SIZE
- 6" SL — PROPOSED 6" PVC SEWER LATERAL

STORM DRAINAGE SYSTEM

- CB-1 — PROPOSED CATCH BASIN W \ STRUTURE #
- EXISTING STORM DRAIN MANHOLE/HEADWALL
- 24 LF 15" RCP @ 0.2% — PROPOSED STORM DRAIN, INLET & PIPE INFO

AGNOLI BARBER & BRUNDAGE, INC.
Professional engineers, planners, & land surveyors
Certificate of Authorization Nos. LB 3064 and EB 3064
Collier County:
7400 Tamiami Trail, North, Suite 200
Naples, FL 34108
Phone: (239)597-3111
Fax: (239)566-2203
Lee County:
9990 Coconut Road, Suite 103
Bonita Springs, FL 34135
Phone: (239)337-3111

CLIENT NAME:
WR - I ASSOCIATES, LTD.
8441 COOPER CREEK BLVD.
UNIVERSITY PARK, FL 34201

PROJECT NAME:
GATEWAY SHOPPES AT NORTH BAY PHASES 2-6 (LAWMETKA P.U.D.)

DRAWING TITLE:
COVER SHEET

DESIGNED BY: JAC
DRAWN BY: TDB
CHECKED BY: JAC
REVIEWED BY: ABB
HORIZ. SCALE: AS NOTED
VERT. SCALE: NA
DATE: MAR. 2006

REVISION:

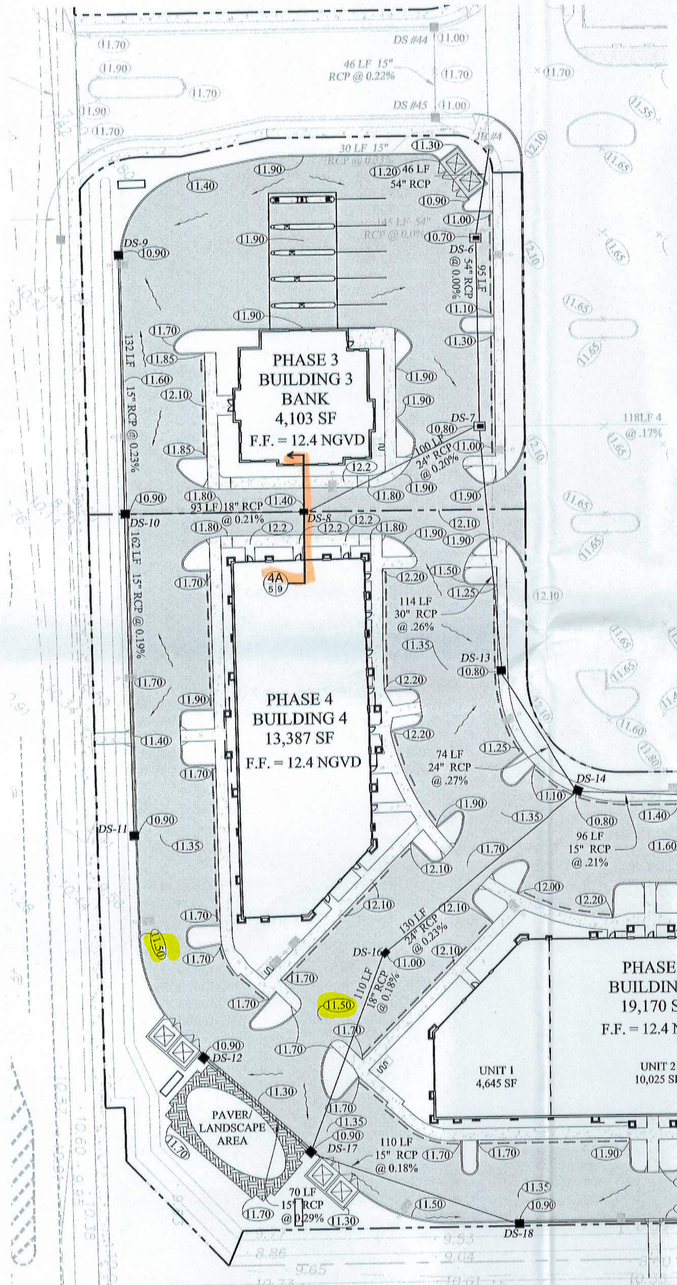
ACAD FILE NAME:
9391-CVR

ABB PROJECT #
06-0003

PLOT VIEW \ LAYOUT
Cover

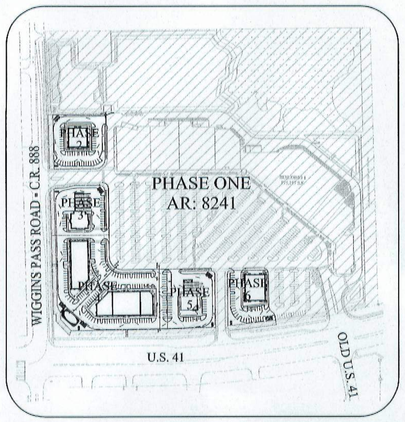
SHEET 1
OF 10

Acad File # 9391



PHASING MAP

1" = 300'



LAND USE

LAND USE (DRAINAGE AREAS)

TOTAL SITE AREA =	7.06 AC	PERCENTAGE (%)
BUILDING FOOTPRINT AREA =	1.24 AC	17.6%
VEHICULAR USE AREA =	3.42 AC	48.4%
SIDEWALKS / CONC. AREA =	0.70 AC	9.9%
OPEN / GREEN SPACE =	1.70 AC	24.1%
TOTAL DRAINAGE AREA	7.06 AC	100.0%

DRAINAGE NOTES:

1. ALL SWALES AND RETENTION AREAS TO BE SODDED WITHIN SEVEN DAYS OF FINAL GRADING.
2. ALL FINAL DRAINAGE STRUCTURE LOCATIONS TO BE APPROVED IN THE FIELD BY THE ENGINEER.
3. ALL PAVEMENT AND SIDEWALKS ADJACENT TO BUILDING AREA SHALL BE CONSTRUCTED WITH SLOPE WHICH WILL SHED WATER AWAY FROM THE BUILDING.
4. ALL CURBS ARE TYPE D UNLESS OTHERWISE NOTED.
5. SEE ENCLOSED DETAIL SHEET FOR COLLIER COUNTY EROSION CONTROL REQUIREMENTS.
6. REFERENCE FDOT INDEX #273 FOR MITERED END DETAIL.
7. THE LOCATION OF EXISTING UTILITIES HAS BEEN PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE TO THE ENGINEER. THIS INFORMATION IS NOT GUARANTEED, THEREFORE THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES IN THE FIELD.
8. THE CONTRACTOR SHALL NOTIFY ALL APPROPRIATE UTILITY COMPANIES BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ALL SERVICE LINES LOCATED AND FLAGGED PRIOR TO EXCAVATION.
9. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL UTILITY LINES AND SERVICES DAMAGED DURING CONSTRUCTION, INCLUDING IRRIGATION LINES, AND SERVICES. THE APPROPRIATE UTILITY SHALL BE NOTIFIED OF ALL DAMAGED LINES PRIOR TO REPAIR. ALL NECESSARY REPAIRS
10. ALL ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM (1929).
11. THE OPERATING ENTITY OF NORTH BAY PLAZA (LAWMETKA P.U.D.) SHALL BE RESPONSIBLE FOR OWNERSHIP AND MAINTENANCE OF ALL ON-SITE DRAINAGE AND WATER MANAGEMENT FACILITIES.
12. VEGETATION TO REMAIN TO BE PROTECTED BY STAKED SILT FENCE.
13. ALL WORK SHALL BE IN ACCORDANCE WITH COLLIER COUNTY VERTICAL CONSTRUCTION SPECIFICATIONS.
14. PER SFWMD PERMIT# 11-01765-P:
    MINIMUM PARKING LOT ELEVATION = 10.2' NGVD
    MINIMUM ROAD CROWN/PERIMETER BERM = 11.7' NGVD
    FINISHED FLOOR = 12.15' NGVD

NOTE: UPDATED FEMA MAPS AS OF NOV. 2005, NOW INDICATE FLOOD ZONE AE = 12.3' NGVD FOR MINIMUM FINISH FLOOR ON PHASES 2-6.

STRUCTURE #	STRUCTURE TYPE	RIM/GRATE ELEVATION	INVERT
* DS-1	A-1	EOP=10.70	6.20(E), 3.00(W)
DS-2	A-1	EOP=10.70	6.50
DS-3	A-1	EOP=10.50	6.80
DS-4	A-1	EOP=10.50	7.00
* DS-5	J w C riser	10.90	3.20(N)-0.50(E,W)
* DS-6	J w C riser	10.70	(-)0.50
* DS-7	J w C riser	10.80	(-)1.40(N), 3.00(E)-0.50(W), 3.80(S)
DS-8	C	11.40	5.50(S)4.00(N)
DS-9	A-1	EOP=10.90	6.70
DS-10	A-1	EOP=10.90	6.40(E,W) 5.70(N)
DS-11	A-1	EOP=10.90	6.70
DS-12	A-1	EOP=10.90	7.00
* DS-13	A-2	EOP=10.80	3.30
DS-14	A-1	EOP=10.80	3.50(SW), 3.50(SE), 4.30(N)
DS-15	A-1	EOP=10.90	4.50
DS-16	C	11.00	6.30(E), 3.80(W)
DS-17	A-1	EOP=10.90	6.50(N), 6.50(W), 6.80(SW)
DS-18	A-1	EOP=10.90	6.70
DS-19	A-1	EOP=10.90	7.00
DS-20	C	10.70	2.05(W), 5.90(E)
DS-21	C	10.70	6.10
DS-22	A-1	EOP=10.90	6.40
DS-23	A-1	EOP=10.90	6.70
DS-24	A-1	EOP=10.70	7.00
DS-25	A-1	EOP=10.70	6.60(E), 5.06(S)
DS-26	A-1	EOP=10.70	6.80
DS-27	A-1	EOP=10.70	7.00

* THESE STRUCTURES ARE REVISED/MODIFIED FROM PHASE 1 (AR-8241) DESIGN.

REG COMP FILES

PERMITTED PLANS

AGNOLI BARBER & BRUNDAGE, INC.
Professional engineers, planners, & land surveyors
Certificate of Authorization Nos. LB 3064 and EB 3064

Collier County:
7490 Tamiami Trail, North, Suite 200
Naples, FL 34108
Phone: (239)597-3111
Fax: (239)566-2203

Lee County:
9990 Coconut Road, Suite 103
Bonita Springs, FL 34135
Phone: (239)337-3111

CLIENT NAME: WR-I ASSOCIATES, LTD.
8441 COOPER CREEK BLVD.
UNIVERSITY PARK, FL 34201

PROJECT NAME: GATEWAY SHOPPES AT NORTH BAY, PHASES 2-6 (LAWMETKA P.U.D.)

DRAWING TITLE: PAVING, GRADING & DRAINAGE PLAN

DESIGNED BY: JAC
DRAWN BY: TDB
CHECKED BY: JAC
REVIEWED BY: ABB
HORIZ. SCALE: 1" = 40'
VERT. SCALE: NA
DATE: MAR. 2006

REVISION:

ACAD FILE NAME: 9391-ME
ABB PROJECT # 06-0003
PLOT VIEW \ LAYOUT PG&D
SHEET 5 OF 10
Acad File # 9391

Old 41 Stormwater Improvements ERP SFWMD Permit No. 11-01984-P

Last Date For Agency Action: October 16, 2009

GENERAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Old 41 Stormwater Improvements

Permit No.: 11-01984-P

Application No.: 090320-7

Application Type: Environmental Resource (General Permit Modification)

Location: Collier County, S10/T47S/R25E

Permittee : Collier County Board Of Commissioners

Operating Entity : Collier County Board Of Commissioners

Project Area: 8.00 acres

Project Land Use: Other

Drainage Basin: WEST COLLIER **Sub Basin:** WIGGINS BAY OUTLET

Receiving Body: U.S. 41 conveyance system

Special Drainage District: NA

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for an Environmental Resource Permit modification authorizing construction and operation of a surface water management system serving an 8.0-acre project known as Old 41 Stormwater Improvements, with discharge to U.S. 41 and the Cocohatchee River.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The project site is located on the west side of the Old U.S. 41 right-of-way between U.S. 41 and the Collier/Lee County line in Collier County, Florida. A location map is attached as Exhibit No. 1.0.

The purpose of this project is to improve the existing 1,350-acre drainage area tributary to Old U.S. 41 and its conveyance in the Old U.S. 41 right-of-way, which eventually discharges to the Cocohatchee River under U.S. 41 through the existing double 4-foot by 10-foot box culvert. The drainage area is approximately 85% to 90% developed by a mixed use of commercial, residential and industrial developments as shown on Exhibit 1.1. The drainage area is bounded by U.S. 41 to the west, the City of Bonita Springs to the north, and the existing vacated railroad right-of-way to the southeast. This area includes developments without District permits with little or no surface water management systems, and developments with District permits, such as Spanish Wells (Permit No. 36-00067-S), North Naples Research and Technology Park (Permit No. 11-02242-P), Delivery by Design (Permit No. 11-02242-P-02), Busk Nursery (Permit No. 11-01702-P), Arbor View Apartments (Permit No. 11-01542-S), Sterling Oaks (Permit No. 11-01042-S), Turtle Creek Apartments (Permit No. 11-01367-P), Triangle Parcel (Permit No. 11-02353-P), North Collier Industrial Center (Permit No. 11-01644-P), Crisafulli Buildings (Permit No. 11-02000-P), and Railhead Industrial Park (Permit No. 81-00290-S).

The existing Old U.S. 41 right-of-way carries an approximately 156 cfs volume, primarily along its west side. This conveyance system is approximately 5,000-feet long with bottom elevations of about 5.5-feet NGVD and runs from U.S. 41 northeast to the drainage channel from the Spanish Wells development (FPL right-of-way); it then continues on the west side an additional 4,300-feet to the railroad right-of-way. The east side of Old U.S. 41 also has a drainage conveyance that extends generally from U.S. 41 to the railroad right-of-way. There are two cross drains connecting the west and east sides of the right-of-way located 240-feet upstream of the Old U.S. 41-U.S. 41 intersection, and 700-feet north of Sterling Oaks Drive, and consisting of two 24-inch culverts and two 30-inch culverts, respectively. There are existing conveyance culverts along both sides of the right-of-way, which appear to have reduced capacity due to sedimentation and erosion in the channels, especially along the west side. This project is located within the Wiggins Bay Outlet Basin with an allowable discharge rate of 0.13 cfs/acre as identified in Ordinance No. 2001-27.

There are no wetlands within the project area, although freshwater wetlands do exist to the west of the Old U.S. 41 right-of-way in various places. The project proposes to relocate the existing roadside ditch to approximately the same elevations; therefore no adverse environmental impacts are anticipated as a result of this project.

PROJECT BACKGROUND:

In 1997, a study of this area known as the Wiggins Pass Basin Study was completed for Collier County that identified improvements for the outfall west of U.S. 41.

On September 11, 2001, Permit No. 11-01984-P/Application No. 010510-8 authorized a system serving a portion of the Wiggins Bay Outlet Basin by resurfacing an existing section of Gulf Harbor Road in addition to culvert enclosure of the existing westbound open swale that runs along Gulf Harbor Road to provide conveyance from upstream sources. These improvements are located downstream of the area presently revised under this application.

In 2008, during field visits to the study area, District staff acknowledged the need for enlargement of the channel as well as replacing undersized culverts on the Old U.S. 41 right-of-way. The permittee then submitted the subject application to authorize the improvements within this right-of-way.

PROPOSED PROJECT:

The applicant proposes to create a consistent cross-section and longitudinal slope for the roadside swale on the west side of Old U.S. 41 from its southern end at U.S. 41 to the north end near the Collier/Lee County line. The proposed project consists of enlarging the existing swale with a 0.12% slope and transition bottom width between 22-feet and 16-feet from STA 0+00 to 63+00 to improve conveyance capabilities from the Wiggins Bay Outlet Basin. The project also includes removal and replacement of undersized driveway culverts at Sterling Oaks Drive and Turtle Creek Drive. The improvements on the east side of the right-of-way consist of constructing 30 linear feet of concrete valley gutter and a C-box at an existing 18-inch RCP culvert adjacent to Collier Center Way, removing and replacing culverts, and installing guardrails adjacent to tops of bank. The improvements will be entirely within the Old U.S. 41 right-of-way. The plan and profile, and details are referenced as exhibit 2.0.

WATER QUANTITY :

Discharge Rate :

Stormwater runoff will pass through the existing double 4-ft by 10-ft box culvert at the Old 41 - U.S. 41 intersection, will travel west on Wiggins Pass West, and then south to Gulf Harbor Road prior to reaching Cocohatchee River. No adverse discharge impacts are anticipated as a result of the proposed project.

WATER QUALITY :

Stormwater runoff from this part of the Wiggins Bay Outlet Basin will sheet flow into the enlarged sodded conveyance swale that provide additional water quality prior to discharge into the Cocohatchee River. In addition, an Urban Stormwater Management Program and Storm Water Pollution Prevention Plan specifications and guidelines are part of the proposed improvements as indicated in Special Conditions No. 12 and 13. No adverse water quality impacts are anticipated as a result of the proposed project.

Wildlife Issues:

The project site does not contain wetlands, nor does it contain preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. No wetland-dependent endangered/threatened species or species of special concern were observed onsite, and submitted information indicates that potential use of the site by such species is minimal. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

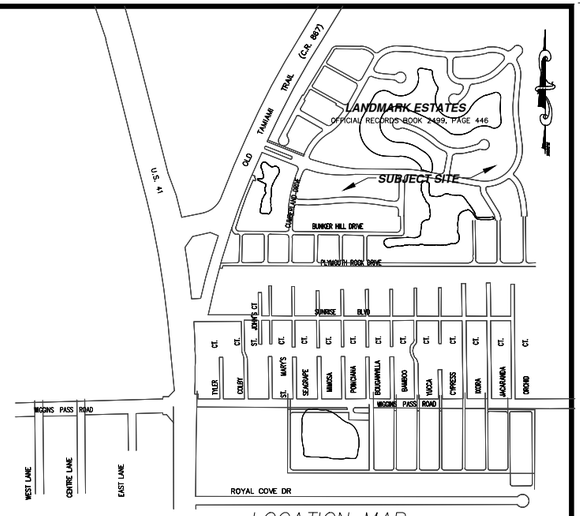
Landmark Naples ERP
SFWMD Permit No. 11-103545-P

LANDMARK NAPLES

RESIDENTIAL SUBDIVISION
CONTROL STRUCTURE MODFICIATION
CONSTRUCTION PLANS

GRAPHIC SCALE
0 100 200





LOCATION MAP
SCALE: 1" = 500'

SITE INFORMATION:

LOCAL JURISDICTION:	COLLIER COUNTY
STRAP NO.:	000100 013 3A15
F.E.M.A.:	AH, EL 9.5 (NAVD 88) PER F.I.R.M. 12021C0191H
S.F.W.M.D. ERP	PERMIT # 11-00178-S
W.S.W.T.	7.00' NGVD, 8.23' NAV 88
MIN FIN. FLR. ELEV.:	12.0' NGVD, 10.77' NAV 88

I. SITE DATA

SFR Site Parameters			
1a. Average SFR Home size		1968 sf	
1b. Average Allowed Maximum SFR Roofed Impervious (home not incl.)		35%	
1c. Total parcel impervious %		45%	
1d. Number of res parcels (Bldg sites 100-107), incl 1 admin unit		480	
A. Acreage		AC.	% TOTAL
1. Total		81.70 ac.	100.00%
2. Imperious:			
a. Res Homes (roof)		10.22 ac.	12.51%
b. Res Imperv (non-roof)		16.20 ac.	19.82%
c. Res. Buildings (roof)		0.48 ac.	0.58%
d. Res. Other (non-roof)		0.79 ac.	0.96%
e. Roadway		7.99 ac.	9.77%
	Total Impervious	35.73 ac.	43.73%
3. Water Management			
a. Wet Detention (Lake 1)		4.46 ac.	5.45%
b. Wet Detention (Lake 2)		3.08 ac.	3.77%
c. Wet Detention (Lake 3)		0.90 ac.	1.10%
d. Wet Detention (South Swale)		0.75 ac.	0.92%
	Total Water Surface	9.19 ac.	11.25%
4. Pervious			
a. Island preserve		0.40 ac.	0.49%
b. Pervious Common area Landscape / Open Area		3.00 ac.	3.67%
c. SF Rpsrvd open area		30.00 ac.	36.72%
d. Res parcels open space		1.33 ac.	1.63%
e. Shoreline Slope		1.97 ac.	2.42%
	Total Pervious	36.73 ac.	44.93%
B. Minimum Elevations			
1. Roads and Parking (per current permit and build-out)		10.50ft-NGVD	
2. Design Storm		9.30ft-NGVD	
3. Finished Floor		12.00ft-NGVD	
C. Discharge			
1. Design discharge:		31.90 CFS	
2. Allowable Discharge		41.70 CFS	
D. Water Level Elevation			
1. Wet Season Water Table		7.00ft-NGVD	
2. Control Elevation (per current permit)		7.00ft-NGVD	
3. Receiving body water level		-	

INDEX TO DRAWINGS

SHT NO.	SHEET TITLE
1	COVER SHEET/ VICINITY MAP
2	CONTROL STRUCTURE MODIFICATION DETAIL

SITE PARAMTERS
ROAD C/L Length: 17,570 LF

Summary of Lake Areas & Lake Bank
Landmark Naples

Description	Lake @ EL 7.0 (Ac.)	Lake Bank (Ac.)
Ex Lake 1	4.46	0.98
Ex Lake 2	3.08	0.70
Ex Lake 3	0.90	0.29
Ex Swale	0.75	
Total	9.18	1.97

OWNER/DEVELOPER
HOMETOWN AMERICA
150 NORTH WACKER DRIVE, SUITE 2800
CHICAGO, IL 60606

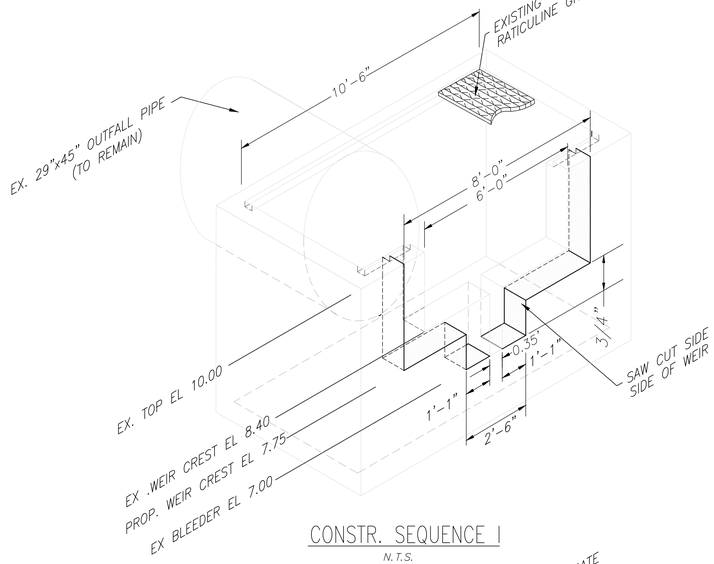
CONSULTANT/ AGENT
DRAPER TECHNOLOGY
1242 SW PINE ISLAND ROAD
STE 42-266
Cape Coral, Fl 33993
FBPE 26753
Phone: (239) 410-2394

LANDMARK NAPLES
CONTROL STRUCTURE MODIFICATION
COLLIER COUNTY, FLORIDA
CONTROL STRUCTURE MODIFICATION PLAN

SHEET NO.
1 of 2

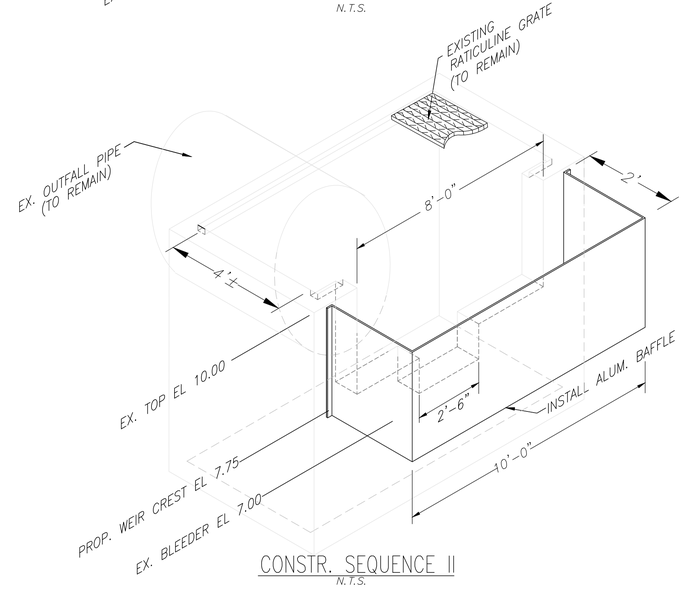
DATE 05/18/20
SCALE: AS NOTED

PRELIMINARY: NOT FOR CONSTRUCTION



CONSTR. SEQUENCE I

N.T.S.



CONSTR. SEQUENCE II

N.T.S.

CONTROL STRUCTURE I

GENERAL NOTES:

1. ALL ELEVATIONS SHALL BE NGVD 1929 STATE PLANE FLORIDA WEST (FEET) COORDINATE SYSTEM.
2. CONTRACTOR SHALL LOCATE AND VERIFY THE SIZE, LOCATION AND DEPTH OF ALL EXISTING UTILITIES IN THE FIELD AND SHALL NOTIFY THE UTILITY COMPANIES IN THE WORK AREA BEFORE BEGINNING CONSTRUCTION. ANY UTILITIES THAT ARE DISTURBED OR DAMAGED BY THE CONTRACTOR SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS EXPENSE. ANY DISCREPANCY NOT CALLED TO THE ENGINEER'S ATTENTION PRIOR TO ACCOMPLISHMENT OF THE WORK SHALL BE CORRECTED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LEE COUNTY LAND DEVELOPMENT CODE, AND LEE COUNTY UTILITIES STANDARDS AND SPECIFICATIONS, AS AMENDED, UNLESS OTHERWISE NOTED.
4. *CONTRACTOR TO PROVIDE SHOP DRAWINGS OF RATICULINE GRATE OF EACH CONTROL STRUCTURE PRIOR TO FABRICATION FOR ENGINEER REVIEW AND APPROVAL*
6. ALL MATERIALS, DEBRIS, UNSUITABLE EARTH, ETC. OF NO SALVAGE VALUE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL HAVE ALL STAKE-OUTS TO BE DONE BY A PROFESSIONAL LAND SURVEYOR, REGISTERED IN THE STATE OF FLORIDA.
8. RECORD DRAWINGS SHALL BE PREPARED AND INCLUDE, BUT NOT LIMITED TO STATION, OFFSET, ELEVATION AND MATERIAL AS APPLICABLE OF ALL INLETS, MANHOLES, RCP, ERCP, CMP, CONTROL STRUCTURES ILLUSTRATED IN BOTH PLAN AND PROFILE AS INSTALLED IN THE APPLICABLE CONSTRUCTION PHASE.
9. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL SHOWING ALL FABRICATION DIMENSIONS AND LOCATIONS FOR PLACING GRATED TOP, REINFORCING STEEL, AND ACCESSORIES. DO NOT BEGIN FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED AND REVIEWED.
10. EXPANSION AND ISOLATION JOINT FILLER ASPHALT-SATURATED CELLULOSIC FIBER, ASTM D1751 5. JOINT SEALANT: POLYURETHANE 4. EPOXY BONDING ADHESIVE: TWO-COMPONENT EPOXY RESIN, ASTM C881, TYPE IV OR V.
11. NON-SHRINK, NON-METALLIC GROUT SHALL MEET THE REQUIREMENTS OF ASTM C-1107 GRADE A OR B. THE MINIMUM COMPRESSIVE STRENGTH SHALL BE 6,000 PSI AT 28 DAYS. ACCEPTED GROUTING PRODUCT INCLUDE:
    11.1. SIKA GROUT 212 HIGH PERFORMANCE, CEMENTITIOUS GROUT BY (SIKA)
    11.2. SURE-GRIP HIGH PERFORMANCE GROUT BY "DAYTON SUPERIOR"
12. FIELD WELDING OR BENDING OF REINFORCING IS NOT PERMITTED EXCEPT AS INDICATED ON THE DRAWINGS OR AS APPROVED BY THE ENGINEER. USE LOW HYDROGEN ELECTRODES GRADE E70 OR E90 AS REQUIRED.
13. CONTRACTOR RESPONSIBLE FOR SUBMITTING POST MODIFICATION AS-BUILT SURVEY DRAWINGS OF THE CONTROL STRUCTURES.

OWNER/DEVELOPER

HOMETOWN AMERICA

150 NORTH WACKER DRIVE, SUITE 2800
CHICAGO, IL 60606

CONSULTANT/ AGENT

DRAPER TECHNOLOGY

1242 SW PINE ISLAND ROAD
STE 42-266
Cape Coral, Fl 33993

FBPE 26753
Phone: (239) 410-2394

LANDMARK NAPLES
CONTROL STRUCTURE MODIFICATION
COLLIER COUNTY, FLORIDA

CONTROL STRUCTURE MODIFICATION DETAIL

SHEET NO.

2 of 2

DATE 05/18/20

SCALE: AS NOTED

PRELIMINARY: NOT FOR CONSTRUCTION

Cordova at Spanish Wells
FKA Valencia at Spanish Wells ERP
SFWMD Permit No. 36-00067-S-02

SURFACE WATER MANAGEMENT REPORT

FOR

VALENCIA at SPANISH WELLS

Prepared by:

Q. Grady Minor & Associates, P.A.
3800 Via Del Rey
Bonita Springs, FL 34134
(239) 947-1144
CERTIFICATE OF AUTHORIZATION EB 0005151

June 2013

Mark W. Minor, P.E.
Florida Registration No. 45324

SECTION 2

CALCULATIONS

VALENCIA

LAND USE SUMMARY

		Basin L2	Basin L1	TOTAL
Single Family Lot Area	=	24.12 Ac.	2.53 Ac.	26.65 Ac.
Commercial Area	=	0.00 Ac.	0.00 Ac.	0.00 Ac.
Open Space	=	5.16 Ac.	0.52 Ac.	5.68 Ac.
Road R/W	=	6.11 Ac.	0.68 Ac.	6.79 Ac.
Internal Preserve Area	=	7.36 Ac.	0.28 Ac.	7.64 Ac.
Lake Area	=	7.50 Ac.	0.00 Ac.	7.50 Ac.
Sub-Total On-Site Basin Area	=	50.25 Ac.	4.01 Ac.	54.26 Ac.
Off-Site Old 41 Road R/W Area (Conceptual)	=	3.10 Ac.	0 Ac.	3.10 Ac.
TOTAL WATER MANAGEMENT BASIN AREA	=	**53.35 Ac.**	**4.01 Ac.**	**57.36 Ac.**

	TOTAL PROJECT	THIS PHASE	CONCEPTUAL
Total Area (Ac)	57.36	54.26	3.10
Lake Area (Ac)	7.50	7.50	0.00
Pavement Area (Ac)	9.84	7.36	2.48
Building Coverage(Ac)	11.99	11.99	0.00
Pervious Area * (Ac)	20.39	19.77	0.62
Upland Preserve (Ac)	7.64	7.64	0.00

*Does not include the Perserve Area

VALENCIA

DESIGN SUMMARY for BASIN L2

Control Elevation	9.50	ft
WQ Treatment Volume Required	6.68	AF
WQ Treatment Volume Provided	6.68	AF
WQ Max 24 -hour discharge Allowed	2.22	AF
WQ Max 24 -hour Discharge Provided	2.00	AF
5-Year 1-Day Storm Event		
1-Day Rainfall	5.7	in
Peak Stage	11.05	ft
Proposed Minimum Road Crown/Parking Elev.	12.00	ft
Previous Mod Minimum Road Crown/Parking Elev.	12.00	
25-Year 3-Day Storm Event		
3- day Rainfall	11.00	in
Allowable Discharge *	1.85	cfs
Peak Discharge	1.84	cfs
Peak Stage	13.23	ft
Proposed Minimum Perimeter Berm Elev.	13.25	ft
Previous Mod Minimum Perimeter Berm Elev.	13.01	ft
Stage at Hour 360	9.75	ft
100-Year 3-Day Storm Event, Zero Discharge		
3- day Rainfall	13.00	in
Peak Stage	13.99	ft
Proposed Minimum Finished Floor Elev.	14.00	ft
Previous Mod Minimum Finished Floor Elev.	13.80	
FEMA Elev. **	NA	ft

* Allowable discharge rate is based on the existing permit

** FEMA Flood Zone X - no 100 year flood elevation

All elevations refer to NGVD 1929.

VALENCIA

IMPERVIOUS/PERVIOUS CALCULATIONS

Description		Basin L2		Basin L1		PROJECT
		Area (Ac.)	%	Area (Ac.)	%	TOTAL
Total Sub-Basin Area		53.35	100%	4.01	100%	**57.36**
Single-Family Lots Total	100%	24.12	45%	2.53	63%	**26.65**
Building Impervious	45%	10.85		1.14		**11.99**
Pavement Impervious	10%	2.41		0.25		**2.67**
Sub-total Impervious		13.27		1.39		**14.66**
Sub-total Pervious	45%	10.85		1.14		**11.99**
Total Area Less Building		13.27		1.39		**14.66**
Old 41 Road R/W - Conceptual	100%	3.10	6%	0.00	0%	**3.10**
Building Impervious	0%	0.00		0.00		**0.00**
Pavement Impervious	80%	2.48		0.00		**2.48**
Sub-total Impervious		2.48		0.00		**2.48**
Sub-total Pervious	20%	0.62		0.00		**0.62**
Total Area Less Building		3.10		0.00		**3.10**
Commercial Total	0%	0.00	0%	0.00	0%	**0.00**
Building Impervious	0%	0.00		0.00		**0.00**
Pavement Impervious	0%	0.00		0.00		**0.00**
Sub-total Impervious		0.00		0.00		**0.00**
Sub-total Pervious	0%	0.00		0.00		**0.00**
Total Area Less Building		0.00		0.00		**0.00**
Open Space Total	100%	5.16	10%	0.52	13%	**5.68**
Building Impervious	0%	0.00		0.00		**0.00**
Pavement Impervious	5%	0.26		0.03		**0.28**
Sub-total Impervious		0.26		0.03		**0.28**
Sub-total Pervious	95%	4.90		0.49		**5.40**
Total Area Less Building		5.16		0.52		**5.68**
Road Right-of-Way Total	100%	6.11	11%	0.68	17%	**6.79**
Building Impervious	0%	0.00		0.00		**0.00**
Pavement Impervious	65%	3.97		0.44		**4.41**
Sub-total Impervious		3.97		0.44		**4.41**
Sub-total Pervious	35%	2.14		0.24		**2.38**
Total Area Less Building		6.11		0.68		**6.79**
Preserve (100% Pervious)		7.36	14%	0.28	7%	**7.64**
Lakes		7.50	14%	0.00	0%	**7.50**
Total Sub-Basin Area		53.35		4.01		**57.36**
						0.00
Total Pervious		25.87	48%	2.15	54%	**28.03**
Total Building Impervious		10.85		1.14		**11.99**
Total Pavement Impervious		9.12		0.72		**9.84**
Total Impervious		19.98	37%	1.86	46%	**21.84**

VALENCIA
Basin L2 Calculations

AVERAGE SITE GRADE

Item	Elevation From	Elevation To	Average Elevation	Basin L2 Area (Ac)	Basin L2 Area x Avg El.
Preserve	13.0	17.0	15.00	7.36	110.40
Road R/W	12.5	16.8	14.65	6.11	89.51
Single Family Lots*	13.0	18.0	15.50	13.27	205.62
Old 41 Road R/W	16.0	17.5	16.75	3.10	51.93
Lake Bank Open Space	9.5	13.5	11.50	1.30	14.95
Open Space*	13.0	17.0	15.00	3.86	57.90
			Total =	35.00	530.31
			Average Site Grade =	15.15	

* Does Not Include Building Area

SOIL STORGAGE AND CN CALCULATIONS

Item	Basin L2 Area (Ac)
Site Area (Ac)	53.35
Pervious Area (Ac)	25.87
Average Site Grade (ft)	15.15
Control Elevatin (ft)	9.50
Depth to Control Elevation (ft)	5.65
Developed Storage Available (in)	8.18
Available Soil Storage (AF)	17.64
S (in)	3.97
CN	71.60

Pervious Area obtained from "Sub-Basin Impervious / Pervious Calculations."
Average Site Grade obtained from "Sub-Basin Average Site Grade for Soil Storage" table.

From "Cummulative Soil Moisture Storage" graph in SFWMD Basis of Review (compacted soils)
Available Soil Storage = (Developed Storage Available) x (Pervious Area) / (12 inches/foot)
S = Site Wide Moisture Storage = (Available Soil Storage/Site Area) x (12 inches/foot)
CN = 1,000 / (S+10)

STAGE - STORAGE CALCULATIONS

Stage-Area Flooded

Item	Storage Criteria	Elevation From	Elevation To	0.00 Area (Ac)	Stage 9.5	10.5	11.5	12.5	13.0	13.5	14.0	15.0	16.0	17.0
Lakes	Vertical	9.5	17.0	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Preserve	Linear	13.0	17.0	7.36	0.00	0.00	0.00	0.00	0.00	0.92	1.84	3.68	5.52	7.36
Road R/W	Linear	12.5	16.8	6.11	0.00	0.00	0.00	0.00	0.71	1.42	2.13	3.55	4.97	6.11
Single Family Lots*	Linear	13.0	18.0	13.27	0.00	0.00	0.00	0.00	0.00	1.33	2.65	5.31	7.96	10.61
Old 41 Road R/W	Linear	16.0	17.5	3.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07
Lake Bank Open Space	Linear	9.5	13.5	1.30	0.00	0.33	0.65	0.98	1.14	1.30	1.30	1.30	1.30	1.30
Open Space*	Linear	13.0	17.0	3.86	0.00	0.00	0.00	0.00	0.00	0.48	0.97	1.93	2.90	3.86
			Flooded Area (Ac) =		7.50	7.83	8.15	8.48	9.35	12.95	16.39	23.27	30.15	38.81

Stage-Storage Volume

Item	Storage Criteria	Elevation From	Elevation To	0.00 Area (Ac)	Stage 9.5	10.5	11.5	12.5	13.0	13.5	14.0	15.0	16.0	17.0
Lakes	Vertical	9.5	17.0	7.50	0.00	7.50	15.00	22.50	26.25	30.00	33.75	41.25	48.75	56.25
Preserve	Linear	13.0	17.0	7.36	0.00	0.00	0.00	0.00	0.00	0.23	0.92	3.68	8.28	14.72
Road R/W	Linear	12.5	16.8	6.11	0.00	0.00	0.00	0.00	0.18	0.71	1.60	4.44	8.70	14.36
Single Family Lots*	Linear	13.0	18.0	13.27	0.00	0.00	0.00	0.00	0.00	0.33	1.33	5.31	11.94	21.23
Old 41 Road R/W	Linear	16.0	17.5	3.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
Lake Bank Open Space	Linear	9.5	13.5	1.30	0.00	0.16	0.65	1.46	1.99	2.60	3.25	4.55	5.85	7.15
Open Space*	Linear	13.0	17.0	3.86	0.00	0.00	0.00	0.00	0.00	0.12	0.48	1.93	4.34	7.72
			Flooded Volume (AF) =		0.00	7.66	15.65	23.96	28.42	33.99	41.33	61.16	87.87	122.46

VALENCIA

BASIN L2
WATER QUALITY VOLUME CALCULATIONS

On-Site Water Management Basin Area =	50.25	
Off-Site Old 41 Road (Conceptual) =	3.10	
TOTAL WATER MANAGEMENT AREA	53.35	Ac.

1.	1.0" Runoff Volume		4.45	AF
2.	2.5" x Percent Impervious:			
	a.	W.Q. Site Area	35.00	Ac.
	b.	W.Q.Impervious Area	9.12	Ac.
	c.	Percent W.Q. Impervious	26.1	%
	d.	W.Q. Volume	2.49	AF
3.	Required Water Quality Detention Volume		4.45	AF
	Additional 50% Water Quality Detention Volume		2.23	AF
	Total Required Water Quality Detention Volume		**6.68**	AF
4.	Weir Crest Height Above Control Elevation		0.89	Ft.
			10.69	In.
5.	Provided Water Quality Detention Volume Between		6.68	AF
	Control Elevation of	9.50		
	and Weir Crest Elevation of	10.39		

(1.) 1.0" Runoff Volume = (Water Management Area) x 1 in. x (1 ft./12 in.)

(2a.) Water Quality Site Area = (Water Management Area) - (Lakes + Building)

(2b.) Water Quality Impervious Area = (Water Quality Site Area) - (Total Pervious Area)

(2c.) Percentage of Impervious for Water Quality = (2b.)/(2a.) x 100%

(2d.) Water Quality Volume = 2.5" x (2c.) x (Water Management Area - Lakes) x 1 ft./12 in.

(3.) Greater of 1.0" Runoff Volume and (2d.)

(4.) Weir crest height above control elevation for required detention. (3.)/(W.Q. Lake Area)

VALENCIA

WEIR AND BLEEDER DESIGN - BASIN L2

1.	Water Management Area	53.35	Ac.
2.	Maximum Allowable Discharge Rate (Based on the previous permit)	0.04	cfs/ac
3.	Project Allowable Discharge Amount - Use the Smaller Rate		
A.	Based on Max Allowable Discharge Rate	2.13	cfs
B.	Based on Previous Permit	1.85	cfs Use This Rate
4.	0.5 inch of Detention Volume (V-Det.)	2.22	AF
5.	Average Discharge Rate over 24 hours for V-Det.	1.12	cfs
6.	Weir Crest Height	0.89	Ft
7.	V-Notch Angle	111	degrees
8.	V-Notch Width	2.60	Ft

Using a V-Notch bleeder with 111 degree angle and 2.54' top width would exceed the allowable discharge. Use a rectangular orifice, 4.75" high x 8.5" wide with an invert at elevation 9.50.

Notes:

(1.) Water Management Area does not include the offsite pavement

(3.A.) Allowable Discharge Amount = (Water Management Area) x (Allowable Discharge Rate)

(4.) V-Det = (Water Management Area) x 0.5" x1'/12"

(5.) Avg Discharge Rate = (V-Det) x (43,560 cf/af) / (24 hr) x (60 min/hr) x (60 sec/min)

(7.) From "Required V-Notch Size" (Figure G-2, SFWMD Surface Water Design Aids)

(8.) V-Notch Width = 2 x (Weir Crest Height) x tan(V-Notch Angle/2)

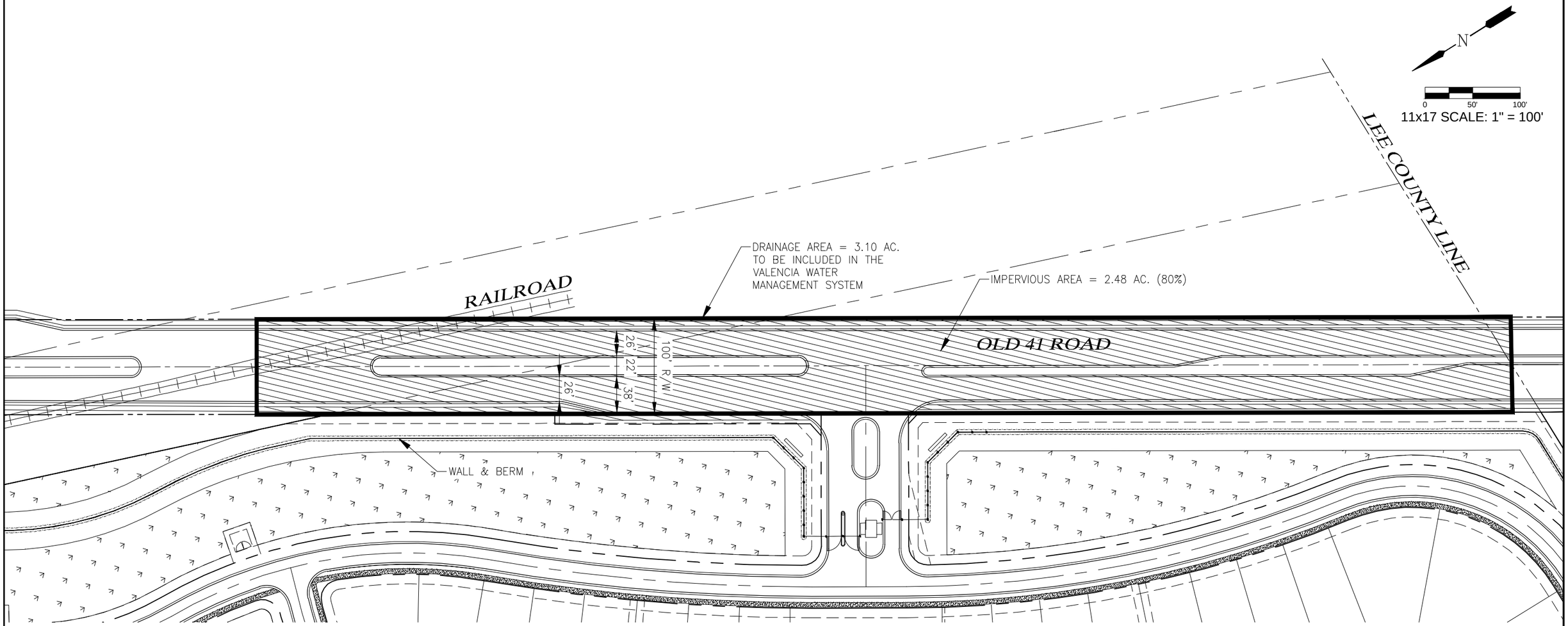
VALENCIA

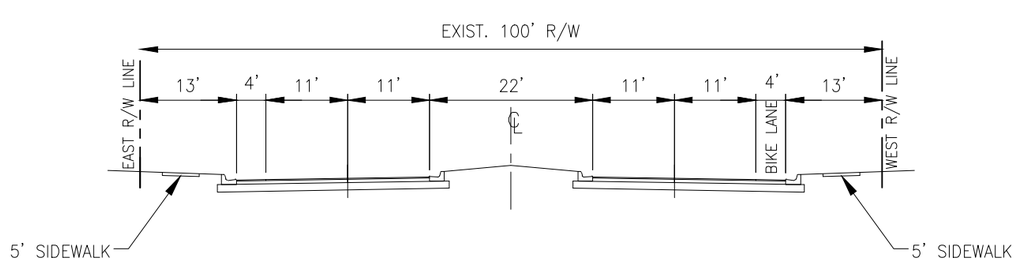
BASIN L-2

CHECK MAXIMUM WATER QUALITY DISCHARGE VOLUME IN 24 HOURS

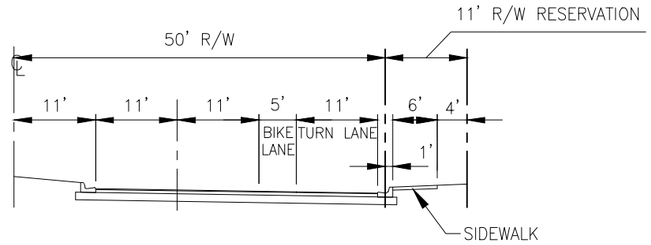
District criteria (Basis of Review Sec. 7.2.a) limits Water Quality Discharge to a maximum design discharge of one-half inch of the detention volume in 24 hours.

1.	Water Quality Elevation			10.39	Ft
2.	From attached ICPR 25 year - 3 day flood routing model				
a	Time water quality elevation is reached during drawdown			271	Hours
	stage at time	271.0 Hours		10.39	
	Cumulative Outfall Volume (AF) at time	271.0 Hours		26.1	AF
b	24 hours after time water quality elevation is reached			295	Hours
	stage at time	295.0 Hours		10.14	
	Cumulative Outfall Volume (AF) at time	295.0 Hours		28.1	AF
3.	Water Quality Discharge Volume =	28.1 AF -	26.1 AF =	2.00	AF
4.	0.5 inch of Detention Volume (V-Det.)			2.22	AF
5.	Water Quality Discharge Volume is Less Than or Equal To V-Det			**YES**	





OLD 41 ROAD PROPOSED CONCEPTUAL SECTION



SECTION WITH TURN LANE

LEGEND

Revision	Date	Description	By

DESIGNED BY: R.I.
DRAWN BY: K.L.M.
APPROVED: M.W.M.
JOB CODE: TBLHDO
SCALE: 1" = 100'

GradyMinor
Civil Engineers ð Land Surveyors ð Planners ð Landscape Architects
CERT. OF AUTH. EB 0005151 CERT. OF AUTH. LB 0005151 BUSINESS LC 26000266
Bonita Springs 239.947.1144
Fort Myers 239.690.4380
www.GradyMinor.com Q. Grady Minor and Associates, P.A.

VALENCIA AT SPANISH WELLS

OLD 41 ROAD CONCEPTUAL DRAINAGE AREA PLAN

ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM NGVD 29
CONVERSION FROM NGVD 29 TO NAVD 88 = (–) 1.22 FEET

MARK W. MINOR, P.E.
FLORIDA P.E. LICENSE NO. 45324

MUNICIPALITY: BONITA SPRINGS
SEC/TWN/RGE: 03/48S/25E
DATE: JUNE 2013
SUBMITTAL TYPE: SFWMD
SHEET 1 OF 1

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VALENCIA at Spanish Wells
S.F.W.M.D. Plans

Located in Bonita Springs
Section 3, Township 48 South, Range 25 East

Developer:

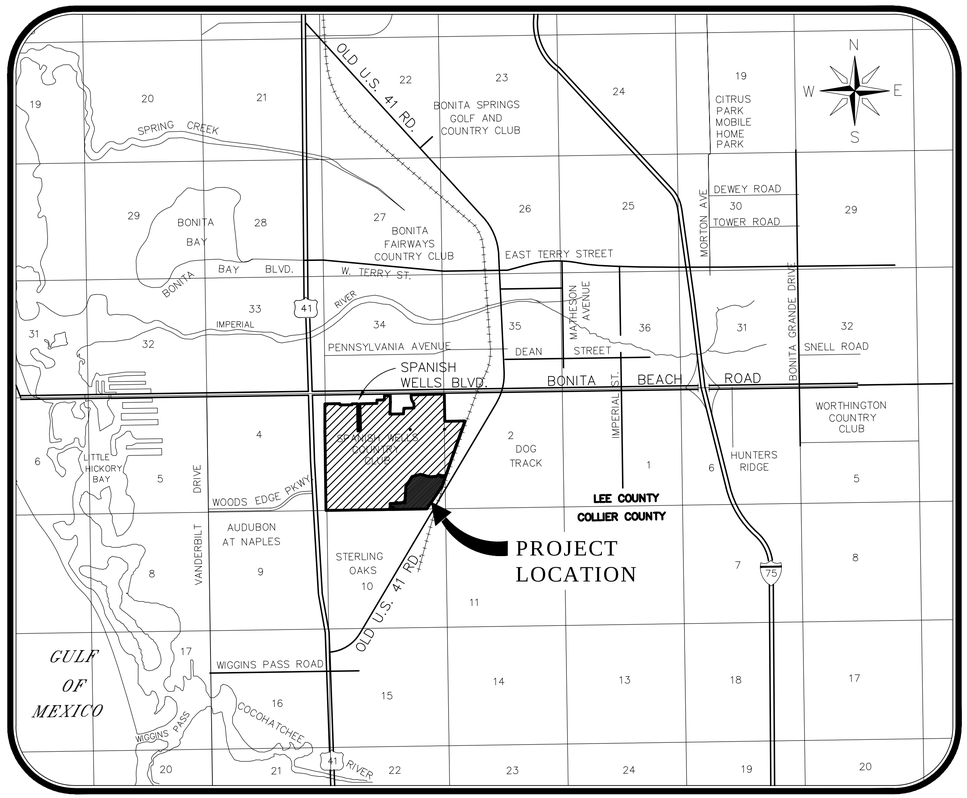
Toll Brothers

3970 W. Indiantown Road
Jupiter, Florida 33478
Tel: (561) 741-5735
Fax: (561) 741-5731

Property Information:

PARCEL STRAP NUMBERS: 03-48-25-B3-00001.0130
03-48-25-B3-00001.0140

ZONING: RPD ORD 02-21



Location Map

N.T.S.

Sheet List Table

Sheet Number	Sheet Title
1	COVER
2	GENERAL NOTES
3	CLEARING AND EROSION CONTROL PLAN
4	MASTER GRADING, PAVING AND DRAINAGE PLAN
5	GRADING, PAVING AND DRAINAGE PLAN
6	GRADING, PAVING AND DRAINAGE PLAN
7	OFFSITE TURN LANE PLAN
8	GRADING, PAVING, AND DRAINAGE DETAILS (SHEET 1)
9	GRADING, PAVING, AND DRAINAGE DETAILS (SHEET 2)
10	GRADING, PAVING, AND DRAINAGE DETAILS (SHEET 3)
11	GRADING, PAVING, AND DRAINAGE DETAILS (SHEET 4)

Revisions

Revision	Date	Description	By
1	5/2013	MISC. REVISIONS SHEETS 1,2,4-11	R.I.

Prepared by:

GradyMinor

Bonita Springs 239.947.1144
Fort Myers 239.690.4380

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PROJECT MANAGER: RICHARD IBACH
ENGINEER OF RECORD: MARK. W. MINOR P.E.

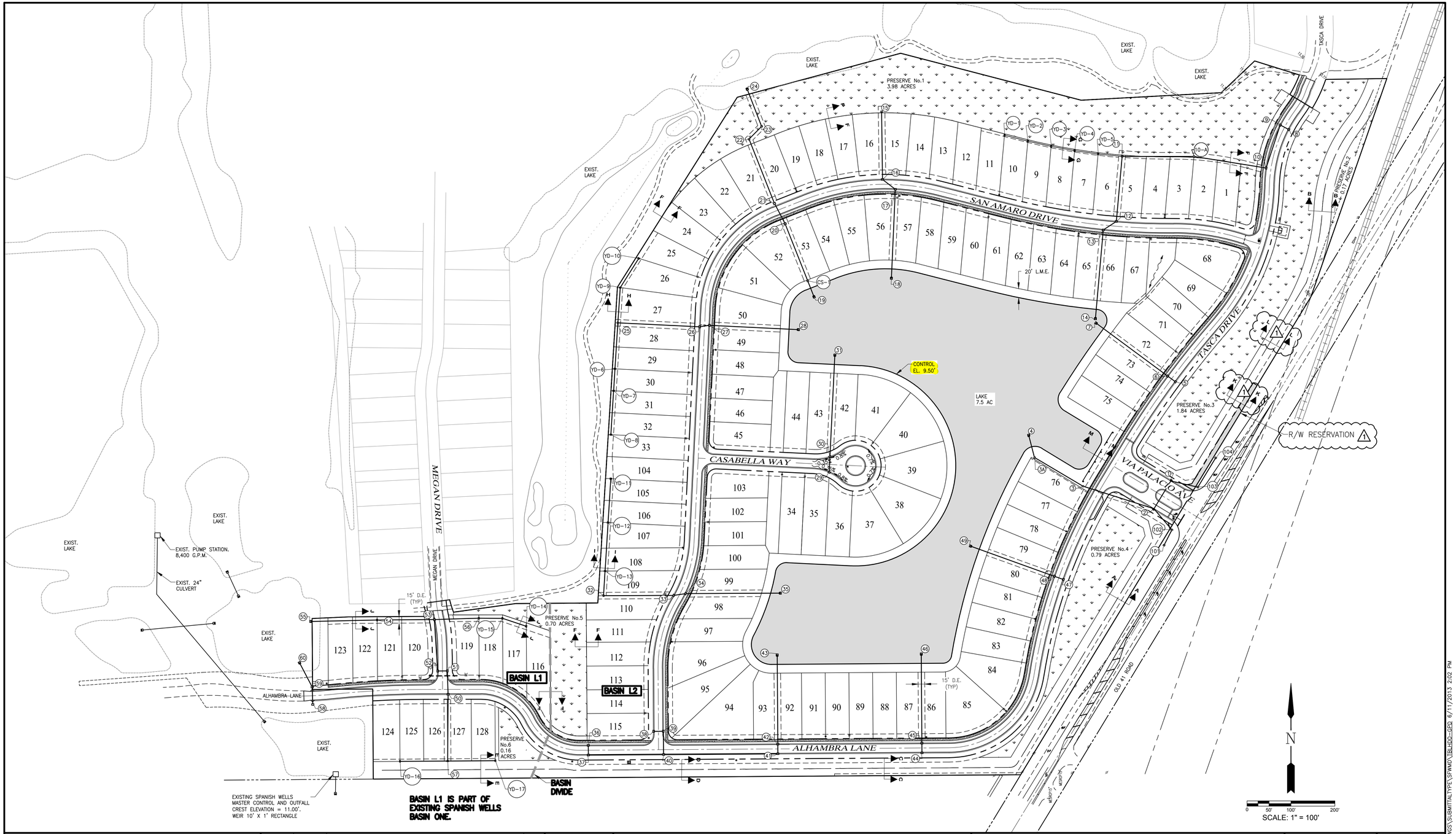
SUBMITTAL: SFWMD
DATE: SEPTEMBER 2012
FILE NAME: TBLHDO-CLEARING AND EROSION PLAN.DWG
JOB CODE: TBLHDO
DRAWING NUMBER 1 OF 11

VALENCIA at Spanish Wells
S.F.W.M.D. Plans

GradyMinor
BONITA SPRINGS OFFICE

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Application No. 130612-2
Exhibit No. 2.0
Page 1 of 11



LEGEND

- UPLAND PRESERVE
- (15.60) PROPOSED GRADE
- [18.20] FINISH FLOOR ELEVATION
- (57) DRAINAGE STRUCTURE
- DE DRAINAGE EASEMENT
- LME LAKE MAINTENANCE EASEMENT

Revision	Date	Description	By
1	05/2013	MISC. REVISIONS	R.I.

DESIGNED BY: R.I.
DRAWN BY: BCB
APPROVED: M.W.M.
JOB CODE: TBLHDO
SCALE: 1" = 100'

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CERT. OF AUTH. EB 0005151 CERT. OF AUTH. LB 0005151 BUSINESS LC 26000266
www.GradyMinor.com Q. Grady Minor and Associates, P.A.
Bonita Springs 239.947.1144
Fort Myers 239.690.4380

VALENCIA AT SPANISH WELLS

MASTER GRADING, PAVING AND DRAINAGE PLAN

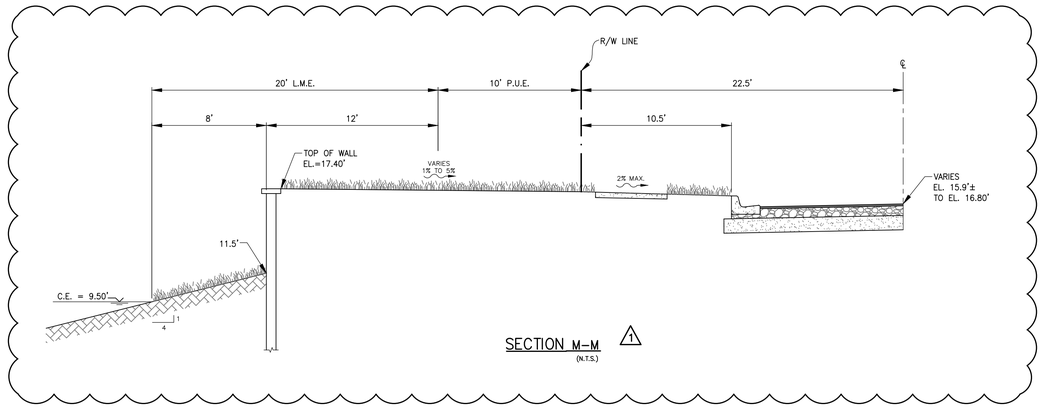
ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM NGVD 29
CONVERSION FROM NGVD 29 TO NAVD 88 = (–) 1.22 FEET

MARK W. MINOR, P.E.
FLORIDA P.E. LICENSE NO. 45324

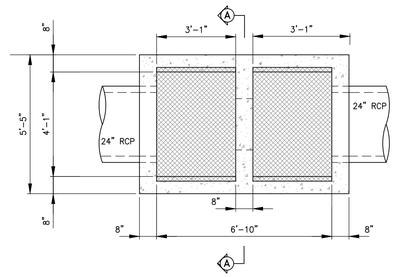
MUNICIPALITY: BONITA SPRINGS
SEC/TWN/RGE: 03/48S/25E
DATE: SEPTEMBER 2012
SUBMITTAL TYPE: SFWMD

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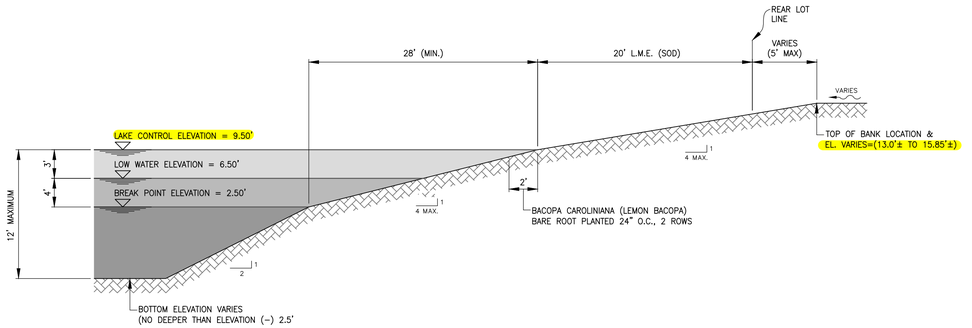
Application No. 130612-2
Exhibit No. 2.0
Page 4 of 11



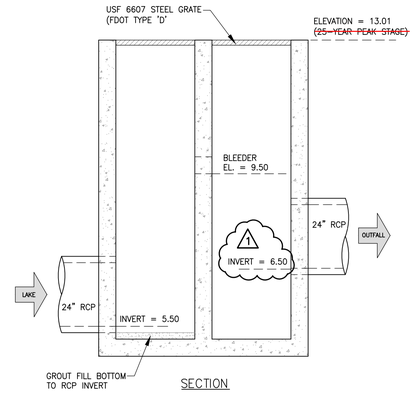
SECTION M-M (1)
(N.T.S.)



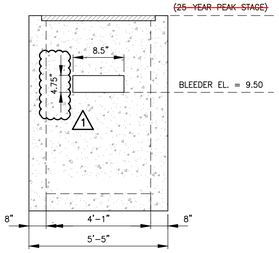
PLAN VIEW



TYPICAL LAKE SECTION
(N.T.S.)



SECTION



SECTION A-A (WEIR WALL)

CONTROL STRUCTURE (CS-1)
(N.T.S.)

LEGEND

Revision	Date	Description	By
			R.I.
1	5/2013	REVISED & ADDED SECTIONS	R.I.

DESIGNED BY: R.I.
DRAWN BY: B.C.B.
APPROVED: M.W.M.
JOB CODE: TBLHDO
SCALE: N/A

GradyMinor
Civil Engineers • Land Surveyors • Planners • Landscape Architects
CERT. OF AUTH. EB 0005151 CERT. OF AUTH. LB 0005151 BUSINESS LC 26000266
www.GradyMinor.com Q. Grady Minor and Associates, P.A.
Bonita Springs 239.947.1144
Fort Myers 239.690.4380

VALENCIA AT SPANISH WELLS

GRADING, PAVING, AND DRAINAGE DETAILS (SHEET 3)

ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM NGVD 29
CONVERSION FROM NGVD 29 TO NAVD 88 = (-) 1.22 FEET

MARK W. MINOR, P.E.
FLORIDA P.E. LICENSE NO. 45324

MUNICIPALITY: BONITA SPRINGS
SEC/TWN/RGE: 03/48S/25E
DATE: SEPTEMBER 2012
SUBMITTAL TYPE: SFWMD
SHEET 10 OF 11

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Application No. 130612-2
Exhibit No. 2.0
Page 10 of 11

Causeway Commerce Park ERP
SFWMD Permit No. 36-100490-P

CAUSEWAY COMMERCE PARK

DEVELOPMENT ORDER PLANS

PART OF SECTION 2, TOWNSHIP 48 SOUTH, RANGE 25 EAST
LEE COUNTY, FLORIDA

PROJECT INFORMATION

ZONING	LIGHT INDUSTRIAL (IL)
PARCEL ID	02-48-25-B1-00006.0000

CONSULTANTS

ENGINEER

GULFCOAST DESIGN ASSOCIATES, INC.
16000 OLD 41 ROAD N., * SUITE 205
NAPLES, FL 34110
(239) 301-4947

SURVEY

DAGOSTINO & WOOD, INC.
5415 JAEGER ROAD, SUITE A
NAPLES, FL 34109
(239) 352-6085

UTILITY PROVIDERS

WATER & SEWER

BONITA SPRINGS UTILITIES
11900 E. TERRY ST.
BONITA SPRINGS, FL 34135
(239) 992-0711

ELECTRIC

FLORIDA POWER AND LIGHT (FPL)
1220 5TH AVE. N.
NAPLES, FL 34102
(239) 262-1322

TELEPHONE

CENTURYLINK
6438 NAPLES BLVD. #100
NAPLES, FL 34109
(239) 596-6220

CABLE

COMCAST CABLE
24830 S. TAMIAMI TRAIL #2300
BONITA SPRINGS, FL 34134
(800) 934-6489

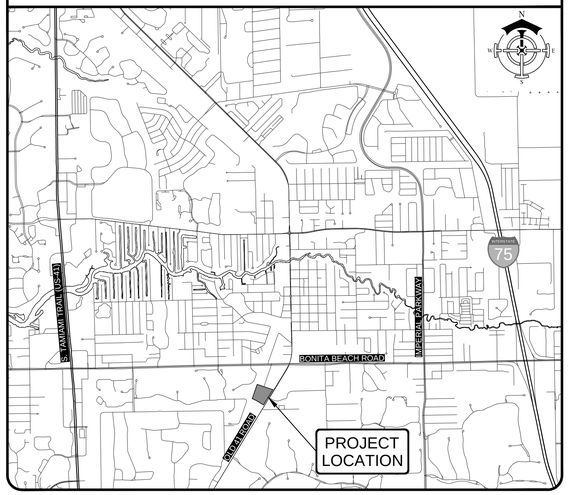
GAS

TECO GAS
5901 ENTERPRISE PKWY.
FORT MYERS, FL 33905
(239) 690-5513

FIRE DISTRICT

BONITA SPRINGS FIRE
CONTROL & RESCUE
27701 BONITA GRANDE DRIVE
BONITA SPRINGS, FL 34135
(239) 949-6200

VICINITY MAP



SHEET INDEX

NO.	DESCRIPTION
1	COVER SHEET, VICINITY MAP AND INDEX
2	AERIAL PHOTOGRAPH AND EXISTING CONDITIONS PLAN
3	DEMOLITION PLAN
4	SITE PLAN
5	UTILITY PLAN
6	DRAINAGE PLAN
7-8	GRADING & PAVING PLANS
9	TYPICAL SECTIONS
10	PAVING DETAILS
11	DRAINAGE DETAILS
12-15	BONITA SPRINGS UTILITIES DETAILS
16	EROSION CONTROL PLAN & DETAILS

CONSTRUCTION INFORMATION

Always call 811 two full business days before you dig
Sunshine811.com
CALL BEFORE YOU DIG: 811

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7/10/2018 8:45 AM

KEVIN H. McVICKER
LICENSE
No. 51436
STATE OF FLORIDA
PROFESSIONAL ENGINEER

GULFCOAST DESIGN ASSOCIATES, INC.
CERTIFICATE OF AUTHORIZATION NO. 31926
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Project Name & Address
"Development Order Plans"
Causeway Commerce Park
28280 Old 41 Road
Bonita Springs, Florida 34135

Drawn by: C. Steward	Project No. C16-0002	Check by: K. McVicker

No.	Issue	Date
1	ISSUED FOR PERMITTING	9/19/17
2		
3		
4		
5		

No.	Revision	By:	Date
1	REVISED PER DO COMMENTS	CAS	4/30/18
2	REVISED PER DO COMMENTS	CAS	7/3/18
3			
4			
5			

Scale:

Sheet Name:
COVER SHEET, VICINITY MAP AND INDEX

Sheet 1 of 16

GENERAL DRAINAGE NOTES:

1. THE LENGTH OF ALL STORM DRAIN PIPES SHOWN ARE APPROXIMATE AND ARE MEASURED FROM THE INSIDE FACE OF STRUCTURE TO THE INSIDE FACE OF THE NEXT STRUCTURE.
2. EXISTING OFF-SITE DRAINAGE PATTERNS SHALL BE MAINTAINED DURING THE COURSE OF CONSTRUCTION.
3. THE LOCATION OF THE DRAINAGE STRUCTURES SHOWN ON THE PLANS MAY BE FIELD ADJUSTED TO PRESERVE ANY EXISTING VEGETATION, AS APPROVED BY THE ENGINEER.
4. DURING CONSTRUCTION, ALL INLET OPENINGS SHALL BE COVERED WITH FILTER FABRIC (MIRAFI 140N, OR APPROVED EQUAL) TO PREVENT DEBRIS FROM FALLING INTO THE INLET.
5. THE CONTRACTOR SHALL ADJUST ALL PROPOSED ELEVATIONS TO MEET THE EXISTING GRADES AS NEEDED.
6. ALL STORM DRAINAGE PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP), UNLESS OTHERWISE NOTED.
7. PROPOSED GRADES IN OPEN SPACE AREAS ARE TOP OF SOD.
8. THE SUBJECT PARCEL IS LOCATED IN FLOOD ZONES 'X' BASED ON FLOOD INSURANCE RATE COMMUNITY PANEL 12071C0658F, AUGUST 28, 2008.
9. THERE ARE NO KNOWN IMPACTS TO SURFACE GROUND WATER RESULTING FROM THE PROJECT.

PROJECT DATUM
NAVD
DATUM CONVERSION
NAVD + 1.21 = NGVD

SURFACE WATER MANAGEMENT PARAMETERS

PARAMETER	ELEVATION
CONTROL ELEVATION (FT-NAVD)	7.8
MIN. PERIMETER BERM ELEVATION (FT-NAVD)	11.22
MIN. FINISHED FLOOR ELEVATION (FT-NAVD)	11.7
MIN. PARKING LOT ELEVATION (FT-NAVD)	10.86
MIN. ROAD CENTERLINE ELEVATION (FT-NAVD)	10.86
FEMA FLOOD ELEVATION (FT-NAVD)	N/A

DRAINAGE STRUCTURE TABLE

S-1
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV. SE (15") = **7.10**

S-2
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV. NW (15") = **7.05**
INV. SW (15") = **7.05**

S-3
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV. NE (15") = **6.90**
INV. SW (18") = **6.90**
INV. NW (15") = **7.05**

S-4
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV. SE (15") = **7.10**

S-5
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV. NE (18") = **6.75**
INV. SW (24") = **6.75**
INV. NW (15") = **7.00**

S-6
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV. SE (15") = **7.10**

S-7
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **8.80**
INV. NE (24") = **5.30**

S-8
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV, W (15") = **7.10**

S-9
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV, W (18") = **6.90**
INV, E (15") = **6.90**

S-10
JUNCTION BOX - FDOT #200, 201
RIM ELEV. = **11.40**
INV, SW (18") = **6.80**
INV, E (18") = **6.80**

S-11
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **10.80**
INV, NE (18") = **6.70**
INV, SE (15") = **7.90**
INV, W (24") = **6.70**

S-12
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.86**
INV, NW (15") = **8.10**

S-13
VALLEY GUTTER INLET - SEE DETAIL
E.O.P. ELEV. = **13.06**
INV, E (24") = **6.60**
INV, W (24") = **6.60**

S-14
TYPE 'E' INLET - FDOT #232
GRATE ELEV. = **10.86**
INV, E (24") = **6.40**
INV, S (24") = **6.40**

S-15
JUNCTION BOX - FDOT #200, 201
RIM ELEV. = **11.50**
INV, W (30") = **6.20**
INV, N (24") = **6.20**
INV, SE (18") = **7.60**

S-16
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.86**
INV, SE (15") = **8.00**
INV, NW (18") = **7.80**
INV, SW (15") = **7.80**

S-17
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.86**
INV, NW (15") = **8.10**

S-18
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.86**
INV, NE (15") = **8.00**

S-19
TYPE 'E' INLET - FDOT #232
GRATE ELEV. = **10.86**
INV, SW (30") = **6.00**
INV, E (30") = **6.00**

S-20
TYPE 'E' INLET - FDOT #232
GRATE ELEV. = **10.86**
INV, NE (30") = **5.80**
INV, W (30") = **5.80**

S-21
TYPE 'E' INLET - FDOT #232
GRATE ELEV. = **8.80**
INV, E (30") = **4.80**

S-22
24" MES - FDOT #272 (2:1)
INV. (24") = **8.30**

S-23
24" MES - FDOT #272 (2:1)
INV. (24") = **8.30**

S-24
24" MES - FDOT #272
INV. (24") = **7.00**

S-25
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.40**
INV, SW (18") = **7.50**

S-26
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.40**
INV, NE (18") = **7.40**
INV, SW (18") = **7.40**

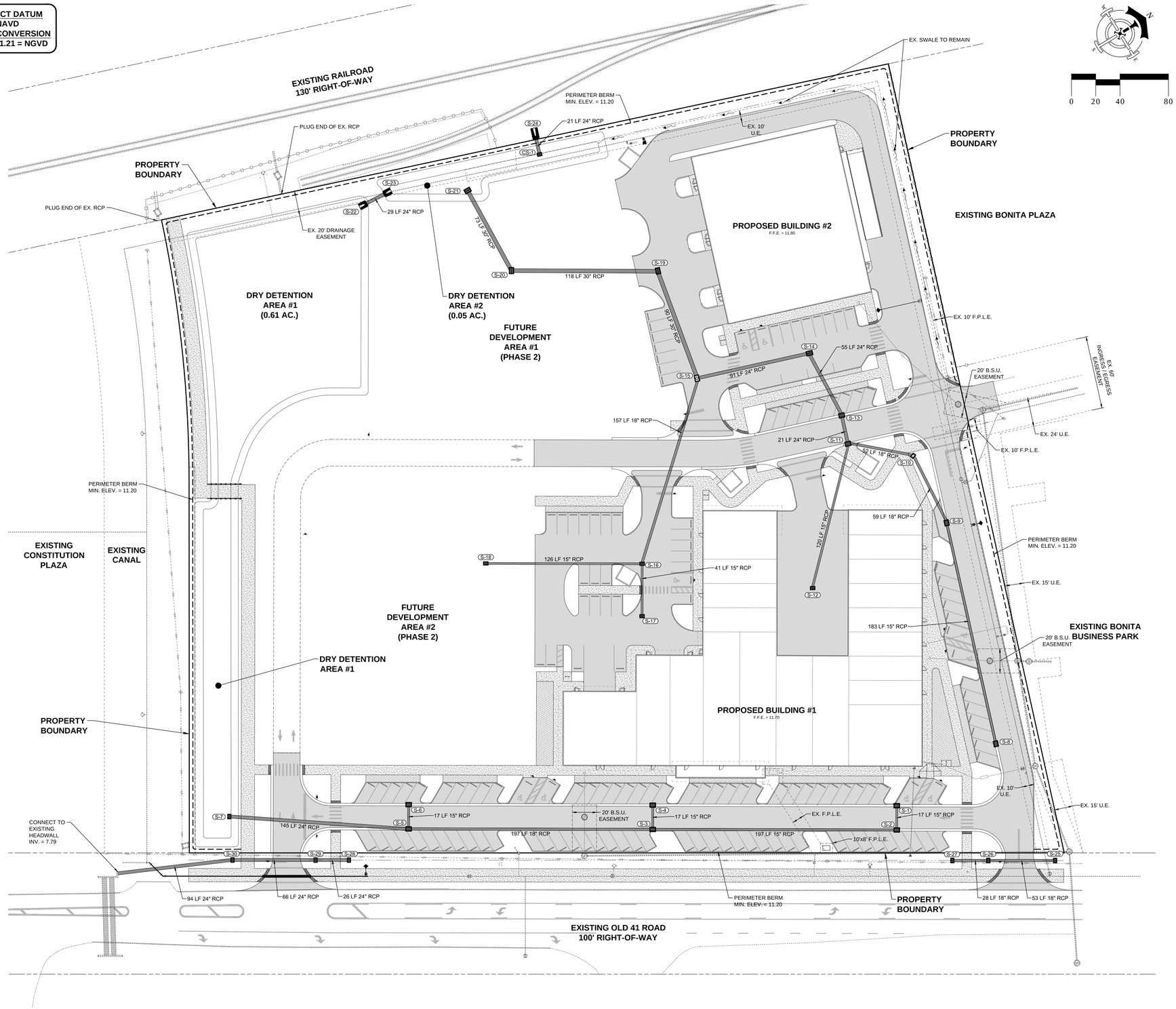
S-27
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.30**
INV, NE (18") = **7.30**

S-28
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.00**
INV, SW (24") = **6.50**

S-29
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.50**
INV, NE (24") = **6.50**
INV, SW (24") = **6.50**

S-30
TYPE 'C' INLET - FDOT #232
GRATE ELEV. = **10.00**
INV, NE (24") = **6.50**
INV, SW (24") = **6.50**

CS-1
CONTROL STRUCTURE - SEE DETAIL
GRATE ELEV. = **11.22**
INV. W (24") = **7.00**



KEVIN H. McVICKER
LICENSE
No. 51436
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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Project Name & Address
"Development Order Plans"
Causeway Commerce Park
28280 Old 41 Road
Bonita Springs, Florida 34135

Drawn by: C. Steward	Check by: K. McVicker
Project No. C16-0002	

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4			
5			

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Sheet Name:
DRAINAGE PLAN

Sheet 6 of 16

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