FINAL DRAFT

INDIAN RIVER COUNTY

Stormwater Management Plan

Prepared for
Indian River County

July 2025

ESA

APPENDIX

Appendices

A. Aerial Images of Indian River County Stormwater Treatment Areas
B. Photographic Documentation - Site Visits
C. Selected Environmental Resource Permits - Priority Areas
D. Data Gaps Memorandum
E. Cost Estimates for Priority Project Areas
F. Public Comments

APPENDIX A. AERIAL IMAGES OF STORMWATER TREATMENT FACILITIES

Figure 1. Egret Marsh Stormwater Treatment Area

Figure 2. Moorhen Marsh Stormwater Treatment Area

Figure 3. Osprey Acres Stormwater Treatment Area

Figure 4. PC Main Screening Facility

APPENDIX B. SITE VISIT PHOTOS

90th Avenue

Rockridge


IRC Storm water Assessment
08.07.2024 02:32 PM
27.63057, -80.38007
301 16th St, Vero Beach, FL 32960


IRC Storm water Assessment
08.07.2024 02:31 PM
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301 16th St, Vero Beach, FL 32960


IRC Storm water Assessment
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301 16th St, Vero Beach, FL 32960


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32960


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32960


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College Lane


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Chick-fil-a & Rt 60, West Vero Corridor, FL 32966


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37th Street

Fellsmere

Riviera Lakes


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IRC Storm water Assessment
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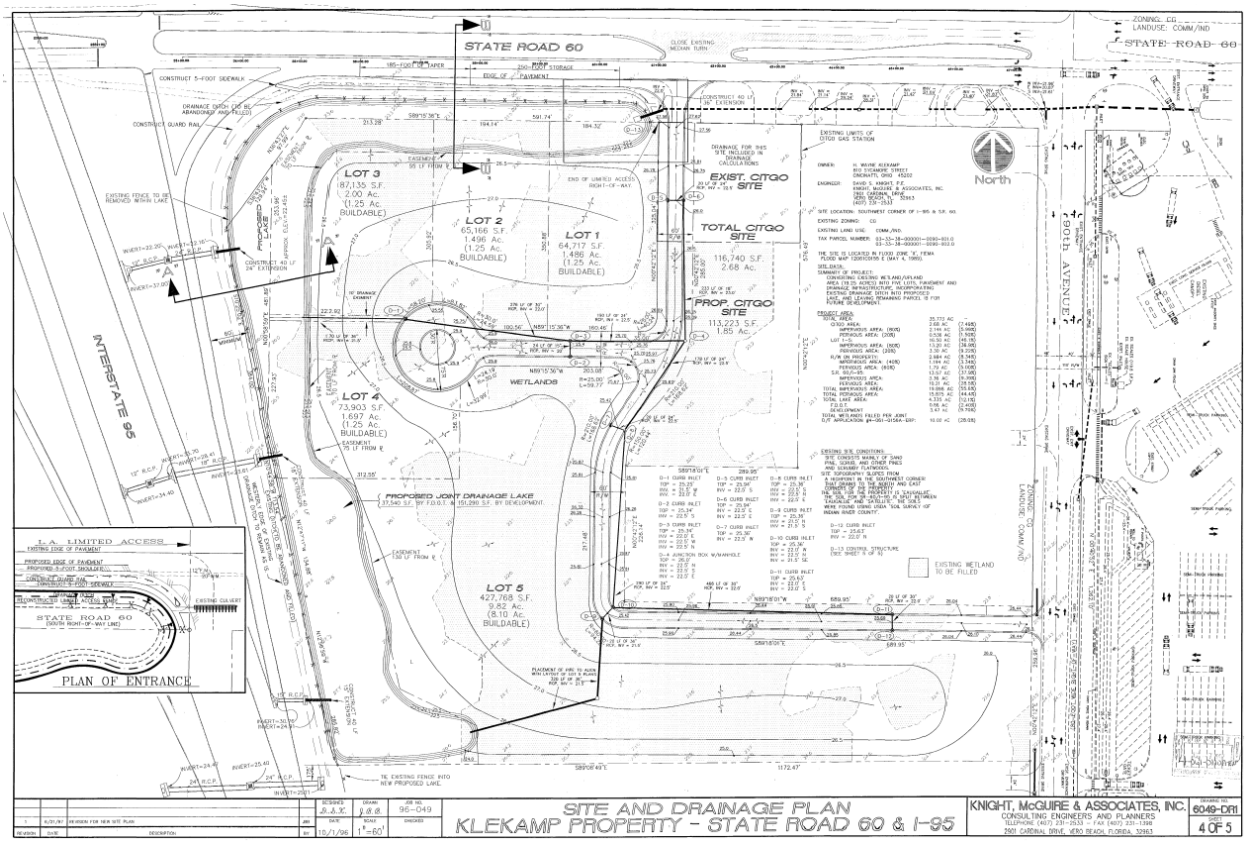
4th and 8th Street

Indian River Drive

APPENDIX C. SELECTED DOCUMENTS FROM ENVIRONMENTAL RESOURCE PERMITS

90th Avenue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INTERSTATE 95
90th AVENUE
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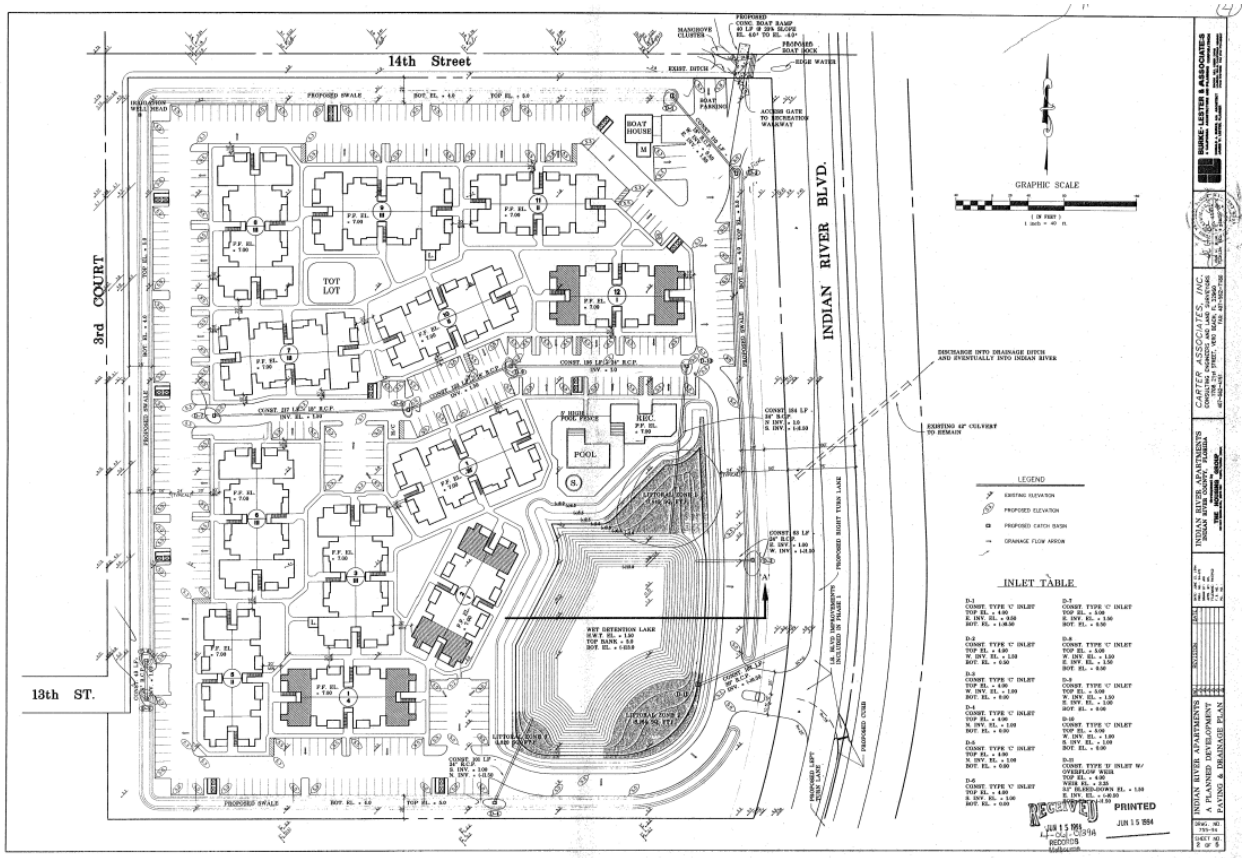
(1.25 Ac. BUILDABLE)
LOT 2
65,166 S.F.
1.496 Ac.
(1.25 Ac. BUILDABLE)
LOT 3
87,135 S.F.
2.00 Ac.
(1.25 Ac. BUILDABLE)
LOT 4
73,903 S.F.
1.697 Ac.
(1.25 Ac. BUILDABLE)
LOT 5
427,768 S.F.
9.82 Ac.
(8.10 Ac. BUILDABLE)
EXIST. CITGO SITE
TOTAL CITGO SITE
116,740 S.F.
2.68 Ac.
PROP CITGO SITE
113,223 S.F.
1.85 Ac.
WETLANDS
PROPOSED JOINT DRAINAGE LAKE
37,540 S.F. BY F.D.O.T. & 151,290 S.F. BY DEVELOPMENT.
T.A. LIMITED ACCESS
PLAN OF ENTRANCE
North
SITE AND DRAINAGE PLAN
KLEKAMP PROPERTY - STATE ROAD 60 & I-95
KNIGHT, McGUIRE & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
2601 CARDINAL DRIVE, VERO BEACH, FLORIDA, 32963
6049-DR1
4 OF 5

Rockridge


14th Street
3rd COURT
13th ST.
INDIAN RIVER BLVD.
BOAT HOUSE
TOT LOT
POOL
WET DETENTION LAKE
DISCHARGE INTO DRAINAGE DITCH AND EVENTUALLY INTO INDIAN RIVER
EXISTING 42" CULVERT TO REMAIN
GRAPHIC SCALE
LEGEND
INLET TABLE
RECEIVED
PRINTED
INDIAN RIVER APARTMENTS
A PLANNED DEVELOPMENT
PAVING & DRAINAGE PLAN

MANAGEMENT AND STORAGE OF SURFACE WATER TECHNICAL STAFF REPORT
August 18, 1994

APPLICANT: Jeff Meehan
The Housing Group Inc.
601 Bay Shore Boulevard, Suite 650
Tampa, Florida 33606

AGENT: Dean Luethje
Carter & Associates Inc.
1708 - 21st Street
Vero Beach, Florida 32960

COUNTY: Indian River PROJECT NAME: INDIAN RIVER APARTMENTS
SECTIONS: 7 TOWNSHIP: 33S RANGE: 40E
ACRES OWNED: 51 PROJECT ACREAGE: 51

AUTHORITY: 40C-4.041(1),(2)(b)2., F.A.C.

BASIN CODE: UPPER

GENERAL DESCRIPTION OF APPLICATION NO. 4-061-0139A:
This application is for the construction of a surface water management system to serve the Indian River Apartments.

RECEIVING WATER BODY(ies): Indian River Lagoon (CLASS II & OFW)

EXISTING LAND USE: Former agricultural

OPERATION AND MAINTENANCE ENTITY: Owner

STAFF COMMENTS:

The site is located along the west and east side of Indian River Boulevard in southern Vero Beach. All housing construction and the surface water management system will be on the western side of Indian River Boulevard. A portion of the wetland mitigation will be done on the eastern side of the boulevard.

The proposed project will consist of twelve multi-family buildings with associated parking and amenities. The surface water management system will consist of a 1.17-acre wet detention lake with swales for conveyance and pre-treatment. A control structure will be placed in the lake to attenuate the mean annual design storm. The control structure will contain a 4 foot - 1 inch weir at elevation 3.25 feet for the attenuation of the mean annual and 25 year/24 hour design storms. A 3.1-inch orifice is provided to recover one half the treatment volume within the prescribed time. The applicant has provided the additional treatment for a direct discharge to an OFW. Staff believes this project is consistent with the goals and objectives of the District pursuant to Chapter 40C-42 F.A.C. and Chapter 40C-4 F.A.C..

The western side of the parcel is a former citrus grove which had been cleared and used as a staging area for construction of Indian River Boulevard. A drainage ditch runs parallel to the boulevard and the remains of another ditch intersects it from the west in the southern third of the parcel. That ditch and a surrounding area of mucky soil and wetland vegetation is waters of the state. Vegetation in the ditches includes cattails and wetland ferns. The surrounding area is dominated by torpedo grass. North of the ditch lie three isolated wetlands, totalling .5 acres in overall area. Shallow depressions in nature, they are vegetated predominantly by torpedo grass.

The majority of the site east of Indian River Boulevard is mangrove swamp. A series of mosquito impoundment dikes intersect the swamp. A roadside ditch runs along the eastern side of the boulevard as well, and connects both to a residential canal to the north and out into the swamp. A small area of herbaceous wetland borders the swamp. Leather fern as well as all three mangrove species are found, along with Brazilian pepper and sea-oxeye daisy on the dikes.

The majority of the site east of Indian River Boulevard is mangrove swamp. A series of mosquito impoundment dikes intersect the swamp. A roadside ditch runs along the eastern side of the boulevard as well, and connects both to a residential canal to the north and out into the swamp. A small area of herbaceous wetland borders the swamp. Leather fern as well as all three mangrove species are found, along with Brazilian pepper and sea-oxeye daisy on the dikes.

The applicant proposes to fill all three of the isolated wetlands. A wet detention pond will be excavated over a majority of the on-site state-jurisdictional wetlands on the western side of the boulevard, and the remainder will be filled. An entrance road will impact a portion of the ditch paralleling Indian River Boulevard, and it's associated turning lane will necessitate relocation of a portion of the ditch. The applicant also proposes to construct wooden walkways out over the mosquito control dikes on the eastern portion of the parcel which will involve the trimming and removal of a small number of mangroves.

As mitigation for impact to the isolated wetlands, the applicant proposes to construct and plant with appropriate wetland species three littoral shelves as part of the wet detention lake. In combination with the lake itself they will more than adequately compensate for the removal of the marginal wet prairies. In mitigation for impact to waters of the state the applicant proposes to construct a mitigation area adjacent to the mangrove swamp on the east side of the boulevard. The area will be planted with a combination of mangroves and herbaceous species. Mitigation for relocation of the ditch is not considered necessary as the new section will quickly revegetate with similar species given the upstream seed source. The total mitigation proposed for the project adequately compensates for the impact proposed. There are no unacceptable cumulative or secondary impacts. The project conforms to the wetland review criteria of 10.7.4 A.H.

TOTAL WETLANDS INVOLVED:	Unknown
TOTAL WETLANDS PRESERVED:	Unknown
TOTAL WETLANDS DISTURBED:	0.2 FH
TOTAL WETLANDS LOST:	1.4

	1.3 FH 0.1 SW
TOTAL WETLANDS RESTORED/CREATED:	1.17 0.37 FH 0.3 SW 0.5 SH
TOTAL WETLANDS ENHANCED:	0.0
OTHER COMPENSATION:	0.0

RECOMMENDATION: APPROVAL

CONDITIONS FOR APPLICATION NUMBER 4-061-0139A:

GENERAL (SEE CONDITION SHEET): 1-13

SPECIAL (SEE CONDITION SHEET): 1, 2, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 37

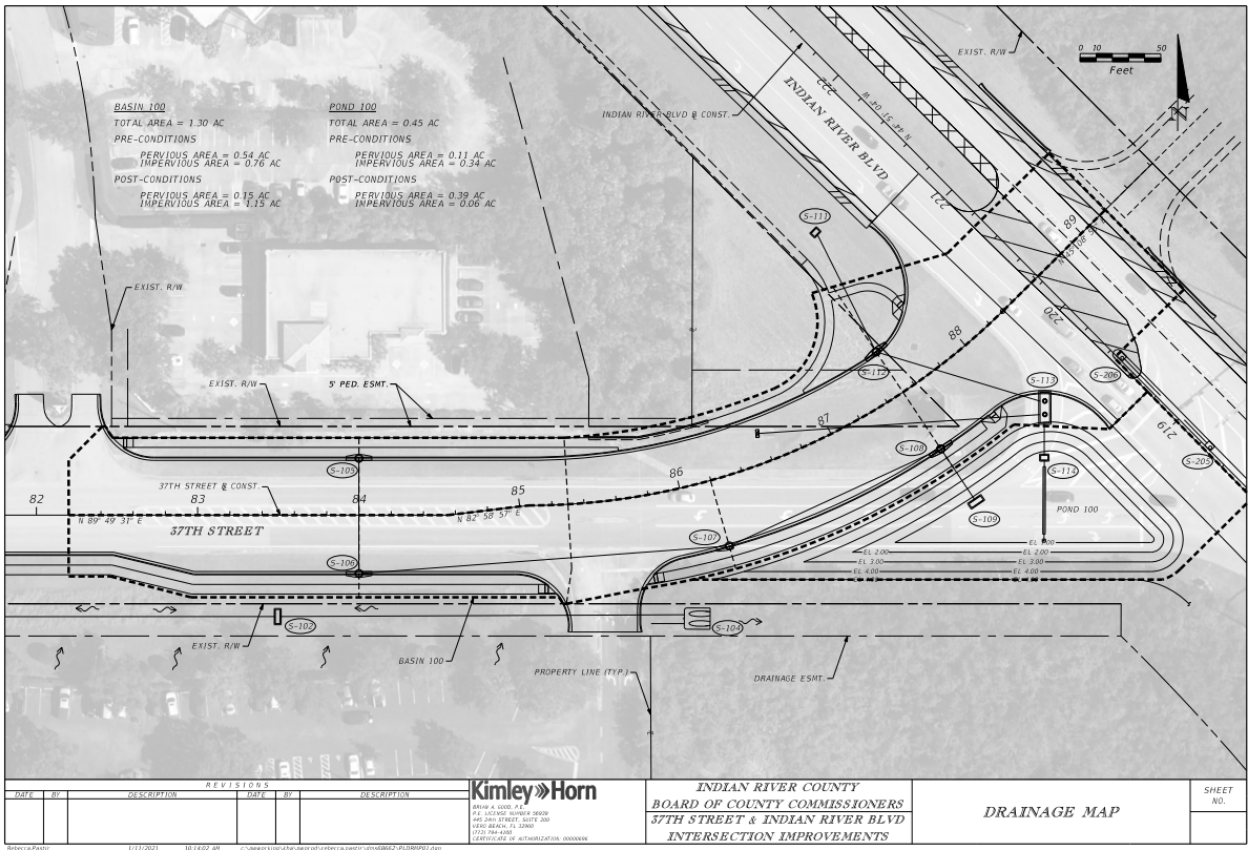
OTHER CONDITIONS:

1. The proposed surface water management system must be constructed as per plans received by the District on June 15, 1994 and July 25, 1994.

2. The mitigation area on the west side of Indian River Boulevard must be constructed in accordance with the plans received on June 15, 1994 and the mitigation area on the east side of Indian River Boulevard must be constructed in accordance with the plans submitted August 12, 1994 as part of the Wetland Resource Management permit (12-061-0057).

JENNINGS/GRONCESKI

37th Street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POST-CONDITIONS
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IMPERVIOUS AREA = 1.15 AC
POND 100
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PRE-CONDITIONS
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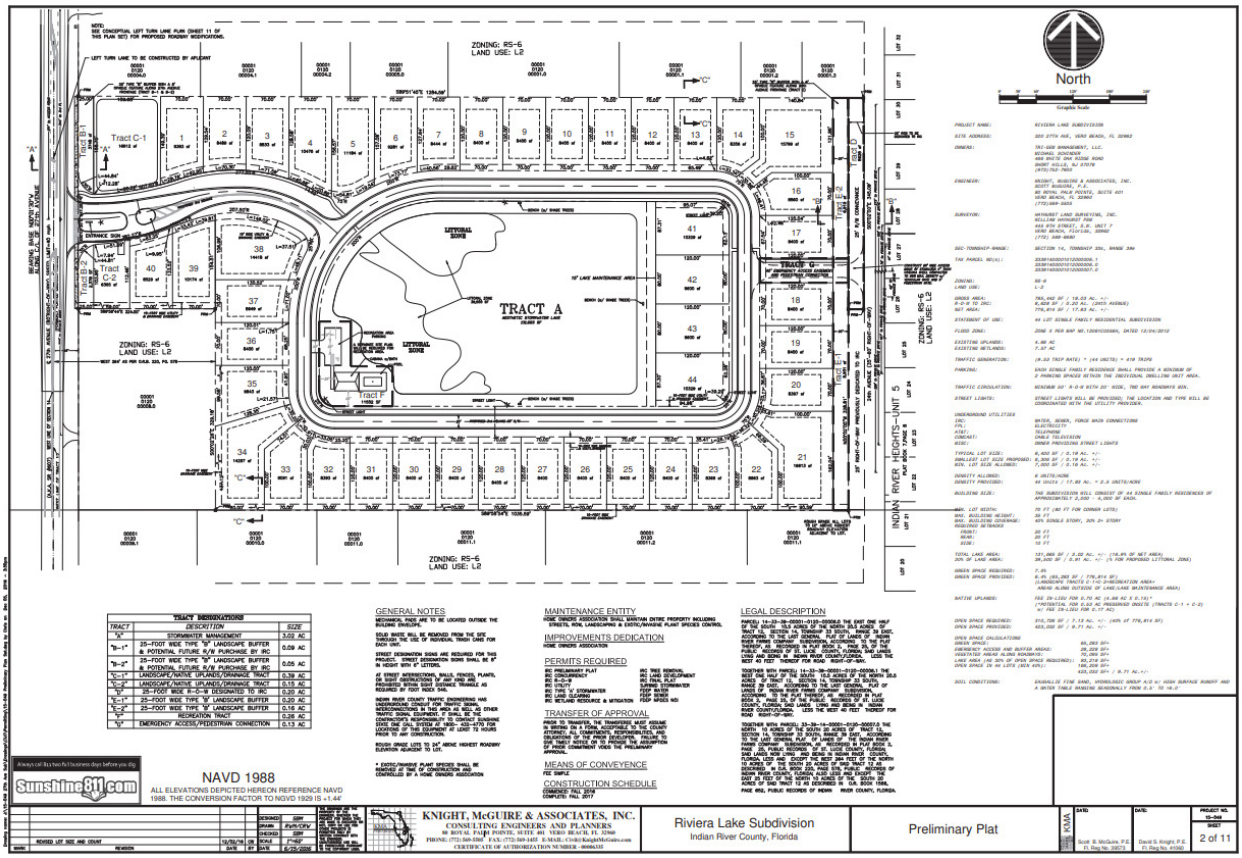
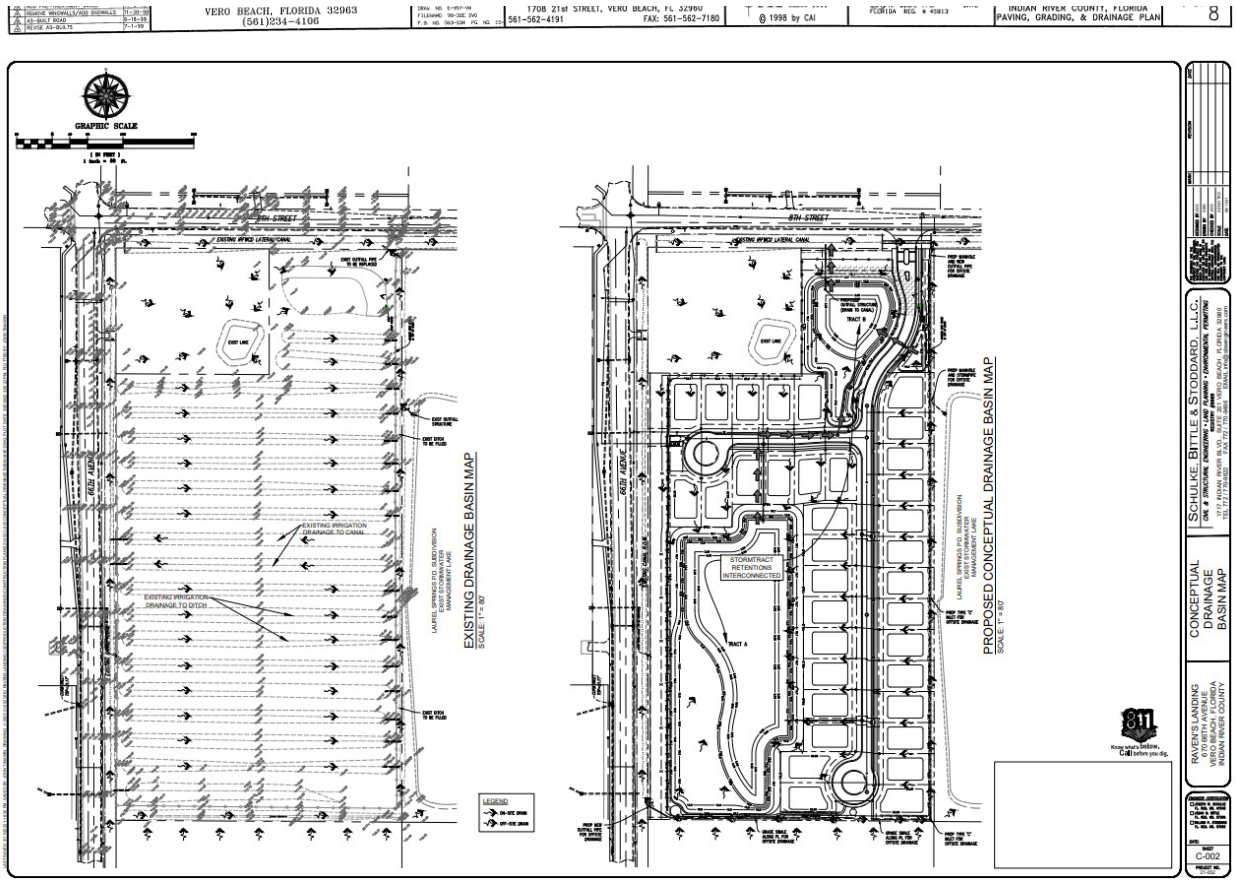
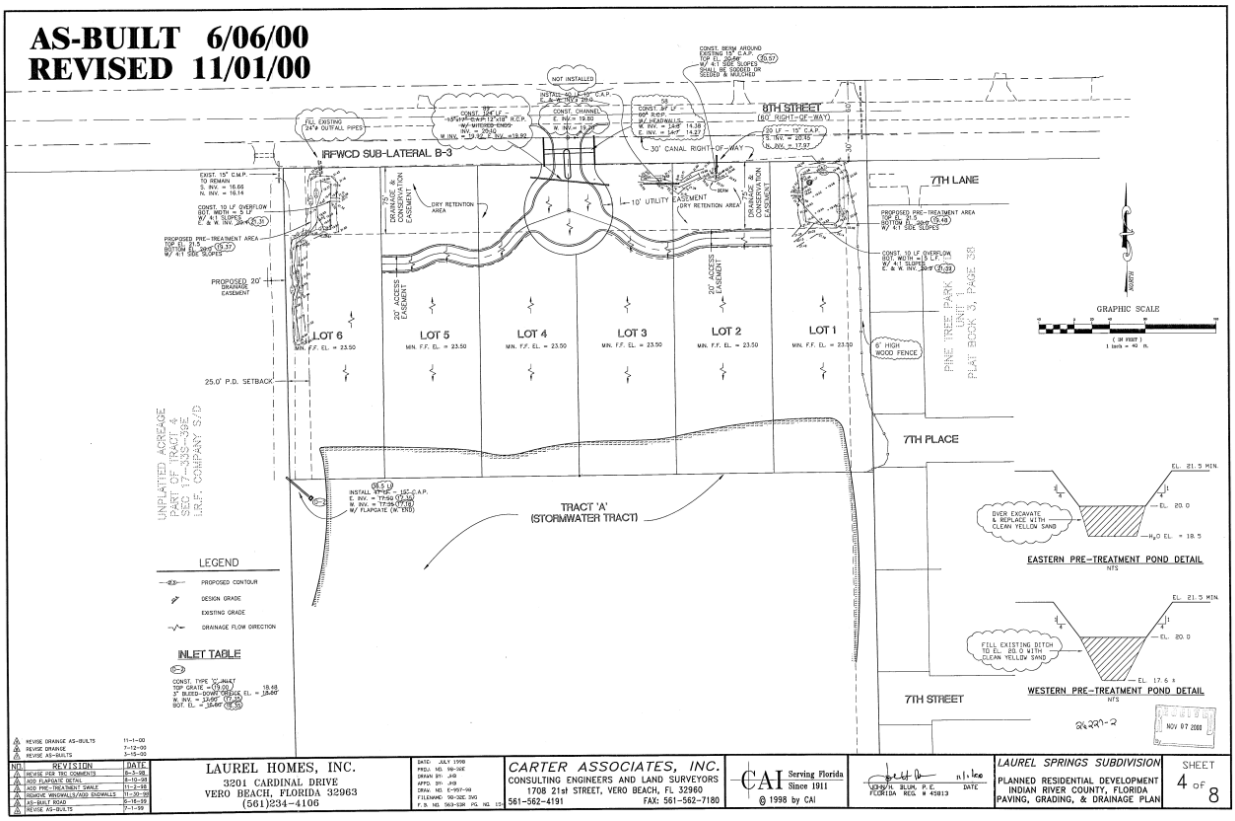
IMPERVIOUS AREA = 0.34 AC
POST-CONDITIONS
PERVIOUS AREA = 0.39 AC
IMPERVIOUS AREA = 0.06 AC
INDIAN RIVER BLVD
INDIAN RIVER BLVD & CONST.
EXIST. R/W
5' PED. ESMT.
37TH STREET & CONST.
37TH STREET
BASIN 100
PROPERTY LINE (TYP.)
DRAINAGE ESMT.
POND 100
S-101
S-102
S-104
S-105
S-106
S-107
S-108
S-109
S-111
S-112
S-113
S-114
S-205
S-206
82
83
84
85
86
87
88
89
219
220
222
N 89° 49' 31" E
N 82° 58' 57" E
0 10 50
Feet
N
REVISIONS
DATE
BY
DESCRIPTION
Kimley»Horn
INDIAN RIVER COUNTY
BOARD OF COUNTY COMMISSIONERS
37TH STREET & INDIAN RIVER BLVD
INTERSECTION IMPROVEMENTS
DRAINAGE MAP
SHEET NO.

Riviera Lakes



4th and 8th Street




AS-BUILT 6/06/00
REVISED 11/01/00
IRFWCD SUB-LATERAL B-3
30' CANAL RIGHT-OF-WAY
8TH STREET
(60' RIGHT-OF-WAY)
7TH LANE
7TH PLACE
7TH STREET
LOT 6
LOT 5
LOT 4
LOT 3
LOT 2
LOT 1
TRACT 'A'
(STORMWATER TRACT)
25.0' P.D. SETBACK
PROPOSED 20' DRAINAGE EASEMENT
20' ACCESS EASEMENT
10' UTILITY EASEMENT
DRY RETENTION AREA
6' HIGH WOOD FENCE
PINE TREE PARK UNIT 1, PLAT BOOK 13, PAGE 38
UNPLATTED ACREAGE PART OF TRACT 4 SEC. 17-30S-39E I.R.F. COMPANY S/D
GRAPHIC SCALE
LEGEND
PROPOSED CONTOUR
DESIGN GRADE
EXISTING GRADE
DRAINAGE FLOW DIRECTION
INLET TABLE
EASTERN PRE-TREATMENT POND DETAIL
WESTERN PRE-TREATMENT POND DETAIL
LAUREL HOMES, INC.
3201 CARDINAL DRIVE
VERO BEACH, FLORIDA 32963
(561)234-4106
CARTER ASSOCIATES, INC.
CONSULTING ENGINEERS AND LAND SURVEYORS
1708 21st STREET, VERO BEACH, FL 32960
561-562-4191 FAX: 561-562-7180
© 1998 by CAI
LAUREL SPRINGS SUBDIVISION
PLANNED RESIDENTIAL DEVELOPMENT
INDIAN RIVER COUNTY, FLORIDA
PAVING, GRADING, & DRAINAGE PLAN
SHEET 4 OF 8

APPENDIX D. DATA GAPS MEMORANDUM

DRAFT

INDIAN RIVER COUNTY

Stormwater Management Plan Data Gaps Analysis

Prepared for
Indian River County Engineering
Stormwater Division

February 11, 2025

ESA

DRAFT

INDIAN RIVER COUNTY

Stormwater Management Plan Data Gaps Analysis

Prepared for
Indian River County Engineering
Stormwater Division

February 11, 2025

4200 West Cypress Street
Suite 450
Tampa, FL 33607
813.207.7200
esassoc.com

ESA / D201800196.10

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TABLE OF CONTENTS

INDIAN RIVER COUNTY

Page

1 Introduction 1

2 Data Inventory 2

3 Site Visit 4

4 Geographic Information Systems (GIS) Data Gaps 40

5 Summary 42

List of Figures

Figure 1. 90th Avenue Drainage Priority Area 4
Figure 2. 90th Avenue Drainage, Northern Priority Area 6
Figure 3. Swale full of water behind Inn, #1 7
Figure 4. Swale full of water behind Inn, #2 7
Figure 5. 90th Avenue Drainage, Southern Priority Area 8
Figure 6. Rockridge Priority Area 9
Figure 7. Rockridge Priority Area along Indian River Boulevard 11
Figure 8. Rockridge Priority Area at 16th St and 3rd Ave 12
Figure 9. College Lane Priority Area 13
Figure 10. Residential Areas North of College Lane 15
Figure 11. 37th Street Priority Area 16
Figure 12. Eastern End of 37th Street. 18
Figure 13. Ditch with Water facing West along 37th Street. Photo #2. 19
Figure 14. Ditch with Water and Box Culvert facing East along 37th Street. Photo #1. 19
Figure 15. Fellsmere Priority Area 20
Figure 16. Fellsmere Drainage Structures 22
Figure 17. Riviera Lakes Priority Area. 23
Figure 18. Riviera Lakes Area of Concentration 25
Figure 19. Standing Water in Dirt Road. Photo #1. 26
Figure 20. Impaired Berm. Photo #2. 26
Figure 21. 4th Street and 8th Street Priority Area 27
Figure 22. 4th Street and 8th Street Drainage Structures 29
Figure 23. Indian River Drive Priority Area 30
Figure 24. Areas Examined near Indian River Drive, Northern Extent 32
Figure 25. Areas Examined near Indian River Drive, Middle 33
Figure 26. Areas Examined near Indian River Drive, Southern Extent 34
Figure 27. CIRL BMAP Project Zones (Source: Central Indian River Lagoon Basin Management Action Plan, via FDEP) 36
Figure 28. Locations of water quality sampling sites with respect to IRC project areas and CIRL BMAP Project Zones B and SEB. 38

Page

Figure 29. Example showing the overlay of the IRC project areas over the Loading Estimation Tool developed by FDEP. 39

List of Tables

Table 1. IRC CIRL BMAP Required Load Reductions (lbs/year) 35

1 INTRODUCTION

Indian River County (IRC) retained the services of Environmental Science Associates (ESA) to develop a county-wide stormwater management plan with a focus on identifying capital improvement needs and providing recommendations for flood protection and water quality improvement in priority areas. To aid in this effort, IRC provided an inventory of available stormwater conveyance and treatment structures throughout IRC in a Geographic Information System (GIS) database. Please note this is not all inclusive. Additionally, IRC identified a total of nine (9) priority areas based on previous flooding concerns that the Stormwater Management Plan should focus on. As part of the Stormwater Management Plan, ESA has conducted a stormwater and water quality database review as well as site visits to the IRC identified priority areas.

The 9 priority areas are as follows:

1) 90th Ave. Drainage
2) Rockridge Area (SR60 to 12th St) & 6th Ave. to IRL – within the County
3) College Lane (between 58th Ave. & 66th Ave.)
4) 37th St. to Royal Palm Place (US 1 to IR Blvd.)
5) Fellsmere (County Only)
6) Riviera Lakes (4th St. & 27th Ave.)
7) 4th St. & 8th St. (58th to 66th Ave.)
8) Indian River Drive — County maintained ROWs
9) Indian River Lagoon Outfall Replacement/Upgrades

2 DATA INVENTORY

To evaluate existing conditions of the drainage infrastructure within IRC, multiple critical pieces of data are required. ESA compiled and reviewed existing data which included: GIS databases provided by IRC and other publicly available sources; publicly available St. Johns River Water Management District (SJRWMD) permitting and compliance information; engineering reports provided by IRC; and, hydrologic and water quality data obtained from SJRWMD and Florida Department of Environmental Protection (FDEP).

Publicly available GIS data included:

- Site Topography/Bathymetry from National Oceanic and Atmospheric Administration (NOAA), 2018-2020
- Federal Emergency Management Agency (FEMA) Flood Maps
- United States Geological Survey (USGS) Quadrangle Maps
- National Wetland Inventory (NWI) Database
- Natural Resources Conservation Service (NRCS) Soil Database
- Florida Fish and Wildlife Conservation Commission (FWC) Eagle Nest Locations
- FWC and United States Fish and Wildlife Service (USFWS) Threatened and Endangered Species Observations
- Florida Natural Areas Inventory (FNAI) Database, dated 2024
- Historic and Current Aerial Photography, from Indian River County

SJRWMD Environmental Resource Permits (ERPs) that were within the immediate area of the priority site were reviewed. Note, engineering drawings, specifically stormwater infrastructure, were available on only a limited number of permits within these areas.

The IRC provided reports are as follows:

- Indian River County 2030 Comprehensive Plan
- Indian River Lagoon Management Plan
- Indian River County Public Works Department Technical Specifications for Stormwater Pollution Control Systems
- East Roseland Stormwater Improvements Contract Documents, Addendum #1 & #2.
- Rockridge Subdivision Surge Protection Project
- Vero Lake Estates Master Drainage Plan
- Gifford Stormwater Project
- East Indian River County Master Stormwater Management Plan
- East Indian River County Engineering Evaluation Report

The IRC Vulnerability Analysis is also currently being developed and will be considered in this stormwater management plan should it be completed prior to the conclusion of this study. As of February 2025, this analysis has not yet been provided to ESA.

Hydrologic models within the project area are useful to assess current drainage conditions. ESA submitted an inquiry to SJRWMD regarding existing models within IRC. In September 2024, SJRWMD provided the latest version of the Upper SJR Real Time Flood Forecasting Model. The model can be used to gain a better understanding of how stormwater is conveyed regionally, however it does not overlap with any of the areas of interest.

Other stakeholders throughout the region include the following:

- Indian River Farms Water Control District
- City of Vero Beach
- City of Fellsmere Water Control District
- City of Sebastian
- Florida Department of Environmental Protection (FDEP)

The above-mentioned stakeholders may have additional data which may be beneficial for the Stormwater Management Plan. Further coordination and discussion are necessary to determine additional data as well as ongoing or near future projects related to infrastructure and other associated stormwater improvements.

Upon initial review of the City of Fellsmere, it was noted that there is currently a Watershed Master Plan and Flood Vulnerability Assessment currently in progress. Based on publicly available information, the study will also determine potential flooding threats and impacts as well as evaluate recommendations for future decision making and mitigation. Additionally, a hydrologic and hydraulic (H & H) model has been developed for this study which may provide beneficial information for IRC.

Water quality data were gathered from the FDEP Impaired Waters Rule Run 66 SAS dataset. This database utilizes data extracted on July 18, 2024, from the Watershed Information Network (including data from SJRWMD), Florida STORET, the U.S. Geological Survey and the Statewide Biological Database. This dataset will be used for the next FDEP Biennial Assessment (2024-2026). Data were selected through an overlay FDEP WBIDs and station locations.

3 SITE VISIT

ESA conducted initial site reviews on the priority areas on August 7th and August 8th, 2024 and a follow up on January 7th, 2025. During the initial site reviews, there had been several days of rain in the week preceding the site visit and some light rain occurred on August 7th. In conjunction with staff from IRC, the site reviews consisted of visual observations, structure identification and initial evaluation of the drainage systems in place at each of the nine (9) priority areas. Photos were collected and georeferenced where possible. These photographs will be included in the geodatabase that will be provided as a deliverable as part of the stormwater master plan.

90th Avenue Drainage

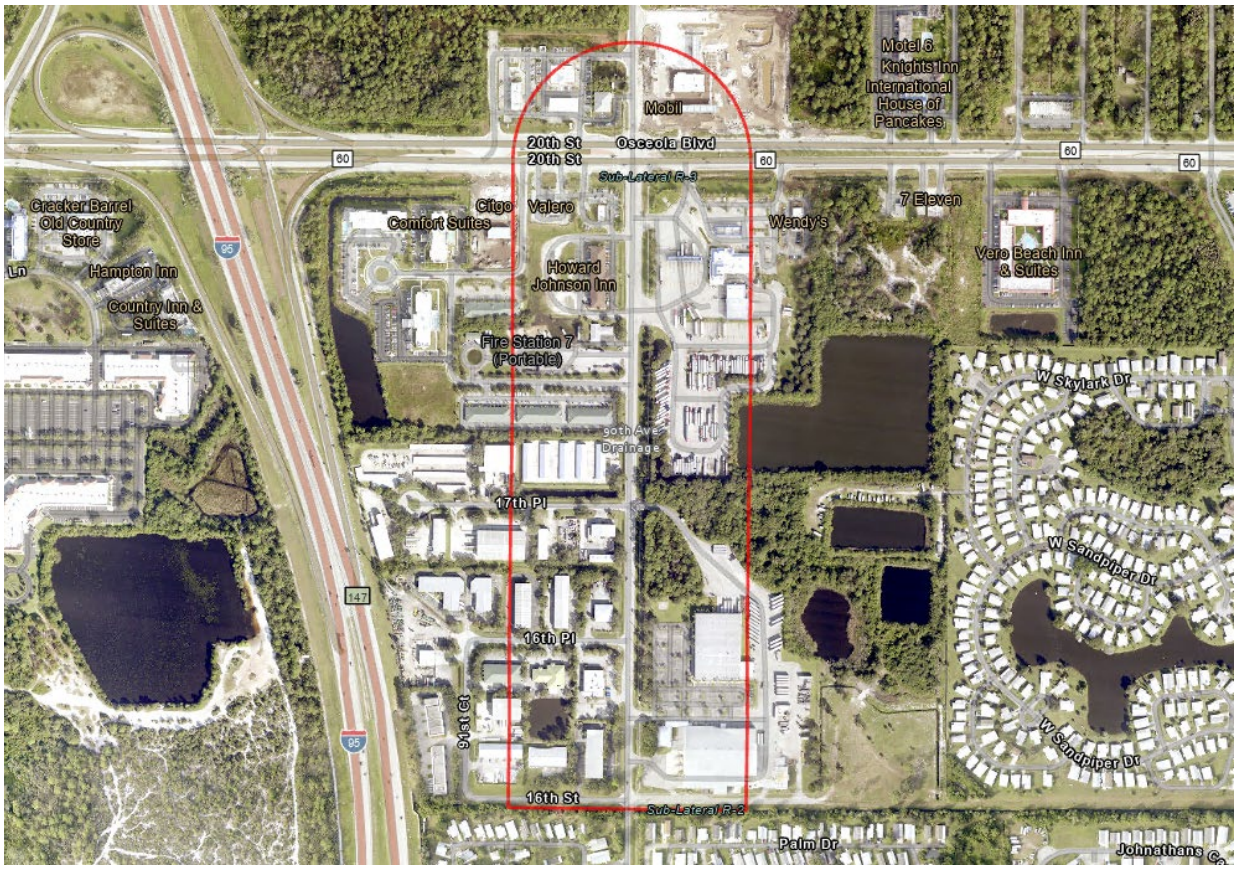

Figure 1. 90th Avenue Drainage Priority Area

90th Avenue Priority Area is located east of Interstate 95 and between 16th Street and approximately 500 feet south of 20th Street, as shown in **Figure 1**. This area is characterized by commercial development including fuel stations, lodging, and automotive stores. The specific area of concentration is Fire Station 7, which has experienced past flooding issues for several years according to IRC staff.

During the site visit, ESA identified existing drainage swales east of 90th Avenue along Americana Road behind the Howard Johnson Inn located at 1985 90th Ave. **Figure 2** shows the

area of concentration, including the fire station, as well as the general flow direction as observed during the site visit. Upon initial evaluation, it was determined that the poor drainage in the area may be contributable to isolated stormwater systems. Connection of the various isolated systems to promote increased connectivity between the swales would likely allow the stormwater to drain north to 20th Street. Additional site-specific survey may be warranted in this area for ultimate determination. In addition, it was observed that the majority of culverts in this area were blocked by sediment and vegetation, maintenance is recommended. Swales and storm drains in and behind the parking lot of the Howard Johnson Inn were nearly completely full of water during initial the site visit. The swales full of water can be seen in **Figure 3** and **Figure 4**.

There are multiple ponds located approximately 1,100 feet west of 90th Avenue between 20th Street and 17th Place. The largest of these is a retention pond along with a small channel, approximately 2.63 acres in size according to GIS analysis as seen in **Figure 2**. This pond is part of the stormwater management system permitted via SJRWMD under ERP 18840 – 2, which it seems was originally intended to serve the neighboring 17-lot commercial subdivision including the Fairfield Inn and Suites and Home2Suites by Hilton.

As shown in **Figure 5**, in the southern region of this priority area, there is a retention pond located at the center of several buildings along with what appears to be a canal draining into it. This system is permitted via SJRWMD under a Management and Storage of Surface Waters (MSSW) permit #18657 – 1. The possibility of creating additional conveyance swales that would allow areas of flooding to route surface water runoff to the permitted pond as well as potentially increasing storage in this pond are potential solutions to the flooding concerns in this area.

There are a few data gaps specific to this area. First, the ownership of all drainage easements and structures is not fully known. Additionally, there is no information about the drainage infrastructure associated with the fire station, if any exists. A self-certification permit, #144210 – 1, was found for the fire station through SJRWMD and FDEP, but no plans or description of the stormwater system were available. There appears to be approximately 5.27 acres of wetlands in this area; however, there is some discrepancy between where the National Wetlands Inventory and National Hydrology Dataset demarcate the wetland line.

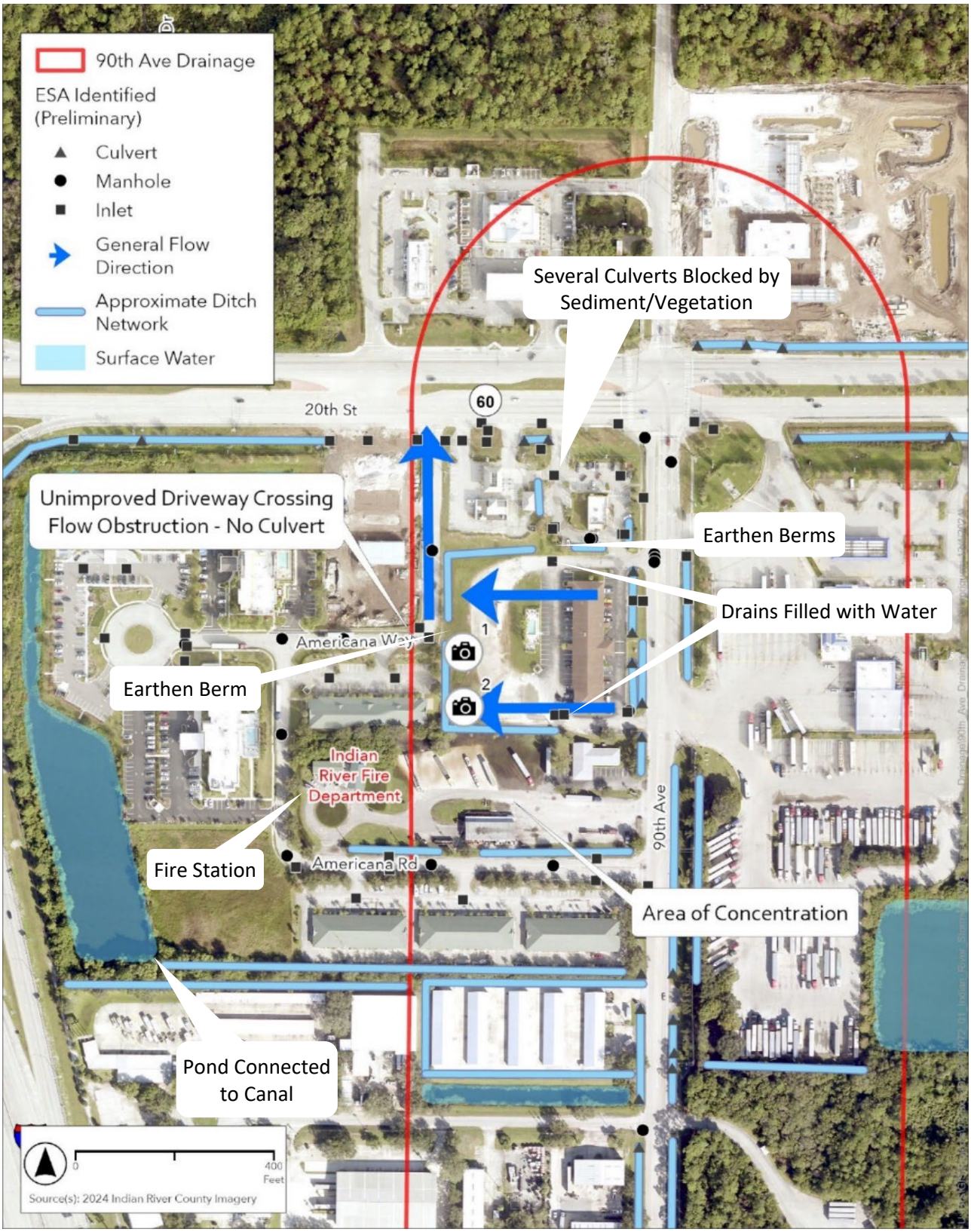

Figure 2. 90th Avenue Drainage, Northern Priority Area

Figure 3. Swale full of water behind Inn, #1

Figure 4. Swale full of water behind Inn, #2

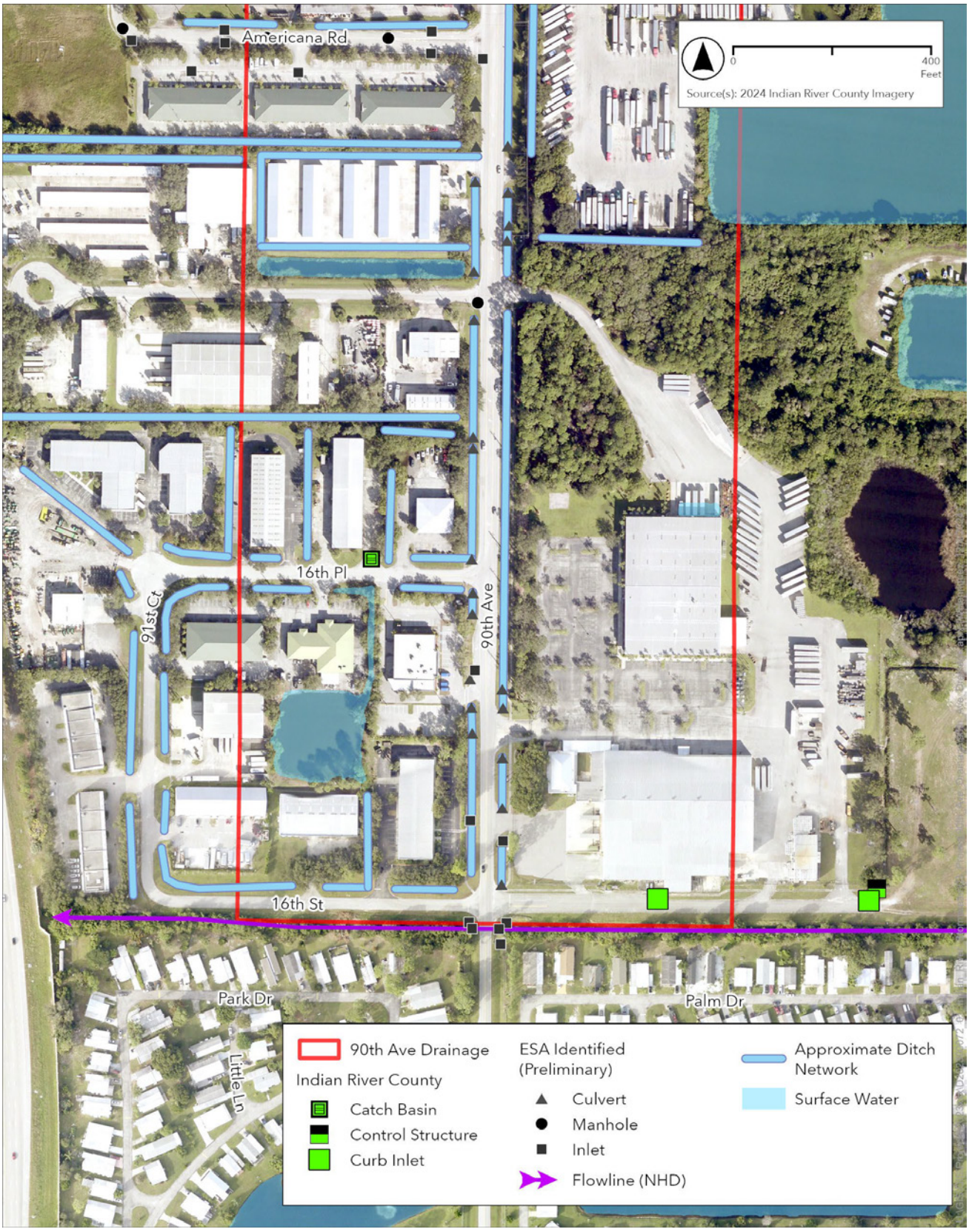

Figure 5. 90th Avenue Drainage, Southern Priority Area

Rockridge Area - SR60 to 12th St. & 6th Avenue to Indian River Lagoon

Figure 6. Rockridge Priority Area

South of 17th Street along Indian River Boulevard, the Rockridge subdivision has long been an area of focus for stormwater improvements by IRC. This area regularly experiences flooding due to its abundant low-lying residences and proximity to canals, as seen in **Figure 6**. In 2006, a surge protection study titled Rockridge Subdivision Surge Protection Project identified several potential improvements including flap gates, sluice gates, tide-flex check valves, a tilting weir gate, a soil berm barrier and a stormwater pump station. Some of these improvements were permitted under ERP #108217 – 1, although not all of them are implemented. During the site visit, ESA staff evaluated the existing structures within Rockridge and the surrounding areas, particularly along Indian River Boulevard and around 3rd Court and 16th Street.

Along Indian River Boulevard, one of the first sites assessed during initial site reviews was the canal crossing at 16th Street; in particular, the concrete headwalls of the culvert and the riprap in that area were examined. Vegetation management had been recently performed, leaving the banks of the channel as bare soil. South of 16th Street along the western side of Indian River Boulevard, drainage swales were identified with standing water. ESA staff attempted to identify an outfall structure on the eastern side of Indian River Boulevard during the initial site visit but were unsuccessful. However, during January 2025 activities, the outfall was identified. Note, it was submerged at that time. This area is shown in **Figure 7**. During conversations among IRC and ESA staff at the initial site visit, it was discussed to consider having a stormwater storage and treatment area just east of Indian River Boulevard for water to ultimately discharge. This appears to be a natural wetland, or low-lying area. According to IRC Property Appraiser, the undeveloped parcel east of Indian River Boulevard is owned by Indian River Apartments and its conservation was part of the mitigation associated with its development. The plans for these

apartments, permitted under ERP # 18819 – 1, include a wet detention pond. These plans also show that there is a culvert under Indian River Boulevard conveying stormwater east towards that undeveloped parcel. As previously indicated, during the follow up site visit on January 7th, the outfall of the culvert was located on the eastern side of Indian River Boulevard and is shown in **Figure 7**.

Within the Rockridge subdivision, the immediate area of 16th Street and 3rd Court were walked and observed during the initial site visit. Refer to **Figure 8**. There is a covered channel along 16th Street before it opens into the canal. Several pipes were identified terminating in 16th Street Canal, including one coming from along 3rd Court. Some shouldering of sediment along the canal banks was observed. Maintenance is recommended to control sediment and vegetation along 16th Street canal. Also, it did not appear that the channel along 3rd Avenue connects to 16th Street Canal. During the site visit it was discussed with IRC staff to consider potentially purchasing plots of land within the subdivision to establish a stormwater treatment park.

Data gaps specific to Rockridge include the exact outfall location(s) of the drainage swales along Indian River Boulevard, the connectivity of canals within the Rockridge subdivision, the extents of the implementation of improvements associated with Rockridge Subdivision Surge Protection Project, and the ownership of drainage easements and structures within this priority area.

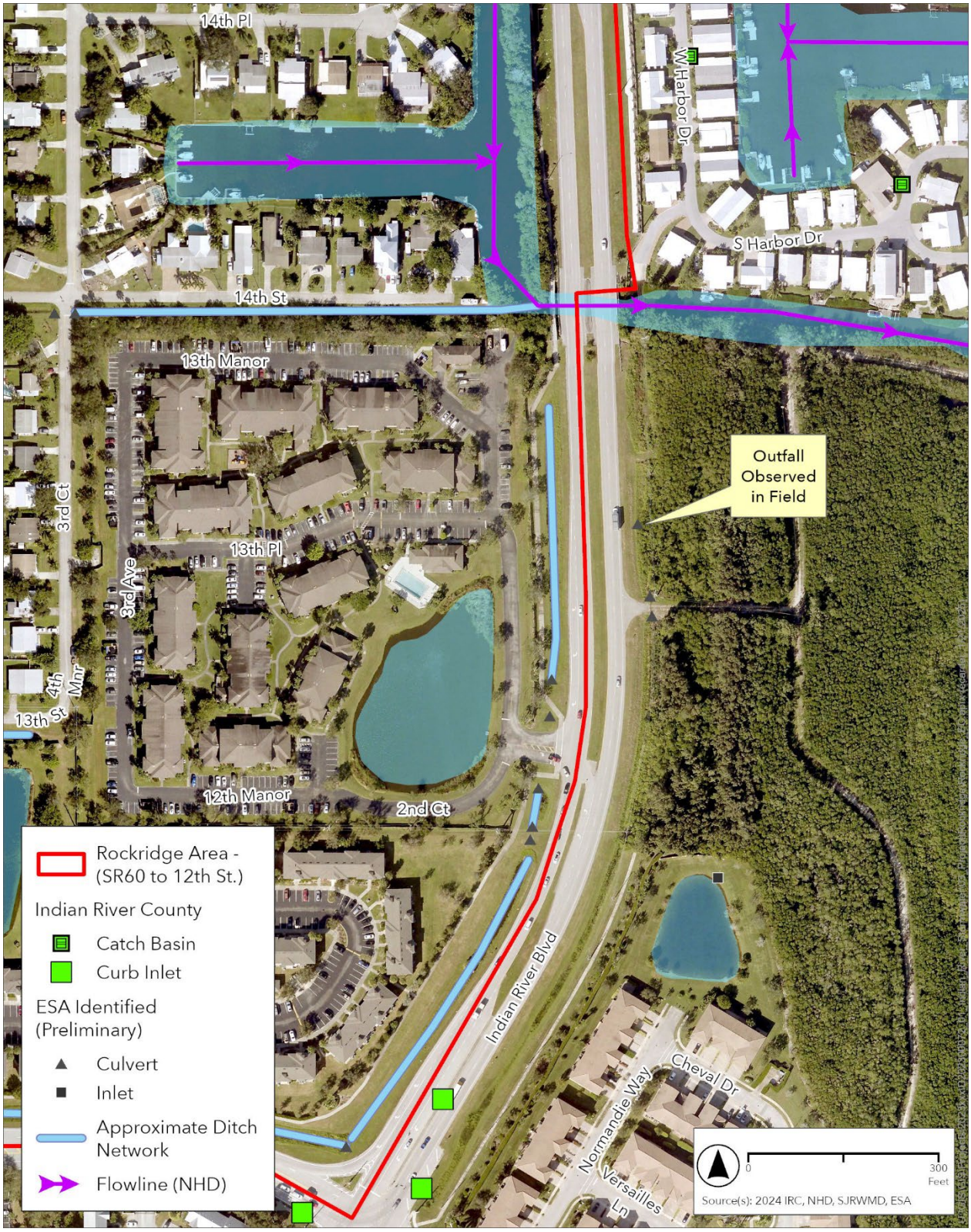

Figure 7. Rockridge Priority Area along Indian River Boulevard

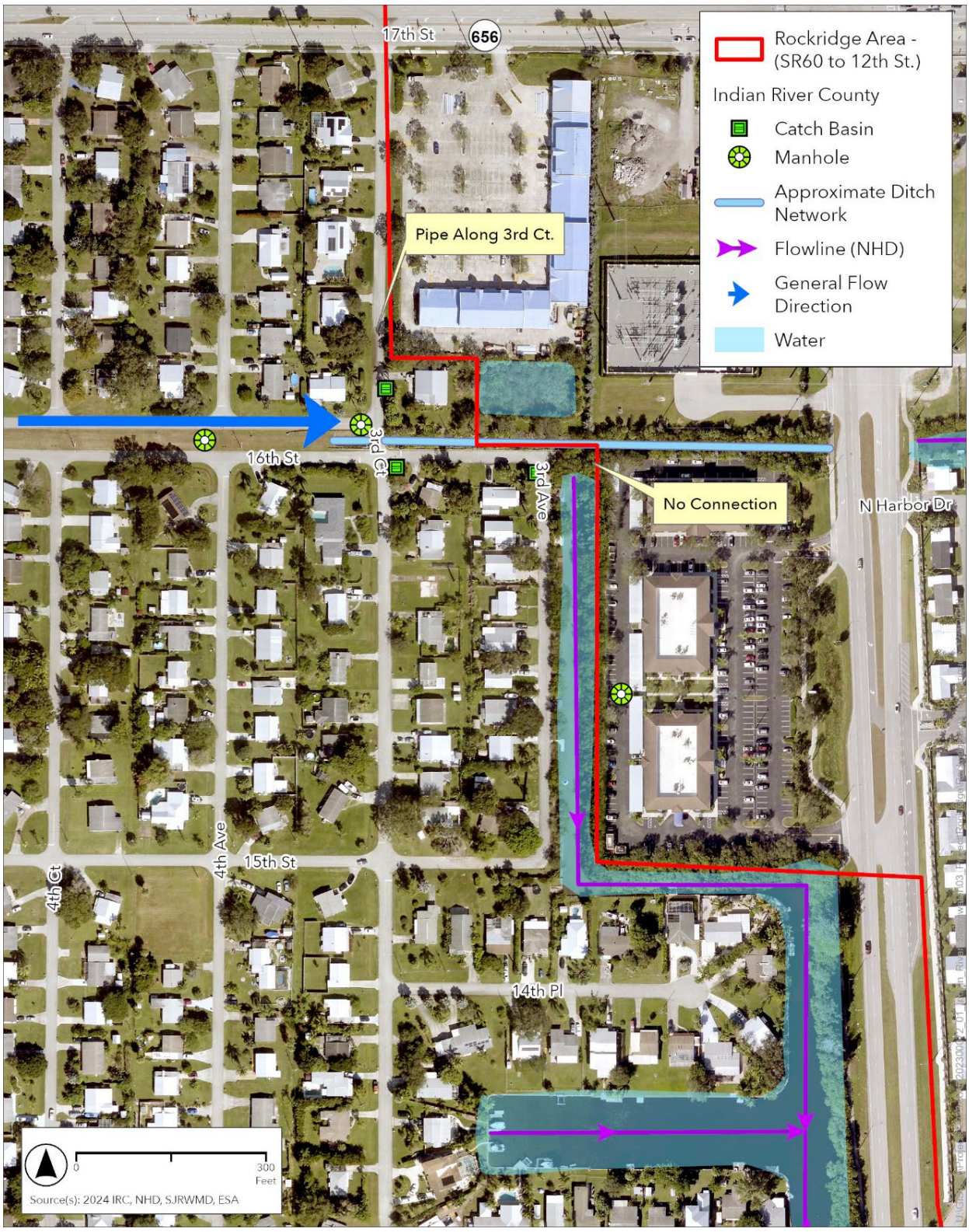

Figure 8. Rockridge Priority Area at 16th St and 3rd Ave

College Lane

Figure 9. College Lane Priority Area

As shown in **Figure 9**, College Lane is a road south of State Road 60 with increasingly newer developments in its surroundings and the street itself has multiple drainage structures. IRC staff indicated that they are looking for a solution of where to discharge the stormwater south of College Lane.

During the initial site visit, it was conveyed to ESA staff that residential areas just north of the road, including Hedden Place, Fiora Lane, etc., experience flooding during periods of heavy rainfall. The drainage along these residential streets consists of shallow swales, and stormwater sheet flows south towards College Lane. These streets along with the general flow direction as observed during the site visit are shown in **Figure 10**, as well as drainage structures identified by ESA along College Lane. The swales do not appear to connect or continue outside of the residential area.

There are several stormwater ponds in the vicinity of College Lane, consisting of those for the discharge from the shopping centers just north of the road and those that are part of Indian River Community College development (permitted as an ERP through 87843 – 1). Most of the plats along College Lane are owned by Indian River College, particularly along the western side, while plats on the eastern side are primarily commercial. Additionally, Indian River Charter High School is located south of College Lane. Based on permitting information (40-061-87843) , there are two (2) stormwater pond is associated with the high school . A regional stormwater pond associated with Permit no. 40-061-0126 is located directly east of the high school. This pond appears to be associated with the development directly north and across College Lane. The tract of land directly east of the regional stormwater treatment system appears to be designated at 6 future development outparcels.

The Indian River Farms Water Control District (IRFWCD) Main Relief Canal lies just south of this priority area. According to the East Indian River County Stormwater Master Plan (year unknown), a 2001 SJRWMD Storm Water Management Model (SWMM) showed this canal to have flooding and potentially erosion during a 100-year storm event in the areas just south of College Lane.

Discharging to this canal,or to the regional stormwater management tract as well as potential expansion of the stormwater management tract would require further investigation of storage availability as well as coordination with the land owners and/or IRFWCD. Final ownership and extents of all drainage easements and structures is another data gap within this priority area.

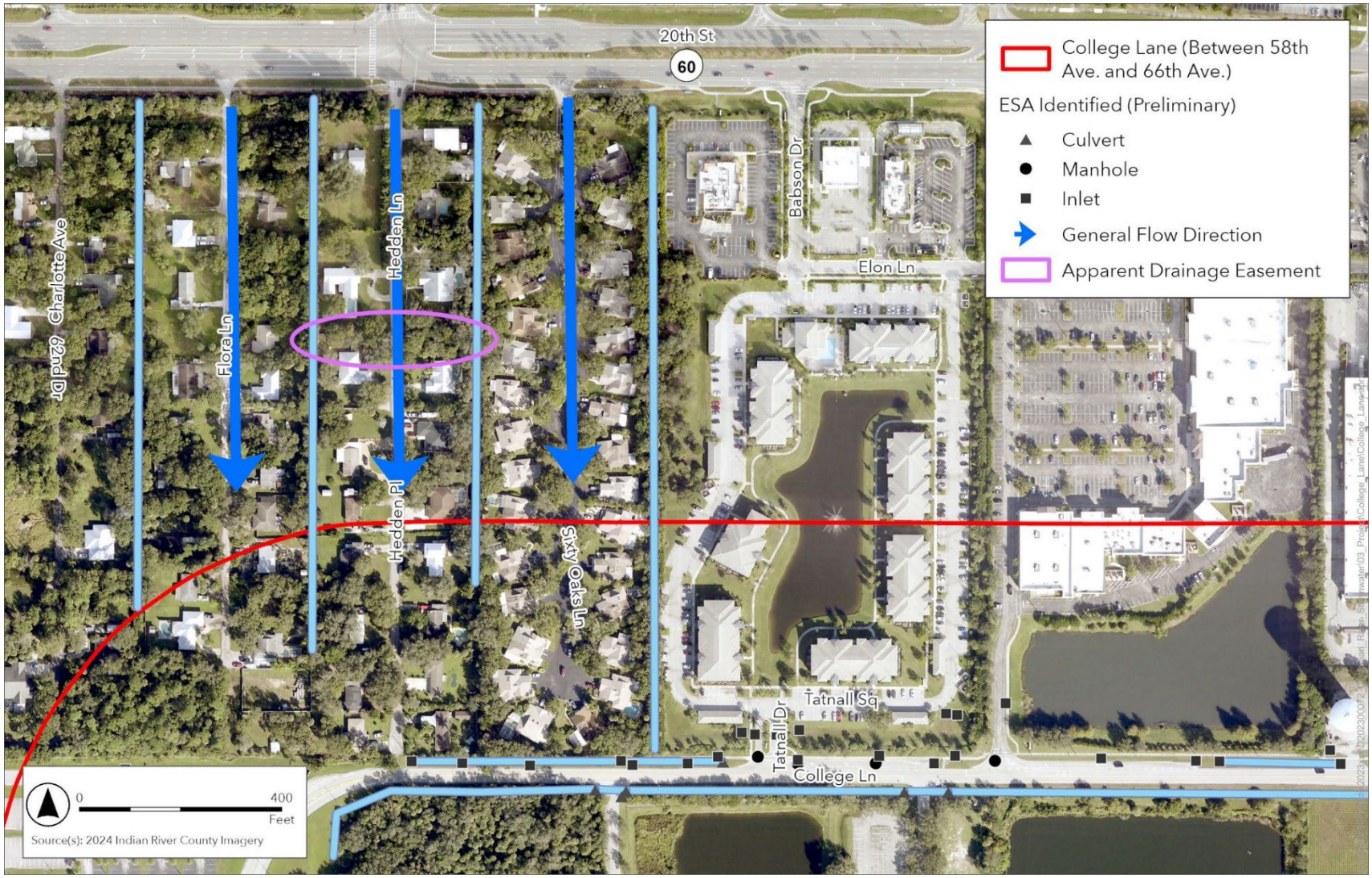

Figure 10. Residential Areas North of College Lane

37th Street to Royal Palm Place (US 1 to IR Blvd.)

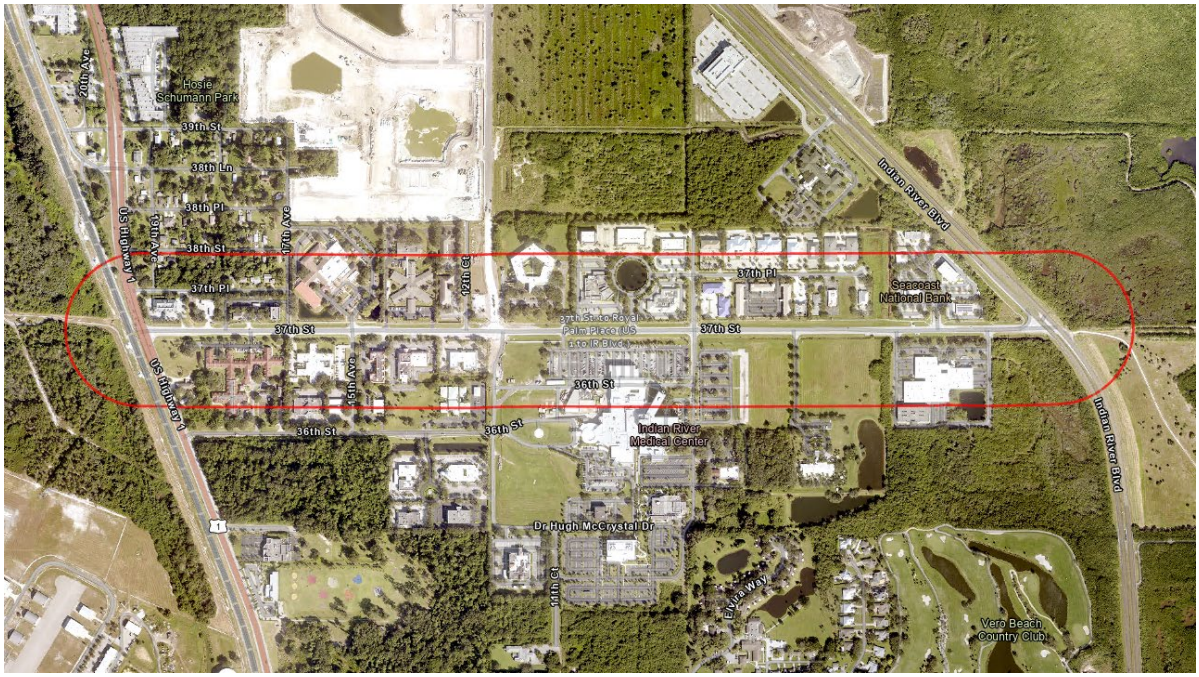

Figure 11. 37th Street Priority Area

37th Street lies between US Highway 1 and Indian River Boulevard, with the area of interest approximately 1.15 miles in length and predominantly occupied by medical offices, as depicted in **Figure 11**. According to IRC staff, flooding along this street previously occurred on a regular basis, but recent improvements to the drainage system, such as deepening the existing swale on the western end of the street, appear to have helped to reduce these impacts.

During the initial site visit, ESA staff field verified the locations of stormwater structures and ditches. At the time of the visit, there was standing water in the ditches along the length of the street. A culvert structure was identified at the northeastern end of 37th Street going towards Indian River Boulevard. The same structure was identified on plans dated 2017 for the ERP #18729 – 5 which specified the dimensions as an 84" x 48" box culvert with inverts of -1.70 ft North American Vertical Datum 1988 (NAVD 88) and -1.74 ft NAVD 88 at the other end of the outfall on the eastern side of Indian River Boulevard. This area and the structure can be seen in **Figure 12**, **Figure 13**, and **Figure 14**.

ERP #40739 – 5 (2021) is located at the eastern end of the priority area limits and is associated with 9.45 acres of roadway improvements. The drainage system implemented for this ERP is a 0.45-acre dry retention pond located at the southwestern intersection of 37th Street and Indian River Boulevard and serves a 1.3 acre basin off of 37th Street. The Drainage Design Documentation report associated with this ERP remarks that the "roadside swale along the north side of 37th Street discharges to the Indian River Lagoon via a dual 4'x7' reinforced box culvert beneath Indian River Boulevard", which is consistent with the plans from ERP #18729 – 5 mentioned previously.

There are several other ERPs related to the treatment of stormwater at the medical buildings along 37th Street. Additionally, east of 37th Street is a parcel managed by IRC Mosquito Control where ERP #220733 – 1 was issued for the construction and operation of culverts within the mosquito impoundments that ultimately discharge to the Indian River Lagoon. Data gaps for 37th Street are the full ownership of drainage structures and the exact outfall location of the culvert at the eastern limits.

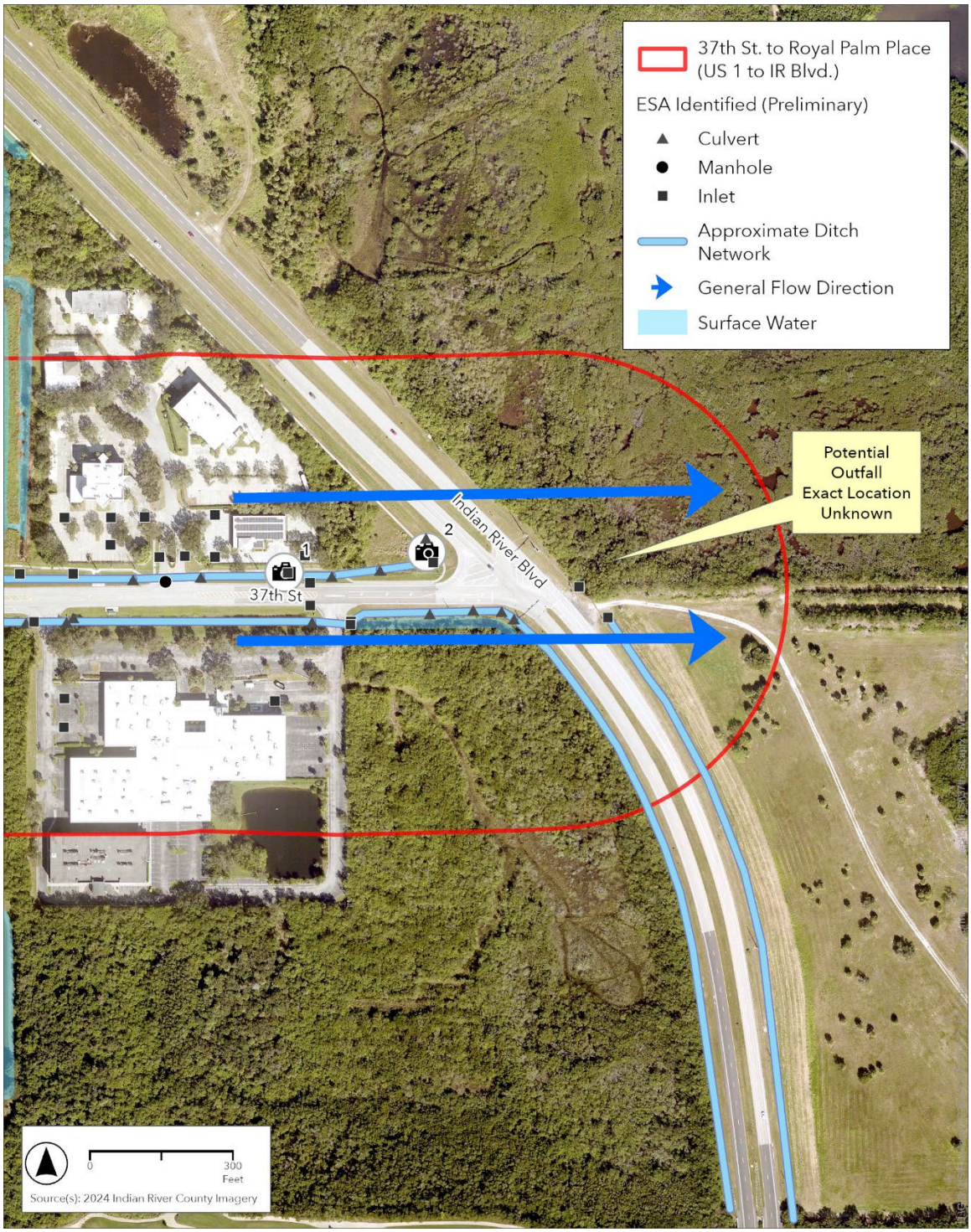

Figure 12. Eastern End of 37th Street.

Figure 14. Ditch with Water and Box Culvert facing East along 37th Street. Photo #1.

Figure 13. Ditch with Water facing West along 37th Street. Photo #2.

Fellsmere

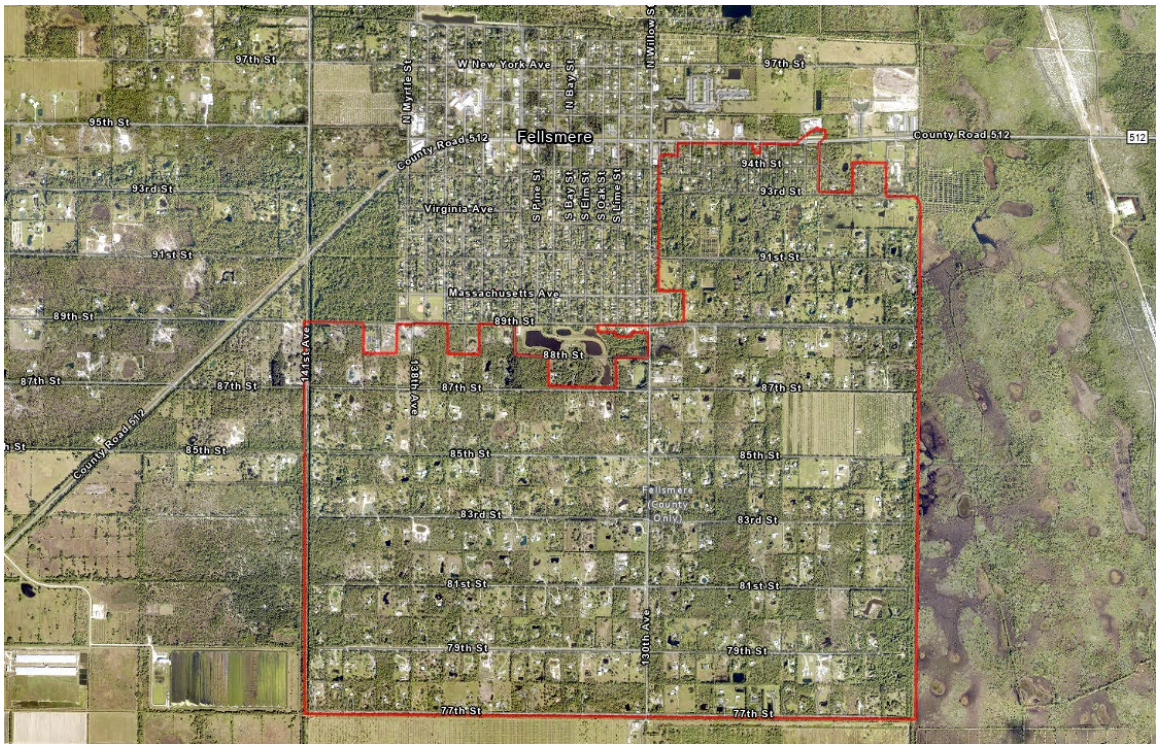

Figure 15. Fellsmere Priority Area

The Fellsmere Priority Area is located approximately three (3) miles west of Interstate 95 and directly south of County Road 512. The City of Fellsmere has historically experienced flooding during and after severe storm events. This priority area specifically includes the IRC areas immediately south of the city limits, as portrayed in **Figure 15**.

The drainage system throughout the city consists of shallow swales and ditches connected by culverts that all discharge into larger canals. **Figure 16** shows the extent of drainage structures provided by IRC, flowlines of the larger canals within the area per NHD, and surface waters identified from GIS analysis. During the initial site visit, ESA observed standing water in these ditches and swales, and many of them are heavily vegetated. The ditches appear to become deeper the further south they are in the city.

A neighborhood just east of Interstate 95 known as Vero Lake Estates has a similar drainage system for which a Master Drainage Plan was developed in the late 1990s. The plan consisted of expanding the existing ditches, regrading of roadside and backlot ditches and installing control structures at the intersections of swales, and constructing four (4) new wet detention ponds.

There are several ERP permits within the area of interest, consisting mostly of permits for the drainage swales for the roads, owned by IRC. Just north of the area of interest is a stormwater treatment area composed of several ponds permitted as ERP #155439 – 1 through the City of Fellsmere. This area has been constructed and was observed by ESA during field visits. The area east of Fellsmere Priority Area is permitted under ERP #92262 – 1 for a future 3,500-acre

development of various land uses; this permit expires 12/13/2030. In addition, there is an ongoing ERP #18578 – 4 for 19,729 acres of an agricultural surface water management system consisting of pumped and gravity drained basins issued to the Fellsmere Water Control District in the areas south and west of this priority area. This permit appears to have additional modifications proposed that are still under review.

Data gaps for the Fellsmere priority area include the ownership of drainage easements and structures and topographic data. A 1-meter resolution LiDAR dataset is available for some of the priority area, but it is missing in the southern portion of the priority area. There is a publicly available Digital Elevation Model (DEM) at a resolution of 1/3 arc second for the areas where LiDAR is missing. Additionally, the City of Fellsmere has proposed several projects in the BMAP, and further discussions and coordination are required to determine which of these are underway and which have been completed. Understanding how the Master Drainage Plan implemented at Vero Lakes Estates has affected drainage there would be beneficial to evaluate whether those improvements could be applied to Fellsmere.

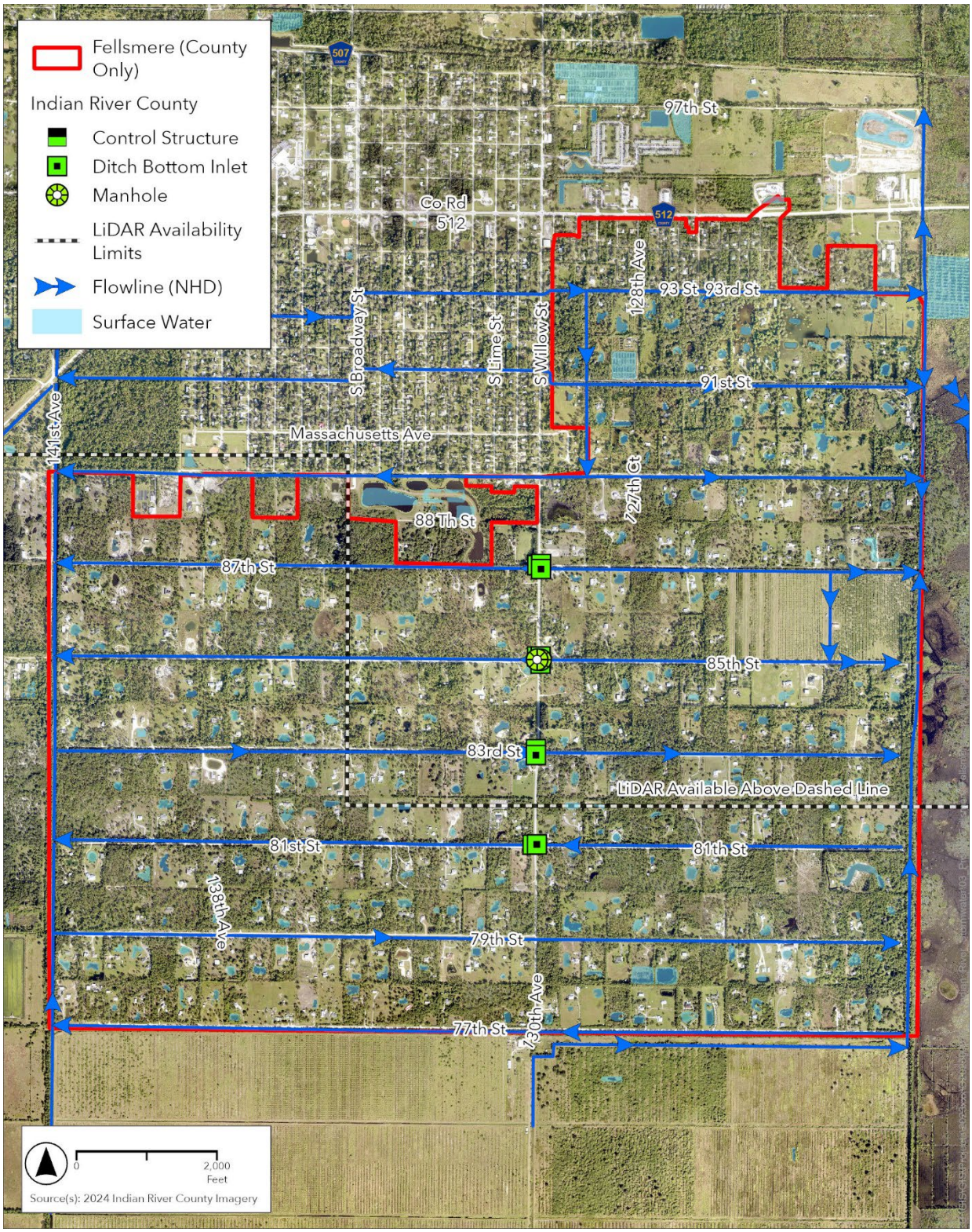

Figure 16. Fellsmere Drainage Structures

Riviera Lakes (4th St. & 27th Ave)

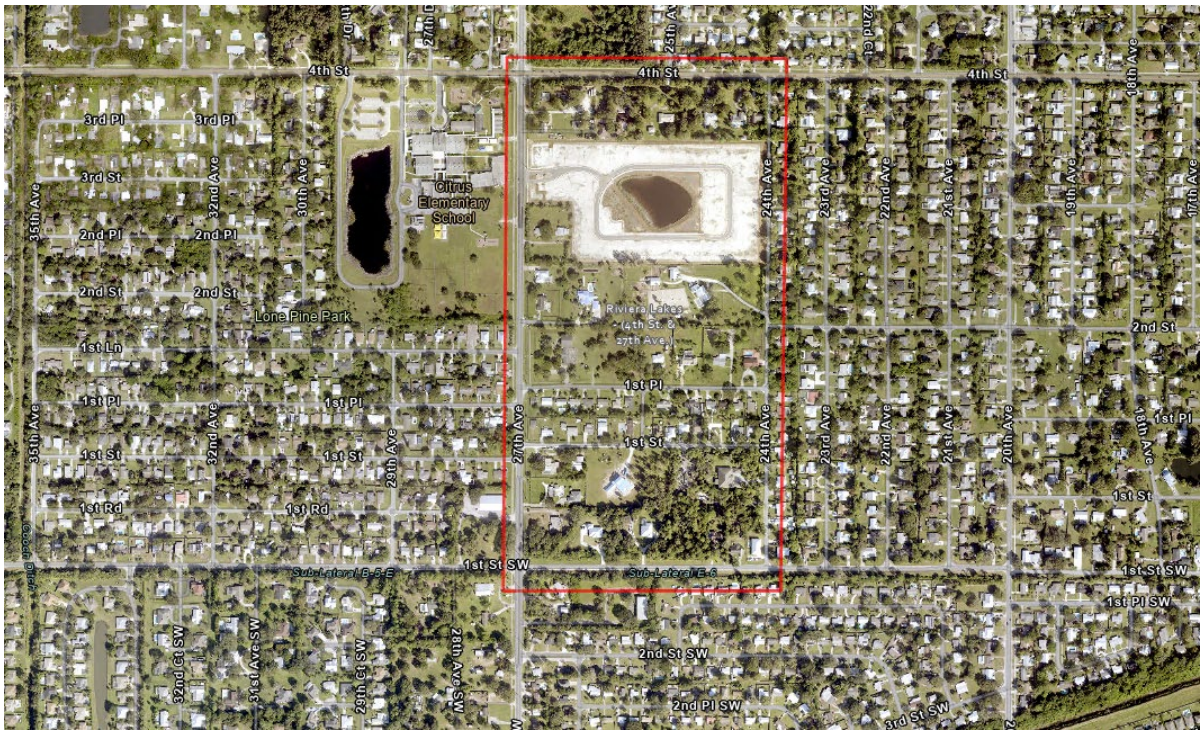

Figure 17. Riviera Lakes Priority Area

Riviera Lakes is a residential area bound by 27th Avenue to the west, 24th Avenue to the east, 1st St SW to the south, and 4th St to the north, as shown in **Figure 17**. Sub-Lateral B-5 E canal, owned by IRFWCD, runs along 1st St SW.

An area of approximately 18 acres within 4th Street and 27th Avenue, called Riviera Lakes, has begun development in recent years. According to IRC staff, resident complaints have suggested that the construction exacerbated flooding issues within these blocks of residences. There was a berm constructed along the eastern edge of this development, which is included in the ERP #148231 – 1 issued for this development in 2023. Documents from the ERP indicate that the development consists of 40 single-family lots and a clubhouse along with a stormwater management system comprised of three (3) dry retention ponds and one downstream wet detention pond. As of the site visit, the development no longer appears to be in active construction but remains unfinished. Also included with the documents for this permit are as-built drawings for drainage and roadway improvements from August 2023 for 27th Avenue. Permit #148231 – 1 which expired on February 9, 2023. A transfer of ownership under ERP #148231 – 4, submitted on July 19, 2023, is still under review. Since construction operations appear to have ceased at the present moment, the most prominent data gap in Riviera Lakes is the status and future plans for this development.

Figure 18 shows the area of concentration examined during the site visit, including the berm mentioned above. Note that 24th Avenue is a dirt road, and standing water was observed during

the initial site visit. This can be seen in **Figure 19**. **Figure 20** shows the berm noted along the western side of 24th Avenue.

Figure 18. Riviera Lakes Area of Concentration

Figure 19. Standing Water in Dirt Road. Photo #1.

Figure 20. Impaired Berm. Photo #2.

4th Street and 8th Street

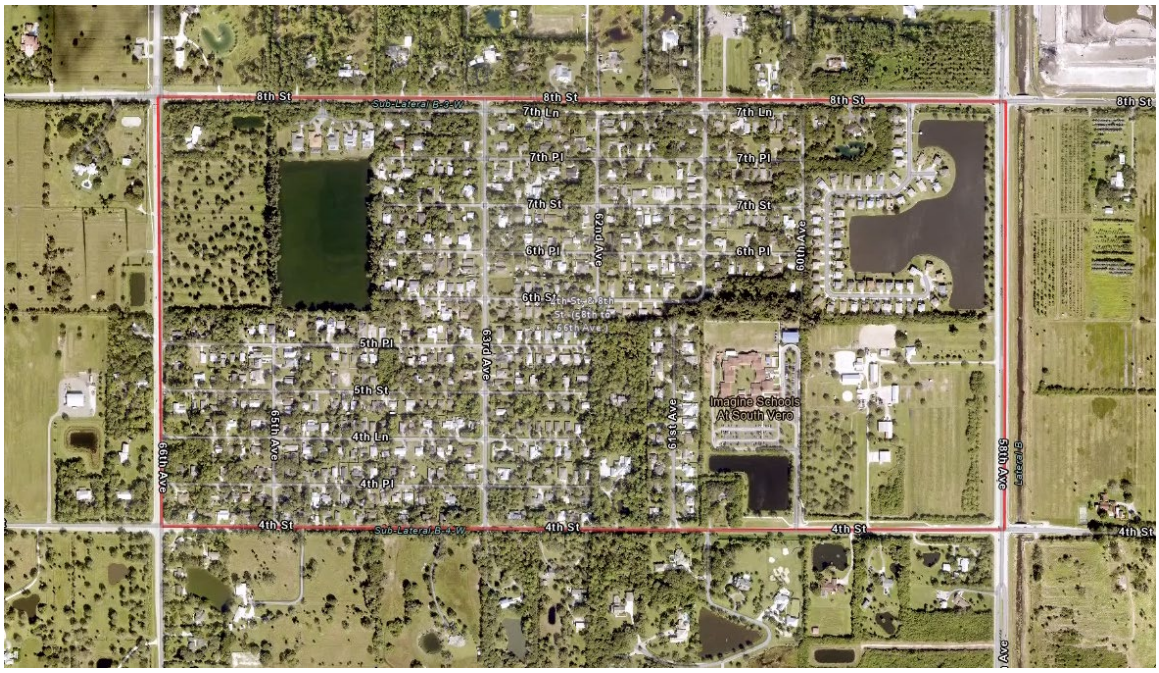

Figure 21. 4th Street and 8th Street Priority Area

4th and 8th Street Priority Area, also known as Pinetree Park, is a residential area bound by 66th Avenue to the west and 58th Avenue to the east, as seen in **Figure 21**.

The existing drainage in this area consists of shallow roadside swales connected by shallow culverts. Based on available LiDAR, the deepest of these swales are along 63rd Avenue. From there, stormwater appears to be conveyed north into the Sub-Lateral B-3 W canal along 8th Street and south towards Sub-Lateral B-4 W, both owned by IRFWCD, before flowing east to a larger canal along 58th Avenue and ultimately discharging to the South Relief Canal. **Figure 22** shows the extents of drainage structures as well as surface water bodies, flow lines, and back lot ditches within this area based on data provided by IRC and/or identified by ESA.

There are three (3) surface water management ponds within this area of interest. The stormwater pond at the northeastern corner is permitted under ERP #71222 – 1 for the Carriage Lake subdivision. The Technical Staff Report (TSR) from SJRWMD indicates that the surface water management system consists of a 13.9-acre wet detention pond with associated inlets and pipes. On the western side of the area enclosed by 4th and 8th Street is Laurel Springs Subdivision (ERP #26227 – 2). This permit indicates that there is an additional dry retention area west of the project area; however, that parcel is currently under construction. Currently there is a proposed development there called Raven's Landing, ERP #188049 – 1, which is also shown in **Figure 22.** This permit expires on April 3, 2028. According to the TSR, the proposed drainage system for Raven's Landing consists of two (2) interconnected wet detention ponds with associated inlets and pipes. The overflow will discharge north to the 8th Street drainage system, which outfalls to the South Relief Canal.

Like other priority areas, the maintenance of the drainage structures within 4th and 8th Street appears to have been neglected based on visual observations made during the initial site visit including overgrown vegetation. During the site visit, standing water was observed in the drainage ditches, and at some properties, the water was as high as the finished floor elevation of the homes. ESA staff observed residents at one (1) property placing sediment over one of the drainage swales, most likely intended as a driveway.

Data gaps in this area include the ultimate discharge location of swales and culverts, the final ownership of drainage structures, and whether more storage would be available at any of the stormwater management systems permitted within the priority area.

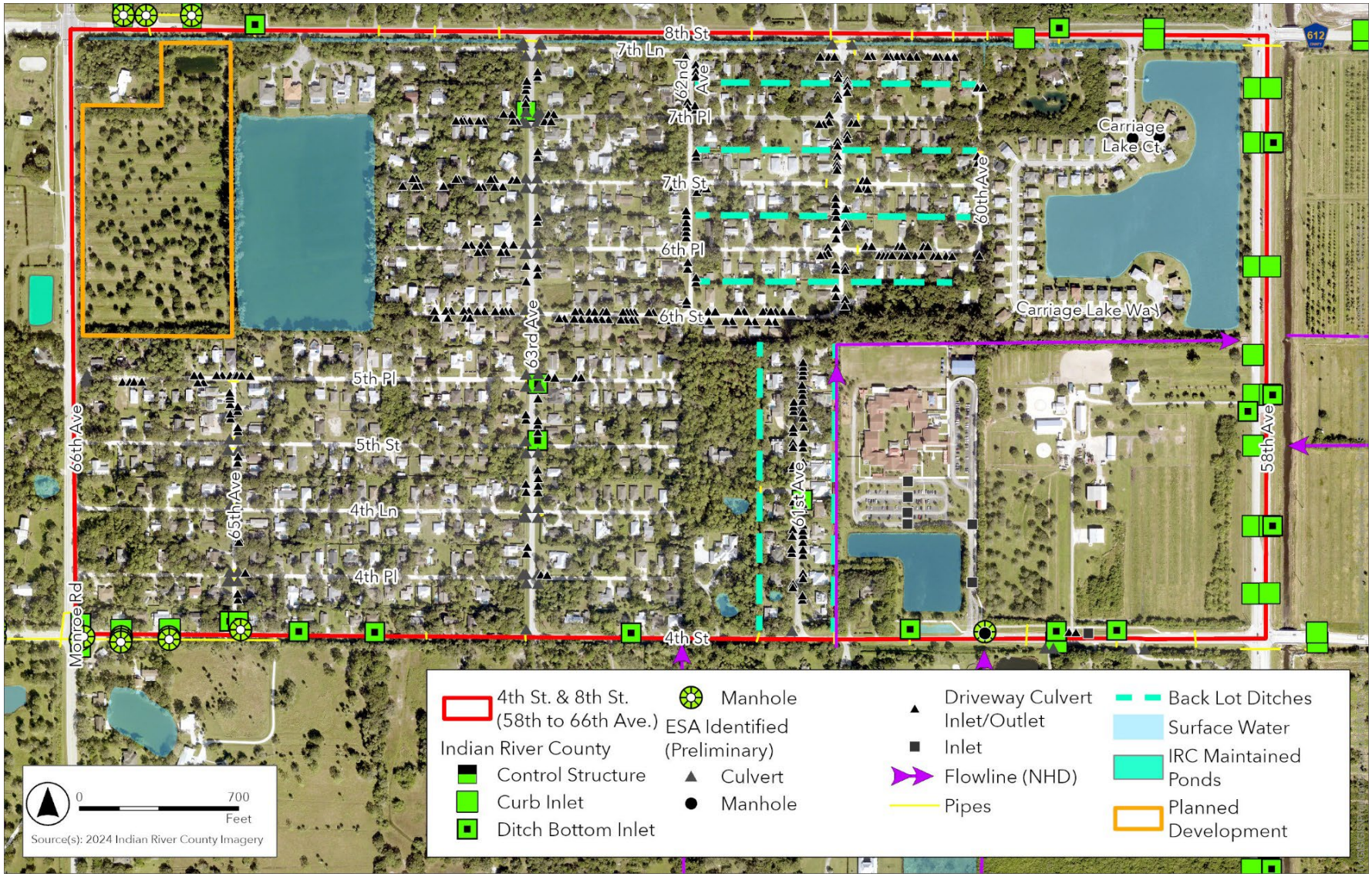

Figure 22. 4th Street and 8th Street Drainage Structures

Indian River Drive – County Maintained ROWs

Figure 23. Indian River Drive Priority Area

Indian River Drive Priority Area lies just east of US Highway 1 in the northern extent of IRC. It is bisected by the City of Sebastian, so this area is limited to County-maintained right-of-ways. **Figure 23** shows the extents of the priority area. Along Indian River Drive is a mix of residences and businesses. During the initial site visit, it was conveyed by IRC staff that these coastal areas experience poor drainage and some properties experience flooding.

During the site visit, residential areas along Indian River Drive along with an area west of Indian River Drive across US Highway 1, were examined. Refer to **Figure 24** and **Figure 25**. ESA staff identified several drainage structures, some of which were blocked with sedimentation. Maintenance of these structures is needed, and it is not fully known how all of the drainage structures are interconnected. Some structures drain into canals that eventually discharge into the Indian River Lagoon. Another data gap is the full extent of ownership of drainage easements.

At the southern end of Indian River Boulevard, a canal was examined. During the initial site visit there were discussions regarding the potential of IRC acquiring some land along Indian River Drive to use for potential stormwater treatment areas. **Figure 26** shows the area associated with the canal at the southern end of Indian River Boulevard and the drainage structures within the area per data from IRC, the City of Sebastian, and through ESA efforts. There are several lots that were initially identified south of Sebastian Boulevard, between Old Dixie Highway and Indian River Drive for acquisition. These lots are owned by various private entities according to data available from IRC property appraiser website. There are numerous ERPs along and in proximity to Indian River Drive. Data gaps for Indian River Drive are the final ownership and extent of drainage easements and structures.

Figure 24. Areas Examined near Indian River Drive, Northern Extent

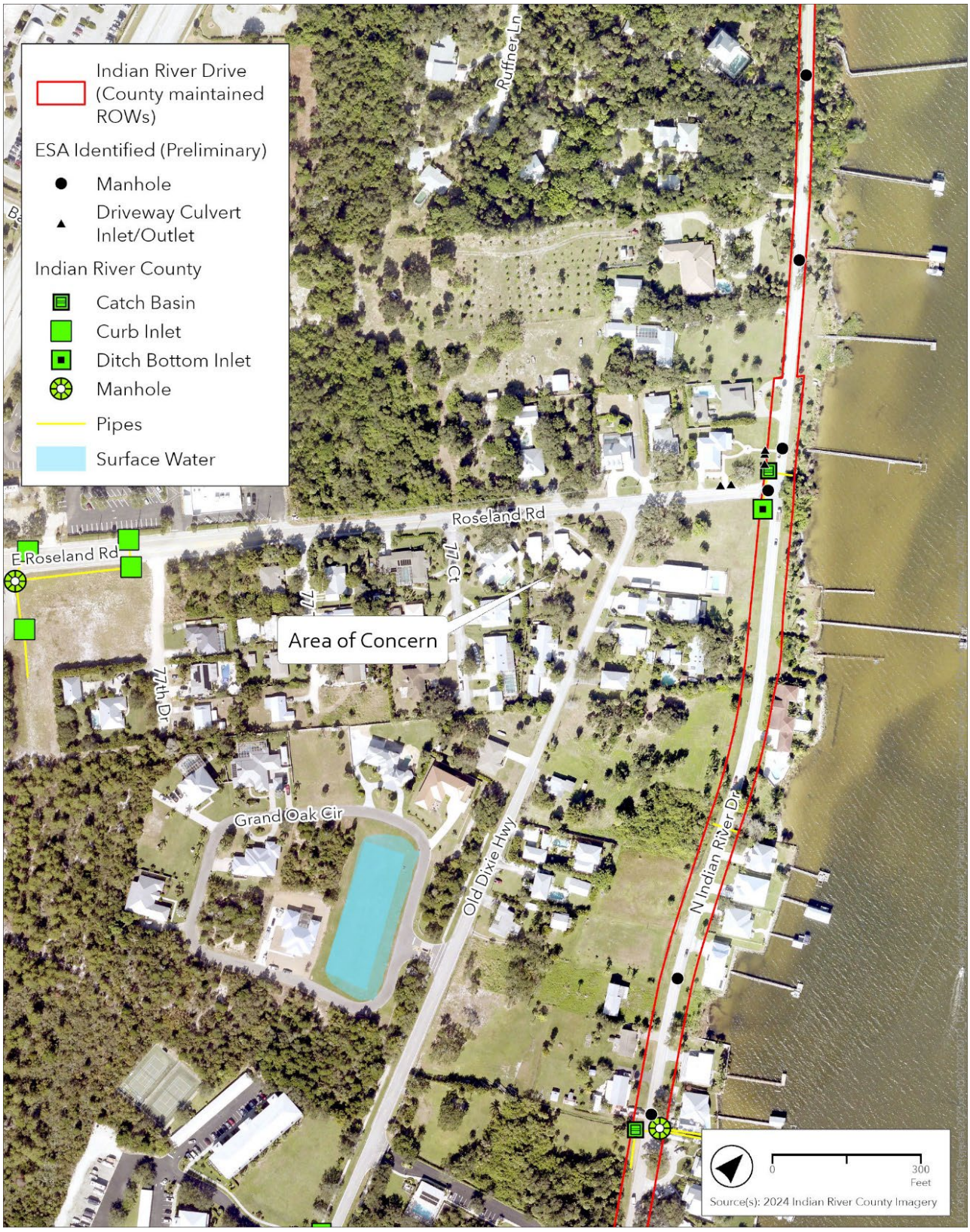

Figure 25. Areas Examined near Indian River Drive, Middle

Figure 26. Areas Examined near Indian River Drive, Southern Extent

Indian River Lagoon

The Indian River Lagoon (IRL) lies along the eastern coast of Florida and runs throughout the length of IRC. The portion of the lagoon adjacent to IRC is part of the Central IRL, for which a basin management action plan (BMAP) has been adopted to address the total maximum daily loads for total nitrogen (TN) and total phosphorus (TP) developed to recover the loss of seagrasses in that portion of the IRL. Originally adopted in February 2013, and updated in 2021, the BMAP establishes loads reductions required to be met by each entity within the CIRL watershed and identifies projects or other activities to meet these reductions. Within IRC, numerous projects have been identified through the BMAP that are either planned or underway by various stakeholders throughout the County.

The Central IRL (CIRL) BMAP is separated into four (4) project zones based on annual residence times: CIRL A, CIRL SEB, CIRL B, and CIRL SIRL. These project zones are shown in **Figure 27,** which was obtained from the BMAP document via FDEP. Of these, IRC discharges to CIRL SEB and CIRL B which have different CIRL BMAP load reduction requirements as shown in **Table 1**.

Table 2. IRC CIRL BMAP Required Load Reductions (lbs/year)

Project Zone	Total Nitrogen	Total Phosphorus
SEB	47,223	8,580
B	169,639	22,231
Total	216,862	30,811

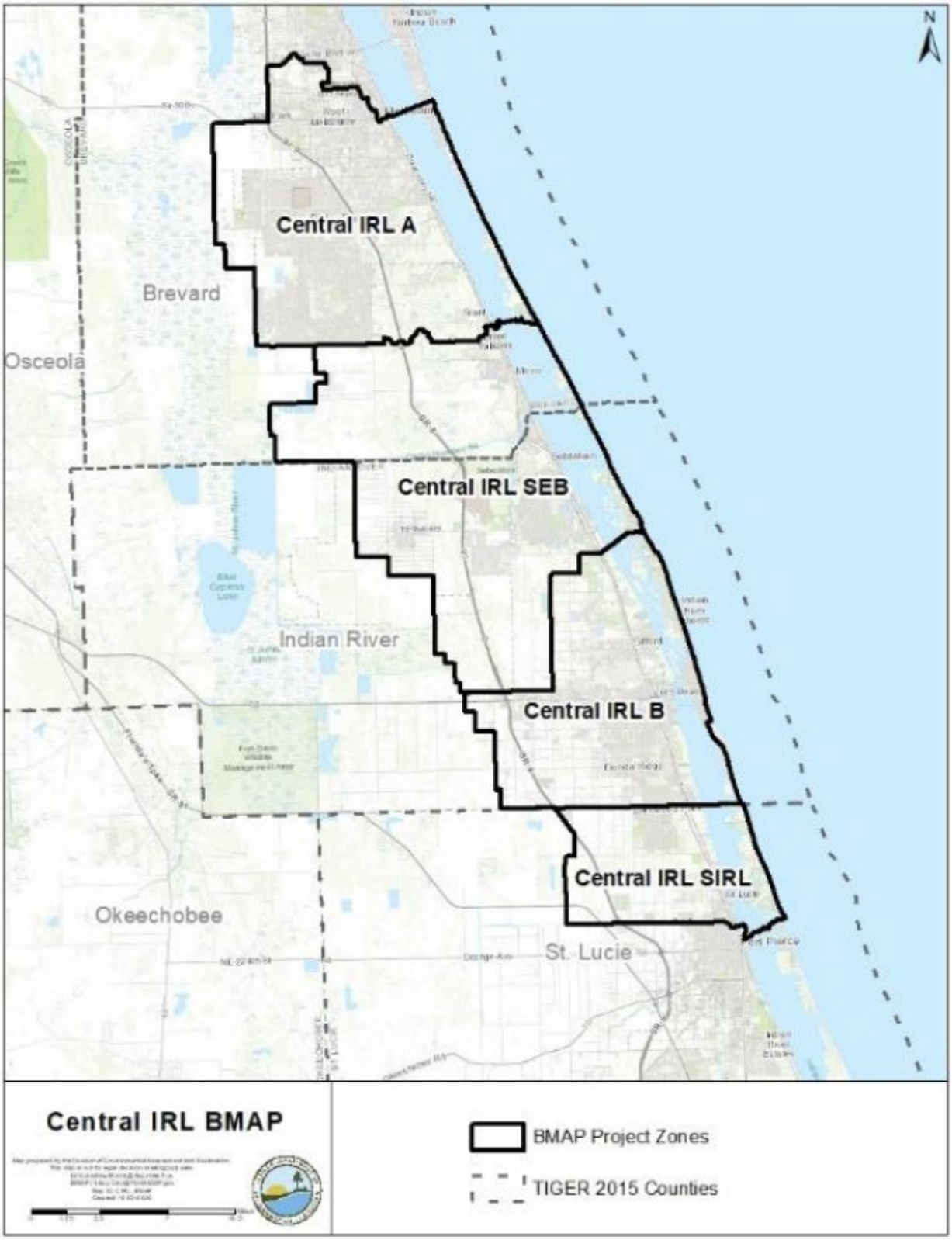

Figure 27. CIRL BMAP Project Zones (Source: Central Indian River Lagoon Basin Management Action Plan, via FDEP)

Pollutant sources for Central IRL include agriculture, municipal separate storm sewer systems (MS4s), septic systems, urban non-point sources, and wastewater treatment facilities. IRC is designated as a Phase II MS4 under permit number FLR04E068. A Phase II MS4 is designated as such if any parts of it are located in an urban area defined by the U.S. Census Bureau.

Urban non-point sources within IRC, and particularly surrounding the areas of interest, include Fellsmere Water Control District, Indian River Farms Water Control District, Sebastian River Improvement District, and Vero Lakes Water Control District. As mentioned throughout this memo, there are several stormwater canals owned by IRFWCD throughout IRC which ultimately discharge into IRL.

Additionally, smaller drainage structures exist that discharge into the lagoon, although the full extent of these structures and their ownership is not known. ESA reviewed IRC Property Appraiser data and available ERPs within IRC limits to compile an inventory of structures that discharge into IRL, and to initially evaluate the feasibility of establishing stormwater treatment areas along IRL.

South of the City of Vero Beach, such areas include Oslo Boat Ramp, the Lagoon Greenway, and the South Relief Canal owned by IRFWCD. The land to the south of Oslo Road is largely owned by IRC for mosquito impoundments. Most of the land north of Oslo Road is owned by SJRWMD, with a couple of parcels interspersed owned by the University of Florida. There are ERPs in this area related to road improvements and mosquito control. Most of the land surrounding the Lagoon Greenway is owned by the Florida Inland Navigation District (FIND), and there are two (2) parcels jointly owned by IRC (50%), SJRWMD (25%) and FIND (25%). There is an ERP (#125194 – 2) adjacent to the Lagoon Greenway to construct a boardwalk and viewing platforms. No stormwater management was proposed. South of that is an ERP (#26182 – 2) for a multifamily subdivision that ultimately discharges to IRL. The South Relief Canal is just south of McKee Botanical Garden. Nearby ERPs include #51779 – 1, which consists of two (2) dry retention ponds for the widening of 4th St, owned by IRC, and ERP #103252 – 1 which was issued to IRC Public Works in 2006, entailing the installation of a "pollution control system at the three outfall locations of the Indian River Farms Water Control District". Also, within the City of Vero Beach is the Main Relief Canal owned by IRFWCD.

Subsequent coordination and discussion with all stakeholders previously mentioned regarding both existing data availability and ongoing/anticipated stormwater improvement projects will be reviewed and any pertinent information associated with the specific areas of concern will be included in the Stormwater Management Plan.

Water Quality Review

The FDEP Impaired Waters Rule (IWR) database (RUN 66) was queried for water quality data pertinent to the proposed project areas (Figure 28). The retrieved water quality data were primarily concentrated in the Central Indian River Lagoon (CIRL), Sebastian River and the Main Canal with sparsely spread stations throughout the watershed. It is unlikely these data will be pertinent to specific projects but can be useful for identifying changes from load reductions at regional scales, such as FDEP WBID boundaries.

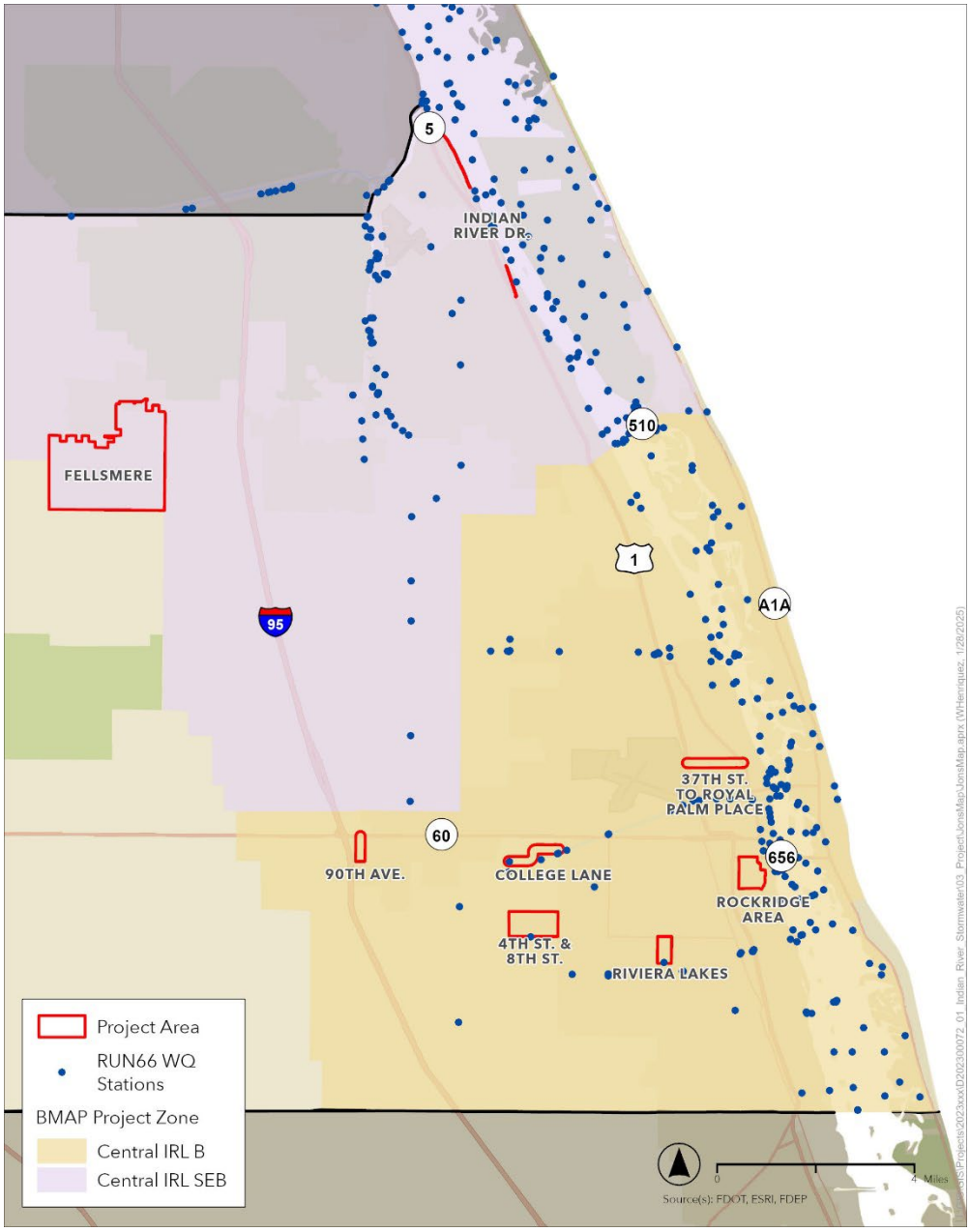

Figure 28. Locations of water quality sampling sites with respect to IRC project areas and CIRL BMAP Project Zones B and SEB.

Since the proposed projects all fall within the CIRL BMAP Project Zones “SEB” and “B”, the DEP Load Estimation Tool is available to compare projects and provide a way to rank them based on their potential water quality benefit (Figure 29). The tool, which is based on the Spatial Watershed Iterative Loading Model (SWIL) developed for DEP for tracking progress towards meeting the BMAP, will provide an estimate of the current loading estimate and potential reductions depending on the best management practice (BMP) proposed. This information will be

incorporated into the project prioritization matrix to qualitatively rank the projects based on the projected load reduction potential.

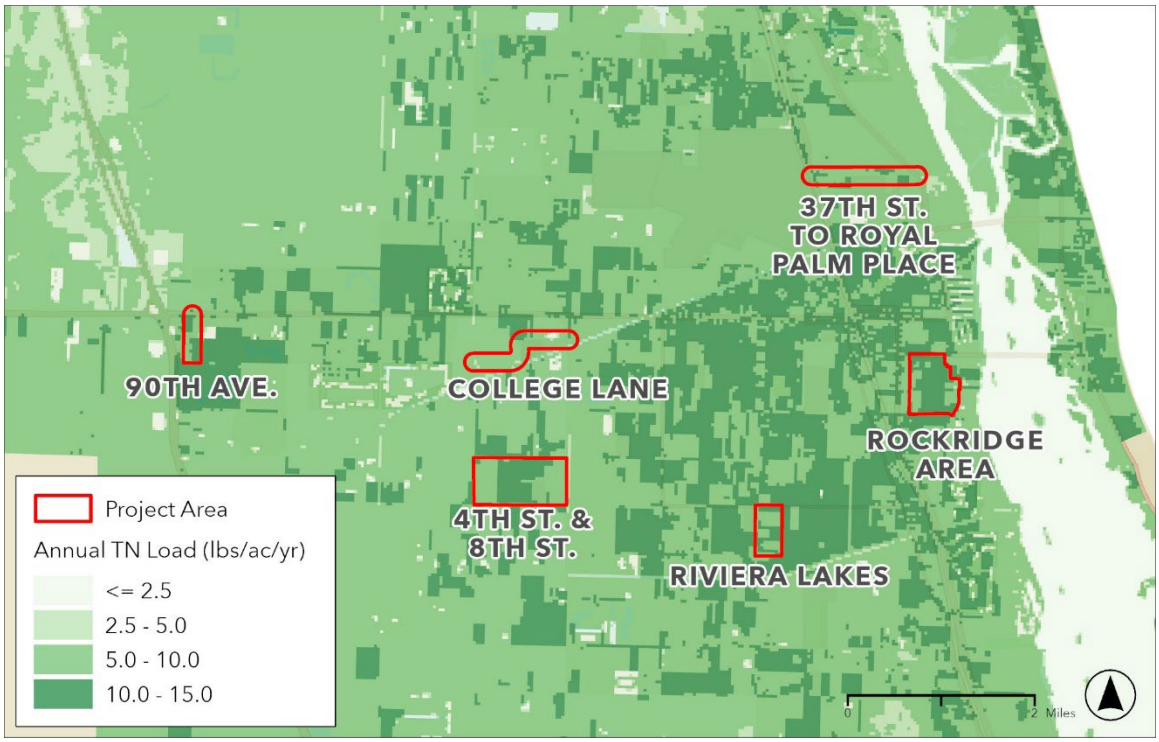

Figure 29. Example showing the overlay of the IRC project areas over the Loading Estimation Tool developed by FDEP.

If the County decides to move forward with a project(s), it is suggested that pre- and post-treatment monitoring be conducted to calculate actual load reduction rates for nitrogen and phosphorus. This could be particularly important for innovative projects such as treatment trains or the use of biosorption active media. Not doing so could limit the potential load reduction credit to literature values which may underestimate the reduction. The use of literature values for systems like standard wet detention systems would probably be adequate, but for more advanced BMPs, you may want to use project specific data.

4 GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATA GAPS

The GIS data for IRC exhibits several inconsistencies and gaps. The data does not appear to be inclusive of all stormwater assets within IRC. The accuracy of the data is questionable in several areas, often lacking information on input format, GPS equipment, or the methods and timing of data collection. Overall, metadata is either lacking or incomplete for all features.

Several GIS layers require consolidation and refinement at each of the priority areas for the most accurate and current information. For example, a surface water layer was developed by ESA using topographic data because it was determined that several water bodies were missing from the National Hydrography Dataset and/or county provided data.

Regarding specific features, backlot ditches only have ID and location information available. Additional fields such as status, flow direction, elevation, PID, ownership, and access would be beneficial.

While the schema for inlets and pipes is well-designed, the schema for backlot ditches, IRC maintained ponds, and non-pipe culverts is minimal, primarily indicating location with little to no additional data. Many inlets and pipes have incomplete data for additional schema fields. Additionally, the GIS data contains topographic inconsistencies that need to be addressed to create a reliable topographic network. The flow direction of lines is not consistently correct based on observations and available topographic data, although there is a field to indicate direction.

IRC maintained ponds include minimal data, primarily parcel and location information. Elevation, inlet details, and maintenance schedules would augment the dataset. While IRC maintained ponds are those provided by IRC, other water features need to be generated to create a comprehensive hydrologic model.

Non-pipe culverts have type and location information but lack details on flow direction and other pertinent information. Pipes have mostly populated fields for diameter, type, material, and location, but other fields such as flow direction and elevations are incomplete.

Inlets have a well-designed schema, but most fields, except for type, subtype, and access, are unpopulated.

AOI	Lidar	IRC Stormwater Data							Other Available Utility Data
		Inlets	Pipes	Non-Pipe Culverts	Maintained Ponds	Backlot Ditches	Elevation	Flow Direction	
37th St. to Royal Palm Place (US 1 to IR Blvd.)	USGS 1m	NA	Single line NE of AOI on 37th Pl.	NA	NA	Single line in NW of AOI	No	No	Minimal, some networked data in Vero Beach along US Hwy. 1
4th St. & 8th St. (58th to 66th Ave.)	USGS 1m	Available on surrounding roads and some along 63rd Ave.	Available along most intersections	NA	Single pond to West of AOI	Some availability in center East AOI	No	No	Minimal/moderate
90th Ave Drainage	USGS 1m	Two points south AOI	Two lines 16th St. south AOI	NA	NA	NA	No	No	Minimal
College Lane (Between 58th Ave. and 66th Ave.)	USGS 1m	Some points along 58th Ave.	Single pipe in south center of AOI	NA	NA	NA	No	Yes, single pipe has	Minimal
Fellsmere (County Only)	USGS 1m available for approx. half in NE, 1/3 Arc Sec available for entire area	Only along 130th Ave. intersections	Along 130th Ave. intersections, along 94th St., and 93rd St. just south of CR 512	NA	NA	Along 94th St., and 93rd St. just South of CR 512	No	No	Minimal
Indian River Drive (County maintained ROWs)	USGS 1m	Available mostly in north AOI	Available mostly in north AOI	2	NA	NA	Approx. half of inlets contain top elevations	Yes, pipes south of Main St. have	Moderate IRC, City of Sebastian portion good
Riviera Lakes - (4th St. & 27th Ave.)	USGS 1m	Available on surrounding roads	Available on surrounding roads	NA	NA	Single line running E to W center of AOI	No	No	Minimal/moderate
Rockridge Area - (SR60 to 12th St.)	USGS 1m	Along 12 St., east side of 16th, single grate on 15th St.	Along 12 St., east side of 16th, some in center of area along 15th St and 14th St.	NA	NA	Available for lots in center of AOI	Some of points on East side of 16th St. has elev.	Some of pipes on East side of 16th St.	Minimal/moderate, North boundary (7th St.) in Vero Beach thoroughly networked

5 SUMMARY

The nine priority areas discussed in this memo all face similar challenges related to flooding issues and aging infrastructure. ESA staff observed standing water at nearly all sites during initial site visits, largely within roadside ditches and swales. Common among many of the priority areas are the needs for maintenance of existing infrastructure and increased stormwater storage.

Data gaps shared by all priority areas include the ownership and extent of drainage easements and structures.

Additionally, coordination among all stakeholders within IRC, including the City of Vero Beach, the City of Sebastian, the City of Fellsmere, and Indian River Farms Water Control District, is required to determine which stormwater projects can be implemented at these priority areas, and what projects have already been planned, are underway, or completed. Discussion with these stakeholders could also provide insight on how existing flood protection projects have performed after their completion.

APPENDIX E. COST ESTIMATES FOR PRIORITY PROJECT AREAS

90th Avenue

90th Ave - Option 1 Southwest						
	Item	**Quantity**	**Unit**	**Cost/Unit**		**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$	80,000.00
	Bid support	1	LS	15,000	$	15,000.00
	Construction monitoring	1	LS	75,000	$	75,000.00
	Total				**$**	**280,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordination	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$	40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	14	DAY	1500	$	21,000.00
	Clearing & Grubbing	1	AC	15000	$	15,000.00
	Silt Fence	1500	LF	7	$	10,500.00
	Floating Turbidity Barrier	200	LF	19	$	3,800.00
	Dewatering	1	LS	15000	$	15,000.00
	RCP 24"	360	LF	240	$	86,400.00
	Rip Rap (18' median dia.)	65	TN	190	$	12,350.00
	Mitered End Section - Concrete with bars	2	EA	7500	$	15,000.00
	Excavation	833	CY	45	$	37,500.00
	Grading	500	SY	12	$	6,000.00
	Sod	1389	SY	18	$	25,000.00
	Planting	0	EA	7	$	-
	Excavation for structures/pipe incl. shoring	370	CY	120	$	44,444.44
	Milling & Removal of Asphalt	43	SY	30	$	1,300.00
	New Roadway Base	43	SY	120	$	5,200.00
	New Asphalt	14	SY	12	$	173.33
	Sidewalk	7	SY	12	$	80.00
	Contingency (10%)	1	LS	40000	$	40,000.00
	Total				**$**	**418,747.78**
			GRAND TOTAL		**$**	**818,747.78**

90th Ave - Option 2 North						
	Item	**Quantity**	**Unit**	**Cost/Unit**		**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$	80,000.00
	Bid support	1	LS	15,000	$	15,000.00
	Construction monitoring	1	LS	50,000	$	50,000.00
	Total				**$**	**255,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordination	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$	40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	14	DAY	1500	$	21,000.00
	Clearing & Grubbing	1	AC	15000	$	15,000.00
	Silt Fence	3000	LF	7	$	21,000.00
	Floating Turbidity Barrier	100	LF	19	$	1,900.00
	Dewatering	1	LS	15000	$	15,000.00
	RCP 24"	220	LF	240	$	52,800.00
	FDOT Type C Structure	1	EA	16000	$	16,000.00
	Mitered End Section - Concrete with bars	1	EA	7500	$	7,500.00
	Excavation	926	CY	45	$	41,666.67
	Grading	667	SY	12	$	8,000.00
	Sod	3333	SY	18	$	60,000.00
	Planting	1667	EA	7	$	11,666.67
	Excavation for structures/pipe incl. shoring	231	CY	120	$	27,777.78
	Milling & Removal of Asphalt	0	SY	30	$	-
	New Roadway Base	0	SY	120	$	-
	New Asphalt	0	SY	12	$	-
	Sidewalk	7	SY	12	$	80.00
	Contingency (10%)	1	LS	40000	$	40,000.00
	Total				**$**	**419,391.11**
			GRAND TOTAL		**$**	**794,391.11**

90th Ave - Option 3 South					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$120,000.00
	Total				**$120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	1500	LF	7	$ 10,500.00
	Floating Turbidity Barrier	100	LF	19	$ 1,900.00
	Dewatering	1	LS	15000	$ 15,000.00
	RCP 24"	220	LF	240	$ 52,800.00
	FDOT Type C Structure	0	EA	16000	$ -
	Mitered End Section - Concrete with bars	2	EA	7500	$ 15,000.00
	Excavation	463	CY	45	$ 20,833.33
	Grading	278	SY	12	$ 3,333.33
	Sod	1389	SY	18	$ 25,000.00
	Planting	1667	EA	7	$ 11,666.67
	Excavation for structures/pipe incl. shoring	231	CY	120	$ 27,777.78
	Milling & Removal of Asphalt	43	SY	30	$ 1,300.00
	New Roadway Base	43	SY	120	$ 5,200.00
	New Asphalt	14	SY	12	$ 173.33
	Sidewalk	7	SY	12	$ 80.00
	Contingency (10%)	1	LS	40000	$ 40,000.00
	Total				**$346,564.44**
			GRAND TOTAL		**$746,564.44**

Rockridge

Rockridge Option 1 - Raise Pipe Invert

	Item	Quantity	Unit	Cost/Unit	Total
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordir	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	60000	$ 60,000.00
	Survey (layout, as-built & record	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	30	DAY	1500	$ 45,000.00
	Clearing & Grubbing	0	AC	15000	$ -
	Silt Fence	3000	LF	7	$ 21,000.00
	Floating Turbidity Barrier	500	LF	19	$ 9,500.00
	Dewatering	1	LS	30000	$ 30,000.00
	RCP 42"	200	LF	350	$ 70,000.00
	Rip Rap (18' median dia.)	65	TN	190	$ 12,350.00
	Mitered End Section - Concrete	2	EA	12000	$ 24,000.00
	Excavation	0	CY	45	$ -
	Grading	222	SY	12	$ 2,666.67
	Sod	694	SY	18	$ 12,500.00
	Planting	0	EA	7	$ -
	Excavation for structures/pipe i	1111	CY	120	$ 133,333.33
	Milling & Removal of Asphalt	903	SY	30	$ 27,083.33
	New Roadway Base	903	SY	120	$ 108,333.33
	New Asphalt	903	SY	12	$ 10,833.33
	Sidewalk	0	SY	12	$ -
	Contingency (10%)	1	LS	65000	$ 65,000.00
	Total				**$ 671,600.00**
			GRAND TOTAL		**$ 1,071,600.00**

Rockridge Option 2 - Install Additional Pipes

	Item	Quantity	Unit	Cost/Unit	Total
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coor	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	60000	$ 60,000.00
	Survey (layout, as-built & rec	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	30	DAY	1500	$ 45,000.00
	Clearing & Grubbing	0	AC	15000	$ -
	Silt Fence	3000	LF	7	$ 21,000.00
	Floating Turbidity Barrier	500	LF	19	$ 9,500.00
	Dewatering	1	LS	30000	$ 30,000.00
	RCP 42"	400	LF	350	$ 140,000.00
	Rip Rap (18' median dia.)	65	TN	190	$ 12,350.00
	Mitered End Section - Concr	2	EA	12000	$ 24,000.00
	Excavation	0	CY	45	$ -
	Grading	222	SY	12	$ 2,666.67
	Sod	694	SY	18	$ 12,500.00
	Planting	0	EA	7	$ -
	Excavation for structures/pip	1111	CY	120	$ 133,333.33
	Milling & Removal of Asphalt	903	SY	30	$ 27,083.33
	New Roadway Base	903	SY	120	$ 108,333.33
	New Asphalt	903	SY	12	$ 10,833.33
	Sidewalk	0	SY	12	$ -
	Contingency (10%)	1	LS	65000	$ 65,000.00
	Total				**$ 741,600.00**
			GRAND TOTAL		**$ 1,141,600.00**

RockRidge - Option 3 Install Backflow Prevention

	Item	Quantity	Unit	Cost/Unit	Total
Planning, Design & Engineering	Survey	1	LS	5,000	$ 5,000.00
	Geotech	1	LS	5,000	$ 5,000.00
	Modeling	1	LS	30,000	$ 30,000.00
	Permitting (3 agencies)	3	LS	6,000	$ 18,000.00
	Design (30,60,90, &100)	4	LS	15,000	$ 60,000.00
	Bid support	1	LS	10,000	$ 10,000.00
	Construction monitoring	1	LS	40,000	$ 40,000.00
	Total				**$ 168,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	45000	$ 45,000.00
	Survey (layout, as-built & record drawings)	1	LS	15000	$ 15,000.00
	Testing & Quality Control	1	LS	5000	$ 5,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	0	AC	15000	$ -
	Silt Fence	1500	LF	7	$ 10,500.00
	Floating Turbidity Barrier	500	LF	19	$ 9,500.00
	Dewatering	1	LS	15000	$ 15,000.00
	Backflow Prevention Structure Connection	2	EA	25000	$ 50,000.00
	Backflow Prevention Valve	4	EA	60000	$ 240,000.00
	Mitered End Section - Concrete with bars	0	EA	12000	$ -
	Excavation	200	CY	45	$ 9,000.00
	Grading	222	SY	12	$ 2,666.67
	Sod	694	SY	18	$ 12,500.00
	Planting	0	EA	7	$ -
	Excavation for structures/pipe incl. shoring	83	CY	120	$ 10,000.00
	Milling & Removal of Asphalt	0	SY	30	$ -
	New Roadway Base	0	SY	120	$ -
	New Asphalt	0	SY	12	$ -
	Sidewalk	0	SY	12	$ -
	Contingency (10%)	1	LS	45000	$ 45,000.00
	Total				**$ 490,166.67**
			GRAND TOTAL		**$ 778,166.67**

RockRidge - Option 4 Purchase Lands for Stormwater Treatment Area(s)

	Item	Quantity	Unit	Cost/Unit	Total
Planning, Design & Engineering	Survey	1	LS	75,000	$ 75,000.00
	Geotech	1	LS	35,000	$ 35,000.00
	Modeling	1	LS	120,000	$ 120,000.00
	Permitting (3 agencies)	3	LS	15,000	$ 45,000.00
	Design (30,60,90, &100)	4	LS	50,000	$ 200,000.00
	Bid support	1	LS	50,000	$ 50,000.00
	Construction monitoring	1	LS	150,000	$ 150,000.00
	Total				**$ 675,000.00**
ODCs	Land Purchase	1	LS	18000000	$ 18,000,000.00
	Real Estate/Easement Coordination	1	LS	900000	$ 900,000.00
	Total				**$ 18,900,000.00**
Implementation	Mobilization/Demobilization	1	LS	120000	$ 120,000.00
	Survey (layout, as-built & record drawings)	1	LS	50000	$ 50,000.00
	Testing & Quality Control	1	LS	20000	$ 20,000.00
	Maintenance of Traffic	120	DAY	1500	$ 180,000.00
	Clearing & Grubbing	50	AC	15000	$ 750,000.00
	Demolition	1	LS	1200000	$ 1,200,000.00
	Silt Fence	7000	LF	7	$ 49,000.00
	Floating Turbidity Barrier	2500	LF	19	$ 47,500.00
	Dewatering	1	LS	50000	$ 50,000.00
	Backflow Prevention Structure Connection	2	EA	25000	$ 50,000.00
	Backflow Prevention Valve	4	EA	60000	$ 240,000.00
	Mitered End Section - Concrete with bars	4	EA	12000	$ 48,000.00
	Water Control Structure	4	EA	25000	$ 100,000.00
	Excavation/Embankment	30000	CY	45	$ 1,350,000.00
	Grading	43560	SY	12	$ 522,720.00
	Sod	43560	SY	18	$ 784,080.00
	Planting	72500	EA	7	$ 507,500.00
	Contingency (10%)	1	LS	45000	$ 45,000.00
	Total				**$ 6,113,800.00**
			GRAND TOTAL		**$ 25,688,800.00**

RockRidge - Option 5 Establish Rain Gardens

	Item	Quantity	Unit	Cost/Unit	Total
Planning, Design & Engineering	Survey	1	LS	25,000	$ 25,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	30,000	$ 30,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	10,000	$ 10,000.00
	Construction monitoring	1	LS	30,000	$ 30,000.00
	Total				**$ 215,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	60000	$ 60,000.00
	Survey (layout, as-built & record drawings)	1	LS	50000	$ 50,000.00
	Testing & Quality Control	1	LS	20000	$ 20,000.00
	Maintenance of Traffic	30	DAY	1500	$ 45,000.00
	Clearing & Grubbing	5	AC	15000	$ 75,000.00
	Demolition	0	LS	1200000	$ -
	Silt Fence	7000	LF	7	$ 49,000.00
	Floating Turbidity Barrier	200	LF	19	$ 3,800.00
	Dewatering	0	LS	50000	$ -
	Backflow Prevention Structure Connection	0	EA	25000	$ -
	Backflow Prevention Valve	0	EA	60000	$ -
	Mitered End Section - Concrete with bars	0	EA	12000	$ -
	Water Control Structure	20	EA	7500	$ 150,000.00
	Excavation/Embankment	11111	CY	45	$ 500,000.00
	Grading	19360	SY	12	$ 232,320.00
	Sod	3872	SY	18	$ 69,696.00
	Planting	3630	EA	7	$ 25,410.00
	Contingency (10%)	1	LS	45000	$ 45,000.00
	Total				**$1,325,226.00**
			GRAND TOTAL		**$1,660,226.00**

College Lane

College Lane - Option 1 Connect & Restore Existing Structures						
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**	
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	15,000	$	60,000.00
	Bid support	1	LS	10,000	$	10,000.00
	Construction monitoring	1	LS	75,000	$	75,000.00
	Total				**$**	**255,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordination	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$	40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	14	DAY	1500	$	21,000.00
	Clearing & Grubbing	1	AC	15000	$	15,000.00
	Silt Fence	100	LF	7	$	700.00
	Floating Turbidity Barrier	100	LF	19	$	1,900.00
	Dewatering	1	LS	15000	$	15,000.00
	RCP 24"	40	LF	240	$	9,600.00
	Ditch bottom inlet	1	EA	12000	$	12,000.00
	Mitered End Section - Concrete with bars	3	EA	7500	$	22,500.00
	Excavation	50	CY	45	$	2,250.00
	Grading	50	SY	12	$	600.00
	Sod	50	SY	18	$	900.00
	Excavation for structures/pipe incl. shoring	18	CY	120	$	2,133.33
	Milling & Removal of Asphalt	18	SY	30	$	540.00
	New Roadway Base	18	SY	120	$	2,160.00
	New Asphalt	18	SY	12	$	216.00
	Contingency (10%)	1	LS	19000	$	19,000.00
	Total				**$**	**205,499.33**
			GRAND TOTAL		**$**	**580,499.33**

College Lane - Option 2 - Connect to Stormwater Ponds					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	1200	LF	7	$ 8,400.00
	Floating Turbidity Barrier	100	LF	19	$ 1,900.00
	Dewatering	1	LS	15000	$ 15,000.00
	RCP 24"	100	LF	240	$ 24,000.00
	Rip Rap (18' median dia.)	20	TN	190	$ 3,800.00
	Ditch bottom inlet	2	EA	12000	$ 24,000.00
	Mitered End Section - Concrete with bars	4	EA	7500	$ 30,000.00
	Excavation	50	CY	45	$ 2,250.00
	Grading	817	SY	12	$ 9,804.00
	Sod	409	SY	18	$ 7,353.00
	Planting	919	EA	7	$ 6,433.88
	Excavation for structures/pipe incl. shoring	44	CY	120	$ 5,333.33
	Milling & Removal of Asphalt	18	SY	30	$ 540.00
	New Roadway Base	18	SY	120	$ 2,160.00
	New Asphalt	18	SY	12	$ 216.00
	Contingency (10%)	1	LS	$ 26,000.00	$ 26,000.00
	Total				**$ 283,190.21**
			GRAND TOTAL		**$ 683,190.21**

College Lane - Option 3 - Regrade Ditches					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	1450	LF	7	$ 10,150.00
	Dewatering	1	LS	15000	$ 15,000.00
	Excavation	880	CY	45	$ 39,600.00
	Grading	3520	SY	12	$ 42,240.00
	Sod	1760	SY	18	$ 31,680.00
	Planting	3960	EA	7	$ 27,720.00
	Contingency (10%)	1	LS	29000	$ 29,000.00
	Total				**$ 311,390.00**
			GRAND TOTAL		**$ 711,390.00**

37th Avenue

37th Street - Option 1 - Increase Storage					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	5,000	$ 5,000.00
	Geotech	1	LS	5,000	$ 5,000.00
	Modeling	1	LS	30,000	$ 30,000.00
	Permitting (3 agencies)	3	LS	4,000	$ 12,000.00
	Design (30,60,90, &100)	4	LS	15,000	$ 60,000.00
	Bid support	1	LS	5,000	$ 5,000.00
	Construction monitoring	1	LS	40,000	$ 40,000.00
	Total				**$ 157,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordir	1	LS	60000	$ 60,000.00
	Total				**$ 60,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	100	LF	7	$ 700.00
	Dewatering	1	LS	15000	$ 15,000.00
	RCP 24"	50	LF	240	$ 12,000.00
	Rip Rap (18' median dia.)	65	TN	190	$ 12,350.00
	Mitered End Section - Concrete	1	EA	7500	$ 7,500.00
	Excavation	400	CY	45	$ 18,000.00
	Grading	1200	SY	12	$ 14,400.00
	Sod	600	SY	18	$ 10,800.00
	Planting	1350	EA	7	$ 9,450.00
	Excavation for structures/pipe i	18	CY	120	$ 2,133.33
	Contingency (10%)	1	LS	30000	$ 30,000.00
	Total				**$ 248,333.33**
			GRAND TOTAL		**$ 465,333.33**

37th Street - Option 2 - Stepwise System					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	25,000	$ 100,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 300,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				$ 120,000.00
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	5250	LF	7	$ 36,750.00
	Dewatering	1	LS	15000	$ 15,000.00
	Rip Rap (18' median dia.)	65	TN	190	$ 12,350.00
	Weir	2	EA	50000	$ 100,000.00
	Ditch Block	4	EA	5000	$ 20,000.00
	Excavation	100	CY	45	$ 4,500.00
	Grading	6750	SY	12	$ 81,000.00
	Sod	3375	SY	18	$ 60,750.00
	Planting	7600	EA	7	$ 53,200.00
	Excavation for structures/pipe incl. shoring	50	CY	120	$ 6,000.00
	Contingency (10%)	1	LS	60000	$ 60,000.00
	Total				$ 565,550.00
			GRAND TOTAL		**$ 985,550.00**

37th Street - Option 3 - Bioswale					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	15,000	$ 60,000.00
	Bid support	1	LS	10,000	$ 10,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 255,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record drawing	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	5250	LF	7	$ 36,750.00
	Dewatering	1	LS	15000	$ 15,000.00
	Grading	6750	SY	12	$ 81,000.00
	Sod	3375	SY	18	$ 60,750.00
	Planting	7600	EA	7	$ 53,200.00
	Contingency (10%)	1	LS	$ 40,000.00	$ 40,000.00
	Total				**$ 402,700.00**
			GRAND TOTAL		**$ 777,700.00**

Fellsmere

Fellsmere - Option 1 Stormwater Treatment/ Storage						
	Item	**Quantity**	**Unit**	**Cost/Unit**		**Total**
Planning, Design & Engineering	Survey	1	LS	75,000	$	75,000.00
	Geotech	1	LS	35,000	$	35,000.00
	Modeling	1	LS	120,000	$	120,000.00
	Permitting (3 agencies)	3	LS	15,000	$	45,000.00
	Design (30,60,90, &100)	4	LS	50,000	$	200,000.00
	Bid support	1	LS	50,000	$	50,000.00
	Construction monitoring	1	LS	150,000	$	150,000.00
	Total				**$**	**675,000.00**
ODCs	Land Purchase	1	LS	3600000	$	3,600,000.00
	Real Estate/Easement Coordination	1	LS	180000	$	180,000.00
	Total				**$**	**3,780,000.00**
Implementation	Mobilization/Demobilization	1	LS	970000	$	970,000.00
	Survey (layout, as-built & record drawings)	1	LS	50000	$	50,000.00
	Testing & Quality Control	1	LS	20000	$	20,000.00
	Maintenance of Traffic	120	DAY	1500	$	180,000.00
	Clearing & Grubbing	30	AC	15000	$	450,000.00
	Demolition	1	LS	240000	$	240,000.00
	Silt Fence	7000	LF	7	$	49,000.00
	Floating Turbidity Barrier	1000	LF	19	$	19,000.00
	Dewatering	1	LS	50000	$	50,000.00
	Backflow Prevention Structure Connection	2	EA	25000	$	50,000.00
	Backflow Prevention Valve	4	EA	60000	$	240,000.00
	Mitered End Section - Concrete with bars	4	EA	12000	$	48,000.00
	Water Control Structure	4	EA	25000	$	100,000.00
	Excavation/Embankment	30000	CY	45	$	1,350,000.00
	Grading	43560	SY	12	$	522,720.00
	Sod	43560	SY	18	$	784,080.00
	Planting	72500	EA	7	$	507,500.00
	Contingency (10%)	1	LS	$ 570,000.00	$	570,000.00
	Total				**$**	**6,200,300.00**
			GRAND TOTAL		**$**	**10,655,300.00**

Fellsmere - Option 2 - Expand Stormwater Ditches						
	Item	**Quantity**	**Unit**	**Cost/Unit**		**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$	80,000.00
	Bid support	1	LS	15,000	$	15,000.00
	Construction monitoring	1	LS	75,000	$	75,000.00
	Total				**$**	**280,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordination	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	400000	$	400,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	30	DAY	1500	$	45,000.00
	Silt Fence	11700	LF	7	$	81,900.00
	Excavation	23333	CY	45	$	1,050,000.00
	Grading	112000	SY	12	$	1,344,000.00
	Sod	28000	SY	18	$	504,000.00
	Planting	63000	EA	7	$	441,000.00
	Contingency (10%)	1	LS	400000	$	400,000.00
	Total				**$**	**4,305,900.00**
			GRAND TOTAL		**$**	**4,705,900.00**

Riviera Lakes

Riviera Lakes Option 1 - Surety Bond, Regrade Ditches						
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**	
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$	80,000.00
	Bid support	1	LS	15,000	$	15,000.00
	Construction monitoring	1	LS	75,000	$	75,000.00
	Total				**$**	**280,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordir	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$	40,000.00
	Survey (layout, as-built & record	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	14	DAY	1500	$	21,000.00
	Silt Fence	2325	LF	7	$	16,275.00
	Excavation	3100	CY	45	$	139,500.00
	Grading	1550	SY	12	$	18,600.00
	Sod	775	SY	18	$	13,950.00
	Planting	1744	EA	7	$	12,206.25
	Contingency (10%)	1	LS	40000	$	40,000.00
	Total				**$**	**341,531.25**
			GRAND TOTAL		**$**	**741,531.25**

Riviera Lakes Option 2 - Regrade Road to New Swales						
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**	
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$	80,000.00
	Bid support	1	LS	15,000	$	15,000.00
	Construction monitoring	1	LS	75,000	$	75,000.00
	Total				**$**	**280,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coor	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	25000	$	25,000.00
	Survey (layout, as-built & rec	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	14	DAY	1500	$	21,000.00
	Silt Fence	1670	LF	7	$	11,690.00
	Excavation	557	CY	45	$	25,050.00
	Grading	1856	SY	12	$	22,266.67
	Sod	928	SY	18	$	16,700.00
	Planting	2088	EA	7	$	14,612.50
	Contingency (10%)	1	LS	20000	$	20,000.00
	Total				**$**	**196,319.17**
			GRAND TOTAL		**$**	**596,319.17**

4th Street & 8th Avenue

4th & 8th - Option 1 - Establish Stormwater Treatment Area					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	75,000	$ 75,000.00
	Geotech	1	LS	35,000	$ 35,000.00
	Modeling	1	LS	120,000	$ 120,000.00
	Permitting (3 agencies)	3	LS	15,000	$ 45,000.00
	Design (30,60,90, &100)	4	LS	50,000	$ 200,000.00
	Bid support	1	LS	50,000	$ 50,000.00
	Construction monitoring	1	LS	150,000	$ 150,000.00
	Total				**$ 675,000.00**
ODCs	Land Purchase	1	LS	1500000	$ 1,500,000.00
	Real Estate/Easement Coordination	1	LS	75000	$ 75,000.00
	Total				**$ 1,575,000.00**
Implementation	Mobilization/Demobilization	1	LS	550000	$ 550,000.00
	Survey (layout, as-built & record drawings)	1	LS	50000	$ 50,000.00
	Testing & Quality Control	1	LS	20000	$ 20,000.00
	Maintenance of Traffic	120	DAY	1500	$ 180,000.00
	Clearing & Grubbing	50	AC	15000	$ 750,000.00
	Demolition	1	LS	1200000	$ 1,200,000.00
	Silt Fence	7000	LF	7	$ 49,000.00
	Floating Turbidity Barrier	1000	LF	19	$ 19,000.00
	Dewatering	1	LS	50000	$ 50,000.00
	Backflow Prevention Structure Connection	2	EA	25000	$ 50,000.00
	Backflow Prevention Valve	4	EA	60000	$ 240,000.00
	Mitered End Section - Concrete with bars	4	EA	12000	$ 48,000.00
	Water Control Structure	4	EA	25000	$ 100,000.00
	Excavation/Embankment	15000	CY	45	$ 675,000.00
	Grading	43560	SY	12	$ 522,720.00
	Sod	43560	SY	18	$ 784,080.00
	Planting	72500	EA	7	$ 507,500.00
	Contingency (10%)	1	LS	$ 580,000.00	$ 580,000.00
	Total				**$ 6,375,300.00**
			GRAND TOTAL		**$ 8,625,300.00**

4th & 8th - Option 2 - Route to Stormwater Pond					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	30	DAY	1500	$ 45,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	2350	LF	7	$ 16,450.00
	Floating Turbidity Barrier	200	LF	19	$ 3,800.00
	Dewatering	1	LS	15000	$ 15,000.00
	RCP 24"	50	LF	240	$ 12,000.00
	Rip Rap (18' median dia.)	20	TN	190	$ 3,800.00
	Inlet Structure	2	EA	12000	$ 24,000.00
	Mitered End Section - Concrete with bars	2	EA	7500	$ 15,000.00
	Excavation	52	CY	45	$ 2,340.00
	Grading	1600	SY	12	$ 19,200.00
	Sod	733	SY	18	$ 13,200.00
	Planting	1650	EA	7	$ 11,550.00
	Excavation for structures/pipe incl. shoring	15	CY	120	$ 1,780.00
	Contingency (10%)	1	LS	$ 28,000.00	$ 28,000.00
	Total				**$ 306,120.00**
			GRAND TOTAL		**$ 706,120.00**

4th & 8th - Option 3 - Convey SE to Agricultural Area/IRF Canals					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	25000	$ 25,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	14	DAY	1500	$ 21,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	1940	LF	7	$ 13,580.00
	Excavation	144	CY	45	$ 6,466.67
	Grading	1293	SY	12	$ 15,520.00
	Sod	647	SY	18	$ 11,640.00
	Planting	1455	EA	7	$ 10,185.00
	Contingency (10%)	1	LS	$ 16,000.00	$ 16,000.00
	Total				**$ 174,391.67**
			GRAND TOTAL		**$ 574,391.67**

Indian River Drive

Indian River Drive - Option 1 - Stormwater Treatment Area					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	75,000	$ 75,000.00
	Geotech	1	LS	35,000	$ 35,000.00
	Modeling	1	LS	120,000	$ 120,000.00
	Permitting (3 agencies)	3	LS	15,000	$ 45,000.00
	Design (30,60,90, &100)	4	LS	50,000	$ 200,000.00
	Bid support	1	LS	50,000	$ 50,000.00
	Construction monitoring	1	LS	150,000	$ 150,000.00
	Total				**$ 675,000.00**
ODCs	Land Purchase	1	LS	3060000	$ 3,060,000.00
	Real Estate/Easement Coordination	1	LS	153000	$ 153,000.00
	Total				**$ 3,213,000.00**
Implementation	Mobilization/Demobilization	1	LS	500000	$ 500,000.00
	Survey (layout, as-built & record drawings)	1	LS	50000	$ 50,000.00
	Testing & Quality Control	1	LS	20000	$ 20,000.00
	Maintenance of Traffic	120	DAY	1500	$ 180,000.00
	Clearing & Grubbing	50	AC	15000	$ 750,000.00
	Demolition	1	LS	240000	$ 240,000.00
	Silt Fence	7000	LF	7	$ 49,000.00
	Floating Turbidity Barrier	2500	LF	19	$ 47,500.00
	Dewatering	1	LS	50000	$ 50,000.00
	Backflow Prevention Structure Connection	2	EA	25000	$ 50,000.00
	Backflow Prevention Valve	4	EA	60000	$ 240,000.00
	Mitered End Section - Concrete with bars	4	EA	12000	$ 48,000.00
	Water Control Structure	4	EA	25000	$ 100,000.00
	Excavation/Embankment	20000	CY	45	$ 900,000.00
	Grading	43560	SY	12	$ 522,720.00
	Sod	43560	SY	18	$ 784,080.00
	Planting	72500	EA	7	$ 507,500.00
	Contingency (10%)	1	LS	$ 510,000.00	$ 510,000.00
	Total				**$ 5,548,800.00**
			GRAND TOTAL		**$ 9,436,800.00**

Indian River Drive - Option 2 - Rain Gardens and Bioswales					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	25,000	$ 25,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	30,000	$ 30,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	10,000	$ 10,000.00
	Construction monitoring	1	LS	30,000	$ 30,000.00
	Total				**$ 215,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	60000	$ 60,000.00
	Survey (layout, as-built & record drawings)	1	LS	50000	$ 50,000.00
	Testing & Quality Control	1	LS	20000	$ 20,000.00
	Maintenance of Traffic	30	DAY	1500	$ 45,000.00
	Clearing & Grubbing	5	AC	15000	$ 75,000.00
	Demolition	0	LS	1200000	$ -
	Silt Fence	7000	LF	7	$ 49,000.00
	Floating Turbidity Barrier	200	LF	19	$ 3,800.00
	Dewatering	0	LS	50000	$ -
	Backflow Prevention Structure Connection	0	EA	25000	$ -
	Backflow Prevention Valve	0	EA	60000	$ -
	Mitered End Section - Concrete with bars	0	EA	12000	$ -
	Water Control Structure	20	EA	7500	$ 150,000.00
	Excavation/Embankment	11111	CY	45	$ 500,000.00
	Grading	19360	SY	12	$ 232,320.00
	Sod	3872	SY	18	$ 69,696.00
	Planting	3630	EA	7	$ 25,410.00
	Contingency (10%)	1	LS	45000	$ 45,000.00
	Total				**$ 1,325,226.00**
			GRAND TOTAL		**$ 1,660,226.00**

Indian River Drive - Option 3 - Easements for Regional Water Collection and Connections						
	Item	**Quantity**	**Unit**	**Cost/Unit**		**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	15,000	$	60,000.00
	Bid support	1	LS	10,000	$	10,000.00
	Construction monitoring	1	LS	75,000	$	75,000.00
	Total				**$**	**255,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordination	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$	40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	14	DAY	1500	$	21,000.00
	Clearing & Grubbing	1	AC	15000	$	15,000.00
	Silt Fence	100	LF	7	$	700.00
	Floating Turbidity Barrier	100	LF	19	$	1,900.00
	Dewatering	1	LS	15000	$	15,000.00
	RCP 24"	40	LF	240	$	9,600.00
	Ditch bottom inlet	3	EA	12000	$	36,000.00
	Mitered End Section - Concrete with bars	6	EA	7500	$	45,000.00
	Excavation	50	CY	45	$	2,250.00
	Grading	50	SY	12	$	600.00
	Sod	50	SY	18	$	900.00
	Excavation for structures/pipe incl. shoring	18	CY	120	$	2,133.33
	Milling & Removal of Asphalt	18	SY	30	$	540.00
	New Roadway Base	18	SY	120	$	2,160.00
	New Asphalt	18	SY	12	$	216.00
	Contingency (10%)	1	LS	24000	$	24,000.00
	Total				**$**	**256,999.33**
			GRAND TOTAL		**$**	**631,999.33**

Indian River Outfalls

Indian River Outfalls - Option 1 - Install Vortex or Screening Structures						
	Item	**Quantity**	**Unit**	**Cost/Unit**		**Total**
ning, Design & Engine	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$	80,000.00
	Bid support	1	LS	15,000	$	15,000.00
	Construction monitoring	1	LS	75,000	$	75,000.00
	Total				**$**	**280,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordination	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$	40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	30	DAY	1500	$	45,000.00
	Clearing & Grubbing	1	AC	15000	$	15,000.00
	Silt Fence	2350	LF	7	$	16,450.00
	Floating Turbidity Barrier	200	LF	19	$	3,800.00
	Dewatering	1	LS	15000	$	15,000.00
	RCP 24"	50	LF	240	$	12,000.00
	Rip Rap (18' median dia.)	20	TN	190	$	3,800.00
	Inlet Structure	2	EA	12000	$	24,000.00
	CDS Unit	2	EA	40000	$	80,000.00
	Excavation	52	CY	45	$	2,333.33
	Grading	1600	SY	12	$	19,200.00
	Sod	733	SY	18	$	13,200.00
	Planting	1650	EA	7	$	11,550.00
	Excavation for structures/pipe incl. shoring	15	CY	120	$	1,777.78
	Contingency (10%)	1	LS	$ 35,000.00	$	35,000.00
	Total				**$**	**378,111.11**
			GRAND TOTAL		**$**	**778,111.11**

Indian River Outfalls - Option 2 - Replacing Culverts					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 10,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	20,000	$ 80,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	1	LS	75,000	$ 75,000.00
	Total				**$ 280,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	40000	$ 40,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	60	DAY	1500	$ 90,000.00
	Clearing & Grubbing	1	AC	15000	$ 15,000.00
	Silt Fence	2350	LF	7	$ 16,450.00
	Floating Turbidity Barrier	200	LF	19	$ 3,800.00
	Dewatering	1	LS	15000	$ 15,000.00
	RCP 24"	500	LF	240	$ 120,000.00
	Rip Rap (18' median dia.)	20	TN	190	$ 3,800.00
	Inlet Structure	2	EA	12000	$ 24,000.00
	Mitered End Section - Concrete with bars	2	EA	7500	$ 15,000.00
	Excavation	52	CY	45	$ 2,333.33
	Grading	1600	SY	12	$ 19,200.00
	Sod	733	SY	18	$ 13,200.00
	Planting	1650	EA	7	$ 11,550.00
	Excavation for structures/pipe incl. shoring	148	CY	120	$ 17,777.78
	Contingency (10%)	1	LS	$ 45,000.00	$ 45,000.00
	Total				**$ 492,111.11**
			GRAND TOTAL		**$ 892,111.11**

Indian River Outfalls - Option 3 - Land for Buffers					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	75,000	$ 75,000.00
	Geotech	1	LS	35,000	$ 35,000.00
	Modeling	1	LS	120,000	$ 120,000.00
	Permitting (3 agencies)	3	LS	15,000	$ 45,000.00
	Design (30,60,90, &100)	4	LS	50,000	$ 200,000.00
	Bid support	1	LS	50,000	$ 50,000.00
	Construction monitoring	1	LS	150,000	$ 150,000.00
	Total				**$ 675,000.00**
ODCs	Land Purchase	1	LS	6000000	$ 6,000,000.00
	Real Estate/Easement Coordination	1	LS	300000	$ 300,000.00
	Total				**$ 6,300,000.00**
Implementation	Mobilization/Demobilization	1	LS	500000	$ 500,000.00
	Survey (layout, as-built & record drawings)	1	LS	50000	$ 50,000.00
	Testing & Quality Control	1	LS	20000	$ 20,000.00
	Maintenance of Traffic	120	DAY	1500	$ 180,000.00
	Clearing & Grubbing	50	AC	15000	$ 750,000.00
	Demolition	1	LS	240000	$ 240,000.00
	Silt Fence	7000	LF	7	$ 49,000.00
	Floating Turbidity Barrier	2500	LF	19	$ 47,500.00
	Dewatering	1	LS	50000	$ 50,000.00
	Backflow Prevention Structure Connection	2	EA	25000	$ 50,000.00
	Backflow Prevention Valve	4	EA	60000	$ 240,000.00
	Mitered End Section - Concrete with bars	4	EA	12000	$ 48,000.00
	Water Control Structure	4	EA	25000	$ 100,000.00
	Excavation/Embankment	20000	CY	45	$ 900,000.00
	Grading	43560	SY	12	$ 522,720.00
	Sod	43560	SY	18	$ 784,080.00
	Planting	72500	EA	7	$ 507,500.00
	Contingency (10%)	1	LS	$ 510,000.00	$ 510,000.00
	Total				**$ 5,548,800.00**
			GRAND TOTAL		**$ 12,523,800.00**

Indian River County Ponds

County Ponds - Option 1 - BeeMats or Solar Bees						
	Item	**Quantity**	**Unit**	**Cost/Unit**		**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$	10,000.00
	Geotech	1	LS	10,000	$	10,000.00
	Modeling	1	LS	60,000	$	60,000.00
	Permitting (3 agencies)	3	LS	10,000	$	30,000.00
	Design (30,60,90, &100)	4	LS	15,000	$	60,000.00
	Bid support	1	LS	15,000	$	15,000.00
	Construction monitoring	50	LS	5,000	$	250,000.00
	Total				**$**	**435,000.00**
ODCs	Land Purchase	0	LS		$	-
	Real Estate/Easement Coordination	1	LS	120000	$	120,000.00
	Total				**$**	**120,000.00**
Implementation	Mobilization/Demobilization	1	LS	600000	$	600,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$	25,000.00
	Testing & Quality Control	1	LS	15000	$	15,000.00
	Maintenance of Traffic	100	DAY	1500	$	150,000.00
	Clearing & Grubbing	0	AC	15000	$	-
	Silt Fence	0	LF	7	$	-
	Floating Turbidity Barrier	0	LF	19	$	-
	Dewatering	0	LS	15000	$	-
	BeeMats/SolarBees	50	EA	100000	$	5,000,000.00
	Rip Rap (18' median dia.)	0	TN	190	$	-
	Inlet Structure	0	EA	12000	$	-
	Mitered End Section - Concrete with bars	0	EA	7500	$	-
	Excavation	0	CY	45	$	-
	Grading	0	SY	12	$	-
	Sod	0	SY	18	$	-
	Planting	0	EA	7	$	-
	Excavation for structures/pipe incl. shoring	0	CY	120	$	-
	Contingency (10%)	1	LS	$579,000.00	$	579,000.00
	Total				**$**	**6,369,000.00**
			GRAND TOTAL		**$**	**6,924,000.00**

County Ponds - Option 2 - Vegetative Harvest					
	Item	**Quantity**	**Unit**	**Cost/Unit**	**Total**
Planning, Design & Engineering	Survey	1	LS	10,000	$ 20,000.00
	Geotech	1	LS	10,000	$ 10,000.00
	Modeling	1	LS	60,000	$ 60,000.00
	Permitting (3 agencies)	3	LS	10,000	$ 30,000.00
	Design (30,60,90, &100)	4	LS	15,000	$ 60,000.00
	Bid support	1	LS	15,000	$ 15,000.00
	Construction monitoring	50	LS	5,000	$ 250,000.00
	Total				**$ 445,000.00**
ODCs	Land Purchase	0	LS		$ -
	Real Estate/Easement Coordination	1	LS	120000	$ 120,000.00
	Total				**$ 120,000.00**
Implementation	Mobilization/Demobilization	1	LS	280000	$ 280,000.00
	Survey (layout, as-built & record drawings)	1	LS	25000	$ 25,000.00
	Testing & Quality Control	1	LS	15000	$ 15,000.00
	Maintenance of Traffic	100	DAY	1500	$ 150,000.00
	Clearing & Grubbing	50	AC	15000	$ 750,000.00
	Silt Fence	0	LF	7	$ -
	Floating Turbidity Barrier	0	LF	19	$ -
	Dewatering	0	LS	15000	$ -
	BeeMats/SolarBees	0	EA	100000	$ -
	Rip Rap (18' median dia.)	0	TN	190	$ -
	Inlet Structure	0	EA	12000	$ -
	Mitered End Section - Concrete with bars	0	EA	7500	$ -
	Excavation	25000	CY	45	$ 1,125,000.00
	Grading	50000	SY	12	$ 600,000.00
	Sod	0	SY	18	$ -
	Planting	0	EA	7	$ -
	Excavation for structures/pipe incl. shoring	0	CY	120	$ -
	Contingency (10%)	1	LS	$ 295,000.00	$ 295,000.00
	Total				**$ 3,240,000.00**
			GRAND TOTAL		**$ 3,805,000.00**

APPENDIX F. PUBLIC COMMENTS

We appreciate members of the public that submitted comments on the SMP.
They were received, reviewed and the project team will work to incorporate them as the projects move into the design and implementation phases.

From: Andrew Blanzole
To: IRCSMP
Subject: Water drainage in rivers edge subdivision
Date: Wednesday, July 16, 2025 1:35:55 PM

Andrew Blanzole
49 Sunset Dr
Sebastian,Fl 32958
772-388-2389

We have a serious drainage problem in our driveway when it rains. There is no storm drain on our half of the project and all the rain goes through our driveway to get to the retention pond on the other side of the project.
Sent from my iPhone

From:	Dave Fuss
To:	IRCSMP
Cc:	Dave Fuss
Subject:	Comments from Indian River Land Trust on IRC Stormwater Master Plan Draft
Date:	Tuesday, July 15, 2025 4:51:20 PM

To Whom It May Concern:

I am the Director of Land Stewardship for the Indian River Land Trust, a private, non-profit conservation organization that owns and manages approximately 1,300 acres of conservation lands in Indian River County. The Land Trust offers several public trails for outdoor recreation, including some in joint management with Indian River County.

IRC's draft Stormwater Master Plan includes Project Priority Area 4 – 37th Street, where an existing box culvert drains portions of Indian River Blvd and 37th Street to the east side of IR Blvd onto property owned by the Land Trust.

The Land Trust has several concerns about proposed stormwater system changes and intersection modifications at this location:

- Will the proposed options result in changes (increase or decrease) in water quantity or water quality from the discharge through the modified box culvert? Changes in water quantity or water quality may affect the quality and function of wetlands on Land Trust property and possibly the ability of Indian River Mosquito Control District to control mosquito populations in this area.
- The location of the new box culvert associated with intersection modifications may affect the Land Trust property and/or the mosquito impoundment that occurs there. Specifically, intersection and drainage improvements at this location must allow the Land Trust to continue to access its property which may entail modification of the existing driveway location to tie into the new intersection configuration.
- There is currently no drainage easement for this discharge of runoff from the public right-of-way through the existing box culvert onto Land Trust property. Perhaps a drainage easement is warranted?
- There is a drainage canal under Indian River Blvd to the south of the intersection with 37th Street. Perhaps another option should be considered that routs runoff from 37th Street south along Indian River Blvd to this crossing where a bridge exists.

I hope that, before concrete plans are made for modifications to the stormwater management system in Priority Area 4, the County and its consultants will consult with those landowners who may be directly affected by the implementation of those plans.

Thank you for the opportunity to comment on the draft Stormwater Master Plan. Please feel free to contact me with any follow-up questions or comments.

Dave Fuss
Director of Land Stewardship
Indian River Land Trust
3150 Cardinal Drive, Suite 201
Vero Beach, FL 32963
O: (772) 794-0701
C: (843) 655-7262

Website: www.irlt.org