

CCNA2018 WORK ORDER 7
Conceptual design of a Stormwater Pond

This Work Order Number 7 is entered into as of this 16 day of August, 2022, pursuant to that certain Continuing Consulting Engineering Services Agreement for Professional Services entered into as of this 17th day of April, 2018 for a three-year term, and renewed on May 18, 2021 for an additional two-year term (collectively referred to as the "Agreement"), by and between INDIAN RIVER COUNTY, a political subdivision of the State of Florida ("COUNTY") and Atkins, North America, Inc. ("Consultant").

The COUNTY has selected the Consultant to perform the professional services set forth on Exhibit A (Scope of Work), attached to this Work Order and made part hereof by this reference. The professional services will be performed by the Consultant for the fee schedule set forth in Exhibit A (Fee Schedule), attached to this Work Order and made a part hereof by this reference all in accordance with the terms and provisions set forth in the Agreement. Pursuant to paragraph 1.4 of the Agreement, nothing contained in any Work Order shall conflict with the terms of the Agreement and the terms of the Agreement shall be deemed to be incorporated in each individual Work Order as if fully set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Work Order as of the date first written above.

CONSULTANT:

Atkins North America, Inc.

By:



Print Name:

Matthew Taylor

Title:

Vice President

BCC Approved Date: August 16, 2022

**BOARD OF COUNTY COMMISSIONERS
OF INDIAN RIVER COUNTY**



Peter D. O'Bryan, Chairman



Attest: Jeffrey R. Smith, Clerk of Court and Comptroller

By:



Deputy Clerk

Approved:



Jason E. Brown, County Administrator

Approved as to form and legal sufficiency:



Dylan T. Reingold, County Attorney

Exhibit A

Indian River County 8th Street Parcel

Scope of Work
 August 3, 2022

Background

Canals within the region are regulated by the Indian River Farms Water Control District (IRFWCD). The canal system of the IRFWCD was constructed to drain standing water and “reclaim” what was considered wastelands of Florida. The original constructors considered the canal installations a benefit to commerce and the environmental impact was not considered at that time. Impacts to the Indian River Lagoon (IRL) were primarily from agricultural practices until about 1950 when urbanization increased dramatically, as did the impact of urban development on the IRL.

In the mid-1990’s, it was determined that the IRFWCD canal system receives and transports nutrients, suspended solids, light-attenuating materials, and excessive freshwater flows that have reduced seagrass coverage and impacted the IRL ecosystem. Based on work by SJRWMD, the recent focus of water quality improvement in the IRL has been directed towards the reduction of “optical parameters” that restrict the light into the water column. Optical parameters of importance include suspended solids, turbidity, and color. Nutrients are considered to be secondary optical parameters because high nutrient levels lead to algal production which causes an increase in turbidity.

Scope of Services

Indian River County (County) is seeking to improve water quality discharges into the IRL by converting a 40-acre historical agricultural parcel into a stormwater storage facility. The 8th Street Parcel is located at the southeast corner of 8th Street and 74th Avenue, west of the City of Vero Beach approximately 2,000 feet north of the Egret Marsh Stormwater Treatment Facility along the Lateral C Canal.

The County maintains a current stormwater management plan and administers a robust water quality monitoring program throughout the County limits. Specific to this project, the County collects water quality samples in the Lateral C Canal adjacent to the 8th Street parcel. Current water quality sampling results show relatively low values of TN and TP in the canal. This may be due to the water quality improvements generated by the upstream Egret Marsh Stormwater Treatment Facility, which treats a portion of the Lateral C canal flows, or from reduced rainfall and runoff during the limited sampling period, or a combination of both.

The design approach will be to extract water from the Lateral C Canal for storage in a proposed pond that will reduce nutrients through natural uptake or potentially filter media. The pond may also be used to decrease pulsed discharges of stormwater into the lagoon during periods of heavy rainfall through active management of water levels in the pond. Extraction of water from the Lateral C will be accomplished using a pump station.

The project will be divided into two phases. Phase 1 will include data collection, preliminary analysis, and result in a conceptual design of the project. If feasible and acceptable to the County, Phase 2 will include the final design and permitting.

A. PHASE 1 Proposed Scope of Work

Task 1: Data Collection and Memorandum

Field and Desktop Review

ATKINS will perform a field and desktop site review to observe and document existing conditions at the 8th Street Parcel project location. This task will also include review of available existing GIS data, permits, stormwater models, Indian River Farms Water Control District (IRFWCD) documents, and stormwater management master plans within the project vicinity.

Water Quality Sampling

The County will provide ATKINS with water quality sampling data performed by the County and any IRFWCD data relevant to the project location. County will perform water quality sampling within the Lateral C Canal at the location of the 8th Street Parcel. Geotech will perform groundwater sampling from locations within the parcel (to determine background nutrients in the soil or groundwater). Nutrient sampling will be focused on traditional BMAP parameters, TN and TP.

Historic Wetland and Habitat

ATKINS will utilize historic photos to investigate historic wetland and habitat functions the project site and surrounding parcels exhibited prior to modern agricultural practices. This information will be included in a Technical Memorandum with the results from task 3.

Digital Elevation Map (Terrain Topography)

For Phase 1, ATKINS shall utilize recently published Digital Elevation Maps (DEM) derived from USGS LiDAR data collected circa 2018. Water elevations will be obtained from information provided by the IRFWMD. Should this information not be available, ATKINS will discuss what reasonable assumptions may be made, or provide an estimate for supplemental ground survey to the County.

ATKINS will provide a summary of the data collection task in a Data Collection Technical Memorandum.

Task 2: Geotechnical Services

A geotechnical investigation will be conducted and include a report documenting soil qualities, characteristics, suitability for construction/foundations, and location of the encountered and seasonal high-water table. Groundwater water quality samples will also be obtained to determine background nutrients. Additional information provided in the attached geotechnical scope of services.

Task 3: Ecological Services

ATKINS scientists will conduct a site assessment within the approx. 40-acre project area to identify the presence or absence of wetlands and surface waters, and listed wildlife and their habitat. Wetlands and surface waters will not be formally delineated; however, the approximate limits of the wetlands and surface water areas will be confirmed during the onsite review. Formal delineation of wetlands will take place during Phase 2.

Information from the data collection phase (task 1) and the field visit will be used to complete an Environmental Resources Summary Technical Memorandum. This report will summarize the natural resources found within the parcel and provide information on the historic function of the site. A location map depicting the environmental resources including their approximate limits and relevant photographs will be included.

Task 4: Survey

For Phase 1, ATKINS shall utilize recently published Digital Elevation Maps (DEM) derived from USGS LiDAR data collected circa 2018. See Task 1.

Additional ground survey will be conducted in Phase 2, following discussions with the County.

Task 5: Preliminary H&H and Water Quality Modeling

As part of Phase 1, ATKINS will perform preliminary modeling of the proposed project. ATKINS will create a simple model to represent the improvements. The resulting stormwater model will be used for the conceptual design, and supply needed information for a pre-application meeting with the SJRWMD, following preparation of the 30% plans.

This task also includes preliminary water quality analysis to determine the overall water quality improvements (TN and TP) from the proposed facility using BMP Trains or similar methodology.

As part of Phase 2, final modeling will be conducted to provide necessary documentation to support a SJRWMD ERP permit submittal.

Task 6: Drainage Design

This task includes a conceptual (30%) design of the proposed stormwater storage and water quality facility, inflow and outfall, pump station flows for extracting water from Lateral C Canal, pond storage volume, and rough operation schedule using flashboards or manually operable weir.

Task 7: Drainage Design Documentation Report

Report documenting the hydrologic and hydraulic analysis of the project which includes supporting stormwater model and supplemental calculations.

The report shall include, but not be limited to, the following report section topics:

- Executive Summary
- Project Goal
- Permitting Approach
- Data Collection
- Design Criteria
- Stormwater Model Development
- Model Results
- Conclusions
- Meeting Minutes
- Supporting documents

Task 8: Construction Plans

Phase 1 of the project will include a 30% set of plans. Only select sheets below will be included in the set to convey the concept. The following sheets are anticipated to be included at a preliminary level:

1. Key Sheet, General Notes, Summaries of Quantities and Pay Items – Cover page detailing project locations, EOR, County PM, governing standards, specs, and index. General and pay item notes, summaries of pay items and quantities.
2. Drainage Map – Plan view showing drainage basins, flow arrows showing drainage patterns, and proposed drainage structure labels.
3. Plan Sheet - Location and descriptions of existing conditions and proposed improvements in plan view. Includes typical section of the pond and conceptual locations for the pump station and outfall structure.
4. Drainage Details – Detail of pond outfall structure.

Task 9: Cost Estimate

ATKINS shall prepare a preliminary estimate of construction cost.

Task 10: Pre-Application Meetings with SJRWMD, FDEP, and IRFWCD

ATKINS shall schedule and attend separate pre-application meetings with the SJRWMD, FDEP and IRFWCD to present the project and receive feedback as to the permits required, and feasibility of obtaining water quality credits that can be banked and used by the County in other areas of the watershed. ATKINS will coordinate with County staff on dates and times of the meeting if their attendance is desired. Includes time for meeting preparation and meeting minute completion.

Task 11: Meetings

ATKINS shall attend meetings to monitor progress and gather input concerning project issues and design solutions. Five (5) progress meetings are included and shall be attended by the Project Manager and lead designer. The meetings will be held virtually.

Task 12: Project Management

This task includes project oversight and general administration.

Task 13: Quality Control

This task includes quality control and assurance review of the project deliverables. All documents will be reviewed and accepted by the project quality manager before submittal.

B. PHASE 1 Submittals/Deliverables

All submittals shall be made via PDF.

1. Task 1: Data Collection Technical Memorandum
2. Task 7: Drainage Design Documentation Report
3. Task 8: 30% Construction Plans and Cost Estimate
4. Task 9: 30% Cost Estimate
5. Meeting minutes

C. PHASE 1 Schedule

Work under this task order is expected to commence at NTP and is expected to be completed within approximately 4-6 months. A detailed schedule will be developed following NTP.

D. Fees

The estimated staff hours and fees required to perform the services described above are included as Exhibit B. Fees shall be based on a lump sum basis except for those items specifically indicated as not-to-exceed.

E. Other

County Requirements

The County will Provide:

- Access to the property
- Any legal descriptions, boundary survey, or land survey associated with the property that the County has already completed

- Water quality data
- Utility information

Exclusions and Limitations

- Any services not specifically outlined in this scope are excluded.
- Survey is not included.
- Permitting is not included.



**Indian River County
Exhibit B - Summary Fee Sheet
8th Street Parcel**

ACTIVITY DESCRIPTION	Sr. Project Manager		Project Manager		Sr. Engineer III or similar		Sr. Engineer II or similar		Chief Designer		TOTAL												
	Rate/Hr.	220.00	Rate/Hr.	190.00	Rate/Hr.	175.00	Rate/Hr.	150.00	Rate/Hr.	165.00	MH BY ACTIVITY	SALARY COST BY ACTIVITY	AVG HRLY RATE										
	MAN HRS.	Cost by Pos & Act	MAN HRS.	Cost by Pos & Act	MAN HRS.	Cost by Pos & Act	MAN HRS.	Cost by Pos & Act	MAN HRS.	Cost by Pos & Act													
1 Data Collection and Technical Memorandum	18	\$3,960.00	2	\$380.00	18	\$3,150.00	12	\$1,800.00	0	\$0.00	50	\$9,290.00	\$185.80										
2 Geotechnical (Terracon) - See Summary Below																							
3 Ecological Services	0		1	\$190.00	0	\$0.00	67	\$10,050.00	0	\$0.00	68	\$10,240.00	\$150.59										
4 Survey - Not Included																							
5 Preliminary H&H and Water Quality Modeling	8	\$1,760.00	0	\$0.00	16	\$2,800.00	0	\$0.00	0	\$0.00	24	\$4,560.00	\$190.00										
6 Drainage Design	4	\$880.00	0	\$0.00	16	\$2,800.00	0	\$0.00	0	\$0.00	20	\$3,680.00	\$184.00										
7 Drainage Documentation Report	16	\$3,520.00	0	\$0.00	8	\$1,400.00	0	\$0.00	0	\$0.00	24	\$4,920.00	\$205.00										
8 Construction Plans - 30%																							
8.1 Key Sheet, General Notes, Summaries of Quantities and Pay Items	4	\$880.00	0	\$0.00	0	\$0.00	0	\$0.00	6	\$990.00	10	\$1,870.00	\$187.00										
8.2 Drainage Map	4	\$880.00	0	\$0.00	0	\$0.00	0	\$0.00	8	\$1,320.00	12	\$2,200.00	\$183.33										
8.3 Plan Sheet	4	\$880.00	0	\$0.00	8	\$1,400.00	0	\$0.00	4	\$660.00	16	\$2,940.00	\$183.75										
8.4 Drainage Details	4	\$880.00	0	\$0.00	4	\$700.00	0	\$0.00	2	\$330.00	10	\$1,910.00	\$191.00										
9 Construction Cost Estimate	2	\$440.00	0	\$0.00	4	\$700.00	0	\$0.00	0	\$0.00	6	\$1,140.00	\$190.00										
10 SJRWMD/FDEP and IRC Pre-Application Meeting	8	\$1,760.00	6	\$1,140.00	0	\$0.00	12	\$1,800.00	0	\$0.00	26	\$4,700.00	\$180.77										
11 Meetings	5	\$1,100.00	5	\$950.00	0	\$0.00	0	\$0.00	0	\$0.00	10	\$2,050.00	\$205.00										
12 Project Administration	16	\$3,520.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	16	\$3,520.00	\$220.00										
13 Quality Control	16	\$3,520.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	16	\$3,520.00	\$220.00										
Lump Sum TOTALS:	109	\$23,980.00	14	\$2,660.00	74	\$12,950.00	91	\$13,650.00	20	\$3,300.00	308	\$56,540.00	\$183.57										
Not to Exceed TOTALS:	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00											
TOTAL CONTRACT FEE COMPUTATIONS:																							
NOTE:											LUMP SUM FEE												
											SALARY COSTS (detailed above):										\$56,540.00		
											SUBTOTAL ATKINS LUMP SUM FEE:										\$56,540.00		
											NOT TO EXCEED FEE												
											EXPENSES:										\$500.00		
											Subconsultants												
Task 2 - Geotechnical (Terracon)										\$8,720.00													
SUBTOTAL NOT TO EXCEED FEE:										\$9,220.00													
TOTAL CONTRACT AMOUNT:										\$65,760.00													
T:\PROJECTS\Indian River County\CONTINUING ENGINEERING SERVICES 2018\8th Street Parcel\Fee_IRC_8thStreet.xls\ Dollars																							



Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

EXHIBIT C

April 5, 2022
Proposal File No. 2223-067
Revised June 10, 2022

Atkins
482 S. Keller Road
Orlando, Florida 32810

Attention: Mr. Chris Thompson, PE

Subject: Proposal for Subsurface Soil Exploration and
Groundwater Sampling and Testing
Proposed Stormwater Detention Pond
8th Street
Vero Beach, Florida

Dear Mr. Thompson:

As requested, we are pleased to present this proposal for conducting a subsurface soil exploration and groundwater sampling and testing for the subject project. Based on our review of information provided by Mr. Thompson, the proposed construction consists of a stormwater detention pond that will encompass most of the site. Additionally, a pump station slab on grade will be constructed adjacent to the pond.

Grading plans are not complete at this time; therefore, we have assumed that approximately 1 to 2 feet of fill is required to raise the pump station slab area to final elevation. Typical loading conditions for the slab on grade are assumed to be less than 150 pounds per square foot.

The scope of our work will include determining if the soil characteristics are suitable to construct the proposed pump station slab. Additionally, we will explore the subsurface conditions and perform requested groundwater sampling and testing within the proposed pond area. The following summarizes our proposed scope of work and associated fees for conducting the subject exploration.

FIELD EXPLORATION

Since the site is heavily wooded, minor brush mowing may be performed to provide access to the boring locations. We could direct a site work contractor to mow minimal paths to our boring locations. Assistance from the client will be needed to help identify wetland areas and areas of threatened and/or endangered species habitat which should be avoided when performing these minor brush mowing operations. Also, this proposal assumes that permission from local Code Enforcement, SJRWMD or other pertinent agencies for the minor mowing, if necessary, has been obtained by the client. One day of brush mowing is included in this proposal.

The proposed field exploration program will include the following:

Description	Number of Borings	Depth Below Ground Surface (feet)
Pump Station Slab	1 SPT	15
Stormwater Pond	6 Auger	15

The SPT boring will be drilled using truck-mounted drilling equipment and a procedure similar to the Standard Penetration Test outlined in ASTM D-1586. The boring will be sampled at 18-inch intervals to 10 feet deep and at 5-foot intervals below 10 feet. The auger borings will be drilled with a 4-inch diameter, truck-mounted continuous flight auger. Each sample will be removed from the auger or sampler in the field and then examined and visually classified by our crew chief. Representative portions will be sealed and packaged for transportation to our laboratory for further analysis as required. Water level observations will be made in the boreholes during the drilling operation. Upon completion of drilling, the boreholes will be backfilled with soil cuttings.

As requested, our field program will also include installing three temporary, 2-inch diameter PVC groundwater sampling wells at semi-random, accessible locations within the proposed pond area. At least three well volumes of groundwater will be purged from each well and then groundwater samples will be collected for analysis of total nitrogen and total phosphorus. Upon completion of the groundwater sampling, the temporary wells will be removed from the ground and the boreholes will be backfilled with soil cuttings.

LABORATORY PROGRAM

Routine laboratory visual classification will be performed by a geotechnical engineer along with specific classification tests deemed necessary (i.e., percent fines, organic content).

ENGINEERING ANALYSIS AND REPORT

Engineering analysis of all data obtained will be made to evaluate general subsurface conditions and to develop engineering recommendations to guide site preparation in the proposed pump station slab on grade area. For our analysis, we will require specific loading conditions for the slab on grade. We will also provide a discussion of the subsurface conditions encountered within the proposed pond area and the results of the groundwater sampling and testing. Our recommendations for the pump station slab area, together with data developed during the exploration, will be submitted in a written report upon conclusion of the study.

COST ESTIMATE

The costs associated with the aforementioned tasks are as follows:

Brush Mowing – 1 day (lump sum):	\$2,820.00
Subsurface Soil Exploration (lump sum)	<u>\$5,900.00</u>
Total Estimated Cost:	\$8,720.00

The total estimated cost presented above will not be exceeded without prior authorization from

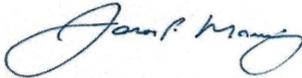
the client.

CLOSURE

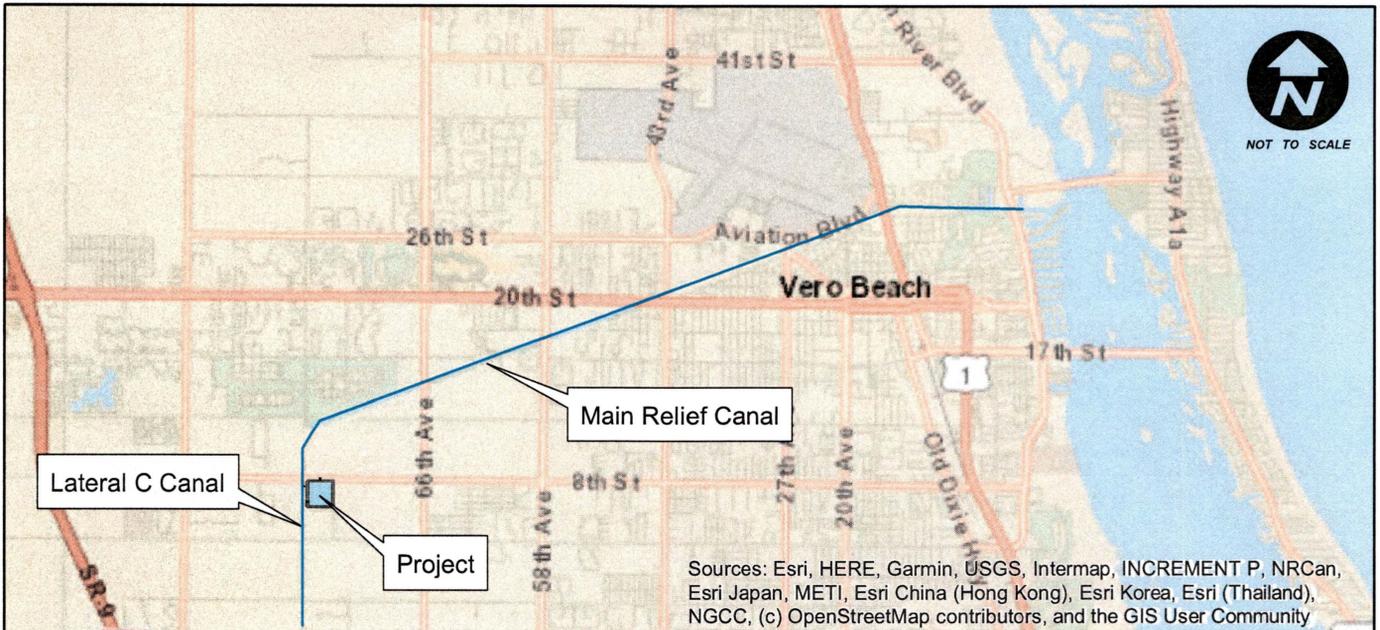
This proposal is subject to the following conditions: (1) access to boring locations is to be readily available to our truck-mounted drilling equipment, (2) the brush mowing can be completed in one day, (3) the proposed number of borings and the boring depths will be adequate, (4) undisturbed samples and consolidation tests on fine grained soils are not budgeted into the total cost, (5) Ardaman & Associates will not take responsibility for damages to underground structures and/or services that are not located by Sunshine One-Call; their locations are to be provided by the client or owner prior to commencement of the field work, and (6) exploration or evaluation of the environmental (ecological or hazardous/toxic material related) condition of the will site and subsurface is not included.

We appreciate the opportunity to submit this proposal and look forward to working with you on this project. If this proposal meets with your approval, please indicate your acceptance by issuing a written work order. Please call if you have any questions or require additional information.

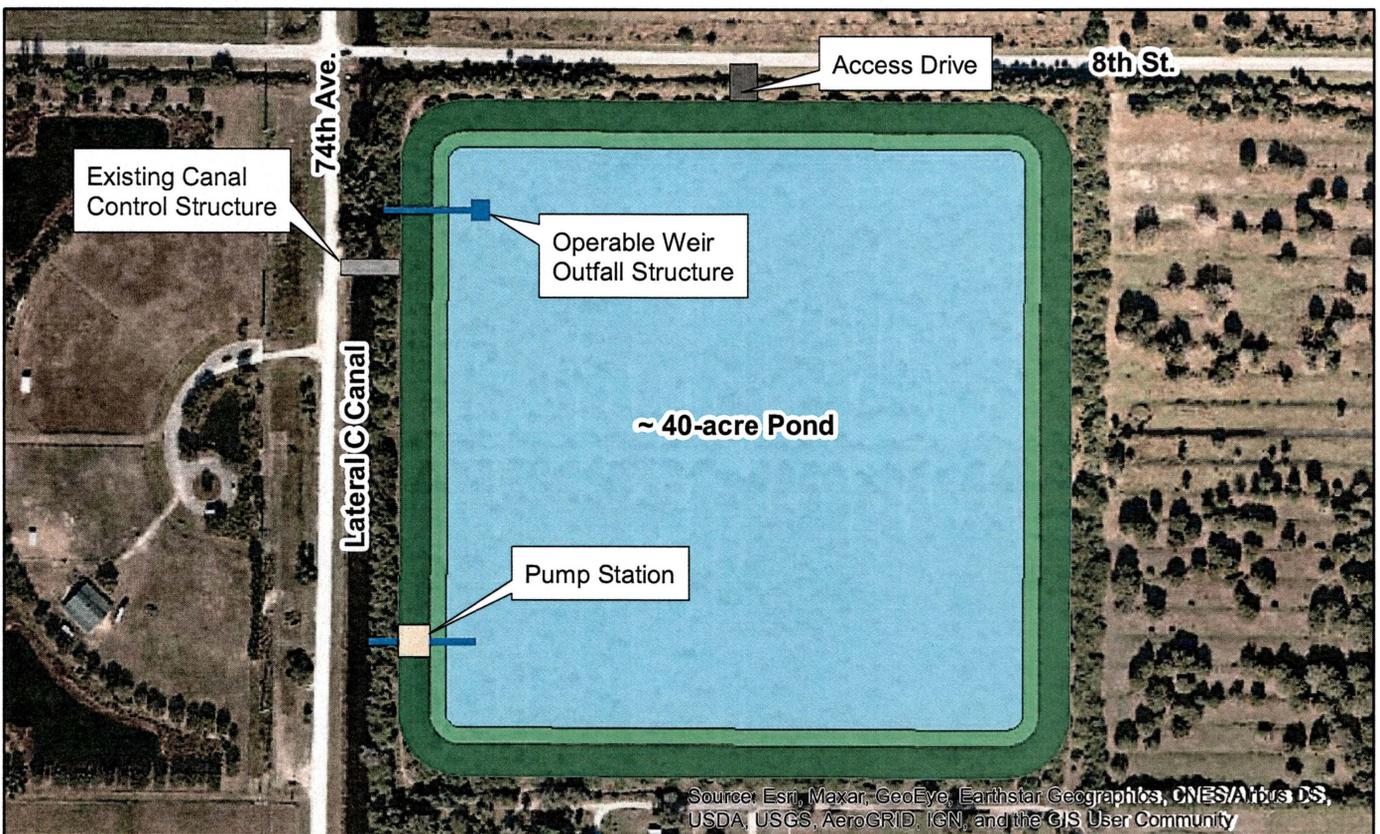
Very truly yours,
ARDAMAN & ASSOCIATES, INC.



Jason P. Manning, P.E.
Branch Manager



Vicinity Map



Conceptual Layout

ATKINS

Member of the SNC-Lavalin Group

**Indian River County - Natural Resources
8th Street Parcel Stormwater Facility
Project Exhibit**