



Procurement Department Bid Office
Customer Center – 1st Floor, Room 002
21 W. Church Street
Jacksonville, Florida 32202

AUGUST 17, 2017

ADDENDUM NUMBER: One (1)

TITLE: Lofton Oaks WTP Improvements

JEA RFP NUMBER: 119-17

PROPOSAL DUE DATE: September 12, 2017

TIME OF RECEIPT: 12:00 PM

TIME OF OPENING: 02:00 PM

THIS ADDENDUM IS FOR THE PURPOSE OF MAKING THE FOLLOWING CHANGES OR CLARIFICATIONS:

1. Question: “Can JEA schedule an optional site visit to the Lofton Oaks WTP?”

Answer: Yes, the **optional site visit will be held on August 31, 2017 at 11:00 AM**. The Lofton Oaks WTP is located at 52 St. Paul Boulevard, Yulee, FL. All attendees must email the project manager, Tim Perkins, at perkte@jea.com by 12:00 PM on August 29, 2017 if you plan on attending.

2. Question: “Can JEA provide as-build drawings for this project?”

Answer: Yes, JEA acquired this plant from United Water and drawings are sparse, but please refer to the attached file listed below for what is on file.

119-17 Addendum 1 Lofton Oaks Drawings

3. Question: “Can you provide the age of the high service pumps and hypochlorite metering skid and tank at Lofton Oaks?”

Answer: The high service pumps were relocated from another plant, rebuilt and installed in 2008. The hypochlorite equipment was installed in September of 2007.

4. JEA is providing the project definition for this project. Please refer to the attached file labeled 119-17 Addendum 1 PD.

Acknowledge receipt of this Addendum on the Proposal Form (Appendix B)

TECHNICAL MEMORANDUM

130-02 – Lofton Oaks Improvements

PREPARED FOR: JEA PLANNING

PREPARED BY: Joshua M. Brown, E.I.

DATE: February 2017

Introduction & Background

The purpose of this technical memorandum is to define the scope, schedule, and estimated capital cost for the Lofton Oaks Water Treatment Plant (WTP) Improvements Project (“Project”). In addition, the enclosed information is provided for JEA’s use in procuring a ‘Consultant’ to complete the management, engineering design, and permitting of the Project improvements. In sum, the Project, as defined further herein, will reconstruct the majority of the existing WTP components since they have reached the end of their useful life.

Justification

The Lofton Oaks WTP is located east of Yulee Florida just south of A1A within the Lofton Oaks subdivision as generally depicted within **Figure 1**. The WTP was acquired by JEA from United Water and minimal improvements have been completed since the acquisition including but not limited to: production well pump/motor replacement; instrumentation upgrades; chemical feed system improvements; and high service pumping system replacement. The Florida Department of Environmental Protection (FDEP) monitors the Lofton Oaks WTP as part of the Nassau Grid designated as Public Water System (PWS) No. 2454338. The existing production well is monitored within JEA’s Consumptive Use Permit No. 2-031-88271-12 (District Well ID 19914 | JEA Well Name – Lofton Oaks 1, Well 3). Pursuant to JEA’s CUP, the Lofton Oaks WTP wellfield, which is currently limited to one (1) well, can pump up to 29.20 million gallons per year (MGY) or 80,000 gallons per day (gpd) on annual average daily flow (AADF) basis. A copy of JEA’s CUP is provided as attachment A.

The existing WTP is comprised of the following items:

- 12-inch artesian production well (845-feet deep) with a 1,000 gallon per minute ('gpm') 40-foot total dynamic head (TDH) vertical turbine pump with 30 Hp motor (1,700 rpm) [See **Attachment B** for existing pump curve];
- Conventional cascading aerator located within a screen enclosure over an existing horizontal steel reservoir (*unknown design capacity*);
- 20,000 gallon, 10-foot diameter by 36-foot long, metal ground storage tank (GST);
- Two (2) 480 gpm at 160 feet (TDH) end-suction Peerless Pump high service pumps with 30 Hp motors (3,600 rpm);
- Two (2) 200 gallon double-walled hypochlorite storage tanks with duplex Grundfos metering pump skid;
- 8-inch master magnetic meter within an existing concrete vault with metal plate;
- Siemens Supervisory Control and Data Acquisition (SCADA) Control Panel with antennae, programmable logic controller (PLC) board, and associated control wiring and control logic ("SCADA/PLC Control Panel");
- Existing Concrete Masonry Unit (CMU) Operations Building that houses the duplex hypochlorite metering skid system, two (2) high service pumps, and electrical distribution panel;
- Associated electrical improvements and control panels; and
- Miscellaneous site piping, valves, fencing, etc.

The Lofton Oaks WTP is a 'peaking' plant that supplements demands within JEA's Nassau Grid. With current system demands, the Lofton Oaks WTP does not run often and is generally exercised during the week to assist with equipment maintenance. However, the plant is necessary to meet peak demands, especially in the springtime, to maintain the distribution system's pressure by providing supplemental water to the distribution system. The plant is visited by a certified operator in accordance with the Florida Administrative Code (FAC) requirements, but the day-to-day/instantaneous control and alarm monitoring is provided by JEA's SCADA system.

Scope

The Project will include the following improvements with more specific details per component discussed herein:

- Raw Water Delivery System:
 - No modifications required beyond new piping, valves, and fittings from existing well head.
- Aerator and GST System:
 - To be removed and replaced with new system.
- High Service Pumping System:
 - Existing pumps and motors to be relocated into new control building;
- Chemical (Hypochlorite) Feed System:
 - Relocate existing hypochlorite metering skid into new control building and relocate storage tanks adjacent to building with cover.
- Control/Instrumentation System:
 - Relocate existing SCADA/PLC Control Panel to new Pump/Control Building and reconnect to process components.
 - Mag Meter to remain in existing vault with new hatch.
 - Reuse existing SCADA antennae.
- Electrical Systems:
 - Maintain existing service. Relocate meter box as required and install all new electrical distribution equipment, new control panels, new variable frequency

drives, soft-starts, full-voltage starters, and associated improvements for system operation. All electrical and instrumentation improvements shall be located within a conditioned space.

- Pump/Control Building, Site Improvements, Yard Piping, and Miscellaneous Items:
 - Demolish existing pump building and replace with a new Pump/Control Building. Existing operational needs will allow for existing WTP to be taken offline while construction is completed. Ideal construction window is from June through February.
 - Existing fencing and gate to remain.
 - Yard piping, valves, etc. to be removed and replaced from the meter box to the production well.

A more detailed summary of project requirements is provided as follows:

A. Raw Water Delivery System

- No modifications to the existing well casing are required.
- The existing well pump and motor shall remain.
- New yard piping, valves, and fittings shall connect to the existing well pump head. New expansion joint, valves, raw-water sampling points, etc. shall be provided in accordance with Florida Department of Environmental Protection (FDEP) and JEA requirements.
- A new conduit and conductor run sized per National Electric Code (NEC) requirements shall be provided from the Motor Control Center (MCC) to the new disconnect switch and onto the existing motor head.
- A new local disconnect switch shall be provided in a NEMA 4X stainless steel or aluminum box.
- A new soft-start motor starter for the production well shall be provided within the new MCC.
- The well pump control shall utilize the relocated SCADA/PLC Control Panel. All instrumentation wiring from the relocated SCADA/PLC Control Panel to the MCC shall be new twisted-shielded pairs, fiber optic cable, or other JEA approved materials to provide the necessary control within new conduits.
- All existing mechanical components that remain shall be blasted clean and recoated within the project improvements.

B. Aerator and GST System

- A new conventional aerator shall be constructed in accordance with Chapter 62-555, F.A.C., 10 State Standards, and JEA requirements.
 - System shall be capable of treating up to 1,000 gpm of instantaneous flow and removing up to 0.7 mg/l of Total Sulfide from the raw water.
 - Trays shall be fiberglass or stainless steel with screened enclosure.
 - Downcomber(s) shall have plugging capabilities to facilitate tray cleaning.
 - Aerator shall have a drain for cleaning operations.
 - Aerators shall be placed on top of new GST or as separate structure. If a separate structure is required, an aluminum stairway and maintenance walkway shall be provided.

- It is anticipated pH adjustment is not required for this project.
- A new 75,000 gallon (minimum) ground storage tank shall be constructed in accordance with 10 State Standards; American Water Works Association (AWWA); American Society of Testing and Materials (ASTM); American Concrete Institute (ACI), as applicable; and other applicable standards.
 - The GST shall be a glass-coated-bolted-metal tank or pre-stressed concrete tank with epoxy-coated interior/exterior. All bolts/fasteners shall be 316 SS. The Consultant shall work with JEA to select the most cost effective tank manufacturer/materials to utilize for the project.
 - Metal tanks shall have an aluminum dome while pre-stressed concrete tanks shall have a concrete dome. Each dome shall have structural capacity for the required wind, dead, and live loads.
 - The design intent is to provide a conventional aerator on top of the new GST. However, a separate aerator structure can be provided if cost-effective in comparison to a combined system.
 - The GST dome shall have sufficient penetrations for current and future JEA instrumentation/monitoring needs, venting, access hatch(es), overflow(s), etc.
 - The GST shall have an aluminum handrail around the dome's perimeter and an aluminum access ladder or stairway shall be provided to access the top of the GST. Either access way shall have security gate components to preclude access up the ladder or walkway without a key or combination code to open the gate. All other components shall meet applicable building code requirements.
 - The GST shall have a valved drain line that flows to a pre-cast pump out box with a gravel bed bottom. The box shall provide capabilities for JEA to connect to a threaded connection (with cam-lock cap) and/or pump directly from the box via a portable dewatering pump.
 - The GST shall have overflow provisions.
 - Alarm and well pump control shall be provided via mercoid float(s) and/or pressure transducer(s).
- The GST and Aerator system shall include a bypass line from the well directly to the suction-side piping for the High Service pumps. This by-pass line would allow the Well Pump and High Service Pump(s) to operate in series should the GST and Aerator require future maintenance and the WTP's high service pumps are required to remain in operation. See further discussion in the Control/Instrumentation subsection (Section 3(E)).
- The GST and Aerator system shall have an alternate fill line with manual valve from the distribution system. This pipeline would be utilized to fill the GST if the existing well pump/motor were inoperable.

C. High Service Pumping System

- The existing High Service Pumps and motors shall be relocated into the new Pump/Control Building. A monorail system with manual control components shall be provided to allow for High Service Pump and motor maintenance. See Section 3(G) for further requirements.
- A new conduit and conductor run sized per National Electric Code (NEC) requirements shall be provided from the Motor Control Center (MCC) to the relocated High Service Pump motor heads.

- New VFDs shall be provided within the new MCC for the relocated High Service Pumps.
- The High Service Pump control shall utilize the relocated SCADA/PLC Control Panel. All instrumentation wiring from the relocated SCADA/PLC Control Panel to the MCC shall be new twisted-shielded pairs, fiber optic cable, or other JEA approved materials to provide the necessary control within new conduits.
- High Service Pumps shall operate in a lead/lag mode. The pressure settings and speed control settings shall remain the same. The existing pump curves are sufficient to provide JEA the necessary flow and pressure from the WTP into the distribution system.
- The only modification to the existing PLC is associated with the Aerator/GST bypass scenario when the Well Pump operation will be interconnected with one or more High Service Pumps. Control shall be provided to ensure High Service Pump flow does not exceed Well Pump delivery capacity when the pumps are operating in series.

D. Chemical (Hypochlorite) Feed System

- The existing double-walled storage tanks and duplex metering skid shall be relocated to the new Pump/Control Building.
- The duplex metering skid and existing control panel shall be relocated into a new Chemical Feed Room separated from the rest of the building. The Chemical Feed Room shall have ventilation per 10 State Standards and Building Code requirements. The ventilation shall activate when personnel enter the room.
- The relocated double-walled storage tanks shall remain on the exterior of the new Pump/Control Building under a cover and situated to limit direct sun exposure. Ventilation piping, suction piping, etc. shall be PVC (Sch 80) with new valves, etc. from the tank(s) to the metering pump skid.
- Alarm, control, etc. functions shall be reconstructed with new conduits and wiring as required to the MCC and associated relocated SCADA/PLC Control Panel.
- A new eye-wash/shower shall be provided adjacent to the chemical feed facilities in accordance with 10 State Standards, NFPA, and JEA requirements.

E. Control/Instrumentation System

- As noted herein, the existing Siemens SCADA/PLC Control Panel shall be relocated to the new Pump/Control Building and connected to the new MCC and associated WTP components.
- New conduit and wiring shall be utilized to connect the relocated SCADA/PLC Control Panel to the new MCC and existing SCADA Antennae.
- The PLC program shall be updated to provide Aerator/GST System bypass capabilities. See Section 3(B) and 3(C) for requirements under this operational mode.
- The relocated SCADA/PLC Control Panel and new MCC shall be provided in a separate Electrical-Control Room/Area that can be either: (a) partitioned from the pump room, or (b) constructed in a separate enclosed space. All panel spacing shall meet minimum NEC and NFPA requirements as well as provide reasonable spacing/offsets for JEA's operation and maintenance needs. The room shall include a

conditioned space to reduce humidity and temperature in accordance with JEA and/or manufacturer requirements.

- The existing distribution system pressure indicator and chlorine residual meter shall be relocated and reused. All process piping, instrumentation wiring, and conduits shall be new.

F. Electrical Systems

- As noted herein, a new MCC shall be provided with all new conduit, conductors, circuit breakers, soft-start(s), VFDs, transformers, etc. to provide a complete and operable system that interconnects with the relocated SCADA/PLC Control Panel and existing relocated mechanical components (i.e., existing well pump motor, existing high service pump motor, existing hypochlorite metering pump skid & control panel, etc.).
- The electrical distribution layout shall include space for a future automatic transfer switch, on-site generator, and 3rd high service pump. In the interim, a portable generator receptacle shall be provided to allow JEA's existing portable generator to run the WTP.
- Short circuit, protective devices and equipment labeling shall be provided per NFPA 70E requirements
- Lighting per Illumination Engineering Society (IES).
- Fire Alarm per NFPA and Fire Marshall recommendations.
- All equipment and electrical components shall be grounded in accordance with NEC requirements.
- See Section 3(E) for further requirements.

G. Pump/Control Building, Site Improvements, Yard Piping, and Miscellaneous Items

- The new Pump/Control Building is anticipated to be a pre-cast/modular building that would meet the Florida Building Code requirements as well as JEA layout needs. It is anticipated that the Lofton Oaks WTP can be taken offline and the existing building demolished and the new building constructed within a similar footprint. Actual location and construction sequencing/logistics shall be confirmed based on JEA's needs and system demands.
- The building shall house: (i) the two (2) relocated High Service Pumps and provide sufficient room for a third High Service Pump; (ii) MCC; (iii) relocated SCADA/PLC Control Panel; (iv) relocated Hypochlorite Metering Pump skid and control panel; and (v) ADA compliant restroom.
- The High Service Pump area and associated maintenance monorail system shall be designed to allow the motor and/or pump assemblies to be lifted and carried to a roll-up door along the Pump/Control Building's exterior wall that could be accessed via a JEA vehicle.
- The ADA compliant restroom shall be serviced via the existing grinder pump system and/or connected to existing gravity sewer system within St. Paul Boulevard. The capabilities or existence of an existing grinder pump station has not been completed. The Consultant shall identify the most cost effective means to serve the facility.
- Site improvements beyond those specified herein shall be limited to those required for construction and permitting of the system. The existing driveway, security fencing, and other on-site stabilized areas shall remain as is.
- The building shall be fitted with a fire department knox box.

- The Consultant shall coordinate with JEA's Security personnel to identify conduit, control panel, and/or other needs for the building during the design services.
- All piping shall be ductile iron (Class 53 mortar lined). All exposed piping shall be epoxy-coated and stenciled in accordance with JEA and 10 State Standards.
- Floor drains shall be provided in the pump room and connect the exterior pump-out, drain box.
- Pump isolation valves shall be resilient seat gate valves with non-rising stems.
- Pump discharge check valves shall be rubber flapper type equipped with proximity type position switches that are wired to the control system.
- All sleeved couplings and flange adaptor couplings shall be harnessed.
- Piping shall be designed to facilitate maintenance and replacement of system valves.

Engineering Scope

The Scope of Work includes: (a) conceptual design, (b) final detailed design & permitting, (c) bid-phase services, and (d) construction-phase services for the Project.

Consultant work performed under this scope of services shall be paid for under a lump sum basis with progress payments payable in proportion to the percentage of work completed. Sub-consultant work costs shall be considered "pass through" with no markup and shall be paid to the consultant based on actual work needed and performed.

Completion of the Scope of Work shall be completed in three (3) phases as described further herein. Each phase shall include the following components:

- Project Management: Provide administration and management of project. Review ongoing activities. Monitor schedule and budget. Review progress with JEA on a regular basis. Discuss issues with JEA as they are noted.
- Project Schedule and Budget: Prepare a project schedule and project budget for use by JEA and Consultant in conjunction with a work plan. Consultant will prepare opinions of construction cost at all stages of deliverables in accordance with the Association for the Advancement of Cost Engineering International, Inc. (AACE) for the purpose of assisting JEA in preparing budget funding request, and evaluating design options. Expected accuracy will be as follows: Class 3 estimate for 30% SUBMITTAL; and Class 1 estimate for 90% and 100% SUBMITTALS. Update the schedule as needed through project completion. Notify JEA immediately of any schedule and/or budget impacts.
- Design Reviews: Participate in meetings with JEA to review progress and exchange ideas and information at each design submittal. JEA will review each submittal and provide comments within two (2) weeks of receipt.
- Meeting Minutes: Prepare and distribute meeting minutes for project initiation and design review meetings.

- QA/QC Reviews: Conduct internal quality assurance/quality control (QA/QC) and constructability reviews at each Project milestone.

Each phase of work is more specifically outlined as follows:

PHASE 1 – CONCEPTUAL DESIGN

A. Preliminary and General Work

1. Project Initiation: Conduct a project initiation meeting to clarify JEA's requirements for the project, review pertinent available data, present work plan, and present initial work schedule and budget.
2. Data Needs: Present to JEA an outline of informational needs related to the project's design such as, but not limited to: record drawings, water plant control requirements, existing component information, etc.

B. Site and Record Drawing Review

1. Review available aerial, topographic survey, property, and record drawings affecting the site and WTP Improvements approach.
2. Conduct site evaluation to catalog existing components, confirm site infrastructure, determine potential layouts, etc.
3. Coordinate with JEA Water Planning, JEA Operation & Maintenance, and Nassau County during the design process. As applicable, coordinate with other potentially affected parties.

C. Surveying Services (Pass Through – Lump Sum Basis)

Provide the services of a local surveyor (using subcontract if needed) for the topographical survey of the area, including ASCE 38-02 Quality Level B designating of subsurface utilities. Survey requirements shall meet the following minimum requirements:

1. Establish or re-establish horizontal and vertical controls and ties as required to properly establish and verify the section lines, property lines, platted lot lines, easements, rights-of-way, topographic data, and elevations.
2. Research and identify all utilities, including types, sizes, materials, location, direction, inverts, and elevations from utility records, visible observations, utility field locations and other information available, particularly the utilities that are visible and that are accessible from manholes (sanitary, storm sewer, culverts, electrical lines and communication conduit/ducts). Utility research and documentation shall meet or exceed ASCE 38-02 Quality Level B.
3. Obtain topographic survey information from the site, entrance driveway, and residential roadway with existing sewer infrastructure to identify all existing visible improvements including but not limited to: type of materials, natural and artificial

site topography, contours, utilities, drainage courses/structures/piping, streets, curb and gutters, signs, fencing, gates, culverts, driveways, landscaping, railroads, creeks, rivers, ponds, cleanouts, water meters, telephone pedestals, transformers, etc. Locate and identify the type and size of all trees in landscaped areas, as applicable.

D. Conceptual Design Document (30% SUBMITTAL)

1. Prepare 30% level drawings showing the proposed WTP Improvements including but not limited to process flow diagram, hydraulic profile, demolition plan, site plan, control building layout, mechanical drawings, and electrical/instrumentation drawings. Drawings will be submitted in full and half size format. Drawings shall be prepared in 24" x 36" or 22" x 34" sheet format.
2. Prepare a Class 3 level construction cost estimate.
3. Submit six (6) full size sets of drawings, two (2) half size drawings and one (1) pdf format CD to JEA for review.
4. Meet with JEA to review comments on the submitted Conceptual (30%) Design. Resolve any questions and revise documents to address comments while preparing the design for the next design submittal.

PHASE 2 – FINAL DESIGN & PERMITTING

A. Geotechnical Services (Pass Through - Lump Sum Basis)

Provide geotechnical engineering services (using subcontract if needed) including exploratory work, laboratory and field testing, and professional guidance in tests to be made at test locations based on drawings and designs and including professional interpretations of exploratory and test data.

The services will include:

1. Geotechnical exploratory work, such as soil borings, penetration tests, soundings, subsurface explorations, laboratory tests of soils, rock formations, other geophysical phenomena, and other field and laboratory tests and analyses which are required to provide design information. The design engineer shall assist in defining required depths and locations for geotechnical services.
2. A geotechnical report by a qualified geologist or geotechnical firm interpreting the data on the exploratory work and testing and setting out the site conditions that can be anticipated from this exploratory work.
3. The Consultant shall confirm, but groundwater sampling and associated permitting is not required as part of this work.

B. Subsurface Utility Engineering (Pass Through - Not to Exceed Allowance Basis)

As required, provide subsurface utility engineering services (using subcontract if needed) to confirm underground utility locations that are critical to the design through vacuum excavation, ground penetrating radar (GPR) or other means acceptable to JEA. Underground utility locations within the design water and sewer pipeline corridors shall be confirmed to

ASCE 38-02 Quality Level A. The design engineer shall define specific spots where existing utility locations need to be defined.

C. Design Criteria

The design shall comply with the latest revision of the JEA Water & Sewer Standard Manual; the JEA Water, Sewer and Reclaimed Water Design Guidelines; FDEP Rules and requirements; and Nassau County Ordinances.

D. Final Design Documents

1. 90% SUBMITTAL: Prepare a 90% Design deliverable including detailed drawings for the design and construction of the proposed WTP Improvements. Submit to JEA for review and approval, six (6) full size sets of drawings, two half size drawings, and a pdf format CD for the 90% Design deliverable. Prepare a Class 1 level construction cost estimate.
2. 90% Review Meeting: Attend a meeting with JEA Staff to review the 90% Submittal and receive comments. Provide meeting minutes to JEA and any other meeting participants.
3. 100% SUBMITTAL: Incorporate JEA's 90% Submittal comments, if any, and prepare Final Detailed Drawings and a Bid Form deliverable for the proposed work. The documents shall be prepared for the selection of a licensed general and/or utility contractor via a public competitive bid. Prepare a Class 1 level construction cost estimate.
4. Nassau County Permitting: Prepare and submit required drawings, permit applications, etc. (Site Plan Application) to Nassau County to obtain their Site Plan approval.
5. St. Johns River Water Management District (SJRWMD) Permitting: It is anticipated the project will remain below the permitting thresholds for a SJRWMD Environmental Resource Permit (ERP). However, should the project design exceed those requirements, an ERP shall be secured for construction of the improvements.
6. FDEP Permitting: Prepare and submit required permit applications to FDEP for the proposed WTP Improvements.
7. BID SUBMITTAL: Bidding Documents to be provided to JEA include drawings, bid form schedule, and technical specifications for inclusion into JEA's Special Conditions. The drawings shall be updated based on any comments received from the 100% SUBMITTAL and/or permitting review comments. Bidding documents should also include any necessary information for alternative bid requirements. Provide one CD with electronic drawing files (pdf and AutoCAD) and 5 copies of final drawings to JEA.

E. Public Information Program

No public meetings are anticipated.

PHASE 3 – BID PHASE SERVICES

Engineer shall support JEA in response to contractor questions during the bidding process and issuing any addenda to clarify the design documents. Services do not include attendance at pre-bid or bid opening meetings.

PHASE 4 – CONSTRUCTION PHASE SERVICES

Engineer shall support JEA in response to contractor questions during the construction process, issuing responses to request for information, attendance at construction meetings, etc. as required to facilitate construction of the improvements.

Project Schedule

Major activities are as follows:

- Engineer & Surveyor Selection – April 2017 – October 2017
- Survey, Design & Permitting – October 2017 to June 2018
- Procurement, Construction & Closeout – July 2018 to October 2019

Project Management & Delivery

Stage	Project Definition	10% Schematic Design	30% Conceptual Design	90% Detail Design	100% Final Design	Bid	Construction
To Project Delivery	WWSP	PEC	PEC	PEC	PEC	PEC	PEC
OPB Established		Trend		Trend		Trend	

Cost Estimate and Expenditure Forecast (Current \$)

A capital cost estimate was developed for the project using recent construction costs. This estimate is based upon the adjusted data from other JEA projects, and national industry standard reference guides.

The estimate includes construction and engineering services during construction. Included is an allowance for engineering services during construction, start-up, and legal/administrative and is applied to the construction cost estimate. The approximate accuracy range of the estimate is plus or minus 35%. The cost estimate is based on 2015 dollars (no escalation has been included) and is summarized in **Table 2**.

Table 2

JEA Project Definition Cost Estimate (AACE Class 5)
Lofton Oaks WTP Improvements

1.0 DIRECT CONSTRUCTION COSTS

<u>Estimated Contractor Cost</u>	<u>Total</u>
Mobilization & General Conditions (8%)	\$100,000
Demolition	\$60,000
Yard Piping	\$100,000
75,000 GST and Aerator System	\$400,000
Pump/Control Building	\$250,000
Process Piping and Valves	\$30,000
Pump/Control Building Sewer Service	\$20,000
Relocation of Existing Equipment/Materials	\$30,000
Electrical & Instrumentation	\$300,000
SUBTOTAL (CONTRACTOR COST)	\$1,290,000

TOTAL DIRECT CONSTRUCTION COSTS

\$1,290,000

2.0 MANAGEMENT & ENGINEERING COSTS

<u>Estimated Cost Item</u>	<u>JEA Labor</u>	<u>Consultant</u>	<u>Total</u>
Project Management (6.5%)	\$100,000	\$0	\$100,000
Engineering (12%)	\$0	\$186,000	\$186,000
Services during Construction (5.0%)	\$40,000	\$160,000	\$120,000
SUBTOTAL	\$140,000	\$266,000	\$406,000

TOTAL MANAGEMENT & ENGINEERING COSTS

\$406,000

TOTAL ESTIMATED PROJECT COSTS

\$1,696,000

Class 5 Accuracy Range: \$1,102,000 (-35%) to \$2,289,000 (+35%)

Risks

If this infrastructure is not replaced JEA will continue incurring long-term maintenance expense and compliance issues with FDEP. The existing aerator and ground storage tank are showing signs of corrosion and potential structural failure. Replacement of these components is required. In addition, the existing pump building configuration creates on-going operation and maintenance issues.

Revision History

Name	Date	Version	Revision Notes
Joshua M. Brown	1/19/2017	2.0	Updated PD for FY17