

CCNA2018 WORK ORDER _1_

RAS and WAS Pump Replacement at the Central WWTP

This Work Order Number 1 is entered into as of this 26 day of March, 2019, pursuant to that certain Continuing Consulting Engineering Services Agreement for Professional Services entered into as of this 17th day of April, 2018 (collectively referred to as the "Agreement"), by and between INDIAN RIVER COUNTY, a political subdivision of the State of Florida ("COUNTY") and Arcadis US ("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 B (Fee Schedule), attached to this Work Order and made a part hereof by this reference. The Consultant will perform the professional services within the timeframe more particularly set forth in Exhibit C (Time 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:

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

By: 
David O'Connor

By: _____
, Chairman

Print Name: _____

Title: Associate V. P.

BCC Approved Date: _____

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

ATTACHMENT A
SCOPE OF SERVICES
PROFESSIONAL ENGINEERING SERVICES
FOR
RAS AND WAS PUMP REPLACEMENT AT THE CENTRAL WASTEWATER PLANT

1 OVERVIEW

1.1 Background

Indian River County (COUNTY) operates the 4 MGD Central Region Wastewater Treatment Plant. A condition assessment of the facility was recently completed as a part of the COUNTY asset management program. During this assessment it was found that the Return Activated Sludge (RAS) Pumps and Waste Activated Sludge (WAS) Pumps and associated piping and valves were in poor condition due to equipment age and environmental corrosion and are recommended for replacement. The COUNTY has requested a proposal from Arcadis U.S., Inc. (CONSULTANT) to provide professional engineering services for design, phasing plan for operations and bidding, and limited construction administration services.

The proposed work will be authorized as a task order under the existing General Professional Services Agreement, between the COUNTY and CONSULTANT, dated February 24, 2017. The terms and conditions of the referenced Contract apply.

1.2 Design Concept

The general design concept as discussed on a call between COUNTY and CONSULTANT on January 9, 2019 is as follows:

- Replace existing RAS and WAS Pumps with new pumps of equal capacity and head of the pumps being replaced
- Replace existing piping, valves and sensors associated with the RAS and WAS pumps
- Replace existing seal water piping at pumps
- Develop phasing plan for construction to ensure continued operation
- Develop bid documents, provide pre-bid support, and bid recommendation
- Provide limited construction administration services
- Produce record drawings based on contractor supplied “as built” and conditions observed during site visits

2 SCOPE OF WORK

2.1 Task 1 – Project Management

The CONSULTANT will provide the following services throughout the duration of the project as needed:

- Coordination between CONSULTANT Project Team and COUNTY Project Team.
- Manage project schedule and budget.
- Prepare and distribute agendas and support documentation for project meetings and workshops.
- Prepare and distribute meeting summaries from project meetings and workshops.
- Prepare and submit monthly progress reports and invoices.
- Preparation and implementation of Quality Control Plan and CAD Plan

Deliverables:

- Meeting Summaries
- Monthly Progress Reports
- Monthly Invoices

2.2 Task 2 –Project Kickoff and Site Visit

CONSULTANT shall prepare and lead one project kickoff meeting with appropriate COUNTY staff to review the scope of work, project schedule, data needs and key milestones. Prior to the kickoff meeting, CONSULTANT will submit a proposed agenda that will include: (1) items to be discussed, (2) specific questions to be answered, and (3) additional data requests.

Immediately following the project kickoff meeting, CONSULTANT and COUNTY will conduct a walkthrough of the RAS/WAS Pumps to gather necessary information on the system configuration and operation. The team will obtain input on the design, operational and maintenance issues, and will interview staff to identify RAS/WAS system constraints and requirements.

2.3 Task 3 – Basis of Design

2.3.1 Draft Preliminary Design Technical Memorandum

Utilizing information obtained from the kickoff meeting, site visit and data provided by the OWNER, CONSULTANT will assess and confirm the limits of the replacement needs for the associated piping, valves, wiring and appurtenances associated with the RAS/WAS Pumps. CONSULTANT will review available information on the existing RAS/WAS Pumps, including as-built drawings, equipment cut sheets, and historical operating data to establish replacement requirements for the new pumps. As part of this assessment, CONSULTANT will identify up to three suitable pump/motor manufacturers that can meet the

performance and retrofit requirements to replace the existing pumps within the existing site with minimal modifications and have the manufacturer provide a list of installations of their equipment within Florida.

CONSULTANT will develop concept level construction costs for the replacement of the pumps along with a preliminary construction schedule and phasing plan that will allow for construction/replacement work to occur while the Central Wastewater Plant is maintained in service.

CONSULTANT will prepare a draft Preliminary Design Technical Memorandum summarizing the findings and recommendations of the pump replacement assessment. The memorandum will be submitted to the COUNTY for review and comment. An electronic copy (.pdf) of the draft memorandum will be submitted to the COUNTY.

Task 2.3.2 Meeting to Review Draft Technical Memorandum

Within about two weeks after the draft technical memorandum submittal, CONSULTANT will lead a meeting with the COUNTY to review the information presented in the memorandum and gather OWNER comments. The meeting will serve as an open forum to discuss preliminary design issues, including equipment preferences.

Task 2.3.3 Final Preliminary Design Technical Memorandum

Upon receiving comments at the review meeting, CONSULTANT will finalize the preliminary design recommendations and prepare and submit a Final Preliminary Design Technical Memorandum. An electronic copy (.pdf) of the final memorandum will be submitted to the COUNTY.

2.4 Task 4 – Detailed Design

Based upon the recommendations presented in the Preliminary Design Technical Memorandum, the CONSULTANT will develop design documents. These design documents will consist of Contract Drawings and Technical Specifications and will be incorporated by the COUNTY into a bid package for public procurement. The COUNTY'S Standard "front end" documents consisting of General Conditions will be utilized. Contract Drawings will be prepared in AutoCAD 2018 or later version. Technical Specifications will follow the MasterFormat® 2016 from the Construction Specifications Institute (CSI).

The Final Design will be delivered at two stages of completion to allow for input by the COUNTY. The stages will be 90% and 100%/Bid Ready. At each stage, an engineer's opinion of probable construction cost (EOPCC) will be provided.

2.4.1 90% Design

CONSULTANT will prepare a 90% design submittal composed of contract drawings (11"x 17") and draft technical specifications and bid form. Five hard copies of the 90% design package and one electronic copy will be submitted to the COUNTY for review.

2.4.2 90% Design Submittal Review Meeting

CONSULTANT will prepare and lead one meeting to review the 90% design submittal and discuss COUNTY comments within about two weeks after the submittal of the 90% contract documents. CONSULTANT will prepare and distribute a meeting agenda and minutes documenting comments and action items from the design review meeting.

2.4.3 100% Design/Bid submittal

Based on the comments received from the COUNTY on the 90% design submittal, CONSULTANT will prepare a 100%/Bid design submittal composed of contract drawings (11" x 17") and final technical specifications and bid form. CONSULTANT will provide five hard copies and an electronic copy in .pdf format of the final specifications and plans.

2.4.4 Construction Cost Estimates and Schedule

An opinion of probable construction costs and schedule will be prepared for each of the 90% and 100% (final opinion of construction cost) submittals. The opinion of construction costs will utilize appropriate contingency factors for the level of completion at the various design stages.

2.4.5 QA/QC

Quality Assurance/Quality Control: The CONSULTANT will provide quality assurance and quality control (QA/QC) reviews at each major milestone deliverable (90%) of the project. For this service, the CONSULTANT will utilize the services of senior and/or experienced professional engineers across the disciplines represented in the design. The professionals, who will make up the QA/QC Team, will purposely be staff not routinely engaged in the project. The QA/QC Team will prepare written comments at the appropriate stages of the design that will be incorporated into revised documents.

2.5 Task 5 – Bidding Services

The COUNTY will procure services from a qualified General Contractor (GC) through a public procurement process. The CONSULTANT will provide the following services in connection with the public procurement:

1. Attend a pre-bid meeting and site visit. COUNTY to prepare and publish all addenda and clarifications.

2. Prepare draft responses to requests for information from prospective bidders. Prepare responses for addenda to interpret, clarify or expand the contract documents
3. CONSULTANT will contact up to two references of the apparent low bid contractor to assess qualifications.
4. Prepare a conformed set of drawings and specifications incorporating revisions from addenda during the bidding phase.

COUNTY to confirm bids are compliant with the bid requirements. COUNTY to provide compiled Microsoft Excel file with each bidder's cost information. Alternative equipment proposed by potential bidders will not be evaluated by CONSULTANT during the bidding process.

Deliverables:

- Written responses to questions received during bidding process via email
- Bid evaluation letter
- Conformed documents (final pdf digitally signed and sealed)

2.6 Task 6 – Construction Management Services

The following construction phase services are predicated on one construction contract with an estimated 6-month construction duration to substantial completion. Full-time onsite observation of construction or resident project representative (RPR) services are not included.

2.6.1 Meetings and Site Visits

The CONSULTANT shall arrange and lead a construction kickoff meeting, during which the COUNTY, the CONSULTANT and the contractor shall discuss project requirements, define responsibilities, and receive the contractor's plan to complete the work. The CONSULTANT shall conduct up to six 4-hour site visits during the replacement of the pumps to confirm the work appears to be proceeding in accordance with the design. Upon substantial completion of the work, the CONSULTANT shall conduct a site visit with the Contractor and COUNTY to develop a punch list of outstanding work items. Upon completion of the work, the CONSULTANT shall conduct a final site visit to confirm the work is in conformance with the contract documents. The CONSULTANT shall submit a summary report following each site visit.

2.6.2 Construction Administration

The contractor will prepare shop drawings for the selected equipment and other components of the work as specified in the contract documents. These shop-drawing submittals will be reviewed by the CONSULTANT for compliance with the design concept and contract requirements. The CONSULTANT shall provide a recommendation on the submittal to the OWNER.

The CONSULTANT shall also receive and respond to contractor Requests for Information (RFI) or request for clarification of the contract documents or design intent. The CONSULTANT

2.6.3 Startup Assistance

The CONSULTANT shall assist the OWNER and the contractor during checkout, startup and commissioning. It is anticipated that installation, startup and acceptance will be completed one pump at a time to ensure the facility can remain operational throughout construction. CONSULTANT startup and testing assistance will include presence at startup testing; providing technical guidance during operational confirmation and acceptance testing; and reviewing test data. The CONSULTANT shall be available for a one four-hour day for startup and testing.

Review of Contractor Pay Applications is not included in this scope of services.

2.7 Task 8 – Post-Construction Activities

The CONSULTANT will provide the following services during and subsequent to the completion of the construction:

2.7.1 Record Drawings:

CONSULTANT will prepare final record drawings from the Contractor supplied “as-built” information. The CONSULTANT provide COUNTY with one PDF set.

3 SCHEDULE

A preliminary schedule of the work (calendar days from notice to proceed) is summarized below. The schedule is based upon a notice to proceed (NTP) date of February 8, 2019.

Table 3. Preliminary Schedule

Milestone	Calendar Days to Complete Task	Completion Date (Calendar Days from NTP)	Completion Date
Notice to Proceed (NTP)	0		25-Mar-19
Kick-off	14	14	8-Apr-19
Draft TM	30	44	8-May-19
County Review	14	58	22-May-19

Final TM	30	88	21-Jun-19
90% Submittal	60	148	20-Aug-19
County Review	14	162	3-Sep-19
100%/Bid Ready Submittal	21	183	24-Sep-19
Bidding Services	As needed		
Construction Management Services	As needed (estimated 6 months of construction)		

4 COMPENSATION AND METHOD OF PAYMENT

The compensation to be paid to the CONSULTANT for providing the services described in the above scope of work will be on a “lump sum by task” basis as described in the breakdown provided in the Attached Fee Schedule. The lump sum compensation for labor services shall not exceed \$66,523. The CONSULTANT may adjust budget between tasks as needed, if the total lump sum is not exceeded.

The CONSULTANT will submit invoices to the COUNTY’s Project Manager for work performed during each calendar month. Invoicing will be accompanied by a brief description of the work effort completed during the billing period.

5 ASSUMPTIONS/EXCLUSIONS

The following text describes the assumptions made in the creation of this scope of services and the estimated engineering services fee for this project. Should the scope of the work of the project exceed these assumptions, the CONSULTANT may request additional fees. Assumptions include:

- No permits are required
- The COUNTY will provide available record drawing of the existing facilities
- Resident Inspection will be performed by the COUNTY or another designated representative.
- Verification of construction activities will be performed by the COUNTY or other designated representative.
- Construction and field reports will be developed by the COUNTY or other designated representative.

FEE SCHEDULE



Indian River County
Central Wastewater Plant RAS/WAS Pump Replacement Design
Fee Estimate

Task No.	TASK DESCRIPTION	Principal	Sr. Project Manager	Sr. Mechanical / Civil / Environmental Engineer	Sr Electrical Engineer	Engineer (Mechanical / Civil / Environmental)	Electrical Engineer	Designer	CADD Drafter	Total Hours	Total Labor Cost	Expenses	Total Cost
		O'Connor	Ware	Barlow	Battle	DaCunha	Nguyen	Guzman	TBD				
1	Project Management												
	Monthly Invoice and Status Reports	2	8							10	\$2,163	\$250	\$2,413
	Task 1 - Total Hours	2	8	0	0	0	0	0	0	10	\$2,163	\$250	\$2,413
2	Data Collection												
	Kick-off Meeting		4	4		4				12	\$2,091		\$2,091
	As-built review					8		8		16	\$1,899		\$1,899
	Task 2 - Total Hours	0	4	4	0	12	0	8	0	28	\$3,989	\$0	\$3,989
3	Basis of Design Report												
	Mechanical/Yard Piping			4		32				36	\$5,089		\$5,089
	Electrical/I&C				4		16			20	\$2,881		\$2,881
	Prep Preliminary Design TM (Draft and Final)					8				8	\$1,104		\$1,104
	QA/QC	2	2							4	\$865		\$865
	Task 3 - Total Hours	2	2	4	4	40	16	0	0	68	\$9,940	\$0	\$9,940
4	Design												
	90% Design												
	Mechanical/Yard Piping			8		24		24	0	56	\$7,043		\$7,043
	Electrical/I&C				18		24	16		58	\$7,932		\$7,932
	QC	2	4							6	\$1,298		\$1,298
	90% Total	2	4	8	18	24	24	40	0	114	\$16,272	\$0	\$16,272
	100% Design (Bid Ready)												
	Mechanical/Yard Piping			4		8		12		24	\$2,969		\$2,969
	Electrical/I&C				4		8			12	\$1,777		\$1,777
	QC	2	4							6	\$1,298		\$1,298
	100% Total	2	4	4	4	8	8	12	0	42	\$6,045	\$0	\$6,045
	Task 4 - Total Hours	4	8	12	22	32	32	52	0	162	\$22,317	\$0	\$22,317
5	Permitting												
	Building Department				0					0	\$0		\$0
	FDEP Construction Permit									0	\$0		\$0
	Task 5 - Total Hours	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0
6	Bidding Services												
	Pre-Bid Conference		4			4				8	\$1,417	\$500	\$1,917
	Respond to Bidders RFIs		2		4	8				14	\$2,210		\$2,210
	Review Bids		2			4				6	\$985		\$985
	Conform Documents		2		2	4		8		16	\$2,116		\$2,116
	Task 6 - Total Hours	0	10	0	6	20	0	8	0	44	\$6,728	\$500	\$7,228
7	Construction Administration												
	Meetings and Site Visits		4	4	4	24	24			60	\$8,836	\$1,000	\$9,836
	Submittal Review		2			16	16			34	\$4,849		\$4,849
	RFI Response		2	4	4	4				14	\$2,331		\$2,331
	Startup		2	4	4					10	\$1,779		\$1,779
	Task 7 - Total Hours	0	10	12	12	44	40	0	0	118	\$17,796	\$1,000	\$18,796
8	Post Construction Services												
	Record Drawings		2		2	2		8		14	\$1,840		\$1,840
	Task 8 - Total Hours	0	2	0	2	2	0	8	0	14	\$1,840	\$0	\$1,840
9	Owner's Allowance												
	Owner's Allowance										\$0		\$0
	Task 9 - Total Hours	0	0	0	0	0	0	0	0				\$0
	Total Hours and Fee	8	44	32	46	150	88	76	0	444	\$64,773	\$1,750	\$66,523
	Project Billable Rates	\$216.30	\$216.30	\$168.36	\$168.36	\$138.00	\$138.00	\$99.33	\$63.42				
		\$1,730.40	\$9,517.20	\$5,387.52	\$7,744.56	\$20,700.00	\$12,144.00	\$7,549.08	\$0.00				