

## **SERVICES AUTHORIZATION #II ENGINEERING SERVICES AGREEMENT**

*THIS SERVICES AUTHORIZATION* is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between the **City of Orlando, Florida**, a municipal corporation existing under the laws of the State of Florida (CITY), and **AECOM Technical Services, Inc.**, doing business locally at 150 N. Orange Avenue, Suite 200, Orlando, Florida 32801 (ENGINEER).

*WHEREAS*, the CITY and the ENGINEER have previously entered into an agreement for the ENGINEER's professional services (Agreement) on November 26, 2012, concerning the Iron Bridge Regional Water Reclamation Facility Effluent Discharge Alternatives Evaluation Project (Project); and

*WHEREAS*, the Agreement was approved and authorized by the City Council and signed by the Mayor Pro Tem and City Clerk, as Documentary #121105I05; and

*WHEREAS*, the CITY and the ENGINEER wish to amend the Agreement as set forth herein; and

*WHEREAS*, the CITY and the ENGINEER now wish to memorialize their understanding for the ENGINEER's additional professional services for the Project.

*NOW, THEREFORE*, in consideration of the mutual promises and covenants contained herein and given one to the other, the sufficiency of which is hereby acknowledged, the parties agree as follows:

### **I. SCOPE OF SERVICES**

The scope of services has been agreed to by the parties, and is attached hereto and incorporated herein, by reference, as EXHIBIT I.

### **II. FEE**

The not to exceed fee of \$515,395.05 has been agreed to by the parties, as set forth on EXHIBIT I.

### **III. TERM**

ENGINEER shall complete all work in accordance with the timeframes set forth in EXHIBIT I, if any, provided however, that all work and the term of the Services Authorization shall be completed by the end of business (5:00 p.m.) on July 26, 2016. It is also agreed that the CITY shall have an option for extension of this Services Authorization as necessary to complete the present scope of Services (Exhibit I) or to provide additional services.

IV. ENTIRE AGREEMENT

This Services Authorization supersedes all previous services authorizations, amendments, agreements, or representations, either verbal or written, heretofore in effect between the CITY and the ENGINEER that may have concerned the matters covered herein, except that this Services Authorization shall in no way supersede or amend the Agreement or other services authorizations or amendments except as specifically provided herein. No additions, alterations, or variations to the terms of this Services Authorization shall be valid, nor can the provisions of this Services Authorization be waived by either party, unless such additions, alterations, or waivers are expressly set forth in writing in a document duly executed by both parties. ENGINEER acknowledges and agrees that any proposals or proposed agreements from subconsultants attached to this SERVICES AUTHORIZATION are attached solely to reflect the scopes of work to be performed and the fees to be charged by such subconsultants. By executing this SERVICES AUTHORIZATION, the CITY does not become a party thereto or bound by the terms thereof.

*IN WITNESS WHEREOF*, the parties hereto have executed this Services Authorization on the day and year first written above.

**City of Orlando, Florida**

By: \_\_\_\_\_  
Mayor Pro Tem

Print Name: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
Celeste T. Brown, City Clerk

(SEAL)

APPROVE AS TO FORM AND LEGALITY  
for the use and reliance of the  
City of Orlando, Florida, only.

\_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Michael S. O'Dowd  
Assistant City Attorney  
Orlando, Florida

AECOM Technical Services, Inc.

By:

Mark Abbott

(Print Name)

Title: Business Unit Leader

STATE OF FLORIDA }

COUNTY OF Palm Beach

PERSONALLY APPEARED before me, the undersigned authority, Mark Abbott, [ X ] well known to me or [ ] who has produced as identification, and known by me to be the Business Unit Leader of the corporation named above, and acknowledged before me that he/she executed the foregoing instrument on behalf of said corporation as its true act and deed, and that he/she was duly authorized to do so.

WITNESS my hand and official seal this 1st day of June, 2015.



Deborah L. Williams

NOTARY PUBLIC

Print Name: Deborah L. Williams

My Commission Expires:

## **EXHIBIT I – SCOPE OF SERVICES**

**For**

### **PROFESSIONAL ENGINEERING SERVICES**

#### **Iron Bridge RWRF Effluent Management Project**

##### **Service Authorization II**

### **I. General**

The following presents the tasks which will be performed as part of Amendment II to the Iron Bridge RWRF Effluent Management Project. The Tasks presented below are based on the results of previous investigations and include both services during construction and additional.

CONSULTANT will perform the following services for the CITY for the Iron Bridge Regional Water Reclamation Facility (RWRF) Effluent Management Project (Project):

### **II. Consultant's Scope of Services**

#### **Task Group 1.0 Project Management**

CONSULTANT will continue to manage the project and communicate status and other key issues with the CITY. Project management tasks include the following:

- Prepare Status Reports: Monthly status reports will be prepared to advise the CITY on the progress of the Project. These status reports will be provided as part of the invoicing for this project. Monthly progress meetings will include the following information:
  - Forecast of next month's work
  - Outstanding action items for either the CITY or CONSULTANT as applicable
- Manage Project Activities: The progress of the Project will be monitored and resources will be managed to achieve the schedule and budget goals of the Project. Communications with the CITY will be conducted under this task.

#### **Task Group 2 – Construction Phase Services**

Task Group 2 includes Construction Phase Services for the Iron Bridge RWRF Wetlands Pump Station Improvements Project to the Iron Bridge WRF. A 52 week construction period has been assumed for this task. The following tasks will be included.

1. Pre-Construction Meeting: Prepare for and attend a Pre-Construction Meeting.
2. Shop Drawing Review: This task includes maintaining a shop drawing submittal log, and the coordination and review of shop drawings in accordance with the Contract Documents. This

coordination will include distribution and coordination of responses from IAG for selected shop drawings.

3. Respond to Requests for Information (RFIs): This task includes maintaining an RFI log based on RFIs provided by the CITY, coordination, review and response to RFIs from the CONTRACTOR and/or CITY staff for RFIs provided to the CONSULTANT.
4. Site Visits: This task includes twenty (20) site visits to observe that the work is proceeding in accordance with the Contract Documents. This will include four (4) visits from CONSULTANT's structural engineers. Site visits will be concurrent with construction progress meetings to the extent possible and include one substantial completion and one final completion inspection. Additional site visits by SUBCONSULTANTS are defined in the attached scopes of work. CONSULTANT shall be responsible for scheduling and coordinating the site visits of the SUBCONSULTANT.
5. Construction Progress Meetings: This task includes bi-weekly progress meetings for a 52 week period.
6. Record Drawings: This task includes preparing a set of reproducible record drawings showing those changes made during the construction process based on the marked-up prints, drawings and other data furnished by the CONTRACTOR. CONSULTANT will provide one signed and sealed copy of the record drawings as well as digital files of the record drawings on CD. This will include incorporation of the suitable digital survey files developed by the CONTRACTOR indicating the as-built locations of facilities.
7. O&M Manual Review: This task includes the coordination and review of manufacturer's equipment O&M Manuals in accordance with the Contract Documents.

Deliverables: Task Group 2 deliverables will generally consist of shop drawing and RFI logs and the associated responses required from the CONSULTANT as part of the shop drawing and RFI process. Record drawings as described in item 6 above are also included as a Task Group 2 deliverable.

### **Task Group 3 – Clarifier and Hydraulic Considerations**

Previous investigations have identified hydraulic restriction between the discharge of the aeration basins and the secondary clarifiers. Within the past 12 months plant staff has experienced these restrictions during two high flow events. In addition to these hydraulic restrictions plant staff has indicated difficulties in controlling the flow splits between trains 1 and 2 and trains 3 and 4. Under this task CONSULTANT shall conduct the following analysis:

#### **Task 3.1 – Hydraulic Evaluations:**

1. The previous hydraulic analysis will be refined based on the most recent flow data including the high flow events resulting in shutdown of the mechanical aerators.
2. Flow equalization will be reevaluated based on the new flow data. This will include:

- a. Previous flow equalization analysis was based on extreme high flow events. At the CITY's request the CONSULTANT will evaluate equalization volumes required to manage less extreme flow events.
  - b. The previously developed Excel spreadsheet flow model will be modified to consider the impacts of varying modes of operating equalization storage with respect to equalize in peak flows into the process basins.
3. Additional hydraulic analysis will be conducted with regard to operator observations that they were unable to control flow splits between the two process trains. This will consider the geometry and facilities currently available to the Iron Bridge operations staff to manage flows, current practices with respect to splitting flows to the process basins according to the number of basins in service at any given time and conceptual level alternatives available to the CITY to improve control of the flow splits.
4. As currently configured the Iron Bridge facility operates as two independent trains downstream of the grit removal process. Each group of two process train has access to a maximum of four clarifiers dedicated to specific carousels. The piping from the process trains to the clarifiers is independent from one another. In terms of hydraulics and clarification capacity it is desirable to be able to evenly split discharge from the biological processes to all eight clarifiers regardless of the number of carousels in service. The consultant will review yard piping and the elevations of critical control points between the discharge of the biological basins and the discharge of the clarifiers and evaluate the potential benefits of interconnecting the clarifier yard piping.
5. The results of the analysis described above will be submitted to the CITY as a draft technical memorandum for their review.
6. CONSULTANT will schedule and attend the meeting with CITY staff to review the memorandum and receive comments. The technical memorandum will be finalized based on inputs received at this meeting.

**Task 3.2 – Clarifier Evaluation:**

1. Evaluation of the historical performance of the existing eight (8) secondary clarifiers at the Iron Bridge RWRF. Solids and hydraulic loading versus effluent TSS concentrations will be compared. Historical SVI data will also be analyzed. Historical performance data will be provided by the CITY.
2. Evaluation of the number of clarifiers required for 40 mgd of capacity based on typical solids and hydraulic loading rates from the literature. The predicted MLSS concentrations from previously developed partially calibrated BioWin model will be used.

3. Develop a conceptual level opinion of probable construction cost for the additional clarifier tanks, mechanisms and RAS pump/piping modifications required.
4. Perform a conceptual level evaluation of alternative methods to handle high flows/loadings including step feed in the process basins, chemically enhanced treatment in the secondary clarifiers, off-line solid storage during high flows and ballasted flocculation. Conceptual level opinion of probable construction costs will be developed for one option determined to be the most feasible for comparison with the cost of additional clarifiers.
5. Investigate the expected performance enhancement due to the LA-EDI with literature investigations and reference checks of existing facilities. The historical performance of Water Conserv II clarifiers (effluent TSS vs solids and hydraulic loading and SVI data) will be investigated during periods of 1 or 2 clarifiers being off-line which simulate higher than typical loading conditions.
6. Evaluate the modifications required to equip the existing spiral scraper clarifier mechanisms with the LA-EDI. Develop a conceptual level drawing for the retrofit of the LA-EDI into one existing clarifier.
7. Develop an opinion of probable construction cost to retrofit one existing clarifier for a full scale demonstration and the cost opinion to retrofit all eight (8) clarifiers. This would be similar to the previous full scale testing of spiral scrapers and EDIs used in advance of the Bardenpho improvements project.
8. Develop a draft memorandum summarizing the results of the evaluation for submittal to the CITY.
9. CONSULTANT will schedule and attend the meeting with CITY staff to review the memorandum and receive comments. This meeting will be held at in combination with the meeting referenced in task 3.1. The technical memorandum will be finalized based on inputs received at this meeting.

#### **Task Group 4 – Evaluation of Diffuser Replacement Alternatives**

Membrane type, high efficiency diffusers are relatively new to the municipal wastewater market. The CITY installed high efficiency Aerostrip diffusers as part of the Bardenpho improvements project completed in 2012. Actual experience with operating the high efficiency diffusers started approximately two years previous to final completion. The Aerostrip diffusers have not reached the end of their useful life but plant staff report increased repair/replacement requirements. Membrane failure is being attributed to exposure to UV and chlorine. These exposures occur when basins are taken offline for an extended period. The CITY has also experienced problems with the installation of EDI membrane to the diffusers at Conserv II. Under this task CONSULTANT will summarize CITY experience with high efficiency for membrane type diffusers as well as the experiences of other utilities using high efficiency diffusers. This will include an assessment of the longevity in failure modes of membrane aeration technology and the evolution of membrane diffusers to overcome these problems. A conceptual level

technical memorandum will be developed summarizing the results of these investigations. In addition the technical memorandum will summarize:

- Membrane replacement procedures and costs for the Aerostrip diffusers based on CITY experience.
- Comparison of Aerostrip refurbishment costs to replacement with alternate high efficiency membrane diffusers such as Sanitaire Gold Series which are similar to the Aerostrip units.
- Compare the strip-style diffusers to a grid of membrane discs (Sanitaire or Aquarius). The potential advantages of the disc style diffusers are no bumping required and proven long life.
- Recommend most cost-effective approach to restore the diffused aeration system and suggested timing to initiate replacement.
- Evaluate the feasibility of more efficient alternative grit removal maintenance practices in the design of diffuser systems.

CONSULTANT will schedule and attend the meeting with CITY staff to review the memorandum and receive comments. This meeting will be held at in combination with the meeting referenced in task 4.1. The technical memorandum will be finalized based on inputs received at this meeting.

#### **Task Group 5 Subconsultant Services**

CONSULTANT shall use the following subconsultant services as part of this project. Details on the work they will perform are provided in the SUBCONSULTANT PROPOSALS section.

- |                     |  |
|---------------------|--|
| • Team              | - services during construction related to stormwater                                 |
| • Milan Engineering | - services during construction for Mechanical/HVAC                                   |
| • Hazen and Sawyer  | - clarifier capacity considerations  |
| • EPIC              | - services during ERRWDS interconnect construction and additional hydraulic analysis |
| • EDA               | - services during construction for Electrical/Instrumentation                        |
| • CPW               | - services during construction   |
| • PMA               | - Contractor's scheduling Review   |
| • Devo              | - Construction materials testing.  |



### **III. Compensation**

CONSULTANT shall be paid in accordance with Section 5 of the Agreement. A labor budget showing the estimated number of hours and associated fee for the tasks described within the Scope of Services and subconsultant fees is presented as Exhibit II. Exhibit II includes an estimated budget for all other project costs, which are expected to include outside copying costs, postage, and long-distance telephone calls all in compliance with current applicable City of Orlando requirements.

These budget estimates were used to determine the proposed not-to-exceed fee estimate of \$515,395.05. This includes an Owner Controlled Contingency fund of \$65,200.

### **IV. City's Responsibilities**

The CITY shall be responsible for providing the following in a timely manner so CONSULTANT can complete its work and not delay the performance of services.

1. Promptly review, comment on, and return CONSULTANT's submittals.
2. Execute, process, and obtain all required permits and approvals.
3. Pay all permit and approval fees.
4. Promptly advise CONSULTANT when the CITY becomes aware of any defect, deficiency or changed condition.

### **VI. Deliverables (CONSULTANT)**

Project deliverables are defined under the task items in which they will be developed.

### **VI. Services Not Included**

Services to be provided under the scope of work are limited to those described above. Additional field investigations, preliminary and final design efforts are anticipated to be part of future Authorizations.

### **VII. Period of Service**

Construction associated with this scope is estimated to require 60 weeks from the time the Bid Ready Documents are submitted to the CITY. Data collection and analysis efforts including submittals for City review will be completed within approximately 16 weeks of notice to proceed. The schedule does not include permitting services.

**For  
Iron Bridge RWRF  
Iron Bridge RWRF Effluent Management Project  
Service Authorization II**

<b>Company</b>	<b>Fee</b>
<b>AECOM (Labor Fee)</b>	<b>\$ 144,946.00</b>
<b>Subconsultant Fees</b>	
<b>EDA</b>	<b>\$ 111,490.42</b>
<b>Milan</b>	<b>\$ 3,608.00</b>
<b>Hazen and Sawyer</b>	<b>\$ 34,233.00</b>
<b>Team</b>	<b>\$ 3,570.00</b>
<b>CPW</b>	<b>\$ 25,660.32</b>
<b>EPIC</b>	<b>\$ 39,762.76</b>
<b>Devo</b>	<b>\$ 31,655.00</b>
<b>PMA</b>	<b>\$ 19,113.00</b>
<b>Subconsultant Markup (10%)</b>	<b>\$ 26,909.25</b>
<b>Other Direct Project Costs (AECOM)</b>	<b>\$ 7,247.30</b>
<b>Owner Controlled Contingency</b>	<b>\$ 67,200.00</b>
<b>Total Not to Exceed Project Fee</b>	<b>\$ 515,395.05</b>

<u>Personnel Category</u>	<u>\$/HR<sup>(1)</sup></u>
Principal	\$264.00
Senior Engineer II	\$150.00
Senior Engineer I	\$130.00
Assistant Engineer I	\$94.00
CAD II	\$124.00
Clerical	\$85.00

(1) Labor costs are based on a raw labor multiplier of 3.0. Labor categories and rates used herein are for the sole purpose of estimating time and calculating the overall not to exceed amount. Invoicing will be based on the actual hourly wage/salary rates of the personnel utilized to accomplish the work of the scope of services and the agreed upon multiplier.

AECOM Project Budget

City of Orlando Iron Bridge RWRFF Effluent Management Project  
Service Authorization II

City of Orlando

Task Description	Personnel Hours						Budget						
	Principal	Senior Engineer II	Senior Engineer I	Assistant Engineer I	CAD II	Clerical	Total Hours	Labor	Subcontractants	Subconsultant Markup	ODC	Total Non-Labor	Total
<b>Task Group 1 Project Management</b>													
Project Management	60	-	20	10	10	40	140	\$ 24,020.00	-	-	\$ 1,201.00	\$ 1,201.00	\$ 25,221.00
<b>Subtotal</b>	60	-	20	10	10	40	140	\$ 24,020.00	-	-	\$ 1,201.00	\$ 1,201.00	\$ 25,221.00
<b>Task Group 2 Construction Phase Services</b>													
Pre-Construction Meeting	2		4	2		2	10	\$ 1,406.00			\$ 70.30	\$ 70.30	\$ 1,476.30
Shop drawing review	20		60	120		70	270	\$ 30,310.00			\$ 1,515.50	\$ 1,515.50	\$ 31,825.50
Respond to requests for information	10		40	60	20	20	150	\$ 17,660.00			\$ 883.00	\$ 883.00	\$ 18,543.00
Site visits	10		40	60			110	\$ 12,480.00			\$ 674.00	\$ 674.00	\$ 14,154.00
Construction progress meetings	12		12	40		20	84	\$ 10,168.00			\$ 509.40	\$ 509.40	\$ 10,677.40
Record drawings	2		10	30	40		92	\$ 10,458.00			\$ 522.90	\$ 522.90	\$ 10,980.90
O&M Manual review	2		10	30		30	72	\$ 7,198.00			\$ 359.90	\$ 359.90	\$ 7,557.90
<b>Subtotal</b>	58	-	176	342	60	152	788	\$ 90,700.00	-	-	\$ 4,535.00	\$ 4,535.00	\$ 95,235.00
<b>Task Group 3 Evaluation of diffuser replacement alternatives</b>													
Hydraulic Evaluations	2		10	20	10		52	\$ 5,798.00			\$ 289.90	\$ 289.90	\$ 6,087.90
Clarifier Evaluation	2		4	10		2	18	\$ 2,158.00			\$ 107.90	\$ 107.90	\$ 2,265.90
<b>Subtotal</b>	4	-	14	30	10	12	76	\$ 7,956.00	-	-	\$ 397.80	\$ 397.80	\$ 8,353.80
<b>Task Group 4 Evaluation of Diffuser Replacement Alternatives</b>													
Diffuser replacement evaluation	20		40	90	20	10	180	\$ 22,270.00			\$ 1,113.50	\$ 1,113.50	\$ 23,383.50
<b>Subtotal</b>	20	-	40	90	20	10	180	\$ 22,270.00	-	-	\$ 1,113.50	\$ 1,113.50	\$ 23,383.50
<b>Task Group 5.0 Subconsultant Services</b>													
Team													
Milan Engineering									\$ 3,570.00	\$ 357.00		\$ 3,927.00	\$ 3,927.00
EDA									\$ 3,608.80	\$ 360.88		\$ 3,969.68	\$ 3,969.68
Hazen & Sawyer									\$ 111,090.42	\$ 11,109.05		\$ 122,639.47	\$ 122,639.47
EPIC									\$ 34,233.00	\$ 3,423.30		\$ 37,656.30	\$ 37,656.30
CPWR									\$ 39,762.76	\$ 3,976.27		\$ 43,739.03	\$ 43,739.03
Dayco									\$ 25,660.32	\$ 2,566.03		\$ 28,226.35	\$ 28,226.35
PMA									\$ 31,553.80	\$ 3,155.38		\$ 34,809.18	\$ 34,809.18
<b>Subtotal</b>									\$ 269,992.50	\$ 26,999.25		\$ 296,991.75	\$ 296,991.75
<b>Task Group 8.0 Contingency</b>													
Owner Controlled Contingency													
<b>Subtotal</b>													
<b>Total Not to Exceed</b>	142	250	472	472	100	212	1,178	\$ 144,946.00	\$ 369,991.75	\$ 26,999.25	\$ 7,247.30	\$ 303,244.05	\$ 515,395.05
													\$ 67,000.00
													\$ 67,000.00

## **Subconsultant Proposals**

## **TEAM Engineering, LLC**

January 29, 2015

Sent by Email

Mr. David Ammerman, PE  
Reuse National Practice Leader  
AECOM  
150 N. Orange Avenue, Suite 200  
Orlando, FL 32801

RE: Professional Stormwater Construction Services, Iron Bridge RWRP  
TEAM Engineering, LLC, Proposal No. 2014-05\_02

Dear David:

In accordance with your email, TEAM Engineering provides the following scope of services for stormwater construction oversight services during construction of the Electrical Building at Iron Bridge RWRP.

### **Scope of Services**

1. During construction, provide up to 42 hours to attend pre-construction meeting (if requested), review stormwater related shop drawings (if requested) and perform on-site construction oversight related to modification and maintenance of the stormwater management system.

### **Deliverables**

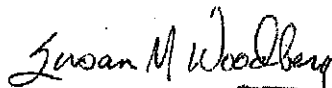
Construction support services, as requested.

### **Fees**

Services outlined in this Scope of Services will be performed at an hourly rate of \$85.00 per hour. The total not-to-exceed cost for Professional Services is \$3,570.00.

Thank you for the opportunity to submit this proposal for continued work with AECOM. Please call if you have any questions.

Sincerely,



Susan M. Woodbery, PE  
P.O. Box 560833  
Orlando, FL 32856  
407.491.1624  
[swoodbery@gmail.com](mailto:swoodbery@gmail.com)



## Professional Services Proposal & Agreement

**Client Information:**  
(hereinafter called "client")

Mr. David Ammerman  
AECOM

150 N. Orange Avenue, Suite 200, Orlando, FL 32801

**Date:**

March 2, 2015

**Project Name:**

AECOM Iron Bridge RWRF Effluent Management Project  
Service Authorization II, Iron Bridge Wetlands Pump Station  
CA Phase

**Project Description:**

Construction Administration Services associated with the design of  
the IB Pump Station HVAC System.

**Engineering Consultant:**  
(hereinafter called "MEI")

Milan Engineering, Inc  
925 South Semoran Blvd, Suite 100  
Winter Park, Florida, 3279

### DESCRIPTION OF SCOPE

1. Attend three (3) Job Site Meeting
2. Perform three (3) Job Site Visits and create report to verify the installation process.
3. Verification of Test and Balance report.
4. Review of shop drawings and submittals for the project HVAC systems.
5. Review and response to RFI's during construction.

**Milan Representative:**

(Signature)

Mitesh K. Smart, President

Mechanical  
Electrical  
Plumbing  
Fire Protection  
Technology

925 S Semoran Blvd | Suite 100  
Winter Park, FL 32792  
t: 407.678.2055 f. 407.678.2088

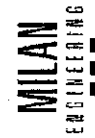
Precise Solutions with Prompt Response

Exhibit II: CA PHASE FEE ESTIMATE  
 Project Name: AECOM Iron Bridge RWRP Effluent Management Project Service Authorization II, Iron Bridge Wetlands Pump Station  
 Name of Firm: Milan Engineering, Inc

	Senior Engineer		Engineer		Designer		Checker		Basic Activity \$ Amount	Months by Activity
	Man Hrs	Cost	Man Hrs	Cost	Man Hrs	Cost	Man Hrs	Cost		
Labor Rates		\$55.00		\$27.00		\$23.00		\$16.00		
Billing Rates		\$151.25		\$74.25		\$63.25		\$41.25		
<b>TASKS</b>										
Construction Administration										
Job Site Meeting (3)					6	\$379.50			\$379.50	6
Job Site Visit with report (3)					12	\$759.00			\$759.00	12
Verification of T&B			2	\$148.50					\$148.50	2
Review Shop Drawings			8	\$594.00	16	\$1,012.00	2	\$82.50	\$1,688.50	26
Review RFIs			4	\$297.00	4	\$253.00	2	\$82.50	\$632.50	10
Total Not To Exceed			14	\$1,039.50	38	2403.5	4	\$165.00	\$3,608.00	58

TOTAL COST NOT TO EXCEED FEE BREAKDOWN BY TASK

	% Total
Construction Administration	
Job Site Meeting (3)	11%
Job Site Visit with report (3)	21%
Verification of T&B	4%
Review Shop Drawings	47%
Review RFIs	18%
Total Not To Exceed	100%



**EXHIBIT "A-1"**

**SUBCONSULTANT'S PROPOSAL FOR ENGINEERING SERVICES**

**AMENDMENT NO. 1 TO  
TASK ORDER NO. 1**

**Between  
AECOM Technical Services, Inc.  
and  
Hazen and Sawyer, P.C.  
for**

**City of Orlando Iron Bridge RWRf Effluent Management Project Service Authorization II**

The evaluation of the Iron Bridge RWRf conducted under the initial authorization (Task Order No. 1) identified a number of treatment processes that are expected to exceed typical loading rates within the next five (5) to eight (8) years. These increased loading rates are largely due to the planned shutdown of the Water Conserv I WRF and the transfer of flows to the Iron Bridge RWRf. The clarifiers for Iron Bridge were found in this analysis to have higher than typically hydraulic and solids loading at the 20 year planning flow and the 40 mgd build out capacity.

AECOM Technical Services, Inc. (CONSULTANT) desires assistance from Hazen and Sawyer (SUBCONSULTANT) to evaluate the number of clarifiers required for 40 mgd of capacity. The predicted MLSS concentrations from previously developed partially calibrated BioWin model will be used in this analysis. Historical performance records of the clarifier will also be evaluated. SUBCONSULTANT will develop a cost opinion for the additional clarifier tanks, mechanisms and RAS pump/piping modifications required. As an alternative to adding additional round clarifiers similar to the existing units, SUBCONSULTANT will investigate alternative methods to handle high flows/loadings including step feed in the process basins, chemically enhanced treatment, offline solid storage and ballasted flocculation. Conceptual level cost opinions will be developed for the most feasible of the options listed to compare with the cost of additional clarifiers.

AECOM will evaluate eliminating existing hydraulic restrictions in the existing piping and the modifications necessary to accommodate additional clarifiers (flow splitting and other work outside of the clarifier tanks and RAS pumps). AECOM will develop a cost opinion for this portion of the work.



SUBCONSULTANT will also evaluate the modifications required to equip the existing spiral scraper clarifier mechanisms with the LA-EDI. SUBCONSULTANT will develop a cost estimate to retrofit one existing clarifier for a full-scale demonstration as well as the cost to retrofit all eight (8) clarifiers. SUBCONSULTANT will investigate the expected performance enhancement due to the LA-EDI with literature investigations as well as reference checks of existing facilities. The historical performance of Water Conserv II will be investigated during periods of 1 or 2 clarifiers being offline which simulate higher than typical loading conditions.

AECOM will also complete an evaluation of the operation and maintenance issues of the existing aeration diffusers at the Iron Bridge RWRP and investigate diffuser replacement alternatives for the facility. SUBCONSULTANT will provide a summary of historical operation and maintenance information from up to three of SUBCONSULTANT's high efficiency diffuser design installations. Operations staff will be contacted at these facilities to confirm performance and operation and maintenance concerns. SUBCONSULTANT will also perform a QA/QC/technical review of AECOM's technical memorandum and provide comments.

#### **SCOPE OF SERVICES**

SUBCONSULTANT will furnish professional services to CONSULTANT in accordance with this Scope of Services.

##### **Task 1 – Clarifier Evaluation:**

1. Evaluation of the historical performance of the existing eight (8) secondary clarifiers at the Iron Bridge RWRP. Solids and hydraulic loading versus effluent TSS concentrations will be compared. Historical SVI data will also be analyzed. Historical performance data will be provided by the City of Orlando.
2. Evaluation of the number of clarifiers required for 40 mgd of capacity based on typical solids and hydraulic loading rates from the literature. The predicted MLSS concentrations from previously developed partially calibrated BioWin model will be used.
3. Develop a conceptual level opinion of probable construction cost for the additional clarifier tanks, mechanisms and RAS pump/piping modifications required.
4. Perform a conceptual level evaluation of alternative methods to handle high flows/loadings including step feed in the process basins, chemically enhanced treatment in the secondary clarifiers, off-line solid storage during high flows and ballasted flocculation. Conceptual level opinion of probable construction costs will be developed for one option determined to be the most feasible for comparison with the cost of additional clarifiers.

5. Investigate the expected performance enhancement due to the LA-EDI with literature investigations and reference checks of existing facilities. The historical performance of Water Conserv II clarifiers (effluent TSS vs solids and hydraulic loading and SVI data) will be investigated during periods of 1 or 2 clarifiers being off-line which simulate higher than typical loading conditions.
6. Evaluate the modifications required to equip the existing spiral scraper clarifier mechanisms with the LA-EDI. Develop a conceptual level drawing for the retrofit of the LA-EDI into one existing clarifier.
7. Develop an opinion of probable construction cost to retrofit one existing clarifier for a full scale demonstration and the cost opinion to retrofit all eight (8) clarifiers.
8. Develop an internal draft memorandum summarizing the results of the evaluation and have one (1) meeting with AECOM to review and revise.
9. SUBCONSULTANT will incorporate AECOM's comments on the internal memorandum and provide an updated draft memorandum for submittal to the CITY. SUBCONSULTANT will send one staff member to the draft memorandum review meeting with the CITY to receive comments.
10. SUBCONSULTANT will incorporate comments from the review meeting with the CITY and submit a final technical memorandum summarizing the results of the evaluation.

**Task 2 – Aeration Evaluation**

1. SUBCONSULTANT will provide a summary of historical operation and maintenance information from up to three of SUBCONSULTANT's high efficiency diffuser design installations. Phone interviews of operations staff will be conducted.
2. SUBCONSULTANT will also perform a QA/QC/technical review of AECOM's Aeration Evaluation Technical Memorandum and provide comments.

**DELIVERABLES**

**Task 1:**

1. Draft internal review memorandum in Microsoft Word format.
2. Draft and final technical memorandum for submittal to the CITY in Microsoft Word and pdf formats.

3. Conceptual level drawing for retrofit of the LA EDI into one existing Iron Bridge RWRP clarifier. (AutoCAD and pdf formats). AECOM will provide CAD files of As-Built of the existing clarifiers.

**Task 2:**

1. Summaries of the historical operation and maintenance information from up to three of SUBCONSULTANT's high efficiency diffuser design installations in Microsoft Word format (for inclusion in AECOM's Aeration Evaluation Technical Memorandum).
2. QA/QC/technical review comments on AECOM's Aeration Evaluation Technical Memorandum.

**COMPENSATION**

SUBCONSULTANT proposes to undertake this work on a time and materials basis with an upper limit of \$34,233 as shown in the following **Fee Breakdown**. The upper limit will not be exceeded without written approval of CONSULTANT. Monthly invoices will be issued for work completed in the previous month.

**SCHEDULE**

The schedule for these services will be based on the schedule developed by CONSULTANT for this project.

City of Orlando - AECOM - Iron Bridge RWRP Effluent Management Project Service Authorization II										
Fee Breakdown										
	Vice President	Senior Associate Engineer	Associate Engineer	Senior Principal Engineer	Principal Engineer	Assistant Engineer	Drafting/Graphics	Admin/Support	Task Hours	Estimated Task Cost
<b>Task 1 - Iron Bridge RWRP Effluent Management Project - Clarifier Evaluation</b>										
1 Evaluation of the historical performance of the existing eight (8) secondary clarifiers at the Iron Bridge RWRP.	\$255				\$120	\$102	\$122	\$75	14	\$1,965.81
2 Evaluation of the number of clarifiers required for 40 mgd of capacity. The predicted MLSS concentrations from previously developed partially calibrated BioWin model will be used.		2			8				18	\$2,698.43
3 Develop a cost option for the additional clarifier tanks, mechanisms and RAS pump/piping modifications required.		2			16				28	\$3,658.43
4 Evaluate alternative methods to handle high flows/loadings including step feed in the process basins, chemically enhanced treatment, offline solid storage and ballasted flocculation. Conceptual level cost options will be developed for one option determined to be the most feasible for comparison with the cost of additional clarifiers.	2				24				34	\$4,590.49
5 Investigate the expected performance enhancement due to the LA-EDI with literature investigations and reference checks of existing facilities. The historical performance of Water Conserv II will be investigated during periods of 1 or 2 clarifiers being offline which simulate higher than typical loading conditions.			4		16				20	\$2,590.41
6 Evaluate the modifications required to equip the existing spiral scraper clarifier mechanisms with the LA-EDI. Develop a conceptual level drawing for the retrofit of the LA EDI into one existing clarifier.			8		16		6		30	\$3,991.95
7 Develop a cost option to retrofit one existing clarifier for a full scale demonstration and the cost to retrofit all eight (8) clarifiers.			4		8				12	\$1,630.41
8 Develop an internal review draft and a draft and final technical memorandum to provide to the CITY summarizing the results of the evaluation.	2	4	8		32			2	48	\$6,596.09
9 Prepare for and attend two (2) meetings - the internal review meeting and the review meeting with the CITY.			8		8				16	\$2,590.81
<b>Task 2 - Aeration Evaluation</b>										
1 Provide a summary of historical operation and maintenance information from up to three of SUBCONSULTANT's high efficiency diffuser design installations. Interviews of operators staff will be conducted.		2	4		10					\$2,268.03
2 Provide a QA/QC/technical review of AECOM's Aeration Evaluation Technical Memorandum and provide comments.		3	6		2					\$1,842.04
Total Hours	4	13	72	0	148	0	6	2	218	
Estimated Total Cost	\$939.26	\$2,595	\$12,057	\$0	\$17,760	\$0	\$231	\$150		\$34,233
Other direct costs										
Estimated Total ODC										\$0
Total Items Not to Exceed	\$939	\$2,595	\$12,057	\$0	\$17,760	\$0	\$731	\$150		\$34,233



March 3, 2015

David Ammerman, P.E.  
Reuse National Practice Leader  
AECOM  
150 N. Orange Avenue, Suite 200  
Orlando, Florida 32801

**Subject: City of Orlando  
Proposal for Professional Engineering Services - Amendment II  
Iron Bridge RWRf Effluent Management Project  
ERRWDS/Wetlands Transmission Interconnect  
Construction Phase/Services**

Dear Mr. Ammerman:

In accordance with your request, EPIC Engineering & Consulting Group, LLC (EPIC) has prepared a proposal to assist AECOM with Construction Phase Services for the ERRWDS/Wetlands Transmission Interconnection portion of the referenced project.

The scope of services, compensation and schedule are presented below.

#### **SCOPE OF SERVICES**

The scope of services is divided into the following major tasks:

- Task Group 1.0 Project Management
- Task Group 2 Construction Phase Services

Our scope of services is based on the overall scope developed by AECOM; consequently, the tasks of the overall scope are listed below and EPIC's proposed services are identified for each task.

#### **Task Group 1.0 Project Management**

Under this Task, EPIC will provide information for project progress reports and outstanding action items.

#### **Task Group 2 – Construction Phase Services**

EPIC support during the construction phase is limited to the scope of improvements associated with the ERRWDS/Wetlands Transmission Interconnection. Services shall include review/response to Requests for Information and Change Orders, site inspections, interpretation/clarification of contract documents, attendance of selected meetings, substantial/final Inspections and review of O&M manuals. Please note that EPIC services

are not proposed for FDEP Clearance Requests or for Contractor's Schedule or Pay Request activities.

The fee estimate is based on a maximum construction period of 10-months and in some cases a maximum number of meetings or "reviews". Should additional construction time be required or additional meetings or reviews be required, in excess of the quantities stated herein, EPIC may be entitled to additional compensation, upon approval of AECOM and the CITY.

**1. Pre-Construction Meeting**

**EPIC Services**

Under this task, EPIC will attend a pre-construction conference.

**2. Shop Drawing Review**

**EPIC Services**

Review drawings and other data submitted by the Contractor in accordance with the Contract Documents. No more than two reviews are anticipated for each submittal item or piece of equipment. The budget is based on review of 6 submittals and re-submittals (approximately 3-hour each).

**3. Respond to Requests for Information (RFIs)**

**EPIC Services**

When requested, EPIC will review, evaluate and respond to RFI's. The budget is based on review of 5 RFI's (approximately 2-hour each).

When requested, EPIC will review Change Orders (COs) generated by either the Contractor or the CITY. The budget is based on one (1) CO (approximately 5-hours each, including meetings to discuss the proposed COs).

**4. Site Visits**

**EPIC Services**

When requested, EPIC will perform periodic site visits regarding design issues and to observe construction progress, quality of the work, and conformance with the general intent of the Contract Documents. The budget is based on 2 site visits (approximately 2-hour each). Site visits will be concurrent with construction progress meetings to the extent possible

Completion inspections include one (1) substantial completion review inspection, preparation of a punch list of corrective work items that were observed during site visits and one (1) final completion review to assess the status of the punch list items.

**5. Construction Progress Meetings**

**EPIC Services**

When requested, EPIC will attend periodic progress meetings regarding design issues, coordination, and conformance with the general intent of the Contract Documents. The budget is based on attendance of 2 progresses (approximately 2-hour each).

**6. Record Drawings**

**EPIC Services**

EPIC will prepare reproducible record drawings showing those changes made during the construction process based on the marked-up prints, drawings and other data furnished by the CONTRACTOR. EPIC will provide one signed and sealed copy of the record drawings as well as digital files of the record drawings.

**7. O&M Manual Review**

**EPIC Services**

This task includes the review of manufacturer's equipment O&M Manuals in accordance with the Contract Documents. The budget is based six (6) hours of review time.

**PROJECT SCHEDULE**

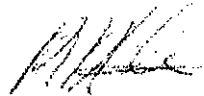
EPIC will provide the above-listed services over a 10-month period to meet the schedule established by City of Orlando and AECOM.

**COMPENSATION**

EPIC will be compensated for the services described herein on a not to exceed basis in the amount of **\$12,881.18**. The fee estimate for the scope of services is enclosed as Attachment A.

We sincerely appreciate the opportunity to assist AECOM in providing professional engineering services to the City of Orlando. If you have any questions or require additional information, please call me at 407-721-6954.

Sincerely,



Richard Wilson, P.E.  
Project Manager  
EPIC Engineering & Consulting Group, LLC

cc: Prasad Chittaluru, Ph.D., P.E., EPIC



**ATTACHMENT A**

**Iron Bridge RWRf Effluent Management Project  
ERRWDS/Wetlands Transmission Interconnection - Construction Phase Services**

**EPIC NOT-TO-EXCEED LABOR BUDGET**

Task	Task Name	Hourly Rate	Senior Project Manager P8	Sr. Professional I P3	Tech III T3	Admin II A2	Total Hours	Total Raw Labor Cost (\$)	Total Billing Labor Cost
1	Project Management		4	0	0	2	6	\$289.40	\$853.73
2	Construction Phase Services		53	11	8	7	79	\$4,077.10	\$12,027.45
	<b>Total, Not-To-Exceed</b>		<b>57</b>	<b>11</b>	<b>8</b>	<b>9</b>	<b>85</b>	<b>\$4,366.50</b>	<b>\$12,881.18</b>

Labor Multiplier 2.95





March 3, 2015

David Ammerman, P.E.  
Reuse National Practice Leader  
AECOM  
150 N. Orange Avenue, Suite 200  
Orlando, Florida 32801

**Subject: City of Orlando  
Proposal for Professional Engineering Services - Amendment II  
Iron Bridge RWRF Effluent Management Project  
Task Group 3 - Clarifier and Hydraulic Considerations**

Dear Mr. Ammerman:

In accordance with your request, EPIC Engineering & Consulting Group, LLC (EPIC) has prepared a proposal to assist AECOM with additional hydraulic analysis and considerations regarding the referenced project.

The scope of services, compensation and schedule are presented below.

#### **SCOPE OF SERVICES**

Our scope of services is based on the overall scope developed by AECOM; consequently, the tasks of the overall scope are listed below and EPIC's proposed services are identified for each task.

#### **Task Group 3 – Clarifier and Hydraulic Considerations**

Previous investigations have identified hydraulic restrictions between the discharge of the aeration basins and the secondary clarifiers. Within the past 12 months, plant staff has experienced the impact of these restrictions during two high flow events. In addition, plant staff has indicated difficulties in controlling the flow split through the biological processes. CONSULTANT shall

#### **Task 3.1 – Hydraulic Evaluations:**

1. The previous hydraulic analysis will be refined based on the most recent flow data including the high flow events resulting in shutdown of the mechanical aerators.
2. Flow equalization will be reevaluated based on the new flow data. In addition, previous flow equalization analysis was based on extreme high flow events.
  - a. At the city's request a consultant will evaluate equalization volumes required to manage less extreme flow events.

511 E State Road 434, Ste. 3033, Winter Springs, FL 32708 • Telephone 407.381.EPIC (3742) • [www.epicgroupllc.com](http://www.epicgroupllc.com)

- b. The previously developed excel spreadsheet flow model will be modified to consider the impacts of varying modes of operating equalization storage with respect to equalizing peak flows into the process basins.
3. Additional hydraulic analysis will be conducted with regard to operator observations that they were unable to control flow splits between the two process trains. This will consider the geometry and facilities currently available to the IBRWRF operations staff to manage flows, current practices with respect to splitting flows to the process basins according to the number of basins in service at any given time and conceptual level alternatives available to the City to improve control of the flow splits.
4. As currently configured the Iron Bridge facility operates as two independent trains downstream of the grit removal process. Each group of two process train has access to a maximum of four clarifiers dedicated to specific carousels. The piping from the process trains to the clarifiers is independent from one another. In terms of hydraulics and clarification capacity, it is desirable to be able to evenly split discharge from the biological processes to all eight clarifiers regardless of the number of trains in service. The consultant will review yard piping and the elevations of critical control points between the discharge of the biological basins and the discharge of the clarifiers, identify improvement options and evaluate the potential benefits of interconnecting yard piping.
5. The results of the analysis described above will be submitted to the City as a draft technical memorandum for their review.
6. CONSULTANT will schedule and attend the meeting with city staff to review the memorandum and receive comments. The technical memorandum will be finalized based on inputs received at this meeting.

**EPIC Services**

EPIC was responsible for some of the previous investigations and development of the spreadsheet model. As a result, EPIC will have primary responsibility for the Task 3. EPIC will perform the following activities:

1. Review Operations and Flow Splitting - Meet with City staff to review the current operation of equalization system and alternative modes of operation, as well as details regarding flow splitting between the process trains.
2. Re-Evaluate Flow Equalization - Update and revise the flow equalization analysis to incorporate additional flow data, the impact of varying operational modes and less extreme flows.
3. Investigate Flow Splitting - Conduct investigations to identify flow splitting improvements (as referenced above).
4. Investigate Clarifier Interconnect - Conduct the investigations referenced above to identify interconnect options and benefits.

5. Draft Technical Memorandum - Prepare a draft technical memorandum.
6. Review Meeting and Final Memorandum - Participate in one review meeting with City staff and finalize the Memorandum based on City input.

Task 3.2 – Clarifier Evaluation:

EPIC Services

No Services are proposed

**PROJECT SCHEDULE**

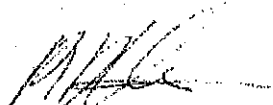
EPIC will provide the above-listed services to meet the schedule established by City of Orlando and AECOM.

**COMPENSATION**

EPIC will be compensated for the services described herein on a not to exceed basis in the amount of \$26,881.58. The fee estimate for the scope of services is enclosed as Attachment A.

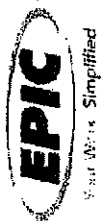
We sincerely appreciate the opportunity to assist AECOM in providing professional engineering services to the City of Orlando. If you have any questions or require additional information, please call me at 407-721-6954.

Sincerely,



Richard Wilson, P.E.  
Project Manager  
EPIC Engineering & Consulting Group, LLC

cc: Prasad Chittaluru, Ph.D., P.E., EPIC



# ATTACHMENT A

## City Of Orlando Iron Bridge RWRf Effluent Management Project Task Group 3 - Clarifier and Hydraulic Considerations

### EPIC NOT TO EXCEED LABOR BUDGET

Task	Task Name	Hourly Rate	Senior Project Manager P8	Sr. Professional I P3	Tech III T3	Admin II A2	Total Hours	Total Raw Labor Cost (\$)	Total Billing Labor Cost (\$)
3.1									
1	Review Operation and Flow Splitting		9	0	0	2	11	\$595.40	\$1,756.43
2	Re-Evaluate Flow Equalization		24	18	0	0	42	\$2,250.00	\$6,637.50
3	Investigate Flow Split		25	0	8	0	33	\$1,730.00	\$5,103.50
4	Investigate Clarifier Interconnect		26	0	8	0	34	\$1,791.20	\$5,284.04
5	Draft Technical Memorandum		18	8	16	4	46	\$1,938.00	\$5,717.10
6	Review Meeting and Final Memorandum		8	4	4	2	18	\$807.80	\$2,383.01
	<b>Total Not to Exceed Fee</b>		110	30	36	8	184	\$9,112.40	\$26,881.58
	<b>Labor Multiplier</b>								2.95



February 12, 2015

## Electrical Design Associates

Mr. David Ammerman, P.E.  
AECOM  
150 N. Orange Avenue, Suite 200  
Orlando, FL 32801

Re: **Iron Bridge RWRf Effluent Management Project – Amendment 1**  
**Additional Services**  
Orlando, Florida

Dear Mr. Ammerman;

We are pleased to submit our proposal for additional electrical engineering services for the above project. The following serves to provide an overview of the engineering services Electrical Design Associates, Inc. (EDA) intends to furnish on the above referenced project to AECOM Technical Services, Inc., (AECOM). This letter contract represents an overview of the work and provides the fee amounts. Your signature on this agreement will serve as your letter of intent. EDA shall perform the following services for the CITY for the Iron Bridge Regional Water Reclamation Facility (RWRf) Rerating project (Project). Our additional services are defined as follows:

1. Additional coordination with IAG in the development of the CoO standard for Variable Frequency Drives larger than 400 HP, including meetings with AECOM and IAG.
2. Redesign of the electrical building based on the newly developed VFD standard for drives larger than 400 HP.

Services not specifically defined are not included. Additional services can be provided under separate Scope of Service(s) or by an amendment to this Scope of Services. Services performed will be on an as-directed basis in accordance with a written Notice to Proceed. Services will be performed hourly with a not to exceed value. Travel to and from the site and other direct costs are included in the overhead rate and will not be billed as a separate line item. Our cost not to exceed fee for this work shall be as follows:

Description	Principal		Cadd Technician		Clerical/Admin		Totals	
	Hourly Rate	\$199.41	Hourly Rate	\$80.92	Hourly Rate	\$63.58		
Design	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total
Coordination/ Meetings	20	\$ 3,988.20		\$ -		\$ -	20	\$ 3,988.20
Redesign	16	\$ 3,190.56	16	\$ 1,294.72	4	\$ 254.32	36	\$ 4,739.60
<b>Total Not to Exceed:</b>	<b>36</b>	<b>\$ 7,178.76</b>	<b>16</b>	<b>\$ 1,294.72</b>	<b>4</b>	<b>\$ 254.32</b>	<b>56</b>	<b>\$ 8,727.80</b>

Very truly yours,

  
Lihian M. Reyes, P.E.

ACCEPTED

DATE

AEC-15-002D.REV1.doc



## *Electrical Design Associates*

March 10, 2015

Mr. David Ammerman, P.E.  
**AECOM**  
150 N. Orange Avenue, Suite 200  
Orlando, FL 32801

Re: **Iron Bridge RWRf Effluent Management Project Authorization II**  
Orlando, Florida

Dear Mr. Ammerman;

We are pleased to submit our revised proposal for electrical engineering services for the above project. The following serves to provide an overview of the engineering services Electrical Design Associates, Inc. (EDA) intends to furnish on the above referenced project to AECOM Technical Services, Inc., (AECOM). This letter contract represents an overview of the work and provides the fee amounts. Your signature on this agreement will serve as your letter of intent. EDA shall perform the following services for the CITY for the Iron Bridge Regional Water Reclamation Facility (RWRf) Rerating project (Project):

### **Construction Phase Services**

1. **Pre-Construction Meeting** – EDA shall attend the Pre-Construction Meeting.
2. **Shop Drawing Review** - Review and approve (or take other appropriate action in respect of) Shop Drawings and samples, the results of tests and inspections and other data which each Contractor is required to submit, but only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents (but such review and approval or other action shall not exceed to means, methods, sequences, techniques or procedures of construction or to safety precautions and programs incident thereto); and receive and review (for general content as required by the Specifications) maintenance and operating schedules and instruction, guarantees, bonds and certificates of inspection which are to be assembled by Contractor(s) in accordance with the Contract Documents.
3. **Issue Clarifications** - Issue all instructions of OWNER to Contractor(s); issue necessary interpretations and clarifications of the Contract Documents; have authority, as OWNER's representative to require special inspection or testing of the work; act as initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work thereunder, and make decisions on all claims of OWNER and Contractor(s) relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work. The ENGINEER shall render all interpretations or decisions in good faith and in accordance with the requirements of the Contract Documents.

4. **Site Visits** - Make visits over the construction period to the site at periods appropriate to the various stages of construction to observe, as an experienced and qualified professional, the progress and quality of the executed work of Contractor(s) and to determine in general if such work is proceeding in accordance with the Contract Documents. Prepare trip reports to document observations made during these inspections. ENGINEER shall not be responsible for the means, methods, techniques, sequences or procedures of construction selected by Contractor(s) or the safety precautions and programs incident to the work of Contractor(s). ENGINEER's efforts will be directed toward providing a greater degree of confidence for OWNER that the completed work of Contractor(s) will conform to the Contract Drawings, but ENGINEER shall not be responsible for the failure of Contractor(s) to perform the work in accordance with the Contract Drawings. During such visits and on the basis of on-site observations, ENGINEER shall keep OWNER informed of the progress of the work, shall endeavor to guard OWNER against defects and deficiencies in such work and may disapprove or reject work failing to conform to the Contract Documents.
5. **Resident Services** - EDA shall make weekly visits to the project site and serve as a resident inspector to oversee construction above and beyond the site visits budgeted in item 4. For purposes of this task EDA shall budget 8 hours per week for a period of 52 weeks plus management at 2 hours per week for a period of 52 weeks.
6. **As-Built Drawings** - Preparation of Asbuilt drawings based on changes made during the construction process based on the marked-up prints, drawings and other data furnished by the CONTRACTOR.
7. **O&M Manual Review**: EDA shall review O&M Manuals as prepared and submitted by others.

Services not specifically defined are not included. Additional services can be provided under separate Scope of Service(s) or by an amendment to this Scope of Services. Services performed will be on an as-directed basis in accordance with a written Notice to Proceed. Services will be performed hourly with a not to exceed value. Our cost not to exceed fee for this work shall be \$102,762.62. Travel to and from the site and other direct costs are included in the overhead rate and will not be billed as a separate line item.

Very truly yours,

  
Lillian M. Reyes, P.E.

ACCEPTED \_\_\_\_\_

DATE \_\_\_\_\_

Enclosure

AEC-15-001G.Rev1.doc



*Electrical Design Associates*

Bridge RWRF Effluent Management Project Authorization II  
General Services during Construction  
Orlando, Florida

Date: 3/16/2015

Estimate of Work Effort & Fee

	Principal		Senior Engineer		Designer		Field Supervisor		Cable Technician		Clerical/Admin		Totals	
	man-hours	Hourly Rate	man-hours	Hourly Rate	man-hours	Hourly Rate	man-hours	Hourly Rate	man-hours	Hourly Rate	man-hours	Hourly Rate		
Construction Services Pre-Con Meeting Shop Drawing Review Issue Clarifications Progress meetings/Site Visits As-built/QAM	4	\$ 797.64	-	-	3	\$ 366.92	-	-	1	\$ 1,197.56	6	\$ 12,386.54		
	46	\$ 9,571.06	-	-	16	\$ 2,486.96	-	-	16	\$ 317.90	69	\$ 8,082.00		
	16	\$ 3,190.56	-	-	8	\$ 1,248.48	20	\$ 1,849.60	18	\$ 1,294.72	68	\$ 8,082.00		
	44	\$ 9,774.04	-	-	-	-	93	\$ 8,879.08	-	-	-	-		
	8	\$ 1,595.28	-	-	4	\$ 624.24	8	\$ 739.84	18	\$ 1,294.72	140	\$ 17,652.12		
subtotal:	120	\$ 23,928.20	0	\$ -	28	\$ 4,358.68	128	\$ 11,837.44	32	\$ 2,598.44	13	\$ 826.54	321	\$ 43,552.30
Resident Services 8 hrs per week for 52 weeks plus management	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total
	104	\$ 20,798.64	-	-	-	-	416	\$ 38,471.68	-	-	-	-	520	\$ 59,210.32
subtotal:	104	\$ 20,798.64	0	\$ -	0	\$ -	416	\$ 38,471.68	0	\$ -	0	\$ -	520	\$ 59,210.32
Total Not to Exceed:	224	\$ 44,657.84	0	\$ -	28	\$ 4,358.68	544	\$ 50,308.12	32	\$ 2,598.44	13	\$ 826.54	841	\$ 102,762.62





March 9, 2015

David Ammerman, P.E.  
AECOM  
150 N. Orange Avenue, Suite 200  
Orlando, FL 32801

Re: Proposal for City of Orlando  
Construction Services - Iron Bridge RWRf Effluent Management Project

Dear David:

Per your request, please accept this proposal for CPWC, Inc. to provide services for the above referenced project. The Scope of Services and Project Budget is attached.

I look forward to working with you and providing services for The City of Orlando. Please call me at 321.436.0822 or email me at [charlyn.watts@earthlink.net](mailto:charlyn.watts@earthlink.net) at your convenience should you require additional information.

Very truly yours,

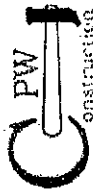
Charlyn P. Watts  
President

Enclosures

P.O. Box 121084

Clermont, FL 34712

Phone (321) 436-0822



**SCOPE OF SERVICES and PROJECT BUDGET**

**LABOR ESTIMATE**

City of Orlando  
Iron Bridge RWRF Effluent Management Project

Task Group	Task Description	Project Manager	
		\$140.00 / Hr.	\$
2.1	Attend Preconstruction Conference. Conducting meeting, recording, and distributing summaries by others.	4	\$523.68
2.4	CPWC will periodically visit the project during the active construction period to observe the progress and content of the work and to assess whether the work is proceeding in general accordance with the Contract Documents. This construction observation is intended to observe, document, and report information concerning the construction progress. Observation of work at the project site shall not make CPWC responsible for the work performed by another party; the means, methods, techniques, sequences, or procedures selected by another party; nor the safety precautions or programs of another party. Identified construction concerns will be discussed with the design engineer and City on-site RPR and representatives. Eighteen (18) site visits.	72	\$9,426.24
2.4	When requested, conduct substantial and final completion inspections with the City's RPR of the project and prepare the "punch lists" of items to be addressed by the Contractor.	24	\$3,142.08
2.5	Attend bi-weekly progress meetings for twelve (12) months. Conducting, recording, and distributing summaries by others.	96	\$12,568.32
<b>TOTAL NOT TO EXCEED SERVICES</b>		196	\$25,660.32

*Sh. J. P. Watts*



## PMA Consultants

March 6, 2015

Mr. David Ammerman, PE  
AECOM  
150 N. Orange Avenue, Suite 200  
Orlando, Florida 32801

Subject: ***City of Orlando – City Of Orlando Iron Bridge Wetlands Pump Station Project***

Dear Mr. Ammerman:

PMA Consultants, (PMA) is pleased to provide the following proposal to AECOM to provide scheduling services for The City of Orlando, Iron Bridge Wetlands Pump Station Project. The proposal has been prepared at the request of AECOM to provide Project Controls support to assist the City's construction management and field staff with project schedule evaluation services. These services shall consist of, but not be limited to:

**TASK 1 – Baseline Project Schedule Review** –PMA will use Primavera P6 software to evaluate and analyze the construction schedule. PMA will attend the pre-construction meeting. PMA will perform walk-throughs at the site in concert with the RPR to gain knowledge of the site conditions and validate the contractor's proposed approach to planning. The evaluation will address the requirements of contract specification 01310, including scheduled task start/end logistics and critical path management. PMA will perform an initial review primarily intended to determine whether the scope of work is accurately defined in the schedule without bias.

1. Review the Summary Milestone Construction Schedule submitted by the contractor. PMA will study the plans and specification for the project to gain knowledge and verify the contractor's methodology. PMA will create an outline of the major activities and logic constraints that should be included in the schedule.
2. PMA will analyze the schedule submitted after the first Application for Payment and prepare a report for the City and AECOM and, with the concurrence of the stakeholders; PMA will forward the comments to the contractor for implementation and corrections to the schedule, if necessary. PMA will continue to review subsequent submittals until the base schedule is accepted.

**TASK 2 – Monthly Schedule Update reviews** – PMA will request monthly correspondence as it relates to the project meeting minutes and electronic copies of the project schedule. PMA will work in concert with the RPR to validate the contractors reported progress on a monthly basis. PMA will provide a report to either accept or request the contractor to correct the schedule.

### **FEE ESTIMATE**

Total estimated fee for this assignment is \$19,113. Attachment A provides the estimated hours and PMA's fees for the anticipated services at the Iron Bridge Wetlands Pump



Station Project. The fee proposal is based on 20 hours to review contract documents and review the initial schedule and approximately 6.5 hours a month (12) to review each update.

**TERM**

The scope of services is anticipated to extend over a 12-month period, commencing on the Notice to Proceed date. Attachment A provides the estimated hours and PMA's fees for the individual tasks described above. The standard fee rates for tasks during the initial design phases are based on a cost plus profit multiplier basis of 2.75 and are good through 2016. These rates were used to develop our proposed not-to exceed fee based on the level of effort described here and quantified by PMA Attachment A.

Task budget amounts proposed represent project budgets only. PMA will not be held to individual task amounts as long as the total amount for tasks awarded to PMA is not exceeded.

PMA will proceed with this effort only after receipt of written Authorization to Proceed. For services rendered, PMA will submit monthly invoices based on percentage completion of the tasks proposed and authorized. Payment for the monthly invoices is due within thirty (30) calendar days from the day the invoice is received by the Client or within 5 calendar days after the Client receives payment from the Owner, whichever occurs earlier. Payment to PMA is in no way conditioned upon Client's receipt of payment from any third party or source. PMA reserves the right to charge a 1% interest fee on any invoices past due over forty five (45) calendar days. Direct expenses for travel, express mail, etc. will be billed at cost. Please remit payment to: PMA Consultants LLC, 226 W. Liberty, Ann Arbor, MI 48104, Attn: Accounting. Questions or clarifications concerning any invoice or contract issues may be referred to Ms. Theresa Langlois by phone at 734-418-7912.

PMA appreciates you're considering us for these services and we look forward to working with you on this project. Please let us know if our proposal meets your needs and is acceptable. If you have any questions or comments please contact Mr. Fernando Villanueva (407-509-7351) at your convenience.

We look forward to continuing work with AECOM and City of Orlando on this project. Please let us know if our proposal fits your needs and is acceptable.

Sincerely,

Richard L. Johnson, PE, DEE, CVS  
Managing Director

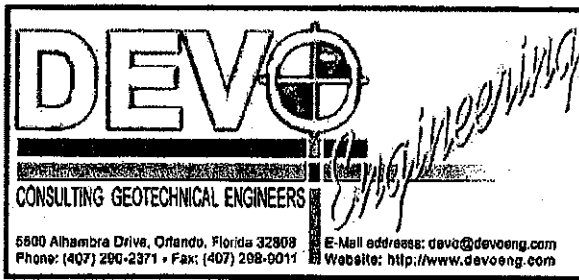
cc: FILE tbd  
Ken VanderJagt, PMA  
Fernando Villanueva, PMA

PMA ATTACHMENT A  
PMA CONSULTANTS PROPOSAL TO AECOM  
FOR SCHEDULING EVALUATION SERVICES DURING CONSTRUCTION  
FOR CITY OF ORLANDO WASTEWATER RECLAMATION FACILITIES WETLANDS PUMP STATION PROJECT



PMA Consultants

Task	Description	Senior Principal	Principal	Senior Engineer	Technical Assistant	Total Hours	Fee
	Construction Administration Services:						
1	Review Baseline Construction Schedule		20			20	\$3,850
2	Schedule Management; Review monthly updates	6	72			78	\$15,263
	Sub-task total					98	\$19,113
	Totals	6	92	0	0	98	\$19,113
	Rates per Agreement Billing Rate Schedule	\$233.75	\$192.50	\$135.00	\$71.50		
	Proposed fee amount	\$1,403	\$17,710	\$0	\$0	98	\$19,113
	Proposed Not-to-Exceed fee						\$19,113



*Date: March 11, 2015 (Revised April 9, 2015)*

*Devo's Project No: 14-895.01*

**To:**

**AECOM**

150 N. Orange Avenue

Suite 200

Orlando, FL 32801

Ph: 407.513.8213 C 407.808.9156 [david.ammerman@aecom.com](mailto:david.ammerman@aecom.com)

attention: **David AMMERMAN - REUSE NATIONAL PRACTICE LEADER**

**Re:**

*Proposal for Construction Materials Testing Services For ...*

**IRON BRIDGE RWRF WETLANDS PUMP STATION IMPROVEMENTS PROJECT**

*City Of Orlando, Orange County, Florida*

Dear Mr. Ammerman:

Further to your request, we are pleased to submit this proposal for construction materials testing for the Iron Bridge RWRF Wetlands Pump Station Improvements Project.

### **Background Information**

AECOM is involved in the design and construction of the Iron Bridge RWRF Wetlands Pump Station Improvements Project for the City of Orlando and require a proposal for construction materials testing pertaining to earthwork and concrete structures associated with this project.

Reference is made to the following drawings from the 100% plan set which was made available for our review:

- ▶ C - 104: Site Plan Civil
- ▶ C - 201: ERRWDS Interconnect Modifications And Site Plan Notes
- ▶ C - 202: ERRWDS Interconnect Modifications And Details
- ▶ S - 201 through S - 502: Structural Drawings

Key construction elements of the project are as follows:

- ▶ Pumping station within the existing pump station facility.
- ▶ New flow meter.
- ▶ Connection to the existing wetlands transmission main.
- ▶ New electrical building to house new electrical gear to serve the new pumps and associated instrumentation and controls.
- ▶ Yard piping and civil work as specified and/or shown on the drawings.
- ▶ Covering the deep bed filter and chlorine contact basins as specified and/or shown on the drawings.
- ▶ Improvements to the ERRWDS/wetlands transmission pipeline interconnection including the installation of a flow meter.
- ▶ Refurbishment of the pressure regulating valve, and installation of a gate valve as specified and/or shown on the drawings.
- ▶ The addition of a weir wall in the South Chlorine Contact Basin and replacement of the drain valves as specified and/or shown on the drawings.
- ▶ Improvements to the post aeration basin pump and return line and replacement of the post aeration basin drain valves as specified and/or shown on the drawings.
- ▶ Permitting, MOT, As-Built Survey, and all other work specified and/or shown on the drawings.

The construction schedule has not yet been finalized, although the preliminary information provided indicates a construction schedule of 52 weeks from NTP. Based on a preliminary review of the plans, these are the components of work (and approximate durations), which are likely to warrant earthwork and concrete (Portland cement and asphalt) materials testing:

- Site work on Plant: Week 4 to 14
- Deep bed filters CCC improvements, etc: Week 9 to 28
- Site work at the ERRWDS Interconnect: Week 13 to 24
- New electrical building, wetlands pump stations, etc: Week 22 to 33
- Wetlands discharge piping: Week 37 to 44

We expect that the scope of work would consist of the following:

1. Attendance to Pre-Construction/Kick Off Meeting.
2. Review of the contractor's schedule and coordination.
3. Sampling and testing of earthwork and trench backfill materials: Tests will consist of laboratory Proctor tests, gradation tests and field compaction tests.
4. Sampling and testing of pavement materials: Tests will consist of laboratory Proctor tests, gradation tests, LBR tests and field compaction tests, asphaltic concrete testing (Marshall Method), asphalt extraction and gradation.
5. Sampling and testing of concrete for the substructures and superstructures: This will consist of molding of specimens, slump tests on fresh concrete, air tests and cylinder crushing strength on cured specimens.
6. Molding, curing and testing of grout prisms, if needed.
7. Preparation of interim materials testing reports.
8. Meetings and coordination with Prime Consultant.

9. Preparation of completion report at the end of the construction period.

We assume that we will be performing on-site and off-site testing only and that the Engineer of Record will be retained by the City to inspect and approve the completed work presented on the plans and specifications.

Based upon review of the plans and specifications, the work limits comprise of relatively small areas with many different construction activities. An hourly basis for the technician is therefore most appropriate for density testing activities for open trenching and backfill, demolition and backfilling, pavement replacement construction, concrete pouring (assumed ready mix plant will be utilized). The daily hours will include travel time, because the density testing will require the nuclear gauge (which must be stored each evening in an approved storage facility). The hourly rate for the technician should apply for verifying the age of the truck load of material and corresponding temperature (required if the load needs to be rejected) monitoring water added, obtaining truck tickets, and measuring slump.

The following tasks and associated manhours are anticipated based on the preliminary construction schedule and productions rates for the principal earthworks activities.

**Task 1: - Attend Kick Off Meeting**

Attend the kick off meeting (at City Of Orlando offices and/or the site or AECOM Offices) and assist in AECOM in responding to questions from City Of Orlando Staff and the City's selected Contractor. This task entails:

1. Document review and preparation for and kick off meeting.
2. Attendance at the kick off meeting.
3. Discussion of issues which could come up at the meeting with City's Staff and/or the Contractor and review the construction schedule.
4. Assist AECOM with responses to questions from the contractor.

**Summary of Estimated Manhours for Task 1:**

- |   |                              |      |
|---|------------------------------|------|
| ① | Senior Engineer              | 2 hr |
| ② | Senior Geotechnical Engineer | 6 hr |

**Task 2: - Quality Control Testing**

Perform quality control testing as specified in the contract documents for:

1. Field compaction and laboratory Proctor densities to compare with the Contractors testing on pipe trench and structure backfill.
2. Sampling of concrete, molding of specimens and compressive strength testing for structural concrete.
3. Concrete testing will performed by sets. A set will consist of a slump test, an air test, molding and compressive strength testing of four cylinders.

The estimated costs for laboratory testing is presented in our itemized Table 1, while the professional services costs for field testing and engineering supervision and coordination is included in our fee itemization in Table 2.



**Estimated Manhours for Task 2:**

①	Senior Technician:	8 hr/wk for 30 wks	=	240 hr
②	Senior Geotech Eng:	4 hrs/wk for 10 wks	=	40 hr

**Summary of Estimated Manhours for Task 2:**

①	Senior Geotechnical Engineer	40 hr
②	Senior Engineering Technician	240 hr

**Task 3: - Quality Control Review & Prepare Interim Testing Reports**

Review the quality control reports and provide AECOM with interim quality assurance report and email updates during the execution of the work.

**Estimated Manhours for Task 3:**

①	Senior Engineer	8 hr
②	Senior Geotechnical Engineer	24 hr

**Task 4: - Completion Report**

Review the contractor's report, all previous data and prepare a completion report for the project. The report will be prepared in hard copy and also electronically for submittal to the City and AECOM.

**Estimated Manhours for Task 4:**

①	Senior Engineer	2 hr
②	Senior Geotechnical Engineer	8 hr
③	Senior-level CADD/GIS	8 hr
④	Administrative Manager	2 hr
⑤	Clerical/Technical Secretary	4 hr

**ESTIMATED NOT TO EXCEED (NTE) FEE**

Our estimated NTE budget for these services is **\$31,655**, as itemized in Tables 1 and 2.

TABLE 1. ITEMIZATION OF FEES FOR LABORATORY TESTS				
DESCRIPTION OF WORK ITEM	UNIT	UNIT COST	QUANTITY	TOTAL
Modified Proctor Tests	each	\$110.00	10	\$1,100.00
LBR for Subgrade Soils	each	\$375.00	5	\$1,875.00
Asphalt Concrete Testing (Marshall Method)	each	\$250.00	5	\$1,250.00
Concrete Cylinders (set)	each	\$75.00	10	\$750.00
Grout Prisms	set	\$110.00	10	\$1,100.00
Not to Exceed Total .....				<b>\$6,075.00</b>

TABLE 2. ITEMIZATION OF FEE FOR TECHNICIAN, ENGINEERS AND SUPPORT STAFF				
DESCRIPTION OF WORK ITEM	UNIT	UNIT COST	QUANTITY	TOTAL
Senior Engineer	hr	\$115.00	12	\$1,380.00
Senior Geotechnical Engineer	hr	\$100.00	78	\$7,800.00
Senior Engineering Field Technician	hr	\$65.00	240	\$15,600.00
Senior-level CADD/GIS	hr	\$65.00	8	\$520.00
Administrative Manager	hr	\$60.00	2	\$120.00
Clerical/Technical Secretary	hr	\$40.00	4	\$160.00
Not to Exceed Total .....				<b>\$25,580.00</b>

We trust that this proposal is sufficiently comprehensive in scope to cover the construction materials testings for the project. Please contact us if there are any questions regarding this proposal. We look forward to working with AECOM on this project.

*Claudia Callahan*  
Claudia Callahan, B.Sc  
Senior Administrative Assistant

## AUTHORIZATION

To authorize this proposal, please complete the information requested and return by mail or fax.

AUTHORIZATION OF OFFER	
This offer is authorized only when signed below otherwise it should be considered a draft.	
Authorization signature:	
<i>Devo Seereeram</i>	
Devo Seereeram, Ph.D., P.E. Owner	
To authorize this work, please complete the information below and return a copy of the executed authorization to:	
Devo Seereeram, Ph.D., P.E., LLC (d/b/a Devo Engineering) 5500 Alhambra Drive Orlando, FL 32808 Phone: 407-290-2371; Fax: 407-298-9011 e-mail: devo@devoeng.com	

AUTHORIZATION BY CLIENT	
Proposal Authorized on this	_____ day of _____ 2015
Authorized Signature . . . . .	_____
Print Name & Title . . . . .	_____
Company name . . . . .	_____
Company address . . . . .	_____
Company phone # . . . . .	_____
Company fax # . . . . .	_____
Cellular/mobile phone # . . .	_____
E-mail address . . . . .	_____