

CITY OF KEY WEST
TASK ORDER No. 6 – DESIGN SERVICES
RICHARD A. HEYMAN ENVIRONMENTAL PROTECTION FACILITY
AERATION UPGRADES AND ELECTRICAL SWITCHGEAR REPLACEMENT

BACKGROUND

The City of Key West (CITY) has decided to upgrade the existing aeration system at the Richard A. Heyman Environmental Protection Facility (RAHEPF) by installing new blowers. The existing aeration system comprises of two multistage centrifugal blowers with associated mechanical piping, electrical and instrumentation and controls components. The City desires to increase redundancy at the facility with the addition of three to four new blowers. Additionally, CITY has decided to upgrade the existing aging electrical switchgear in the existing electrical room due to the planned transformer upgrade by Keys Energy Services.

INTRODUCTION

Black & Veatch (CONSULTANT) has been requested by the CITY to provide detailed design services, bidding assistance and construction phase services to implement aeration and electrical switchgear upgrades for the RAHEPF. The electrical switchgear upgrades are required due to the planned transformer upgrade by Keys Energy Services. Detailed design for the aeration upgrades has been completed by CONSULTANT under project number SE35031801. The scope of services includes the following three main phases:

- Detailed design of electrical switchgear and update of the aeration upgrades detailed design documents.
- Bid and pre-award services
- Construction phase services

SCOPE OF SERVICES

Task Series 100 – DETAILED DESIGN

Task 101 - Detailed Design - Construction Documents Level 1

- A. The following activities will be completed during the Level 1 design of the electrical switchgear upgrades:
- (1) Load study to determine main cable and circuit breaker sizing
 - (2) Basis of Design Memorandum
 - (3) Power distribution functional diagram
- B. CONSULTANT will provide two (2) hard copy sets and one (1) electronic set of the Level 1 documents to the CITY for review.

- C. CONSULTANT will conduct a project review workshop with the CITY to review the Level 1 documents. Based on discussions during the workshop, CONSULTANT will incorporate the applicable comments into the next submittal (Level 2).

Task Series 101 Deliverables

The following deliverables are included in Task Series 101:

- Basis of Design Memorandum (including preliminary drawings and specifications list).
- Level 1 workshop meeting minutes.

Task 102 - Detailed Design - Construction Documents Level 2

- A. Level 2 design shall commence only after CITY has accepted the Level 1 deliverables. The following activities will be completed as part of Level 2 design:
- (1) Short circuit analysis to determine available fault current at all downstream busses from the new utility transformer
 - (2) Design of the demolition of the existing switchboard
 - (3) Design of new switchgear
 - (4) Duct bank routing
 - (5) Construction sequencing
 - (6) Opinion of probable construction cost
- B. CONSULTANT will provide two (2) hard copy sets and one (1) electronic set of the Level 2 drawings and specifications to the CITY for review.
- C. CONSULTANT will conduct a project review workshop with the CITY to review the Level 2 drawings and specifications. Based on discussions during the workshop, CONSULTANT will refine the drawings and specifications, and incorporate the applicable comments into the next submittal (Level 3).

Task Series 102 Deliverables

The following deliverables are included in Task Series 102:

- Level 2 design drawings, specifications and opinion of probable construction cost.
- Level 2 workshop meeting minutes.

Task 103 - Detailed Design - Construction Documents Level 3

- A. Level 3 design shall commence only after CITY has accepted the Level 2 deliverables. All comments received during Level 2 design review workshop will be incorporated into the Level 3 design. Additionally, as part of Level 3 design CONSULTANT will update the aeration upgrades design completed under project number SE35031801.
- B. CONSULTANT will provide two (2) hard copy sets and one (1) electronic set of the Level 3 drawings and specifications to the CITY for review.
- C. CONSULTANT will conduct a project review workshop with the CITY to review the Level 3 drawings and specifications. Based on discussions during the workshop, CONSULTANT will refine the drawings and specifications, and incorporate the applicable comments into the next submittal (Level 4).

Task Series 103 Deliverables

The following deliverables are included in Task Series 103:

- Level 3 design drawings, specifications and opinion of probable construction cost.
- Level 3 workshop meeting minutes.

Task 104 - Detailed Design - Construction Documents Level 4

- A. Level 4 design shall commence only after the CITY has accepted the Level 3 deliverables. Level 4 progress activities are as follows:
 - (1) Final review set of CAD drawings
 - (2) Final review set of specifications and construction contract documents
 - (3) Opinion of probable construction cost update
 - (4) Internal quality control review and refinement before delivery to the CITY
 - (5) Quality assurance and quality control plan and log update.
- B. CONSULTANT will provide the CITY with three (3) signed/sealed hard copy sets and one (1) electronic copy.

Task 104 – Deliverables

The following deliverables are included in Task Series 104:

- A. Three (3) signed/sealed hard copy sets of design documents and one (1) electronic copy.
- B. Opinion of probable construction cost.

Task Series 200 – BID AND PRE-AWARD SERVICES

A. The Bid Services Task will include the following activities.

- 1. Pre-Bid Conference. Conduct at a date and time selected and a place provided by the CITY a pre-bid conference to:
 - a. Confirm the types of information required by the contract documents and the format in which bids should be presented.
 - b. Review special project requirements and contract documents in general.
 - c. Receive requests for interpretations that will be issued to plan holders.
 - d. Prepare minutes of conference and issue to plan holders.
- 2. Interpretation of bidding documents. Interpret bidding documents. Prepare and issue addenda to the construction contract documents when required.
- 3. Bid Opening. Assist CITY during bid opening. Answer questions, make preliminary tabulation of bids, and review questionnaires and bids for completeness. Final review set of specifications and construction contract documents.

Task 200 – Deliverables

The following deliverables are included in Task Series 200:

- A. As Bid Construction Contract Documents. Refine construction contract documents according to addenda.
- B. Distribute three (3) sets of the construction contract documents to the successful bidder.
- C. Prepare and distribute three (3) sets of conforming copies of the construction contract documents.

Task Series 300 – CONSTRUCTION PHASE SERVICES

CONSULTANT will perform services during the construction phase of the project. By performing these services, CONSULTANT shall not have authority or responsibility to supervise, direct, or control the CONTRACTOR's work or the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction. CONSULTANT shall not have authority or responsibility for safety precautions and programs incident to the CONTRACTOR's work or for any failure of the CONTRACTOR to comply with laws, regulations, rules, ordinances, codes, or orders applicable to

the CONTRACTOR furnishing and performing the work. It is anticipated that the construction period will be twelve (12) months. Specific services to be performed by CONSULTANT are outlined below.

Task 301- Construction Administration Support Services

- A. CONTRACTOR's Schedule. Determine if CONTRACTOR's schedule is consistent with the construction contract documents with emphasis on milestone dates, construction sequencing, and operation of existing facilities during construction. CONSULTANT's review shall not include an analysis of CONTRACTOR's approach, means or methods of construction to perform the work specified in the construction contract documents.
 - 1. Review and comment upon the CONTRACTOR's initial construction schedule.
 - 2. Review and comment upon updated schedules monthly.
- B. CONTRACTOR's Estimates of Monthly Payments. Review the CONTRACTOR's initial and updated schedule of estimated monthly payments and advise CITY as to acceptability.
- C. Shop Drawing Review. Review drawings and other data submitted by the CONTRACTOR as required by the construction contract documents. CONSULTANT's review shall be for general conformity to the construction contract documents and shall not relieve the CONTRACTOR of any contractual responsibilities. Such reviews shall not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions and programs incident thereto. Manufacturer's O&M manuals received in CONTRACTOR submittals will be passed on to CITY without review.
- D. Operation and Maintenance Data. Collect and organize two (2) sets of operation and maintenance data provided by the CONTRACTOR. Each set will be placed in separate binders, the binders indexed, and a table of contents provided. Binders will be submitted to CITY.
- E. Requests for Information, Change Orders, and Claims.
 - 1. Requests for Information. Interpret construction contract documents when requested by CITY or the CONTRACTOR. Requests for clarification or information shall be in writing and copies of CONSULTANT's response shall be distributed to CITY.
 - 2. Change Orders. Review CITY or CONTRACTOR requests for project changes.
 - a. Review documentation
 - b. Prepare any additional documentation required
 - c. Administer the processing of change orders
 - d. Review applications for extension of construction time
 - e. Evaluate the cost and scheduling
 - f. Submit recommendations to CITY

- g. Assist CITY in negotiations with CONTRACTOR to obtain a fair price for the work.
- 3. Claims. Act on claims of CITY and the CONTRACTOR relating to the acceptability of the work or the interpretation of the requirements of the construction contract documents.
- 4. CONTRACTOR Pay Requests. Review and process the CONTRACTOR's monthly payment requests, and forward to CITY if appropriate. CONSULTANT's review shall be for the purpose of making a full independent mathematical check of the CONTRACTOR's payment request. Because CONSULTANT will not be providing a resident engineer, CITY is responsible for verifying the quantities of work which are the basis of the payment requests.
- 5. Drawings Conformed to Construction Records. Upon completion of the project CONSULTANT will revise the construction contract drawings to conform to the construction records. Submit to the CITY two (2) hard copies and one (1) copy in electronic format.

Task 302 Witness Testing

- A. CONSULTANT will review test procedures and testing setup, to be submitted by blower manufacturer, for conformance to construction contract documents.
- B. CONSULTANT will provide two (2) representatives to witness shop tests, inspect and check testing equipment used, and observe the calibration of measurement devices in person, at the blower manufacturer's facility. It is anticipated that witness testing will take up to six (6) days.

Task 303 Field Support Services

- A. Preconstruction Conference. Attend the preconstruction conference at a date and time selected by the CITY and at a facility provided by the CITY. Elements of the conference will include:
 - 1. Agenda prepared by CONSULTANT
 - 2. CONSULTANT prepare and distribute minutes
 - 3. Discussion of CONTRACTOR's tentative schedules
 - 4. Procedures for transmittal and review of CONTRACTOR's submittals
 - 5. Special Inspections Program
 - 6. Processing applications for payment
 - 7. Critical work sequencing
 - 8. Change orders
 - 9. Record documents

10. CONTRACTOR's responsibilities for safety and first aid

- B. Construction Progress Review Meetings and Bi-Weekly Site Visit. Participate in the monthly progress construction meeting. Visit the construction site to observe progress of the work, and consult with the CITY and the CONTRACTOR. A total of twenty-four (24) site visits are included.
- C. Punch List. Upon substantial completion, inspect the construction work and prepare a punch list of those items to be completed or corrected before final completion of the project. Submit results of the inspection to the CITY and the CONTRACTOR. The substantial inspection will include CONSULTANT's representatives from civil/mechanical, electrical and I&C disciplines.
- D. Final Inspection. Upon completion or correction of the items of work on the punch list, conduct a final inspection to determine if the work is completed. Provide written recommendations to CITY concerning final payment, including a list of items, if any, to be completed prior to making such payment. The substantial inspection will include CONSULTANT's representatives from civil/mechanical, electrical and I&C disciplines.

Task 304 Permitting

- A. CONSULTANT will attend meetings with regulatory agencies to identify permit requirements. Two meetings are anticipated with FDEP for the Minor Revision to a Wastewater Facility Permit.
- B. CONSULTANT will prepare permit application including the necessary contract documents, design calculations and plans for obtaining the following permit:
 - 1. Florida Department of Environmental Protection (FDEP) Application for a Minor Revision to a Wastewater Facility or Activity Permit (Chapter 62-620).
 - 2. Notification of Completion of Construction for Wastewater Facilities or Activities (Chapter 62-620).
- C. CONSULTANT will provide responses to two inquiries and request for clarification from FDEP from the Minor Revision to a Wastewater Facility Permit application.

Task Series 300 Deliverables

The following deliverables are included in Task Series 300:

- Pre-construction meeting documents (agenda, attendance list, meeting minutes).
- Monthly progress construction meetings documents (agenda, attendance list, meeting minutes).
- Bi-weekly site visit reports.
- Punch list.
- Certificate of final completion.
- Record Documents (including drawings and specifications).

BUDGET

Tasks as described in this scope of work would have the following lump sum fees:

TASK SERIES	LUMP SUM FEES
Task 100 – Detailed Design	\$76,888
Task 200 – Bid and Pre-Award Services	\$14,155
Task 300 – Construction Phase Services	\$129,890
Direct Costs	\$7,717
LUMP SUM TOTAL	\$228,650

CITY OF KEY WEST

By: _____

By: _____

(Print Name)

Title: _____

Date: _____

BLACK & VEATCH CORPORATION

By: _____

By: Rafael E. Frias III, P.E

(Print Name)

Title: Associate Vice President

Date: _____