



# City of Grand Island

Tuesday, April 9, 2013

Council Session

## Item G-14

**#2013-103 - Approving Amendment No. 3 for Engineering Services for Aeration Basin Improvements at the Wastewater Treatment Plant**

Staff Contact: John Collins, P.E. - Public Works Director

# **Council Agenda Memo**

**From:** Marvin Strong, P.E. - Wastewater Treatment Plant Engineer

**Meeting:** April 9, 2013

**Subject:** Approving Amendment No. 3 for Engineering Services for Aeration Basin Improvements at the Wastewater Treatment Plant

**Item #'s:** G-14

**Presenter(s):** John Collins, P.E. - Public Works Director

## **Background**

A plant improvement project entitled "Aeration Basin" was initiated in the Fiscal Year 1995. The Aeration Basin comprises of four (4) biological trains in the activated sludge process, recycle channel, blower building, and three (3) spiral lift screw pumps.

On August 5, 2009, the City of Grand Island invited proposals for engineering services for Aeration Basin Improvements at the Wastewater Treatment Plant. The engineering services scope would review the current system condition, and process methodology in calculating assessments for expanded industrial loading.

On September 1, 2009 proposals were received, reviewed and evaluated in accordance with established criteria. Black & Veatch Corporation of Kansas City, Missouri submitted a proposal in accordance with the terms of the Request for Proposals with a maximum amount of \$384,000.00 which the City Council approved on October 13, 2009.

On August 24, 2010, the City Council approved Amendment No. 1 to the agreement for consulting services on the Aeration Basin Project. Amendment No. 1 included blower capacity evaluations and design memorandum resubmittal to the NDEQ based on JBS's construction of expanded industrial waste treatment facilities, inclusion of mixer capacity in ongoing improvements in nitrate treatment, allowance for alternate blower manufactures to the bidding documents, and the addition of standard operation procedure manual, bidding phase services, construction phase services, resident inspection, start-up warranty commissioning to the scope of work. Amendment No. 1 added \$611,000.00 in consulting services for a maximum not to exceed amount of \$995,000.00.

On February 24, 2011, a mechanical gearbox bearing failure on Spiral Lift Pump No. 3 resulted in damage to the gearbox housing, including associated mechanical drive couplings, and structural anchor bolts.

On March 16, 2011, the wastewater staff presented to administration repair, replacement, and alternate pumping options.

On May 3, 2011, proposals were received by consulting firms Black & Veatch of Kansas City Missouri, and HDR Engineering of Omaha Nebraska to evaluate options to repair, replace, or use an alternative pumping option.

On May 12, 2011, a workshop was concluded with Black & Veatch of Kansas City, Missouri to overview planning with staff and administration.

On May 31, 2011, Black & Veatch of Kansas City Missouri prepared a technical memorandum titled "Screw Pump Replacement Evaluation". In this evaluation, consideration was given to future hydraulic capacity, replacement options, constructability, construction costs, energy consumption, and overall life cycle costs. The engineer's recommendation was to repair the existing spiral lift pump and provide similar repair in others for a continued useful life cycle of ten (10) to twenty (20) years. At the end of the life cycle, it was recommended that the present spiral lift pumps be replaced with smaller units of the same type.

On June 28, 2011, the City Council approved Amendment No. 2 to the agreement for consulting services on the Aeration Basin Project. Amendment No. 2 included services required to repair the existing spiral lift pumps. The scope of work included, finalized scope of repair, preparing technical documents, conduct structural inspections, preform design, prepare conceptual internal recycle layout design, prepare construction change order documents, construction phase services, and project administration and management. The estimated services of \$35,770.25 was available within the current contract maximum not to exceed as a result of previous tasks being completed under the allowable billing limits, therefore, no increase in the contract amount was required to implement the amendment.

## **Discussion**

This Amendment No. 3 includes supplemental design and construction phase services for additional screw pump rehabilitation and associated contract time extensions granted by Change Order No. 4 and 5 to the General Construction Contractor.

The Engineer is requesting compensation for the performance of additional services rendered that will not absorb into the original agreement. Change Orders to the General Construction Contractor altered the project construction from seventeen (17) to twenty four (24) months, that involved an additional two hundred seventy eight (278) hours of onsite observations to the general progress in the work. Technical guidance, additional drawing specifications were produced in repair for welding cracks within the screw pump flights, repairing the screw deflector plates, replacement of existing grout beneath the screw pumps, and for structural development in spiral screw pump bearing plates.

City staff has negotiated with the Engineer, Black & Veatch for services rendered in the amount of \$27,830.00 for Construction Phase Services, and \$21,686.00 for Resident Inspection Services as fair and reasonable. Amendment No. 3 will add \$49,516.00 in consulting services for a maximum not to exceed amount of \$1,044,516.00.

### **Alternatives**

It appears that the Council has the following alternatives concerning the issue at hand. The Council may:

1. Move to approve a resolution authorizing the Mayor to execute Amendment No. 3 with Black and Veatch of Kansas City, Missouri.
2. Refer the issue to a Committee.
3. Postpone the issue to future date.
4. Take no action on the issue.

### **Recommendation**

The City Administration recommends that the Council approve Amendment No. 3 to the professional services agreement with Black & Veatch for the consulting engineering services on the Aeration Basin Project.

### **Sample Motion**

Move to approve Amendment No. 3 with Black & Veatch for engineering services associated with performance to additional services in repair and reconditioning of spiral lift pumps associated to the Aeration Basins.

**AMENDMENT NO. 3  
TO  
AGREEMENT FOR ENGINEERING SERVICES BETWEEN  
THE CITY OF GRAND ISLAND, NEBRASKA  
AND BLACK & VEATCH CORPORATION**

THIS AMENDMENT NO. 3 modifies the Agreement between the City of Grand Island, Nebraska (OWNER) and Black & Veatch Corporation (ENGINEER) dated November 30, 2009 (Agreement), Amendment No.1 dated September, 9, 2010, and Amendment No. 2 dated July 13, 2011.

WHEREAS, the Agreement authorized ENGINEER to provide engineering services in connection with the Aeration Basin Improvements at the OWNER's Wastewater Treatment Facility; and,

WHEREAS, OWNER wishes to authorize ENGINEER to perform additional services as provided in ATTACHMENT "A" of AMENDMENT NO. 3;

WHEREAS, OWNER and ENGINEER agree that such changes to scope of services and project schedule will result in a net increase in the maximum not to exceed cost to the OWNER, as provided in ATTACHMENT "B" of AMENDMENT NO. 3;

NOW THEREFORE, the terms and conditions of the Agreement are modified as specifically set forth herein. All other provisions of the Agreement, to the extent not inconsistent with this Amendment, remain in full force and effect.

**EFFECTIVE DATE**

The effective date of this Amendment No. 3 shall be \_\_\_\_\_, 2013.

**MODIFICATIONS**

1. Amendment No. 3 Attachment "A", Scope of Services shall supplement Attachment "A" in the original agreement and previous amendments.
2. Replace Attachment "B", Compensation with Amendment No. 3 Attachment "B", Compensation of Hourly Billing Rates.

Grand Island, Nebraska  
Amendment No. 2  
3/11/2013

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IN WITNESS WHEREOF, OWNER and ENGINEER have executed this Amendment No. 2.

City of Grand Island, Nebraska  
OWNER

Black & Veatch Corporation  
ENGINEER

By: \_\_\_\_\_

By: \_\_\_\_\_

Printed Name: Jay Vavricek

Printed Name: Michael G. Orth

Title: Mayor

Title: Senior Vice President

Date: \_\_\_\_\_

Date: 3/29/13

Grand Island, Nebraska  
Amendment No. 2  
4/5/2013

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## **Scope of Services – Aeration Basin Improvements**

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### **General**

This scope of work describes the services to be rendered by Black & Veatch (the “ENGINEER”) to the CITY of Grand Island (the “CITY”) for the design of the aeration basin improvements project at the Grand Island Wastewater Treatment Plant (WWTP). The original scope of services included schematic design, final design, and bid phase services. The original scope also anticipated combining the Aeration Basin Improvements with the anaerobic digestion improvements project to be bid on a lumps sum basis by general contractors. Amendment No.1 included supplemental design services and construction phase services for the aeration basin improvements, and separated the Aeration Basin Improvement project from the Anaerobic Digestion Improvements project. Amendment No. 2 includes supplemental construction phase services for the aeration basin improvements. This Amendment No. 3 includes supplemental design and construction phase services for additional screw pump rehabilitation and associated Contract Time extensions grant to the Contractor as described herein.

### **Project Information**

**Project Title:** Aeration Basin Improvements for the Grand Island WWTP (the “PROJECT”)

**Objective:** The main objective of the project remains unchanged. The CITY requires the replacement of two (2) existing multi-stage aeration blowers with two (2) new single-stage aeration blowers, associated modifications within the blower building, and replacement of existing ceramic diffusers with membrane diffusers. The controls for the new single-stage blowers will be integrated with the controls for the two (2) remaining multi-stage units, and all four blowers will work as a system.

The supplemental services to be added to the scope of services with this amendment include: supplemental design services required for rehabilitation of the existing screw pumps, the associated construction phase services required to for this Work both in the field and office, and project administration associated with the Contract Time extensions granted by Change Order No. 4 and 5 to the General Contractor.

The CITY system goals for the PROJECT continue to be proven technology, noise reduction, flexible output, reliable/low maintenance, sustainable life cycle cost, utilization of existing structures, cost effective equipment, and control of odors will be achieved by ENGINEER as described below:

Grand Island, Nebraska  
Attachment “A”  
03/11/2013

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**Project Administration and Controls:** Project administration and controls will be extended based on the Contract Time extension of 215 days granted to the Contractor for completion of the Work.

**Project Location:** (No changes)

## **Work Tasks**

ENGINEER will perform the following specific tasks as part of this Scope of Services:

**Task 1 – Schematic Design Phase – (As included in the original Agreement and Amendment No. 1)**

**Task 2 – 50% Contract Document Development – (As included in the original agreement)**

**Task 3 – 90% Contract Document Development – (As included in the original agreement)**

**Task 4 – Final Contract Documents – (As included in the original Agreement, Amendment No. 1, and Amendment No. 2.)**

**Task 5 – Bidding Phase Services – (As included in the original Agreement, Amendment No. 1, and Amendment No. 2.)**

**Task 6 – Construction Phase Services (As included in Amendment No. 1, Amendment No. 2, and supplemented herein.)**

Construction Phase Services Compensation: \$342,500 \$378,270.25 \$406,100.25

**Objective:** Provide construction phase services to the CITY through the duration of construction. Construction is anticipated to require ~~seventeen (17)~~ twenty four (24) months to complete from Notice to Proceed to Final Completion.

### **Subtasks:**

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Attachment “A”  
03/11/2013

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1. Project Administration and Control. Provide supplemental project administration and controls for the contract time extension of 215 days.
2. Preconstruction Conference. (No changes.)
3. Redesign and Review for Howden Blowers. (No changes.)
4. Shop Drawings Review. (No changes.)
5. Operation and Maintenance Manual (O&M) Review. (No changes.)
6. General Construction Phase Services. (As included in Amendment No. 1, Amendment No. 2, and supplemented herein.)
- d. Provide documentation and administer the processing of change orders, including applications for extension of construction time. Evaluate the cost and scheduling aspects of all change orders and, where necessary, negotiate with the Contractor to obtain a fair price for the work. Said negotiation shall be subject to the approval of CITY. Specifically for work associated with this amendment, provide the following services:
  - i. Finalize Scope of Repair. Provide technical guidance and finalize the scope of repair for welding cracks within the screw pump flights, repairing the screw deflector plates, and for replacement of existing grout beneath the screw pumps. Confirm scope of repair with CITY. Prepare scope documents for procurement and installation of the pump repairs.
  - ii. Prepare Change Order Documents. Prepare change order text, prepare PDF file of the documents, submit to CITY, and conduct a review via conference call. ENGINEER shall conduct quality control review in conjunction with CITY review.
  - iii. Finalize Change Order Documents. Incorporate CITY review comments, prepare final documents, and submit to Contractor for pricing.
  - iv. Construction Phase Services. Review Contractor's proposed cost, review associated shop drawings and O&M manuals, and responses to questions.
7. Configuration Services. (No changes.)
8. Project Completion. (No changes.)
9. Record Drawings. (No changes)
10. Standard Operating Procedure Manual. (No changes.)

**Task 7 – Resident Services During Construction (As included in Amendment No. 1, and supplemented here in.)**

Resident Services During Construction Compensation: \$ ~~158,430.00~~ \$ 180,166.00

**Objective:** Provide supplemental on-site resident inspection services during construction to observe construction activities on behalf of the CITY.

**Subtasks:**

1. Site Observation and Liaison with CITY and CONTRACTOR.
  - a. Provide an additional two hundred seventy eight (278) hours of onsite observations of the general progress of the work to assist ENGINEER in determining if the work is proceeding in accordance with the Construction Contract Documents for the Contract Time extensions granted for completion of the screw pump rehabilitation.

**SUPPLEMENTAL SERVICES**

(No changes)

## AMENDMENT NO. 3

### ATTACHMENT B – TO STANDARD AGREEMENT FOR PROFESSIONAL SERVICES

*City of Grand Island – Consulting Engineering Services for Aeration Basin Improvements*

# Compensation – Aeration Basin Improvements

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For the services covered by this Agreement, the CITY agrees to pay the ENGINEER as follows:

1. For services described in Attachment A, Scope of Services, an amount equal to the ENGINEER's salary billings plus reimbursable expenses and subcontract billings. The maximum billed for these services shall not exceed ~~Three Hundred and Eighty-Four Thousand Dollars and no cents (\$384,000.00)~~ ~~Nine Hundred and Ninety Five Thousand Dollars and no cents (\$995,000.00)~~ One Million Forty Four Thousand Five Hundred and Sixteen and no cents (\$1,044,516) without further authorization. The maximum billed for each task shall not exceed the following amounts without further authorization:

Task 1 – Schematic Design Phase ~~\$96,800~~ \$131,100

Task 2 – 50% Contract Document Development \$ 100,300

Task 3 – 90% Contract Document Development \$104,700

Task 4 – Final Contract Documents ~~\$49,300~~ ~~116,200~~ 107,554.34

Task 5 – Bidding Phase Services ~~\$32,900~~ ~~41,770~~ 14,645.41

Task 6 – Construction Phase Services - ~~\$342,500~~ ~~378,270.25~~ 406,100.25

Task 7 – Resident Inspection Services - ~~\$158,430~~ 180,116

2. The schedule of hourly billing rates and charges by job classification is shown in Attachment C.
3. For supplemental services, an amount equal to the ENGINEER's salary billings plus reimbursable expenses and subcontract billings. Each item of supplemental services shall be specifically authorized by the CITY, and a maximum billing limit shall be established before the work is started. The amount billed for each item of supplemental services shall not exceed the amount established for it without further authorization. Additional amounts for supplemental services may be authorized, if necessary, as the work progresses. The schedule of hourly billing rates and charges by job classification is shown in Attachment C.
4. The ENGINEER agrees to use its best efforts to perform the services within the billing limit stated above and in accordance with the agreed upon performance schedules. If, at any time, the ENGINEER has reason to believe that the cost of the

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Attachment "B"  
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services will be greater than the billing limit, the ENGINEER shall promptly notify the CITY to that effect, giving a revised billing limit for performance of the services.

5. Monthly payments shall be made to the ENGINEER by the CITY based on the ENGINEER's statement. The statement shall indicate the name of the individuals working on the project and the hours associated with each of their efforts.

Each invoice shall be accompanied by a progress report prepared by ENGINEER's Project Manager. The report shall describe, in narrative form, the work accomplished during the period covered by the invoice and present a summary of the status of the project to-date. The summary shall address the project schedule, budget, and any significant changes in the scope of the work.

In the event CITY disputes any invoice item, CITY shall give ENGINEER written notice of such disputed item within ten (10) days after receipt of such invoice and shall pay to ENGINEER the undisputed portion of the invoice according to the provisions hereof.

6. It is understood and agreed that the maximum billings is based on the start of the services being authorized not later than November 30, 2009. If start of services is not authorized by the date given, it is understood and agreed that the maximum billing limit will be adjusted accordingly by a supplement to this Agreement.
7. It is understood and agreed:

That the ENGINEER shall start the performance of services listed in Attachment A within ten days of receipt of notice to proceed.

That the ENGINEER shall keep records on the basis of generally accepted accounting practice of costs and expenses and which records shall be available to inspection at reasonable times.

## RESOLUTION 2013-103

WHEREAS, on August 5, 2009 City of Grand Island invited proposals for engineering services for Aeration Basin Improvements at the Wastewater Treatment Plant, according to Request for Proposals on file with the Engineering Division of the Public Works Department; and

WHEREAS, on September 1, 2009 proposals were received, reviewed and evaluated in accordance with established criteria; and

WHEREAS, on October 13, 2009 members of City Council awarded agreement for engineering services to Black & Veatch Corporation of Kansas City, Missouri; with the work performed at actual costs with a maximum amount of \$656,000.00, and

WHEREAS, on August 24, 2010 City Council approved Amendment No. 1 to the agreement for engineering services to Black & Veatch Corporation of Kansas City, Missouri; with the work performed at actual costs with a maximum amount of \$995,000.00; and

WHEREAS, on June 28, 2011 City Council approved Amendment No. 2 to the agreement for engineering services to Black & Veatch Corporation of Kansas City, Missouri; a no cost adjustment to the work performed at actual costs with a maximum amount of \$995,000.00; and

WHEREAS, City Staff is recommending compensation for performance in additional engineering tasks within the construction, and resident inspection services in Spiral Lift Screw Pump reconditioning; and

WHEREAS, City Staff has negotiated such additional engineering tasks within the construction, and resident inspection services in the amount of \$49,516.00 as fair and reasonable; and

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that Amendment No. 3 to the agreement with Black & Veatch Corporation of Kansas City, Missouri for engineering services for Aeration Basin Improvements at the Wastewater Treatment Plant is hereby approved; and

BE IT FURTHER RESOLVED, that the Mayor is hereby authorized and directed to execute Amendment No. 3 on behalf of the City of Grand Island.

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Approved as to Form	by _____
April 5, 2013	City Attorney

Adopted by the City Council of the City of Grand Island, Nebraska, April 9, 2013.

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Jay Vavricek, Mayor

Attest:

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RaNae Edwards, City Clerk