



City of Grand Island

Tuesday, August 24, 2010

Council Session

Item G14

#2010-230 - Approving Amendment Number 1 to Agreement for Consulting Engineering Services on the Aeration Basin Project at the WWTP

Staff Contact: Steve Riehle, Public Works Director

Council Agenda Memo

From: Steven P. Riehle, Public Works Director

Meeting: August 24, 2010

Subject: Approving Amendment Number 1 to Agreement for Consulting Engineering Services on the Aeration Basin Project at the WWTP

Item #'s: G-14

Presenter(s): Steven P. Riehle, Public Works Director

Background

There are 4 basins for a total of 10.8 million gallons of aeration capacity located towards the eastern edge of the plant. The aeration basins at the Wastewater Treatment Plant are part of the secondary biological treatment process. The aeration basins use bacteria in the activated sludge process to remove organic material and solids, and perform biological nutrient removal to lower ammonia & nitrogen levels in the plant effluent. Blowers supply the air to the process that provides the oxygen to the bacteria. Diffusers are used in the aeration basin to efficiently transfer the oxygen from the air, to the wastewater, and then to the bacteria. The schedule for the aeration basin improvement project is based on the Nebraska Department of Environmental Quality (NDEQ) discharge permit requirements for both the City and JBS and the need to replace aging blowers and diffusers that have reached the end of their useful life.

The Request For Proposals (RFP) for consulting engineering services on the aeration basin project included a proposed scope of services and fees for design engineering as well as for services during construction. The intent was to enter into an initial agreement for design services with an amendment for construction phase services upon completion of the design. The scope of services during construction was to be estimated at proposal time (\$398,000.00) and negotiated after design is complete when the scope, size and complexity of the aeration basin improvement project are finalized.

The initial agreement with consulting engineering firm Black & Veatch was approved on October 13, 2009 by the city council to perform professional engineering services related to the aeration basin improvement project. The initial agreement provided for a scope of services that would take the project from preliminary design through the bidding process with work performed at actual costs with a maximum of \$384,000.00.

JBS is moving forward with construction of additional industrial pre-treatment facilities. This decision was made following Black & Veatch's delivery of the 50% complete drawings and specifications, requiring reevaluation of the process design, changes to the schematic design, and rework of final design that had already been completed. The proposed JBS facilities also changed the focus of the Wastewater Comprehensive Plan away from anaerobic digesters to a focus on projects like the aeration basin improvements, bar screens, and the north sanitary sewer interceptor on the collection system.

The design on the aeration basin project is almost complete and additional consulting services are required to complete and bid the design package and perform services during construction.

Discussion

City staff has met with the consultant a number of times to negotiate the details of the design package and the scope of services needed to complete the project and meet deadlines. The negotiated scope includes:

Project Administration

- Progress Reporting
- Trend Management

Supplemental Schematic Design

- Process Design
- Mechanical Design
- Instrumentation and Controls Design
- Electrical Design
- Opinion of Costs
- Revise Design Memorandum

Supplemental Final Contract Documents

- Redesign Plans and Specifications for Mixers
- Revise Contract Documents for Evaluated Bids

Supplemental Bid Phase Services

- Blower Evaluation

Construction Phase Services

- Project Administration
- Preconstruction Conference
- Revision based on blower selection
- Shop Drawing Review
- Operation and Maintenance Manual
- General Construction Phase Services
- Configuration Services
- Project Completion Documents
- Record Drawings
- Standard Operating Procedures Manual

Process Commissioning Services
Resident Services During Construction
Site Observation and Liaison with City
Outside Liaison
Meetings, Reports and Document Review
Assistance in Certification of Substantial Completion

Task 1 - Schematic Design Phase

The reduced loading from JBS will require revisions and resubmittal of the Design Memorandum to NDEQ. It will also allow the size of the blowers for the aeration basin project to be decreased. The reduced size of the blowers allows for the addition of mixers to the aeration basin project within the original budget. The mixers will help control oxygen concentrations in the basins, optimize nitrate removal, and lower total nitrogen in the discharge. While there are currently no discharge limits for nitrates, the discharge from the plant has historically averaged 10 to 12 parts per million (ppm) and is now averaging just over 30 ppm. This is a result of changes in the JBS loading to the plant that has occurred over the past six months. Adding the mixers to the aeration basin project will save considerable cost over adding the mixers as a future and separate project. Adding the mixers now will also help reduce the nitrate level in the plant discharge now, instead of in the future.

The increase in estimated cost for revisions to the Design Memorandum and the additional design work for smaller blowers and adding the mixers is \$34,300.00.

Task 4 - Final Contract Documents and Design

The bid specifications will be revised to allow for smaller blowers and the addition of mixers.

The contract documents must be modified to provide for guidelines under which alternative blowers could be specified. The estimated cost for the blowers as part of the bid package is well over \$0.5 million dollars. The original design for the project was based on a Turblex blower. The bid specifications will be changed to allow bids for an alternative blowers manufactured by Howden. The allowance for alternatives will open the project to more competition between blower manufacturers.

The increase in estimated cost for the additional contract document work is \$66,900.00.

Task 5 - Bidding Phase Services

Bidding documents will be set up to allow for an evaluated bid of blower manufacturers considering costs, efficiency, experience, and support services. For this reasons the level of effort to evaluate the bids was increased.

The increase in estimated cost for the additional evaluation work is \$8,870.00.

Task 6 & 7 – Construction Phase Services and Resident Inspection Services

The original proposal included \$398,000 for the services. The negotiated agreement for the work is \$500,930.00 at an increase of \$102,930.00 from the original proposal. The bulk of the increase (\$93,905.00) is due to changes in the scope of the project related to:

1. Instrumentation & control work being performed by the Engineer instead of the Contractor at an estimated cost of \$25,920.
2. Work related to alternative blower selection for foundation design, discharge piping, silencer modifications, piping supports and HVAC at an estimated cost of \$38,278.00.
3. The city requested that the engineer provide a standard operating procedures manual for the system at an estimated cost of \$24,478.00.
4. The city also requested that the engineer provide services for commissioning the newly installed blowers to avoid warranty and operational problems during and after start-up at an estimated cost of \$5,229.00

Copies of amendment number 1 as well as attachments A, B & C are attached to this memo for reference. The agreement provides for work to be performed at actual costs with a maximum of \$611,000.00 for an amended total agreement of \$995,000. The project remains under the total budget with the reduction in blower size, allowance for alternative blowers, addition of mixers, and increase in the engineering services agreement.

Alternatives

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

1. Move to approve
2. Refer the issue to a Committee
3. Postpone the issue to future date
4. Take no action - Public Works Administration recommends against the option of taking no action. If the project is delayed, the construction and delivery time table for the blowers will negatively impact the City's ability to work with JBS to meet the NDEQ's October 2011 permit schedule.

Recommendation

City Administration recommends that the Council approve Amendment Number 1 to the professional services agreement with Black & Veatch for the consulting engineering services on the Aeration Basin project.

Sample Motion

Move to approve Amendment Number 1 with Black & Veatch.

**AMENDMENT NO. 1
TO
AGREEMENT FOR ENGINEERING SERVICES BETWEEN
THE CITY OF GRAND ISLAND, NEBRASKA
AND BLACK & VEATCH CORPORATION**

THIS AMENDMENT NO. 1 modifies the Agreement between the City of Grand Island , Nebraska (OWNER) and Black & Veatch Corporation (ENGINEER) dated November 30, 2009 (Agreement).

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 and extend the duration of the project, as provided in ATTACHMENT A of AMENDMENT NO. 1;

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. 1;

NOW THEREFORE, the terms and conditions of the Agreement are as 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. 1 shall be _____, 2010.

MODIFICATIONS

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

IN WITNESS WHEREOF, OWNER and ENGINEER have executed this Amendment No. 1.

BLACK & VEATCH CORPORATION
(ENGINEER)

By _____ Date _____

Michael G. Orth

Title Vice President

CITY OF GRAND ISLAND, NEBRASKA
(OWNER)

By _____ Date _____

Margaret Hornady, Mayor

Attest: _____ Date _____

RaNae Edwards, City Clerk

The contract is in due form according to law and is hereby approved.

_____ Date _____

Jason Eley, Assistant City Attorney

AMENDMENT NO. 1

ATTACHMENT A – TO STANDARD AGREEMENT FOR PROFESSIONAL SERVICES

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

Scope of Services – Aeration Basin Improvements

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 lump sum basis by general contractors. This amendment includes supplemental design services and construction phase services for the aeration basin improvements. With the postponement of the anaerobic digestion improvements project, the aeration basin improvements project will be bid as a stand alone project on a lump sum basis.

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 design criteria and the objective to maximize the nitrification capacity of the WWTP have changed with the announcement that JBS will be constructing additional pretreatment facilities. The facilities proposed by JBS to treat their effluent to “domestic” strength will significantly reduce influent BOD, TSS, and ammonia loadings to the Grand Island WWTP, requiring modifications to the design criteria established for the project. The revised design will focus on providing sufficient capacity to match current JBS contributions, while providing turndown capacity to meet future reduced loadings when the additional JBS pretreatment facilities are placed in operation. Mixers will also be added to the aeration basins to improve denitrification and help reduce effluent nitrates. In addition to the changes associated with JBS, the City has requested that the single-stage blowers be competitively bid versus a sole-source arrangement assumed in the original agreement.

Following revisions to the Design memorandum and Contract Documents, the project will be submitted to the Nebraska Department of Environmental Quality (NDEQ) for review and approval. The ENGINEER will complete the services described herein, including the services included in the original agreement, within six hundred and sixty (670) days based on notice to proceed by August 17, 2010.

This schedule assumes that documents will be provided to CITY seven (7) working days before major scheduled milestone review workshops, that all CITY review comments will be received within a reasonable time frame after the workshops, and that documents will be reviewed and approved by the NDEQ within 2 months.

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:

Project Administration and Controls: The ENGINEER will provide ongoing direction and management of the PROJECT. Review staffing, budget, progress, and quality of work throughout the course of the PROJECT for ENGINEER and subcontractors. Provide PROJECT status reports to the CITY with each invoice and at the completion of each major phase of the project.

1. Progress Reporting: The progress report accompanying each invoice shall include an updated schedule, summary of work completed, outstanding project issues, potential scope adjustments, and a comparison of work completed compared against the invoiced amount.
2. Trend Management: In the event there is consideration to change the scope of the PROJECT, the ENGINEER shall develop and present a Potential Scope Adjustment (PSA) document which itemizes the potential change(s) in scope, details the anticipated cost impact on both the ENGINEER's work as well as for the PROJECT's construction, and indicates any anticipated changes in the initial PROJECT's schedule. The CITY will provide direction to ENGINEER on the implementation of any PSAs and both parties will endeavor to negotiate an amendment to the task. The approval of all PSAs, schedule, and compensation shall be authorized in resolution form by the Mayor and Council of the City of Grand Island prior to notice to proceed.

Project Location: The PROJECT site is the Grand Island WWTP in Grand Island, Nebraska.

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 supplemental herein.)

Supplemental Schematic Design Phase Compensation: \$ 34,300.00

Objective: Revise basis of design criteria including code requirements, process schematics, equipment sizing, materials of construction, and preliminary floor plan as required to account for the reduced JBS loading to the plant, resulting modifications to blower and aeration system sizing, and addition of aerated zone mixers.

Subtasks:

1. Process Design: Revise the design criteria for the aeration system including oxygen demand requirements, associated treatment capacities, capacity of existing diffused aeration system equipped with membrane diffusers, and the need for any modifications to the existing aeration diffuser grids. Define mixing energy required in Aerated Zone 3 to minimize dissolved oxygen carry-over from the aeration basins.
2. Process Mechanical Design:
 - a. Determine revised blower design conditions, define equipment sizing criteria, and develop floor plan.
 - b. Determine design criteria to allow a competitive evaluated bid between single-stage blower manufactures (Turblex and Howden)
 - c. Size anoxic zone mixers as required to maintain solids in suspension and minimize dissolved oxygen in the aeration basin recycle. Coordinate mixer locations, hoist locations, and maintenance access requirements.
3. Instrumentation and Controls Design.
 - a. Revise major process P&IDs to reflect process modifications and aeration basin mixers.
 - b. Revise control schematics, wiring, and PLC I/O schedules to reflect addition of mixers.
 - c. Discuss with CITY Staff existing control philosophies and levels of automation to determine control philosophies for new facilities.
4. Electrical Design.
 - a. Estimate load conditions for additional new facilities and determine power distribution requirements. It is assumed that the existing power supply to the Building No. 13 will be sufficient to power mixers and future recycle pumps, and that electrical design will include a new MCC and power distribution from the MCC to the equipment.
5. Prepare Preliminary Opinion of Probable Construction Cost. Update the preliminary opinion of probable construction cost for the addition of the aeration basin mixers. ENGINEER will use past project experience and internal cost information to develop opinion of cost.
6. Revise Design Memorandum. Summarize the new and revised design criteria developed in the Schematic Design Phase in a draft Design Memorandum and submit ten (10) copies to the CITY for review. Conduct a conference call with City staff to review the document and obtain any comments. Revise the Design Memorandum based on CITY comments and submit ten

(10) hardcopies and two (2) electronic copies in PDF format to the City. Submit two (2) copies of the final Design Memorandum to NDEQ for review.

The Design Memorandum will include:

- Design criteria established in the schematic design documents.
- Preliminary facility layouts, including plan and major cross-section.
- Conceptual structural design descriptions of facilities.
- Conceptual site layouts
- Process and instrumentation diagrams (P&IDs) of major systems. The following P&IDs are anticipated:
 - Aeration blowers.
 - Aeration basins
 - Air distribution system.
 - Control system block diagram.
- Preliminary power distribution functional diagram.
- Equipment lists (with preliminary process equipment information and control functions) and tagging conventions.
- Regulatory and local (City of Grand Island) code requirements.
- Preliminary cost opinion for recommended work.
- Implementation schedule for design, bidding, and construction.

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

Intermediate design milestones will not be provided for the supplemental design elements. All modifications will be incorporated in the final contract documents.

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

Intermediate design milestones will not be provided for the supplemental design elements. All modifications will be incorporated in the final contract documents.

Task 4 – Final Contract Documents – (As included in the original Agreement and supplemental herein.)

| Supplemental Final Contract Documents Compensation: \$ 66,900.00

Objective: Finalize contract documents for the construction of the PROJECT by single General Contractor bidding on a lump sum basis.

Subtasks:

1. Contract Plans and Specifications. Incorporate revisions to the design criteria into the final contract documents including modifications to the blower size, valve and pipe sizes, and diffuser design. Incorporate aerated zone mixers into the existing drawings and provide required specifications. Revise contract documents to allow a competitive bid between Turblex and Howden for supply of the single-stage blowers. It is envisioned that the bid form will be modified to require the General Contractor to list capital, maintenance, and operating costs, along with experience to allow for an overall comparison of the two pieces of equipment. Submit four (4) sets of documents including specifications, half size, and full sized plans, two (2) electronic copies in PDF format, and two (2) electronic copies of the drawings in AutoCAD 2008 format.

Task 5 – Bidding Phase Services – (As included in the original Agreement and supplemental herein.)

Supplemental Bidding Phase Services Compensation: \$ 8,870.00

Objective: Provide bidding phase support services to the CITY during advertisement of the Aeration Basin Improvements project. One set of documents will be created for the project to be bid as a single contract. The Anaerobic Digestion Improvements will be bid as a separate project in the future in lieu of combining with the Aeration Basin Improvements project as indicated in the original agreement.

Subtasks:

Blower Evaluation Support. Review pricing, operating costs, total present worth, and experience of Turblex and Howden blowers submitted with apparent low bid. Review observations with CITY and prepare recommendation letter.

Task 6 – Construction Phase Services

Bidding Phase Services Compensation: \$ 342,500.00_[c1]

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

Subtasks:

1. Project Administration and Control.
 - a. Review and comment on the CONTRACTOR's initial and updated construction schedule, and advise CITY as to acceptability. Analyze the CONTRACTOR's construction schedule, activity sequence, and construction procedures as applicable to CITY's ability to

keep existing facilities in operation. ENGINEER will review up to sixteen (16) construction schedules.

- b. Review the CONTRACTOR's initial schedule of estimated monthly payments and advise CITY as to acceptability. ENGINEER will review up to two (2) monthly payment schedules.
 - c. Review the CONTRACTOR's initial schedule of values and advise CITY as to acceptability. ENGINEER will review up to two (2) initial schedules of values.
 - d. Review the CONTRACTOR's initial submittal schedule and advise CITY as to acceptability. ENGINEER will review up to two (2) initial submittal schedules.
 - e. Review the CONTRACTOR's monthly applications for payment and advise CITY as to acceptability. ENGINEER will review up to seventeen (17) monthly payment requests or applications for payment.
 - f. Make periodic visits to the construction site at stages appropriate to the progress of construction to observe the progress and quality of the work, and advise the CITY and the CONTRACTOR concerning problems or deficiencies observed and concerning progress of the work. A total of fifteen (15) site visits are anticipated to be made by ENGINEER or its subcontractor.
 - g. Receive and review certificates of inspection and tests, which are to be assembled by the CONTRACTOR in accordance with the Construction Contract Documents and transmit them to CITY. ENGINEER will review up to twenty (20) test reports.
2. Preconstruction Conference. At a date and time selected by CITY and at a facility provided by CITY, attend the preconstruction conference and assist CITY during the conference. The preconstruction conference will include a discussion of the CONTRACTOR's tentative schedules, procedures for transmittal and review of the CONTRACTOR's submittals, processing payment applications, critical work sequencing, change orders, record documents, and the CONTRACTOR's responsibilities for safety and first aid.
3. Redesign and Review for Howden Blowers. In the event that Howden is selected as the blower most advantageous to the City, revisions to the improvements in the blower building will need to be reviewed and may require revisions. The bid documents will be based on the Turblex equipment, and require the Contractor to be responsible for all costs associated supply Howden. ENGINEER will review all proposed modifications by the Contractor and provide an independent review to confirm the Contractor has addressed all modifications appropriately.
4. Shop Drawings Review. Review drawings and other data submitted by each Contractor as required by the construction contract documents. ENGINEER's review shall be for general conformity to the construction contract documents and shall not relieve the Contractor of any of his contractual responsibilities. Such reviews shall not extend to means, methods, techniques,

sequences, or procedures of construction, or to safety precautions and programs incident thereto.

Submittals shall be limited to one original submittal and one resubmittal per section or item. Costs for additional re-submittal reviews shall be borne by Contractor, as required by the contract documents. ENGINEER will review up to a total of one hundred (100) submittals (including re-submittals).

5. Operation and Maintenance Manual (O&M) Review. ENGINEER will review vendor- or manufacturer-prepared O&M manuals submitted by the CONTRACTOR as required by the Construction Contract Documents. ENGINEER's review will be for general conformity to the Construction Contract Documents and will not relieve the CONTRACTOR of any of his contractual responsibilities. Such reviews will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions and programs incident thereto. ENGINEER will review up to fifteen (15) vendor- or manufacturer-supplied O&M manuals under this AMENDMENT.
6. General Construction Phase Services.
 - a. Interpret construction contract documents when requested by CITY or Contractor.
 - b. Receive and review drawings and other data submitted by the Contractor as required by the construction contract documents. ENGINEER's review shall be for general conformity to the construction contract documents and shall not relieve the Contractor of any of his contractual responsibilities. Such reviews shall not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions and programs incident thereto.
 - c. ENGINEER will work with CITY to receive, review, and recommend approval, the Contractor's monthly payment requests. Review shall be for the purpose of making a full independent mathematical check and evaluating the equity in progress of the Contractor's payment request.
 - 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.
 - e. Work related to unusually complex or unreasonably numerous claims are covered in Supplemental Services.
 - f. 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. Services related to legal claims including but not limited to preparation of legal documents, depositions, and testimony are not included in this scope of work and are considered a supplemental service.

- g. Performance testing of equipment will be performed and supported by Contractor and equipment supplier as required by Contract Documents. ENGINEER will not be involved in performance or startup testing without written notice from OWNER and agreement of hours to be used from OWNER's allowance.

7. Configuration Services.

- a. Provide PLC programming to add required HMI interface logic in blower PLCs.
- b. Provide existing plant SCADA HMI programming to mimic blower supplier graphical user interface functions.
- c. Provide SCADA HMI tending, alarming, and reporting per plant SCADA standards.
- d. Provide PLC/HMI programming of new mixers.
- e. The work associated with this task is based on the following assumptions:
 - 1. One system overview graphic
 - 2. Seven control pop-up graphics
 - 3. One day pre-startup on-site visit
 - 4. Eight days installation and startup
 - 5. Two startup trips

8. Project Completion.

- a. 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 CITY and the Contractor.
- b. Upon completion or correction of the items of work on the punch-list, conduct a final inspection to determine if the work is completed.
- c. Provide warranty inspection, thirty (30) days prior to warranty expiration notify owner and establish, document, review and establish measures for correction.

9. Record Drawings. Upon completion of the project, revise the construction contract drawings to conform to the construction records. As required, each drawing shall be modified based upon field mark ups of the contract drawings provided by the Contractor and CITY. Submit to the CITY drawings on a CD as electronic images (AutoCAD). Each drawing shall be identified by a unique sheet number.

10. Standard Operating Procedure Manual. Prepare a written Operations Manual that covers control of the aeration system. The written Operations Manual shall follow a Unit Process Control Protocol (UPCP) format and provide electronic links to manufacturer's O&M Manuals and Record Drawings using Adobe software.

The Manuals shall contain information for each key area segment identified below:

- a. System Description – The System Description is an operator-centric description of the system or process with the objective of “connecting” the upstream and downstream process specific to the facility. The System Description is not a detailed narrative and it is assumed that the operator understands how to start and stop the equipment or will have access to the equipment O&M manual provided by the equipment manufacturer.
- b. Key Performance Indicators – The Key Performance Indicators are an operator-centric description and/or table of the process setpoints with the objective of providing site specific/process specific directions.
- c. Normal Valve Operating Positions – The Normal Valve Operating Positions will provide a table defining the “normal” flow path through the system process.
- d. Process Control Troubleshooting – The Process Control Troubleshooting will provide an operator-centric description of the system or process with the objective of providing site specific process control troubleshooting information using flowcharts and/or tables. The Process Control Troubleshooting guide will not generally address equipment troubleshooting and assumes that equipment troubleshooting information will be accessible by the operator through the equipment O&M manual.

Engineer shall present two (2) preliminary copies of the Engineer prepared O&M manuals to City for review. Following City’s acceptance of the preliminary Engineer prepared O&M manuals, Engineer will update the preliminary O&M manuals with finalized material and provide two electronic copies and two (2) hard copies of the Engineer prepared O&M manuals to the City.

11. Process Commissioning Services. Engineer shall provide onsite operation consultation, to consult on optimizing the aeration basin operation. Update the Facility Operations Manual, as necessary, for individual unit processes and/all the overall plant operation based on the results of the optimization efforts. Engineer will provide for up to 16 hours of commissioning services on site.

Task 7 – Resident Services During Construction

Resident Services During Construction Compensation: \$ 158,430.00

Objective: Provide 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. Conduct 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. A total two thousand one hundred (2,100) hours are anticipated for the resident Project Representative during the anticipated seventeen (17) months of construction from Notice to Proceed to Final Completion.
- b. Serve as ENGINEER's liaison with the CONTRACTOR, working principally through the CONTRACTOR's superintendent, and assist ENGINEER in providing interpretation of the Construction Contract Documents. Transmit ENGINEER's clarifications and interpretations of the Construction Contract Documents to the CONTRACTOR.
- c. Assist ENGINEER in serving as CITY's liaison with the CONTRACTOR when the CONTRACTOR's operations affect CITY's onsite operation.
- d. As requested by ENGINEER, assist in obtaining from CITY additional details or information when required at the jobsite for proper execution of the work.
- e. Report to ENGINEER, giving opinions and suggestions based on the Resident Project Representative's observations regarding defects or deficiencies in the CONTRACTOR's work and relating to compliance with drawings, specifications, and design concepts.
- f. Advise ENGINEER and the CONTRACTOR or its superintendent immediately of the commencement of any work requiring a submittal or sample submission if the submission has not been accepted by ENGINEER.
- g. Monitor changes of apparent integrity of the site (such as differing subsurface and physical conditions, existing structures, and site-related utilities when such utilities are exposed) resulting from construction-related activities.
- h. Observe pertinent site conditions when the CONTRACTOR maintains that differing subsurface and physical conditions have been encountered, and document actual site conditions. Review and analysis of the CONTRACTOR's claims for differing subsurface and physical conditions are not included in this AMENDMENT.
- i. Verify that the CONTRACTOR has contacted utilities in the general construction area and advised them of CONTRACTOR's schedule. Assist in coordinating scheduling of utility activities to minimize conflicts with CITY's activities.
- j. Establish and furnish the CONTRACTOR with necessary baselines and control points, which will be used as datum for the work. Actual construction staking will be done by the CONTRACTOR.
- k. Visually inspect materials, equipment, and supplies delivered to the worksite. Reject materials, equipment, and supplies that do not conform to the Construction Contract Documents.

- l. Coordinate on-site materials testing services during construction. Copies of testing results will be forwarded to CITY and ENGINEER for review and information.
 - m. Observe field tests of equipment, structures, and piping, and review the resulting reports commenting to ENGINEER, as appropriate.
2. Outside Liaison. Accompany visiting inspectors representing public or other agencies having jurisdiction over the project. Record the names of the inspectors and the results of the inspections, and report to ENGINEER.
3. Meetings, Reports, and Document Review and Maintenance.
 - a. Attend the preconstruction conference, and assist ENGINEER in explaining administrative procedures, which will be followed during construction.
 - b. Schedule and attend monthly progress meetings, and other meetings with CITY and the CONTRACTOR when necessary, to review and discuss construction procedures and progress scheduling, engineering management procedures, and other matters concerning the project.
 - c. Submit to ENGINEER, with a copy to CITY, periodic construction progress reports containing a summary of the CONTRACTOR's progress, general condition of the work, problems, and resolutions or proposed resolutions to problems.
 - d. Review the progress schedule, schedule of shop drawings submissions, and schedule of values prepared by the CONTRACTOR, and consult with ENGINEER concerning their acceptability.
 - e. Report to ENGINEER regarding work which is known to be defective or which fails any required inspections, tests, or approvals, or has been damaged prior to final payment; advise ENGINEER whether the work should be corrected or rejected, should be uncovered for observation, or require special testing, inspection, or approval.
 - f. Review applications for payment with the CONTRACTOR for compliance with the established procedure for their submission, and forward them with recommendations to ENGINEER noting particularly their relation to the schedule of values, work completed, and materials and equipment delivered to the site but not incorporated into the work.
 - g. Record date of receipt of approved shop drawings and samples. Receive samples, when they are furnished at the site by the CONTRACTOR, and notify ENGINEER of their availability for examination.
 - h. During the course of the work, verify that specified certificates, operation and maintenance manuals, and other data required to be assembled and furnished by the CONTRACTOR

are applicable to the items actually installed; deliver Resident Project Representative's field files to ENGINEER for his review and forwarding to CITY prior to final acceptance of the work.

- i. Maintain a marked set of drawings and specifications at the jobsite based on data provided by the CONTRACTOR. This information will be combined with information from the record documents maintained by the CONTRACTOR, and a master set of documents conforming to construction records will be produced.
- j. Review certificates of inspections, tests, and related approvals submitted by the CONTRACTOR as required by laws, rules, regulations, ordinances, codes, orders, or the Construction Contract Documents, but only to verify that their content complies with the requirements of, and the results certified indicate compliance with, the Construction Contract Documents. This service is limited to a review of items submitted by the CONTRACTOR and does not extend to a determination of whether the CONTRACTOR has complied with all legal requirements.
- k. Maintain the following documents at the jobsite.
 - i. Correspondence files.
 - ii. Reports of jobsite conferences, meetings, and discussions among the ENGINEER, CITY, and CONTRACTOR.
 - iii. Submittals, shop drawings, and samples.
 - iv. Reproductions of original Construction Contract Documents.
 - v. Addenda.
 - vi. Change orders.
 - vii. Field orders.
 - viii. Additional drawings issued subsequent to execution of the Construction Contract Documents.
 - ix. Progress reports.
 - x. Names, addresses, and telephone numbers of all contractors, subcontractors, and major suppliers of materials and equipment.
- l. Maintain a diary or log book of events observed by the Resident at the jobsite, including the following information:
 - i. Days the CONTRACTOR worked on the jobsite.
 - ii. CONTRACTOR and subcontractor personnel on jobsite.
 - iii. Construction equipment on the jobsite.
 - iv. Observed delays and causes.
 - v. Weather conditions.
 - vi. Data relative to claims for extras or deductions.
 - vii. Daily activities.
 - viii. Observations pertaining to the progress of the work.
 - ix. Materials received on jobsite.
 - x. The diary or log book shall remain the property of ENGINEER.

4. Assistance in Certification of Substantial Completion.

- a. Before ENGINEER issues a Certificate of Substantial Completion, submit to the CONTRACTOR a list of items observed to require completion or correction.
- b. Assist ENGINEER in conducting final inspection in the company of CITY and the CONTRACTOR, and prepare a final list of items to be completed or corrected.
- c. Verify that all items on the final list have been completed or corrected, and make recommendations to ENGINEER concerning acceptance.

SUPPLEMENTAL SERVICES

Any Work requested by CITY that is not included in one of the items listed in any other phase will be classified as supplemental services. Such services are as follows:

1. Additional meetings with local, State, or Federal agencies to discuss the PROJECT.
2. Additional appearances at public hearings or before special boards.
3. Supplemental Engineering Work required to meet the requirements of regulatory or funding agencies that become effective subsequent to the date of this agreement.
4. Special consultants or independent professional associates requested or authorized by CITY.
5. Revisions of design, drawings, and specifications arising from external Value Engineering Review which cause changes in the general scope, extent or character of the PROJECT, including but not limited to changes in size, complexity, CITY's schedule, character of construction, or method of financing.
6. An environmental assessment report and/or environmental impact statement as requested by CITY or required by review agencies.
7. Provision, through a subcontract, of a cultural resources or archaeological study and report on the construction site.
8. Provision, through a subcontract, of archaeological consultations regarding artifacts that may be uncovered during construction.
9. Conducting pilot plant studies and tests.
10. Changes in the general scope, extent, duration, or character of the project, including, but not limited to:
 - a. Revision of previously accepted studies, reports, design documents, or construction contract documents when such revisions are required by changes in laws, rules, regulations, ordinances, codes, or orders enacted subsequent to the preparation of

such studies, reports, documents, or designs; or are required by any other causes beyond ENGINEER's control.

AMENDMENT NO. 1

ATTACHMENT B – TO STANDARD AGREEMENT FOR PROFESSIONAL SERVICES

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

Compensation – Aeration Basin Improvements

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)** 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**

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

Task 6 – Construction Phase Services - \$342,500

Task 7 Resident Inspection Services - \$158,430

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 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 September 30, 2010~~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.

AMENDMENT NO. 1

ATTACHMENT C – TO STANDARD AGREEMENT FOR PROFESSIONAL SERVICES

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

Schedule of Hourly Billing Rates and Charges – Aeration Basin Improvements

1. Compensation for personnel used in the performance of engineering services shall be in accordance with the following hourly billing rates.

<u>Black & Veatch Classification</u>	<u>2009/2010 Hourly Billing Rates</u>
Principal	\$255
Project Director/Manager – Derek Cambridge	\$199
Project Administration and Clerical	\$ 78
Project Accountant	\$ 78
Engineering Manager	\$171
Lead Civil Engineer	\$121
CAD Coordinator	\$155
CAD Technician	\$ 84
Architect QC/Admin	\$205
Architect	\$149
Architect Tech	\$103
Structural QC/Admin	\$177
Senior Structural Engineer	\$177
Structural Engineer	\$115
Senior Structural Technician	\$124
Structural Technician	\$84
Senior Process Mechanical Engineer	\$171
Process Mechanical Engineer	\$124
Senior Process Mechanical Technician	\$115
Building Mechanical QC/Admin	\$180
Senior Building Mechanical Engineer	\$165
Building Mechanical Engineer	\$115
Senior Building Mechanical Tech	\$121
Building Mechanical CAD	\$97
Project Facilitator Controls	\$177
Operations Specialist	\$162
Electrical QC/Admin	\$205
Electrical Engineer	\$137
Instrumentation & Controls Admin/QC	\$193

Senior Instrumentation & Controls Engineer	\$155
Operations Writer	\$81
Shop Drawings Admin	\$66
Shop Drawings Manager	\$140
Operations Graphics	\$97
Technical Editor	\$90
Process QC/Admin	\$227
Senior Process Engineer – Ed Kobylinski	\$213
Senior Operations Specialist	\$199
Process Engineer	\$124
Quality Control Engineer	\$170
Estimator	\$162

2. Compensation for reimbursable expense items and other charges incurred in connection with the performance of the work shall be in accordance with the following schedule:

<u>Expense Item</u>	<u>Unit Cost</u>
Travel, Subsistence, and Incidental Expenses	Net Cost
Automobile/Motor Vehicles – Local Mileage	\$0.55/mile
Automobile/Motor Vehicles – Rental	Net Cost
Telephone and Telegraph Costs	*
Reproduction of Reports, Drawings & Specifications	Net Cost
Postage & Shipping Charges of Job-Related Materials	*
Computer Services	*
Photograph and Video Reproductions	Net Cost
Sub-Consultant Fees	Net Charge

* Included in hourly miscellaneous expense charge of \$8.75 per hour.

3. The Schedule of Hourly Billing Rates and Charges indicated herein is effective for service in 2010 and 2011. The Schedule of Hourly Billing Rates and Charges will be revised and re-issued in March of subsequent years.

RESOLUTION 2010-230

WHEREAS, on October 13, 2009, by Resolution 2009-264, Black & Veatch Corporation of Kansas City, Missouri was awarded the agreement for engineering services for Aeration Basin Improvements at the Wastewater Treatment Plant, with design work to be performed at actual costs with a maximum amount of \$384,000.00; and

WHEREAS, city staff has negotiated amendment number 1 with the consulting engineering firm Black & Veatch of Kansas City, Missouri to provide for additional design services as well as construction engineering services for the project; and

WHEREAS, the negotiated amount of amendment number 1 is \$611,000.00 based on a negotiated scope of services with work to be performed at actual costs for an amended agreement total of \$995,000.00.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that the amendment with the consulting engineering firm Black & Veatch of Kansas City, Missouri for engineering services for Aeration Basin Improvements at the Wastewater Treatment Plant is hereby approved.

BE IT FURTHER RESOLVED, that the Mayor is hereby authorized and directed to execute amendment number 1 on behalf of the City of Grand Island.

- - -

Adopted by the City Council of the City of Grand Island, Nebraska, August 24, 2010.

Margaret Hornady, Mayor

Attest:

RaNae Edwards, City Clerk