

# Memorandum



Date: September 17, 2014

To: Mike Lawless  
Andy Ensز  
Steven Craig

From: Mike O'Connell  
Rachel Thompson

Subject: Proposed Engineering Fee for Taste and Odor Improvements

The City of Lawrence contracted with Burns & McDonnell in 2013 to conduct a study evaluating the capability of both the Kaw and Clinton Water Treatment Plants (WTP) to reduce taste and odor (T&O) causing compounds. As part of the study, a number of improvements to existing processes were recommended to improve T&O mitigation at the Clinton WTP. These recommendations include addition of a new rapid mix system, carbon dioxide system, ferric system, liquid lime system, and tube settlers in some of the basins. A new lime system was also recommended for the Kaw WTP, not to improve T&O treatment, but to provide a higher quality lime and reduce operational costs.

This project incorporates all of the recommendations from the 2013 study as well as some additional scope items requested by the City, including painting of the South Train basins at the Clinton WTP, miscellaneous painting at both WTPs, operator training, and post construction process testing and optimization. The proposed fee covers the following work for this project:

- Basic A/E Services:
  - Project kickoff meeting
  - Review of related existing and/or previous related project City/department data, plans, specifications etc.
  - Design Topographic Survey for purpose of horizontal and vertical control, location of surface features and known underground utilities
  - Preparation and presentation of preliminary design concepts
  - Code Analysis necessary for projects with buildings
  - Plan and Specification and construction estimate submittals for 2 intermediate reviews
  - Project meetings to review department comments on intermediate plan and specification submittals
  - Intermediate project meetings to review status, outstanding items
  - Basic Permitting for this project the Kansas Department of Health and Environment Public Water Supply Division
  - Preparation of Final Plan and Specifications for bidding
  - Preparation of Engineer's estimate for bidding.

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- Non-Basic A/E Services:
  - Preliminary design report (required for KDHE plan approval) and related activities
  - Collection of process performance data (review of presedimentation basin tracer studies)
  - Services related to Planning Department requirements; architectural rendering for ferric building
  - Additional meetings beyond those required in the Basic A/E Services
  - Services related to hazardous materials, lead testing and lead removal specifications for repainting at Kaw and Clinton WTP
  - Preparation of materials for and attendance at Public Meetings; receive feedback from planning review of architectural rendering
  - Construction estimates beyond those identified in the Basic Services
  - Constructability reviews beyond typical design review process associated with continuous plant operation and compliance
  - Geotechnical investigation
  - Bid phase services
  - Construction phase contract administration; typically including: shop drawings, pay estimates, change order and request for information
  - Part-time Resident Engineer Services during construction
  - Development of listing for material testing during construction to be provided by Contractor and reviews and testing of coatings during construction
  - Plant improvements commissioning assistance
  - Operator classroom training
  - Development of an integrated O&M Manual.

The breakdown of the proposed fee is listed below the following opinion of probable cost update.

***Opinion of Probable Cost for the Project (includes all construction/engineering fee amounts):***

Kaw WTP – Original:	\$1,420,000	
Kaw WTP – Added Items - Lead paint removal and recoating of lime feed room floor areas, dry chemical feed silo recoating and new dust collectors and bin vibrators:	<u>\$1,170,000</u>	
Kaw Total:		\$2,590,000
Clinton WTP – Original:	\$4,460,000	
Clinton WTP – Added Items - Lead paint removal and recoating of south train basins and sludge building, and new ferric building:	<u>\$1,050,000</u>	
Kaw Total:		<u>\$5,510,000</u>
Total Opinion of Probable Cost:		\$8,100,000

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The total estimated Engineering Services fee through project completion is:           \$1,260,880

Engineering Fee Breakout:

Basic A/E Services:	\$ 619,500 (9.06%)
Other Services:	\$ 641,380 (9.38%)

The fee listed above for Basic A/E Services is a higher percentage of the total project cost than the 6.99% guideline currently followed by the City; however, this design involves a number of items that add to the complexity of the project, including:

- Renovations required by changes to existing structures
- Complexity of project
- Treatment plant projects where coordination to provide continuous operations is required
- Design services related to specialized construction methods or system process design
- Services related to multiple project sites being complete under a single contract
- Work at multiple sites.

This project will provide many benefits to the City of Lawrence, including better removal of T&O causing compounds and optimized processes at the Clinton WTP, reduced annual chemical costs at both WTPs, and preparation for future treatment challenges.

Please note that as part of this project Burns & McDonnell is working with BG Consultants, Inc. as a Subconsultant. BG Consultants, Inc. are providing the following Engineering Services for this project:

- Site Survey
- Site Geotechnical coordination
- Plumbing and HVAC design, including associated preliminary design, design, bid, and construction phase services
- Resident Project Representative, including material testing coordination (not performance of the material testing under this Contract)

RLT/rlt

cc: BMcD Project File  
Lawrence TO Fee Memo 091714.docx

**SUPPLEMENT NO. 1  
TO  
ENGINEERING SERVICES AGREEMENT  
FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS  
BETWEEN  
THE CITY OF LAWRENCE, KANSAS AND  
BURNS & MCDONNELL ENGINEERING COMPANY, INC.  
FOR  
TASTE AND ODOR WATER TREATMENT PROCESS EVALUATION**

The purpose of this Supplement No. 1 is to define additional engineering services requested by the City of Lawrence, Kansas, hereinafter called the City, to be provided by Burns & McDonnell Engineering Company, Inc., hereinafter called the Consultant, for the Taste and Odor Water Treatment Process Evaluation contract. This agreement is a supplement to the ENGINEERING SERVICES AGREEMENT FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS BETWEEN THE CITY OF LAWRENCE, KANSAS AND BURNS & MCDONNELL ENGINEERING COMPANY, INC., dated April 2, 2013.

**SECTION I – SCOPE OF SERVICES**

Under the terms of Supplement No. 1, the City and Consultant agree to modify the scope of services to include additional engineering services in connection with the preliminary design, design, bid, construction, resident project representative, and post construction phase services as described in Exhibit A-2 to this Supplement No. 1.

**SECTION II – COMPENSATION**

As compensation for the additional services required as described in Supplement No. 1, the City agrees to pay the Consultant an amount equal to the Consultant's salary billings plus reimbursable expenses at cost, and subcontract billings at cost times multiplier, up to a maximum of \$1,260,880.00.

The total previous maximum billing limit for the Taste and Odor Water Treatment Process Evaluation, including Supplement No. 1, shall be increased to \$1,398,008.00 as a result of this Supplement No. 1.

Billing procedures and all other items pertaining to compensation have not changed from the original Engineering Services Agreement dated April 2, 2013, as revised by updates of the Schedules of Hourly Professional Billing Rates as provided as Exhibit B of the original Agreement.

**SECTION III – OTHER MATTERS**

It is mutually agreed and understood that all terms of the original Agreement, not specifically revised by this Supplement No. 1, shall remain unchanged and in full force.

IN WITNESS WHEREOF, the parties have executed this Supplement No.1 on this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

City of Lawrence, Kansas  
Owner

Burns & McDonnell Engineering Company, Inc.  
Engineer

By \_\_\_\_\_  
David L. Corliss

By \_\_\_\_\_  
Ron L. Coker, P.E.

Title City Manager

Title Senior Vice President

Date \_\_\_\_\_

Date \_\_\_\_\_

## EXHIBIT A-2

### SUPPLEMENT 1 SCOPE OF SERVICES

#### TASTE AND ODOR WATER TREATMENT PROCESS EVALUATION

##### **A. INTRODUCTION**

This Scope of Work describes the tasks and work items associated with the design, bid, construction, resident project representative, and post-construction phases of the Taste and Odor Water Treatment Process Evaluation. The improvements included in this project are based on the recommendations outlined in the Taste and Odor Study conducted by Burns & McDonnell in 2013, as well as some additional improvements requested by the City. These improvements encompass work at both the Kaw and Clinton Water Treatment Plants (WTP), which include the following items:

- a) Kaw WTP design:
  - i) Replacement of the lime feed equipment with Tekkem lime feed equipment and other miscellaneous improvements.
- b) Clinton WTP design:
  - i) New recirculating / pumped rapid mix system after each of the presedimentation basins (2 total).
  - ii) New tube settlers in the primary basins.
  - iii) New tube settlers in the presedimentation basins.
  - iv) New carbon dioxide feed system.
  - v) Replacement of the ferric feed system, including a new building.
  - vi) Replacement of the lime feed equipment with liquid lime feed system.
  - vii) Repainting and repair of the presedimentation, primary, and secondary basins and equipment for the South treatment train.

A single design contract will be used for work at both WTPs and a single bid contract will also be issued.

##### **B. SCOPE OF SERVICES**

###### **Task 1 - Project Management and Meetings**

- 1) Conduct project kickoff meeting to discuss:
  - a) Scope of work.
  - b) Schedule.
  - c) Personnel.
  - d) Available data.
  - e) Deliverables.
  - f) City requirements.
- 2) Provide Monthly Project Reports to update City on progress, work items completed, and work items planned.
- 3) Conduct up to three design workshops for the following reviews: Preliminary Design Review, Intermediate Design Review, and Final/For Approval Design Review.
- 4) Provide general Consultant internal and external project management duties normally related to the remainder of the Consultants tasks defined in this Scope of Services throughout the duration of the design, bid, construction, and post-construction phases of the project.

## **Task 2 - Equipment and Facility Assessment**

- 1) Conduct a one-day site visit with design disciplines to assess condition of the facilities and gather information for detailed design.

## **Task 3 - Preliminary Design Report**

- 1) Prepare preliminary design documents consisting of final design criteria, preliminary drawings, outline specifications, and proposed construction schedule and sequencing for the processes outlined in the Introduction.
- 2) Prepare a revised preliminary opinion of probable construction cost for the Project based on the preliminary design documents.
- 3) Submit preliminary design documents to the Kansas Department of Health and environment (KDHE) for review and approval.

## **Task 4 – General Services**

- 1) Provide, through a subcontract, a survey for the Clinton WTP site including elevations, property lines, easements, structures, and existing utilities.
- 2) Provide, through a subcontract, geotechnical engineering services for the Clinton WTP including exploratory work (up to two borings), laboratory and field testing, and professional interpretations of exploratory and test data for borings in the proposed ferric building area. Provide document for distribution to prospective bidders during bid phase of the project.
- 3) Provide electronic and up to four hard copies to the City of deliverables during the design and bid phases of the project.

## **Task 5 – Design Services**

- 1) Prepare detailed drawings and specifications and other contract documents for the proposed construction work at Kaw WTP and for the materials and equipment required.
  - a) Construction work at Kaw WTP includes replacement of existing lime feeders with a Tekkem batch system, replacement of dust filtration units and shakers on chemical silos, and repainting of chemical silos. This work will include the following:
    - i) Designation of site layout and contractor access for the site.
    - ii) Selection of batch lime slaking equipment and coordination with equipment manufacturer.
    - iii) Selection of dust filtration and shaker equipment for lime silos and coordination with equipment manufacturers.
    - iv) Structural analysis of existing floor where new lime equipment will be installed in place of existing lime equipment and any associated recommended improvements.
    - v) Lead Paint Analysis for chemical silos, equipment, and appurtenances in lime room.
    - vi) Coating specifications for chemical silos and areas associated with installation of lime equipment.
    - vii) Evaluation of HVAC and plumbing in the lime equipment room. Replace or modify as required by the new equipment and as desired by the City.
    - viii) Demolition of the power and control cabling to the three existing lime slaker units.
    - ix) Design for power supply branch circuit(s) to new lime equipment. Branch circuit(s) to be supplied from existing power panel PP-LS at 208/120V.
    - x) Coordination and design of control and monitoring interface between new lime equipment and existing plant PLC system. Preferred interface will be with a programmable automation controller

(PAC) by GE in the lime system control panel(s). Preparation of I/O point list and control description for integration of lime feed equipment into the existing plant HMI system.

Programming and screen development in HMI to be performed by City.

- 2) Prepare detailed drawings and specifications and other contract documents for the proposed construction work at Clinton WTP and for the materials and equipment required.
  - a) Construction work at Clinton WTP includes two new rapid mix systems, new carbon dioxide storage and feed system, replacement of existing lime slakers with liquid lime system, installation of tube settlers in the presedimentation and primary basins, replacement of temporary ferric system with permanent ferric storage and feed system, and painting of the South Train basins and replacement of all fasteners on equipment in these basins. This work will include the following:
    - i) General Project Improvements.
      - (1) Designation of site layout and contractor access for the site.
      - (2) Survey coordination.
      - (3) Control points to locate proposed improvements.
      - (4) Pavement design for replacement of existing pavement and any new paved areas required due to the improvements.
      - (5) Erosion control BMP design.
      - (6) Demolition plan for existing equipment, piping and materials being removed and/or replaced as part of this project.
      - (7) Review of, and design and specification for any required new emergency shower and eye wash stands to meet codes.
      - (8) Specification of standard chemical warning signs as requested by the City.
      - (9) Coordination and design of control and monitoring interface between new process/chemical feed equipment and existing plant PLC system. Preferred interface will be with a programmable automation controller (PAC) by GE in the vendor control panel(s) or hardwired I/O when appropriate. Preparation of I/O point list and control description for integration of new process/chemical feed equipment into the existing plant HMI system. Programming and screen development in HMI to be performed by City.
    - ii) Installation of a new rapid mix system.
      - (1) Design of above-grade, recirculating / pumped flash-mix systems (one per train) for introduction of chemical into effluent pipelines of each presedimentation basin.
      - (2) Location and design of concrete pads for support of new rapid mix pumps, piping, and enclosures.
      - (3) Design for power supply branch circuits to new rapid mix systems. Branch circuits to be supplied from existing exterior MCC-5 and/or MCC-6.
    - iii) Addition of new CO<sub>2</sub> system.
      - (1) Selection of CO<sub>2</sub> bulk storage and feed equipment. Bulk storage will be located next to the existing ammonia storage and feed equipment will be located in the existing lime room.
      - (2) Design of feed piping.
      - (3) Structural analysis of existing floor in lime room and provide structural details for equipment support as required.
      - (4) Location and design of new concrete support pad for bulk storage tank.
      - (5) Evaluation of requirements for installation of CO<sub>2</sub> and oxygen sensors and alarms in the building. The need an automatic emergency shutoff valve will also be reviewed.
      - (6) Design for power supply branch circuits to new CO<sub>2</sub> system. Branch circuit(s) to be supplied from the existing HSP/Hypochlorite building or from exterior MCC-5.



- iv) Replacement of existing lime supply feeders with a liquid lime system.
  - (1) Demolition of existing lime slakers.
  - (2) Selection of lime storage and feed equipment and coordination with equipment manufacturer. Storage tanks and feed pumps will be located inside the existing lime and polymer rooms.
  - (3) Definition of liquid lime requirements to allow for multiple suppliers of the chemical.
  - (4) Design of feed piping and mixing at injection locations.
  - (5) Structural analysis of existing floors in the lime and polymer areas and provide structural details for equipment support as required.
  - (6) Evaluation of existing HVAC and plumbing systems in the lime and polymer rooms. Replace systems as required by the new equipment and as desired by the City.
  - (7) Demolition of the power and control cabling to the two existing lime feed units.
  - (8) Design for power supply branch circuit(s) to new liquid lime feed equipment. Branch circuit(s) to be supplied from existing MCC-1 or MCC-3 at 480V or from Lighting Panel LPX-CF1 or LPX-CF2 if required at 120V.
- v) Installation of tube settlers in primary basins.
  - (1) Equipment specifications for tube settlers.
  - (2) Structural input in regards to installation and modifications required for support (actual design of supports will be part of the equipment supplier's scope).
  - (3) Design will take into consideration of required access to areas below the tubes for operation and maintenance purposes.
- vi) Installation of tube settlers in presedimentation basin.
  - (1) Assist with City-conducted tracer study of flow patterns in the presedimentation basin to determine benefit of tube settler installation (up to 24 hours).
  - (2) Upon City request, provide equipment specifications for tube settlers.
  - (3) Upon City request, provide structural input in regards to installation and modifications required for support (actual design of supports will be part of the equipment supplier's scope).
  - (4) Design will take into consideration of required access to areas below the tubes for operational maintenance purposes.
  - (5) If City decides to not request equipment specifications for tube settlers, specifications will be provided for replacement of Train 1 weir plates with FRP weir plates.
- vii) Installation of a permanent feed system for ferric.
  - (1) Provide site access and grading for proposed building and tanks.
  - (2) Design of a new masonry block building and foundation.
  - (3) Specifications for painting/coating of building floor and interior items, as requested by City
  - (4) Design of HVAC, plumbing, and fire protection (if required) for the new structure.
  - (5) Design of ferric storage tank(s) and chemical feed equipment.
  - (6) Design of feed piping.
  - (7) Structural design of new concrete pads and containment walls for ferric tanks.
  - (8) Design for power supply and building electrical systems to support new ferric feed system. Building service entrance to be supplied from the existing HSP/Hypochlorite building or from exterior MCC-5. Relocate existing PLC 6A Expansion Panel to the new ferric feed building.
  - (9) Assist City in developing materials for inclusion in the application to City's planning department for the new ferric feed building.
- viii) Coating and structural repairs of existing South train treatment basins.
  - (1) Lead Paint Analysis for three basins.
  - (2) Coating layout plan and specification for coatings of:

- (a) Portions of the concrete basins.
- (b) Sludge pump station.
- (c) Steel mechanisms in basins.
- (d) Miscellaneous steel.
- (3) Structural repair details as required.
- (4) Replacement of all fasteners on equipment inside the south basins.
- 3) Provide contract documents using the City's standard documents and conditions as supplemented with Consultant's input and review.
- 4) Provide phasing and plant downtime limitations document within the specifications.
- 5) Provide technical criteria, written descriptions, and design data for City's use in filing applications for permits or approvals from KDHE.
- 6) Advise City of adjustments in excess of ten percent of the opinion of probable construction cost for the Project caused by changes in scope, design requirements, or construction costs and furnish a revised cost opinion for the Project based on the final Bid Documents.

### **Task 6 - Bid Phase Services**

- 1) Coordinate bid opening date, time, and place with City, and prepare Advertisement for Bids.
- 2) Assist City in placing advertisements of the Advertisement for Bids.
- 3) Identify potential contractors and suppliers, and distribute copies of the Advertisement for Bids. Maintain a record of prospective bidders and suppliers to whom bidding documents have been issued.
- 4) Provide and distribute electronic copies and/or CDs of construction contract documents for bidding purposes.
- 5) Conduct one pre-bid meeting with perspective bidders.
- 6) Distribute the plan holders' list to recipients of bidding documents prior to bid opening.
- 7) Interpret construction contract documents. Prepare and issue addenda to the construction contract documents when required.
- 8) Assist City during bid opening, prepare tabulation of bids, and review questionnaires and bids for completeness.
- 9) Prepare and distribute formal bid tabulation sheets, evaluate bids, and make written recommendations to City concerning construction contract award.
- 10) Assist City in preparing Conforming Contract Documents.

### **Task 7 - Construction Phase Services**

- a) Consult with and advise City and act as City's Consultant as provided in Consultant's standard General Conditions for the Construction Contract. The extent and limitations of the duties, responsibilities, and authority of Consultant as assigned in said General Conditions shall not be modified without Consultant's written consent.
- b) As City's Consultant, Consultant shall not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions or programs, or for Contractor's failure to perform construction work in accordance with the Contract Documents, all of which shall remain the sole responsibility of the City's Contractor.
- c) Review and accept Submittals of Contractor(s) for conformance with the design concept and intent of the Contract Documents. Review will include one initial submittal and one re-submittal; review of additional re-submittals will require additional compensation.
- d) Perform project administration services during the construction phase of the project.

- e) Conduct a preconstruction conference and provide meeting minutes.
- f) Review and comment on the Contractor's initial and updated construction schedule and advise City as to its acceptability.
- g) Review the Contractor's schedule of values and initial and updated schedule of estimated monthly payments and advise City as to acceptability.
- h) Attend monthly progress meetings and other meetings with City and Contractor to review the progress of the work and other matters concerning the project. Contractor will be responsible for preparation and distribution of meeting minutes.
- i) Make periodic visits (not to exceed 80 hours) to the construction site to observe progress of the work, and consult with City and the Contractor concerning problems and/or progress of the work.
- j) Interpret construction contract documents when requested by City or the Contractor and reply to requests for information.
- k) 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.
- l) Review and process the Contractor's monthly payment requests, and forward to City if deemed appropriate.
- m) Review Contractor's documentation and administer the processing of change orders, including applications for extension of the Contract 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 will be subject to the approval of City.
- n) Review reports from laboratory and field testing and sampling services, including testing laboratory services furnished by City, on field tests and test analyses of equipment and materials, including concrete, soil, soil compaction, asphalt, and any other subjects that may be required by the specifications and good construction practices.
- o) Analyze data from performance testing of equipment by the Contractor or supplier when the construction contract documents require the equipment to be tested after installation. Submit conclusions to City.
- p) Review the operation and maintenance manuals provided by Contractor. Consultant will forward up to four final sets for each, placed in separate binders with CD/DVD and provided with a table of contents, to City. Consultant will also provide overall Operational Narrative document to supplement the operation and maintenance manuals provided by the Contractor.
- q) Upon substantial completion, review the construction work and prepare a list of the items to be completed or corrected before final completion of the project. Submit results of the review to City and the Contractor.
- r) Upon completion or correction of the items of work on the list, conduct a final review 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.
- s) Upon substantial completion, Consultant shall work with Contractor and equipment manufacturers to conduct training sessions with plant operations staff. Sessions shall cover operations of specific equipment system as well as discussions of how each system fits into the overall plant operation strategy.
- t) Upon completion of the project, revise the construction contract drawing to conform to the construction records provided by Contractor. Submit two full-size black line copies for the revised drawings along with Contractor's record drawings, including Engineering ties, field ties, and GPS information, to the City for review. Incorporate the City's comments and submit one set of full-size set of drawings and one electronic set of drawings in AutoCAD 2014 and PDF format to the City.

## Task 8 – Resident Project Representative Services

- 1) Consultant will furnish a Resident Project Representative and such assistant Resident Project Representatives as may be required on the work as part of their Construction Phase Services. The Resident Project Representative and assistants will observe the Contractor's work and perform the services listed below. The Resident Project Representative shall not have responsibility for the superintendence of construction site conditions, safety, safe practices or unsafe practices or conditions, operation, equipment, or personnel other than employees of the Consultant. This service will in no way relieve the Contractor of complete supervision and inspection of the work or the Contractor's obligation for complete compliance with the drawings and specifications. The Contractor shall have sole responsibility for safety and for maintaining safe practices and avoiding unsafe practices or conditions.
- 2) Resident Project Representative services not to exceed 1,320 hours, assuming 30 hours a week for 10 months, based on an anticipated construction schedule of one year. One representative will be provided by Consultant or their Subconsultant and will oversee work at both plant locations.
- 3) Specific services performed by the Resident Project Representative and assistants are as follows:
  - a) Site Observations and Liaison with City and Contractor(s)
    - i) Conduct onsite observations of the general progress of the work to assist Consultant in determining if the work is proceeding in accordance with the construction contract documents.
      - (1) This will include measurement and recording of coating blast profiles, dry film thicknesses, substrate conditions, and recording of weather conditions during coating operations and advising Contractor when coating operations do not meet specification requirements.
    - ii) Serve as Consultant's liaison with Contractor, working principally through Contractor's superintendent, and assist Consultant in providing interpretation of the construction contract documents. Transmit Consultant's clarifications and interpretations of the construction contract documents to Contractor.
    - iii) Assist Consultant in serving as City's liaison with Contractor when Contractor's operations affect City's onsite operation.
    - iv) As requested by Consultant, assist in obtaining from City additional details or information when required at the jobsite for proper execution of the work.
    - v) Report to Consultant, giving opinions and suggestions based on the Resident Project Representative's observations regarding defect or deficiencies in the Contractor's work and relating to compliance with drawings, specifications, and design concepts.
    - vi) 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.
    - vii) Observe pertinent site conditions when Contractor notifies Consultant that he feels that differing subsurface and physical conditions have been encountered, and document actual site conditions. Review Contractor's construction sequence for all work being undertaken.
    - viii) Verify that 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.
    - ix) Visually assess materials, equipment, and supplies delivered to the worksite. Reject materials, equipment, and supplies which do not conform to the construction contract documents.
    - x) Assist with coordination of onsite materials testing services during construction. Copies of testing results will be forwarded to City and Contractor for review and information.

- xi) Observe field tests of equipment, structures, and piping, and review the resulting reports, commenting to Consultant, as appropriate.
- b) Meetings, Reports, and Document Review and Maintenance
  - i) Attend the preconstruction conference, and assist Consultant in explaining administrative procedures which will be followed during construction.
  - ii) 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.
  - iii) Submit to Consultant, with a copy to City, weekly construction progress reports containing a summary of the Contractor's progress including photos, general condition of the work, problems, and resolutions or proposed resolutions to problems.
  - iv) Review the progress schedule, schedule of shop drawings submissions, and schedule of values prepared by the Contractor and consult with Consultant concerning their acceptability.
  - v) Report to Consultant 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; and advise Consultant whether the work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
  - vi) Review applications for payment with Contractor for compliance with the established procedure for their submission, and forward them with recommendations to Consultant, noting particularly their relationship with the schedule of values, work completed, and materials and equipment delivered at the site, but not incorporated into the work.
  - vii) Receive Samples which are furnished at the site by the Contractor, and notify Consultant of their availability for examination.
  - viii) During 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; and deliver this material to Consultant for his review and forwarding to City prior to final acceptance of the work.
  - ix) 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.
  - x) Review certificates of inspections, tests, and related approvals submitted by the Contractor as required by laws, rules, regulations, ordinances, codes, orders, or the Contract Documents (but only to determine 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.
  - xi) Maintain the following documents at the jobsite:
    - (1) Correspondence files.
    - (2) Reports of jobsite conferences, meetings, and discussions among the Consultant, City, and Contractor.
    - (3) Copies of approved shop drawings, supplier O&M Manuals, and samples.
    - (4) Copies of construction contract documents.
    - (5) Addenda.
    - (6) Change orders.
    - (7) Field orders.

- (8) Additional drawings issued subsequent to execution of the construction contract documents.
- (9) Progress reports.
- (10) Names, addresses, and telephone numbers of all contractors, subcontractors, and major suppliers of materials and equipment.
- xii) Maintain a daily diary or log book of events at the jobsite and provide a weekly summary report to Consultant, with copy to City, including the following information:
  - (1) Days the Contractor worked on the jobsite.
  - (2) Contractor and subcontractor personnel on jobsite.
  - (3) Construction equipment on the jobsite.
  - (4) Observed delays and causes.
  - (5) Weather conditions.
  - (6) Data relative to claims of extras or deductions.
  - (7) Daily activities.
  - (8) Observations pertaining to the progress of the work.
  - (9) Materials received on jobsite.
  - (10) Observation of field tests and procedures.
  - (11) Observation of defects or deficiencies in Contractor's work.
  - (12) Photos.
- xiii) The diary or log book shall remain the property of the Consultant. However, a copy will be provided to City upon Substantial Completion of the project.
- b) Assistance in Certification of Substantial Completion
  - i) Before Consultant issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
  - ii) Assist Consultant in conducting final review in the company of City and Contractor, and prepare a final list of items to be completed or corrected.
  - iii) Verify that all items on the final list have been completed or corrected and make recommendations to Consultant concerning acceptance.

### **Task 9 - Post-Construction Services**

- 1) Once all systems have been commissioned and start-up has occurred, Consultant shall perform bench and full scale testing to evaluate plant performance. Consultant shall provide written technical memorandum of findings and recommendations for optimization of the new processes. This work shall not exceed 120 hours.
- 2) Consultant shall provide consulting services for operational challenges and issues associated with warranty item throughout the warranty period. This work shall not exceed 80 hours.

### **C. SCHEDULE**

Design documents will be issued to KDHE for review within 6 months from the time that a signed Amendment from the City is received by the Consultant. This assumes timely reviews by the City (approximately 2 weeks per review for the first three deliverables identified in Part D of this Scope of Services) and that no substantial comments are received from KDHE on the preliminary engineering report that impacts the final design.

## **D. DELIVERABLES**

Deliverables will be as described herein the Scope of Services and will include:

- 1) Preliminary Design Report for City Review.
- 2) Preliminary Design Report for KDHE Review.
- 3) Materials for inclusion in the application to City's planning department for the new ferric building, anticipated to be a site plan and building elevation.
- 4) Intermediate Design Review Documents.
- 5) "For Approval" Bid Contract Documents.
- 6) For KDHE Review Contract Documents.
- 7) Issued for Bid Contract Documents.
- 8) Issued for Construction Contract Documents.
- 9) Conforming Contract Documents.
- 10) Resident Project Representative Reports.
- 11) Conforming to Construction Records Contract Documents.
- 12) Operational Narrative Document.
- 13) Post-Construction Process Evaluation Technical Memorandum.

## **E. FEE**

This work will be a schedule of rates with a maximum-not-to-exceed amount of \$1,260,880.00 for the Scope of Services described herein.

## **F. ASSUMPTIONS**

- 1) City will provide the following:
  - a) Water quality and plant performance data that is readily available for Clinton and Kaw Water Treatment Plants.
  - b) Drawings, equipment manuals, process design criteria, and standard operating procedures for existing facilities.
  - c) Existing property, boundary, easement, right-of-way, and utility surveys, and property descriptions when such information is required, unless acquired directly by the Consultant through subcontracted services.
  - d) All maps, drawings, reports, records, audits, annual reports, and other data that are available in the files of the City and which may be useful in the Services involved under this Agreement.
  - e) All of City's requirements for the Project, including but not limited to, schedule milestones; any financial constraints; and any City criteria, standards, design objectives or design constraints.
  - f) Assistance of the City's staff as required in performance of Consultant's services.
  - g) Obtain access to public and private property when required in performance of the Consultant's services.
  - h) Obtain required easements and rights-of-way including obtaining title reports and property appraisals with engineering assistance provided by the Consultant.
  - i) Royalties and fees for patented processes used in the work, except those required to be paid by construction contractors as part of the construction contract.

- j) Shop, mill, or laboratory inspection of materials, laboratory and field testing, and field sampling services. The Consultant will review the reports furnished by such laboratories which are required for the construction contract.
- k) Permits required for the projects with engineering assistance provided by the Consultant.
- l) Payments for review of permits, drawings, and specifications by governmental agencies.
- m) Payments for special consultants requested by the City.
- n) Payments to Contractor in accordance with the terms of the construction contract documents.
- o) Legal advertisement of project letting or bid date and such other publications of the “Advertisement for Bids” as desired by the City.
- p) Execution and distribution of the construction contract documents, including review of the Contractor’s insurance certificates and bonds for acceptance by the City’s legal counsel, and issuing the notices required by the construction contract documents. Insurance and legal services as may be required during the progress of the Projects.
- q) Water quality analyses required in performance of the Services.
- r) Timely reviews of deliverables, as applicable, identified in Part D of this Scope of Services.
- s) Coordinate with KDHE and provide documentation as required.