

Purpose

Columbia Water & Light is soliciting proposals from qualified firms to provide surveying, design, permitting, alternative treatment analysis, bidding, and construction phase services for Phase I of the McBaine Water Treatment Plant Upgrades. Selection of a design team will be in accordance with Missouri State Statutes.

Background

The work shall generally consist of the design of upgrades to the City's McBaine Water Treatment Plant, a 32MGD lime softening facility, located at 6851 W. Rte K, Columbia, MO 65203. The proposed scope of services includes field investigations, alternative treatment analysis, pilot testing, surveying, geotechnical investigations, preliminary design and detailed design, public outreach support, permitting, easement support, bidding and construction services for the project. Detailed work tasks are as outlined in the Scope of Services Section below. Suggested modifications to the scope shall be detailed in the Engineer's proposal. The Engineer shall provide all necessary services required for a complete design package suitable for permitting, bidding and construction of the project.

Scope of Services**Task 1- Project Administration, Management, and Quality**

Throughout all tasks, the Engineer shall provide project administration and management activities such as staffing, sub-consultant coordination, budget management, schedule management, and coordination with City staff. The Engineer shall maintain the quality of the work products defined within this scope as consistent with applicable standards and City's expectations. Engineer shall provide the following:

- A. Prepare for and attend a project kickoff meeting.
- B. Identify potential risks to the project's success and develop mitigating strategies.
- C. Prepare and submit monthly status reports including current status of project tasks, updated project schedule, and project financials.
- D. Schedule and attend milestone based progress meetings during design and construction to review project status.
- E. Provide summaries following all project meetings.
- F. Engineer will prepare project maps from GIS data and other publically available information for use in project planning.
- G. Provide a preliminary layout for the treatment facility.
- H. Engineer will provide a Technical Memorandum summarizing the results of the field reconnaissance and other preliminary considerations and a concept recommendations for review and approval by City.

Task 2- Field Surveys and Investigations

A detailed field and boundary survey shall be conducted on the site and approved by City under Task 1. Field surveys will be conducted primarily on City owned property and other areas where additional detail is needed and will include the following at a minimum:

Topographic and Planimetric Survey. Engineer shall provide planimetric and topographic survey work and create a topographic base file for use in the project design, permitting, and contract document preparation. Surveying will generally encompass:

- A. Field survey the project site.
- B. Coordination for the location of underground utilities and indication of the type and location of both underground and above ground utilities based on available information.
- C. Location of property corners adjacent to or within the survey site.
- D. Location of all drainage and sanitary sewer information (ditch bottoms, storm drain top elevations, invert elevations, sizes, and connections), including elevations of storm or sanitary pipes extending to the opposite side of the road.
- E. Topographic survey of the site with two foot contour intervals.
- F. Establishment of right-of-way and property lines sufficient for the preparation of easements for land acquisition.
- G. Location of roadway features including, edge of pavement, curb and gutter and roadway centerline.
- H. Labeling of road names and property owners on drawing.
- I. Location of permanent structures within the survey site.
- J. Location of trees > 8 inches in diameter indicating diameter and species.
- K. Location of driveways.
- L. Location of creek centerlines, waterline elevation and the bottom/top of banks.

Geotechnical Investigations- Engineer shall conduct a geotechnical investigation at the treatment plant site. Geotechnical scope shall be included in the proposal and generally consist of the following minimum requirements:

- A. Soil borings and geotechnical report for the treatment plant site as necessary, suitable for design of the treatment plant improvements.
- B. Borings and geotechnical report for rock, ground water and other constructability concerns at locations of concern or critical nature.

Non-Destructive Testing-Engineer shall conduct non-destructive testing of existing concrete structures to assess the strength, durability and overall structural integrity.

City Provided Resources-The city will provide available resources to the engineer to aid in the design and completion of the project. Resources available include:

- A. Studies and Reports
 - a. Water Treatment Plant Expansion Study-2011
 - b. Long Range Water System Study-2015
 - c. Columbia Integrated Water Resource Plan-2016
 - d. McBaine Water Treatment Plant Condition Assessment-2016

- e. Supplemental to 2011 Water Treatment Plant Expansion Study-2018
- f. Climate Action and Adaptation Plan-2019
- B. Parcel Data
- C. GIS Utility Data
- D. Plans for previously completed projects
 - a. Original Construction Plans-1970
 - b. Expansion Plans-1994
 - c. Expansion Plans-2004
- E. Hydraulic water system model
- F. Customer billed water use
- G. Aerial imagery

Task 3- Alternative Treatment Analysis

Treatment Alternative Analysis-The alternative analysis should establish water quality goals, analyze source water, further evaluate available treatment processes, evaluate space requirements, and provide cost estimates. The work shall include the analysis of treatment alternatives and evaluate the feasibility of each alternative. The feasibility analysis should include constructability, O&M costs, compatibility with existing plant operations, reliability, flexibility, and any other criteria developed between the Engineer and City. The Engineer should provide recommendations on use of space and efficiency as well as plan for future needs and improvements. The engineer shall also develop and conduct a pilot testing program as part of the alternative analysis.

Task 4- Easement Drawings and Encroachment Assistance

Engineer will provide easement drawing exhibits for City use in obtaining any necessary property and easements adjacent to the treatment plant site. Engineer will coordinate with City land acquisition staff on project related questions during the easement procurement process. Engineer shall prepare encroachment documentation as necessary for the City to obtain any necessary MoDOT permits.

Task 5- Design Document Preparation

The detailed design phase will consist of the preparation of drawings and specifications for permitting and construction of the proposed treatment plant improvements in accordance with City standards and Missouri Department of Natural Resources requirements.

The design will be conducted in the following phases. Engineer will provide pdf's for review and coordinate and conduct workshop meetings at the 30%, 60% and 90% design milestones to review the design documents and City comments. The City utilizes Bluebeam Revu for plan review purposes. Drawings and Documents should be submitted to the review team at least (10) working days prior to any workshop for comment and markup.

The 30% Preliminary Engineering design will consist at a minimum of the following:

- A. Base drawings utilizing field survey data
- B. Preliminary Treatment Plant Layout
- C. Preliminary opinion of probable construction cost

D. Permitting and easement requirements based on field delineation and survey results

The 60% design shall address comments received at the 30% phase and consist at a minimum of the following:

- A. Treatment Plant Site Plan
- B. Mechanical Plan
- C. Electrical Plan
- D. Erosion and sedimentation control plan and details
- E. Technical specifications
- F. Bid Form
- G. Updated opinion of probable construction cost

The 90% design shall address comments received at the 60% phase and consist of a full set of plans, details, specifications and bid documents. It is anticipated 90% drawings will be sufficient for project permitting.

The 100% design shall include the resolution of all review comments and incorporation of regulatory agency comments. The design documents shall be sufficient for bidding the project for construction.

Design of water treatment improvements is anticipated, but not limited, to include the following:

- A. Restoration of plant capacity including elimination of hydraulic bottlenecks
- B. Replacement of Primary Basin Equipment
- C. Chemical feed improvements
- D. Addition of recarbonation
- E. Filter and high service pump modifications to establish constant rate filtration
- F. Complete electrical upgrades including a new service entrance
- G. SCADA upgrades including automation of the City's water system
- H. Replacement of instrumentation
- I. Replacement of HVAC
- J. Roof Replacement
- K. Other cosmetic improvements

Task 6- Permitting

In preparation for bidding and construction of the project, Engineer will prepare and coordinate submittals, address comments, and obtain all necessary permits including but not limited to the following:

- A. MoDOT right-of-way construction permit
- B. Missouri Department of Natural Resources construction permit
- C. City of Columbia land disturbance permit
- D. City of Columbia construction permit
- E. Flood Plain Development Permit

Task 7- Bid Phase Services

When approved by City, Engineer will assist in the bidding process for the project. Engineer will prepare a complete set of contract documents, including:

- A. Project technical specifications
- B. Project bid drawings including incorporation of all applicable permit review comments
- C. Project Bid Form

City will combine the “Front End Documents” with Technical Specifications, Drawings, and Bid Form for a bid ready package. Upon advertisement of the construction project by City, Engineer will provide bid period services consisting of the following specific activities:

- A. Attend a Pre-Bid Conference and assist City in conducting the conference
- B. If necessary, prepare addenda to interpret, clarify, and amend the Contract Documents
- C. Answer technical questions from contractors during the bidding period
- D. Assist City in reviewing bid proposals and selecting the lowest and best qualified proposal.

Task 8- Stakeholder Involvement and Public Outreach

Engineer should provide support to City for stakeholder involvement and public outreach to attend approximately two public meetings and provide project overview exhibit and detailed technical drawings. City will develop mailing lists and maintain community contacts for stakeholders.

Task 9- Construction Phase Services

Engineer will provide construction observation and administrative services during the construction period of the project. City will prepare a Notice of Award to the selected contractor, and prepare and issue a Notice to Proceed. The Engineer will provide additional administrative services during construction that will include the following items:

- A. Attend and assist in conducting a pre-construction conference
- B. Review submittals and shop drawings
- C. Review and respond to Requests for Information
- D. Review Change Order Requests
- E. Attend progress meetings; produce agenda and minutes
- F. Provide contract close out assistance (punch list support, etc.)
- G. Construction inspection services in addition to conducting monthly meetings.
- H. Prepare record drawings based on the contractor’s red-line mark-up drawings, contractor’s survey information, and City records. Record drawings will be submitted by Engineer to City in Hard Copy, AutoCAD, and PDF formats.

Project Schedule

Engineer shall include an anticipated project schedule which includes project milestones, activities, and deliverables. The project schedule shall include task duration, linkages of dependencies, and scheduled events.

Proposal Contents

Proposals should be bound with the name of the firm and name of the Project visible on the outside cover. Each submittal shall address all aspects of the Request for Proposal including:

A. General Information

1. A cover letter signed by an officer of the firm.
2. Provide a primary contact point for all correspondence related to the proposal including name, title, phone number, and email address.
3. A statement confirming that the firm meets the appropriate state licensing requirements to practice in the State of Missouri.
4. A statement agreeing to all terms contained in the City's Request for Proposals document including permission for the City and its representatives to contact references, clients, contractors or others to seek information about the firm's past performance, as well as permission for those persons contacted by the City and its representatives to provide requested information.
5. A statement that the firm currently has in house resources to perform all required work except in those specialized areas that are clearly listed in the submittal as areas of work that will be subcontracted.

B. Firm's Experience and Performance on Similar Projects

Submit the following information on past projects to illustrate the specialized expertise, demonstrated experience, applicable qualifications, and available resources of the firm with emphasis on key team members proposed for this project.

1. For each listed project, provide the following:
 - a. Project name, location, description, and status of the project.
 - b. Project's original contracted engineering cost and final engineering cost.
 - c. Project's construction cost.
 - d. Contact information (reference name, title, email address and phone number) for Owner for each project.
2. Key project team members serving on each of the above listed projects with emphasis on the participation of team members proposed for this Project.
3. Describe any issues relevant in evaluating the ability of the responding firm to handle the proposed Project.

C. Project Team Qualifications

Submit proposed Project team information to include the following:

1. Organizational chart showing key personnel who will be assigned to the Project; include the name and role/responsibility of each key team member. Include only those staff members who will commit a substantial percentage of their time to the work. List the approximate number of technical staff that is expected to serve in support roles on the Project. Show reporting structure of the Project team including any sub-consultants. Include a listing of work elements that will be performed by sub-consultants and state the names of proposed sub-consultants.
2. For each key person identified, list their length of time with the firm and at least two comparable projects in which they have played a primary role.

D. Understanding the project and approach to performing the required services

1. Provide a discussion on the Firms project understanding and approach, with emphasis on modifications, deviations, or improvements to the proposed scope of services.
2. Discuss the major issues and / or risks identified on this project and how to address and mitigate those issues.
3. Provide a schedule, by phase and task, for completing the work.
4. Identify any assumptions and services anticipated to be provided by the City.
5. Provide any additional information would assist the City in making this project award decision.
6. Include with their proposal a list of assumptions used to develop final scope and fee for this Project.

E. Interview

An interview will be held among short listed firms at the discretion of the City. Information will be provided at a later date.