

ITEM #: 43
DATE: 05-09-23
DEPT: W&PC

COUNCIL ACTION FORM

SUBJECT: NUTRIENT REDUCTION MODIFICATIONS PROJECT - PROFESSIONAL SERVICES AGREEMENT AMENDMENT NUMBER 1

BACKGROUND:

On June 28, 2022, City Council approved a professional services agreement with Strand Associates for the planning, design, and bidding phases of the Water Pollution Control Facility (WPCF) Nutrient Reduction Modifications Project. The agreement provided for a fee of \$1,655,000, plus \$20,000 hourly services for extraordinary permitting assistance as needed.

The Council resolution for that award included the following: “...*It is important to note that the Scope of Work is likely to change during the design phase as the details of the project become better defined...*”

Two significant changes have been made to the project scope during the conceptual design process:

- 1) It was decided to demolish and reconstruct the Administration Building to allow the new aeration basins to be placed in a location that is more cost-effective and better situated for future additions.
- 2) It was decided to complete the modifications in two phases instead of three in order to minimize the overall total cost of the modifications. This accelerated some of the work that was previously envisioned for a later phase, such as the installation of hydrocyclones for sludge densification, flow splitting structures, and one aeration basin.

There were also some work elements that were expressly excluded from the original scope that are now being added at staff's request. For example, the original agreement noted that a new electrical service entrance and electrical distribution equipment were not included. As the design progressed, it became clear that the space available to house new electrical equipment was not sufficient, and the need for a new electrical building to house the electrical service entrance and switch boards became clear.

Staff believes these are significant changes to the scope, and an adjustment to the previously awarded professional services agreement in the amount of \$710,000 is warranted. Staff has worked closely with the design team at Strand Associates to identify specific changes to the scope of work, and to confirm that the cost increases are limited to new or expanded scope items only.

This item was tabled from the April 11, 2023, City Council meeting. Since that time, staff has discussed with Strand the addition of a Value Engineering review. Value Engineering is a process where a design team independent from the original team reviews the design and offers modifications that could improve the overall project. The primary focus is on modifications that could lower the likely bid price. City staff is proposing to have a review performed by a separate design team within Strand Associates that has not been engaged in the Ames WPCF project. It would be a full, independent team that would review the preliminary design at a point between 20% and 40% complete. That way there is enough detail prepared to allow a meaningful review, but the design is not so far completed that any changes would result in substantial redesign costs. **Because of the added Value Engineering scope item, the proposed increase in Amendment Number 1 has increased by \$53,000 from what was presented to Council in April.**

New or Altered Scope Item	Cost
Relocation of Administration Building	\$ 395,000
Switch to Two Phases instead of Three	194,000
Misc. Scope Changes	136,000
Value Engineering	53,000
Delete Local Limits Review	-15,000
Total Change (Amendment #1)	\$ 763,000

The original professional services agreement awarded in June 2022 contained the first two line items in the table shown below. **The \$763,000 for Amendment #1 is added below (in italics), for a revised professional services agreement total of \$2,438,000:**

Planning, Design, & Bidding Phase	\$ 1,655,000
Additional Services as Authorized	20,000
<i>Amendment #1 - Additional Design Services</i>	<i>763,000</i>
Revised Professional Services Total	\$ 2,438,000

The FY 2023–2028 Capital Improvements Plan includes funding for engineering, legal, and other professional services associated with this project. The subtotal available for professional services during the design phase is \$3,290,000. The table below indicates the funding available for professional services during both the design and construction phases of the project:

Budget Year	Professional Services Budget
FY 2022/23 (design phase)	\$ 1,260,000
FY 2023/24 (design phase)	2,030,000
Design Phase Subtotal	\$ 3,290,000
FY 2024/25 (construction phase)	1,720,000
FY 2025/26 (construction phase)	1,790,000
Construction Phase Subtotal	\$ 3,510,000
Total Professional Services Budget	\$ 6,800,000

Additional design phase services may still be needed for elements that are not captured in this amendment. As an example, the extent of storm water management that will be required by Story County is still not fully known. The scope presumes that storm water management will be limited to the area disturbed by the project; but if the County chooses to require storm water management for the entire property, that would be outside the scope of the agreement. Also not included at this time are any needed improvements to the City-owned south access road.

Council should also be aware that an additional amendment will be needed around the time of award of the construction contract. This future change order will add construction phase engineering services such as shop drawing review, pay request review, change order preparation, and State Revolving Fund coordination with the Iowa Department of Natural Resources and the Iowa Finance Authority. It may also include Resident Project Review to provide continuous construction oversight.

ALTERNATIVES:

1. Approve Amendment Number 1 to the professional services agreement with Strand Associates for design phase services related to the Water Pollution Control Facility Nutrient Reduction Modifications Project in the amount of \$763,000, bringing the total contract amount to \$2,438,000.
2. Do not approve the amended scope and fees, and provide staff direction regarding the changes in the scope of work.

CITY MANAGER’S RECOMMENDED ACTION:

When Council approved the original agreement with Strand Associates in June 2022, changes to the scope of work were anticipated, as the details of the project were still being developed and refined. Two significant design changes (the relocation of the Administration Building and the change to constructing the project in two phases instead of three) have necessitated a revision to the scope and associated fees. Staff has met with the consultant and reviewed the modified scope of work line by line to ensure that the additional fees are truly associated with work that was not included in the original agreement. In addition, staff believes a value engineering review would be advisable in an effort to further reduce the project costs. This review was not included in the original design contract.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, as described above.

**SUPPLEMENTAL AGREEMENT NO.1 TO THE
AGREEMENT FOR ENGINEERING SERVICES**

Dated June 28, 2022

Between the
City of Ames, Iowa (City)
and
Strand Associates, Inc.[®] (Engineer)

The City and Engineer agree to amend the referenced Agreement as follows:

Under Article IV, Engineer's Fee, A. Basic Fee, Item No. 1, CHANGE \$1,655,000 to "\$2,418,000."

Under Exhibit I, Duty of Engineer, **Scope of Services,**

Final Design,

REPLACE Item No. 1 in its entirety with the following:

- "1. Develop final design for the following project components:
- a. Replacement of the influent hydraulic sluice gate and actuator.
 - b. One new mechanical screen in the existing channel with screening wash press.
 - c. Modifications to existing multi-rake screen to reduce bar spacing.
 - d. Demolition of the grit removal equipment in the raw wastewater pump station.
 - e. One new grit building with grit pumps and grit washers including HVAC, plumbing, and electrical design.
 - f. Two new grit removal tanks located adjacent to the new grit building.
 - g. One grit pad located adjacent to the new grit building.
 - h. Replacement of existing slide gates in the raw wastewater pump station and raw pumping plug valves, gate vales, two check valves, pipe supports, combination air valves, and pipe supports.
 - i. Replacement of process piping for routing pumped influent to the grit building.
 - j. One magnetic flow meter and plug valve added to the equalization basin influent line in the lower level of the raw wastewater pump station.
 - k. National Fire Protection Agency 820-related modifications in the raw wastewater pump station as follows will be designed around Class I Division 1 criteria, except for the electrical room and blower room (which will be unclassified):
 - (1) Install Class I Division 1-rated electrical receptacles and light fixtures.
 - (2) Remove combustible materials.

- (3) Physically separate the electrical room from the other rooms in the building.
 - (4) Add combustible gas detectors and associated monitoring and alarming.
 - (5) Replace motors on existing raw pumps, multi-rake screen, wash press, and other equipment with Class I Division 1-rated motors.
- l. Modifications to the raw wastewater pump station to create a blower room in the area currently occupied by the grit equipment. These modifications include an interior wall to separate the space from the rest of the building, new exterior entrances, and new HVAC and electrical systems for the blower room. Three new high-speed turbo aeration blowers and associated controls, electrical, piping, and appurtenances will be located in this room.
 - m. Replacement of the fire alarm system in the raw wastewater pump station.
 - n. One new dry well return activated sludge (RAS) pump station with centrifugal pumps on the lower level and motor control centers on the at-grade level.
 - o. One new electrical building with a new service entrance and other electrical equipment on the at-grade level and a lower-level vault for access to ductbanks and wiring. The new service entrance equipment will replace the existing main switchboard. New feeders will be provided from the new service entrance equipment to new buildings and existing buildings being modified as part of the project. Existing feeders to the buildings that are not being modified as part of the project will be spliced and extended to the new service entrance equipment.
 - p. Two new concrete activated sludge basins configured for biological nutrient removal including aeration piping, aeration diffusers, sludge piping, mixers, and recycle pumps. The proposed design anticipates that a deep foundation is not required. The anticipated location of the new basins is in the location of the current administration building.
 - q. One new mixed liquor splitter box with weir gates.
 - r. An addition to the existing final clarifier splitter box with slide gates.
 - s. One hydrocyclone sludge densification system with associated piping and appurtenances located in the solids contact building. Modifications to the existing solids contact building and solids contact basins to incorporate sludge densification system including structural, electrical, and HVAC modifications.
 - t. Site modifications limited to site lighting, video surveillance, access controls, yard piping, grading, sidewalk access, and roadway access associated with the new RAS pump station, activated sludge basin, and electrical, including new or modified roads to access the site.
 - u. Electrical and controls design for the new equipment and structures.
 - v. Replacement of the existing supervisory control and data acquisition software and hardware.
 - w. HVAC and plumbing modifications for the existing RAS pump station and electrical building.
 - x. Replacement of the existing effluent water pumps.”

ADD the following:

- “9. Develop design for a new administration and maintenance building with the following components:
- a. Participate in a kickoff meeting in person with City to discuss the project and schedule. Meet with City’s officials and staff to evaluate project goals, space criteria, and sustainable design initiatives. Previously performed space needs and design criteria, including staff and service level information provided by City, will be reviewed and considered for the new building layout.
 - b. Meet with City, via videoconference, to review previously prepared departmental space needs and adjacencies. Three two-hour meetings are anticipated. Prepare meeting notes and transmit copies to participants.
 - c. Gather City-provided information including existing site and building data, existing drawings, and previous reports and studies.
 - d. Prepare an updated space needs summary based on discussions at the kickoff and subsequent project meetings. Provide an estimate of the square footage for the new administrative and maintenance building and send the estimate to City for review and comment.
 - e. Review alternatives to consider for designing the building to Leadership in Energy and Environmental Design (LEED) Certified Standards and review the criteria for possible LEED certification. Review design parameters for the following net-zero energy features:
 - (1) Building orientation and structural capacity to facilitate future rooftop solar panel system.
 - (2) Incorporation of natural lighting.
 - (3) Review building envelope features including fully insulated slab, increased wall and roof insulation, and triple pane windows.
 - (4) Incorporation of operable windows.
 - (5) Incorporation of space needs for future solar battery storage.
 - f. Review State of Iowa and local building codes along with City’s ordinances applicable to the new building.
 - g. Prepare up to three draft conceptual site and building floor plans based on the City-approved program, site, and code criteria. Draft concepts will illustrate the spatial and functional relationship of the facility and site. Prepare site vehicular circulation using Auto-Turn vehicle path maneuver software. Provide a summary of potential LEED and net-zero design features to be included in the design for City review.
 - h. Participate in one virtual meeting with City to review conceptual drawings and potential design parameters.
 - i. Revise drawings, as appropriate, based on City’s selected draft concept and associated comments received at the review meeting. A preliminary building rendering based on the selected conceptual building plan will be prepared using Autodesk Revit software. Finalize the summary of City-selected LEED and net-zero features to include in project.

- j. Prepare an OPCC for the selected conceptual building plan based on Association for the Advancement of Cost Engineering (AACE) guidelines. Base the OPCC on a Class 4 Estimate, as defined by AACE, which has a maturity level of project definition between one percent to 15 percent with the typical purpose of the estimate being a feasibility study. The expected accuracy range for the OPCC is -30 percent to +50 percent. LEED and/or net-zero elements will be identified where feasible for capital cost identification.
- k. Participate in one final review meeting in person to present the final concept design site and building drawings. Document project meeting review comments and prepare meeting notes for distribution to participants.
- l. Prepare design development drawings, technical specifications (to a 60 percent design level), and other documents to describe the size and character of the civil, architectural, structural, mechanical, electrical, and communication systems of the administration and maintenance buildings.
- m. Include net-zero energy design features, but this will not include the design of energy generating systems including photovoltaic, geothermal, or other systems needed to achieve zero energy status.
- n. Attend up to six additional virtual design team meetings to discuss details of project design.
- o. Participate in a virtual 60 percent design development document review meeting.
- p. Incorporate City's review decisions and comments into drawings and specifications, as appropriate, following the 60 percent design development review meeting.
- q. Prepare Bidding Documents using Engineers Joint Contract Documents Committee C-700 Standard General Conditions of the Construction Contract, 2018 edition, technical specifications, and engineering/architectural drawings as follows:
 - (1) Site, landscaping, and stormwater drawings and specifications with stormwater design, in accordance with City's stormwater regulations.
 - (2) Architectural and structural building drawings, sections, details, schedules, and specifications.
 - (3) Plumbing and HVAC drawings, details, isometric drawings, schedules, and specifications.
 - (4) Electrical and communication system drawings and specifications, including power, lighting, fire alarm, and cabling for communication, and access controls.
- r. Prepare an OPCC to an AACE Class 2 Estimate level at the approximately 60 percent design level with an accuracy range for the OPCC is -15 percent to +20 percent. Any OPCC prepared by Engineer is supplied for general guidance of City only. Engineer has no control over competitive bidding or market conditions and cannot guarantee the accuracy of such opinions as compared to Contract bids or actual costs to City.
- s. Participate in a 90 percent design in-person document review meeting.
- t. Submit final drawings and specifications sealed by a registered architect or engineer to Story County. Building permit and review fees shall be paid by City.

10. HVAC and plumbing modifications, as follows, for the raw water pumping station:
 - a. Replacement of the existing roof vents, ductwork, and associated insulation in the pumping station.
 - b. Replacement of the heat recovery unit serving the pump and hatch rooms in the raw water pumping station.
 - c. Replacement of the makeup air unit serving the screening room and first floor room above the screening room. Replace existing compressed air piping and valves.
 - d. Removal of the abandoned plant water piping.
11. Stormwater management for the project disturbed area that generally includes design of the following:
 - a. Storm sewer inlets.
 - b. Storm sewer piping.
 - c. Grading for drainage.
 - d. Water quality and quantity best management practices in accordance with Story County applicable criteria for stormwater management of the proposed project disturbed area. Stormwater management for the entire wastewater treatment plant is not included. If the County requests a plan for the entire site, these services may be provided under an amendment to this agreement.”
12. Provide value engineering services as follows:
 - a. Perform a value engineering review with three senior staff consisting of process, structural, and electrical engineers to review the project at approximately 40 percent design completion. Evaluate potential alternatives that reduce the opinion of construction cost (OPCC) of the project while maintaining the flow and loading design criteria developed during facility planning.
 - b. Compile the potential value engineering alternatives and associated OPCC savings in spreadsheet format.
 - c. Participate in a value engineering virtual meeting with City to review the identified alternatives.
 - d. Develop a letter summarizing City’s selected value engineering alternatives and the associated potential cost savings. Provide draft letter to City for review.
 - e. Incorporate City comments in the letter, as appropriate, and provide City with a finalized letter. Modifications to the design to incorporate the selected value engineering concepts are not included in this scope and shall be incorporated through an amendment.

DELETE the Local Limits Evaluation section in its entirety.

