

Request for Proposal (RFP)

(Water Supply Feasibility Study, CEEEn-2016CPST-012)

1. Introduction (Background Information)

- Water Supply Feasibility Study, CEEEn-2016CPST-012
- J-U-B Engineers is a private civil engineering company, which has been providing value-driven services in transportation, land development, specialty needs, and water resources since 1954. The Langdon Group and Gateway Mapping, Inc. companies serve as subsidiary companies to J-U-B, offering public involvement and GIS expertise, respectively. J-U-B strives to build and maintain strong relationships with its clientele, including federal, state, and local government agencies.
- There exists an open, concrete-lined channel which delivers Provo River water to the residents of Orem, Lindon, and Pleasant Grove, as well as to the City of Lindon, primarily for irrigation purposes. The portion of the channel which runs from the Provo River near the mouth of Provo Canyon to 800 N in Orem is called the Provo Bench Canal. The portion of the channel running from 800 N in Orem into Pleasant Grove is called the North Union Canal. The canals, constructed more than 150 years ago, have begun showing signs of deterioration. Homes along portions of the canals have begun experiencing flooding due to leaks. Homeowners and civic leaders are concerned about water loss, flooding, potential failure of the canal structure, and the subsequent inability to transport water to its intended recipients.
- J-U-B Engineers has been involved in analyzing the existing state of the North Union Canal and Provo Bench Canal. Currently, discussions are underway to determine the best viable solution for the aged canals. J-U-B Engineers is needing additional information to better assess the situation along the canals from the crossing of the Provo Bench Canal and Palisade Drive in Orem to the diversion of the North Union Canal at the Lindon Pressure Irrigation Reservoir III. J-U-B Engineers is requesting the collection of data along the canals as well as a study of the feasibility of piping the canal, a conceptual design for a piped canal solution and automated diversion device at the head of the Lindon Reservoir III, and evaluations of alternatives to piping that would meet the project objectives. A report is also requested which details water needs, water savings associated with the provided designs, and recommendations for project funding.

2. Project Description and Scope of Services

- The purpose of this project is to supply data, designs, and a feasibility report to J-U-B Engineers which will be used in determining future actions to be taken regarding the state of the North Union Canal and Provo Bench Canal.
 - Data collection includes landownership along the canal, canal easements, hydraulic structures, road crossings, canal cracking locations, canal dimensions, canal slope, and existing obstacles along the North Union Canal and Provo Bench Canal between the crossing of the Provo Bench Canal and Palisade Drive in Orem to the diversion of the North Union Canal at the Lindon Reservoir.
 - Data is to be submitted in the form of shapefiles and pictures as applicable.
 - Designs include at least one design of a piped system to replace the existing open channel canals as well as at least one design of an alternative solution to piping the channel. A design for an automatic diversion structure to replace the existing structure at the head of the Lindon Reservoir III is also requested. Designs should include calculations, drawings, and project phasing.
 - Designs should be submitted as part of the feasibility report.
 - The feasibility report should detail water flow requirements to meet existing and future needs, water savings with piping design and alternative design(s), total construction cost and cost per phase associated with both designs, environmental considerations, and recommendations for funding the project.
- The following is a list of required tasks to be completed as part of the project:
 - Locate and take pictures of the following using existing survey data or GPS
 - Hydraulic structures
 - Canal/Road crossings
 - Large cracks in the canals
 - Existing obstacles along the canals
 - Measure the following and locate using GPS
 - Locations of varying canal cross-sections
 - Research the following and locate using GPS
 - Canal easements
 - Landownership
- Project milestones have been determined as follows:
 - Proposal approval – December 6, 2016
 - 1/4th of items located using GPS – January 21, 2017
 - 1/2 of items located using GPS – February 4, 2017

- ¾ of items located using GPS – February 18, 2017
 - Conceptual designs completed – February 25, 2017
 - Piping preliminary design completed – March 18, 2017
 - Locating items using GPS completed – April 8, 2017
 - Piping final design completed – April 8, 2017
 - GPS layers submittal – April 10, 2017
 - Final piping design submittal – April 10, 2017
 - Feasibility report submittal – April 10, 2017
 - Project summary presentation – April 10, 2017
- Several maps, documents, and reports have been made available in DropBox for the purpose of aiding in the completion of this project. The maps may be used to identify start end ending locations of analysis along the canals as well as potential road crossings. The reports may be used to identify locations of sensitive soils, landownership, and legal implications associated with the requested conceptual designs. Below is a list of resources made available by J-U-B Engineers.
- Maps
 - Map of North Union Canal from John Tucker PDF
 - N Union & Provo Bench Turnouts aerial PDF
 - N Union & Provo Bench Turnouts PDF
 - North Union Canal aerial PDF
 - North Union Canal PDF
 - Provo Bench / North Union Canal Map PDF
 - Soils Reports
 - Glacier Mountain Estates Plat A PDF
 - Lindon Reservoir Zone 3 PDF
 - Pheasant Hollow Subdivision PDF
 - Reports and Documents
 - North Union Canal Trail Concept Report PDF
 - Morse Decree PDF
 - N Union Provo Bench Canal Water Loss Study PDF
 - Survey Data
 - MicroStation file containing survey data DGN
 - Flow Data

3. Outcome and Performance Standards

- The following statement must be included in the proposal:
- Our student team will provide the work for this Capstone project “as is”. Our results cannot be construed as work provided by licensed professionals and

cannot be used as “stamped deliverables” without first being reviewed, approved and stamped by a qualified license professional engineer.

- Note to graduate mentor/project manager:
 - Student teams represent the BYU Civil & Environmental Engineering Department. As such, all Capstone students are expected to interact among their peers and customers/sponsors in a professional manner and with courtesy and respect at all times. Support for future Capstone projects can be affected by our actions
 - Team work is crucial for the success of current Capstone project as well as all future projects in the field as a professional. It is vital that each team, starting from the top (i.e. you as a graduate mentor/project manager), to foster team work, mutual respect, patience, and innovative ideas
 - Monthly status reports are highly visible as they will be bundled and sent to all sponsors, Capstone committee members, faculty and potential employers who are interested in receiving Capstone status reports. Team diligence, dynamics and challenge resolutions can be a noticeable positive addition to future employers – more so than resume alone. Taking ownership of the project ensures success.
 - Do not worry about disappointing customer/sponsor as long as team members put forth their best effort. It is alright to be nervous and it is also rewarding to figure out how to tackle challenges. Important thing is to take full advantage of this opportunity to gain valuable “real world” experience. Customers understand where you are at as they have all gone through nervous experiences themselves.

4. Deliverables

- Deliverable specifications
 - GIS layers of each of the mentioned items under Section 2
 - .shp format
 - Submit once
 - Digital catalog containing photos of each of the mentioned items under Section 2
 - Any digital format
 - Submit once
 - Feasibility report
 - PDF format
 - No longer than 20 pages
 - Submit once

- Designs
 - PDF format (included as part of feasibility report)
 - Includes final drawings and calculations for concept designs
 - Submit final designs with feasibility report
- Presentations
 - Project summary presentation in undergraduate seminar
 - PowerPoint format
 - Presentation to J-U-B Engineers
 - PowerPoint format
 - Presentation to BYU students and faculty
 - Poster
- Minimum required deliverables
 - Short monthly status reports documenting challenges, solutions & progress
 - Answers to 4 questions
 - What challenges have your team encountered in your Capstone project?
 - What actions did your team decided to do to overcome these challenges?
 - Any progress in overcoming these challenges?
 - Summarize the current status of your Capstone Project
 - Did challenges negatively impact the progress of your project?
 - A final report with design alternatives for the project that include economic and environmental considerations
 - A poster reflecting a summary of your project to be presented to students, faculty and other interested individuals in the final undergraduate seminar
 - A presentation summarizing your project to be presented to your sponsor
- Any other additional reports as proposed and agreed upon between team & sponsor
- Before the end of winter semester both a presentation to sponsors and poster session for students, faculty and other interested people will be organized.
- All deliverables are tentatively due Monday April 10th.

5. Contractual Terms and Conditions

- Contract type: Non-monetary compensation with all project work on a “best effort” basis

- Term: Team members are to spend 8 hours/week/student with at least 3 hours/week working together. Class time or time spent on class assignments counts toward these hours
- Each project team consists of
 - A project manager/mentor: A graduate student who does not perform technical work on the project. He/she guides, facilitates and directs the team toward successful completion of the project by achieving customer objectives, adhering to schedule/time/cost, and promoting team unity.
 - A project team lead: An undergraduate student team member who serves as the team's spokesperson and liaison among the team, its project manager, sponsor, faculty advisor and Capstone Committee advisors
 - Two project team members/task leads who may be assigned to take lead on certain aspects of the project in addition to the project team lead. All team members, including project team lead, are to assist one another on each member's specific task assignments
 - One can take lead on analysis or data gathering, another on design/drawings, data interpretations etc.
- Customer/sponsor may require team members to sign a [non-disclosure agreement](#) that simply states the work you do belongs to the project sponsor

6. Payments, Incentives and Penalties

- Late submittals will result in a penalty of 10% project grade deduction per week
- Project work to be graded by graduate student mentors/project managers with potential additional inputs from sponsors, Capstone Committee members and faculty advisors
- Grading criteria
 - Team work and unity
 - Project proposal
 - Project Management Plan (PMP)
 - Monthly status report
 - Final report, poster, and presentation
 - Customer satisfaction in satisfying project objectives and required deliverables

7. Submittal Requirements for the Proposal

- RFP availability: October 24, 2016
- Proposal deadline: Monday, November 7, 2016 at 4:00 pm MDT
 - Three copies of proposals in accordance with guidelines & formats specified in the proposal template (to be available by Monday 10/17/2016)
- Minimum requirements for the proposal (each section must start on a new page. Details and formats will be provided in the standardize proposal template)
 - Cover page
 - Letter of submittal / introduction
 - Executive summary (one page or less)
 - Work plan
 - Proposed approach, including innovative ideas, to complete the project
 - Weekly project work schedule for individual team members
 - Weekly team work/meeting schedule
 - Section identifying necessary tools, data, equipment, etc. with brief explanations
 - Project schedule including important milestones
 - Engineering budget: Estimated hours for each phase/element of the proposed work plan
 - Outcome and Performance Standards
 - List of outside consultants (faculty, Capstone Committee member etc.) necessary for this project
 - Statement of qualifications
 - Background, experience, education and organizational structure of the team
 - Team member assignments
 - Team member collaboration plan: (How will team work together seamlessly)
 - Appendices
 - Appendix A: 1 page resume for each team member
 - Appendix B, C, etc. as necessary
- Review committee reserves the right to reject any proposal or presentation that is not submitted in a timely fashion or in accordance with instructions and requirements in this RFP

8. Contacts

- Mark Christensen – Project Manager at J-U-B Engineers, Inc.
 - 801-226-0393
 - mlc@jub.com

- Jocelynn Crowther – Design Engineer at J-U-B Engineers, Inc.
 - 801-226-0393
 - jcrowther@jub.com

- Jake Nelson – Capstone Project Manager
 - 801-857-7222
 - jake.nelson7@gmail.com

9. Proposal Evaluation Criteria

- Proposal will be evaluated by graduate student mentor/project manager in accordance with the following rubric, with inputs from project sponsor, Capstone Committee member and potentially faculty advisor.

Timeliness - 1 pt off per full hour late, up to 5.	5
Grammar/Spelling - 1 pt off per blatant error, up to 5.	5
Cover Page - Title, Data, Sponsor, Team Name, Team Members, Department of Civil & Environmental Engineering, Ira A. Fulton College of Engineering and Technology, Brigham Young University - 1 pt per piece of information included.	6
Cover Letter - brief letter of introduction that 1) states your intent to propose and 2) how you may be contacted.	6
Executive Summary 3/4 to 1 page that summarizes the contents of your proposal	12
Team Abilities Summary as a team of 1) relevant courses and experience, 2) abilities to complete the work on time and in a professional manner, 3) including use of specific engineering tools/software. Include résumés.	12
Key Personnel - 1) Identify which individuals will focus on which pieces of your potential tasks, and 2) some kind of organizational chart or visual describing how you will work together as a team.	12
Project Understanding - 1) Did they address specific items mentioned in the RFP? 2) Do they repeat basic background in somewhat new terms to <i>demonstrate their understanding</i> of the project? 3) Do they mention key deliverables they may need to provide? 4) Did they articulate a <i>specific</i> approach for developing design alternatives and deliverables? 6 pts max per piece.	24
Formatting - Does it look professional? Consistent?	6
Concise vs. Wordy , Meaningful vs. Fluffy, repetitive wording. 6 pts means concise, and accurate, and specific. 1 pt means often confusing, wordy, or vague.	6
Clear and professional flow of writing and style. 6 pts means that you would feel comfortable handing this in if it were your own; it is easy to read and understand; feels professional; 1 pt means it feels like it was cut-pasted, rushed, and done with little thought; hard to read; feels like a high school essay.	6
Total	100

10. J-U-B Engineers Submittal Checklist

Item No.	Item Description	Check
1	GIS shapefiles and photo catalog saved on disk	
a	Hydraulic structures	
b	Canal/Road crossings	
c	Crack sites	
d	Obstacles	
e	Canal easements	
f	Landownership	
2	Feasibility Report (PDF) saved on disk	
a	Requirements to meet existing and future water needs	
b	Water savings associated with piping and at least one other alternative	
c	Total construction cost for piping and at least one other alternative	
d	Construction cost per phase	
e	Cost of automated diversion structure	
3	Designs (Included in Feasibility Report)	
a	Piped canal final design drawings	
b	Piped canal calculations	
c	Automated diversion structure design drawings	