

Memorandum

To: City of Blaine
Attn: Tom Scott, Project Coordinator
From: Stuart Stephens
Subject: Blaine, MN Lift Stations 12 and 13
Date: May 28, 2014

This memorandum outlines our scope of work and related fees for electrical engineering services for the proposed rehabilitation projects for lift station 12 and 13.

Project Description

The project generally includes rehabilitation of two existing sanitary lift stations. New pumps, controls and natural gas powered standby generator sets will be installed at both locations. The City will purchase the new pumps and standby generators separately. The following assumptions have been made:

- Lift station 12 is located at 8896 West 35W Service Drive, and lift station 13 is located at 9896 Naples Street NE. A review of aerial photography for both areas indicates three phase power is available at both lift stations, and there are existing pad mount Xcel Energy transformers at both locations adjacent to the existing lift station control panels. It is assumed the electrical service to both locations will be 277/480vac, three phase, 200 amps.
- Each lift station will have two 50hp Hydromatic submersible pumps. Due to the size of the pumps, some method of reduced voltage starting will be required to meet Xcel Energy's requirements; either electronic soft starters or variable frequency drives (VFDs.) If electronic soft starters are used, the lift station enclosures shall be equipped with exhaust fans and air intake louvers to keep the electronics functioning during hot weather; if VFDs are used, due to the additional heat generated by them the enclosures will need to be equipped with air conditioners.
- The control panel design for both locations will include a stainless steel enclosure, a main circuit breaker, an automatic transfer switch for connection to the standby generator, soft starters or VFDs for each pump, a programmable logic controller (PLC) and operator interface terminal (OIT), and other equipment as required. Provisions will be made for installation of a radio and antenna for remote monitoring by the City's existing SCADA system. It is assumed the control panels for both locations will be essentially identical. The pumps will be controlled based on wetwell level measured with a submersible pressure transducer, along with high and low float switches for backup control.
- The control panels will be constructed to City standards to conform to existing lift station control panels. The City will supply a radio, antenna, cable and related equipment for installation in the control panel. The radio equipment will be sourced from the City's preferred systems integrator, Superior Controls, who will also provide PLC, OIT and radio programming, and integration of the new lift station into the City's existing SCADA system.

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- This proposal does not include any mechanical or civil engineering design services for the lift station pumps, pump hardware or lift station structure.

Proposed Scope of Services

Barr Engineering Company proposes to provide the following engineering services:

1. Preparation of press-ready electrical plans and schematics. The drawings will be prepared to Blaine city standards. It is assumed the City will provide AutoCAD background drawings of the project sites for our use. It is anticipated the electrical drawings will include a site plan for each location, along with a general control panel schematic that will apply for both locations.
2. Preparation of press-ready Division 16 electrical specifications. The electrical specifications will be based on the example provided. This proposal does not include preparation of the general and special conditions for the specifications, and assumes those sections will be provided by the City.
3. We will attend one kickoff meeting and one final meeting with City staff during the design process.
4. We will confirm electrical service requirement with Xcel Energy, and SCADA and telemetry requirements with Superior Controls.
5. We will field calls and answer questions which may arise during the bid phase of the project, and will assist in preparing any necessary addendums. It is assumed the City will handle advertising for the project, along with any required duplication of drawings and specifications for bidding purposes.
6. Construction phase services will include shop drawing review for the electrical equipment. We will make one interim and one final inspection visit to the construction sites, and provide written progress reports to the City for each visit. We will field calls and answer questions from the contractor during construction, and assist in preparing any necessary change orders.

Proposed Fees

Barr Engineering Company proposes to provide the described services on an hourly basis for the following not to exceed amounts:

<i>Design Phase</i>	<i>\$7,500</i>
<i>Bid Phase</i>	<i>\$1,400</i>
<i>Construction Administration Phase</i>	<i>\$4,200</i>

Services will be billed monthly.

Thank you for the opportunity to present this proposal. If you have any questions, comments or revisions, please call.