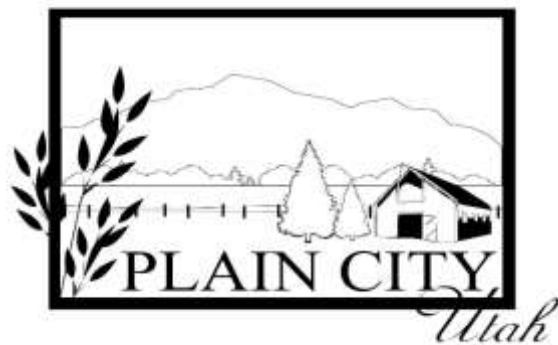


REQUEST FOR PROPOSALS
FOR
DESIGN AND INSTALLATION OF SCADA SYSTEM



Plain City
Sewer Collection Lift Stations

November 2017

PLAIN CITY
SEWER LIFT STATION SCADA SYSTEM
REQUEST FOR PROPOSALS

Invitation

Plain City is soliciting proposals for the design, supply, installation, commissioning and maintenance of a SCADA system for their sewer lift station facilities. Qualified organizations should have ample experience and expertise with all aspects SCADA systems and be capable of providing successful turn-key projects for the City.

Plain City

Plain City is a community of approximately 7,000 residents located in Weber County, Utah. The City owns and operates a sewer collection and treatment facility that serve the City. The main components of the sewer system include 17 lift stations and a lagoon treatment facility. The City desires to improve the operation and control of these facilities through the addition of the proposed SCADA system.

Award of Contract

A contract, if awarded, will be executed with the respondent who proposes the most favorable solution, as determined by the selection committee, following the guidelines set forth in the RFP. If a respondent is selected, they will be notified within 30 days of the proposal due date. Respondent pricing shall be valid for 90 days from the date of proposal submittal. The selected respondent will be required to enter into an agreement with the City prior to issuance of Notice to Proceed. The City expects to work with the selected respondent to determine the ultimate configuration of the SCADA system and then negotiate a contract.

Schedule

The following tentative schedule has been established for the selection and contracting process. It is subject to change by the City.

Event	Date
Release of Request for Proposals	November 8
Site Visit (Optional)	November 13 to November 17
Deadline for Questions	November 22
Proposal Due Date	November 27

Selected Interviews (City's Option)	TBD
Final Vendor Recommendation	December 1
Award of Contract by City Council	December 7

Obtaining the RFP

The RFP may be obtained by contacting the City's Public Works Director. Contact information is as follows:

Bren Edwards
Public Works Director
Plain City
4160 West 2200 North
Plain City, UT 84404
Phone: 801-731-4908 ext: 116
Email: brene@plaincityutah.org

Rights Reserved

Plain City reserves the right to reject any or all proposals, to waive technical deficiencies and to accept any proposal that it might deem to be in the best interest of the City.

Cost of developing the RFP

All costs related to the preparation of the SOQs and any related activities are the sole responsibility of the firm. The City assumes no liability for any costs incurred by firms throughout the selection process.

REQUEST FOR PROPOSALS

1.0 Introduction

Plain City ('City') is soliciting written proposals from qualified organizations ('Vendors') for the design, furnishing, installation, programming, commissioning, training and support for, Supervisory Control and Data Acquisition (SCADA) systems for the City's sewer lift stations. All components and services of the proposed systems must be provided by a single Vendor to ensure a single source of responsibility and support.

2.0 Scope of Work

The purpose of these SCADA projects is to implement a central infrastructure for data communications, system monitoring and control, disturbance reporting and alarming, historic data recording, analysis and reporting for the City's waste water facilities. The infrastructure will be capable of handling the SCADA requirements of the existing facilities and will have sufficient capacity or be expandable to accommodate future requirements. This proposal will be phase one and there will be several phases to follow. The City plans to negotiate final contract terms and scope of service with the selected Vendor.

The following is a summary description of the anticipated scope of services. This information is provided as a framework for Vendor responses and cost analyses. Vendors are free to make any additions that they believe will provide value or benefit to the project.

Appendix A contains an itemized list and specifications for the system hardware and software. Appendix C is a preliminary I/O list for each facility.

2.1 Overall Control System Description

Features/Function:

- The SCADA systems will be hosted on a dedicated server provide by the vendor. A Central Control Workstation (CCW) will be located at the Public Works Building and multiple remote sites that are queried and controlled via the server and/or CCW. The main workstation will consist of a desktop computer, terminal and typical peripheral devices- keyboard, mouse, etc. A UPS will also be provided to fully support the CCW. The Vendor will provide all components required for the CCW.
- System must have a secure remote connection via VPN.
- Software must support multiple protocols as needed including Modbus RTU, BACnet MS/TP & TCP/IP.
- Web access to SCADA via encrypted internet connection.

- The contractor must provide shop drawings for each panel showing the wiring diagrams for control circuits and interconnections of all components. The drawings shall include wiring diagrams for all remote devices connected to the panel.

Server/Data Back-up:

- The server must retain a complete copy of all controller configuration data and operational parameters such that an automatic re-configuration of all controllers is possible at any time, as initiated by the operator.
- The system must provide fully automated regular backup of all data, settings, logs and configuration information for controllers, graphical user interface and servers. These backups must operate without user input or initiation and provide sufficient data to completely restore the system after a catastrophic failure of any or all components.
- The system must provide a reliable and user-friendly mechanism to create a hard copy of all of the above information for offsite storage. (network location, flash/hard drives, and a cloud location)
- Note any additional back up procedures or offerings available to ensure the SCADA data is backed up and protected
- The UPS will need to provide a method for a minimum of 20 minutes of back-up power for the server.

HMI/GUI (Human Machine Interface/Graphical User Interface):

- No partial license or trial version will be accepted.
- RFQ shall include example screens of applications similar to those for this project.
- The system will automatically log all alarm and events.
- Alarms must be capable of customizable delay times.
- The software must be able to provide notifications to operators via standard internet connection, text messaging, and emails. These alerts must be capable of being sent to multiple devices and repeat as necessary.
- Data reports and history logs shall allow long term monitoring sample rates from 1 second to 24 hours.
- Provide a minimum of 5 years of historical data and accessible from the HMI/GUI
- Software must have an editor that allows for the creation of text and graphic display pages.
- The software must be able to have tiered security access for different entities within the organization.
 - Each user must have an account that is restricted to their appropriate areas of the system.
- The system will automatically log all user activities.
- System communication failure monitoring.
- Software will monitor and report data in real-time.

SCADA Controllers, Hardware and Communications: RTUs at remote sites

- All control panels will be sized and constructed to house all the points on the input output summary including spare capacity for future I/O expansion. Spare I/O hardware will not be required; however, the space for future I/O expansion is required within the control panel.
- All controllers must be expandable with easily replaced fuses.
- All controllers must have their associated software stored in-device on non-volatile memory.
- Controllers must be programmable from the server.
- Controllers need to be self-initializing and not require operator intervention after power interruptions or logic component changes.
- The controller must receive set points or modified I/O points from the server without disruption of other processes.
- Controllers must be able to communicate Peer to Peer. In the event of server or communications failure controls must operate standalone from the server.
- Controllers to receive new or modified programs from the server without an onsite technician or laptop.
- Provide loss-of-power alarm and UPS back up for each panel.
- If a controller is replaced and addressed on the communications network, the server will automatically download, to the newly installed controller, all I/O database parameters and all control applications programming and set points without operator intervention.
- All hardware including appurtenances must have a 12 month warranty.

Owner Training:

- The vendor must provide the services of a qualified technician to offer hands-on training of the system immediately following project completion. Plan on a minimum of two full days on-site.
- The contractor must include cost to provide follow-up training 3 and 6 months after project completion, each one day in duration.

Ongoing Support Services

- The vendor shall provide 24/7 access and on-call services, technical support, and software updates.

Security

- Identify all connections/ access points to the SCADA system.
- Harden SCADA network by ensuring only needed devices/ access is available.
- Explain how features/ functions of the system will be utilized to ensure security of the SCADA system.
- Include a method of reporting system access/ audit trail for monitoring
- Conduct a physical security evaluation of the completed system.
- Document network architecture and identify systems that serve critical functions or contain sensitive information or controls.
- Ensure secure passwords and access methods are used during implementation.

- Provide and backup and disaster recovery plan for system.

2.2 Deliverables

For the proposed SCADA systems, the selected Vendor will be expected to deliver the following:

1. Management Plan

A management plan for the SCADA system will be required from the selected Vendor. The plan should detail project tasks, schedules, milestones, and responsibilities for each project. The plan will be submitted to the City for review and approval prior to commencing work on that project. The plan shall include a Gantt-type schedule to serve as the foundation of a phased approach per City priorities.

The City's facilities must remain operational during the work. The management plan should address any required downtime needed for installation and / or implementation of the SCADA systems. The management plan should address these requirements and clearly describe how downtime will be mitigated. The plan should also list and describe work or items to be provided by others that are necessary in order to complete the SCADA systems.

2. SCADA System Design Submittals

Vendors shall provide submittals for the proposed SCADA systems that document the proposed configuration of the CCW, RTU's, I/O panels, HMI's and any ancillary systems. Complete design submittals shall be provided to the City for approval prior to system fabrication. Submittals will include but are not limited to:

- Network diagram
- Product data sheets for each instrument and component to be supplied in the system
- Panel layout Drawings
- Installation Drawings
- GUI Displays, Screens, Menus and Output drawings
- Software
- Hardware and Ancillary Equipment

3. SCADA Panel Fabrication

The selected contractor will fabricate SCADA panels containing the controller, communications equipment, and all other required components in accordance with the approved design. SCADA panels shall be manufactured and assembled according to UL requirements.

4. Installation and Integration

Vendor will perform installation of its systems at the Owner's facilities in accordance with the approved design submittals. Establish communications between remote sites and CCW. Provision of external power supply will be the responsibility of the Owner. Vendor will be responsible for integration of the SCADA system with the specified equipment and instrumentation.

5. System Start-Up and Acceptance Testing

Vendor will provide start-up services to prepare the SCADA systems for commissioning. Acceptance testing of the system, in the presence of the owner, will also be performed by the Vendor.

6. Training and Documentation

Training for the owner's personnel in the operation and maintenance of the SCADA systems will be performed by the Vendor. In conjunction with this effort, Operation and Maintenance manuals and documentation that describe the system architecture, control logic and operating requirements in sufficient detail to allow the owner's personnel to understand and troubleshoot the system shall be provided. Four (4) bound hardcopies of the O&M manual and system documentation shall be provided to the owner.

7. Maintenance and Support

Proposals should include maintenance and support services for all components of the SCADA system including hardware, software and communications for a period of one year following owner's acceptance. Proposals shall also include information regarding long term support options and opportunities.

3.0 Proposal Content and Evaluation

3.1 Format

Proposals shall be printed on standard 8 1/2" x 11" paper, single sided printing. All pages of the proposal, excluding any divider tabs, cover sheets and appendices, shall be sequentially numbered with a maximum of 10 pages.

The proposal shall be separated into five individual sections as follows:

- Section 1- Introductory Letter
- Section 2- Project Approach and Team
- Section 3- Related Experience and References
- Section 4- Cost Analyses/Proposal
- Section 5- Resumes

3.2 Content

SECTION 1- Introductory Letter

An introductory letter shall be prepared by each Vendor and included as the first page of the proposal. The introductory letter is limited to one page in length. The letter shall clearly identify the Vendor including their mailing address, e-mail address, telephone and cell phone numbers and the primary contact person. The letter should express the Vendor's interest in the Project and summarize any key qualifications, the project approach, or other relevant information. The letter must also acknowledge the receipt of any addenda to the RFP.

SECTION 2-Project Approach and Team

This section will describe the overall project approach for the proposed SCADA systems and the project team. Information concerning the design and configuration of the SCADA system(s) should be provided and convey a clear understanding of the controlled systems and Owner requirements.

Multiple aspects of the project approach should be addressed including but not limited to; design/hardware, software/platform, installation, maintenance, training, future upgrades/expandability. Proposers should clearly illustrate how they intend to execute each of these elements for this project.

All key personnel and their roles on the project should be clearly identified.

SECTION 3- Experience and References

Proposer shall provide a list of at least five (5) similar projects performed within the last five (5) years. For each project provide the following information:

- Project Title/Name
- Date of award and substantial completion
- Name and address of client
- Client contact person and contact information
- Summary of the project scope and services provided
- Total contract amount for SCADA system and related services

SECTION 4- Cost Analyses

Vendors shall submit a cost proposal that addresses various cost elements. Results of the cost analyses will be used in scoring the proposals. Appendix C contains the information required to prepare the costs analysis.

SECTION 5 - Resumes

Proposer may include resumes of any key team personnel. Not included in the page limit.

3.3 Evaluation and Selection

Proposals will be reviewed and ranked by the selection committee according to the following system. A maximum combined score of 100 points will be possible. Scoring for each category is as follows:

1. Introductory Letter	Included
2. Project Approach and Team	20 points
3. Experience and References	35 points
4. Cost Analysis	35 points
5. <u>Proximity of Field Support to City</u>	<u>10 points</u>

Total Available Points- 100 points

Each committee member will calculate a total combined score for each Vendor proposal based on the above criteria. The proposal with the highest ranked score may, at the discretion of the City, be selected as the preferred Vendor. The City may, at its discretion, use additional criteria or information to select the preferred Vendor. The City reserves the right to reject all proposals and not award the project.

The City may elect to 'short list' a handful of Vendors and conduct interviews in order to make a final decision. Short listed Vendors will be notified and a schedule for interviews, if necessary, will be determined at a later date.

APPENDIX A

SCADA SYSTEM HARDWARE AND SOFTWARE

- 1.0 Instructions/Clarifications
- 2.0 Waste Water System
 - 2.1 Hardware
 - 2.1.1 Central Control Workstation (CCW) and Server

Central Processing Units

The server and workstation computers shall be an Intel/Windows based processor. It shall include as a minimum the following features:

- Pentium Quad Core CPU, Operating at 2.4 GHz
- 2 GB of RAM
- Graphics card or integrated adapter
- Two 500 GB (minimum) Ultra ATA Hard Drives (mirrored)
- Two 16 GB USB Flash Drives for data storage
- 16X DVD+/-RW CD-ROM or DVD-ROM
- Sound card and external speakers
- USB QWERTY Keyboard with numeric keypad (also known as 10 key) and cursor keys.
- Two Button Optical Mouse
- Microsoft Windows 2008 Server
- Microsoft Visio Professional software for graphic and drawing generation or equivalent
- Integrated or add-in Network Interface Card (gigabit Ethernet)
- 3 Year Next Business Day Manufacturer Support
- Fortgate 50B RouteFinder SOHO Security Router or equal

The system unit shall be housed in a mini-tower case. The CSU shall store all database, graphics, backgrounds, command inputs, and set points. The main disk drives shall be mirrored for data backup and retention purposes. In the event of primary disk failure, the mirrored drive shall be available for operation. The 16GB USB Flash Drive shall be used for archive data storage and back-up protection of the operating program and database.

The separately mounted keyboard shall have a standard typewriter format with tactile feedback, twelve special function keys, and a separate numeric keypad for entering set point data and cursor control. The 256-character symbol set shall include 96 ASCII characters and the IBM (International Business Machine) graphic symbols. The system shall include a 2-button optical Windows compatible mouse with mouse pad.

Video Displays/Monitors

Each computer shall be equipped with one (1) LED Flat Panel display. The display shall be a 24" or larger high-resolution (1024 x 768) color display terminal with minimum .24mm dot pitch and XVGA compatibility. The Display shall be utilized for display of station and system graphics, alarms, and real-time data display. The display shall provide for operator input and output data, report generation, and access to system utilities. Also it shall provide for multiple graphic overviews of the process system and/or sub-systems, and also be able to view multiple screens simultaneously.

Printer

The system shall include a color "graphic" inkjet or laser printer with a minimum performance standard of 600dpi black and 1200dpi color resolution, capability to print up to 8 ½ x11, 10 ppm color & 21 ppm black & white output speed, and 2500 page/month duty cycle. The printer shall provide for printing of alarm summaries, data logs, trend graphs, and reports. The printer shall be interfaced to the processor via a USB or Ethernet port.

Battery Back-up Operation

The CSU computing equipment shall include a minimum of 20 minutes of backup power. The back-up units shall be an online Uninterruptible Power Supply (UPS) system that provides power line filtering and transient protection. The unit shall automatically transfer power when the power line fails without interrupting or restarting the system and automatically recharge the battery within 10 hours after the power returns to normal. The UPS shall be located at the desk location of the computers and shall power the System Unit, all communications equipment, modems, network equipment, LCD display, and printer in order to maintain uninterrupted system operation. UPS's will also be installed at all RTU locations thru out the lift stations. The UPS shall be APC BR1500 LCD UPS as required or equal for the CSU and the APC UPS will be properly sized for the RTU locations

Accessories

The computing equipment (including LCD display, Keyboard, and System Unit) and the graphic printer shall be located on top of a desk or other appropriately sized platform supplied by the City. All interconnecting cabling shall be plug-in and supplied by the contractor.

2.1.2 RTU's

The RTU shall include the power supply, CPU, communications modules, and basic inputs and outputs.

Serial ports shall also be capable of CSU-RTU communications. If serial, it shall support minimum baud rates of 1200 up to 38000 baud and have a plug-in connector that provides both full RS485 interface and radio modem interface for use with data radios. This port shall also have LED's to allow monitoring of the communications activity. The communications port shall also provide for multi-drop type communications with operator interfaces, external inputs and outputs (I/O), and programming terminals. The port shall provide for 2 wire RS485 interface with data rates to 38000 baud. The communications ports shall include LED's to show the status of all control lines. If Ethernet, it shall support fast Ethernet for communications to the CSU and other RTU's located on the high-speed network. The Ethernet port shall conform to all EIA standards for fast Ethernet. Surge protection shall be provided for serial ports.

The RTU shall have a minimum of (8) discrete (relay) outputs, (8) discrete inputs (DI), (8) analog inputs (AI), and (4) analog outputs. Each RTU location shall report back to the CSU with alarm limits as required. The RTU inputs, outputs, and operator interface shall be as follows:

1. Discrete Outputs - The discrete outputs shall have interposing relays and shall be provided if the voltage or current of the external load on a contact exceed the 1.0A 30VAC ratings. Each output shall be provided with operator settable software ON and OFF time delays
2. Discrete Inputs - The discrete inputs shall be optically isolated and provide for 24VDC excitation to remote sensors and switches. Each input shall be separately fused or current limited such that accidental grounding shall not render the other inputs non-functional. LED indicators on the front of the interposing relay shall indicate the status of each input point.
3. Analog Inputs - The analog inputs shall provide filtered and scalable analog to digital conversion of input signals. The analog inputs shall be selectable for either 0-5VDC or 0-20mADC and provide a minimum of 0.3% resolution and 0.5% accuracy over the temperature range of 0-50degrees C. The RTU shall provide fused 24VDC excitations to the remote sensors.
4. Analog Outputs - The analog outputs shall provide a 0-5VDC, 0-10 VDC or 0-20 mA signal to RTU controlled devices.

5. Pulse Inputs - The high-speed counter/pulse inputs shall provide for pulse rates up to 15 Hz. The pulse input shall include fused 24VDC excitation to the meter transmitter.

6. Power Supply - Each RTU assembly shall include an integral power supply. Power supplies shall be designed for 120 VAC input power and suitable for use with UPS operations. New UPS units will be placed in all locations deemed necessary to ensure integrity of plant operations.

Local Control Functions

In general, the RTU shall be programmed to provide generic control functions as detailed earlier and to work in concert with the CSU. The contractor shall be responsible to develop the automatic control strategy required for the system. All sequences shall be provided to the AVWSID for approval in the submittal package described earlier in this specification.

- 2.2 Software
 - 2.2.1 Central Control Workstation (CCW) and Server
 - 2.2.2 RTU's

APPENDIX B
COST ANALYSIS

1.0 Criteria

Vendors shall include this completed cost analysis with their proposals. Where appropriate, Vendors may make additions or clarifications to the cost schedules. This cost proposal will be a key element in the scoring and ranking of Vendor proposals. Information contained in the costs analysis will be used to negotiate contract terms with the selected Vendor and must be reasonably accurate.

2.0 Capital Costs

Capital costs for each system shall include all initial costs required to establish complete and functional SCADA systems. These costs shall include but are not limited to; design, submittals, hardware, software, installation, programming, integration, startup/commissioning and O&M manuals. Separate costs shall be provided for the water and wastewater SCADA systems.

2.1 Wastewater SCADA System

- 2.1.1 Central Control Workstation and Sever at Public Works Office
- 2.1.2 I/O Panel and HMI at Lift Station #4
- 2.1.3 I/O Panel and HMI at Lift Station #7
- 2.1.4 I/O Panel and HMI at Lift Station #10
- 2.1.5 I/O Panel and HMI at Lift Station #16

3.0 O&M Costs

The City would also like to understand the long term O&M costs that may be associated with each SCADA system. O&M costs will be limited to those costs necessary to maintain system software including licenses, full factory/technical support, and purchase costs for software upgrades. Vendors will provide an estimate of the costs required to maintain current software, including full unrestricted licenses and access to factory technical support for the software package(s), per the requirements provided previously. The frequency of software upgrades, (annual, bi-annual, etc.) will be determined by the system Vendor based on their proposed system/software. Future costs shall be based on the current pricing for the software systems and support. Only purchase costs for the software and support services shall be included in the cost opinion/estimate, all costs to install, program or configure the software will be handled separately.

4.0 Rate Sheet

The City is interested to understand what the fees may be for on site field work to service the SCADA systems. Vendors shall provide a rate sheet showing the hourly billing rates for, at a minimum all personnel listed in the project team. Additional staff members or positions may be listed at the Vendors discretion. The rate sheet shall indicate if the rates shown are 'fully loaded' (i.e. include all typical overhead and administrative fees) or not. If not, Vendor shall include these separate provide costs/rates for these additional fees.

Current Field Service Rates

Vendor shall provide the current rate/fees for a proposed 'typical' service call to the City.

Assumptions for the service call include:

- One field service technician will travel to and from Plain City from the Vendor's local office listed in the Introductory Letter.
- The technician will spend an entire work day (8 hours, including travel time) for this service call.
- The technician will provide SCADA system troubleshooting and programming and will supply all equipment and resources required to do so. Actual physical equipment or software will not be installed and will not be included as part of the costs for service.
- Expenses for mileage, equipment usage, per diem allowances, phone and other related items should be included in the costs.
- Costs for equipment or supplies shall not be included. Do not include costs for supply all equipment and supplies required.

Future escalation due to inflation /cost of living.

APPENDIX C

Preliminary I/O List – Final I/O list shall be coordinated with City

Location	Component	Equipment	Device Type	QTY	Provided By
Plain City - Lift Station 16	Lift Station	Pump 1	Amp Sensor L1	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 1	Amp Sensor L2	1	Future
Plain City - Lift Station 16	Lift Station	Pump 1	Amp Sensor L3	1	Future
Plain City - Lift Station 16	Lift Station	Pump 1	Alarm Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 1	Starter Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 1	Moisture Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 1	HOA Auto Switch	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 1	HOA Hand Switch	1	SCADA
Plain City - Lift Station 16	Building	Air	Temperature Sensor	1	Future
Plain City - Lift Station 16	Building	Man Door	Intrusion Contact	1	Future
Plain City - Lift Station 16	Lift Station	Pump 1	Control Relay	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 1	Power Meter Interface	1	Future
Plain City - Lift Station 16	Lift Station	Pump 1	Power Meter	1	Future
Plain City - Lift Station 16	Lift Station	Pump 2	Amp Sensor L1	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 2	Amp Sensor L2	1	Future
Plain City - Lift Station 16	Lift Station	Pump 2	Amp Sensor L3	1	Future
Plain City - Lift Station 16	Lift Station	Pump 2	Alarm Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 2	Starter Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 2	Moisture Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 2	HOA Auto Switch	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 2	HOA Hand Switch	1	SCADA
Plain City - Lift Station 16	Lift Station	Level Probe	Low Level Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Level Probe	High Level Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Level Probe	Lag On Level Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Level Probe	Lead On Level Contact	1	SCADA
Plain City - Lift Station 16	Generator	Generator	Status Contact	1	SCADA
Plain City - Lift Station 16	Generator	Generator	Fault Contact	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 2	Control Relay	1	SCADA
Plain City - Lift Station 16	Lift Station	Pump 2	Power Meter Interface	1	Future
Plain City - Lift Station 16	Lift Station	Pump 2	Power Meter	1	Future
Plain City - Lift Station 16	Lift Station	Pump 1	Power Meter	3	Future
Plain City - Lift Station 16	Lift Station	Pump 2	Power Meter	3	Future
Panel B	Panel	Panel	Power Contact	1	SCADA
Panel B	Panel	Controller		1	Customer
Panel B	Panel	Controller		2	SCADA
Panel B	Panel	Control Panel		1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 1	Amp Sensor L1	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 1	Amp Sensor L2	1	Future
Plain City - Lift Station 7	Lift Station	Pump 1	Amp Sensor L3	1	Future
Plain City - Lift Station 7	Lift Station	Pump 1	Alarm Contact	1	SCADA

Plain City - Lift Station 7	Lift Station	Pump 1	Starter Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 1	Moisture Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 1	HOA Auto Switch	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 1	HOA Hand Switch	1	SCADA
Plain City - Lift Station 7	Building	Air	Temperature Sensor	1	Future
Plain City - Lift Station 7	Building	Man Door	Intrusion Contact	1	Future
Plain City - Lift Station 7	Lift Station	Pump 1	Control Relay	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 1	Power Meter Interface	1	Future
Plain City - Lift Station 7	Lift Station	Pump 1	Power Meter	1	Future
Plain City - Lift Station 7	Lift Station	Pump 2	Amp Sensor L1	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 2	Amp Sensor L2	1	Future
Plain City - Lift Station 7	Lift Station	Pump 2	Amp Sensor L3	1	Future
Plain City - Lift Station 7	Lift Station	Pump 2	Alarm Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 2	Starter Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 2	Moisture Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 2	HOA Auto Switch	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 2	HOA Hand Switch	1	SCADA
Plain City - Lift Station 7	Lift Station	Level Probe	Low Level Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Level Probe	High Level Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Level Probe	Lag On Level Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Level Probe	Lead On Level Contact	1	SCADA
Plain City - Lift Station 7	Generator	Generator	Status Contact	1	SCADA
Plain City - Lift Station 7	Generator	Generator	Fault Contact	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 2	Control Relay	1	SCADA
Plain City - Lift Station 7	Lift Station	Pump 2	Power Meter Interface	1	Future
Plain City - Lift Station 7	Lift Station	Pump 2	Power Meter	1	Future
Plain City - Lift Station 7	Lift Station	Pump 1	Power Meter	3	Future
Plain City - Lift Station 7	Lift Station	Pump 2	Power Meter	3	Future
Panel B	Panel	Panel	Power Contact	1	SCADA
Panel B	Panel	Controller		1	Customer
Panel B	Panel	Controller		2	SCADA
Panel B	Panel	Control Panel		1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 1	Amp Sensor L1	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 1	Amp Sensor L2	1	Future
Plain City - Lift Station 10	Lift Station	Pump 1	Amp Sensor L3	1	Future
Plain City - Lift Station 10	Lift Station	Pump 1	Alarm Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 1	Starter Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 1	Moisture Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 1	HOA Auto Switch	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 1	HOA Hand Switch	1	SCADA
Plain City - Lift Station 10	Building	Air	Temperature Sensor	1	Future
Plain City - Lift Station 10	Building	Man Door	Intrusion Contact	1	Future
Plain City - Lift Station 10	Lift Station	Pump 1	Control Relay	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 1	Power Meter Interface	1	Future
Plain City - Lift Station 10	Lift Station	Pump 1	Power Meter	1	Future

Plain City - Lift Station 10	Lift Station	Pump 2	Amp Sensor L1	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 2	Amp Sensor L2	1	Future
Plain City - Lift Station 10	Lift Station	Pump 2	Amp Sensor L3	1	Future
Plain City - Lift Station 10	Lift Station	Pump 2	Alarm Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 2	Starter Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 2	Moisture Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 2	HOA Auto Switch	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 2	HOA Hand Switch	1	SCADA
Plain City - Lift Station 10	Lift Station	Level Probe	Low Level Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Level Probe	High Level Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Level Probe	Lag On Level Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Level Probe	Lead On Level Contact	1	SCADA
Plain City - Lift Station 10	Generator	Generator	Status Contact	1	SCADA
Plain City - Lift Station 10	Generator	Generator	Fault Contact	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 2	Control Relay	1	SCADA
Plain City - Lift Station 10	Lift Station	Pump 2	Power Meter Interface	1	Future
Plain City - Lift Station 10	Lift Station	Pump 2	Power Meter	1	Future
Plain City - Lift Station 10	Lift Station	Pump 1	Power Meter	3	Future
Plain City - Lift Station 10	Lift Station	Pump 2	Power Meter	3	Future
Panel B	Panel	Panel	Power Contact	1	SCADA
Panel B	Panel	Controller		1	Customer
Panel B	Panel	Controller		2	SCADA
Panel B	Panel	Control Panel		1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	Amp Sensor L1	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	Amp Sensor L2	1	Future
Plain City - Lift Station 4	Lift Station	Pump 1	Amp Sensor L3	1	Future
Plain City - Lift Station 4	Lift Station	Pump 1	Alarm Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	Starter Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	Moisture Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	HOA Auto Switch	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	HOA Hand Switch	1	SCADA
Plain City - Lift Station 4	Building	Air	Temperature Sensor	1	Future
Plain City - Lift Station 4	Building	Man Door	Intrusion Contact	1	Future
Plain City - Lift Station 4	Lift Station	Pump 1	Control Relay	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	Power Meter Interface	1	Future
Plain City - Lift Station 4	Lift Station	Pump 1	Power Meter	1	Future
Plain City - Lift Station 4	Lift Station	Pump 1	Power Meter	3	Future
Plain City - Lift Station 4	Lift Station	Pump 2	Amp Sensor L1	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 2	Amp Sensor L2	1	Future
Plain City - Lift Station 4	Lift Station	Pump 2	Amp Sensor L3	1	Future
Plain City - Lift Station 4	Lift Station	Pump 2	Alarm Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 2	Starter Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 2	Moisture Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 2	HOA Auto Switch	1	SCADA

Plain City - Lift Station 4	Lift Station	Pump 2	HOA Hand Switch	1	SCADA
Plain City - Lift Station 4	Lift Station	Level Probe	Low Level Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Level Probe	High Level Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Level Probe	Lag On Level Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Level Probe	Lead On Level Contact	1	SCADA
Plain City - Lift Station 4	Generator	Generator	Status Contact	1	SCADA
Plain City - Lift Station 4	Generator	Generator	Fault Contact	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 1	Control Relay	1	SCADA
Plain City - Lift Station 4	Lift Station	Pump 2	Power Meter Interface	1	Future
Plain City - Lift Station 4	Lift Station	Pump 2	Power Meter	1	Future
Plain City - Lift Station 4	Lift Station	Pump 2	Power Meter	3	Future
Panel D	Panel	Panel	Power Contact	1	SCADA
Panel D	Panel	Controller		2	SCADA
Panel D	Panel	Controller		1	SCADA
Panel D	Panel	Control Panel		1	SCADA