

STAFF REPORT

To: Coastside County Water District Board of Directors

From: David Dickson, General Manager

Agenda: February 14, 2017

Report

Date: February 10, 2017

Subject: Approval of Calcon Work Directives

Recommendation:

Authorize staff to proceed with Calcon Work Directives as follows:

- | | | |
|--------------|------------------------------------|----------|
| 1. CAL-17-01 | Crystal Springs Leak Valve Control | \$8,700 |
| 2. CAL-17-02 | Crystal Springs IQ Replacement | \$38,340 |

Background:

Copies of Work Directives attached.

This work is included within the \$250,000 total authorized by the Board for Calcon Systems' instrumentation and controls work.

Fiscal Impact:

Cost of \$47,000. The approved CIP includes funding for instrumentation and controls work.

WORK DIRECTIVE

FOR PUBLIC WORKS PROJECT

Work Directive No.: CAL-17-01 – Crystal Springs Leak Valve Control

Date Issued: 02-08-2017

1. General

Calcon System is pleased to provide the following work directive for the Crystal Springs Leak Valve Controls project. CCWD will be installing an additional valve on their main effluent line just before it exits the Pump Station building. Calcon will procure and install the additional Rigid conduit, conductors, and PLC hardware then make all terminations to the valve, power and PLC I/O. This installation will include all valve I/O signals for open/close command, opened/closed feedback, fault/alarm and remote/local indication.

Calcon will develop the control strategy for this valve control and make all necessary program modifications to the PLC providing Manual and Automatic control and the additional Alarms. The HMI & SCADA programs will be updated to provide visualizations as well as local and remote operator control. The new Alarms for the “Leak Valve” will be added to the WIN911 alarm notification system.

2. Scope of Services

- Discuss, analyze and develop the control strategy for the new “Leak Valve” which CCWD will install
- Install Rigid conduit, conductors, and PLC hardware then make all the terminations to the valve, power and PLC I/O. Conduit will be run from the Valve to the Main Control panel with a tee to the 120 VAC breaker panel.
- Create and install wire labels
- PLC, HMI, SCADA and WIN911 programming
- System startup and complete functional testing of the “Leak Valve’s” operation with CCWD

3. Special Requirements

CCWD will install the new valve

4. Location of Work

Crystal Springs pump station

5. Schedule/Time for Completion

3 days

6. Project Budget

See below

Calcon Project Budget Estimate

Project: Crystal Springs Leak Valve Control
Proj. No.: CAL-17-01

Date: 2/8/2017

Labor

Task No.	Description	PM Hours @ \$ 140.00	Hours @ \$ 130.00	Travel Trips @ \$250	Project Totals
0	Project Management	8		1	
	Specify and procure all necessary hardware and install conduit, conductors and PLC hardware. Make all terminations to valve, power and PLC I/O. Create and install wire labels.		24	3	
1					
2	PLC, HMI, SCADA and WIN911 Programming	12		1	
	Total Hours	20	24	5	
	Total Labor Cost	\$ 2,800.00	\$ 3,120.00	\$ 1,250.00	\$ 7,170.00

Expenses

Number	Description	Unit Cost	Total Cost	
1	1762-IA8 Allen Bradley 8 Point Input Module	\$ 194.00	\$ 194.00	
1	1762-OA8 Allen Bradley 8 Point Relay Output Module	\$ 253.00	\$ 253.00	
1	Electrical installation materials: conduit, wire & miscellaneous	\$ 750.00	\$ 750.00	
	Total Expenses		\$ 1,197.00	
	Sales Tax (8.75% Half Moon Bay)		\$ 104.74	
	Estimated Shipping Costs		\$ 50.00	
	Markup - 15% (Costs x 1.15)		\$ 179.55	\$ 1,531.29
	Total Project Budget			\$ 8,701.29

WORK DIRECTIVE

FOR PUBLIC WORKS PROJECT

Work Directive No.: CAL-17-02 – Crystal Springs IQ Replacements & Additional Controls

Date Issued: 02-08-2017

1. General

Calcon System is pleased to provide the following work directive for the Crystal Springs IQ Replacements & Additional Controls project. The IQ Replacements & Additional Controls project involves the replacement of all 3 of the obsolete IQ-1000 Motor Protection devices with MP-3000's. The MP-3000 is an advanced microprocessor-based motor protection relay that monitors, controls, and protects motors against overload, thermal damage to rotor/stator, electrical faults, excessive starting and various equipment failures.

In addition to these primary functions the MP-3000's also have the capability of user programmable input and output functions. This feature will be used to connect the MP-3000's I/O to the AB PLC I/O in order to provide Remote Reset capability. Once programmed and all physical installations are complete Remote Reset of any MP-3000 trips will be possible from the SCADA interface.

2. Scope of Services

- Cross reference old IQ's, specify their replacements and procure all required hardware
- Complete parameter setting discovery on existing IQ-1000's in order to maintain set values. On site documentation of these values may be available in the Pump Station Library, however, ASBUILT configurations must be confirmed and applied
- Remove each IQ-1000 from their respective MCC panels
- Install the new MP-3000's in each of the MCC panels
- Parameterize and configure 3 MP-3000's to their required configurations
- Wire each of the MP-3000's and setup their I/O for desired functionality
- Install additional conduit from each of the MCC's to the Main Control panel. If possible we'll use the overhead raceways.
- The additional wires for the MP-3000's may be easily pulled through the existing conduit, otherwise we will install additional conduit as required for the connections to the motor side.
- Modify the Main Control panel for the additional I/O points.
- As required, additional I/O will be procured and installed on the AB PLC chassis
- Modify the program in each of the following devices in order to provide the Remote Reset capability: PLC, HMI, SCADA, and WIN911

- Update critical documentation and comments and provide new wire labels where applicable
- System startup and testing for each of the pumps including induced pump fail trips on each pump to fully test system functionality

3. Special Requirements

This work requires the pump station to be offline. Calcon will take care of power switching

4. Location of Work

Crystal Springs pump station

5. Schedule/Time for Completion

1 week

6. Project Budget

See below

Calcon Project Budget Estimate

Project: Crystal Springs IQ Replacement & Additional Controls
 Proj. No.: CAL-17-02

Date: 2/8/2017

Labor

Task No.	Description	PM Hours @ \$ 140.00	Hours @ \$ 130.00	Travel Trips @ \$250	Project Totals
0	Project Management	16		1	
1	Remove each of the IQ's and confirm/identify/tag wires. Install additional conduit to each of the MCC's from the MCP. Install the new MP-3000's in each MCC's panel door. Pull all new conductors required to and from the MCC's to MCP and to the Motor.	8	40	6	
2	Modify the Main Control panel for the additional I/O. Wire each of the MP-3000's and connect all signal wiring. Parameterize and configure all 3 MP-3000.	8	24	4	
3	Wire each of the MP-3000's and connect all signal wiring				
4	Install additional conduit to each of the MCC's from the Main				
5	Modify the programs in each: PLC, HMI, SCADA, WIN911	16	8		
6	Documentation updates, comments and wire labels		4		
7	System startup and testing of each pump with CCWD	8		1	
	Total Hours	56	76	12	
	Total Labor Cost	\$ 7,840.00	\$ 9,880.00	\$ 3,000.00	\$ 20,720.00

Expenses

Number	Description	Unit Cost	Total Cost	
3	MP-3000 Motor Protection Units	\$ 4,480.00	\$ 13,440.00	
1	Electrical installation materials: conduit, wire & miscellaneous	\$ 1,000.00	\$ 1,000.00	
	Total Expenses		\$ 14,440.00	
	Sales Tax (8.75% Half Moon Bay)		\$ 1,263.50	
	Estimated Shipping Costs		\$ 250.00	
	Markup - 15% (Costs x 1.15)		\$ 2,166.00	\$ 18,119.50
	Total Project Budget			\$ 38,839.50