

Water Tower Level Control System

Bid Specifications
Project# 16005

City of Sullivan, Missouri

Legal Notice Invitation to Bid

Sealed bids for a level control system will be received by the City of Sullivan, Missouri at the City Hall located at 210 W Washington, Sullivan, MO 63080, until 10:00 o'clock a.m. Wednesday, May 18, 2016. The bids will be publicly opened and read aloud. All bids will be clearly marked "**Water Tower Level Control System**".

Bid specifications may be obtained at the Sullivan City Hall, 210 W Washington, Sullivan, MO 63080 Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m.

Conditional bids will not be accepted.

Each bidder shall execute and submit a non-collusion affidavit (copy attached to specifications) with the submission of their bid.

Each bidder shall provide a certificate of insurance in the amount not less than \$2 million aggregate and \$1,000,000 per occurrence and provide the City with an additional insured endorsement listing the City of Sullivan as an additional insured for general liability.

Each bidder shall provide proof of worker's compensation insurance.

Each Bidder shall provide proof that they are enrolled and participate in E-verify and they meet the OSHA 10-hour Construction Safety Program requirements for public contracts. Both of these requirements are required by State or Federal Statute effective January 1, 2009.

All bids shall remain open for thirty (30) days.

The City of Sullivan reserves the right to accept or reject any and all bids and to waive any irregularities in the bidding process.

Instructions to Bidders

PROPOSAL

Proposals shall be made on the form(s) herein provided. Such proposals shall be endorsed **Water Tower Level Control System** and addressed to the City of Sullivan, 210 W Washington, Sullivan, MO 63080. Proposals shall include bid proposal, experience statement, non-collusion affidavit, proof of liability insurance, proof of worker's compensation coverage, proof of enrollment and participation in E-Verify, and if awarded participation in the OSHA 10-hour Construction Safety Program.

NON-COLLUSION AFFIDAVIT

Every bidder shall complete, sign, and notarize the non-collusion affidavit hereinafter included in these specifications. Said non-collusion affidavit shall be included with the bid proposal.

INSURANCE REQUIRED

Each bidder shall provide proof of liability insurance not less than \$2,000,000 aggregate and \$1,000,000 per occurrence. Each bidder shall provide proof of worker's compensation insurance.

E-VERIFY COMPLIANCE REQUIRED

Each Bidder shall provide proof that their company is enrolled in E-Verify, as required by law. Information on E-Verify may be obtained at 1-888-464-4218. There is no charge for this program.

OSHA 10-HOUR CONSTRUCTION SAFETY TRAINING REQUIRED

Each Bidder shall provide proof that the employees that will be employed within the scope of this project have successfully completed the OSHA 10-Hour Construction Safety Training course, as required for public projects.

COMPETENCY OF BIDDERS

Each bidder shall furnish satisfactory evidence that he or she has the necessary resources to fulfill the conditions of the contract documents, in the form of an experience statement, list of level control system installations installed with reference contact information, or other such document(s) providing proof of ability to adequately perform the functions of the contract. Each bidder shall furnish three references related to similar level control system installations.

RIGHT TO REJECT BIDS

The City of Sullivan reserves the right to reject any and all bids and to waive any irregularities in the bidding process, at the sole discretion of the City.

AWARD OF CONTRACT

The contract or part thereof will be awarded to the bidder whose proposal is deemed to be the lowest and best by the City of Sullivan. Failure of the City of Sullivan to execute a signed contract shall render the bids received under this proposal null and void.

BID PROPOSAL

To the City of Sullivan, Missouri, for a Water Level Control System for the following well installations of which the City may accept all or a section thereof.

In accordance with the instructions and specifications contained within the Bid Specifications, the following proposal is respectfully submitted:

	WATER TOWER AND WELL SITES FOR LEVEL CONTROL	MONITORING FREQUENCY	BID AMOUNT
1	250,000 gal tank - Franklin Street	Realtime Updating	
2	Well #10 AND 500,000 gal tank - Glaser Road	Realtime Updating	
3	Well #3 AND 250,000 gal tank - Water Department - Springfield Road	Realtime Updating	
4	City Lake - 250,000 gal tank - Mattox Drive	Realtime Updating	
5	Well #6 - Mattox Drive - Near Hospital	Realtime Updating	
6	Well #5 - Edgewood	Realtime Updating	
7	Well #2 - Thurmond Memorial Boulevard	Realtime Updating	
8	Well #7 - Watson Road	Realtime Updating	
	Total for Monitoring Devices, Pressure Transmitters, Limit Switches, Relays, Wiring, Hardware, Software, etc to create complete working system.		\$ <hr/>
8	One Year Monitoring Service		\$ <hr/>
9	Two Year Monitoring Service		\$ <hr/>
10	Three Year Monitoring Service		\$ <hr/>
11	Three Day Startup, Installation Guidance and Troubleshooting		\$ <hr/>
	TOTAL w/ ONE YEAR OF SERVICE		\$ <hr/>
	TOTAL w/ TWO YEARS OF SERVICE		\$ <hr/>
	TOTAL w/ THREE YEARS OF SERVICE		\$ <hr/>

By submission of this bid, Bidder certifies that this bid has been arrived at independently without consultation, communication, or agreement as to any matter relating to this bid with any other bidder or any competition, is willing and able to execute this contract on the commencement date of the contract, and is duly authorized to enter this bid on the behalf of any corporation or entity for which this bid has been entered.

Bid Proposal Respectfully Submitted By:

Firm Name

Street Address

Signature

City, State, and Zip Code

Title

Date

Telephone Number

Fax Number

E-mail Address

Federal Identification Number

NON-COLLUSION AFFIDAVIT

STATE OF _____)

ss.

COUNTY OF _____)

_____, being first and duly sworn, deposes and says

that he/she is _____ of _____,
(sole owner, partner, president, etc)

the party making the foregoing proposal or bid; that such bid is genuine and not collusive of sham; that said bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of any affiant or any other bidder, or to fix any overhead, profit, or cost element of said bid price, or of any other bidder, or to secure any advantage against the **City of Sullivan, Missouri** or any person or persons interested in the proposed contract; and that all statements contained in the proposed contract; and that all statements contained in said proposal or bid are true; and further, that such bidder has not, directly or indirectly, submitted this bid, or the contents thereof, or divulged information or data relative thereto any association or to any member or agent thereof.

Affiant

Sworn to and subscribed before me this ____ day of _____, 20__.

Notary Public in and for

_____, County, _____

My commission expires _____.

BID PROPOSAL SPECIFICATIONS

PART ONE - GENERAL

1.01 DESCRIPTION

- A. Furnish and install a factory wireless data cellular based communication system for the purpose of monitoring and controlling various equipment operations. The supplier of the communication system shall be responsible for coordination required to insure equipment compatibility. The communication system shall be provided complete, in place, as shown on the Drawings, specified herein and needed for a complete, proper installation. The system shall be able to control all Wells based off Tower Levels. This control structure shall be developed as the hydraulic performance of system is determined based on data acquisition. Since this system will be controlling the cities water system all RTU's will be required to transmit tank levels and well command/feedback on a realtime basis. Data transmission shall be through a socket connection and shall not be based on SMS messaging.
- B. Summary of PART TWO - PRODUCTS
1. Subsection 2.01: General
 2. Subsection 2.02: Monitoring and Control System
 3. Subsection 2.03: RTU Locations
 4. Subsection 2.04: Monitoring Input Points Defined
 5. Subsection 2.05: Other Materials
- C. Related work:
- Documents affecting work of this Section include, but are not necessarily limited to General Conditions, Supplementary Conditions, and sections in Division 1 of these Specifications.
 - Section 16000: Electrical

1.03 SUBMITTALS AND SUBSTITUTIONS

- A. Comply with pertinent provisions of Section 01340.
- B. The following product data shall be submitted in accordance with the approved Construction Schedule required in Section 01310 of these Specifications:
 - Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades;
 - Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work;
 - Test data required elsewhere in this Section.
- C. Upon completion of this Portion of the Work, and as a condition of its acceptance, deliver to the Engineer three copies of an operation and maintenance manual compiled in accordance with the provisions of Section 01730 of these Specifications.

1.04 PRODUCT HANDLING

- A. General: Comply with pertinent provisions of Section 01640.

1.05 EQUIPMENT COMPATIBILITY

- A. The Contractor shall be responsible for coordinating the instrumentation equipment, communication equipment and other related equipment so that all elements are compatible and form a complete working system. Shop drawing submittals shall include sufficient information regarding component compatibility to demonstrate compliance with this requirement.

PART TWO - PRODUCTS

2.01 GENERAL

- A. **Qualifications of Manufacturers** Products used in the work of this Section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of satisfactory production acceptable to the Engineer.
 - The submitting Company shall provide evidence of, and warrant compliance with, substantially all below listed requirements.

- The submitting Company shall have been in business providing remote facility monitoring and control services through the data side of the cellular system to the water distribution / wastewater collection industry or a substantially similar industry for at least six years.
- The submitting Company shall be the actual manufacturer and operator, or a duly authorized and trained agent of the manufacturing company or a combination of both, who will actually provide, maintain, and warranty the proposed system.
- The Manufacturing Company of the field equipment shall also be the provider of all monitoring related services associated with the field equipment and all ongoing service agreements will be with the actual company providing the monitoring service, not a subcontractor or agent.
- The submitting company shall have a primary central monitoring and control center and a fully redundant, physically separate, backup-computer monitoring center. Either center shall have the capability of operating all the remote monitoring and control field RTU's.
- The submitting Company shall offer and provide 24 X 7 technical support.

B. Qualifications of Manufacturers Representative

1. The Engineer has worked with the following representative/distributor/vendor in the development of the Specifications for this equipment. This person is identified solely as a potential convenience with no intended or implied restriction, recommendation, endorsement, etc.: Hydro-Kinetics Corp., 5741 Manchester Ave, Saint Louis, MO 63110 – 314-647-6104
2. Subject to the “or equal” provisions of the Contract Documents, the Engineer has determined that Mission Communications represented by Hydro-Kinetics Corp (314) 647-6104) could supply the products specified in this Section.

2.02 MONITORING AND CONTROL SYSTEM

A. Microprocessor Based Field RTU

- Data Cellular Radio
 - o The Remote Terminal Unit (RTU) shall incorporate a radio that utilizes the data side of any cellular system to transmit the data and alarms monitored, as well as receive manual or automated control commands.
 - o Cellular radios from all cellular carriers shall be able to mount in the same mounting port on the motherboard and consequently be interchangeable in no more than 10 minutes.
- Enclosure Options
 - o The RTU shall be as follows:
 - o NEMA4X with the battery inside and which has front door and top “sun shades” to reduce internal temperatures when placed in the sun.
- Microprocessor Feature Updates
 - o Microprocessor features like data transmission rates shall be able to be adjusted through the cellular system without any site visits necessary.

- RTU Inputs and Outputs
 - o RTU shall have eight (8) digital inputs. These eight (8) inputs must have end of line resistor supervision, or similar supervision, that can detect normal alarm trip inputs and detect input wiring disconnection/shorting as a distinctly different signal and report.
 - o RTU shall have an optional expansion board of an additional eight (8) digital inputs
 - o The digital inputs shall be user selectable as normally open (NO) or normally closed (NC).
 - o In M800 Models eight of the RTU digital inputs on main board must be capable of being programmed to record and report pump run times in one minute increments or less as indicated by a relay opening and closing. If only two pumps are monitored then the unit shall also be capable of recording and reporting simultaneous pump run times.
 - o RTU shall have built-in alarms for input wiring fault, AC failure, communication failure and low battery detection.
 - o RTU shall have two (2) analog inputs measuring 4-20mA or 1-5 VDC at 10 bit resolution with four (4) alarm thresholds per input.
 - o RTU shall have an optional expansion board of an additional four (4) analog inputs
 - o RTU shall have an optional expansion board of an additional eight (8) digital inputs
 - o RTU shall have an optional expansion board of an additional two (2) analog outputs.
 - o RTU shall have an optional expansion board of two (2) pulse counter inputs
 - o RTU shall have an electronic key reader input to monitor on-site personnel. The RTU shall utilize an audible tone to verify key reading. Each key in the system shall provide unique identification of the key holder when they are on site vs. "someone" is on site.
 - o RTU shall have three (3) digital normally open or closed output relays rated at ½ ampere@ 120VAC

- Status LED's on Motherboard
 - o LED's above each digital input shall visually display the status of the digital input
 - o Radio signal strength shall be displayed by at least 8 LED's in 5db increments between -75db and -110db to facilitate accurate antenna placement
 - o Operational and diagnostic status of at least 8 criteria shall be displayed by individual LED's.

- Power Requirements
 - o The RTU shall be powered by 12 volts AC and have a built in battery backup capable of keeping the RTU powered for 30 hours in case of primary AC failure.
 - o All terminations inside the RTU enclosure shall be low voltage AC or DC (28 volts or less).

B. Communication Links

- Communication System
 - o Wireless communication links shall be through the data side of the cellular system. The voice side of the cellular system and satellite based links are not acceptable.
- Cellular Carriers
 - o The submitting company shall have direct relationships with the cellular companies and shall not use third parties to affect data transport through the cellular companies.
 - o The RTU will have interchangeable data cellular radios that will communicate through third generation GPRS (ATT), CDMA (Verizon) or iDEN (Nextel) to maximize the likelihood of reliable communication.
 - o If a GPRS (ATT) radio is used, the submitting company shall have PTCRB approval from ATT to use the radio, contract and product acceptance with ATT. If an iDEN radio is used the submitting company shall be have certified partner status, contract and product acceptance with Sprint/ Nextel.
 - o The Customer will not have or have to purchase cellular data contracts direct with the carrier(s).
- Security Protocols
 - o All the cellular radios shall all make continuous, secure socket connections (SSL) from the radio, through the cellular system, to the submitting company's servers and web pages.
 - o The RTU shall utilize a transmission scheme that encrypts the transmitted data utilizing a 128 bit encryption method that meets or exceeds the advanced encryption standard (AES). The 128 bit AES encryption shall be at all stages of data transfer and storage
 - o The cellular radios shall all have private IP addresses
 - o The submitting company shall have established multiple, private gateways through the cellular system, completely behind firewalls, with at least one of the cellular providers.
- Data Transmission Rates
 - o All alarms regardless of unit type will be transmitted immediately upon occurrence; delays can be added by the customer at the RTU or the supplier's website.
 - o The RTU shall continuously transmit all digital state changes on an as occurs basis; analog and pulse inputs will be transmitted at least once every two minutes on M800 models.
 - o The RTU will have an effective, continuous, transfer rate of at least 19,200 baud.
- Communication Link Structure and Performance Criteria
 - o The communication link structure shall be a secure socket connection from the RTU through the cellular system to the supplier's servers, and it shall be a continuous connection, 24 x 7, 365.
 - o Receipt of all data sent from the RTU to the server center shall be acknowledged by the server center back to the RTU in real time for every data packet sent. Such structure is called end-to-end data acknowledgement.

- o The secure socket connection shall be from the RTU through the cellular system direct to the system supplier; no third parties shall receive the data from the cellular carrier and then pass it to the system supplier.
- o The above mentioned secure socket connection shall be monitored for end-to-end uptime with interruptions as small as 15 seconds being captured.
- o Both end-to-end uptime and the number of times the link was disconnected/reconnected shall be reported for each RTU continuously with daily summary statistics posted on the customer website. All the end-to-end uptime history of each RTU shall be available on the customer web site from when it first powered up to the present. Weekly management summaries of each RTUs end-to-end uptime shall be automatically emailed to the customer.

C. Centralized Server Centers: Hardware and Software Requirements

- Server Center Physical Structure
 - o The server center housing shall be able to withstand a direct hit from at least a F-3 tornado and continue operations.
 - o The server center housing shall have at least six (6) separate and redundant, on-site power generating facilities to backup the local utility power such that there can be stand-alone operation of the center for at least 24 hours.
 - o Entrance to the facility shall be controlled by armed guards at all entrances 24x7x365
- Server Center Redundancy Structure
 - o The server center shall house the manufacturers completely redundant and hot linked:
 - § Servers
 - § Interconnects
 - § Databases
 - § Power supplies
 - § Inbound cellular connections
 - § Outbound internet hubs and providers
- Database Structure
 - o All data from the RTU's shall be held for customer access forever.
 - o All databases shall be backed up and archived daily
 - o The databases shall be capable of interfacing and transferring, on a continuous basis, all RTU data to an OPC compliant database for access by other OPC compliant HMI software packages.
 - § Client side OPC software will run as an executable or NT service.
 - § Client side OPC software will, on a user definable interval, establish a socket connection to static IP address(s) at providers' server center.
 - § OPC software shall retrieve all changed OPC tag values and close the socket. OPC software shall be set up so as customers OPC computers firewalls may be programmed to only allow Internet traffic to/from the designated service providers IP addresses and port numbers.

§ OPC software will allow for multiple customer OPC software packages to establish, concurrently, OPC connections so as to provide for redundant HMI database operation at customers locations.

§ Customer's firewalls will not be programmed to accept socket connections.

- System Security

- o All data links shall be behind firewalls, 128 bit encrypted and never accessible, addressable or viewable via the general public Internet, Private IP's are required, pooled public IP's will not be accepted.

- System Software

- o The system software shall collect and display:
 - § Alarms including individuals accepting alarms,
 - § RTU electronic key reads with user names, time of read, and site name
 - § pump running status,
 - § pump run times with historical graphs,
 - § individual pump flow estimates,
 - § automatic daily analysis of pump runtimes for abnormalities with automatic customer notification of such abnormalities,
 - § pump starts with hourly analysis of excess pump starts with automatic notifications of excess pump starts,
 - § minute-by-minute radio health checks with automatic notification of non-reporting or poorly reporting RTU's,
 - § scaled and labeled pulse totalizations and if rainfall gauges are used, inter-day rainfall graphs and run time verses rain fall based on either rain gauges installed as part of the system or as run time verses a reporting airport rain gauge;
 - § Performing and displaying volumetric inflow/outflow calculations from RTU supplied data for each pump cycle as they occur. Such volumetric calculations will utilize real-time pump start/stop data with simultaneously gathered level transducer data to perform the inflow/outflow and pump GPM calculations.
 - § Utilizing real-time data collection have the ability to based on digital input closure, open or close digital output relay on the same or another real-time unit (Intertie)

D. Alarm System Structure and Software

- Alarm Delivery Formats

- o Alarms shall be delivered in the following formats:
 - § Phone (voice call), fax, pager (numeric or alphanumeric (short alpha or long alpha format), text message, email, or any combination of the above simultaneously.
- o Alarms shall be able to be acknowledged by phone, text message, 2-way pager, email or on the customer web site.
- o Voice alarm acknowledgement shall be adjustable to be able to mimic the format of dialers.

- o Alarms will be called out on alarm and upon return to normal conditions.
 - § Return to normal alarms can be adjusted to call the alarm callout group or a different callout group.
- Alarm Callout Formats
 - o Alarm callout groups shall be able to be setup to automatically switch between callout groups at different hours of the day and/or different days of the week.
 - o Alarm callout groups shall be able to have multiple teams within each group to easily facilitate rotation of teams of on-call personnel.
- Alarm Message Formats
 - o All alarms shall have the alarm condition, time, alarm location and pump status at the time of the alarm in each message.
 - o Alarm message format shall be adjustable to include just the above information when calling a phone where it is known who will answer the phone, or be adjustable to add an introductory message asking for a specific person when calling a phone where it is not known who will answer the phone (like a home phone).
 - o Alarms shall be able to be delivered individually or be able to be grouped into one message so that multiple, simultaneous alarms (like AC Fail at multiple sites) can be delivered and acknowledged in one phone call.
- Alarm Dispatch Logs
 - o Each alarm shall have a full log of each notification attempt of that alarm documenting the following:
 - § Date, time, and alarm condition
 - § If each notification attempt was a success or failure and the reason for each failure if an attempt was a failure (like line busy, call dropped, etc)
 - § A recording of each voice notification attempt so the specific reason for a notification failure can be known.
 - § Date, time, and name of person who acknowledged the alarm.
- Voice Alarm Delivery Capacity
 - o Manufacturer shall provide at least 20 outbound lines to deliver voice alarms so as not delay delivery of current alarms.

E. REMOTE DATA ACCESS

- Remote Data Access Format
 - o Data collected by the system shall be able to be remotely accessed by simple web browser. The system shall provide individual web pages for the User to access via any web browser.
 - o To access the web pages, the User will have to enter a User Name and Password.
 - § The User can set up any of three levels of access to the web pages:
 - Read only...can see but cannot make any changes
 - Read/Write...can see and can make changes

- Read/Write/Control...can see, make changes and effect control functions, also add or remove logins/ passwords.
 - o The system supplier will provide at least two separate web sites for each customer. One shall be designed to be viewed on a traditional laptop or desktop computer. The other shall be designed to be viewed on a web enabled cell phone or PDA. This web site will still have graphs showing trending of data, and will be designed to minimize the data sent so as to minimize the page loading times and size of the data plans necessary to view the site on a web enabled cell phone or PDA.
 - o The system supplier will provide secure access through a specified phone without the need for web access (Voice SCADA). This will require login to system via numeric 5 digit code and must be set up in the system to an associated login for that site to a specific phone number to maintain site security.
 - o In addition to the above web sites, the User will be provided at no additional charge with a customizable software interface that will display real-time status and graphic trending of data collected by the M800 RTU.
 - § The software will be downloadable from the Mission customer website.
 - § The software will automatically update itself every time the User accesses the software.
 - § The software will require NO programming to customize.
 - § The software will be the Mission Real Time Viewer.
- Remote Access Security
 - o In addition to the Username and Password structure described above, all access of the User web site shall be logged. Such logging data to included date, time and duration of access, User Name and Password of user to access the site and IP address of the accessing computer. The log will be accessible through the User web site
- Automated Administrative Reports and Alerts
 - o The User web site shall produce and automatically deliver weekly reports which summarize alarms and responses, pump runtimes and flow estimates, weekly end-to-end uptime percentages of each RTU, and all electronic key uses at the RTU sites.
 - o The web site shall be capable of sending two (2) different categories of notifications, Alarms and Alerts. Alarms are for conditions that the User decides they want to be notified immediately about. Alerts are conditions that need attention, but are not so time sensitive that they cannot wait till the next morning.
 - § The Alarms callout list and the Alert callout list shall be able to be separate and distinctly different.
 - o The User web site shall analyze daily pump run times at compared to a moving 30 day average of that pumps most recent runtimes

- o and automatically Alert the User is the pump runs outside the normal runtime variation pattern.
- o The User web site shall analyze hourly pump runtimes and automatically compare it to two (2) User set thresholds. If the Alert threshold is exceeded, an Alert will be sent the following morning. If the Alarm threshold is exceeded, an alarm will send immediately.
- o The User web site shall send an Alert the first morning that units are in Communications fail even though Alarms have been sent at the time the RTUs went off-line. Such Alerts are a reminder to Management that they still have units that are off line.

2.03 RTU LOCATIONS

- A. RTUs shall be located at 9 locations:
 - a. Well #2
 - b. Well #3
 - c. Well #5
 - d. Well #6
 - e. Well #7
 - f. Franklin Street Well #4 Tower
 - g. Springfield Avenue Tower
 - h. Glaser Road Tower
 - i. City Lake Park Tower
- B. RTUs at each location shall be furnished with an omnidirectional antenna at grade plus 8ft.

2.04 MONITORING POINTS PER RTU

- A. The inputs to be monitored at well sites are as follows:
 - 1. Digital inputs
 - DI-1 - Well Run
 - DI-2 - Building Entry
 - DI-3 - Spare
 - DI-4 - Spare
 - DI-5 - Spare
 - DI-6 - Spare
 - DI-7 - Spare
 - DI-8 - Spare

2. Analog inputs with four (4) hi/low threshold alarms

AI-1- CL2 Residual (If Applicable)

AI-2 – Flow Rate (if applicable and flowmeter with 4-20 mA exists)

4. Optional Pulse inputs

P-1

P-2

5. Relay Outputs

R-1 - Well Command to Run

R-2 - Spare

R-3 - Spare

The inputs to be monitored at tank/tower sites are as follows:

1. Digital inputs

DI-1 - Building Entry

DI-2 - Spare

DI-3 - Spare

DI-4 - Spare

DI-5 - Spare

DI-6 - Spare

DI-7 - Spare

DI-8 - Spare

2. Analog inputs with four (4) hi/low threshold alarms

AI-1- CL2 Residual (If Applicable)

AI-2 – Flow Rate (if applicable and flowmeter with 4-20 mA exists)

4. Optional Pulse inputs

P-1

P-2

5. Relay Outputs

R-1 - Well Command to Run

R-2 - Spare

R-3 - Spare

2.05 OTHER MATERIALS

- B. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

PART THREE - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 COORDINATION

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Additional coordination with the supplier's information here.

3.03 INSTALLATION

- A. Install the work of this Section in strict accordance with the manufacturer's recommendations and shop drawings as approved by the Engineer.
- B. Upon completion of the installation, carefully inspect each component and verify that all items have been installed in their proper location, adequately anchored, and adjusted to achieve optimum operation.
 - If required, the contractor shall adjust the antenna placement or elevation to obtain consistent, stable operation of the system.
- C. Delineate timing of RTU installation and commissioning.

3.04 SERVICE

- A. Demonstrate to the Owner's operation and maintenance personnel the proper methods for operating and maintaining the equipment, and the contents of the operation and maintenance manual required to be submitted under Article 1.03 in this Section.
- B. The Contractor shall furnish to the Owner, through the Engineer, a written report prepared by the instrumentation equipment manufacturer's field service technician certifying that:
 - B. the equipment has been properly installed in accordance with manufacturer's recommendations;
 - 2. the equipment check out and initial start-up activities have been completed in accordance with manufacturer's recommendations and under the technician's supervision;
 - 3. Antenna placement has been optimized
 - 4. The equipment is free from any undue stress imposed by connecting conduit or anchor bolts;
 - 5. The equipment operates satisfactorily and in compliance with the requirements of this Section.
- C. If applicable, delineate whether or not the Contractor shall include with his bid, the on-site services of the instrumentation equipment manufacturer's field service technician, and for what period. This service shall be for the purpose of instruction of plant personnel and testing of the system.

END OF SECTION

Pre-Bid Meeting

The City of Sullivan will be conducting a pre-bid meeting on Wednesday, May 11, 2016 at 1:30 p.m. to discuss the project sites and project expectations. Due to the size and scope of the project any interested bidders are encouraged to attend prior to submitting bids.

Due-Diligence

Interested bidders are encouraged to contact City Engineer Robert Schaffer at 573-468-8965.

Contract Terms

The winning bidder shall enter into a contract with Sullivan, MO subject to the bid specifications contained herein. Failure of the City to enter into contract with the winning bidder according to the specifications contained herein shall be sufficient grounds for the winning bidder to withdraw terms offered to the City under these bid specifications.

The contractor's bid shall be listed as indicated in the Bid Proposal, to be the maximum amount that the contractor may charge the City of Sullivan for all of the services to be provided pursuant to the contract. The contractor's lump sum bid shall be inclusive of every charge relating to the contractor's provision for services including, but not limited to:

1. The contractor's charges for transportation;
2. All fuel and maintenance expenses;
3. Any and all federal, state, or local governmental fees, taxes, or assessments;
4. Contractor's equipment and machinery.

The contractor shall be solely responsible for the payment of all charges relating to the services furnished to the City. Other than the Contractor's lump sum contract fee to be paid as provided herein, the contractor shall not invoice or collect any separate or additional charge from the City.

The City shall award the contract to the lowest and best responsive bidder within thirty (30) days of bid opening. Notwithstanding the provisions contained in the bid specifications, the City reserves the right to reject any and all bids and to negotiate contract terms with the bidder determined to be the lowest and best responsive and responsible bidder.

Contractor shall be an independent contractor and shall furnish his/her own tools, equipment, fuel, and employees. All equipment and tools shall be in proper repair, insured, and properly registered. All employees operating equipment shall meet all necessary licensing and/or registration requirements within the State of Missouri.

Contractor shall be an independent contractor and is solely responsible for reporting income earned under this contract to any appropriate government agency(s).

Contractor shall warrant that all persons assigned by it to the performance of this contract shall be employees of the contractor (or specified subcontractor) and shall be fully qualified to

perform the work required. The contractor shall include a similar provision in any contract with any subcontractor selected to perform work under this contract.

Contractor shall carry in full force and effect, insurance necessary to comply with the requirements of the workmen's compensation requirements of the State of Missouri.

Contractor shall require his/her insurance carriers to provide Certificates of Insurance to the City of Sullivan, Missouri showing names of companies, amount of insurance coverage, expiration date or dates, and policy number or numbers.

Contractor shall require his/her insurance carrier to have the City of Sullivan endorsed as an additional insured party on said liability insurance coverage.

General Indemnification. The contractor shall indemnify the City of Sullivan, Missouri, any of its members, employees, agents, officers, and consultants (each an indemnity) against, and hold each indemnity harmless from any and all claims, demands, causes of action, judgments, liens, penalties, costs, and expense whatsoever, including attorney's fees and expenses, of any kind or nature whatsoever, including, but not limited to, claims for bodily injury, illness or death, property damage including loss of use which may at anytime be imposed upon, incurred by or asserted against any indemnity as a result of any performance or lack of performance by the contractor or any of its agents or employees of any of its or their obligations hereunder, or as a result of any negligence of the contractor or any of its agents or employees. This indemnification of the City of Sullivan is not limited by the amount of any insurance coverage available to the contractor. Such indemnification shall not include claims or demands arising out of the negligence or misconduct of the City.

Contractor shall be enrolled and participate in E-Verify, as required by law.

Contractor shall insure all employees employed in the provision of services related to this project are compliant with the OSHA required 10-hour Construction Safety Course for public projects.

This project is a public project and requires contractor to abide by the prevailing wage standards within Franklin County for the completion of the project. Contractor shall supply payroll verification documents to the city, with the submission of the payment request (invoice). Said documents shall be kept on file at the city, as required by law.

The illegal use, possession, dispensation, distribution, manufacture, or sale of a controlled substance or illegal drug by contractor, an employee of the contractor, or approved subcontractor at any service site is prohibited, as is the use or possession of alcohol. Any violation of this prohibition provides sufficient cause for immediate termination of this contract.

Contractor shall provide the City Engineer a written invoice documenting the total monies due.

Contractor shall submit sealed bids for the **Water Tower Level Control System** at the Sullivan City Hall located at 210 W Washington, Sullivan, MO 63080 until 10:00 a.m. on Wednesday, May 18, 2016.

BIDDING REQUIREMENTS

1. GENERAL.

The successful Bidder will be required to furnish equipment, materials, labor, insurance, etc., required to complete the project and to fully comply with the requirements of the specifications and other Contract Documents.

2. PREPARATION OF BID.

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten.

3. INTERPRETATION OF CONTRACT DOCUMENTS.

- A. Bidders shall familiarize themselves with the contemplated Work to insure the fulfillment of the intent of the Contract Documents.
- B. Any Bidder who is in doubt as to the true meaning of any part of the Contract Documents shall promptly request from the City Engineer an interpretation thereof.
- C. Interpretations will be made only by Addendum, duly issued, and a copy of each addendum will be mailed or delivered to each party who has received a set of these Contract Documents. Information obtained from an officer, agent, or employee of the City of Sullivan or any other person shall not affect the risks or obligations assumed by the Contractor or relieve the Contractor from fulfilling any and all of the Conditions of the Contract.
- D. No interpretation addendum will be issued within the last three (3) days before the bid date unless the bid date is changed accordingly to allow time for bidders consideration.
- E. The Bidder shall be solely responsible for any explanation or interpretation of the Contract Documents other than by duly issued addenda.

4. FAMILIARITY WITH SITE AND CONDITIONS.

- A. The Bidder, before submitting his proposal, shall by careful examination, satisfy himself as to the following:
 - 1. Nature and location of Work.
 - 2. Character, quality, and quantity of materials to be encountered.
 - 3. Character of equipment and facilities needed prior to and during execution of the proposed Work.

4. General local conditions.
 5. Requirements for maintaining existing facilities in continuous service, if necessary and required.
 6. Existence of any other conditions which might affect the cost or time of completion of the Work.
- B. Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to its Bid. Filing the proposal shall confirm that the examination of site and conditions have been made by the Bidder and the existing conditions are accepted by him.

5. WITHDRAWAL OF BIDS.

- A. Proposals may be withdrawn on written or telegraphic request received from Bidders prior to the time fixed for opening, provided the proposal has been properly marked and can be positively identified.
- B. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within ninety (90) days after the actual opening. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the City of Sullivan and the Bidder.

6. CONTRACT.

The Contract when executed shall be deemed to include the entire agreement between the parties thereto, and the Bidder shall not claim any modification thereof resulting from any representation or promise made at any time by any officer, agent, or employee of the City of Sullivan or by any other person.

7. INSURANCE.

The Contractor will be required to carry insurance as required and in the amount herein contained, during the lifetime of this Contract. Certification of Insurance coverage shall be filed with the City of Sullivan prior to the Notice to Proceed on the Project.

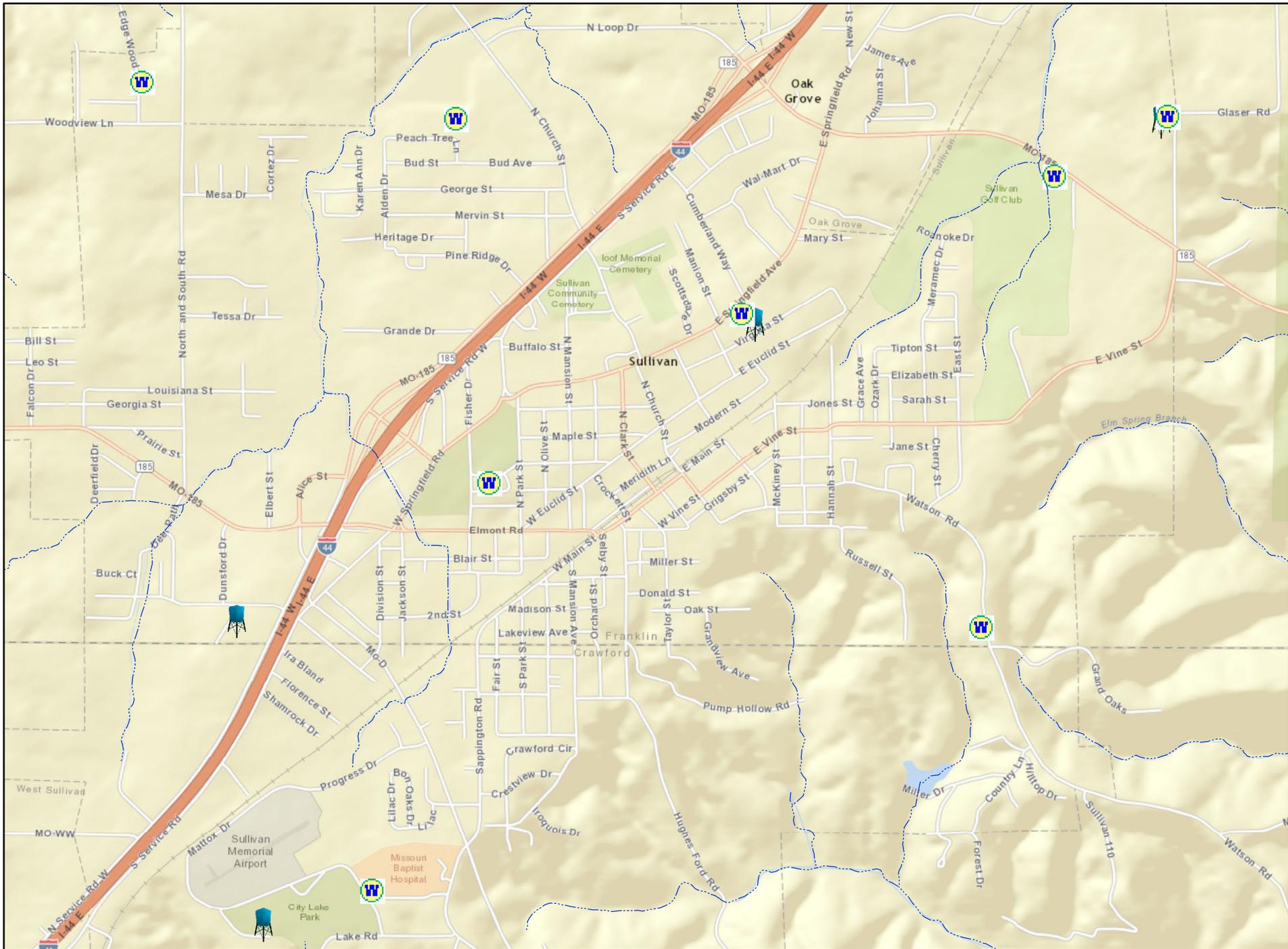
8. SAFETY STANDARDS AND ACCIDENT PREVENTION.

With respect to all work performed under this Contract, the Contractor shall:

- A. Comply with the safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the

requirements of Title 29 of the Code of Federal Regulations Section 1518 as published in the "Federal Register", Volume 36, No. 75, April 17, 1971.

- B. Exercise every precaution at all times for the prevention of accidents and protection of persons (including employees) and property.
- C. Maintain at his/her office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at the job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.



Legend

-  Wells
-  Elevated Storage

WELL & WATER TOWER LOCATION EXHIBIT

