

# REQUEST AUTHORIZATION FOR MAYOR AND FINANCE OFFICER TO SIGN PROFESSIONAL SERVICES AGREEMENT OR AMENDMENT

Date: February 16, 2015

**Project Name & Number:** WRF Supervisory Control and Data Acquisition (SCADA) Improvements; CIP #: 51022  
Project No. 14-2159

**Project Description:** Installation of hardware and integration of software necessary for a new Supervisory Control and Data Acquisition System at the Water Reclamation Facility.

**Consultant:** Dakota Pump, Inc.

<b>Original Contract Amount:</b> \$374,378.00	<b>Original Contract Date:</b> Feb. 16, 2015	<b>Original Completion Date:</b> 180 Days from Notice to Proceed
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**Addendum No:**

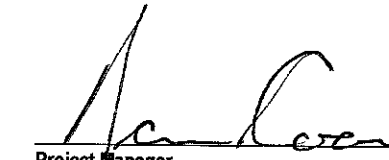
**Amendment Description:**

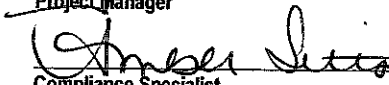
<b>Current Contract Amount:</b> _____	<b>Current Completion Date:</b> _____
<b>Change Requested:</b> _____	
<b>New Contract Amount:</b> _____ \$0.00	<b>New Completion Date:</b> _____

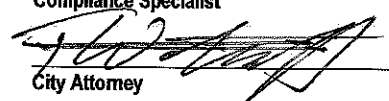
**Funding Source This Request:**


Amount	Dept.	Line Item	Fund	Comments
179,127.00	0833	4225	0604	Sewer Replacement / Improvements
195,251.00	0833	4295	0604	
\$374,378.00	<b>Total</b>			

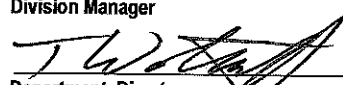
### Agreement Review & Approvals

 \_\_\_\_\_ 1/29/15  
Project Manager Date

 \_\_\_\_\_ 2/2/15  
Compliance Specialist Date

 \_\_\_\_\_  
City Attorney Date

 \_\_\_\_\_ 2-3-15  
Division Manager Date

 \_\_\_\_\_ 2-3-15  
Department Director Date

**ROUTING INSTRUCTIONS**

Route two originals of the Agreement for review and signatures.  
Finance Office - Retain one original  
Project Manager - Retain second original for delivery to Consultant  
cc: Public Works  
Engineering  
Project Manager

**FINANCE OFFICE USE ONLY**

(Note to Finance: Please write date of Agreement in appropriate space in the Agreement document)

	<b>Date</b>	<b>Initials</b>	<b>Approved</b>	
Appropriation			Y	N
Cash Flow			Y	N

**Agreement Between City of Rapid City and Dakota Pump, Inc.  
for Professional Services and Equipment Installation for WRF Supervisory  
Control and Data Acquisition (SCADA) Improvements, Project No. 14-2159 / CIP  
No. 51022**

AGREEMENT made February 16, 2015, between the City of Rapid City, SD (City) and Dakota Pump, Inc., (Contractor), located at 25524 413<sup>th</sup> Avenue, Mitchell, SD 57301. City intends to obtain services for WRF Supervisory Control and Data Acquisition (SCADA) Improvements, Project No. 14-2159, CIP No. 51022. The scope of services is as described in Exhibits A and B.

The City and the Contractor agree as follows:

The Contractor shall provide professional services and equipment installation for the City in all phases of the Project as defined in Exhibits A and B

**Section 1—Basic Services of Contractor**

**1.1 General**

1.1.1 The Contractor shall perform professional and installation services described in this agreement., Contractor intends to serve as the City's professional representative for those services as defined in this agreement and to provide advice and consultation to the City as a professional. Any opinions of probable project cost, approvals, and other decisions provided by Contractor for the City are rendered on the basis of experience and qualifications and represent Contractor's professional judgment.

1.1.2 All documents including Drawings and Specifications provided or furnished by Contractor pursuant to this Agreement are instruments of service in respect of the Project and Contractor shall retain an ownership therein. Reuse of any documents pertaining to this project by the City on extensions of this project or on any other project shall be at the City's risk. The City agrees to defend, indemnify, and hold harmless Contractor from all claims, damages, and expenses including attorney's fees arising out of such reuse of the documents by the City or by others acting through the City.

**1.2 Scope of Work**

The Contractor shall:



- 1.2.1 Consult with the City, other agencies, groups, consultants, and/or individuals to clarify and define requirements for the Project and review available data.
- 1.2.2 Perform the tasks described in the Scope of Services. (See Exhibits A and B.)

## **Section 2—Information Provided by City**

The City will provide any information in its possession for the project at no cost to the Contractor.

## **Section 3—Notice to Proceed**

The City will issue a written notification to the Contractor to proceed with the work. The Contractor shall not start work prior to receipt of the written notice. The Contractor shall not be paid for any work performed prior to receiving the Notice to Proceed.

## **Section 4—Mutual Covenants**

### **4.1 General**

- 4.1.1 The Contractor shall not sublet or assign any part of the work under this Agreement without written authority from the City.
- 4.1.2 The City and the Contractor each binds itself and partners, successors, executors, administrators, assigns, and legal representatives to the other party to this agreement and to the partners, successors, executors, administrators, assigns, and legal representatives of such other party, regarding all covenants, agreements, and obligations of this agreement.
- 4.1.3 Nothing in this agreement shall give any rights or benefits to anyone other than the City and the Contractor.
- 4.1.4 This agreement constitutes the entire agreement between the City and the Contractor and supersedes all prior written or oral understandings. This agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.
- 4.1.5 The Contractor shall make such revisions in plans which may already have been completed, approved, and accepted by the City, as are necessary to correct Contractor's errors or omissions in the plans,



when requested to do so by the City, without extra compensation therefore.

- 4.1.6 If the City requests that previously satisfactorily completed and accepted plans or parts thereof be revised, the Contractor shall make the revisions requested by the City. This work shall be paid for as extra work.
- 4.1.7 The City may at any time by written order make changes within the general scope of this Agreement in the work and services to be performed by the Contractor. Any changes which materially increase or reduce the cost of or the time required for the performance of the Agreement shall be deemed a change in the scope of work for which an adjustment shall be made in the Agreement price or of the time for performance, or both, and the Agreement shall be modified in writing accordingly. Additional work necessary due to the extension of project limits shall be paid for as extra work.
- 4.1.8 Extra work, as authorized by the City, will be paid for separately and be in addition to the consideration of this Section.
- 4.1.9 For those projects involving conceptual or process development services, activities often cannot be fully defined during the initial planning. As the project does progress, facts and conditions uncovered may reveal a change in direction that may alter the scope of services. Contractor will promptly inform the City in writing of such situations so that changes in this agreement can be renegotiated.
- 4.1.10 This Agreement may be terminated (a) by the City with or without cause upon seven days' written notice to the Contractor and (b) by the Contractor for cause upon seven days' written notice to the City. If the City terminates the agreement without cause, the Contractor will be paid for all services rendered and all reimbursable expenses incurred prior to the date of termination.  
  
If termination is due to the failure of the Contractor to fulfill its agreement obligations, the City may take over the work and complete it. In such case, the Contractor shall be liable to the City for any additional cost to the extent directly resulting from Contractor's action.
- 4.1.11 The City or its duly authorized representatives may examine any books, documents, papers, and records of the Contractor involving transactions related to this agreement for three years after final payment. All examinations will be performed at reasonable times,



with proper notice. Contractor's documentation will be in a format consistent with general accounting procedures.

- 4.1.12 The City shall designate a representative authorized to act on the City's behalf with respect to the Project. The City or such authorized representative shall render decisions in a timely manner pertaining to documents submitted by the Contractor in order to avoid unreasonable delay in the orderly and sequential progress of the Contractor's services.
- 4.1.13 Costs and schedule commitments shall be subject to renegotiation for delays caused by the City's failure to provide specified facilities or information or for delays caused by other parties, excluding sub-contractors and sub-consultants, unpredictable occurrences including without limitation, fires, floods, riots, strikes, unavailability of labor or materials, delays or defaults by suppliers of materials or services, process shutdowns, acts of God, or the public enemy, or acts of regulations of any governmental agency or any other conditions or circumstances beyond the control of the City or Contractor. Temporary delays of services caused by any of the above which results in additional costs beyond those outlined may require renegotiation of this agreement.
- 4.1.14 The City will give prompt written notice to the Contractor if the City becomes aware of any fault or defect in the Project or nonconformance with the Project Documents.
- 4.1.15 Unless otherwise provided in this Agreement, the Contractor and the Contractor's consultants shall have no responsibility for the discovery, presence, handling, removal or disposal of, or exposure of persons to hazardous materials in any form at the project site, including but not limited to asbestos products, polychlorinated biphenyl (PCB), or other toxic substances.
- 4.1.16 In the event asbestos or toxic materials are encountered at the jobsite, or should it become known in any way that such materials may be present at the jobsite or any adjacent areas that may affect the performance of Contractor's services, Contractor may, at their option and without liability for consequential or any other damages, suspend performance of services on the project until the City retains appropriate specialist consultant(s) or contractor(s) to identify, abate, and/or remove the asbestos or hazardous or toxic materials.
- 4.1.17 Contractor hereby represents and warrants that it does not fail or refuse to collect or remit South Dakota or City sales, use or excise tax for



transactions which are taxable under the laws of the State of South Dakota.

#### **4.2 City of Rapid City NonDiscrimination Policy Statement**

In compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination act of 1975, the Americans with Disabilities Act of 1990, and other nondiscrimination authorities it is the policy of the City of Rapid City, 300 Sixth Street, Rapid City, SD 57701-5035, to provide benefits, services, and employment to all persons without regard to race, color, national origin, sex, disabilities/handicaps, age, or income status. No distinction is made among any persons in eligibility for the reception of benefits and services provided by or through the auspices of the City of Rapid City.

Contractor will permit access to any and all records pertaining to hiring and employment and to other pertinent data and records for the purpose of enabling the Commission, its agencies or representatives, to ascertain compliance with the above provisions.

This section shall be binding on all subcontractors or suppliers.

#### **Section 5—Payments to the Contractor**

##### **5.1 Fee**

The maximum amount of the fee for the services as detailed in Section 1.2 shall not exceed \$374,378.00 unless the scope of the project is changed as outlined in Section 4. If expenses exceed the maximum amount, the Contractor shall complete the project as agreed upon here without any additional compensation.

##### **5.2 Progress Payments**

Monthly progress payments shall be processed by the City upon receipt of the claim as computed by the Contractor based on work completed during the month and approved by the City.

Net payment to the Contractor shall be due within forty-five (45) days of receipt by the City.

#### **Section 6—Completion of Services**

The Contractor shall complete the services in accordance with the project schedule provided in Exhibit A.



## **Section 7—Insurance Requirements**

### **7.1 Insurance Required**

The Contractor shall secure the insurance specified below. The insurance shall be issued by insurance company(s) acceptable to the City and may be in a policy or policies of insurance, primary or excess. Certificates of all required insurance including any policy endorsements shall be provided to the City prior to or upon the execution of this Agreement.

### **7.2 Cancellation**

The Contractor will provide the City with at least 30 days' written notice of an insurer's intent to cancel or not renew any of the insurance coverage. The Contractor agrees to hold the City harmless from any liability, including additional premium due because of the Contractor's failure to maintain the coverage limits required.

### **7.3 City Acceptance of Proof**

The City's approval or acceptance of certificates of insurance does not constitute City assumption of responsibility for the validity of any insurance policies nor does the City represent that the coverages and limits described in this agreement are adequate to protect the Contractor, its consultants or subcontractors interests, and assumes no liability therefore. The Contractor will hold the City harmless from any liability, including additional premium due, because of the Contractor's failure to maintain the coverage limits required.

### **7.4 Specific Requirements**

- 7.4.1 Workers' compensation insurance with statutory limits required by South Dakota law. Coverage B-Employer's Liability coverage of not less than \$500,000 each accident, \$500,000 disease-policy limit, and \$500,000 disease-each employee.
- 7.4.2 Commercial general liability insurance providing occurrence form contractual, personal injury, bodily injury and property damage liability coverage with limits of not less than \$1,000,000 per occurrence, \$2,000,000 general aggregate, and \$2,000,000 aggregate products and completed operations. If the occurrence form is not available, claims-made coverage shall be maintained for three years after completion of the terms of this agreement. The policy shall name the City and its representatives as an additional insured.



- 7.4.3 Automobile liability insurance covering all owned, nonowned, and hired automobiles, trucks, and trailers. The coverage shall be at least as broad as that found in the standard comprehensive automobile liability policy with limits of not less than \$1,000,000 combined single limit each occurrence. The required limit may include excess liability (umbrella) coverage.

### **Section 8—Hold Harmless**

The Contractor hereby agrees to hold the City harmless from any and all claims or liability including attorneys' fees arising out of the services furnished under this Agreement, and for bodily injury or property damage arising out of services furnished under this Agreement, providing that such claims or liability are the result of a negligent act, error or omission of the Contractor and/or its employees/agents arising out of the services described in the Agreement.

### **Section 9—Independent Business**

The parties agree that the Contractor operates an independent business and is contracting to do work according to his own methods, without being subject to the control of the City, except as to the product or the result of the work. The relationship between the City and the Contractor shall be that as between an independent contractor and the City and not as an employer-employee relationship. The payment to the Contractor is inclusive of any use, excise, income or any other tax arising out of this agreement.

### **Section 10-Controlling Law and Venue**

This Agreement shall be subject to, interpreted and enforced according to the laws of the State of South Dakota, without regard to any conflicts of law provisions. Parties agree to submit to the exclusive venue and jurisdiction of the State of South Dakota, 7<sup>th</sup> Judicial Circuit, Pennington County.

### **Section 11-Severability**

Any unenforceable provision herein shall be amended to the extent necessary to make it enforceable; if not possible, it shall be deleted and all other provisions shall remain in full force and effect.

### **Section 12—Funds Appropriation**

If funds are not budgeted or appropriated for any fiscal year for services provided by the terms of this agreement, this agreement shall impose no obligation on the City for payment. This agreement is null and void except as to annual payments herein agreed upon for which funds have been budgeted or appropriated, and no right of action or





damage shall accrue to the benefit of the Contractor, its successors or assignees, for any further payments. For future phases of this or any project, project components not identified within this contract shall not constitute an obligation by the City until funding for that component has been appropriated.

### **Section 13-Responsibility of Contractor**

**General Responsibility:** The Contractor shall furnish all transportation, ways, works, machinery, and plant, and all suitable appliances required for the safe, proper, and lawful construction, maintenance, and use thereof. The Contractor shall be fully responsible for the materials and equipment used for the work and for safeguarding the work against damage or destruction until its final acceptance by the City. The Contractor agrees to make no claims for damage to the work prior to final acceptance and will make no claims for damage to the materials except through negligence or willful act of the City.

Before the completion and acceptance of this Contract shall be made good by him, he shall be solely answerable for all damage to the City or the property of the City; to other contractors, or other employees of the City; to the neighboring premises or to any private or personal property due to improper, illegal, or negligent conduct of himself or his subcontractors; employees or agents in and about said work or in the execution of the work covered by this Contract or any extra work undertaken herein provided; or to any defect in, or the improper use of, any scaffolding, shoring, apparatus, ways, works, machinery or plant. He shall indemnify and save harmless the City and its officers and agents from all claims relating to labor, materials, and methods used in executing the work.

### **Section 14-Patents**

It is further agreed that all royalties for patents or patent infringement claims, whether such patents are for processes or devices, that might be involved in the construction or use of the work, shall be included in the Contract amount and the Contractor shall satisfy all demands that may be made at any time for such, and shall be liable for any damages or claims for patent infringements; and the Contractor shall, at his own expense, defend any and all suits or proceedings that might be instituted at any time against the City for infringement or alleged infringement of any patent or patents involved in the work; and in case of an award of damages, the said Contractor shall pay such award; final payment to the Contractor by the City will not be made while any such suits or claims remain unsettled.



### **Section 15-Indemnity**

The Contractor shall indemnify and save harmless the City from and against all losses and all claims, demands, payments, suits, actions, recoveries, and judgments of every nature and description brought or recovered against him, by reason of any act or omission of the said Contractor, his agents or employees, in the execution of the work or in the guarding of it and this shall include acts or omission of subcontractor.

The Contractor shall, and is hereby authorized to, maintain any part for such insurance, issued in the name of the City, as will protect the City from his contingent liability under this Contract, and the City's right to enforce against the Contractor any provision of this Section shall be contingent upon the full compliance by the City with the terms of applicable insurance policy or policies, a copy of which shall be deposited with the City.

### **Section 16-Performance Bond**

The surety bond executed by the Contractor, issued to the City, shall be a guarantee:

- A. For the faithful performance and completion of the work in strict accordance with the terms of the contract, specifications, and detailed plans;
- B. For the payment to the City of all sums due or which may become due by the terms of the contract; as well as by reason of any violation thereof by the Contractor;
- C. For the payment of all bills, including the hire, rental or lease of equipment or machinery, and the operators thereof, used on the work, and for all materials, lubricants, oils and gasoline used in or consumed in the construction of such work and for all labor performed in such work whether by sub-contract or otherwise;
- D. The payment of any and all judgments and costs of suits and actions brought against the City or officials thereof, for any cause whatsoever, arising from or on account of any injuries or damages to life or property suffered or sustained by any person, firm or corporation, caused by the Contractor, his or its agents, servants or employees in the construction of said work, or by or in consequence of any negligence, carelessness or misconduct in guarding or protecting the same, or any act or omission of the said Contractor his agents, servants, employees;
- E. And for the protection of the City against all suits and claims for infringements or alleged infringements of patent rights processes.

This section shall in no way be construed as limiting the obligation under the Performance Bond actually furnished, but may be an addition thereto.

The City agrees to mail a notice to the Contractor, calling his attention to any failure to comply with the requirements of the bond, not more than ten (10) days before notifying his bondsmen of such failure to comply with the terms of said bond.



### **Section 17-Laws and Ordinances**

The Contractor shall keep himself fully informed of all existing and current regulations of the City, County, State, and Nation, which in any way limit or control the actions or operations of those engaged upon the work, or affecting the materials supplied to or by them. He shall at all times observe and comply with, all ordinances, laws, rules and regulations and shall protect and indemnify the City and the City's officers and agents against any claims or liability arising from or based on any violation of the same. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations and without such notice to the City, he shall bear all costs arising therefrom. Such performance shall constitute a waiver of any and all claims associated with the work.

### **Section 18-Permits and Licenses**

Unless otherwise specified, permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor. Permits, licenses, and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the City, unless otherwise specified.

### **Section 19-Testing of Completed Work**

Before final acceptance, all parts of the work shall be tested and each part shall be in good condition and proper working order or shall be placed in such condition and order at the expense of the Contractor, unless otherwise specified. All tests of completed work required under this contract shall be made under the direction of the City by and at the expense of the Contractor, who shall repair at his own expense all damage resulting therefrom.

### **Section 20-Project Acceptance and Warranty Period**

Final acceptance of the project by the City will be documented by the issuance of an acceptance letter, which is issued according to the following criteria:

- 1) Construction has been substantially completed and the facilities can be put to their intended use.
- 2) All testing has been completed, and the required results have been met.

The date of the acceptance letter documents the start of the two-year warranty period, during which the Contractor shall be notified in writing of any defects in the project and shall submit to the Public Works Dept. a construction schedule to correct the defects at their expense within ten (10) days of receipt of the notice. Failure to correct or undertake, with due diligence, to correct the deficiencies within the specified time may cause the City to make the necessary repairs and bill the Contractor one and one-half (1 1/2) times the costs incurred; providing, however, that in case of an emergency, where, in the judgment of the City, delay would cause serious loss or damage, repairs



may be made without notice being sent to the Contractor, and the Contractor shall pay the cost thereof.

The City reserves the right to extend the warranty period if excessive problems are apparent during the initial two-year period.

During a period of two years after the completion of the work covered by this contract and the final acceptance in writing thereof by the City, the Contractor shall make all needed repairs arising out of defective workmanship or materials furnished by the Contractor; or both, which in the judgment of the City shall become necessary during said period. The City is hereby authorized to make such repairs at the Contractor's expense, if within ten days after the receipt of a written notice to the Contractor, or his agent, the said Contractor shall neglect to make, or undertake with due diligence to make, the aforesaid repairs; providing, however, that in case of an emergency, where in the judgment of the City, delay would cause serious loss or damage, repairs may be made without notice being sent to the Contractor and the Contractor shall pay the cost thereof.

### **Section 21-Waiver of Rights**

Neither the inspection by the City or any of their employees, nor any order by the City for payment of money, nor any payment for, or acceptance of, the whole or any part of the equipment, material, or work by the City, nor any extension of time, nor any possession taken by the City or its employees, shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the City or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.



IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement as of the day and year first above written.

City of Rapid City:

Contractor:

\_\_\_\_\_  
MAYOR

  
\_\_\_\_\_  
DAKOTA PUMP, INC.

DATE: \_\_\_\_\_

DATE: 01/28/2015

ATTEST:

\_\_\_\_\_  
FINANCE OFFICER

Reviewed By:

  
\_\_\_\_\_  
DAN COON, OPERATIONS MANAGEMENT ENGINEER

DATE: Jan 29, 2015

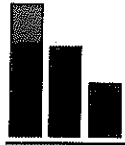
CITY'S DESIGNATED PROJECT  
REPRESENTATIVE

NAME: Dan Coon  
PHONE: (605) 394-4154  
EMAIL: dan.coon@rcgov.org

CONTRACTOR'S DESIGNATED  
PROJECT REPRESENTATIVE

NAME: Quinten Schultz  
PHONE: (605) 716-7505  
EMAIL: controls@dakotapump.com





Control System Technology

**DAKOTA PUMP INC.**

#### Exhibit A

**PROJECT NAME:** Water Reclamation Facility Supervisory Control and Data Acquisition Improvements

**Project No.** 14-2159/CIP No. 51022

**PROJECT LOCATION:** Rapid City, SD

**Date:** February 16<sup>th</sup>, 2015

Dakota Pump Inc. (DPI) agrees to install and place into service, a complete SCADA monitoring system for the above referenced project.

DPI shall provide the following products and services.

#### Task 1 – Implementation Plan

DPI shall outline a plan for the implementation of the WRF SCADA Improvements. The plan will consist of the following:

1. Target completion dates for project tasks
2. Scheduling of subcontractors and sub consultants
3. Scheduled progress meetings, including location, time, and expected attendees
4. Existing radio network decommissioning and switchover to the fiber optic network
5. Switchover from Plantscape to VT SCADA system

If agreed upon by the City and DPI, the implementation plan may be modified due to circumstance or change in scope as needed.

Implementation planning includes project progress meetings by both DPI and sub consultants as needed.

#### Task 2 - SCADA Software & Computer

DPI shall supply and place into operation a new SCADA software package. The software package shall be VT SCADA®, a product of Trihedral Engineering Ltd. The VT SCADA software license will be licensed to The City of Rapid City at the time of purchase. Deployment of the VT SCADA® system will include the following software, hardware, and services.

##### VT SCADA Dual Server Premium Package

1. Runtime License for 5000 data tags
2. Development License
3. Unlimited mobile and visual interface clients - Remote access via smart phone, tablet, or PC
4. ODBC Client (allows access to historical data by third party software. Ie OpWorks)
5. Alarm Dialer – For notifications to phone (voice), text, or email
6. Dual Server Redundancy – Utilizing existing Lift Station SCADA Computer

## **Hardware Components**

1. (1) Dell® Desktop Computer System
  - a. Standard keyboard, mouse, and speakers
  - b. Dual 24" Widescreen Monitors
  - c. Dual Network Interface Cards – Local LAN and Internet Access
2. (1) Apple® IPAD Air 2 Tablet.
  - a. Cellular Ready (Verizon)
  - b. 64GB Memory
  - c. Ruggedized case and screen protector.
  - d. Charger

## **Integration / Configuration Services**

Integration and configuration of the VT SCADA software system will include:

### **Tag Entry**

All currently monitored data points at the WRF will be duplicated in the new system. New status tags from equipment being added to the SCADA system as part of this contract will also be added and are as follows:

1. Trojan UV System – All status tags provided by Trojan, approved by the City, and provided to DPI.
2. WesTech Trickle Filter Distributor Arms – All status tags provided by WesTech, approved by the City, and provided to DPI.
3. Pretreatment HVAC System – All status tags available and documented in the Innovent® vendor control panel manuals and data sheets.

### **Graphics**

All WRF processes will be graphically represented in the new system, including information from the new Trickle Filter Panel, Trojan UV Panel, and the Pretreatment HVAC Unit. The graphics will be arranged in a logical manner according to each process and its physical location. All graphics generated as part of this project will be submitted to the City for review and final approval.

### **Alarms**

All presently monitored alarms will be duplicated in the new system. Any new alarms from the UV, Trickle Filter, and Pretreatment HVAC systems will be added.

1. All alarms will be added to the VT SCADA Historian as a permanent record.
2. The VT SCADA Dialer system will be configured to notify operators via voice phone calls, text messages, or emails.
3. All Alarms will be time/date stamped and displayed locally on the VT SCADA computer and organized by process, location, and severity. The alarm display shall have access to any alarm recorded from the time the system is commissioned.

### **Reporting**

The VT SCADA System stores every status tag's value in its historical data base indefinitely. Stored data can be accessed via the built in reporting system by manually configuring custom reports or utilizing automatic reporting based on user defined templates. DPI will create (5)

sample templates using data from existing City reports. The sample templates shall not exceed (10) tags each. The intention is to create reports with operators and train them to expand or create reports of their own. Data is exported in Microsoft® Excel format similar to the data currently used by the City from Plantscape.

### **System Redundancy**

**Concept** - The VT SCADA system will be backed up over the internet to the Utility Maintenance Shop located on Steele Ave. in Rapid City. This location already employs VT SCADA to monitor the City's lift stations. Likewise, the lift station information will be backed up on the WRF computer. This configuration will allow quick recovery of either computer in the event of a major failure while keeping data loss to a minimum. A gap in recorded data may exist for the brief time that either computer is offline until it can be reestablished on the network.

**Deployment** - DPI will provide all necessary labor and hardware required to establish the system redundancy. This task involves internet traffic in and out of the City's secure firewalls/routers at multiple locations, collaboration with City of Rapid City I/T personnel is absolutely necessary. DPI will provide services of a networking sub consultant as needed.

**City Involvement** - It is anticipated that the City I/T personnel will need to add specific security and port forwarding rules to allow reliable data transfer between the WRF, Utility Maintenance, and facilitate remote access to authorized operators and supervisors.

### **Task 3 - Fiber Optic Network**

A fiber optic loop will be installed around the perimeter of the WRF. This new communication platform will replace the existing radio network currently used to transmit process data to the SCADA Master located at the Administration Building. DPI shall supply a complete and functioning network that is verified for performance and documented for future expandability. The following sub tasks will be performed:

#### **Routing and Staking**

Due to the presence of underground utilities of various types located at the WRF, a detailed route for the installation of the fiber optic network must be established. DPI will establish the route and include locating services from public utilities where possible. In cooperation with WRF staff, private (City maintained) utilities will be marked. A detailed drawing of the route will be produced for use by the trenching contractor and inclusion in the record drawings provided to the City at the end of the project.

#### **Fiber Optic Duct Installation**

DPI will install a 2" Schedule 40 HDPE (high density polyethylene) duct a minimum of 30" below ground along the route proposed by DPI and agreed upon by the City. The majority of the HDPE Duct will be installed using the horizontal boring method. A tone able tracer wire will be installed along with the HDPE Duct for future locating.

All paved areas disturbed, cut, or demolished during the duct installation will be replaced with equivalent materials and restored to pre-construction condition in quantities equal to the area disturbed or demolished. Disturbed grass shall be re-seeded as needed to restore the vegetation along the route to pre-construction conditions.



### **Fiber Optic Pedestals / Hand Holes**

DPI will produce construction drawings for use by any subcontractors. The drawings will indicate the locations of the hand holes as proposed by DPI and agreed upon by the City. Pedestals or hand holes allow future access to the fiber along the chosen route. These pedestals will be located above grade and will house excess fiber for future splicing, repairs, and expansion. No splicing will be done in the pedestals or hand holes as part of this contract. Fiber optic cable will enter, be looped for excess, and exit each location.

### **Fiber Optic Cable Installation**

DPI shall install in the buried HDPE Duct, a 24 count Single Mode fiber optic cable. At each location noted on produced plans, (6) six of the fibers will have LC style connectors attached by fusion splice method. The remaining 14 fibers will be secured, un-terminated for future use. The fusion terminated fibers will be secured to a bulkhead style panel mount for use with the SCADA network equipment which will require (2) fibers. The remaining (4) fibers will be left for future use.

All terminated fibers will be tested for quality using an Electronic Time Domain Reflectometer (OTDR). Each terminated fiber will be "shot" in a two way fashion meaning it will be tested from each end. Results of the OTDR testing will be provided as part of the final project documents and supplied to the City as a deliverable.

Any terminated link (2 splices per link) demonstrating losses greater than 1.9 dB will be re-terminated and tested to insure link quality.

### **Networking Components**

DPI shall provide and install an enclosure that will contain a managed Ethernet switch capable of supporting a Ring Network Topology. The managed switch will contain (8) Ethernet Ports and will also function as a Fiber Media Converter (FMC).

The Ring Topology, utilizing Rapid Spanning Tree Protocol (RSTP), will allow any one segment between FMC's to be interrupted while allowing full WRF communications and functionality. FMC's will signal an alarm to the VT SCADA system via ModBus TCP, identifying which segment has been compromised.

Each enclosure will be powered by 120 VAC and will contain all necessary power supplies and protection devices. DPI will provide electrical installation services for these network component enclosures at the following locations.

1. Administration Building
2. Chlorination Building
3. Blower Building
4. Sludge Handling Building
5. Pretreatment Building
6. Old Administration Building
7. Trickling Filter Control Building

### **Task 4 - Pretreatment Building HVAC Integration**

The roof top HVAC unit located at the pretreatment building utilizes a programmable controller capable of ModBus RTU communications. The method of communication allows for real time monitoring of discrete and analog process data. DPI will perform the following sub tasks:

### **Conduit and Wiring**

A conduit will be installed between the roof top HVAC unit control panel and the Huber® control panel located in the control room. A two conductor shielded wire will be installed and terminated between the PLC's in each enclosure.

An Ethernet cable will be routed in conduit between the Huber control panel and the Pretreatment control panel for connection to the network and transmission of data to the SCADA Master.

### **Programming**

All available and documented Modbus data from the HVAC PLC will be mapped into Allen Bradley style addressing for use on the network and transmitted to the SCADA Master Software. DPI will not make any programming changes to the HVAC vendor PLC programming.

## **Task 5 – Administration Building Control Panel**

To aid in future upgrades of the WRF and to better manage alarming currently, a Master RTU panel will be installed on the lower level of the administration building. DPI will perform the following sub tasks:

### **Equipment Supply**

- NEMA 4 Control Enclosure UL508A Listed
- Allen Bradley Compact Logix® PLC with I/O
- Managed Ethernet Switch w/ Fiber Media Conversion
- 1000 VA UPS for backup power and surge suppression
- Fiber Optic bulkhead termination enclosures

### **Equipment Installation**

DPI shall provide the services of a licensed electrical contractor to install the new control panel and energize it with 120 VAC from an existing outlet circuit. The new panel shall be located on the North wall of Operations Office Room 205.

### **Programming**

DPI shall program the PLC in the new control panel to poll selected data from processes at the WRF. Initially, programming will focus on the enabling and disabling of all alarms from WRF processes. Each alarm at the WRF will report to this new PLC and will have enable/disable functions allowing a piece of equipment to be taken offline without signaling alarms needlessly.

The new PLC will poll selected data points at variable and adjustable rates from the new Trojan UV system. Data points shall be supplied to DPI by the City and shall include all RSLogix 5000 Tag Data and descriptions. Trojan has expressed concerns about the amount and frequency of polled data. The variable polling rate will accommodate those concerns and avoid over use of vendor supplied PLC resources.

## **Task 6 – Pretreatment Building Control Panel Integration.**

Presently, the Huber® vendor supplied control panel is not connected to the WRF Ethernet network. In order to retrieve the most data possible from the Huber® PLC system, DPI will connect this panel to the Ethernet network and display all pertinent, data on the SCADA Master Computer.

The current configuration is limited to hard wired connections to the Pretreatment main PLC. Placing the Huber® panel on the Ethernet network will offer greater flexibility and access to additional process information.

DPI will not change the program logic of the vendor supplied PLC. DPI will make an on-line change to the Ethernet port settings and the RS232 port settings of the Micrologix 1400 PLC to allow communications with other WRF PLC's. These changes will produce a new backup file for the ML1400 PLC. This backup file will be turned over to the City for future maintenance activities.

Documentation will be supplied indicating any changes made to communication wiring, port settings, etc.

## **Task 7 Operations Management Software (OpWorks) Integration**

- **OpWorks Software**
  - OpWorks is a customizable, web-based solution for operators, superintendents, and managers that eliminates paper logs, creates a single database interface for easy information retrieval and reporting, and assists with better management and operational functions.
  - **OpWorks Software Package Level 2**
    - The Opworks software package includes purchase of the software license and first year of maintenance and support. The City will own the license and only the Annual Maintenance Package will be required for renewal upon the annual anniversary of the purchase.
  - **SCADA Integration**
    - The SCADA Integration package includes integration and programming to integrate VTSCADA with OpWorks. The integration will interface live data from the all PLC's in the plant. The SCADA output data will be pushed to the OpWorks platform where reports can be produced based on historical data collected from each site.
  - **Data Conversion and Worksheet/Report Development**
    - This component includes the development of current City reports into the OpWorks software. Current City worksheets and reports will be created and become accessible within OpWorks. Data conversion of current Excel, Access and other digital report data will be pulled into OpWorks so that customized reports can be generated and distributed to custom lists and frequencies, such as: daily, weekly, monthly or annual schedules. The ability to create your own custom report and add future sites/assets will be unlimited.
    - The OpWorks developed reports will include the City reports as supplied to DPI and listed below. The existing reports will be converted and customized to provide the same data and reporting results. Historical results and reporting will include a minimum of 1-2 years and maximum of 5 years for data provided in electronic format.

- **Rapid City WRF Reporting Records for OpWorks (Data provided by City in August 2014)**

The following reports and summaries are planned for inclusion in the OpWorks package:

- Aeration Basin Air Flows/DO
- Effluent & Disinfection Basin DO Concentrations
- Effluent Turbidity, Flow Rate & Temperature
- Facility & Rapid Creek Flow Rates
- Daily PH Summary
- Creek Flow Data
- Daily Performance Report: Flow, Ammonia, TSS, BOD
- Sludge/WAS/RAS
- Flume Measurements
- Effluent Flows
- Discharge Monitoring Report: Nitrogen Summary
- Flow Measurement & Sampling Intervals
- Industrial Pretreatment Inspection Report
- Process Trend Charts: Weekly & Daily

- **Implementation and On-Site Training**

- The software will be fully implemented prior to training. (2) OpWorks trainers will be present during a one day onsite training session at the WRF. A Programmer and Operator will be onsite to implement the software and train City staff on the software.
- Onsite training will be performed using the City of Rapid City OpWorks system and training will be specifically directed on the new City OpWorks program loaded on City electronic devices. The initial training will be in-person and hands-on with City staff operating the software with guided direction from OpWorks training staff. The training will be coordinated so multiple City staff can be trained in the initial training session while all working in the City's software program. Follow up training will also be available through video conferencing and GoToMeeting.

- **Video/Go To Meeting Conference Training**

- Following on-site training and implementation the City staff will operate and review reports within OpWorks for a few weeks during an initial operation period. It is anticipated that staff will use up to 12 hours of Video Conferencing and/or Go To Meeting access to work with OpWorks staff to modify reports and become more efficient in operations and creating new reports. Training may be held at the plant with Go To Meeting or offsite at the AE2S office with Video Conferencing.

- **Additional Support**

- The additional support includes up to 5 hours of phone support or email/ticket support requests by City staff. This support can be used to answer questions or develop new uses within OpWorks each calendar year.

- The additional support package is included in this contract for a period of one year from final system acceptance after which a renewal fee must be paid for subsequent year(s) of support.
- **Annual Maintenance Package**
  - The Annual Maintenance Package begins one year following initial purchase and includes data storage, technical updates, security updates and new functionality and software version updates. Additional phone and email support can be requested in addition to the annual standard maintenance renewal package.
  - The annual support package is included in this contract for a period of one year from final system acceptance after which a renewal fee must be paid for subsequent year(s) of support.

**Task 8 WRF Base Map:**

1. Topographic Survey of the Rapid City Water Reclamation Facility located at the intersection of Southside Drive and Redemption Road in Pennington County, SD. DPI proposes to field locate existing tanks, roads, buildings, clarifiers, contactors, clariflocculators, aeration basins, fences, ground elevations and other improvements made upon the subject parcel.
2. Office Work: Draft Topographic survey in AutoCad for design purposes and provide base map or WRF Base Map. Deliver WRF Base Map in AutoCad .dwg format compatible with the City's CAD system.
3. Private Utility Locating – DPI proposes to field locate existing utilities that run within the Rapid City Water Reclamation Facility and map found utilities to be incorporated into the base map for planning purposes. DPI will utilize any existing mapping and/or documentation the Water Reclamation Facility has and tie onto and field locate for verification/exploration to provide accurate field locations.
4. The features for the WRF Base Map will have a horizontal and vertical accuracy of plus or minus 1"-2". Survey grade equipment will be used to collect the data and surface features. The painted marks or locating flags will be surveyed for utilities. No exploratory excavation or potholing will be performed by DPI on underground utilities. At its sole discretion the City may choose to excavate or pothole utility locations. The base map will be provided in AutoCad electronic format compatible with City standards.

**Project Schedule**

**The project will be completed in accordance with the following schedule:**

<b>Scheduled Task Completed</b>	<b>From Notice to Proceed</b>
Contract Award and Notice to Proceed	Date TBD
Task 1- Implementation Plan	30 Days
Task 8- Survey and Base Map	60 Days
Task 3 -Fiber Optic Network	120 Days
Task 2- SCADA Software and Computer	150 Days
Task 7- Operations Management Software	150 Days
Task 4- Pretreatment HVAC Integration	150 Days
Task 5- Administration Building Control Panel	150 Days
Task 6- Pretreatment Building Control Panel Integration	150 Days
Punch list, Patching, Seeding, Misc. Training.	180 Days

## Exhibit B

**Project Name** Water Reclamation Facility Supervisory and Data Acquisition Improvements

**Project No.** 14-2159/CIP No. 51022

**Project Location** Rapid City, SD

**Date:** February 16, 2015

Project Task	Component or Action	Note	Cost
Task 1	<b>Implementation Plan</b>		
	Bonding and Insurance	Project schedule, Task Execution	\$9,964
			\$6,792
		<b>Task Total</b>	\$16,756
Task 2	<b>SCADA Software &amp; Computer</b>		
	VT SCADA Software "Dual Server Premium" 5K Tag	Graphics, Alarming, Data Logging, Etc.	\$14,857
	Dell Computer System	Tower, Dual Monitors, Keyboard, Mouse	\$3,714
	Apple Ipad Air2 64GB for SCADA Mobile Access	Wi-Fi enabled, Cellular Ready (Verizon)	\$1,061
	Integration / Configuration Services	Graphics, Tag Entry, Reports, Training.	\$53,061
		<b>Task Total</b>	\$72,694
Task 3	<b>Fiber Optic Network</b>		
	Install approx. 5,000' 2" HDPE Sch 40 Fiber Duct	Sub Contract	\$56,733
	Install (9) Handholes above grade for access to fiber	" "	\$8,405
	Install approx. 5,000' 24 Cnt. Single Mode Fiber & Terminate (6) fibers on each segment	" "	\$39,421
	Install (7) termination panels and conduit at each site	" "	\$52,860
	Termination Panel Construction & Supply (7) Total Engineering - Plans, Specifications, Punch list	By DPI Sub Consultant	\$21,861 \$24,203
		<b>Task Total</b>	\$203,484
Task 4	<b>Pre Treatment Building HVAC Integration</b>		
	Install approx. 40' 1/2" conduit and shielded wire.	Wire, Conduit, and sub-contracted labor	\$584
	Integrate HVAC System Data into VT SCADA System	DPI- Programming Labor	\$1,592
	Engineering - As Built Documentation	Punch list Inspection	\$849
		<b>Task Total</b>	\$3,024
Task 5	<b>Administration Building Control Panel</b>		
	Supply NEMA 4 RTU and Enclosure - Installed	AB Compct. Lgx. PLC System, UPS, Networking	\$10,612
	Programming - WRF alarm management and polling	DPI - Programming Labor	\$2,122
	Engineering - As Built Documentation	Punch list Inspection	\$849
		<b>Task Total</b>	\$13,584
Task 6	<b>Pretreatment Building Control Panel Integration</b>		
	Integrate Huber® Vendor Panel via Ethernet	DPI - Programming Labor	\$1,061
	Engineering - As Built Documentation	Punch List Inspection	\$849
		<b>Task Total</b>	\$1,910
Task 7	<b>Operations Management Software Integration</b>	Task 7 by sub-consultant	
	Opworks Software Package (Level 2)	Software License and 1st Year Support	\$8,278
	SCADA Integration	Establish link from VT SCADA to OpWorks	\$5,187
	Data Conversion - generate worksheets and reports	Convert existing Owner generated reports	\$14,518
	Implementation and onsite training	(2) Instructors, (1) Day Course	\$10,283
	Video/Go To Meeting Conference Training	Follow up training. Up to 12 hrs.	\$5,807
	Additional Support - Covers 1 year from acceptance	Up to (5)hrs. phone support	\$1,210
		<b>Task Total</b>	\$45,283
Task 8	<b>WRF Base Map</b>		
	Topographic Survey of WRF & Base Map	Deliverables - AutoCad®.DWG & Paper Copy	\$17,644
		<b>Task Total</b>	\$17,644
		<b>Contract Total</b>	\$374,378

NOTE: Contract Total includes Taxes (SD State and Excise) Totaling = \$24,677





