Agenda #____12____
Commission Meeting Date:
October 4, 2016

CITY OF GREAT FALLS
COMMISSION AGENDA REPORT

Item:	Professional Services Agreement Award: Water Treatment Plant Filter Building and Hill 57 SCADA Upgrades, O.F. 1519.9
From:	Engineering Division
Initiated By:	Public Works Department
Presented By:	Jim Rearden, Public Works Director
Action Requested:	Approve Professional Services Agreement

Suggested Motion:

1. Commissioner _____moves:

> "I move the City Commission (approve / not approve) a contract in the amount of $109,293.20 to Industrial Automation Consulting, Inc. (IAC) for Professional Services associated with the Water Treatment Plant Filter Building and Hill 57 SCADA Upgrades, and authorize the City Manager to execute the professional services documents."

2. Mayor Kelly requests a second to the motion, Commission discussion, public comment, and calls for the vote.

Staff Recommendation: Approve Professional Services Agreement.

Background:

Purpose

Components including the Programmable Logic Controllers (PLC) of the Supervisory Control and Data Acquisition (SCADA) system at the Water Treatment Plant (WTP) Filter Building and Hill 57 Water Tank have reached the end of their service life and in a few cases the replacement components are no longer in production. The SCADA system collects data and provides automation that assists staff in monitoring and operating the water treatment processes, buildings, site safety, security items, and electrical systems. In order to upgrade the SCADA hardware, there is a significant effort necessary to coordinate the equipment change over and provide the proper computer coding to confirm that the new equipment will work properly. IAC will provide the technical services necessary to incorporate the new SCADA equipment into the plant's existing system.

Workload Impacts

IAC will conduct all of the SCADA system programming and staff training on the system controls for the WTP Filter Building and Hill 57 Water Tank. City Water Plant Staff will be heavily involved in the transition process as well. City engineering and WTP staff will assist with project administration duties.

Project Work Scope

IAC will supply the new PLCs as well as program the code updates to ensure that the new and existing PLCs will properly communicate with all of the other components of the plant's SCADA system. Training will be provided on the maintenance and use for all updated components of the plant's SCADA system. This project is separate from the work associated with the WTP Phase 1 Improvement project for which IAC is currently contracted with the City to providing professional services. That contract was awarded by the City Commission on September 6, 2016.

Initial Evaluation and Selection Process

IAC is the controls engineering firm that designed and helps maintain the programming for the WTP's current SCADA system, and IAC is also conducting similar work as part of the WTP Phase 1 Improvements project for other parts of the WTP's SCADA system. Based on IAC's past familiarity with the WTP's SCADA system, City Staff selected them to provide these professional services.

Conclusion

City staff recommends approval of the Professional Services Contract to Industrial Automation Consulting, Inc. in the amount of $109,293.20.

Fiscal Impact

This contract will be funded through the Water Fund.

Alternatives:

The City Commission could vote to disapprove of the Professional Services Agreement.

Attachments/Exhibits:

1. Professional Services Agreement

PROFESSIONAL SERVICES AGREEMENT

THIS AGREEMENT is made and entered into by and between the **CITY OF GREAT FALLS, MONTANA,** a municipal corporation organized and existing under the laws of the State of Montana, P.O. Box 5021, Great Falls, Montana 59403-5021, hereinafter referred to as "City," and Industrial Automation Consulting, Inc.,, PO Box 870, Three Forks, MT 59752, hereinafter referred to as "Consultant."

In consideration of the mutual covenants and agreements herein contained, the receipt and sufficiency whereof being hereby acknowledged, the parties hereto agree as follows:

1. **Purpose:** City agrees to hire Consultant as an independent contractor to perform for City services described in the Scope of Services attached hereto as Exhibit "A" and by this reference made a part hereof.

2. **Term of Agreement:** This Agreement is effective upon the date of its execution through December 31, 2017. Both parties reserve the right to cancel this Agreement by providing a written thirty (30) day notice to the other party. The parties may extend this agreement in writing prior to its termination.

3. **Scope of Work:** Consultant will perform the work and provide the services in accordance with the requirements of the Scope of Services.

4. **Payment:** City agrees to pay Consultant One Hundred and Nine Thousand, Two Hundred Ninety-Three Dollars and Twenty Cents ($ 109,293.20) for services performed pursuant to the Scope of Services. Any alteration or deviation from the described work that involves extra costs will be performed by Consultant after written request by the City, and will become an extra charge over and above the contract amount. The parties must agree upon any extra charges in writing.

5. **Independent Contractor Status:** The parties agree that Consultant is an independent contractor for purposes of this Agreement and is not to be considered an employee of the City for any purpose. Consultant is not subject to the terms and provisions of the City's personnel policies handbook and may not be considered a City employee for workers' compensation or any other purpose. Consultant is not authorized to represent the City or otherwise bind the City in any dealings between Consultant and any third parties.

Consultant shall comply with the applicable requirements of the Workers' Compensation Act, Title 39, Chapter 71, MCA, and the Occupational Disease Act of Montana, Title 39, Chapter 71, MCA. Consultant shall maintain workers' compensation coverage for all members and employees of Consultant's business, except for those members who are exempted by law.

Consultant shall furnish the City with copies showing one of the following: **(1)** a binder for workers' compensation coverage by an insurer licensed and authorized to provide workers'

compensation insurance in the State of Montana; or **(2)** proof of exemption from workers' compensation granted by law for independent contractors.

6. Indemnification: To the fullest extent permitted by law, Consultant shall fully indemnify, defend, and save City, its agents, representatives, employees, and officers harmless from and against any and all claims, actions, costs, fees, losses, liabilities or damages of whatever kind or nature arising from or related to Consultant's performance of this Agreement and Consultant's work on the Project or work of any subcontractor or supplier to Consultant.

7. Insurance: Consultant shall purchase and maintain insurance coverage as set forth below. The insurance policy must name the City, (including its elected or appointed officers, officials, employees, or volunteers), as an additional insured and be written on a "primary—noncontributory basis, and on an occurrence, not a claims made basis." Consultant will provide the City with applicable additional insured endorsement documentation substantially similar or identical to the example set forth below. Each coverage shall be obtained from an insurance company that is duly licensed and authorized to transact insurance business and write insurance within the state of Montana, with a minimum of "A.M. Best Rating" of A-, VI, as will protect the Consultant, the various acts of subcontractors, the City and its officers, employees, agents, and representatives from claims for bodily injury and/or property damage which may arise from operations and completed operations under this Agreement. All insurance coverage shall remain in effect throughout the life of this Agreement and for a minimum of one (1) year following the date of expiration of Consultant's warranties. All insurance policies must contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least thirty (30) days prior written notice has been given to Consultant, City, and all other additional insureds to whom a certificate of insurance has been issued. All insurance documentation shall be in a form acceptable to the City.

Insurance Coverage at least in the following amounts is required:

1.	Commercial General Liability (bodily injury and property damage)	$1,000,000 per occurrence $2,000,000 aggregate
2.	Products and Completed Operations	$2,000,000
3.	Automobile Liability	$1,000,000 combined single limit
4.	Workers' Compensation	Not less than statutory limits
5.	Employers' Liability	$1,000,000
6.	Professional Liability (E&O) (only if applicable)	$1,000,000 per occurrence $2,000,000 aggregate

Consultant may provide applicable excess or umbrella coverage to supplement Consultant's existing insurance coverage, if Consultant's existing policy limits do not satisfy the coverage requirements as set forth above.

Additional Insured Endorsement Example:

POLICY NUMBER

COMMERCIAL GENERAL LIABILITY
CG 20 26 07 04

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:

A. In the performance of your ongoing operations; or

B. In connection with your premises owned by or rented to you.

8. Professional Service: Consultant agrees that all services and work performed hereunder will be accomplished in a professional manner.

9. Compliance with Laws: Consultant agrees to comply with all federal, state and local laws, ordinances, rules and regulations, including the safety rules, codes, and provisions of the Montana Safety Act in Title 50, Chapter 71, MCA. As applicable, Consultant agrees to purchase a City safety inspection certificate or special business license.

10. Nondiscrimination: Consultant agrees that all hiring by Consultant of persons performing this Agreement will be on the basis of merit and qualification and will not

discriminate on the basis of race, color, religion, creed, political ideas, sex, age, marital status, physical or mental disability, national origin, or other class protected by state and/or federal law.

11. Default and Termination: If either party fails to comply with any condition of this Agreement at the time or in the manner provided for, the other party, at its option, may terminate this Agreement and be released from all obligations if the default is not cured within ten (10) days after written notice is provided to the defaulting party. Said notice shall set forth the items to be cured. Additionally, the non-defaulting party may bring suit for damages, specific performance, and any other remedy provided by law. These remedies are cumulative and not exclusive. Use of one remedy does not preclude use of the others. Notices shall be provided in writing and hand-delivered or mailed to the parties at the addresses set forth in the first paragraph of this Agreement.

12. Modification and Assignability: This document contains the entire agreement between the parties and no statements, promises or inducements made by either party or agents of either party, which are not contained in this written Agreement, may be considered valid or binding. This Agreement may not be enlarged, modified or altered except by written agreement signed by both parties hereto. The Consultant may not subcontract or assign Consultant's rights, including the right to compensation or duties arising hereunder, without the prior written consent of City. Any subcontractor or assignee will be bound by all of the terms and conditions of this Agreement.

13. Ownership and Publication of Materials: All reports, information, data, and other materials prepared by the Consultant pursuant to this Agreement are the property of the City. The City has the exclusive and unrestricted authority to release, publish or otherwise use, in whole or part, information relating thereto. Any re-use without written verification or adaptation by the Consultant for the specific purpose intended will be at the City's sole risk and without liability or legal exposure to the Consultant. No material produced in whole or in part under this Agreement may be copyrighted or patented in the United States or in any other country without the prior written approval of the City.

14. Liaison: City's designated liaison with Consultant is Courtney Lyerly and Consultant's designated liaison with City is Darrin Strosnider.

15. Applicability: This Agreement and any extensions hereof shall be governed and construed in accordance with the laws of the State of Montana.

16. Binding: This Agreement and all of the covenants hereof shall inure to the benefit and be binding upon the City of Great Falls and the Contractor respectively and their partners, successors, assigns and legal representatives. Neither the City nor the Contractor shall have the right to assign, transfer or sublet their interest or obligations hereunder without written consent of the other party.

17. **Amendments:** Any amendment or modification of this Agreement or any provisions herein shall be made in writing and executed in the same manner as this original document and shall after execution become a part of the Agreement.

IN WITNESS WHEREOF, Consultant and City have caused this Agreement to be executed and intend to be legally bound thereby as of the date set forth below.

CITY OF GREAT FALLS, MONTANA

By _____
Gregory T. Doyon, City Manager

Date _____

CONSULTANT

By _____

Print Name C. T. WAMBEKE

Title PRESIDENT

Date 9/22/16

ATTEST:

(Seal of the City)

_____
Lisa Kunz, City Clerk

* APPROVED AS TO FORM:

By _____
Sara R. Sexe, City Attorney

* By law, the City Attorney may only advise or approve contract or legal document language on behalf of the City of Great Falls, and not on behalf of other parties. Review and approval of this document was conducted solely from the legal perspective, and for the benefit, of the City of Great Falls. Other parties should not rely on this approval and should seek review and approval by their own respective counsel.

Exhibit "B"

INDUSTRIAL AUTOMATION CONSULTING, INC.

PROPOSAL
To
CITY OF GREAT FALLS – UTILITY PLANTS DIVISION
For
WTP FILTER BUILDING AND HILL 57 SCADA UPGRADES

Proposal Contents

123 Main St. – Suite 3 ♦ P.O. Box 870 ♦ Three Forks, MT 59752 ♦ Tel: 406.285.4627 ♦ Fax: 406-285-4628
www.iaconline.com

PART A – SCOPE OF WORK

IAC shall supply the deliverables defined in Part A, Sections A1 and A2, with the exception to the items listed in Section A3.

SECTION A0 – SCOPE OVERVIEW

Hardware Changes

GE 90-30 and GE VersaMax Micro PLCs are used at the water treatment, storage and pumping facilities comprising the Great Falls water supply and distribution infrastructure. The 90-30 PLCs are approaching obsolescence and over time, all City of Great Falls 90-30 PLCs will be systematically replaced with RX3i PACs, starting with the 90-30 PLCs at the Water Treatment Plant Filter Building and at Hill 57.

VersaMax Micro PLCs are a lower priority and will eventually be replaced with RX3i PACs or other more suitable GE controllers, when they begin to fail. The scope of this project involves only the 90-30 PLCs at the WTP and at Hill 57.

The 90-30 PLC at the Filter Building is a Modbus Master for communications with the 90-30 PLC at Hill 57. Hill 57 in turn uses Modbus for communications with RTUs at several water storage tanks and pump stations comprising much of the Great Falls water supply, storage and distribution infrastructure.

In addition to operating a pump station, the Hill 57 PLC exchanges and buffers RTU data from other remote sites so that the Filter Building PLC can access it efficiently. The Filter Building PLC does not communicate directly with the other outlying RTUs.

Software Changes

RX3i PACs reference program variables and I/O points using tag names instead of memory addresses. VersaMax and 90-30 PLCs reference data and I/O point using their memory addresses. This in turn requires that human machine interfaces (HMIs) and operator interface terminals (OITs) databases be converted to the new format. A significant part of the work done for this project will involve creating replacement databases for the RX3i PACs, HMIs, and OITs at the Filter Building and Hill 57.

The existing 90-30 PLC ladder logic programs will be converted to RX3i format. Program variables will be renamed using RX3i tagname syntax and some ladder instructions will be replaced to better utilize the advanced programming features native to the RX3i platform.

SECTION A1 – TECHNICAL SERVICES DELIVERABLES

1. Design Engineering

   a. IAC shall modify the design of the Filter Building (FB) and Hill 57 SCADA systems for the purpose of replacing the existing GE 90-30 PLCs used at those sites with current generation GE RX3i control equipment.
   b. The new design will re-use most of the 90-30 I/O modules at both locations. These modules are designed for use in I/O bases with a serial bus that are compatible with RX3i based control systems.
   c. Universal I/O bases for the RX3i platform have both a serial bus and a PCI bus, which facilitates reusing legacy 90-30 serial bus I/O alongside new RX3i specific I/O. Universal bases will replace the 90-30 base at Hill 57 and the first of the three bases in the Filter Building control panel. This is required because RX3i CPUs cannot be installed in 90-30 bases.
   d. The RX3i at the Filter Building will communicate with the two existing expansion bases using serial bus expansion cables that connect from one base to another in daisy-chain fashion.

2. RX3i PAC Programming and Configuration

   Programming the RX3i PACs at the Filter Building and at Hill 57 will generally involve the following work:

   a. Performing a "straight up" conversion of the existing ladder logic running in the 90-30 PLCs. The resulting code will be a near duplicate of the existing code. GE's conversion tools will be applied for this purpose.
   b. Repairing the converted code as required for logic that was not converted correctly
   c. Rewriting the scaling logic using instructions and programming techniques unique to the RX3i
   d. Rewriting flow totalizer code using instructions and programming techniques unique to the RX3i
   e. Configuring the serial port on CPU as a Modbus Master so that it can exchange data, statuses, alarms, setpoints, and other information with the 90-30 PLC at Hill 57. A separate serial communications module may be used for this purpose instead depending on the final design.
   f. Configuring the separate Ethernet communications port on the CPU for communications with the HMIs and data Historian in the Filter Building control room. A separate Ethernet communications module may be used for this purpose instead depending on the final design.
   g. Redefining the I/O tag database for the CPU. As a consequence of upgrading to the RX3i platform, I/O modules will for the most part be arranged in the same order as they are now. However, on the CPU base, slot numbering may change in a few instances.
   h. Assigning tag names to what were once 90-30 memory addresses and revising the PAC program accordingly.
   i. Revising or replacing PID loop logic with RX3i PID instructions and adding supporting code as required.
   j. Creating custom code and data structures for effective integration of the RX3i with the Wonderware HMI
   k. Optimizing the converted 90-30 logic to effectively utilize the RX3i's capabilities
   l. The Filter Building PLC will be upgraded and commissioned first, followed by the Hill 57 PLC. The order of the conversions is important but the RX3i at the filter building may be commissioned independently of Hill 57
   m. The Hill 57 PLC operates a pump station but also functions as a Modbus Master, exchanging data with several other RTUs that have either a 90-30 or a VersaMax PLCs.

n. Until Hill 57 is converted, communications with the Filter Building will remain unchanged and will function as it does now. Communications between Hill 57 and the RTUs remain the same as well.
o. When the Hill 57 90-30 PLC is upgraded to an RX3i, local 90-30 memory addresses used for the interface with the Filter Building will be mapped to RX3i tags.

3. Wonderware Intouch HMI and Historian Programming and Configuration

a. The Wonderware Intouch HMI application running on computers in the Filter Building should not require any graphic screen changes as a consequence of upgrading the Filter Building and Hill 57 90-30 PLCs to the RX3i platform.
b. Presently, the tag name dictionary for the HMI application references addresses in the Filter Building 90-30 PLC and associates them with tag names used by the HMI.
c. Upgrading to the RX3i will require remapping HMI tags to reference RX3i tags instead.
d. The filter building RX3i will re-use the existing tag names in the HMI tag name dictionary.
e. Wherever 90-30 PLC addresses are direct referenced (screens, scripts, etc.), the addresses will be changed to RX3i tags.
f. The data Historian will require some updating similar to what is required for the Intouch HMI application.

4. QuickPanel Jr. Operator Interface Terminal (OIT) Programming and Configuration

a. The control panel at Hill 57 has a door-mounted QuickPanel Jr OIT.
b. IAC shall determine if the OIT is compatible with the RX3i platform with respect to communications with the RX3i and referencing RX3i tags.
c. If a newer OIT is required, IAC shall procure the replacement, and either convert the existing OIT application to run on the new OIT, or develop a new replacement OIT application.

5. Startup and Commissioning

This project shall have two separate and independent startups; the first for the Filter Building 90-30 PLC upgrade, and another for the Hill 57 90-30 PLC upgrade. The startups shall be consecutive, not concurrent.

After the first startup, the RX3i PAC at Filter Building control system will exchange data with Hill 57 just as it does now, and changes to the Filter Building control system will be transparent to Hill 57.

IAC's budget for Startup and Commissioning is as follows:

Filter Building SCADA System Upgrade

a. Engineers On-Site: 2
b. Total Man-Days on Site: 8
c. Total Trips to Job Site: 1

Hill 57 SCADA System Upgrade

a. Engineers On-Site: 2
b. Total Man-Days on Site: 4
c. Total Trips to Job Site: 1 or 2

d. IAC's startup activities shall include I/O testing, communications testing, equipment testing, software testing, and performance acceptance testing

6. Training

a. The WTP UV Disinfection and Chemical Feed Improvements project (UV/Chem project) budget includes RX3i and Wonderware training for the Owner's SCADA Technician.
b. Because the WTP Filter Building and Hill 57 SCADA Upgrades project will occur first, IAC recommends that the Owner's SCADA technician is trained after this project is completed, instead of waiting for the UV/Chem project.
c. IAC does not recommend that any training is done while either project is in progress.

7. Documentation

IAC shall develop the following documentation for the modified control panels in the WTP Filter Building Control Room and at Hill 57.

a. Installation Drawings
b. As-Built Drawings
c. O&M Manual

The drawing packages shall include the following:

a. Control panel back plate layout
b. Bill of materials
c. Nameplate legend
d. Power distribution schematics
e. Terminal strip layouts
f. I/O module layouts
g. Detail drawings
h. Communications network architecture

8. Follow-Up

a. During the first year of operation commencing after startup and commissioning are completed, IAC shall supply remote support for the upgraded control systems.
b. Remote support shall be provided via telephone or the Internet.
c. The Owner shall enable remote access to the SCADA system by IAC as required for remote support purposes.
d. Ten man-hours were budgeted for remote support.

SECTION A2 – MATERIALS AND EQUIPMENT DELIVERABLES

Notes: Materials and quantities listed are preliminary and may change based on the final design. All items will require field installation and wiring by others. IAC shall provide the necessary installation drawings.

1. Hill 57 SCADA Upgrades

IAC shall supply the following items to upgrade the existing GE 90-30 PLC in the Hill 57 control panel to the RX3i platform. Items that will be re-used are noted. All existing I/O modules shall be reused.

CPU Base

a. 1 each RX3i CPU, with Ethernet, serial, and USB communications. *New, already procured by IAC*
b. 1 each RX3i 12-slot universal base, with serial and PCI bus. *New, already procured by IAC*
c. 1 each RX3i power supply, 40 watt capacity. *New, already procured by IAC*
d. 1 each RX3i two channel serial communications module. *New, already procured by IAC*
e. 1 each 90-30 four point differential current input module. *Existing, re-used*
f. 2 each 90-30 sixteen point 24 VDC/VAC discrete input module. *Existing, re-used*
g. 1 each 90-30 sixteen point 120 VAC Triac output module. *Existing, re-used*

2. Water Treatment Plant Filter Building SCADA Upgrades

IAC shall supply the following items to upgrade the existing GE 90-30 PLC in the Filter Building control panel to the RX3i platform. Items that will be re-used are noted.

CPU Base

a. 1 each RX3i CPU, with Ethernet, serial, and USB communications. *New*
b. 1 each RX3i 12-slot universal base, with serial and PCI bus. *New*
c. 1 each RX3i power supply, 40 watt capacity. *New*
d. 1 each RX3i Ethernet communications module. *New*
e. 1 each RX3i Bus expansion module. *New, already procured by IAC*
f. 1 each RX3i two channel serial communications module. *New*
g. 2 each 90-30 two point high speed counter modules. *Existing, re-used*
h. 3 each 90-30 eight point current/voltage analog output modules. *Existing, re-used*
i. 1 each 90-30 serial base connecting cable *Existing, re-used*

Expansion Base 1 (no new components required)

a. 1 each 90-30 10-slot serial I/O expansion base. *Existing, re-used*
b. 1 each 90-30 power supply expansion base power supply. *Existing, re-used*
c. 6 each 90-30 sixteen/eight point analog voltage input modules. *Existing, re-used*
d. 4 each 90-30 sixteen point analog current input modules. *Existing, re-used*
e. 1 each 90-30 serial base connecting cable *Existing, re-used*

Expansion Base 2 (no new components required)

a. 1 each 90-30 10-slot serial I/O expansion base. *Existing, re-used*
b. 1 each 90-30 power supply expansion base power supply. *Existing, re-used*
c. 7 each 90-30 sixteen point 120 VAC discrete input modules. *Existing, re-used*
d. 2 each 90-30 thirty-two point 12/24 VDC discrete output module. *Existing, re-used*
e. 1 each 90-30 thirty-two point 12/24 VDC discrete output module. *Existing, re-used*
f. 1 each 90-30 serial bus termination plug. *Existing, re-used*

2. Spare Parts

IAC recommends the following spare parts for the RX3i PACs. None of the items listed are in the scope of this proposal and are not project deliverables.

a. 1 each RX3i CPU, with Ethernet, serial, and USB communications.
b. 1 each RX3i power supply, 40 watt capacity.
c. 1 each RX3i Ethernet communications module.
d. 1 each RX3i two channel serial communications module.

SECTION A3 – EXCEPTIONS AND ASSUMPTIONS

1. User Manuals

In the interest of cost savings, the O&M manual shall not include a User manual for instructing operators how to configure and run the upgraded SCADA system. If the Owner should desire a User manual, IAC shall create the manual after startup and commissioning for this project are completed.

SECTION A4– GENERAL CONDITIONS

1. Only the equipment, materials, and services specifically identified in Sections A1 and A2 above are included in this Proposal.

2. All equipment and materials supplied by IAC shall be installed, field wired, and terminated by others.

3. The Installer of IAC supplied materials shall markup IAC's installation drawings, showing field wiring labels, power circuit origins and any modifications to the original design.

4. All modifications to existing electrical and mechanical systems are by others.

5. All demolition work, mechanical and electrical, is by others.

6. When equipment deliveries shipped by IAC are accepted at their destination, storage and protection of the equipment becomes the responsibility of others.

7. The Owner shall provide the services of a qualified electrician or technician to assist IAC during its startup activities.

PART B – COST OF DELIVERABLES

SECTION B1a – Technical Services Time Budget

Category	Budgeted Hours	Personnel	Budgeted Hourly Rates
Project Management	70	C. Wambeke	$180
Project Engineering	174	M. Jenko	$170
Drawing Development	60	D. Strosnider	$165
PLC Development	153	A. Wirth	$165
HMI Development	24	B. David	$145
Startup and Commission	96	D. Jones	$145
Administration	38	C. Hanson	$85
Remote Support	10		
Engineering Travel	42		

Total Estimated Labor Hours	667
Total Estimated Labor Cost	$99,768.25
Total Estimated Expenses	$2,815.00
Total Estimated Labor and Expenses Cost	**$102,583.25**

Notes: Expenses Include Travel Costs and Field Expenses.

SECTION B1b – Equipment and Materials Deliverables Budget

RX3i Materials for the Filter Building SCADA Upgrade	$0.00
RX3i Materials for the Hill 57 SCADA Upgrade	$6,709.95
Total Estimated Cost for Equipment and Materials	**$6,709.95**

Note: All Material and Third Party Services provided through IAC will be invoiced to the City at cost.

Total Estimated Cost for All Deliverables: **$109,293.20**

SECTION B2 – T&E INVOICING SCHEDULE

IAC shall issue T&E invoices for Sections B1a and B1b based on progress toward completion of the project. Invoices will be submitted monthly. Payment terms shall be "Net 30 Days".

SECTION B3 – EXECUTION SCHEDULE

IAC shall supply the deliverables according to the following milestones:

Milestone	Days From Contract*
Substantial Completion	TBD
Final Completion	TBD

* Calendar days from execution of contract with IAC