ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

ARCHITECTURAL & ENGINEERING PROFESSIONAL SERVICES
REQUEST FOR PROPOSAL AND STATEMENT OF QUALIFICATIONS

SPECIFICATIONS, TERMS & CONDITIONS
For

FRONT END ENGINEERING DESIGN (FEED) STUDY OF STORMWATER PUMP STATION SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

RFP/Q No. MAO20161045

MANDATORY PRE-PROPOSAL CONFERENCE
10:00 a.m. on Thursday, November 10, 2016

at

Alameda County Publics Works Agency
Maintenance & Operations
951 Turner Court
Hayward, CA 94545

For complete information regarding this project see RFP/Q posted at http://www.acgov.org/pwa/business/services.htm and http://acgov.org/gsa_app/gsa/purchasing/bid_content/contractopportunities.jsp; or contact the person listed below.

Thank you for your interest!

Contact Person:	Andrew Otsuka
Phone Number:	(510) 670-5618
Email Address:	andy@acpwa.org

RESPONSE DUE

by
4:00 p.m.
on
Thursday, December 1, 2016
at
Alameda County Flood Control and Water Conservation District
Attn: Andrew Otsuka
399 Elmhurst Street, Room 113
Hayward, CA 94544

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Architectural & Engineering Professional Services
Request for Proposal and Statement of Qualifications

Specifications, Terms & Conditions

For

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

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Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

I. ACRONYM AND TERM GLOSSARY

Unless otherwise noted, the terms below may be upper or lower case. Acronyms will always be uppercase.

A/E	Architecture(-al) and Engineer(-ing)
Agency	Alameda County Public Works Agency
Board	Shall refer to the Board of Supervisors of the Alameda County Flood Control and Water Conservation District
CRB	Shall refer to Consultant Review Board
Communications Protocol	A formal set of conventions governing the control of Inputs and Outputs between the two communicating processes.
Consultant	Shall mean specific firm(s) responding to this RFP
Contractor	When capitalized, shall refer to selected Proposer that is awarded a contract
County	When capitalized, shall refer to the County of Alameda
District	When capitalized, shall refer to the Alameda County Flood Control and Water Conservation District
Ethernet	A very high performance local area network standard providing the two lower levels of the ISO/OSI seven layer reference model, the physical layer and the data link layer.
Federal	Refers to United States Federal Government, its departments and/or agencies
FEED	Front End Engineering Design
GSA	General Services Agency – County of Alameda
HMI	Human-Machine Interface
I/O	Input/Output
IRS	Refers to Internal Revenue Service
Labor Code	Refers to California Labor Code
Network	An interconnected group of nodes, a series of devices, nodes or stations connected by communications channels.
Operating System	A program that controls the entire overall operation of the system hardware/software.
OSHA	Refers to California Occupational Safety and Health Administrations
PAC	Programmable Automation Controllers
PAS	Process Automation System
PLC	Programmable Logic Controller
Proposal	Shall mean proposer/contractor response to this RFP
Proposer	Shall mean specific person or firm responding to this RFP
PO	Shall refer to Purchase Order(s)
Qualifications	Shall mean Proposer's response to this RFP
Request for Proposal	Shall mean this document, which is the District's request for contractors'/proposers' proposal to provide the goods and/or services being solicited herein. Also referred herein as RFP
Response	Shall refer to proposer's proposal submitted in response to this RFP
RFP	Request for Proposal
RFQ	Request for Qualifications
RTU	Remote Terminal Units

SCADA	Supervisory Control and Data Acquisition
SF	Standard Form
SLEB	Small Local Emerging Business, also local and small/local and emerging
SOQ	Statement of Qualifications
State	Refers to State of California, its departments and/or agencies
TCP/IP	A protocol widely used across Ethernet networks for connecting computers and programmable controllers.

II.   STATEMENT OF WORK AND SCOPE OF SERVICES

A.   PROJECT DESCRIPTION AND OVERVIEW:

1.   Introduction.

The Alameda County Flood Control and Water Conservation District (District) is seeking proposals from firms (Consultants) to provide services to perform a front end engineering design study of the District's stormwater pump station Supervisory Control and Data Acquisition (SCADA) system and related hardware.

This Request for Proposal (RFP) generally describes the project, the anticipated scope of services, the requisite consultant experience and capabilities, and the information that must be included in the proposal. Failure to submit information in accordance with the RFP requirements and procedures may be cause for disqualification.

The written proposals will be evaluated on thoroughness, completeness and content as described under Section III.F. "Form of the Proposal" of this RFP. The District intends to create a short list of the top-four (4) ranked consultants who will be invited for an oral interview. It will be required that the Consultants make oral presentations of their proposals and answer a series of questions at the interviews.

Final ranking will be based on the aggregate scores of the written proposals, oral presentations, and interviews. The highest-ranked firm will be invited to enter into a Professional Services Agreement with the District. The draft Agreement is attached as Exhibit J. Please note the Professional Services Agreement provisions are Alameda County standard language and cannot be altered.

The District expects that the Consultant will use its experience and knowledge to make recommendations and refine the scope of work needed to satisfy District objectives for the project.

2.   Background.

The District operates twenty-four pump stations and two monitoring stations that will be included in this SCADA modernization project. The District's existing SCADA system was installed more than ten years ago. Due to the age of the system and continuing changes in technology the system has become obsolete

and unreliable. Further, some of the SCADA components and hardware are no longer readily available.

The District intends that the overall modernization project will be completed under two separate contracts. Generally, the first will include system audit/assessment and design, technical support services, and construction management; and the second will include hardware procurement, fabrication, construction and implementation. This request for proposals is for work to be done under the first of the two contracts.

Work under this first contract will include: completion of front end engineering design (FEED); an audit of the existing system; preparation of plans, specifications, and engineer's estimate of cost. The contract will also include tasks that will run concurrent with, and beyond the second construction contract. These tasks will include: construction management and inspection services overseeing the construction and implementation of the modernized SCADA system; providing programming and system integration services; providing SCADA system training for District staff; and providing long-term maintenance and operational support of the SCADA system.

The District currently utilizes Open VMS (licensed by HP to VMS Software) as the operating system and Miser Software as the data acquisition, SCADA, process automation and facility management system. The District, however, now desires a Consultant that has expertise in designing and deploying SCADA Applications on Microsoft Operating Systems.

The current communications system is functional, but as part of any contract awarded the communication system should be evaluated and if deficiencies are found, recommendations included for its modernization, upgrade, enhancement, or replacement.

The District wishes to avoid using proprietary hardware with the new installations. The consultant shall be capable of utilizing industry standard system components to meet the requirements of the desired new and modernized SCADA system.

Based on an evaluation of District facilities and discussions with maintenance staff, the Consultant shall recommend software, hardware, components and equipment upgrades as needed and prepare construction bid documents for the work to be performed.

B.   SCOPE OF SERVICES

It is the intent of these specifications, terms and conditions to describe the services to: 1) obtain FEED study and other detailed information and the generation of a set of documentation which will be used to design a new and modernized District SCADA system at District and Alameda County Public Works Agency (Agency) sites; 2) prepare plans, specifications, and estimate of cost for the new and modernized SCADA system; 3) provide construction management and inspection services during system construction

and implementation to ensure compliance with the approved plans; 4) install the system software and provide SCADA programming services; 5) effect the overall system commissioning; 6) prepare record drawings and final reports; 7) provide training to District personnel; and 8) provide post-construction long term maintenance and operational support services. Services under this contract will not include the procurement of parts or materials.

The process for the first component involves three distinct tasks: 1. on-site data gathering, 2. off-site document generation, and 3. an approval cycle for defined submittals. The data collection shall be accomplished in accordance with the agreed upon methods defined by the District and the Consultant. The generated documentation set will contain recommendations regarding specific control strategy for the scope of work with the listed equipment.

Guiding documentation to ensure minimum capabilities and specifications for the Process Automation System (PAS) and Programmable Automation Controllers (PAC) are provided under Exhibits N and O, respectively.

1.   General Tasks.

      a.   Project Management. This includes, but is not limited to, preparing project schedules, budgets, reports, coordinating with the District, and performing quality control by monitoring all project activities. Components may also include, but are not limited to:

            (1)   Project Meetings. Consultant shall schedule, attend and conduct meetings with District staff and others to discuss issues relevant to the project(s). Consultant shall prepare reports, maps, charts, etc. for use in meetings with the District, other governmental agencies and/or the public. Consultant shall record meeting minutes, including issues discussed and agreements made.

            Meetings may be scheduled for, but are not limited to:

                (a)   Project kick-off meeting.

                (b)   Site visit meeting(s).

                (c)   Needs analysis workshop(s).

                 (d)   Periodic project update meetings with District staff.

                (e)   Consultant team meetings, if there are subconsultants.

            (2)   Project Schedule. Prepare a Microsoft Project schedule at a sufficient level of detail to show a clear understanding of the precise work required to meet the project goals, objectives and delivery timeline.   The schedule shall show the

interdependencies among tasks and interim and final milestones for project completion.

      (3)   Project Files. Consultant shall assemble and maintain project files that include all documentation and data resulting from or related to Consultant's services for the projects, including but not limited to survey files, engineering computations, assumptions, working drawings, meeting minutes, all correspondence, digital image and video libraries, etc.

      (4)   Respond to requests for information.

  b.   Reports. Prepare project reports (hardcopy and digital formats, as may be appropriate), including the following:

      (1)   Field investigation reports, including all data collected during the reconnaissance process and all pictures and video.

      (2)   Monthly project status reports that are sufficiently detailed for District staff to determine if the Consultant is performing to expectations and is on schedule and on budget, and to communicate interim findings and convey discovery of any difficulties or special problems that need to be remedied.

      (3)   Technical memoranda, including analysis and evaluation for each facility and identified alternative improvements.

      (4)   Design recommendation report(s), including design alternatives analysis.

      (5)   Final report.

2.   Existing System Definition Phase – Site Audit.

Consultant shall make an independent assessment of the accuracy of the information provided by the District, as well as information obtained from other sources concerning existing conditions and conduct further investigations of existing conditions as necessary to perform the required tasks. Consultant shall rely on the results of their own independent investigations and not solely on information provided by the District. Gaps in the data shall be identified and documented for discussion with the District. The assessments and assumed accuracies shall be documented by the Consultant.

  a.   Determine System Size/Architecture. Perform facilities reconnaissance. Conduct pump station and control center visits to verify actual facilities conditions versus construction drawings and schematics, and to ascertain existing conditions including physical configuration of the facilities, etc., and photo document each of the pump stations. Confirm existing installation conditions and determine installation constraints.

      b.   Audit System Documentation (Schematics, Manuals). Assess existing data. Gather and evaluate all information, including existing as-built plans, specifications, databases, schematics, reports, operational history, etc. relevant to this project.

      c.   Audit Existing System Programs. Conduct in-depth analysis of the existing SCADA equipment, software, and programming scheme. Evaluate the information gained from the analysis and provide services as required to replace existing SCADA system.

      d.   I/O Count.

      e.   Define Processors.

      f.   Identify Control Cabinets.

      g.   Identify Remote/Field I/O Cabinets.

      h.   Locate and Document Networks.

      i.   Identify Operator Interfaces.

      j.   Audit Servers (HMI, Historian & Reporting).

      k.   Audit Third Party Interfaces (Skids, Scales, Lvl).

      l.   Deliverables. Deliver a report detailing the observations and findings of the audit of the system architecture, system documentation (schematics, manuals, etc.), and system program(s). This report shall also include recommendations for addressing identified deficiencies or issues.

3.   Front End Engineering Design (FEED) Phase.

      a.   User Requirements Workshop(s). In conjunction with District staff, conduct a Needs Analysis and document the desired goals and outcome of the project.

      b.   Develop Preliminary Replacement System Architecture.

      c.   Develop Preliminary Bills of Material.

          (1)   SCADA HMI

          (2)   SCADA Historical Data

          (3)   Controllers

          (4)   I/O

(5)   Networks

(6)   Telemetry

d.   Develop High Level Replacement Schedule.

e.   Develop preliminary installation cost.

f.   Create system Functional Requirement Specification (FRS).

g.   Develop fixed price cost of replacement by site/pump station.

h.   Develop system standards (Programming/HMI).

i.   Develop Cutover Strategy (Rip & Replace or Phased), detailed Installation Plan.

j.   Determine training requirements.

k.   Determine testing requirements (FAT/SAT).

l.   Determine documentation requirements.

m.   Determine post startup support requirements (engineer standby).

n.   Determine post system support requirements (annual support plan).

4.   Develop SCADA System Modernization Plan.

a.   The Consultant shall provide the following services:

(1)   Preparation of plans, specifications and estimate of cost (PS&E) to modernize the current SCADA system. The Consultant shall develop separate sets of detailed contract drawings, specifications, and engineer's estimate of cost for each of the District's and County's facilities to be upgraded.

(2)   The PS&E will be submitted to the District for review and comment at the following stages of the project: 30%, 65%, 95%, and final.

(a)   Contract Drawings. At each submittal milestone, submit 2 hardcopies, and high quality PDF files. Contract plan sheets shall be prepared in 22"x34" size. Bond copies of the final drawings shall contain wet signatures with the professional engineering stamp(s).

(b)   Specifications. Project specification sections will be prepared to conform with District's specification format (unless otherwise noted) and shall complement the contents of the general and special conditions used by District in the contract documents. Submit 2 hardcopies and electronic copies in MS WORD and PDF concurrently with the contract drawings at each submittal milestone.

(c)   Engineer's Estimate of Cost. Quantity and construction cost estimates shall be prepared and submitted at each submittal milestone. Each submittal shall include 2 hardcopies and electronic copies in MS EXCEL and PDF.

The estimate of cost shall reflect current bid prices based on similar projects and the design engineer's own judgment. Copies of previous bid results used for such estimating purposes shall be submitted along with the cost estimate.

All quantities shown for bid items used in construction contract documents and cost estimate must include easy to follow calculations demonstrating how the quantities were determined.

(3)   Develop and provide Operation and Maintenance (O&M) Manuals for key components.

(4)   Develop and provide System schematics.

(5)   Communication scheme and RF signal data.

(6)   Wiring diagrams of each Remote Terminal Unit (RTU) panel.

(7)   Electronic back-up and printed copies of all programs.

(8)   Operational instructions in electronic and printed format.

(9)   System cut-over strategy and plan. Because this is an active working system, all upgrades will need to be completed in a systematic and timely fashion that will not interrupt the daily operations of the system. The existing SCADA system and telemetry controls shall remain intact and functioning until the new SCADA system is completely installed, tested and operational. Proposals shall include clear and concise descriptions for providing materials and labor required to install a workable SCADA system.

The estimate of cost shall allow for and include all costs to ensure the system is functional at all times during the upgrade. The

District recognizes that the pump stations will be down for limited time during the transition but all stations shall be operational prior to conclusion of each day's activity.

(10)   The Consultant shall be responsible for the entire SCADA system's ability to communicate from station to station as required for satisfactory monitoring and operation of the overall system. The current communications system is functional, but as part of any contract awarded the communication system should be evaluated and recommendations included for its upgrade, enhancement, or replacement.

(11)   Identification and procurement of required licenses:

(a)   Determine if new transmission frequencies or power requirements are necessary for the District's upgraded SCADA system. If necessary, procure additional licenses, acting as an agent of the District, required by the Federal Communications Commission (FCC) for the new transmission frequency of power rating. Turn over such licenses to the District at the completion of the project.

(b)   Conduct interviews with District staff and State Building Codes agency to determine relevant permitting requirements for this work.

(c)   Research and determine the need to procure new or additional licenses for new software purchased for the installation on District owned computers or the existing software currently installed. Secure such licenses in the District's name and turn over such licenses to the District at the completion of the project.

(12)   Programming. Include and allow for all programming as required for a complete and functioning system.   Programming shall address all items for functionality and performance including but not limited to:

(a)   Data integrity.

(b)   Performance of system within operational parameters.

(c)   Versatility of parameter and operator selectable adjustments.

(d)   User interface modifications for ease of use and logical expression of system schematics. The District desires a graphical interface with real time data acquisition.

(13) Future Requirements and Considerations.

(a) The proposed SCADA system shall have the capability to accommodate additional sites not currently listed in this RFP without loss of investment in equipment to be installed under this project.

(14) Provide training for all appropriate District personnel for operation, maintenance, and troubleshooting of all project related elements. Provide a brief outline of the training program for District staff you would consider essential to enable them to operate the new SCADA system. Assume that District staff has no SCADA experience and no programming experience.

(15) Provide an outline for a manual covering the proposed SCADA system maintenance requirements.

5. Requirements for Final System Design.

   a. General System Capabilities   This section provides a general high level overview of the requirements for the final system capabilities.

   (1) Refer to Exhibit N for minimum design requirements for Process Automation System capabilities and specifications.

   (2) Refer to Exhibit O for minimum design requirements for Programmable Automation Controllers capabilities and specifications.

   (3) Proposals must be based on systems compliant with IEC 61131-3 specification for programmable controllers.

   (4) The system must have system manufacturer issued development guideline documentation that may be used for configuration and development qualification.

   (5) The system shall be composed of the following system elements offered by a **single** manufacturer:

      (a) Process Automation System Server (HMI, Data Server, Alarm Server, System Directory).

      (b) Engineering Work Stations.

      (c) Operator Workstations.

      (d) Controllers and I/O.

(e)   Variable Frequency Drives, Soft Starters and Electronic Overloads with EtherNet/IP Integration.

(f)   Ethernet Switches.

(6)   Major system revisions must release by a single manufacturer of the system elements listed above.

(7)   Proposals must be based on a manufacturer's standard **system** offering with characterized performance, that is, stated performance of system responses by manufacturer.

(8)   The system shall be capable of managing system security, including user and groups from a common location.

(9)   The system shall be based on hardware and software whose compatibility is managed by the manufacturer, and has public web sites to confirm compatibility of hardware and software revisions.

(10)   All Highway Addressable Remote Transducer (HART) I/O must be standard product, supplied and warranted by the systems supplier. (Present and future support must be identical to all other system components.)

b.   Modular Object Library.

(1)   The manufacturer shall provide a process library for both function blocks and their corresponding display elements Operator faceplates, compliant to ISA standards.

(2)   The system shall include modular, configurable process objects developed by the manufacturer (controller functions and HMI templates) for operator control, maintenance and engineering functions. All process objects must have manufacturer supplied documentation and supported by the manufacturer's standard technical support service.

(3)   The system shall include configurable process objects developed by the manufacturer (controller functions and HMI templates) for standard procedural control, such as sequence control. All process objects must have manufacturer supplied documentation and supported by the manufacturer's standard technical support service.

(4)   The system shall have pre-engineered device objects from the manufacturer displaying Ethernet network switch status and diagnostics.

(5)   The system shall have pre-engineered device objects from the manufacturer displaying system controller status, HMI server status, Variable Frequency Drives control and status, soft starter control and status, and electronic overload control and status.

(6)   The system shall have pre-engineered device objects from the manufacturer for integrated motor control with the capability to display motor control inhibits, faults, status information and preventative maintenance diagnostic information. Integrated motor control profiles must be available as a standard feature in the controller development environment.

c.   Alarming Capabilities.

(1)   The Process Automation System shall allow users to set up a complete alarm system.

(2)   The alarm system shall have the ability to monitor any analog or digital tag for alarms. The alarm system database must allow up to 10,000 analog or digital alarm tags per PAS server.

(3)   The alarm system shall provide a means of displaying up to 2,000 tags that are in alarm per PAS server. This alarm summary display shall be fully configurable.

(4)   In the alarm summary display, a user can acknowledge an alarm. The alarm will then appear as acknowledged to all OWSs in the application.

(5)   Custom alarm summary objects shall be able to be embedded on any display.

(6)   The alarm system shall allow online export of an alarm log file to ODBC format databases.

(7)   The alarm system shall allow the operator to write a custom message to the alarm history.

(8)   Alarms can either be polled or sent by exception from the controller.

(9)   The alarming will support ISA 18.2 alarm management state model.

d.   High Availability Capabilities.

(1)   The system shall be capable of controller redundancy.

        (a)   System processors shall be fully redundant and include automatic switchover to the backup controller. The user must be able to switch active controllers manually at any time.

        (2)   The system shall be capable of HMI and data server redundancy.

        (3)   The system shall be capable of integrating redundant I/O.

        (4)   The system shall be capable of resilient device level ring networks.

e.   Integrated Motor Control Capabilities.

        (1)   The system shall be capable of integrated motor control supplied by the same vendor as the SCADA system.

        (2)   The system shall be capable of Automatic configuration of Variable Frequency Drives, Soft Starters and Electronic Overloads parameters and Ethernet addresses in the event of Variable Frequency Drives, Soft Starters and Electronic Overload replacements.

        (3)   The manufacturer of the control system must supply device faceplates and controller profiles for control of Variable Frequency Drives, Soft Starters and Electronic Overloads as well as display faults and device diagnostics.

        (4)   Variable Frequency Drives, Soft Starters and Electronic Overloads shall be Ethernet/IP capable.

f.   Virtualization Capabilities.

        (1)   System shall have been tested and Contractor statement issued on VMWare compatibility.

g.   Historical Data Capabilities.

        (1)   The system shall be capable of adding a historical data collection, based upon industry leading OSIpi database, and be capable of browsing for system tags with a wizard, including filter of tags.

        (2)   Data collection nodes will feed the PI historian and be redundant.

        (3)   The system shall be capable of embedding historian trends and analytic tools into the HMI.

        (4)   The system shall be capable of exporting historical process data to EXCEL for Ad Hoc reporting with the use of EXCEL Add Ins.

h.   Process Networks Capabilities.

(1)   The system shall be capable of integrating instruments for parameter configuration, status and diagnostics through **all** of the following protocols.

(a)   EtherNet/IP (preference)

(b)   HART (preference)

(c)   Profibus PA

(d)   Foundation Fieldbus

(e)   MODBUS

(2)   All bus interface cards must be standard product, supplied and warranted by the systems supplier. (Present and future support must be identical to all other system components.)

i.   Asset Management Capabilities.

(1)   The system shall be capable of source revision control. The system shall be capable of providing revision control, with security profiles to limit access to electronic assets and feature access within development environments.

(a)   Check-Out: Writes the selected file or folder to a local working folder with read-write access and locks the selection to prevent multiple-user editing.

(b)   Check-In: Reads the local working folder and updates the source control repository, creating new versions as needed.

(c)   Get: Writes the selected file or folder to the local working folder with read-only access. Note: A Get can retrieve the latest or any historical version that is in the archive.

(d)   Undo Check-Out: Returns the selection to an unchecked out state and unlocks the selections.

(2)   The system shall be capable of system record audit trail.

(a)   Audits - Any changes on records such as:

(i)   Data value changes (timers, tags, instructors, etc.)

        (ii)   Create, delete or changing of rungs.

        (iii)   Create, delete or changing of tags.

        (iv)   User log-in/out.

(3)   The system shall be capable of system event tracking through system logs.

      (a)   Logging of events based on time and function.

(4)   Reporting – Reporting of events or audits with scheduler:

      (a)   Weekly programming change reports for any controller.

      (b)   Daily operator inputs from terminals.

      (c)   Change history report for any electronic file.

(5)   Disaster Recovery.

      (a)   Provides control system backup that is integrated with source control to provide reliable and easy access to the latest control system configuration files.

(6)   Calibration Management.

      (a)   Manages calibration records and files associated with the field instruments.

(7)   Process Device Configuration.

      (a)   Ability to configure field instrumentation from the engineering workstation.

j.   Advanced Process Control (APC) Capabilities.

(1)   The system shall be capable of multivariable process control (MPC) within the controller layer.

(2)   The system shall be capable of MPC at the application layer, offered by the same manufacturer as the control system.

k.   Third Party Software Integration.

(1)   The system shall be capable of sharing real time data access (SCADA operations and historical information) for application interoperability through standard industrial telecommunications standards and specifications.

(2) The system shall be capable of application interoperability through OPC or OpenO&M. The purpose of this is to enable the District and Agency to gain access for advanced and predictive modeling applications such as, but not limited to process simulation, live system optimization, predictive maintenance and pump station performance.

(a) In particular, the system shall be able to interface with MAINTSTAR, the District's asset management system. The interface must support two-way communications.

(3) The District will establish the guidelines for data archiving, formatting, frequency and information stored through system (i.e. Historian) computers with ability to access the recovered operating information anytime independent of the SCADA system.

(4) The District will work with Contractor to configure and customize data exchange from historical data application server.

l. Reference Specifications, Codes, and Standards.

(1) To be determined during initial workshops. Relevant standards and/or codes are to be recommended in the submitted documentation set.

6. Services to be Provided In Conjunction with Project Construction and Implementation.

a. Services In Support of Contractor Procurement for Construction and Implementation of the Project.

(1) Attend the pre-bid conference(s) scheduled by the District. Assist the District in responding to technical questions related to the new SCADA system Plans and Specifications.

(2) Prepare addendum drawings and materials as required to clarify the scope of work.

b. Construction Management Services.

(1) Provide construction management services, including resident engineering and inspection. The District's Construction Inspection Unit will provide staff for office administration.

(2) Prepare for and conduct the pre-construction meeting(s).

(3) Set up and maintain the project schedule(s).

(4)   Review and respond to shop drawing submittals.

(5)   Prepare written responses to written Requests for Information (RFIs) from the District and Construction Contractor.

(6)   Construction Inspection Services. Provide daily inspection of work and materials to ensure general compliance with the plans, specifications, and other contract documents. Prepare daily inspection reports documenting observed construction activities. Take progress photographs and label and bind them. Review field reports and make recommendations to accept, retest or reject. Provide written reports to the District.

(7)   Recommend and assist in the preparation of necessary change orders, with supporting documentation, calculations, and opinion of probable construction cost for review and approval.

(8)   Review and recommend payment for monthly progress of construction, including submittal of appropriate Certificates of Release, labor compliance, and monthly reporting. Recommend project acceptance for recording and retention release purposes.

(9)   Conduct site meetings as deemed necessary at appropriate intervals during construction. Meetings to include representatives of the construction contractor and the District.

(10)   Prepare and submit to District monthly progress reports.

(11)   Attend the final inspection "walk-through" and prepare the final punch list.

(12)   Conduct a project commissioning of all the operating systems, mechanical, plumbing, electronics, etc., and a staff orientation for the completed project.

(13)   Review and forward to the District four (4) copies of final Operations and Maintenance Manuals to be furnished by the Construction Contractor.

(14)   Prepare record drawings from information provided by the Construction Contractor for significant changes during construction. Submit to District in both electronic and hardcopy formats.

c.   SCADA Programming Services.

(1)   Configure the wireless communications infrastructure.

(2)   Program all new (MTU and RTU) PLCs.

(3)   Configure new screens and integrate into the existing SCADA system.

(4)   Configure and test any site security systems.

(5)   Perform CEET (Complete-End-To-End Testing) with the Construction Contractor.

(6)   Commission and Startup the new SCADA system additions for each of the District and County facilities.

(7)   If necessary, assist in all claims against the District arising from the construction.

7.   Deliverables/Reports.

Project documentation will be submitted to the District in hardcopy and electronic form, and as may be applicable, submittals shall be made at the 30%, 65%, and 95% levels of completion for review and comment following the project schedule agreed to by the Consultant and District. The Consultant will then issue the final submittals within five business days upon receipt of final comments.

a.   Submit to the District all project reports, including:

(1)   Field investigation reports.

(2)   Monthly project status reports.

(3)   Technical Memoranda.

(4)   Design recommendation reports.

(5)   Final report.

b.   Submit to the District documentation related to project specifications, requirements, and estimation:

(1)   Functional Requirements Specification containing:

(a)   Preliminary System Architecture.

(b)   Preliminary Bill of Materials.

(2)   System Standards Document for software Design.

(3)   Commercial Estimation.

(a)   Conceptual Schedule of Implementation.

(b) Recommendation of migration strategy.

(i) Rip-replace.

(ii) Phased Migration.

(c) Services Estimation.

(i) Price estimation for system design.

(ii) Start-up and Commissioning estimation.

(a) Hourly estimation.

(b) T/E rate schedule by roles or titles.

(d) Price estimation by either:

(i) Lump sum of total scope of work.

(ii) Price by unit/phase per the recommendation.

(e) Training Requirements.

(f) Testing Requirements.

(i) Software Factory Acceptance Testing (SWFAT) Expectations.

(ii) Hardware Factory Acceptance Testing (HWFAT) Expectations.

(iii) Site Acceptance Testing.

(g) System Support Requirements.

(i) Services.

(ii) Annual Support Plan Offerings.

c. Deliver the SCADA modernization construction documents, including the plans, specifications, and estimate of cost to the District. These deliverables shall be organized so that they are fully accessible and usable by the District.

C.   CONSULTANT EXPERIENCE AND CAPABILITIES

1.   Consultants proposing on this contract, including all key personnel assigned to the project shall be regularly and continuously engaged in the business of providing SCADA design and implementation for at least four (4) years.

2.   Consultant shall be proficient in designing and deploying SCADA Applications on Microsoft Operating Systems.

3.   Consultant shall possess all permits, licenses and professional credentials necessary to supply product and perform services as specified under this RFP.

4.   Front End Engineering Design Consultant Qualifications.

a.   Proposals for Front End Engineering Design (FEED) shall be solicited from consultants who have capabilities to supply system design **and** development engineering **and** are manufacturers of a control systems. The District desires a single source SCADA system that can be provided by a single consultant that has the best knowledge of its own products. Control system technologies branded from a single manufacturer shall include, but are not limited to:

(1)   Process Automation System Server (HMI, Data Server, Alarm Server, System Directory).

(2)   Engineering Work Station Software.

(3)   Operator Workstation Software.

(4)   Local Electronic Operator Interface Terminals.

(5)   Controllers and I/O.

(6)   Variable Frequency Drives (VFD), Soft starters and Electronic Overloads with EtherNet/IP Integration.

(7)   Ethernet Switches.

b.   Consultants must be able to prove system deployment proficiency of a system offered by a **single** manufacturer, either through manufacturer training completion or system deployment experience.

c.   Proposals must contain at least 80% of FEED activities from the manufacturer of the control system.

d.   Proposals must be from Consultants who have sales, distribution, and pre-sales technical consultant offices located within 1-2 hours travel time of the District's Turner Court location (951 Turner Court, Hayward CA 94545).

e.   Consultants must have a field service engineer able to provide on-site support within 1-2 hours.

f.   Consultants must also be capable of defining and offering standard support services for any element of the system or the entire system including, but not limited to:

(1)   24/7/365 manned remote telephone support.

(2)   If manned remote Support Center is unable to resolve the problem remotely then the consultant shall be required to provide on-site support by a trained and certified technician/engineer within 1-2 hours from the time of dispatch.

(3)   24/7/365 remote access support.

(4)   24/7/365 system parts supply access.

(5)   Capable of offering support with guaranteed response times.

(6)   Current software releases and reactivation codes shall be available for download from the internet 24/7 at no cost to the District. Upon request, overnight shipment of update(s) or replacement media shall be available.

(7)   Product manuals and knowledge base shall be available on the internet at no cost to the District.

(8)   Extended parts and labor warranty for repair labor (including local travel) and replacement parts for system control equipment, Soft Starters, Electronic Overloads and VFDs for up to five additional years.

(9)   Preventive maintenance services to perform regular maintenance on system related equipment to prevent potential problems and extend component/system life.

(10)   Authorized local distributors for parts and warranty and/or maintenance, repair and operations (MRO) asset management programs.

(11)   Manufacturer developed training for the system or any of its major system elements.

(12)   Manufacturer field service engineer able to provide on-site support within 1-2 hours.

(13)   Manufacturer recognized system integrator, listed within the public domain, of no less than five (5) independent service providers each able to provide on-site support within 1-2 hours.

5.   Support Qualifications.

    a.   Proposals shall be based upon a system that may be supported by Systems Integrators, recognized by the manufacturer of the system.

    b.   System Integrators capable of supporting the system shall be no less than five (5) independent services providers each able to provide on-site support within 1-2 hours.

    c.   The system shall have an authorized distributor located within 1-2 hours of the District's Turner Court location.

    d.   The system must have a field services engineering office located within 1-2 hours travel time of the District's Turner Court location.

6.   Construction Management Qualifications.

    a.   The construction manager is expected to have at least ten years of experience in the management of SCADA implementation projects and possess demonstrable comprehensive knowledge of construction methods, procedures, practices, plans and quality assurance and quality control methods. The construction manager shall also have the skills and ability to communicate effectively both orally and in writing, supervise and manage multiple work groups, apply project scheduling principles for concurrent construction at multiple sites, conduct constructability reviews, resolve disputes in a timely manner, possess practical knowledge in the use of contract management software and the ability to prepare technical, administrative, and explanatory correspondence.

    b.   The construction inspector(s) is expected to have at least ten years of experience, including demonstrable knowledge of construction methods, materials, standards, as relates to SCADA implementation, as well as pertinent state and federal guidelines and regulations. The inspector(s) shall also have the knowledge and ability to read and interpret SCADA system plans and specifications, apply engineering principles to determine minor adjustments to construction drawings, maintain detailed records, and communicate with the District and construction contractor personnel.

D.   CONDUCT OF THE WORK

This assignment is intended to be a cooperative effort between the District and Consultant staff. The Consultant is expected to provide all the necessary technical resources and skills, support services, and the related project management of these

resources. Consultant is required to provide a management plan as described under Section III.F.2.a).

The consultant is responsible for taking all necessary safety precautions in the performance of its services and shall prepare a comprehensive, written, Consultant's Safety and Security Plan.

Due to the necessity to enter active storm drain facilities to fulfill this contract, the Consultant must be trained and hold appropriate permits for confined space work.

The Consultant must provide site specific traffic control plans (for work that affects traffic) in accordance with the most currently adopted California Manual on Uniform Traffic Control Devices, and all necessary permits. Traffic control plans shall bear the signature and seal of an Engineer registered in the State of California. Plans shall be submitted to the appropriate jurisdictional agency for review, approval and permit issuance.

District staff will provide the overall project management and administrative direction.

E.   TIME OF SERVICES/PROJECT SCHEDULE

The District intends to enter into a contract with the Consultant for a maximum period of three years with the District option to extend the contract for an additional year. It is anticipated that the Consultant contract will be approved by the Alameda County Flood Control and Water Conservation District Board of Supervisors before the end of January 2017.

F.   OTHER COUNTY REQUIREMENTS

1.   Local Participation: Note that it is a requirement for award that all contracts such as this one include local (defined as Alameda County based) businesses to the maximum extent possible consistent with the nature of the services to be provided. The County Small Local and Emerging Business (SLEB) Program requires that to be awarded this contract the lead firm must be a SLEB or, if the lead firm is not a SLEB, the lead firm must partner with SLEBs to the maximum extent reasonable and possible, with a minimum of 20% SLEB participation required. Please note detailed provisions in COUNTY PROVISIONS SECTION of this RFP/SOQ.

2.   Environmentally Friendly Packaging: Alameda County is an environmentally responsible employer and seeks all practical opportunities for waste reduction and recycling. The County, therefore, encourages its contractors to reduce waste volume and toxicity by using environmentally friendly packaging material whenever possible. Options may include backhauling product packaging to the supplier for reuse or recycling, shipping in bulk or reduced packaging, using soy bean-based inks for packaging printing, using recycled product packaging or using recyclable or reusable packaging material. The County encourages all bidders and contractors for goods and services to adhere to these principles where practicable.

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

III.   **INSTRUCTIONS TO PROPOSERS**

   A.   DISTRICT CONTACTS

The evaluation phase of the RFP/SOQ process shall begin upon receipt of sealed proposals until a contract has been awarded. Proposers shall not contact or lobby evaluators during the evaluation process. Attempts by Proposer to contact evaluators may result in disqualification of proposer.

All questions regarding these specifications, terms and conditions are to be submitted via e-mail by November 15, 2016 to:

   Andrew Otsuka
   Associate Civil Engineer
   Alameda County Flood Control and Water Conservation District
   E-Mail: andy@acpwa.org

The District "Current List of RFQs/RFPs" website will be the official notification posting place of all Request for Proposals and Addenda. Go to http://acgov.org/pwa/business/services.htm and http://acgov.org/gsa_app/gsa/purchasing/bid_content/contractopportunities.jsp to view current contracting opportunities.

   B.   CALENDAR OF EVENTS

Event	Date/Location
RFP Issued	October 27, 2016
Mandatory Pre-Proposal Conference	Thursday, November 10, 2016 10:00 a.m. *LOCATION:* Alameda County Public Works Agency Maintenance & Operations 951 Turner Ct, Room 230 Hayward, CA 94545
Written Questions Due	*BY* 5:00 p.m. on November 15, 2016
Addendum Issued	November 17, 2016
Response Due	December 1, 2016 **NO LATER THAN** 4:00 p.m. At Room 113 399 Elmhurst Street Hayward, CA
Evaluation Period	December 2 to December 16, 2016
Oral Presentation/ Interviews	Week of January 2, 2017
Final Ranking/Notice of Intent to Award/Non-Award	Week of January 9, 2017
Contract Negotiation with Top Ranked Firm(s)	Week of January 16, 2017
Board Letter Issued	January 31, 2017
Board Award Date	February 28, 2017
Contract Start Date	Approximately March 1, 2017

Note: Award and start dates are approximate.

It is the responsibility of each proposer to be familiar with all of the specifications, terms and conditions of this RFP. By the submission of a Proposal, Proposer certifies that if awarded a contract they will make no claim against the County based upon ignorance of conditions or misunderstanding of the specifications.

C.   PRE-PROPOSAL CONFERENCE AND SITE VISITS (**Mandatory**)

NOTE: Firms wishing to participate **must attend** the pre-proposal conference and pump station site visits. The site visits will include up to four representative pump stations, as well as the control center. The pre-proposal conference and pump station site visits will be held to:

1.   Provide an opportunity for small and local and emerging businesses (SLEBs) and large firms to network and develop partnering relationships in order to participate in the contract(s) that may result from this RFP.

2.   Provide an opportunity for proposers to ask specific questions about the project and request RFP clarification.

3.   Provide proposers an opportunity to receive documents, etc. necessary to respond to this RFP.

4.   Provide the District with an opportunity to receive feedback regarding the project and RFP.

5.   Provide opportunity to view in-person a representative sampling of the facilities requiring the upgrades.

Written questions submitted prior to the pre-proposal conference, in accordance with the Calendar of Events, and verbal questions received at the pre-proposal conference, will be addressed whenever possible at the pre-proposal conference. All questions will be addressed and the list of attendees will be included in an RFP Addendum following the pre-proposal conference in accordance with the Calendar of Events.

Pre-proposal conference will be held as shown on Calendar of Events section above.

Parking is limited at the pump station sites, so carpooling of teams is recommended.

D.   SUBMITTAL OF PROPOSALS

1.   All proposals must be SEALED and must be received by the Alameda County Flood Control and Water Conservation District receptionist **BEFORE** 4:00 p.m. at the location and on the due date specified in the Calendar of Events.

NOTE: Late and/or unsealed proposals cannot be accepted. If hand delivering proposals, please allow time for metered public parking or sparse street parking.

Proposals will be received only at the address shown below, and by the time indicated in the Calendar of Events. Any proposal received after said time and/or date or at a place other than the stated address cannot be considered and will be returned to the Proposer unopened**.**

All proposals, whether delivered by an employee of Proposer, U.S. Postal Service, courier or package delivery service, must be received and time stamped at the stated address prior to the time designated. The District's Office Services timestamp shall be considered the official timepiece for the purpose of establishing the actual receipt of proposals.

2. Proposals are to be addressed and delivered as follows:

> **Front End Engineering Design Study of Stormwater Pump Station SCADA System**
> RFP/Q No. FLO20151224
> Alameda County Flood Control and Water Conservation District
> 399 Elmhurst Street, Room 113
> Hayward, CA 94544
> Attn.: Andrew Otsuka

3. Proposer's name and return address must also appear on the mailing package.

4. No telegraphic, e-mail or facsimile proposals will be considered.

5. By submission of its proposal Proposer agrees and acknowledges all RFP specifications, terms and conditions and indicates ability to perform.

6. All costs required for the preparation and submission of a proposal shall be borne by Proposer.

7. Only one proposal response will be accepted from any one person, partnership, corporation, or other entity.

8. It is the responsibility of the Proposers to clearly identify information in their proposal responses that they consider to be confidential under the California Public Records Act. See: http://www.acgov.org/gsa/departments/purchasing/policy/proprietary.htm .

E. RESPONSE FORMAT

1. Proposal responses are to be straightforward, clear, concise and specific to the information requested. Submit in 8-1/2 x 11 format one (1) original plus four (4) copies of the proposal, plus a copy shall be submitted on read-only CD or USB flash drive in "PDF" format. Original proposal is to be clearly marked, printed on plain white paper and must be either loose leaf or in a 3-ring binder (NOT bound). It is preferred that all proposals submitted shall be printed double-sided and on minimum 30% post-consumer recycled content paper. Inability to comply with this recommendation will have no impact on the evaluation and scoring of the proposal. Submittals shall contain only material directly related to response to

requirements, not general marketing material. Organize your information under *tabs* in the same order delineated below under "Form of the Proposal."

2. In order for proposals to be considered complete**,** proposer must provide all information requested.

F. FORM OF THE PROPOSAL

Proposal responses must be signed in ink. The signatures of all persons required under the applicable organizational documents in order to bind the Proposer must be on the proposal response. Provide applicable signature documentation pursuant to Contractor's organizational structure verifying the authority of the person signing the proposal response to commit its Proposal on behalf of the Contractor.

Proposal content and completeness are important and, although proposal length is not limited, the District appreciates brevity. Clarity and conciseness are essential and will be considered in assessing the proposer's capabilities.

In order to simplify the process and to obtain the maximum degree of comparability, the proposal should be organized in the following manner:

1. Transmittal letter.

2. Proposal response shall include the following information:

    a. Title Page.

        Show the RFP subject, the RFP number, the name of the proposer's firm, address, telephone number, name of the contact person and their email address, and the date.

    b. Table of Contents.

        Include a clear identification of the material by section and page number.

    c. Narrative.

        The Consultant shall provide a narrative (maximum of two pages) outlining the reasons why your firm should be selected to provide the requested services.

    d. Organization and Approach.

        (1) Describe the roles and organization of your proposed team for this project. Indicate the composition and number of project staff, facilities available and experience of your firm/team as it relates to this project.

(2)   Describe your project and management approach. Provide a detailed description of how the team, including all consultants will be managed and the scope of work provided by each firm to respond to the phases described above.

(3)   Describe your approach to compliance with the County's SLEB/Outreach Program, with particular reference to any mentoring or capacity developing strategies represented by partnering with local Alameda County firms. The District supports Alameda County's efforts to contract with small local emerging businesses (SLEBs). If Consultant is not a certified small local emerging business (SLEB), Consultant will be required to partner, joint venture or subcontract a minimum of 20% of the estimated contract award to a SLEB firm in order to be eligible for the contract award.

(4)   Describe the roles of key individuals on the team, including roles of individuals in each consultant firm.

(a)   Provide resumes, references, and information on credentials held for all key team members. Resumes shall show relevant experience, for the Project's Scope of Work, as well as the length of employment with the proposing firm.

(b)   Key members, especially the Project Manager, shall have significant demonstrated experience with this type of project, and should be committed to stay with the project for the duration of the project.

(c)   Identify the licensed master electrician that will be assigned or sub-contracted to perform on this project and include information on their credentials.

(5)   Describe how your team will work with District staff and identify what information and time will be required from them for this project. Indicate where the Project Managers for each firm on the team will be physically located.

e.   Scope of Services.

(1)   Include a detailed Scope of Services statement describing all services to be provided.

(2)   Describe Project Deliverables for each phase of your work.

(3)   Describe your Cost Control and Budgeting Methodology for this project.

f.   Schedule of Work.

Provide a detailed Schedule, including major milestones, for all phases of the project and Proposer's services including time for reviews and approvals.

g.   Safety and Security Plan.

Provide a comprehensive Safety and Security Plan that can be tailored to specific jobsites. The plan shall include, but not be limited to the following:

(1)   Employee jobsite safety and security orientation; including any subcontractor employees. Employee participation in the safety and security orientation shall be acknowledged by their respective individual signatures affixed to an orientation sign-in sheet.

(2)   Measures to protect Contractor's employees and other persons from injury, prevent material damages, and avoid financial losses.

(3)   Procedures and measures to protect Contractors' equipment, tools, materials, etc. from theft and vandalism.

(4)   Provisions to allow entry only to authorized persons with proper credentials to restrict entry of unauthorized personnel and vehicles onto the project work sites.

(5)   Measures addressing: fall prevention, respiratory protection, confined space entry, fire protection, hazardous materials identification and handling, etc.

h.   Litigation.

Indicate if your firm was involved with any litigation in connection with your prior projects. If yes, briefly describe the nature of the litigation and the result.

i.   Hourly Rate Schedule.

REQUIRED ONLY IF SELECTED FOR ORAL PRESENTATION AND INTERVIEW. Provide hourly rate fee schedules to the interviewer in a sealed envelope on the day of interview.

(1)   Provide hourly rate fee schedules for your office and each key consultant indicating the job classifications for the proposed staff for the intended tasks.

     (2) Provide a man-hours budget for the proposed project scope by position, broken out by project tasks.

     (3) Also include information on all proposed markups, reimbursable expenses and other direct costs and fees.

  j. References.

    Provide three references for clients/projects within the past five years which are similar to this one and who can attest to proposer's firm/team performance. Provide name, contact address and telephone number, with brief description of the project. Prefer completed projects, but one may be ongoing.

 3. Exhibits/Attachments.

  Proposers shall include in their submittal completed and signed documentation for all listed Exhibits, including any attachments required by the Exhibit. Any material deviation from these requirements may be cause for rejection of the proposal, as determined in the District's sole discretion. The content and sequence for each required document shall be as follows:

- Exhibit A Acknowledgement, completed and signed
- Exhibit B (Not used)
- Exhibit C Insurance Requirements, include a certificate of insurance showing required coverages
- Exhibit D (Not used)
- Exhibit E SLEB Certification Application Package, completed, signed, required documentation attached (if applicable)
- Exhibit F Small Local Emerging Business (SLEB) Partnering Information Sheet, completed and signed by the prime consultant and each SLEB subconsultant, if any
- Exhibit G Request for Bid Preference, completed and signed (if applicable)
- Exhibit H First Source Agreement, completed and signed
- Exhibit I Exceptions, Clarifications and Amendments Form, completed and signed. Any exceptions, clarifications and amendments should also address the attached Exhibits, particularly Exhibit J, Agreement (the County is under no obligation to accept any exceptions and such exceptions may be a basis for proposal disqualification).
- Exhibit J Draft Professional Services Agreement, including Appendices A through D
- Exhibit K Sample Budget Sheets
- Exhibit L Debarment and Suspension Certification, completed and signed
- Exhibit M The Iran Contracting Act (ICA) of 2010, completed and signed
- Exhibit N Minimum Capabilities and Specifications for PAS
- Exhibit O Minimum Capabilities and Specifications for PAC

G.   EVALUATION CRITERIA/SELECTION COMMITTEE

All proposals will be evaluated by a Consultant Review Board (CRB). The CRB may be composed of District staff and other parties that may have expertise or experience in the professional services described herein. The CRB will review the submittals and will rank the proposers. The four (4)-highest ranked proposers will be invited for an interview in accordance with the evaluation criteria set forth in this RFP/SOQ. The evaluation of the proposals shall be within the sole judgment and discretion of the CRB.

All contacts during the evaluation phase shall be through the District contact only. Proposers shall neither contact nor lobby evaluators during the evaluation process. Attempts by Proposer to contact and/or influence members of the CRB may result in disqualification of Proposer.

The CRB will evaluate each proposal meeting the qualification requirements set forth in this RFP/SOQ. Proposers should bear in mind that any proposal that is unrealistic in terms of the technical or schedule commitments may be deemed reflective of an inherent lack of technical competence or indicative of a failure to comprehend the complexity and risk of the District's requirements as set forth in this RFP/SOQ.

As a result of this RFP/SOQ, District intends to interview the 4-highest ranked proposers. However, District reserves the right to determine the number of interviews it will conduct for this project. District shall enter contract negotiations with the highest-ranked firm. Upon successful contract negotiations District will recommend a contract be awarded. Should an agreement not be reached on a fair and reasonable contract amount with the highest ranked firm, the District reserves the right to terminate negotiations and conduct contract negotiations with the next highest ranked firm without undertaking a new RFP process.   The District shall be the sole judge in determining the fairness and reasonableness of the consultant's proposed cost/price.

Each of the Evaluation Criteria below will be used in ranking and determining the quality of the proposals. Proposals will be evaluated according to each Evaluation Criteria, and scored on the zero to ten-point scale outlined below. The scores for all Evaluation Criteria will then be added, according to their assigned weight (below), to arrive at a weighted score for each proposal. A proposal with a high weighted total will be deemed of higher quality than a proposal with a lesser-weighted total.

The final maximum score for any project is nine-hundred forty-six (946) points, including the possible eighty-six (86) points for local and small, local and emerging, or local preference points (maximum 10% of final score). Preference points awarded to each proposer for being local and/or certified SLEB will be calculated from the actual scores achieved in the evaluation of their proposals, oral presentation, and interview.

0	Not Acceptable	Non-responsive, fails to meet RFP/SOQ specifications. The approach has no probability of success. For mandatory requirement this score will result in disqualification of proposal.
1-2	Poor	Below average, falls short of expectations, is substandard to that which is the average or expected norm, has a low probability of success in achieving project objectives per RFP/SOQ.
3-4	Fair	Has a reasonable probability of success, however, some objectives may not be met.
5-6	Average	Acceptable, achieves all objectives in a reasonable fashion per RFP/SOQ specification. This will be the baseline score for each item with adjustments based on interpretation of proposal by Evaluation Committee members.
7-8	Above Average/Good	Very good probability of success, better than that which is average or expected as the norm. Achieves all objectives per RFP/SOQ requirements and expectations.
9-10	Excellent/ Exceptional	Exceeds expectations, very innovative, clearly superior to that which is average or expected as the norm. Excellent probability of success and in achieving all objectives and meeting RFP specification.

	PROPOSALS	Weight Factor	Max. Rating	Max. Score
1.	**Completeness of Response** Responses to this RFP must be complete. Responses that do not include the proposal content requirements identified within this RFP and subsequent Addenda and do not address each of the items listed below will be considered incomplete, be rated a Fail in the Evaluation Criteria and will receive no further consideration. To be considered complete, Proposers must include the complete and accurate documentation identified herein, including Exhibit F, that they are certified small and local or emerging and local business or are partnering, joint venturing or subcontracting with small and local or emerging and local business(es) that are certified at the time of response submittal. Responses that are rated a Fail and are not considered may be picked up at the delivery location within 14 calendar days of contract award and/or the completion of the competitive process. ☐ Attendance at Mandatory Pre-Proposal Conference/Site Visit. ☐ Proposal received by the submittal deadline date & time. ☐ Exhibit A Acknowledgement, completed and signed. ☐ Exhibit F SLEB Partnering Information Sheet, completed and signed by prime and subconsultant(s), if any. ☐ Exhibit H First Source Agreement, completed and signed. ☐ Exhibit I Exceptions, Clarifications and Amendments, completed and signed, if applicable. ☐ Exhibit L Debarment and Suspension Certification, completed and signed. ☐ Exhibit M The Iran Contracting Act, completed and signed.	0	Pass/Fail	0

	PROPOSALS	Weight Factor	Max. Rating	Max. Score
2.	**Organization and Approach** (Section III.F.2.d) **Roles and Organization of Proposed Team** ▪ Proposes adequate and appropriate disciplines of project team. ▪ Some or all of team members (firms) have previously worked together on similar projects(s). ▪ Overall organization of the team is relevant to District needs. **Project and Management Approach** ▪ Team is managed by an individual with appropriate experience in similar projects. This person's time is appropriately committed to the project. ▪ Team successfully addresses Site Planning and Programming efforts. ▪ Project team and management approach responds to project issues, including the County SLEB/Outreach program. ▪ Team structure provides adequate capability to perform both volume and quality of needed work within project schedule milestones. **Roles of Key Individuals on the Team** ▪ Proposed team members, as demonstrated by enclosed resumes, have relevant experience for their role in the project. ▪ Key positions required to execute the project team's responsibilities are appropriately staffed. **Working Relationship with District** ▪ Team and its leaders have experience working in the public sector and knowledge of public sector procurement process. ▪ Team leadership understands the nature of public sector work and its decision-making process. ▪ Proposal responds to need to assist District during the project.	10.0	10	100
3.	**Scope of Services** (Section III.F.2.e) **Detailed Scope of Services to be Provided** ▪ Proposed scope of services is appropriate for all phases of the work. ▪ Scope addresses all known project needs and appears achievable in the timeframes set forth in the project schedule. **Project Deliverables** ▪ Deliverables are appropriate to schedule and scope set forth in above requirements. **Cost Control and Budgeting Methodology** ▪ Proposer has a system or process for managing cost and budget. ▪ Evidence of successful budget management for a similar project.	10.0	10	100
4.	**Schedule of Work** (Section III.F.2.f) ▪ Schedule shows completion of the work in a believable manner within the District's overall time limits. ▪ The schedule addresses all knowable phases of the project, in accordance with the general requirements of this RFP.	8.0	10	80

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	PROPOSALS	Weight Factor	Max. Rating	Max. Score
5.	**Safety and Security Plan** (Section III.F.2.g) ▪ Proposer presents a plan that affirms safe conduct in the performance of the project tasks and will provide for reasonable jobsite health protection measures and safety of all personnel, and security measures to safeguard District facilities and contractors' equipment, tools, materials, etc. from theft and vandalism.	5.0	10	50
6.	**Litigation** (Section III.F.2.h) ▪ Litigation history, if any, is described. ▪ If judgment(s) against Proposer, appropriate explanation provided.	4.0	10	40
7.	**Hourly Rate Schedule** (Section III.F.2.i) **REQUIRED ONLY IF SELECTED FOR ORAL PRESENTATION AND INTERVIEW.** Provide hourly rate fee schedules to the interviewer in a sealed envelope on the day of interview. **Hourly Rate Fee Schedule** ▪ Schedule for each firm and for representative positions within each firm is provided for each key consultant/team member. **Man-hour Budget** ▪ Proposer provides a man-hour budget displayed for the scope of work which represents the level of effort Proposer anticipates for the project. **Additional Cost Information** ▪ Proposed markups, reimbursable expenses and other direct costs and fees.	NA	NA	NA
8.	**References** (Section III.F.2.j) ▪ Three references for the lead firm on similar projects are provided.	7.0	10	70
9.	**Local Preference** (5% of Proposal Evaluation Score)			22
10.	**SLEB Preference** (5% of Proposal Evaluation Score)			22
	Maximum Proposal Evaluation Score			484

Following evaluation of the written proposals, Proposers receiving the four (4) highest scores will be invited to an oral presentation and interview. The scores at that time will not be communicated to Proposers. The oral presentation and question/answers by each Proposer shall not exceed sixty (60) minutes in length. The oral interview will consist of a Proposer's presentation (30 minutes), followed by standard questions asked of each of the Proposers and specific questions regarding the specific proposal (30 minutes). The proposals may then be re-evaluated and re-scored based on the oral presentation and interview.

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

	ORAL PRESENTATION	Weight Factor	Max. Rating	Max. Score
1.	**Organization** ▪ Is the presentation well organized? ▪ The project manager should participate in the presentation but not to the exclusion of contributions by other key team members. ▪ Does the consultant complete their presentation in the allotted time?	8.0	10	80
2.	**Information** ▪ Does the consultant explain in sufficient detail how they propose to perform the work? ▪ Based on how the work is proposed to be conducted, how apparent is it that the final product will meet the District's needs and expectations? ▪ Does the presentation instill confidence that every component of the project will be successfully executed and completed? ▪ Does the consultant discuss in reasonable detail their QA/QC process and identify the persons responsible for ensuring the quality of the work?	8.0	10	80
3.	**Project Management** ▪ Is it clear who will be responsible for the daily project activities? ▪ Does the project manager have the necessary management experience to make this project a success? ▪ Does the project manager demonstrate a full understanding of the project scope and complexity? ▪ Will the project manager's workload be such that they will have sufficient time to adequately oversee the project? ▪ Project manager will need to be responsive to input by the District.	8.0	10	80
4.	**Past Experience with Similar-Scale Projects** ▪ Projects of comparable size and complexity. ▪ Successful SCADA modernization of an existing live system. ▪ Successful design, deployment and integration of SCADA applications that operate on Microsoft Operating Systems.	8.0	10	80
5.	**Local Preference** (5% of Oral Presentation Evaluation Score)			16
6.	**SLEB Preference** (5% of Oral Presentation Evaluation Score)			16
	Maximum Oral Presentation Evaluation Score			352

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	INTERVIEW	Weight Factor	Max. Rating	Max. Score
1.	**Responses to standard questions**			100
2.	**Local Preference** (5% of Interview Evaluation Score			5
3.	**SLEB Preference** (5% of Interview Evaluation Score			5
	Maximum Interview Evaluation Score			110

	SUMMARY	Max. Base Evaluation Points	Max. Preference Points - Local	Max. Preference Points - SLEB	Max. Possible Score
	Proposals	440	22	22	484
	Oral Presentations	320	16	16	352
	Interviews	100	5	5	110
	Total Possible Maximum Score				946

H.   NOTICE OF INTENT TO AWARD

1.   At the conclusion of the RFP response evaluation process ("Evaluation Process"), all Proposers will be notified in writing of the contract award recommendation. The document providing this notification is the Notice of Award.

The Notice of Award will provide the following information:

- The name of the proposer being recommended for contract award;
- The names of all other proposers; and
- In summary form, evaluation points for each proposer.

2.   Debriefings for unsuccessful proposers may be scheduled and provided upon written request and will be restricted to discussion of the proposer's unsuccessful proposal with the Project Manager.

a.   Under no circumstances will any discussion be conducted with regard to contract negotiations with the successful proposer, etc.

b.   Debriefing may include review of successful proposer's proposal.

3.   The submitted proposals shall be made available upon request no later than five (5) business days before approval of the award and contract is scheduled to be heard by the Board of Supervisors.

I.   PROPOSAL PROTEST/APPEALS PROCESS

District prides itself on the establishment of fair and competitive contracting procedures and the commitment made to following those procedures. The following is provided in the event that proposers wish to protest the bid process or appeal the recommendation to award a contract for this project once the Notices of Intent to Award/Non-Award have been issued. Proposal protests submitted prior to issuance of the Notices of Intent to Award/Non-Award will not be accepted by the County.

1.   Any Proposal Protest by any Proposer regarding any other proposal must be submitted in writing to the District's Flood Control Program Manager, located at 399 Elmhurst Street, Hayward, CA 94544, Fax: (510) 782-1939, before 5:00 p.m. of the FIFTH (5th) business day following the date of issuance of the Notice of Intent to Award, not the date received by the Proposer. A Proposal protest received after 5:00 p.m. is considered received as of the next business day.

a.   The Proposal protest must contain a complete statement of the reasons and facts for the protest.

b.   The protest must refer to the specific portions of all documents that form the basis for the protest.

c.   The protest must include the name, address, email address, fax number and telephone number of the person representing the protesting party.

d.   The District will transmit a copy of the Proposal Protest to all Proposers as soon as possible after receipt of the protest.

2.   Upon receipt of written protest, Flood Control Program Manager, or designee will review and evaluate the protest and issue a written decision. The Flood Control Program Manager, may, at his or her discretion, investigate the protest, obtain additional information, provide an opportunity to settle the protest by mutual agreement, and/or schedule a meeting(s) with the protesting Proposer and others (as appropriate) to discuss the protest. The decision on the Proposal Protest will be issued at least ten (10) business days prior to the Board hearing or District award date.

The decision will be communicated by e-mail or fax, and certified mail, and will inform the proposer whether or not the recommendation to the Board of Supervisors or District in the Notice of Intent to Award is going to change. A copy of the decision will be furnished to all Proposers affected by the decision. As used in this paragraph, a Proposer is affected by the decision on a Proposal Protest if a decision on the protest could have resulted in the Proposer not being the apparent successful Proposer on the RFP.

3.   The decision of the Flood Control Program Manager on the Proposal Protest may be appealed to the Auditor-Controller's Office of Contract Compliance (OCC) located at 1221 Oak St., Room 249, Oakland, CA 94612, Fax: (510) 272-6502. The Proposer whose Proposal is the subject of the protest, all Proposers affected by

the Flood Control Program Manager's decision on the protest, and the protestor have the right to appeal if not satisfied with the Flood Control Program Manager's decision. All appeals to the Auditor-Controller's OCC shall be in writing and submitted within five (5) business days following the issuance of the decision by the Flood Control Program Manager, not the date received by the Proposer. An appeal received after 5:00 p.m. is considered received as of the next business day. An appeal received after the FIFTH (5th) business day following the date of issuance of the decision by the Flood Control Program Manager shall not be considered under any circumstances by the District or the Auditor-Controller OCC.

a.   The appeal shall specify the decision being appealed and all the facts and circumstances relied upon in support of the appeal.

b.   In reviewing protest appeals, the OCC will not re-judge the proposal(s). The appeal to the OCC shall be limited to review of the procurement process to determine if the contracting department materially erred in following the RFP/RFQ or, where appropriate, District contracting policies or other laws and regulations.

c.   The appeal to the OCC also shall be limited to the grounds raised in the original protest and the decision by the Flood Control Program Manager. As such, a Proposer is prohibited from stating new grounds for a Proposal Protest in its appeal. The Auditor-Controller (OCC) shall only review the materials and conclusions reached by the District's Flood Control Program Manager or department designee, and will determine whether to uphold or overturn the protest decision.

d.   The Auditor's Office may overturn the results of a Proposal process for ethical violations by District staff, Consultant Review Board members, subject matter experts, or any other District staff managing or participating in the competitive process, regardless of timing or the contents of a proposal protest.

e.   The decision of the Auditor-Controller's OCC is the final step of the appeal process. A copy of the decision of the Auditor-Controller's OCC will be furnished to the protestor, the Proposer whose Proposal is the subject of the Proposal protest, and all Proposers affected by the decision.

4.   The District will complete the Proposal protest/appeal procedures set forth in this paragraph before a recommendation to award the Contract is considered by the Board of Supervisors or District.

5.   The procedures and time limits set forth in this paragraph are mandatory and are each Proposer's sole and exclusive remedy in the event of Proposal Protest. A Proposer's failure to timely complete both the Proposal protest and appeal procedures shall be deemed a failure to exhaust administrative remedies. Failure to exhaust administrative remedies, or failure to comply otherwise with these

procedures, shall constitute a waiver of any right to further pursue the Proposal protest, including filing a Government Code Claim or legal proceedings.

IV.   **TERMS AND CONDITIONS**

    A.   AWARD

        1.   The Consultant Review Board will recommend award to the proposer who, in its opinion, has submitted the proposal that best serves the overall interests of the District, attains the highest overall point score, submits an acceptable fee proposal upon request and completes successful contract negotiations.

        2.   The District reserves the right to reject any or all responses that materially differ from any terms contained herein or from any Exhibits attached hereto and to waive informalities and minor irregularities in responses received.

        3.   The District reserves the right to award to a single or multiple contractors.

        4.   The District has the right to decline to award this contract for any reason.

        5.   Board approval to award a contract is required.

        6.   Contractor shall sign an acceptance of award letter prior to Board approval.

        7.   The RFP specifications, terms, conditions and Exhibits, RFP Addenda and Proposer's proposal, may be incorporated into and made a part of any contract that may be awarded as a result of this RFP.

    B.   METHOD OF CONTRACTING

        1.   A signed Agreement will be issued upon Board approval.

        2.   Agreement will be faxed, transmitted electronically or mailed and shall be the only authorization for the Contractor to begin work.

        3.   Payments will be issued only in the name of Contractor.

        4.   Change orders shall be agreed upon by Contractor and District and issued as needed in writing by District.

C.   OTHER PROVISIONS

1.   Small and Emerging Locally Owned Business (SLEB): The purpose of the SLEB program is to provide incentives for Alameda County to assist SLEBs in enhancing their participation in the public procurement process and to provide training and development opportunities to support their growth. The District is fully supportive of and participates in the County's SLEB program.

The County is vitally interested in promoting the growth of small and emerging local businesses by means of increasing the participation of these businesses in the County's purchase of goods and services. As a result of the County's commitment to advance the economic opportunities of these businesses, **Proposers must meet the County's Small and Emerging Locally Owned Business requirements in order to be considered for the contract award.** These requirements can be found online at: http://acgov.org/auditor/sleb/overview.htm

For purposes of this proposal, applicable industries include, but are not limited to, the following NAICS Code(s): 334111, 334513, 511210, 541330, 541511, 541512, 541690, 541614 and 811212.

A small business is defined by the United States Small Business Administration (SBA) as having no more than the number of employees or average annual gross receipts over the last three (3) years required per SBA standards based on the small business's appropriate NAICS code.

An emerging business, as defined by the County, is one that has less than one-half (1/2) of the preceding amount and has been in business less than five (5) years.

2.   Compliance with the SLEB program is required for goods, services and professional services contracts, including but not limited to architectural, landscape architectural, engineering, environmental, land surveying, and construction project management services projects.

3.   Alameda County utilizes the Elation Systems contract compliance application as part of its commitment to assist contractors to conveniently comply with legal and contractual requirements. Elation Systems, a secure web-based system, was implemented to monitor compliance and to track and report SLEB participation in County contracts.

The prime contractor and all participating local and SLEB subcontractors awarded contracts as a result of this bid process for this project are required to use Elation to submit SLEB Program information including, but not limited to, monthly progress payment reports and other information related to SLEB participation. Use of Elation Systems, support and training is available at no charge to prime and subcontractors participating in County contracts.

Upon contract award:

a.   The County will provide contractors and subcontractors participating in any contract awarded as a result of this bid process, a code that will allow them to register and use Elation Systems free of charge.

b.   Contractors should schedule a representative from their office/company, along with each of their subcontractors, to attend Elation training.

▪   Free multi-agency Elation Systems one-hour training sessions require reservations and are held monthly in the Pleasanton, California area.

It is the Contractor's responsibility to ensure that they and their subcontractors are registered and trained as required to utilize Elation Systems.

For further information, please see the Elation Systems training schedule online at http://www.elationsys.com/elationsys/support/default.aspx   or call Elation Systems at (925) 924-0340.

If you have any other questions regarding the utilization of Elation Systems please contact the Auditor-Controller's Office of Contract Compliance (OCC) located at 1221 Oak Street, Room 249, Oakland, CA 94612 or see http://acgov.org/auditor/sleb/elation.htm.

Compliance Information And Records: As needed and upon request, for the purposes of determining compliance with the SLEB Program, the Contractor shall provide the County with access to all records and documents that relate to SLEB participation and/or certification. Proprietary information will be safeguarded. All subcontractor submittals must be through the prime contractor.

4.   First Source Program: The County is vitally interested in supporting our Alameda County employed and underemployed residents. Contractors awarded contracts for goods and services for $100,000 or more as a result of this RFP/SOQ are required to agree to this program.   For more details: http://acgov.org/auditor/sleb/sourceprogram.htm

5.   Prevailing Wage and Department of Industrial Relations Registration:

a.   Prevailing Wages: Pursuant to Labor Code Sections 1770 et seq. Consultant shall pay to persons performing labor in and about Work provided for in the contract not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the Work is performed, and not less than the general prevailing rate of per diem wages for legal holiday and overtime work in said locality, which per diem wages shall not be less than the stipulated rates contained in a schedule thereof which has been ascertained and determined by the Director of the State Department of Industrial Relations to be the general prevailing rate of per diem wages for each craft or type of workman or mechanic needed to execute this contract.

b. Department of Industrial Relations Registration: A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless registered and qualified to perform public work pursuant to Section 1725.5. However, for federally-funded projects, it is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

To register with the Department of Industrial Relations, go to https://efiling.dir.ca.gov/PWCR/displayPWCRForm.html.

D. <u>DEBARMENT AND SUSPENSION POLICY:</u>

In order to prohibit the procurement of any goods or services ultimately funded by Federal awards from debarred, suspended or otherwise excluded parties, each bidder will be screened at the time of Proposal response.

http://www.acgov.org/gsa/departments/purchasing/policy/debar.htm

V. STANDARD ATTACHMENTS

See attached Exhibits A through O, excepting Exhibits B and D, which are not used.

EXHIBIT A – ACKNOWLEDGEMENT

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

The County of Alameda is soliciting proposals from qualified Consultants to furnish its requirements per the specifications, terms and conditions contained in the above referenced RFP. This Proposal Acknowledgement must be completed, signed by a responsible officer or employee, dated and submitted with the proposal response. Obligations assumed by such signature must be fulfilled.

1. **Preparation of proposals**: (a) All proposal responses must be printed in ink or typewritten. No erasures permitted. Errors may be crossed out and corrections printed in ink or typewritten adjacent and must be initialed in ink by person signing proposal. No alterations or changes or any kind shall be permitted to Exhibits attached herein unless indicated otherwise in writing. Responses that do not comply shall be subject to rejection in total.

2. **Failure to submit proposal:** If you are not submitting a proposal but want to remain on the mailing list and receive future proposals, complete, sign and return this Proposal Acknowledgement and state the reason you are not proposing.

3. **Award:** (a) Unless otherwise specified by the proposer or the RFP gives notice of an all-or-none award, the County may accept any item or group of items of any proposal. (b) Proposals are subject to acceptance at any time within thirty (30) days of opening, unless otherwise specified in the RFP/SOQ. (c) A valid, written purchase order mailed, or otherwise furnished, to the successful proposer within the time for acceptance specified results in a binding contract without further action by either party. The contract shall be interpreted, construed and given effect in all respects according to the laws of the State of California.

4. **Patent indemnity:** Consultants who do business with the County shall hold the County of Alameda, its officers, agents and employees, harmless from liability of any nature or kind, including cost and expenses, for infringement or use of any patent, copyright or other proprietary right, secret process, patented or unpatented invention, article or appliance furnished or used in connection with the contract or purchase order.

5. **California Government Code Section 4552:** In submitting a proposal to a public purchasing body, the proposer offers and agrees that if the proposal is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2, commencing with Section 16700, of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the proposer for sale to the purchasing body pursuant to the proposal. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the proposer.

6. **No guarantee or warranty:** The County of Alameda makes no guarantee or warranty as to the condition, completeness or safety of any material or equipment that may be traded in on this order.

The undersigned acknowledges receipt of above referenced RFP and/or Addenda and offers and agrees to furnish the articles and/or services specified on behalf of the Consultant indicated below, in accordance with the specifications, terms and conditions of this RFP Acknowledgement.

Firm:
Address:
State/Zip
What advertising source(s) made you aware of this RFP?

By: _____   Date _____

Print Name Signed Above: _____

Title: _____

Phone _____

EXHIBIT C
COUNTY OF ALAMEDA MINIMUM INSURANCE REQUIREMENTS

Without limiting any other obligation or liability under this Agreement, the Contractor, at its sole cost and expense, shall secure and keep in force during the entire term of the Agreement or longer, as may be specified below, the following minimum insurance coverage, limits and endorsements:

	TYPE OF INSURANCE COVERAGES	MINIMUM LIMITS
A	**Commercial General Liability** Premises Liability; Products and Completed Operations; Contractual Liability; Personal Injury and Advertising Liability	$1,000,000 per occurrence (CSL) Bodily Injury and Property Damage
B	**Commercial or Business Automobile Liability** All owned vehicles, hired or leased vehicles, non-owned, borrowed and permissive uses. Personal Automobile Liability is acceptable for individual contractors with no transportation or hauling related activities	$1,000,000 per occurrence (CSL) Any Auto Bodily Injury and Property Damage
C	**Workers' Compensation (WC) and Employers Liability (EL)** Required for all contractors with employees	WC: Statutory Limits EL: $1,000,000 per accident for bodily injury or disease
D	**Professional Liability/Errors & Omissions** Includes endorsements of contractual liability and defense and indemnification of the County	$1,000,000 per occurrence $2,000,000 project aggregate
E	<u>Endorsements and Conditions</u>: 1. **ADDITIONAL INSURED:** All insurance required above with the exception of Professional Liability, Commercial or Business Automobile Liability, Workers' Compensation and Employers Liability, shall be endorsed to name as additional insured: County of Alameda, its Board of Supervisors, the individual members thereof, and all County officers, agents, employees, volunteers, and representatives. The Additional Insured endorsement shall be at least as broad as ISO Form Number CG 20 38 04 13. 2. **DURATION OF COVERAGE:** All required insurance shall be maintained during the entire term of the Agreement. In addition, Insurance policies and coverage(s) written on a claims-made basis shall be maintained during the entire term of the Agreement and until 3 years following the later of termination of the Agreement and acceptance of all work provided under the Agreement, with the retroactive date of said insurance (as may be applicable) concurrent with the commencement of activities pursuant to this Agreement. 3. **REDUCTION OR LIMIT OF OBLIGATION:** All insurance policies, including excess and umbrella insurance policies, shall include an endorsement and be primary and non-contributory and will not seek contribution from any other insurance (or self-insurance) available to the County. The primary and non-contributory endorsement shall be at least as broad as ISO Form 20 01 04 13. Pursuant to the provisions of this Agreement insurance effected or procured by the Contractor shall not reduce or limit Contractor's contractual obligation to indemnify and defend the Indemnified Parties. 4. **INSURER FINANCIAL RATING:** Insurance shall be maintained through an insurer with a A.M. Best Rating of no less than A:VII or equivalent, shall be admitted to the State of California unless otherwise waived by Risk Management, and with deductible amounts acceptable to the County. Acceptance of Contractor's insurance by County shall not relieve or decrease the liability of Contractor hereunder. Any deductible or self-insured retention amount or other similar obligation under the policies shall be the sole responsibility of the Contractor. 5. **SUBCONTRACTORS:** Contractor shall include all subcontractors as an insured (covered party) under its policies or shall verify that the subcontractor, under its own policies and endorsements, has complied with the insurance requirements in this Agreement, including this Exhibit. The additional Insured endorsement shall be at least as broad as ISO Form Number CG 20 38 04 13. 6. **JOINT VENTURES:** If Contractor is an association, partnership or other joint business venture, required insurance shall be provided by one of the following methods: - Separate insurance policies issued for each individual entity, with each entity included as a "Named Insured" (covered party), or at minimum named as an "Additional Insured" on the other's policies. Coverage shall be at least as broad as in the ISO Forms named above. - Joint insurance program with the association, partnership or other joint business venture included as a "Named Insured." 7. **CANCELLATION OF INSURANCE:** All insurance shall be required to provide thirty (30) days advance written notice to the County of cancellation. 8. **CERTIFICATE OF INSURANCE:** Before commencing operations under this Agreement, Contractor shall provide Certificate(s) of Insurance and applicable insurance endorsements, in form and satisfactory to County, evidencing that all required insurance coverage is in effect. The County reserves the rights to require the Contractor to provide complete, certified copies of all required insurance policies. The required certificate(s) and endorsements must be sent as set forth in the Notices provision.

COUNTY OF ALAMEDA
SMALL, LOCAL AND EMERGING BUSINESS PROGRAM
SLEB
CERTIFICATION INSTRUCTIONS

1. **Complete the application form**   *3 Easy Steps*

Program Definitions

Local Business: *A business having a fixed office with a street address in Alameda County for a minimum period of 6 months and a valid business license issued by the County or a City within Alameda County*

Small Business: *A business which has been certified by the County as local and meets the U.S. Business Administration (SBA) size standards for its classification. Size standards and classification codes information available at http://www.naics.com/search.htm*

Emerging Business: *A business which has been certified by the County as local and meet less than one half of the U.S. SBA size standards for its classification and has been in business less than 5 years.*

If you own less than 51% interest in your business, please indicate other owner(s) name(s), title(s) and percentage of ownership. List all current business and professional licenses. If you have been in business for less than three years, please provide your actual gross receipts received for the period that you have been in business. If you have not been in business for a complete tax year, please provide actual gross receipts to date. If any item on the application form is not applicable, please put "N/A" in the designated area. If additional space is needed, please attach additional sheet(s).

2. **Please sign* and mail Application to:**

Alameda County Auditor-Controller Agency
Office of Contract Compliance
1221 Oak Street, Room 249
Oakland, CA 94612

*The application form must be signed by the owner, principal partner or authorized officer of the corporation. We will contact you within 10 days to schedule a site visit upon receipt of your application.

3. **On-site Visit**

The following items must be available for our review during the visit to your business address:

❑ Signed Federal Tax Returns showing Gross Business Receipts for the last 3 years**
❑ Business Licenses
❑ Current Identification (i.e. Driver's License, Identification Card)
❑ Deed, Rental or Lease Agreement showing Business Address

**Personal Net Worth Statement (if the business has never filed taxes)

If you have questions regarding your certification, please contact:

Office of Contract Compliance Tel: (510) 891-5500 Fax: 510-272-6502 or Email: ACSLEBcompliance@acgov.org

Thank you for your interest in doing business with Alameda County.

Exhibit E

East Bay Interagency Alliance (EBIA)

COMMON APPLICATION for
LOCAL CERTIFICATION

Alameda County – Alameda County Transportation Commission – City of Oakland – Port of Oakland

Submittal Date: _____

Check Certifying Agency and click link to download Supplemental:

☐ Alameda County – No supplemental required

☐ Alameda County Transportation Commission – Complete Supplemental B

☐ City of Oakland – Complete Supplemental C

☐ Port of Oakland – Complete Supplemental D

☐ All the above

The Common Application is a sharing of information between agencies and NOT a reciprocal certification.

1) Contact Information

Legal Name of Entity			Contact Person (Name & Title)		
Street Address of Entity (No P.O. Box)					
City			State	Zip Code	County
Telephone ( )	Fax # ( )			Cell# ( )	
Email Address			Web Site		

2) Company Profile

Primary Service undertaken/offered:		Specialty Service undertaken/offered:	
Date Entity was established (mm/dd/yr)	Does the entity have one or more additional offices outside the city of Oakland, CA? ☐Y ☐N If yes, list other location(s)	Date Oakland office was established (mm/dd/yr)	
Method of Acquisition ☐New ☐Merger or consolidation	☐Purchased existing ☐Inherited	☐Secured concession ☐Other (explain)	Federal ID Number:
Has this entity operated under a different name during the past five years? ☐			

Type of Firm ☐ Sole Proprietorship ☐Joint Venture ☐Partnership ☐Corporation ☐ Limited Liability Partnership ☐Limited Liability Corporation ☐Publicly traded entity ☐Non-Profit or Church ☐Other _____	Ethnicity Group of owners(s) that own greater than 50% of the business. (for tracking purposes only) ☐African American ☐Hispanic ☐Asian ☐Native American ☐Asian Pacific /Hawaiian ☐Multi ethnic ownership ☐Asian Indian ☐Multi ethnic minority ☐Caucasian ownership ☐Filipino ☐Other _____
	Gender (for tracking purposes only) ☐ Male ☐ Female
Gross Receipts for the last three recent fiscal years: Please attach copies of appropriate tax returns: (e.g. Form 990, Form 1040, Form 1120, etc)	Year Ended_____ Total Receipts $_____ Year Ended_____ Total Receipts $_____ Year Ended_____ Total Receipts $_____

Exhibit E

2) Company Profile: (Continue)

Number of Employees at the local office Permanent Full time ____ Permanent Part time ____	Temporary Full Time ____ Temporary Part Time ____	Seasonal Full Time ____ Seasonal Part Time ____
TOTAL Number of Employees at all locations. Permanent Full time ____ Permanent Part time ____	Temporary Full Time ____ Temporary Part Time ____	Seasonal Full Time ____ Seasonal Part Time ____

3) Certifications:

Name of Issuing Authority	Type	Number	Expiration Date
City / County Business Tax Certificate			
Internal Revenue Service (required) – If your firm is a Non-Profit, submit the Letter of Determination of Not For Profit Status.			
State of CA /CUCP Certification for DBE/ACDBE firm			
State of CA /SBA Certification for Small firm			
Other Certification			
Other Certification			
Other Certification			

4) Professional Licenses, Permits and/or Certificates (e.g. contractor, architect, engineer, etc. – list all that apply - attach copies. List on a separate page if additional space is needed)

Name of Issuing Authority	Type	Number	Expiration Date
State of CA Contractor's License Board – Contractor's License:			
State of CA Professional Service License or Permit:			
State of CA Service Provider License or Permit:			
Other:			
Other:			

5) NAICS Codes: Please review the NAICS[1] listing of work codes and indicate below your areas of expertise ranked in order of importance (begin with primary and specialty areas as indicated in the Company Profile section) NAICS Codes can be found at: http://www.naics.com/search.htm & http://www.census.gov/epcd/naics02/. Add separate sheet for additional NAICS codes if needed.

NAICS Code	Description of Work

6) Additional Information:
Are you a Trucking Firm? ☐ Yes ☐ No   Are you a Truck Broker? ☐ Yes ☐ No Both? ☐ Yes ☐ No
A supplier? ☐ Yes ☐ No

7) When submitting this application to any of the checked Certification Taskforce members, I consent to the sharing of information contained herein and declare under penalty of perjury that statements in this application are true and correct. ☐ Yes ☐ No

_____ _____ _____ _____

Signature   Print Name   Title   Date

[1] North American Industry Classification System – www.naics.com
Rev. 05/2011

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

SMALL LOCAL EMERGING BUSINESS (SLEB)
PARTNERING INFORMATION SHEET

In order to meet the Small Local Emerging Business (SLEB) requirements of this RFP/Q, all bidders must complete this form as required below.

Bidders not meeting the definition of a SLEB (http://acgov.org/auditor/sleb/overview.htm) are required to subcontract with a SLEB for at least twenty percent (20%) of the total estimated bid amount in order to be considered for contract award. SLEB subcontractors must be independently owned and operated from the prime Contractor with no employees of either entity working for the other. This form must be submitted for each business that bidders will work with, as evidence of a firm contractual commitment to meeting the SLEB participation goal. (Copy this form as needed.)

Bidders are encouraged to form a partnership with a SLEB that can participate directly with this contract. One of the benefits of the partnership will be economic, but this partnership will also assist the SLEB to grow and build the capacity to eventually bid as a prime on their own.

Once a contract has been awarded, bidders will not be able to substitute named subcontractors without prior written approval from the Auditor-Controller, Office of Contract Compliance (OCC).

County departments and the OCC will use the web-based Elation Systems to monitor contract compliance with the SLEB program (Elation Systems: http://acgov.org/auditor/sleb/elation.htm**).**

☐ **BIDDER IS A CERTIFIED SLEB (sign at bottom of page)**

   SLEB BIDDER Business Name: _____

   SLEB Certification #: _____   **SLEB Certification Expiration Date:** _____

   NAICS Codes Included in Certification: _____

☐ **BIDDER IS NOT A CERTIFIED SLEB AND WILL SUBCONTRACT _____% WITH THE SLEB NAMED BELOW FOR THE FOLLOWING GOODS/SERVICES:** _____

   SLEB Subcontractor Business Name: _____

   SLEB Certification #: _____   **SLEB Certification Expiration Date:** _____

   SLEB Certification Status: ☐ **Small /** ☐ **Emerging**

   NAICS Codes Included in Certification: _____

   SLEB Subcontractor Principal Name: _____

   SLEB Subcontractor Principal Signature: _____   **Date:** _____

Upon award, prime Contractor and all SLEB subcontractors that receive contracts as a result of this bid process agree to register and use the secure web-based ELATION SYSTEMS. ELATION SYSTEMS will be used to submit SLEB subcontractor participation including, but not limited to, subcontractor contract amounts, payments made, and confirmation of payments received.

Bidder Printed Name/Title: _____

Street Address: _____City_____State_____ Zip Code_____

Bidder Signature: _____ Date: _____

EXHIBIT G

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

REQUEST FOR PROPOSAL PREFERENCE

PLEASE READ AND COMPLETE THIS FORM CAREFULLY:

IF YOU ARE A PRIME PROPOSER WHO IS A **LOCAL BUSINESS**, AND/OR A CERTIFIED **SMALL AND LOCAL BUSINESS** OR A CERTIFIED **EMERGING AND LOCAL BUSINESS,** COMPLETE THIS FORM AND RETURN IT WITH YOUR RFP/SOQ SUBMITTAL.

Subject to the requirements of the SLEB program and the criteria of each procurement process, the maximum bid evaluation preference points for being certified is 10% (5% local & 5% certified). Compliance with the SLEB program is required for architectural, landscape architectural, engineering, environmental, land surveying, and construction project management services projects.

Check the appropriate boxes below (2 maximum) and provide the requested information.

☐ **Request for 5% LOCAL Proposal Preference**
(Complete 1-4, print name, title, sign and date below) **Submit the following:** • Copy of a verifiable business license, issued by the County of Alameda or a City within the County; and • Proof of six (6) months business residency, identifying the name of the Consultant and the local address. Utility bills, deed of trusts or lease agreements, etc., are acceptable verification documents to prove residency.

1. Company Name	
2. Street Address	
3. Telephone Number	
4. Business License #	

<table>
<tr><td colspan="4" align="center">(Check One)
☐ Request for 5% SMALL Local Business Bid Preference
<u>OR</u>
☐ Request for 5% EMERGING Local Business Bid Preference
(Complete certification information below)</td></tr>
<tr><td>SLEB Certification #:</td><td></td><td>SLEB Certification Expiration Date</td><td>/   /</td></tr>
<tr><td>NAICS Codes Included in SLEB Certification</td><td colspan="3"></td></tr>
</table>

The Undersigned declares that the foregoing information is true and correct:

Print/Type Name: _____

Print/Type Title: _____

Signature: _____

Date: _____

EXHIBIT H

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

ALAMEDA COUNTY VENDOR FIRST SOURCE AGREEMENT
VENDOR INFORMATION

ALCOLINK Vendor Number (if known): 00000   SLEB Vendor Number:

Full Legal Name:

DBA

Type of Entity: ☐ Individual   ☐ Sole Proprietor ☐ Partnership

☐ Corporation☐ Tax-Exempted ☐ Government or Trust

Check the boxes that apply:

☐ Goods Only   ☐ Goods & Services   ☐ Rents/Leases   ☐ Legal Services
☐ Rents/Leases paid to you as the agent   ☐ Medical Services   ☐ Non-Medical Services – Describe _____
☐ Other _____

Federal Tax ID Number (required): _____

P.O. Box/Street Address: _____

_____

_____

Vendor Contact's Name: _____

Vendor Contact's Telephone: _____   Fax: _____

Vendor Contact's E-mail address: _____

Please check all that apply:

LOC ☐ Local Vendor (Holds business license within Alameda County)
SML ☐ Small Business (as defined by Small Business Administration)
I ☐ American Indian or Alaskan Native (>50%)
A ☐ Asian (>50%)
B ☐ Black or African American (>50%)
F ☐ Filipino (>50%)
H ☐ Hispanic or Latino (>50%)
N ☐ Native Hawaiian or other Pacific Islander (>50%)
W ☐ White (>50%)

Number of entry level positions available through the life of the contract:_____

Number of other positions available through the life of the contact:_____

This information to be completed by County:

Contract #_____

Contract Amount: _____

Contract Term: _____

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

ALAMEDA COUNTY VENDOR FIRST SOURCE AGREEMENT
VENDOR INFORMATION

Vendor agrees to provide Alameda County Flood Control and Water Conservation District (through East Bay Works and Social Services Agency), ten (10) working days to refer to Vendor, potential candidates to be considered by Vendor to fill any new or vacant positions that are necessary to fulfill their contractual obligations to the District, that Vendor has available during the life of the contract before advertising to the general public. Vendor will also provide the County with specific job requirements for new or vacant positions. Vendor agrees to use its best efforts to fill its employment vacancies with candidates referred by County, but final decision of whether or not to offer employment, and the terms and conditions thereof, to the candidate(s) rest solely within the discretion of the Vendor.

Alameda County (through East Bay Works and Social Services Agency) agrees to only refer pre-screened qualified applicants, based on vendor specifications, to vendor for interviews for prospective employment by Vendor (see Incentives for Vendor Participation under Vendor/First Source Program located on the Small Local Emerging Business (SLEB) Website, http://www.acgov.org/auditor/sleb/.

If compliance with the First Source Program will interfere with Vendor's pre-existing labor agreements, recruiting practices, or will otherwise obstruct Vendor's ability to carry out the terms of the contract, Vendor will provide to the County a written justification of non-compliance in the space provided below.

_____
(Company Name)

_____   _____
(Vendor Signature)   (Date)

_____   _____
(East Bay Works / One-Stop Representative Signature)   (Date)

Justification for Non-Compliance:

_____

_____

EXHIBIT I

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

REQUESTS FOR CLARIFICATIONS, EXCEPTIONS & AMENDMENTS

Firm Name: _____

List below requests for clarifications, exceptions and amendments, if any, to the RFP/SOQ and associated Bid Documents, and submit with your bid response.

The County is under no obligation to accept any exceptions and such exceptions may be a basis for bid disqualification.

Reference to:			Description
Page No.	Section	Item No.	
p. 23	**D**	**1.c.**	*Vendor takes exception to…*

*Print additional pages as necessary

EXHIBIT J

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

DRAFT PROFESSIONAL SERVICES AGREEMENT

(ATTACHED)

EXHIBIT K

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

SAMPLE STAFF BILLING RATE TABLE

	Consultant Name		
	Staff List and Billing Rates		
	Title	Name	Billing Rate
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

EXHIBIT K

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

SAMPLE COST PER STATION

	General Tasks	Design				Construction			Post-Construction	Total
		Existing System Definition - Site Audit	Front End Engineering Design	Develop SCADA System Upgrade Plan	Support Services for Preparation of Construction/Implementation RFP	Construction Management	Programming and System Integration	Prepare Record Drawings	Long-term Support	Budget/Station
Overall Project Management										
1. Project Management, Coordination, QA/QC										$0.00
2. Reimbursable Expenses, Other Direct Costs, and Fees										$0.00
Stations										
1. Alvarado										$0.00
2. Ameron										$0.00
3. Belvedere										$0.00
4. Besco										$0.00
5. D-1										$0.00
6. Davis Street										$0.00
7. Eden Landing										$0.00
8. Eden Shores										$0.00
9. Elgin										$0.00
10. Ettie Street										$0.00
11. F Station										$0.00
12. H Station										$0.00
13. Industrial										$0.00
14. J-2										$0.00
15. J-3										$0.00
16. Lake Merritt										$0.00
17. McKillop										$0.00
18. Roberts Landing										$0.00
19. Ruus Road										$0.00
20. San Leandro Hills Radio Hub Site										$0.00
21. Stratford										$0.00
22. Sulphur Creek										$0.00
23. Tesmescal										$0.00
24. Turner Court Control Center										$0.00
25. Verona										$0.00
26. Westview										$0.00
								Total Cost		$0.00

EXHIBIT K

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

SAMPLE BUDGET DETAIL PER STATION

ROBERTS LANDING PUMP STATION	Quantities	Units	Staff I	Staff II	Staff III	Staff IV	Staff V	Staff VI	Staff VII	Staff VIII	Staff IX	Staff X	Subconsultants SLEB	Subconsultants Non-SLEB	Mark-Up (XX%)	Expenses/ Reimbursables	Totals
			$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00					
1. General Tasks																	
1.a) Project Management																	
(1) Project Meetings (kickoff, monthly)	20	meetings	24										$0.00	$0.00	$0.00	$0.00	$0.00
(2) Project Schedule			24														
(3) Project Files			20	1													
(4) Respond to Requests for Information			10														
1.b) Reports																	
(1) Field Investigation Reports	26	each															
(2) Monthly Project Status Reports	18	each															
(3) Technical Memoranda		each															
(4) Design Recommendation Report(s)	26	each															
(5) Final Report	1	each															
1.c) Deliverables																	
2. Existing System Definition Phase – Site Audit																	
2.a) Determine System Size/Architecture																	
2.b) Audit System Documentation (Schematics, Manuals)																	
2.c) Audit Existing System Programs																	
2.d) I/O Count																	
2.e) Define Processors																	
2.f) Identify Control Cabinets																	
2.g) Identify Remote/Field I/O Cabinets																	
2.h) Locate and Document Networks																	
2.i) Identify Operator Interfaces																	
2.j) Audit Servers																	
2.k) Audit Third Party Interfaces																	
3. Front End Engineering Design (FEED) Phase																	
3.a) User Requirements Workshop(s)	2	each															
3.b) Develop Preliminary Replacement System Architecture																	
3.c) Develop Preliminary Bills of Material																	
3.d) Develop High Level Replacement Schedule																	
3.e) Develop Preliminary Installation Cost																	
3.f) Create System Cunctional Requirement Specification (FRS)																	
3.g) Develop Fixed Price Cost of Replacement by Site/Pump Station																	
3.h) Develop System Standards (Programming/HMI)																	
3.i) Develop Cutover Strategy, Detailed Installation Plan																	
3.j) Determine Training Requirements																	
3.k) Determine Testing Requirements (FAT/SAT)																	
3.l) Determine Documentation Requirements																	
3.m) Determine Post Startup Support Requirements (Engineer Standby)																	
3.n) Determine Post System Support Requirements (Annual Support Plan)																	
4. Develop SCADA System Upgrade Plan																	
4.a) (1) Prepare PS&E																	
(2) Prepare O&M Manuals																	
(3) Develop System Schematics																	
(4) Communication Scheme and RF Signal Data																	
(5) Wiring Diagrams of Each Remote Terminal Unit Panel																	
(6) Electronic Back-Up and Printed Copies of All Programs																	
(7) Operational Instructions in Electronic and Printed Format																	
(8) System Conversion																	
(9) Evaluation of Existing Communications System																	
(10) Identification and Procurement of Required Permits and Licenses																	
(11) Programming																	
(12) Provide Training of District Personnel																	
(13) In-Factory Test Procedure																	
(14) SCADA System Maintenance Requirements Manual																	
(15) Warranty and Technical Support																	
(16) 24 Hour/7 Days a Week On-Site Support for 10 Years																	

EXHIBIT K

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

SAMPLE POST-INSTALLATION BUDGET

Cost of Ownership (Annual Costs)										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Training of District Staff										
System Support/Maintenance										
24 Hour/7 Days a Week On-Site Support										
24 Hour/7 Days a Week Remote Support										
Warranties										
Licenses										
Total Annual Post-Installation Cost	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

EXHIBIT L

COUNTY OF ALAMEDA

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

DEBARMENT AND SUSPENSION CERTIFICATION
For Procurements Over $25,000

The bidder, under penalty of perjury, certifies that, except as noted below, bidder, its Principal, and any named and unnamed subcontractor:

- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;

- Has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past three years;

- Does not have a proposed debarment pending; and

- Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution or administrative sanctions. The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

BIDDER: _____

PRINCIPAL: _____ TITLE: _____

SIGNATURE: _____ DATE: _____

COUNTY OF ALAMEDA

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

The Iran Contracting Act (ICA) of 2010

The California Legislature adopted the Iran Contracting Act (ICA) to respond to policies of Iran in a uniform fashion (PCC § 2201(q)). The ICA prohibits persons engaged in investment activities in Iran from bidding on, submitting proposals for, or entering into or renewing contracts with public entities for goods and services of one million dollars ($1,000,000) or more (PCC § 2203(a)). A person who "engages in investment activities in Iran" is defined in either of two ways:

1. The person provides goods or services of twenty million dollars ($20,000,000) or more in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran; or
2. The person is a financial institution (as that term is defined in 50 U.S.C. § 1701) that extends twenty million dollars ($20,000,000) or more in credit to another person, for 45 days or more, if that person will use the credit to provide goods or services in the energy sector in Iran and is identified on a list created by the California Department of General Services (DGS) pursuant to PCC § 2201(b) as a person engaging in the investment activities described in paragraph 1 above.

By signing below, I hereby certify that as of the time of bidding or proposing for a new contract or renewal of an existing contract, neither I nor the company I own or work for are identified on the DGS list of ineligible persons and neither I nor the company I own or work for are engaged in investment activities in Iran in violation of the Iran Contracting Act of 2010.

If either I or the company I own or work for are ineligible to bid or submit a proposal or to renew a contract, but I believe I or it qualifies for an exception listed in PCC § 2202(c), I have described in detail the nature of the exception:

_____

_____

_____.

NAME: _____

PRINCIPAL: _____ TITLE: _____

SIGNATURE: _____ DATE: _____

EXHIBIT N

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

MINIMUM CAPABILITIES AND SPECIFICATIONS FOR

PROCESS AUTOMATION SYSTEM

1.   General.

    a.   Work Included.

        (1)   This Section specifies the requirements to furnish Process Automation Controllers (PAC) and their components, including, CPU, UPS, power supply [supplies], input/output (I/O) interface modules, communication and network interface modules, special cables, program development hardware, software, spare parts, and related equipment. PAS panel design, assembly, network cabling, and development of application software is provided by others.

    b.   Related Work.

        (1)   Use this Section in conjunction with the following other specifications, related Scope of Services and system requirements to establish the total requirements for the PAS and referenced associated items:

            (a)   Control Panels.

            (b)   System architecture drawing.

            (c)   I/O list.

            (d)   Preliminary design schedules for PAS deliveries.

    c.   System Description.

        (1)   The basic architecture of the system is based upon a distributed "client-server" structure at the supervisory network with physically and functionally distributed controllers performing the real-time control and processing operations and separate workstations and clients providing the human-machine interface (HMI) functions. All of these elements are to be interconnected via Ethernet and TCP/IP networking protocol. The client server structure of the system shall make it possible for the system to operate even if several components are out of service.

Interface with Field devices should be through dedicated non-Supervisory Networks and support both classic signal conversion I/O as well as Smart Instrumentation and Industrial control devices. The system shall not have a centralized architecture wherein a (redundant) central computer is required to support the overall system operation. The real-time data processing, calculation and alarm and display functions can be in a single controller or distributed across multiple controllers. The system shall use a distributed architecture so that no single failure will disable the total system. Plus, the user shall be able to elect that all or portions of the system be made redundant, to provide the highest levels of system availability. The local and wide-area network portions of the system shall be compliant with Ethernet and TCP/IP specifications. The system architecture shall allow for the use of both LAN and WAN technology in the same system. The system shall support all media forms of Ethernet including copper and fiber optic (single mode and multimode).

(2)   Data in the system is to remain distributed in its original, native environment (e.g. the controller). The data should be distributed, not duplicated or copied throughout the system allowing resources (tags, displays, alarms and events, security settings) to be defined once and shared throughout the system. The data should be available immediately to every piece of the system with each being able to locate, browse, and organize the data and services needed. Resource changes within the system update immediately across all pieces of the system.

d.   Design Criteria.

(1)   Assume the facility operates continuously. Provide hardware, firmware, and programming software used in similar applications for at least 1 year.

(2)   Provide PAS with the capability for:

(a)   Support common on-line program modifications without shutting down the process under control.

(b)   "Hot Swap" support to remove or insert any I/O and communication interface module without shutting down the power or disturbing any other operating control elements on the same rack or the entire PAS system.

(3)   Factors in the selection of the PAS include:

(a)   PAS modularity, ruggedness, capability for easy expansion and future hardware and software upgrades, distributed structure, extensive communication capabilities, and user friendly programming software.

(b)   Support of multiple programming languages compliant with IEC 1131-3 (Function Block Diagram, Structured Text, Sequential Function Chart, Batch and Relay Ladder Logic).

(c)   PAS Fault tolerant qualifications - Power Supplies, CPUs and communications network redundancy capabilities, with no single point of failure (ie cannot use same chassis with two controllers, must be separate chassis, power supply, communications and controllers) – Conformance to existing standards, but not limited to, ISO 9001, UL508, UL840, IEC664 and IEC1000 (Isolation), UL1604 (Hazardous Locations), IEC668 and IEC529 (Environmental), IEC801and IEC255(EMC immunity), CSA, CE, VDE and FM (where applicable).

(d)   On-line hardware, software and communications diagnostics tools.

(e)   Connectivity to SCADA's field devices, HMI's, [and existing system's components].

(f)   PAS network speed, quantity of PAC per network, network design, and type of media used for communications.

(g)   Speed and ease of installation, calibration, and maintenance.

(h)   Availability of local and factory manufacturer technical support.

(i)   Conformal coating for environmental protection.

(j)   Normal and maximum possible system configuration parameters for:

   (i)   Program logic memory (ladder logic, FBD, SFC).

   (ii)   Data storage (Tags).

   (iii)   Timers and counters.

   (iv)   Arithmetic functions.

   (v)   Local and remote I/O.

   (vi)   Minimum and maximum cycle times for PID loops.

   (vii)   Maximum number of PID loops (worst case condition).

   (viii) Peer-to-peer communication rates and protocol.

(k)   Type of communication diagnostics and failure warnings:

   (i)   Peer-to-peer.

   (ii)   I/O modules.

   (iii)   I/O channels.

        (iv)   Remote I/O.

    (l)   Connectivity to Electrical field devices via EthernNet/IP or DeviceNet with native communications cards.

    (m)   Connectivity to intelligent instrumentation and actuators via EthernNet/IP, Foundation Fieldbus, Profibus PA, or HART and support for DTM's from the FDTGroup.

(4)   The following costs will be considered in the selection of the system:

    (a)   Costs of system components.

    (b)   Cost of PAS proprietary network (if applicable).

    (c)   Cost of future expansion.

    (d)   Cost of programming software and license renewal.

    (e)   Service life of the design and protection of the investment.

    (f)   System integration cost, including integration to 3rd Party controllers, Electrical systems.

    (g)   Cost of ongoing site support.

(5)   Provide hardware employing identical revisions of software and firmware as applicable.

(6)   Minimum MTBF requirements are 250,000 hours for processors, 500,000 hours for communication modules, and 1,000,000 hours for I/O modules. Minimum memory configuration retention without applied power is 6 months. Supply diagnostic capabilities information.

(7)   The PAS operates within a temperature range of zero to plus 60 degrees C (32 to 140 degrees F) and 5 to 95 percent of relative humidity (noncondensing) at 60 degrees C. The extreme temperature Programmable Automation Controller shall operate at an ambient temperature of -25 to 70 degrees C (-13 to 158 degrees F).

e.   Warranty.

The standard time period is 12 months from substantial completion or 18 months from shipment, whichever is sooner. The functional acceptance test for FMS probably occurs before substantial completion of the project.

(1)   Provide hardware and software warranty of 1 year from the completion of the functional acceptance test on site. Provide the price for a 1, 2, 3, 4 and 5-year, extension of the warranty (to provide warranty coverage for a total of 5 years) in the Bid.

f.   Regulatory Requirements.

      (1)   Provide CSA certified, Underwriters Laboratories (UL) listed] hardware, or hardware recognized and labeled as such to enable the assembled PAS panel to be labeled per UL 508.

g.   Coordination.

      (1)   Coordinate product support and delivery, as well as training and onsite support, with Alameda County Flood Control District/Alameda County Public Works Agency schedules.

      (2)   This Specification will be maintained and updated by the supplier and Alameda County Flood Control District/Alameda County Public Works Agency will meet to discuss proposals for changes and additions. At that time, changes will be made.

      (3)   Proposed changes become effective when issued by the Alameda County Flood Control District/Alameda County Public Works Agency in an addendum to the Specification, and accepted by the supplier. Changes to this Specification will be deemed acceptable to the supplier unless notified otherwise within two weeks of receipt of change notification.

h.   Support.

      (1)   Provide support to the Alameda County Flood Control District/Alameda County Public Works Agency at project sites, and the panel contractor at a location to be determined.

2.   Products.

a.   Acceptable Manufacturers.

      (1)   Rockwell Automation, or approved equal.

            (a)   If Consultant is requesting consideration of an alternative manufacturer, documentation evidencing that the proposed alternative is equivalent to, or of higher quality than the specified manufacturer shall be included in Consultant's proposal.

b.   Programmable Automation Controllers.

The following are general expectations for PAC. Refer to Exhibit O for specific minimum requirements for PAC capabilities and specifications.

      (1)   Provide PAC with the capability of providing proportional, integral, and derivative (PID) control in real time, preferably with preemptive priority multitasking.

(2)   Provide PAC racks with capability of containing one or more communication modules to provide communication interfaces to third-party devices.

(3)   Provide PAC programming instruction set and memory size with the following capabilities as a minimum:

   (a)   I/O: 1024 in, 1024 out discrete, and 2,000 analog points.

   (b)   Relay Ladder Logic, Function Block, Structured Text and Sequential Function Chart:

      (i)   The processor will be able to program in all 4 languages in one processor.

      (ii)   Standard Boolean logic will for coils, timers/counters, etc. will only be limited by the amount of memory in the processor.

   (c)   Data Manipulation:

      (i)   All memory locations will be tag based with the ability to add and delete on line without taking the processor offline. In addition the tags will have the ability to be named to reflect usage based on user conventions. The tags will also have the ability to be aliased to other tag names if required.

      (ii)   Compare, move, block move, copy, and PID.

      (iii)   Table read/write/sort/compare/search/average.

   (d)   Math:

      (i)   Add, subtract, multiply, and divide.

      (ii)   Square root, exponentiation, and logarithms (base ten and natural).

      (iii)   Floating point number accuracy of four places.

      (iv)   Engineering unit scaling function block for analog values.

   (e)   Documentation:

      (i)   Address descriptions four lines by seven characters with edit, copy, and delete capability.

      (ii)   Rung descriptions with edit, copy, and delete capability.

      (iii)   Cut and paste logic capability.

        (iv)   Ability to import/export all documentation to/from standard text files.

(f)   Communications: support peer to peer message read and write and specify the specific protocol data transfer rate.

(g)   PID Blocks: minimum scan rate; 40 PID blocks per 150 milliseconds; support both dependent and independent equations.

(h)   Support user defined data structures with mixed numeric types.

(4)   Provide PAS with diagnostics accessible by the application development program.

(5)   Hardware.

(a)   Controllers will have scalable I/O to accommodate everything from main process control to any skid packages needed throughout the plant.

(b)   Must have the ability to distribute I/O and support remote I/O without a local processor/controller.

(c)   Controller must be capable of talking to smart instruments, IED's (Intelligent Electronic Devices) or I/O networks.

(6)   Capabilities and Performance.

(a)   The system shall utilize the same programming environment for process, sequential, drive, batch, motion and safety control programming throughout the system.

(b)   Controllers will have the capability to run slow regulatory loops with update rates as slow as 2 seconds while simultaneously controlling critical loops with update rates as fast as 50 milliseconds.

(c)   Controller will have the ability to run multiple tasks with the ability to run each task at a particular scan rate that may be updated while running with the ability to prioritize each task.

(d)   Controller must be able to do time synchronization for the system.

(e)   Controller must be able to support CIP Safety on Ethernet/IP.

(f)   The controller "firmware" shall be capable of being upgraded on line, without stopping or upsetting the process being controlled in a redundant controller system.

(g)   A controller, or I/O card, shall be capable of being inserted under power, without upsetting the process being controlled by other controllers.

(h)   Have user defined functions for customization and user defined tag structures.

(i)   Have application-specific instructions for process, drive, batch, motion and safety applications built into the controller.

(j)   In redundant controllers the switchover time of controller logic must be less than 100 ms with no disturbance of the controller outputs.

(7)   Controller Editor.

(a)   The system control and I/O development environment shall consist of an IEC 61131-3 and ANSI/ISA-88 compliant editor. It shall represent the multi-tasking operating system of the system controllers with a graphical tree view showing tasks, programs, phases, and routines.

(b)   The logic editor shall support the creation of routines in all of the following four programming languages:

   (i)   Function Block Diagram (FBD).

   (ii)   Relay Ladder Diagram (LD).

   (iii)   Sequential Function Charts (SFC).

   (iv)   Structured Text (ST).

(c)   The system should support the creation of libraries of commonly used instructions and templates that can be reused throughout the control project to help keep code consistency.

(d)   The manufacturer shall provide a process library for both function blocks and their corresponding display elements Operator faceplates, compliant to ISA standards.

(e)   The editor shall provide the ability to drag-and-drop to move instructions, logic, routines, programs, and tasks either within a single project or between projects to create detailed project libraries.

(f)   The editor shall also have open access to various portions of projects through:

   (i)   Partial Import/Export Online or Offline – The system shall support the import or export of specific, user-selected portions of logic, into and out of both a running controller as well as an offline controller configuration file. When performing this function OnLine, the controller shall have a 'Test Edit' function, such that the programmer can disqualify, or cancel the edit before fully accepting the changes.

(g)   Controllers and their development environment must provide the ability to perform common runtime modifications. This includes the creation of new data structures, tags, tasks, programs, and routines and also the addition of select system I/O modules, all while the system is fully operational. Additionally, application code written in Function Block Diagram, Ladder Diagram, Sequential Function Chart or Structured Text should be capable of being modified, tested and downloaded while the system continues to operate.

(h)   In addition to being able to modify a controller's contents while running, multiple users should have simultaneously access to a running controller. Changes made by one user are to be automatically propagated or uploaded to the other users project view so that each user has an up-to-date image.

(8)   Controller Communications.

(a)   The controller shall be fully functional with "peer" ability to initiate communication transactions among other controllers, and with operator stations, gateways and other computers on the LAN(s). If a controller requires a measurement from another controller or gateway, it shall merely request the owner of the measurement to begin sending value updates, as the measurement changes, until such time as the requesting controller advises that it no longer needs value updates. All data transfers from the controller(s), after the initial transmission of current value and status, shall be done on an exception basis. In order to make the best use of available LAN bandwidth, the system shall use a report by exception/alarm scheme.

(b)   Communications must use the open industry standard Ethernet/IP protocol.

(c)   Peer-to-peer communications that provide for the direct transfer of process data between controllers without the use of gateways or servers.

(9)   Security.

(a)   Controller should have capability to password protect the controller.

(b)   Ability to provide source code protection on:

(i)   User defined instructions.

(ii)   Routines.

(c)   Source Code protection will provide a key file to distribute to authorized personnel.

(d)   Tags will have ability to be configured for either read or write access from outside communications like graphics packages, and OPC servers.

(10)   Controller Redundancy.

(a)   Hardware.

(i)   The redundant processor should not reside in the same chassis as the primary.

(ii)   Hardware should be able to be flash upgraded without taking the process down.

(b)   Performance.

(i)   The system shall be of a highly reliable design. The system design shall provide for non-disruptive repairs of faulty equipment and on-line, non-disruptive field expansion of the system. Redundancy shall be system based and modular. This is to provide for selection and implementation of redundancy as needed both during the development and operation of the system. This is not limited to but includes redundant servers (database), controllers, and communications networks. (Controller and I/O redundancy is covered under the Controller and I/O section of this document). This redundancy should be capable of being implemented on-line and without disrupting the system operation.

(ii)   The PAS shall support redundant Data servers without the need to write application logic.

(iii)   The PAS shall support switching back to the primary data server from the secondary, when the primary PAS server comes back online. Alternatively, the PAS can remain connected to the secondary data server even if the primary PAS server becomes available.

(iv)   The PAS shall support notification of a service disruption including computer name of failed server.

(v)   The PAS shall support notification service recovery including the computer name of active server.

(vi)   The PAS shall support the replication of runtime changes made in the primary server to the secondary server from the development environment.

(vii)   The PAS shall support a controlled, manual switchover from the Active server to the Standby server.

       (viii)   The PAS shall provide OWS Object Model methods to determine the state of the Primary and Secondary servers.

c.   General I/O System Requirements.

    (1)   Provide the ability to monitor and override I/O.

    (2)   Design for rack type I/O modules. Alternative system designs may use different mounting configurations. The I/O will have the ability to sit on an Ethernet ring topology and must self-heal within 3mS (ie Device Level Ring-DLR). Flex and Point I/O will also be available for installations that have tight space requirements and or small amount of I/O at an area.

    (3)   Provide the ability to preselect the failure status of each output point in the event of CPU failure.

    (4)   PAS modules supporting factory-provided wiring interface devices are required. These terminal strips allow the removal and reinstallation of I/O modules without removing wires.

    (5)   The ability to assign PAS I/O addresses regardless of physical locations is required and to alias the name to fit project naming conventions.

    (6)   All hardware of the Programmable Automation Controller shall operate at an ambient temperature of 0 to 60 degrees C (32 to 140 degrees F), with an ambient temperature rating for storage of –40 to +85 degrees C (- 40 to +185 degrees F). The extreme temperature Programmable Automation Controller shall operate at an ambient temperature of -25 to 70 degrees C (-13 to 158 degrees F).

d.   I/O Modules.

    (1)   Provide fuse protection for discrete output channels. The fuse shall be included with the PAS hardware and provide a blown fuse indication.

    (2)   The discrete outputs may be sourced at 5-, 12-, or 24-Vdc or 120/240-Vac continuous service. Assume 24-Vdc for Bid purposes.

    (3)   Provide individual status lights for each input and output module.

    (4)   Provide quantity of analog modules based on the I/O list included at the end of this Specification.

    (5)   Provide analog input modules capable of accepting the following signals:

        (a)   4- to 20-mAdc with input impedance of 250 ohms.

        (b)   Zero to 5 Vdc.

(c) Zero to 10 Vdc.

(d) 1 to 5 Vdc linearized.

(6) Provide analog output modules capable of driving a 4- to 20-mAdc signal into a zero- to 600-ohm load.

(7) Provide analog modules with A/D and D/A conversion resolution 12 bits minimum.

(8) Where required, provide Redundant I/O modules, with onboard 'voting' (i.e. 1715).

(9) Provide 20% spare I/O, including all necessary licensing to use that I/O in the system (i.e. OWS, Historian, Database, OPC, etc.).

e. General PAS Network Requirements.

(1) Configure the system to achieve a minimum overall system data throughput performance of 256 16-bit registers read from each PAS in a maximum time of 2 seconds when initiated by an operator. Achieve a minimum data throughput of writing 128 16-bit registers to any PAS from the SCADA system in a maximum time of 1 second.

(2) Provide network capable of peer-to-peer (between PAC), host-to-PAC, and programming computer-to-PAC communications via the network. The capability shall exist for PAS on different networks to bridge communications together. The Contractor will have switches which appear in the controller I/O tree.

(3) Provide 30 percent growth capability in each PAC network without compromising data throughput capacity specified at full build out.

(4) A network architecture minimizing interface boxes, bridges, and similar hardware is required. The system will have the ability to use a device level ring for I/O eliminating switches at the I/O level and being fault tolerant. Adding I/O with the ring will be done on line without the need to take the system down.

(5) Provide PAS capable of initiating data messages to allow data reporting by exception to be performed by the supervisory software.

(6) Provide PAS capable of establishing communications and exchange data, via modules installed on PAS backplane, with third party equipment. Communication protocols include, but not limited to, Modbus, TCP/IP Ethernet Interface, ControlNet, RTU protocol, ASCII, PROFIBUS and DeviceNet.

(7) Provide Layer 2 EtherNet/IP switches that support both the native logic editor and the Cisco Command Line Editor. Ensure that no special software, or OPC communications is required to access the diagnostic information of the Layer 2 switch.

f.   PAS Programming/Documentation Software.

      (1)   Software and hardware interfaces required to program and document the PAS applications software. The package shall be capable of programming PAS from a central location. PAS software shall run on a multitasking personal computer using [Windows 7 or current version] minimum, capable of performing on- and off-line programming, support upload and/or download operations, and monitoring and/or editing of PAC data and/or programs on-line.

      (2)   The program shall be able to be modified and edited and changes downloaded with the PAC running.

      (3)   Provide application notes and technical briefs with the shipment of equipment. Supply application notes and technical briefs to the Owner for a minimum of 5 years after shipment.

      (4)   A laptop computer using [Windows 7 or current version] minimum provided by Owner, loaded with programming software provided by the Contractor, shall be capable of interfacing the PAS locally.

g.   Networks.

      (1)   Supported Topologies.

            (a)   Linear.

            (b)   Star.

            (c)   Redundant Star.

            (d)   Ring.

            (e)   Ring Without Switches.

      (2)   Specifications.

            (a)   Must use an open ODVA compliant communication protocol.

            (b)   Must use the industry standard Common Industrial Protocol (CIP) packets for communications.

            (c)   Data exchange between processors must be able to be able to use Multicast or Unicast data.

            (d)   Must support IEEE 1588 precision time protocol (PTP) standards with CIP SyncTM for time synchronization.

(e)   Communication modules to the processors must failover in less than 100ms on redundant configurations on Ethernet.

(3)   Network Hardware.

(a)   Managed switches should be used.

(b)   Switches must have capability to back up configuration files to Process Automation Controller.

(c)   Switches require the ability to be configured through the Process Automation controller.

(d)   Switch diagnostic.

(e)   Switches must be capable to have a memory card to backup configuration data to so in the event of failure the memory card can be placed in new switch.

(f)   All media should be checked for appropriate installation by checking for dB losses etc.

h.   Visualization Products.

(1)   HMI and Data Servers.

(a)   The HMI and Data Servers will have the ability to run in a redundant mode as well as virtualization mode with load sharing and redundancy in this mode.

(b)   It will be scalable for small systems to very large systems.

(c)   Screen update times will be one second or less.

(d)   First screen 'Paint' will be 2 seconds, or less.

(e)   Security will be an integral part of the system and work with Microsoft Windows ™ security.

(f)   The system will be able to browse all tags in the controller.

(g)   There will be a factory library for standard face plates and controller instructions that will be maintained and supported by the manufacturer.

(h)   The PAS Server is to store PAS project components (for example, graphic displays) and serves them to system wide operator workstations thereby removing the need to create duplicate copies and maintain them for multiple operator workstations.

(i)   The data server links networks and devices to system wide visualization and development components such as PAS OWSs and EWSs. It shall provide communication services between applications and devices on the plant floor allowing users to read, write, and configure values in plant floor devices, such as sensor readings and other system controller data.

(j)   Data servers shall be configurable to run on both a primary computer and a backup computer. The system should automatically switch to a backup computer if communication with the primary computer fails.

(k)   The servers should handle failure detection and failovers automatically for all components (OWSs) of the system. In a traditional system (DCS), each OWS must independently monitor connections, detect communication failures, and switch between backup and primary computers. This is not preferred.

(l)   The HMI shall support multiple HMI servers in an application. HMI servers can also be redundant.

(m)   The HMI editor should allow for simultaneous collaboration by multiple developers.

(n)   The HMI shall provide a tool to show the status of installed product patch file versions currently installed on a computer.

(o)   The HMI shall provide the ability to design high-level graphics for complex applications either by using its own drawing editor or by importing graphic files from other drawing packages such as AutoCAD®, CorelDRAW® and PhotoshopTM. Specifically, the HMI shall allow importing of the following file formats: WMF, .CLP, .BMP, .TIF, .GIF, .PCX, and .JPEG. The HMI shall include, but not be limited to, the following graphic object animations: position, rotation, size, visibility, color, fill, slider, and touch.

(p)   The graphic viewers, or Operator Workstations (OWS), shall be separate from the business logic, or HMI Servers, and both are separate from the configuration software.

(q)   The HMI shall support data servers as a means to communicate with any OPC server.

(r)   The HMI clients shall be able to view tag data from any HMI server or data server in the application as well as displays.

(s)   The HMI shall support remote editing. Any computer with sufficient security and the configuration software installed can add, change or delete any configuration information on any computer in the distributed application.

(2)   Panel Mounted HMI, Scalable.

(a)   Scalable operator interfaces: Dedicated operator display stations for use near the process and outside of the control room. These stations shall have the same HMI development tools and use scalable vector graphics that provide interchangeability with operator control room HMI noted in Section A. above. The development tools shall also program the above client/server based HMI, utilize the same graphics objects and be supported by the same technical support services.

(b)   HMI that utilizes the same engineering tools for control room HMI, HMI installed out in process areas or on OEM skids (note: a high majority of OEM provided skids standardize on HMI that could be the same as the DCS provider HMI).

(3)   Alarming.

(a)   The alarm server alerts operators to critical alarm conditions and maintains a record of alarm status for historical access.

(b)   The PAS shall allow users to set up a complete alarm system.

(c)   The alarm system shall have the ability to monitor any analog or digital tag for alarms. The alarm system database must allow up to 10,000 analog or digital alarm tags per PAS server.

(d)   The alarm system shall have the ability to define up to 4 different severity classes to visually distinguish alarms.

(e)   The alarm system shall provide a means of displaying up to 2,000 tags that are in alarm per PAS server. This alarm summary display shall be fully configurable.

(f)   In the alarm summary display, a user can acknowledge an alarm. The alarm will then appear as acknowledged to all OWSs in the application.

(g)   Custom alarm summary objects shall be able to be embedded on any display.

(h)   The alarm system shall allow online export of an alarm log file to ODBC format databases.

(i)   The alarm system shall allow the operator to write a custom message to the alarm history.

(j)   Alarms can either be polled or sent by exception from the controller.

(k)   The alarming will support ISA 18.2 alarm management state model.

(4)   Security.

    (a)   The system shall ensure Operator WorkStation security by authenticating users against a set of defined user accounts and access privileges. Project-level security should also be supported by the system. Levels of security can be assigned to operator interface commands, macros, database tags, and graphic displays. Combinations of these levels can be assigned to individuals or groups of users, giving them different access to different features. Operator interface security can also be configured to require user authentication for critical operations, such as set point changes and recipe downloads. Operator activity and system changes are to be logged for later review.

    (b)   The available security service should protect against unauthorized use but still allow authorized users to use the system efficiently. The security is to be a centralized system which restricts access to system resources based on key security components. In a domain environment the servers will use the Windows operating system security features which integrate into the PAS.

(5)   Network.

    (a)   The system should utilize the EtherNet/IP to move data seamlessly throughout the system. Multiple physical networks, including the plant, supervisory, control, and device networks should appear as a single network making communications efficient.

    (b)   Network Management - Network Management is to provide the ability for the system to support and manage system wide communications. This shall include:

        (i)   Networked field devices.

        (ii)   Peer to peer control between controllers.

        (iii)   Supervisory control data exchange between controller and OI.

        (iv)   Supervisory control between controller and Batch Management.

        (v)   Data collection for trends and historians.

        (vi)   Production data transfer between the system and Plant MES software.

    (c)   Supervisory Network.

        (i)   The open technologies of Ethernet and TCP/IP shall be utilized for communication between the control system server and the

operator stations. The control system server and its associated operator stations must be capable of connecting to two fully independent Ethernets run in parallel. No repeater or bridge connection between the Ethernet is acceptable as a means of achieving this function. This Network shall be used for connection of Servers, Workstations and OWSs to the controllers.

(d)   Control Network - The process control network/remote I/O network is used to connect the controller to field (Remote) I/O and shall be an open, flexible, high performance network. These networks shall have the following capabilities:

    (i)   Inherently designed to provide redundancy.

    (ii)   Capable of providing control loop updates within 1 second.

    (iii)   Deterministic delivery of process data.

    (iv)   Completely open standard with no proprietary content.

    (v)   A producer/consumer network model to optimize network bandwidth.

(e)   Control Network Redundancy and Alarming.

    (i)   Failure of any supervisory system shall be announced audibly and visually via the alarming subsystem.

    (ii)   To ensure maximum reliability, communications shall be redundant. The communications system shall be capable of sustaining loss of one media channel without loss of data or performance degradation. The Bidder shall include the typical data throughput of his communications system, in baud rate and number of analog values per second.

    (iii)   Loss of communications shall not cause loss of control at the local subsystems. Also, loss of a local subsystem (either a single node or both of a redundant pair) shall not cause the loss of network communication.

(6)   Historian.

(a)   Historian will be OSIsoft PI (PI) based, or approved equivalent, and be also scalable up to 100,000 points.

(b)   Data collection nodes will feed the PI historian and be redundant.

(c)   The historian server can also run in a redundant mode.

(d)   Historian trends can be inserted into the HMI graphics and browse for tags in the controller. OPC connectivity is not acceptable at the plant level to the Historian.

(e)   The Plant Historian shall be an integrated software package for collection of plant floor process data and running information / reporting applications. Be able to support OPC DA as a means to collect real-time process data from such sources as non-Rockwell Automation controllers.

(f)   The Historian shall support a variety of client platform technologies with primary focus on thin client access to data and reports from a web browser.

(g)   The Historian shall utilize an optimized time series database for optimal performance in both collection and storing data and for accessing data for displays, dashboards, trends and reports.

(h)   The Historian shall support redundant architectures for both redundant data interface nodes on redundant data servers and redundant Historian servers for high availability to data from clients.

(i)   The Historian shall support store and forward capability between the Historian and the data collector interfaces, such that data is stored at the interfaces if the Historian is un-available, and then forwarded to the Historian when it is available, ultimately minimizing data loss.

(j)   The Historian shall be capable of accepting data from multiple sources of inputs.

(k)   Primarily signals from Programmable Logic Controllers, Programmable Automation Controllers, Distributed Control Systems and Human Machine Interfaces shall be used for data input.

(l)   Other types of controllers, monitors, computers, data servers and technologies such as web services, text files on computers shares etc. will need to be supported with input in different formats.

(m)   The Historian shall support both polled and exception based data collection.

(n)   Event triggered reads.

(o)   All standard configurations changes shall be "on-line" without the need to stop & re-start the Historian server. Only exception to that would be licensing changes to add or remove capabilities on the server.

(p)   The Historian shall store data in time limited archive files, so only the current archive file is updated with new data, and prior archives are updated by exception only.

(q)   System must provide for the automatic creation of archive files and the ability to automatically overwrite the oldest archive for unattended operation.

(r)   The Historian shall provide a method for backing up all on-line archives on-line without the need to stop the archive system.

(s)   System shall provide a dead banding compression algorithm (+/- limits around a process variable).

(t)   The interface shall allow for Historian data to be trended in the native HMI trend.

(u)   The Historian shall have real-time and historical trending capabilities. It shall also have the ability to display both real-time and historical data at the same time on the same trend.

(v)   The Historian shall come with an automatic audit trail mechanism that stores all the configuration changes, user connections, security violations and performance metrics.

(w)   The audit trail shall be stored with the data in the archive files (same file or audit trail file per archive file) covering the same time period so the user only needs to manage a single file for all data and audit messages for any given period.

(x)   The audit trail shall not be modifiable – a user may insert custom messages, but once stored an audit message cannot be modified or deleted regardless of the user's security privileges.

(y)   The system shall have available if needed an application server that performs process data collection from the control system. There should be included a user configurable data collection functions defining what data is to be collected and under what circumstances it is to be collected. Users shall be capable of accessing historical data.

(z)   When the system is configured, and as it is adapted over time, it shall be possible to define classes of information that should be retained, as well as specific system-level data that should be collected. As with process historical data, this data shall be accessed for viewing and for reporting.

(aa)   The system shall support an In-Chassis Historian for local OEM/Skid/Machine historical requirements, that natively stores and forwards to the server based PAS Historian.

(7)   Asset Management Center and Disaster Recovery.

(a)   Base Functions.

(i)   Source Control.

(a)   *Check-out*: Writes the selected file or folder to a local working folder with read-write access and locks the selection to prevent multiple-user editing.

(b)   *Check-In*: Reads the local working folder and updates the source control repository, creating new versions as needed.

(c)   *Get*: Writes the selected file or folder to the local working folder with read-only access. Note: A Get can retrieve the latest or any historical version that is in the archive.

(d)   *Undo Check Out*: Returns the selection to an unchecked out state and unlocks the selections.

(ii)   Audits - Any changes on records such as:

(a)   Data value changes (timers, tags, instructors, etc.).

(b)   Create, delete or changing of rungs.

(c)   Create, delete or changing of tags.

(d)   User log-in/out.

(iii)   Events.

(a)   Logging of events based on time and function.

(iv)   Reporting - Reporting of events or audits with scheduler:

(a)   Weekly programming change reports for any Allen-Bradley controller.

(b)   Daily operator inputs from terminals.

(c)   Change history report for any electronic file.

(b)   Disaster Recovery.

(i)   Provides control system backup that is integrated with source control to provide reliable and easy access to the latest control system configuration files.

(c)   Calibration Management.

(i)   Manages calibration records and files associated with the field instruments.

(d)   Process Device Configuration.

(i)   Ability to configure field instrumentation from the engineering work station.

i.   Execution.

(1)   Installation.

(a)   Install in accordance with manufacturer's written instructions.

(b)   Provide local manufacturer support to the Owner.

(c)   Provide training on hardware and development software utilizing a certified instructor(s). Location of the training will be in Alameda County Public Works Agency facilities. Provide training equipment as required.

3.   Long Term Support.

a.   Phone Support.

(1)   Scope of Work.   Unlimited technical phone support for control system equipment: Installation, configuration, maintenance and troubleshooting.

(a)   Real-time technical phone support by the control system manufacturer shall be available 8a-5p local time where the support specialist directly answers the call (no call attendants, no call-back). 24x7x365 coverage (includes evenings, weekends and holidays) shall be available with same-call-access responsiveness or better. Global support shall be available in all world time zones, and in at least 9 languages (English, Spanish, French, German, Italian, Portuguese, Japanese, Mandarin, and Cantonese).

(i)   Skill Set: Manufacturer Support specialists shall have knowledge of current and legacy manufacturer's hardware, software products and related technologies (Microsoft, Profibus, OPC). Includes controllers, drives, I/O, networks, programming software, communications, information and application software.

(b)   Electronic support shall be available to ftp a file, submit an online request, and download a software update or lookup a tech note.

        (i)   Current software releases and reactivation codes shall be available for download from the Internet 24x7. Upon request, overnight shipment of update(s) or replacement media shall be available.

        (ii)   Product manuals and knowledge base shall be available on the Internet.

    (c)   Support center shall be able to seamlessly dispatch an on-site engineer if problem warrants (specific response times by region).

(2)   Upgrade Options. Services available for individual plants to purchase based upon needs.

    (a)   Priority responsiveness where calls are handled with next-in-line priority. Case escalation process includes a follow-up call to provide a status update or resolution confirmation.

    (b)   Online case management tools where site personnel can initiate or edit a case online or lookup historical case activity.

    (c)   Dedicated support team that is familiar with plant activity and product configurations. This is managed by a designated account manager that will conduct monthly conference calls to review case activity and production issues.

    (d)   Technical support for mainstream 3rd party control and HMI products.

    (e)   Basic programming assistance – developing, reviewing or debugging code. Best practice advice for maximizing routine efficiency and program functionality.

b.   Onsite Support.

(1)   Field support engineers are to be made available on an as needed, scheduled, or full-time basis to meet the specific user needs and system maintenance strategy.

(2)   Callout services for repair and troubleshooting labor as needed for system related issues.

(3)   Extended parts and labor Warranty for repair labor (including local travel) and replacement parts for system control equipment and drives for up to five additional years.

(4)   Drives startup services to commission system drives and prevent potential startup problems. To include a 5 year extended warranty.

(5)   Conversion services to convert existing programmable controllers, drives and motors to supplier system.

(6)   Preventive maintenance Services to perform regular maintenance on system related equipment to prevent potential problems and extend component/system life.

(7)   Embedded engineer as full-time labor to perform reactive and preventive tasks in continuous support of the system maintenance department.

c.   Asset Management Support.

(1)   Manufacturer must provide for improvement of plant MRO processes through an Asset Management Program service.   This service must provide a proven methodology and a designated Asset Management Professional to optimize plant spare parts inventory, simplify plant repair transactions and drive costs savings.

(2)   Manufacturer must ensure the availability of plant spare parts while stabilizing plant maintenance budget with a Parts Management Agreement service. A Parts Management Agreement must provide quicker access to the spare parts the plant needs, while reducing plant operating costs to maintain and manage plant spare parts inventory.

(3)   Manufacturer must provide an annual repair agreement which is a preventive service that enables the plant to pay a fixed monthly amount for repairs of plant automation equipment which makes it easier to forecast spending and helps lower the plant's everyday transactional costs.

d.   Training.

(1)   Manufacturer must provide training programs for multiple job functions on the chosen process control system. These roles include electricians, maintenance technicians, and control systems engineers. The Contractor must provide various training options including online self-directed classes, onsite instructor led training, and offsite instructor led training.

(2)   The manufacturer must provide Pre- and Post-Test Services at no additional charge for standard on-site training courses.

(3)   Manufacturer must provide an online assessment tool to help the plant determine the knowledge of their work force and to build a tailored training plan. The online assessment tool must provide the plant the ability to learn more about their work force in a short amount of time. Thus, when the skills and knowledge gaps hindering production performance are recognized, the plant can create a training strategy to maximize job performance and effectiveness. The online assessment tool must provide for customizable online assessments based on job tasks that are performed specifically by the plant work force. Online assessments must be able to be given to groups of individuals with like job responsibilities and enable viewing of the results to identify areas for potential training.

(4)   The manufacturer must be able to perform an integrated performance assessment, which is a comprehensive analysis of employee job skill and knowledge levels of automation and control equipment for specific jobs and tasks (maintenance, configuration, etc.). The assessment must also include supporting information and recommendations to improve employees' performance while remaining closely aligned to the plant's business and training goals.

EXHIBIT O

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Request for Proposals

Front End Engineering Design (FEED) Study of Stormwater Pump Station SCADA System

MINIMUM CAPABILITIES AND SPECIFICATIONS FOR

PROGRAMMABLE AUTOMATION CONTROLLERS

1.   General.

    a.   Summary.

        (1)   The Programmable Automation Controllers (PAC) shall meet the criteria of this specification for control of process equipment, machinery and systems.

    b.   References.

        (1)   The PAC shall be listed or recognized by the following registrations:

            (a)   cULus Listed, Suitable for operation in Class 1 Division 2, Groups A, B, C, and D Hazardous Locations.

            (b)   CE marked, compliant with:

                (i)   EN 61326-1; Meas./Control/Lab., Industrial Requirements.

                (ii)   EN 61000-6-2; Industrial Immunity.

                (iii)   EN 61000-6-4; Industrial Emissions.

                (iv)   EN 61131-2; Programmable Controllers (Clause 8, Zone A & B).

            (c)   C-Tick marked, compliant with AS/NZS CISPR 11; Industrial Emissions.

            (d)   Ex marked (ATEX), compliant with:

                (i)   EN 60079-15; Potentially Explosive Atmospheres, Protection "n".

                (ii)   EN 60079-0; General Requirements.

                (iii)   II3 G Ex nA IIC T5X.

            (e)   KC marked.

(2) The PAC shall meet Institute of Electrical and Electronics Engineers, Inc. (IEEE) applicable standards.

c. Submittals.

(1) The supplier shall provide product data for the PAC and any component equipment, including:

(a) Central Processing Unit (CPU) information.

(i) Memory.

(ii) Input/Output (I/O) capacity.

(iii) Nonvolatile program and data retention.

(b) I/O Modules information.

(i) Type and rating.

(ii) Standard wiring diagram.

(c) Bill of materials for supplied equipment.

(d) Spare parts list.

d. Quality Assurance.

(1) The supplier shall provide PAC system components by a single manufacturer:

(a) Only communication modules for communication or network media functions that are not provided by the PAC manufacturer may be produced by third-party sources.

(b) Only PAC manufacturer-approved hardware, including cables, mounting hardware, connectors, enclosures, racks, communication cables, splitters, terminators, taps and removable media, may be used.

(2) All PAC system components shall be new, free from defects and produced by manufacturers regularly engaged in the manufacture of these products.

e. Delivery, Storage and Handling.

(1) The supplier shall deliver PAC components in packaging designed to prevent damage from static electricity and physical damage.

(2)   The supplier shall store the equipment according to manufacturer requirements and in a clean and dry space at an ambient temperature range of -40 °C to 85 °C (-40 °F to 185 °F).

(3)   The supplier shall protect the units from exposure to dirt, water, fumes, corrosive substances and physical damage.

f.   Warranty.

(1)   The manufacturer shall provide their standard parts warranty for eighteen (18) months from the date of shipment or twelve (12) months from the date of being tested and commissioned, whichever occurs first.

(2)   This warranty applies to PACs.

g.   Maintenance.

(1)   Provisions shall meet the following installed-spare requirements:

(a)   I/O points – 25 percent spare I/O capacity for each type of I/O signal at every PAC and remote I/O location. All spare I/O shall be wired to field terminal blocks.

(b)   PAC backplane – the greater of:

(i)   25 percent spare capacity, or

(ii)   3 spare backplane slots.

(c)   PAC memory – 50 percent spare program volatile memory.

2.   Products.

a.   Manufacturers.

(1)   Allen-Bradley or approved equal. (I've vetted AB as a competent solution for PAC)

(a)   If Consultant is requesting consideration of an alternative manufacturer, documentation evidencing that the proposed alternative is equivalent to, or of higher quality than the specified manufacturer shall be included in Consultant's proposal.

b.   Construction.

(1)   The programmable automation controller (PAC) shall be an embedded I/O design, with expansion capability. The available expansion shall be local I/O modules or distributed (remote) I/O connected through a network.

(a)   A single local chassis shall house CPU, memory, embedded digital I/O, communications interface options and power supply.

(b)   The PAC shall be DIN rail or panel mounted.

(c)   All system modules, and local and remote chassis shall be designed to operate in:

    (i)   An industrial environment with an ambient temperature of 0° to 60°C (32° to 140°F), and with a relative humidity range of 5% to 95%, non-condensing.

    (ii)   A free airflow environment (convection cooling only, no fans or other air moving devices shall be required).

    (iii)   Conformal coating of the PAC shall be offered as an option for use in corrosive/hazardous applications.

(d)   All system modules, and local and remote chassis shall be designed and tested to operate in high electrical noise environments.

(2)   The system shall support up to 4 local expansion modules.

(a)   Local expansion modules shall be installed to the right of the embedded I/O modules.

(b)   The local expansion modules shall mechanically lock together by means of a tongue and groove design and have an integrated communication bus that is connected from module to module by a movable bus connector.

(c)   Each module shall have a built-in removable terminal block behind a door at the front of the module with a finger-safe cover. I/O wiring shall be routed from beneath the module to I/O sensors and actuators.

(d)   The manufacturer shall have available a variety of I/O modules, including AC digital, DC digital, contact output, analog, RTD, thermocouple and high-speed counter.

c.   CPU

(1)   The CPU shall be a self-contained unit, and will be capable of providing control program execution, supporting remote and local programming, controlling all I/O scanning and inter-controller and peripheral communication and diagnostic functions.

(a)   32 tasks (100 programs per task):

    (i)   Continuous – 1 allowed.

    (ii) Periodic – Run via an interrupt at a user-defined interval in 1 μs increments from 1 ms to 2000 s.

    (iii) Event – Triggered by consumed tag or EVENT instruction.

  (b) 256 controller connections.

  (c) Network connections:

    (i) 256 EtherNet/IP.

    (ii) 120 TCP.

(2) The PAC shall organize user applications as tasks, which can be specified as continuous, periodic or event based. Tasks can be triggered by input point or instruction.

(3) Programming instructions shall include the following:

  (a) Relay-Type (bit).

  (b) High-Speed Counter.

  (c) Counter and Timer.

  (d) Data Comparison (for example: Equal, Greater than or Equal, Less than or Equal).

  (e) Data Manipulation (for example: Copy, Move).

  (f) Logical (for example: And, Not, Or).

  (g) Integer and Floating Point Math (for example: Add, Subtract, Multiply, Log 10).

  (h) Advanced Math and Trigonometric Functions (for example Sine, Cosine, Tangent).

  (i) Statistical.

  (j) Matrix and Array (for example: COP, CSP, FIFO).

  (k) BCD Conversion.

  (l) Program Flow Control (for example: Jump, Subroutine).

  (m) Application Specific (for example: Sequencer).

(n) Diagnostic.

(o) Communication.

(p) Recipe.

(q) Proportional Integral and Derivative (PID).

(r) Block Read and Write.

(s) Immediate I/O and Communication Update.

(4) The system must be capable of storing the following data:

(a) External Output Status.

(b) External Input Status.

(c) Timer Values.

(d) Counter Values.

(e) Boolean Values (0 or 1).

(f) Short Integer Numbers (-128 to 127).

(g) Integer Numbers (-32,768 to 32,767).

(h) Double Integer Numbers (-2,147,483,648 to 2,147,483,647).

(i) Floating Point Numbers to 8 significant digits (for 8+ digits, conversion to exponential form from $\pm 1.1754944 \text{ E} -38$ to $\pm 3.402823 \text{ E} +38$).

(j) Long Integer Numbers (-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807).

(k) Internal Processor Status Information.

(5) Data shall be distinguishable to the CPU by address and sub-element mnemonic.

(a) Management of the data into memory subsections shall be an automatic function of the CPU operating system.

(b) Data can be displayed in ASCII, Binary, Octal, Hexadecimal or Decimal.

(c) Function-specific data such as PID, Axis, Axis Group or Message shall have dedicated displays available that annotate the meaning of specific control bits and words within them and allow for selective control where appropriate.

(6) The CPU shall have the ability to back up user program and all data when the main power supply is removed.

(7) The front of the CPU shall have a USB port.

(8) The front of the CPU shall have an integrated latching mechanism for securing the Secure Digital (SD) memory card. The PAC shall operate with the memory card removed.

(9) The CPU shall have a Real Time Clock.

(10) The processor module shall have green, red and yellow LED indicators with sequences for OK (module status), Force, Run, SD, I/O (I/O status), NS (network status), Link 1 and Link 2 (EtherNet/IP port status).

(11) The processor module shall have mode switch positions for Remote, Program and Run.

d. Memory.

(1) The PAC shall have 750 KB [or 1 MB] of user memory.

(2) The program storage medium shall be a solid-state, non-volatile type.

(3) The PAC shall include a 1GB (optional 2GB) SD memory card to store the user program and the firmware of all other modules residing in the same chassis to protect against memory loss. The card shall be rated for use in SIL 2 applications.

    (a) When memory is restored, a user-selectable option to restore in Run mode or Program mode shall be provided.

    (b) The PAC shall be able to be configured for automatic download from the card on power-up.

    (c) The PAC shall be able to be manually triggered to save to or load from the card.

e. I/O Circuitry.

(1) The PAC shall have embedded I/O:

    (a) 16 sinking or sourcing 24 VDC digital input points.

    (b) 16 sourcing 24 VDC digital output points.

    (c) 4 high-speed counters (some models).

    (d) 4 high-speed counter outputs (some models).

     (e)   4 universal analog inputs (some models).

     (f)   2 analog output points (some models).

(2)   The system shall support up to 4 local expansion modules.

     (a)   The supplier shall configure each expansion module to the optimum requested packet interval (RPI) for the application.

f.   Programming Environment.

(1)   Programming shall be through the USB 2.0 port or through the EtherNet/IP network.

(2)   The programming software shall run on Windows Server 2003, Windows Server 2008, Windows XP Professional, Windows 7 Professional and Windows Vista environments and the programming languages shall be:

     (a)   IEC 61131-3 compliant ladder diagram (LD).

     (b)   Structured text (ST).

     (c)   Function block diagram (FBD).

     (d)   Sequential function chart (SFC).

g.   Communication.

(1)   The PAC shall have at least:

     (a)   USB 2.0 port to support upload and download, online edits, firmware updates and bridging to other modules at full speed (12 Mbps).

     (b)   EtherNet/IP switch and dual 10/100 Mbps EtherNet/IP ports with 1 IP address. The interface shall support:

     (i)   IEEE 802.3 Physical and Data Link Standard.

     (ii)   Common Industrial Protocol (CIP), the protocol that provides real-time I/O messaging and information/peer-to-peer messaging.

     (iii)   Standard TCP/IP and UDP/IP communication.

     (iv)   10/100 Mbps auto sensing and auto switching.

     (v)   Standard Ethernet media.

     (vi)   Subnet masking.

(vii)   BOOTP and DHCP support.

(viii)   Programmable Automation Controller messaging to peer controllers and workstations.

(ix)   I/O data, real-time interlocking and information.

(x)   Full or half-duplex communication.

(xi)   Built-in Web access to diagnostics.

(xii)   I/O control.

(xiii)   Device level ring (DLR).

(xiv)   Precision Time Protocol (CIP Sync, IEEE 1588).

(c)   Access to DeviceNet networks for communications and backup via a DeviceNet scanner module.

(2)   The manufacturer shall have available:

(a)   For serial communications connection:

(i)   Module for an ASCII interface to RS-232, RS-422 and RS-485 devices.

(ii)   Module for a Modbus RTU interface.

(b)   For Modbus TCP network communications:

(i)   The PAC shall have connection capability through the embedded Ethernet port with the execution of a ladder-logic routine.

h.   Power Supply.

(1)   The PAC shall operate in compliance with electrical service of 19.2 to 31.2 VDC (24 VDC nominal) with a maximum line requirement of 2.1 A at 24 VDC, Class 2/SELV.

(2)   A single, main embedded power supply shall be integral to the chassis and capable of supplying all necessary power to the CPU and local I/O modules. Additional power supplies are available for additional I/O modules.

(3)   The power supply shall include an easily viewed indicator to show status of the DC power applied to the backplane.

(4)   The power supply shall provide electronic protection:

(a) At the time of power-up, the power supply shall inhibit operation of the controller and I/O modules until the DC voltages are within specifications.

(b) The power supply shall automatically shut down the PAC when its output power exceeds 125% of its rated power.

(c) The power supply shall be fused.

i. Ratings.

(1) The PAC shall be able to withstand conducted susceptibility tests as outlined in:

Temperature	IEC 60068-2-1
	IEC 60068-2-2
	IEC 60068-2-14
Humidity	IEC 60068-2-30
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
	IEC 60068-2-32
Radiated Emissions	CISPR 11: Group 1, Class A
Conducted Emissions	CISPR 11/22: Group 1, Class A
Conducted Emissions - Telecomm	EN 61000-6-4
ESD Immunity	EN 61000-4-2
Radiated RF Immunity	EN 61000-4-3
EFT/B Immunity	EN 61000-4-4
Surge Immunity	EN 61000-4-5
Conducted RF Immunity	EN 61000-4-6
Magnetic Field Immunity	EN 61000-4-8
AC Voltage Variation	EN 61000-4-11
DC Voltage Variation	EN 61000-4-29
Oscillatory Waves	EN 61000-4-18

3. Execution.

a. Examination.

(1) The supplier shall verify that jobsite is ready to receive equipment.

(2) The supplier shall verify that the jobsite environment can be maintained during and after installation within the service conditions required by the manufacturer of the PAC.

b. Installation.

(1) Installation shall be in compliance with all manufacturer requirements, instructions and contract drawings, including:

(a) Space surrounding the PAC to maintain adequate cooling.

  (b) Conditioning of space surrounding the PAC enclosure to maintain the manufacturer's ambient temperature and humidity ranges.

  (c) Accessibility of PAC diagnostic lights, communication ports and memory modules –these components shall be free from obstructions at all times.

(2) Control Panels.

  (a) The supplier shall provide all required cables and connectors to interface with other control system equipment.

  (b) The supplier shall ensure that communication media, analog signals and discrete I/O wiring are properly protected in accordance with manufacturer recommendations.