

# **Design Consultant Project Management Requirements**

**Sacramento Area Sewer District**

**Version 4.0**



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## Appendices

Appendix A – Quality Management Plan

## 1.0 Introduction

These guidelines provide additional detail to the Scope of Work in the RFP, and outline requirements each design consultant needs to incorporate into their proposed level of effort for project management tasks for Sacramento Area Sewer District (District) projects located throughout the District and including the EchoWater Resource Recovery Facility (EchoWater Facility).

## 2.0 General Management

The Consultant shall be responsible for detailed management of the project including the sub-consultants and shall keep the District apprised of the status of the project.

The Consultant shall provide the key management personnel as described in their proposal on this project. The Consultant shall not reassign the key project personnel without prior approval of the District.

The Consultant shall conduct bi-weekly project meetings with the District's Project Manager. These meetings shall be attended by the District's Project Manager and Consultant's Project Manager at a mutually agreeable time. The purpose of the meetings shall be to review the Consultant Project Manager's progress reports and the status of the project scope, schedule, budget and any issues that may affect completion of the project.

## 3.0 Project Management Plan

The Consultant shall prepare a Project Management Plan (PMP) that includes, at a minimum, the following sections:

- **Project Management Procedures:** Summarize procedures for milestone submittals, schedule and cost monitoring, and project status reporting. Include the baseline project schedule and WBS in this section.
- **Communication Plan:** Document project team communication procedures highlighting points of interaction between the Consultant and the District. Provide a copy of the project organizational chart.
- **Change Management Plan:** Develop a plan that establishes change identification, documentation, and tracking, as well as resolution procedures.
- **Risk Management Plan:** Establish risk management procedures including identification, tracking, and mitigation approach.
- **Quality Management Plan:** Develop and implement a Quality Management Plan (QMP) for all aspects, and all phases, of Consultant's work. Specific, minimum requirements for quality management are described in the RFP Scope of Work. In

addition, excerpts from the QA/QC Program are contained in Appendix A for the information of the Consultant.

- Health and Safety Plan: Prepare a project-specific Health and Safety Plan coordinated with the Program Health and Safety Plan, as well as District requirements.
- Administrative Procedures: Develop correspondence formatting, tracking, and logging procedures. This section shall also include invoice preparation and review procedures.

## 4.0 Program Management Information System

The Primary Sludge Thickening Project will utilize PMWeb as the Program Management Information System (PMIS), which is a web-based program. The objective of the system is to facilitate collaboration between the District, Designer and all contracted entities to be involved over the multi-year lifespan of planning, design and construction phases. It will be utilized as a single centralized, but fully accessible hub to support tracking and transmittal of deliverable documents integrated with their review, response and final signoff cycles. Action, issue and decision logs feed from the proper entry and maintenance of meeting notes in PMWeb. A library of shared documents will be available to the Consultant to retrieve or to post contributions. The Consultant shall be required to use PMWeb and follow procedures for general document sharing and at a minimum, and shall use the system to perform the following functions:

- Meeting agenda and meeting notes entry
- Action item, issue, and decision log entry
- Submitting requests for information (RFI) to the District
- Document & design drawing deliverable submittal and transmittals
- QA/QC documentation of review comments, responses and confirmations
- Contractor submittal comments and designer responses
- Direct upload of invoice and project progress monthly report submittals
- Tools to support Asset Management / Operations checklists
- Respond to Contractor RFIs through the system workflow sequence.

SacSewer will provide the required number of PMWeb licenses to the Consultant for their use for the duration of the project, as well as the necessary user training for a mutually agreed upon list of participants. SacSewer will train up to five (5) design consultant staff at the onset of the project. The design consultant should assume up to four (4) hours of training per staff member separated into up to four one-hour group training sessions held at the EchoWater Facility in the PMO Office. The design consultant shall then be responsible for training any other consultant and/or subconsultant staff that will use PMWeb within its organization over the life of the project.

## 5.0 Work Breakdown Structure (WBS)

The Consultant shall submit the project Work Breakdown Structure (WBS) for District approval within 10 business days following NTP. The WBS shall include a matrix indicating the budget amounts and man-hours for each task. For purposes of the proposal, the WBS shall match the tasks described in the Scope of Work and as provided in the sample labor hour

matrix in the RFP. If the Consultant recommends additional tasks to the Scope of Work, the tasks shall be inserted in the appropriate location in the Scope of Work upon approval by the District.

At the beginning of the project, the District's Project Manager may require further division of tasks in order to identify the total billing per task. This will be discussed with the Consultant and adjustments made to the WBS.

The approved WBS shall form the basis for reporting the status of each Scope of Work task in the monthly Project Progress Report, the Project Invoices, and for updating the Program Schedule on a monthly basis.

## 6.0 Monthly Progress Report

Regardless of when the bi-weekly Project Manager's meetings occur, the Consultant shall submit a Monthly Progress Report, based on information generated in the schedule update, which will include the following:

- Work completed to date (by WBS task/subtask breakdown)
- Work scheduled for the upcoming month
- Percent complete, tabulated on a per task basis (per WBS structure)
- Cost to complete, tabulated on a per task basis (per WBS structure)
- Earned value, determined on an overall project basis
- Updated project action, issue, and decision (AID) log
- Issues impacting project schedule or construction cost, and actual cost impacts
- Potential changes in project scope of work
- Status of the project budget
- Status of the project schedule.
- Consultant's plan to complete project within budget (if cost to complete is greater than approved budget)

## 7.0 Monthly Project Invoices

The Consultant shall prepare and submit monthly invoices that document the man-hours and billing rate for each person that works on the project for each task in the WBS. Overhead and profit, or multiplier, and any direct costs shall also be shown for each task. As part of the summary section of the invoice, the Consultant shall also include the following information:

- Job No.
- Cost code
- Budget

- Current billing period invoicing
- Previous billing period “total invoiced to date”
- Budget Amount Remaining
- Current billing period “total percent invoice to date”
- Current billing period “total percent completed to date”

The cost component breakdown for each element above shall match that of the design contract. The monthly progress report and project schedule shall be submitted at the same time as the project invoice as part of the monthly request for payment.

The Consultant shall also provide percent budget spent for each of the District’s WBS cost codes (i.e. by work package and phase). The District shall provide a list of cost codes by phase and task to the Consultant.

Subconsultant invoices shall be in the same format as the Prime Consultant. The District can provide a sample invoice structure to the Consultant at the beginning of the project as needed.

## 8.0 Project Schedule

The Consultant shall create a Detailed Project Schedule using the critical path method (CPM) with sufficient detail to clearly describe the work. The critical path should be free flowing and avoid the use of any constrained dates. The District discourages the use of lags and prefers that all activities have clear start and completion predecessors and successors. To assist with progress updating and invoicing, the Schedule of Values shall comply with the District’s WBS. The schedule shall expand upon the District’s overall project schedule following the District’s WBS. At a minimum, the schedule shall include the following:

- Project start date and finish date for each activity
- Each project task and subtask in the WBS with established relationships
- Project addenda
- Milestones for each task
- Project submittal dates
- Submittal dates for each deliverable
- Meeting and workshop dates
- District review periods

This schedule shall be submitted within 30 business days following NTP and is to be approved by the District’s Project Manager.

## 9.0 Schedule Updates and Maintenance

The Consultant shall maintain the project schedule and report progress on a monthly basis. Actual activity start and finish dates shall be noted along with the physical percent complete for each activity underway. Prior to invoice submittal, the Consultant and the District's Project Manager will evaluate the percent complete for each activity worked on during the billing period. The schedule update shall clearly identify any variances from the approved Project Schedule. Actual costs for each task shall be included along with any budget changes. The Consultant shall also prepare planned, actual and earned value curves for the Project and include them with the updated schedule along with the calculated CPI and SPI.

A monthly Schedule Update Narrative shall be included that includes as a minimum any variances to planned milestone or deliverable dates and any projected or actual cost variances to the project costs. The earned value will be compared to the planned value and the actual invoice value for the month and discussed in the progress report. The Consultant will need to justify any requests for invoice payments over the planned value and explain how the overall budget will be met over the life of the project.

The Schedule Update and Progress Report shall be approved by the District's Project Manager prior to recommending payment.

## 10.0 Focused Meetings and Workshops

The Consultant shall hold meetings and workshops throughout the project to keep the District apprised of the job, review work in progress, share information, discuss project submittals, present findings of technical analyses, receive and resolve comments, and obtain decisions and direction by District staff. This section defines the major meetings and workshops to be held by the Consultant. In addition to the meetings described in the RFP and attachments, the Consultant should anticipate active participation in management briefings, public outreach workshops, and other meetings arranged by others throughout the duration of the project. The Consultant shall also hold meetings as required to keep the District apprised of the job, to review work in progress, and to receive and resolve comments.

The Consultant shall prepare and submit an agenda package to the District for review at least one week prior to each meeting or workshop. The agenda package shall include a copy of the formal agenda and applicable review materials such as draft design criteria, design memoranda, associated drawings and specifications, to support meeting or workshop goals.

The Consultant shall prepare meeting notes from all workshops and meetings concerning the Project. The Consultant shall submit the meeting notes for approval within three (3) business days following the meeting or workshop.

Ad-hoc meetings shall be recorded as follows:

- The Consultant shall notify the Project Manager/ Project Engineer prior to the meeting.
- The Consultant shall prepare meeting notes for the meeting.

- The notes shall be submitted to the Project Manager/Project Engineer and the Project Team.
- After review and modification, the meeting notes will be filed as a record of the meeting.

The Consultant shall prepare for all telephone and teleconferencing meetings in the same manner as outlined above.

A copy of all comments on project issues obtained by the Consultant from District staff without the direct District Project Manager's involvement shall be submitted for the Project Manager's approval within three (3) business days of receipt.

Upon receipt of District comments on each project submittal and each set of meeting or workshop materials, the Consultant shall address the comments and submit detailed responses to all District comments. The District will provide a template for submission of these comments.

## **10.1 Focused Meetings**

The following provides an overview of the types of focused meetings anticipated on this project. The Consultant is encouraged to identify any additional focused meetings that may be required to support the Consultant's project approach.

### **10.1.1 Project Kickoff Meeting**

A project kick-off meeting shall be held with District staff to introduce principal members of the District's and Consultant's teams.

### **10.1.2 Basis of Design Report Confirmation Meetings**

It is anticipated that meetings will be held to review Consultant Basis of Design Report (BODR) during the Planning phase of the project. Consultant shall assist in the presentation of the BODR to District Management.

### **10.1.3 Preliminary Design Focused Meetings**

Focused meetings shall be held throughout preliminary design to discuss specific issues in detail and generate comments and direction from District staff. The focused meetings will be held approximately once per week on a pre-established day. Meeting agendas will be determined based on work progress and cover all technical memoranda topics.

### **10.1.4 Design Phase Focused Meetings**

Focused meetings will be held throughout final design to discuss specific issues in detail and generate comments and direction from District staff. The Consultant should assume a minimum 30 design phase focused meetings will be required, with topics selected as appropriate during each phase of design.

## 10.2 Workshops

The following provides an overview of the types of workshops anticipated on this project. The Consultant is encouraged to identify any additional workshops that may be required to support the Consultant's project approach.

### 10.2.1 BODR Workshop

The BODR Workshop shall be held to review and accept the final BODR. This workshop shall be held immediately following the final BODR submittal; the Project Manager will lead and organize this workshop. The Consultant staff required at this workshop shall include:

- Project Manager
- Design Manager
- Project Engineer

### 10.2.2 Preliminary Engineering Workshops

Preliminary Engineering Workshops shall be held during Preliminary Design to review each Technical Memorandum (TM) submitted by the Consultant. Each workshop shall assume to be 2 to 4 hours in length.

### 10.2.3 Final Preliminary Design Report Design Workshop

The Preliminary Design Report (PDR) Design Workshop shall be held to review and accept the PDR submittal. This workshop shall be held immediately following the final PDR submittal. The Consultant staff required at this workshop shall include:

- Project Manager
- Design Manager
- Project Engineer
- Lead Mechanical Engineer
- Lead Electrical
- I&C Engineer
- Lead Structural Engineer

The primary focus shall be to review the Consultant's quality control by reviewing the PDR including drawings. The Consultant shall also present its QA/QC documentation for the PDR. This workshop shall be four to eight (4-8) hours in length and held at the District.

### 10.2.4 Design Kickoff Workshops

The design kickoff workshops shall be held at the beginning of each design phase (DS-1, DS-2, and DS-3/Final) of the project to review all elements required in the design submittal, validate the design progress since the previous submittal, and summarize decisions made at focused

meetings. The workshop will also be an opportunity for the Consultant to provide an overview of the project to date, including a review of the Building Information Modeling (BIM) or Civil 3D package, as appropriate. The same District and Consultant staff that attended the PDR Design workshop should attend these workshops. Each workshop shall be 2 to 4 hours in length.

#### **10.2.5 Design Submittal Review Workshops**

Up to six design submittal review workshops shall be held during the District's review period for each design submittal (PDR, DS1, DS2, and DS3/Final). The design submittal workshops shall be working sessions that bring together District and Consultant staff to discuss specific design issues in detail. Specifically, District and Consultant staff shall review design aspects not previously covered relative to the operation and maintenance of the facilities (i.e., space between equipment, utility requirements, maintenance concerns, etc). They shall also review previous District comments to ensure that the comments have been incorporated into the subsequent submittal. The workshops shall address questions that District staff have identified during their review of the design submittal. Each workshop is estimated to be 4 hours in length.

#### **10.2.6 Validation Workshops**

Validation workshops shall be held to review and validate responses to comments for DS1, DS2, and DS3. These workshops shall be held after the consultant has reviewed the District's comments on each design deliverable and developed suggested resolutions to the comments. The primary focus is to resolve major comments in order to avoid rework with accompanying schedule delays. Issue resolution shall be documented in the Decision Log. Each workshop is anticipated to be 8 hours in length.

**APPENDIX A**  
**QUALITY MANAGEMENT PLAN**

## 1.0 Purpose of the Quality Management Plan

The Quality Management Plan (QMP) describes the requirements, procedures, and responsibilities for conducting quality assurance and control (QA/QC) activities while working on the Project for the Area Sewer District (District). The QMP is based on the expectation and that all services provided on the Project will be conducted using sound principles that meet the standards of professional and industry practice.

### 1.1 Quality Management Goals

The goals for compliance with the QMP include the following:

- Errors and omissions in all work products are minimized,
- Production and construction costs are controlled through focus on doing quality work (*“Do it right the first time”*),
- Schedule adherence is maintained by minimizing rework or wasted efforts.

### 1.2 Success Metrics for Quality Management Compliance

- All work products and services provided meet the requirements and intent for service defined by District.
- All work products and services provided meet the acceptable standards of professional practice and industry standards.

## 2.0 Consultant Responsibilities

The consultant Project Manager, or their designee, is responsible for developing a Quality Management Plan to conduct both Quality Control and Quality Assurance activities for the project, including the assignment of QC reviewers, establishing the budget and schedule for conducting the QC reviews, confirming that review comments are documented along with resolution of the review comments, and periodically conducting audits to ensure compliance by the project team.

Quality is achieved when the work is planned, assigned, executed, and checked. Responsible professionals and quality control reviewers will check all work for conformance to the standards of the industry and project requirements.

**Quality Control Reviews:** The consultant staff will be responsible for conducting quality control reviews to achieve the following objectives:

- Organizing and submitting design calculations to the District, in conjunction with design submittals as described in the design consultant’s scope of work. The design consultant will be responsible for QC review, and documentation of review process, prior to submitting to the District. Therefore, the District can rely on the accuracy of the submitted calculations.
- QC reviews shall be conducted as an integral component of project activities. Project deliverables shall be verified for conformance to applicable project standards and the functional, regulatory and uniformity requirements of the project.

- QC reviews shall be conducted to verify that the deliverable and supporting documents are complete considering the scheduled level of completeness and intended purpose, are understandable, conform to reasonable and applicable standards relative to their intended purpose, and meet the District's requirements. QC review activities may include verifying one or more of the following:
  1. Information, assumptions and data used in developing a deliverable
  2. Basis of design and rationale for key project decisions, calculation methods and/or reasonableness of design results or conclusions
  3. Use of appropriate analytical methodology, of appropriate standards, automation tools and calculation methods
  4. Clarity of writing and use of proper format and correct grammar
  5. Appropriately qualified personnel are providing the deliverables
  6. Deliverables provided meet the contractual scope and/or District expectations
- QC reviews shall be completed before documents are used in-house or released to outside parties, including the District. For service deliverables that do not result in a document, QC reviews or project quality assurance activities shall be provided as necessary to verify that the expected level of services is provided.
- QC reviews shall be conducted and documented for all documents that directly or indirectly constitute deliverables including formal correspondence, reports, studies, presentation materials, drawings, specifications, calculations, opinions of probable construction costs and procurement documents. Formal correspondence items that are not considered to be a deliverable such as routine letters, memorandums and e-mail communications should be checked prior to transmittal.

A distinction is made between a QC review and checking that may occur prior to performing a QC review. Checking is comprised of verifying the accuracy of documents, correspondence, calculations, drawings, spreadsheets and/or other computer applications relative to their intended purpose. Checking activities shall be performed as part of the production process and shall be verified as a specific QC review activity. The responsibility for checking shall be identified in the project Quality Management Plan. Table 1 provides a brief listing of anticipated deliverables, work products, and/or submittals for the different phases of work. A specific list of required deliverables will be defined in the Request for Proposals and in the proposals submitted.

**Table 1 - Anticipated Deliverables or Work Products for the Consultants**

Phase	Deliverables or Work Products
Design	<ul style="list-style-type: none"> <li>• Technical standards, guidelines, and basis of design criteria</li> <li>• Technical memoranda, fact sheets, and design reports</li> <li>• Spreadsheet and model validation</li> <li>• Design development drawings, revised data sheets, specifications</li> <li>• Design discipline checklists for stages of design</li> <li>• Contract documents including; construction drawings and specifications</li> <li>• Design development cost estimates and preliminary vendor quotes</li> </ul>
Bid & Award	<ul style="list-style-type: none"> <li>• Submittals required in the General and Supplemental Conditions</li> <li>• Submittals required in the Division 1 specifications (project schedule, staffing, etc.)</li> <li>• Conformed bid documents with all addenda</li> <li>• Submitted bid price and schedule of values</li> </ul>
Construction	<ul style="list-style-type: none"> <li>• RFIs, responses, and status reports</li> <li>• Shop Drawings, review comments, and status reports</li> <li>• Field Orders and their status reports</li> <li>• Change Proposal Requests and their status reports</li> <li>• Work Change Directives and their status reports</li> <li>• Change Orders and their status reports</li> <li>• Functional Testing plans</li> </ul>
Commissioning	<ul style="list-style-type: none"> <li>• Start-up plan with interface provisions for existing facilities</li> <li>• Performance Testing plans</li> <li>• Process narratives of systems</li> <li>• Systems integration plan with existing SCADA system</li> <li>• O&amp;M manuals</li> <li>• Staff training plan</li> <li>• Performance testing and certification</li> </ul>
Closeout	<ul style="list-style-type: none"> <li>• Final acceptance</li> <li>• Record drawings</li> <li>• Warranty documentation</li> <li>• File closeout and archiving</li> </ul>

**Quality Assurance:** The Consultant project manager will be responsible for conducting quality assurance reviews to monitor compliance with their quality management plans for work efforts on the project.

Compliance with the procedures and requirements defined in the Quality Management Plan must be met in order to provide services professionally and consistently in the execution of the Project.