



**City of Morro Bay**  
**Request for Proposals**  
**for**  
**DESIGN-BUILD SERVICES of the**  
**WATER RECLAMATION FACILITY (WRF)**  
**ONSITE IMPROVEMENTS**

**January 24, 2018**

**Issued by:**



X  \_\_\_\_\_

**Rob Livick, PE/PLS – Public Works Director/City Engineer**



# Request for Proposals

The Owner has selected three teams from the interested teams who submitted SOQs for the Project described below to submit Proposals pursuant to this **REQUEST FOR PROPOSALS** ("RFP"). By submitting a Proposal, the Proposer represents that it has carefully read the terms and conditions of this RFP, including all attachments and addenda, and agrees to be bound by them. Only those teams selected by the Owner (shortlisted) are eligible to submit Proposals for this RFP. Submissions by others or non-shortlisted teams will not be considered.

**OWNER:** City of Morro Bay  
**MAILING ADDRESS:** 595 Harbor Street  
**PHYSICAL ADDRESS:** 955 Shasta Avenue  
Morro Bay, CA 93442

**PROJECT:** Water Reclamation Facility (WRF) Onsite Improvements  
Morro Bay, CA

**OWNER CONTACT PERSON:** Rob Livick, PE/PLS  
Public Works Director/City Engineer  
955 Shasta Avenue  
Morro Bay, CA 93442

## PROPOSAL DUE DATE AND TIME:

Proposals shall be submitted no later than: April 24, 2018 at 2:00 PM

All Proposals must be submitted pursuant to the instructions below. It is the Proposer's sole responsibility to ensure that the Proposal is delivered in the manner required in this RFP by the Due Date and Time. Owner has the right to reject any Proposals not properly delivered.



## **SECTION 1 GENERAL INFORMATION**

### **1.1 General**

The City of Morro Bay is soliciting proposals from previously qualified design-build entities for the design-build of the Water Reclamation facility Project Onsite Improvements at the South Bay Boulevard site ("Project").

The Proposal requirements are detailed in this RFP. This RFP process is the second step in the two-step procurement process for the Project. This RFP incorporates the terms, definitions, and schedules set forth in the Request for Qualifications ("RFQ") and any Addenda issued thereto; however, to the extent that the RFP conflicts with the RFQ and any Addenda thereto, the RFP shall prevail and shall be considered an addendum to previously published information. Proposers must submit their Proposals pursuant to the schedule set forth in this RFP. This RFP is not an offer to enter into a contract, but is merely a solicitation of entities interested in submitting a Proposal to the Owner for the Project.

### **1.2 Pre-Proposal Conference**

A pre-proposal conference will be held at 10:00 a.m., on Tuesday February 6, 2018 in the Studio Room at Morro Bay Community Center, 1001 Kennedy Way, Morro Bay, California 93442. Prospective Proposers are required to attend since City Staff will be present to answer any questions regarding the Proposal Specifications; there will also be a project site tour.

### **1.3 Proposal Submission and Deadline**

Proposals shall be submitted with all documents required in this RFP properly signed by the Proposer, delivered under sealed cover, and plainly marked:

**DESIGN-BUILD OF THE WATER RECLAMATION FACILITY ONSITE IMPROVEMENTS  
FOR THE CITY OF MORRO BAY**

**DESIGN-BUILD ENTITY'S NAME**

**SUBMITTAL DEADLINE: APRIL 24, 2018, AT 2:00 PM**

The Proposals shall be submitted to the Public Works Director/City Engineer electronically through the City's Procure system and at the addresses below for the hard copies prior to the date and time specified in the Procurement Schedule in Section 1.4 of this RFP. At that time all proposals will be publicly opened and recorded. Proposals received after the deadline will not be accepted.

**CITY OF MORRO BAY**

**ATTN: ROB LIVICK, PUBLIC WORKS DIRECTOR**

**Mailing Address: 595 Harbor Street, Morro Bay, California 93442**

**Physical Address: 955 Shasta Avenue, Morro Bay, California 93442**

Each Proposer shall carefully examine each term of this Request for Proposal; and each Proposer shall judge all the circumstances and conditions affecting his/her proposal. Failure on the part of any Proposer to make such examination and to investigate thoroughly shall not be grounds for any declaration that the Proposer did not understand the conditions of this Request for Proposal.

The Proposer shall comply with all federal, state or local laws which apply to the services and products herein specified.

Proposers will submit eight (8) printed copies of their technical proposal and cost proposal, including life cycle costs marked clearly with “PROPOSAL FOR WRF ONSITE IMPROVEMENTS OFFERED BY” and the Proposer’s name to the City’s address provide; and one electronic copy of the technical proposal and cost proposal, including life cycle costs, in fully searchable pdf format through the City’s Procore System. Each proposal must contain the sections as detailed in this RFP.

This solicitation for proposals does not commit the City of Morro Bay to enter into a Contract. The City of Morro Bay reserves the right to accept or reject any proposals, and to negotiate with any qualified source, or to cancel in part or in its entirety this Request for Proposals. It may accept the proposal that it considers to be in the interest of the City of Morro Bay, with or without negotiation.

The City reserves the right to waive any informality or minor irregularity when it is in the best interest of the City to do so, to negotiate for the modification of any proposal with mutual consent of the Proposer, to re-advertise for proposals if desired, and to accept the proposal which in the judgment of the City, even though it does not offer the lowest cost, is nevertheless deemed to offer the best value for the public and City. Any proposal which is incomplete, conditional, obscure, or which contains irregularities of any kind, may be cause for rejection.

#### **1.4 Procurement Schedule**

The following is the anticipated Procurement Schedule for the City. The Owner reserves the right to modify the schedule via Addenda.

<b>Task</b>	<b>Date</b>
<b>Issue RFP</b>	January 24, 2018
<b>Pre-Proposal Conference and Site Walk</b>	February 6, 2018 at 10:00 AM
<b>Last Day for Formal Questions</b>	March 23, 2018 at 5:00 PM
<b>Proposals Due/Opening</b>	April 24, 2018 at 2:00 PM
<b>Proposal Review Process</b>	April 24 – June 18, 2018
<b>Interviews</b>	May 2018
<b>EIR Certification</b>	June 2018
<b>Contract Negotiations</b>	June-July 2018
<b>Contract Award</b>	August 2018
<b>Construction Complete</b>	Fall 2021
<b>Commissioning Complete</b>	Spring 2022

## **1.5 Owner's Program**

- 1.5.1** Attachment A to this RFP is the Performance Criteria Report. The Performance Criteria Report describes the Project scope and contains the City Project goals and objectives as well as the performance criteria for the Project. The Performance Criteria Report will become part of the Performance Requirements, which are defined in Article 1 Paragraph 1.21 of the attached Design Build Contract (Attachment B). All submittals from Proposers must be consistent with and designed to achieve the goals and objects set forth in the Performance Criteria Report.
- 1.5.2** Proposers shall be entitled to reasonably rely on the accuracy of the information represented in the design or prescriptive specifications set forth in the RFP and their compatibility with other information set forth in Performance Criteria Report for the purposes of developing the Proposer's Technical and Price Proposals. However, the selected Design Build Entity (DB) will be required to perform an independent evaluation of all information provided by the Owner, including but not limited to such design or prescriptive specifications to validate the information provided by the Owner. Further, regardless of the inclusion of design or prescriptive specifications, the selected DB shall remain responsible for meeting the performance requirements of the Project, including but not limited to the requirements described in the Performance Criteria Report as well as all applicable Legal Requirements. Provided the selected DB complies with all requirements set forth in the Contract, including but not limited to those regarding notice of claims to the Owner and identification of differing site conditions, and only to the extent that the Contract allows the selected DB to an adjustment in the Contract Price and Project Schedule, the selected DB will be entitled to an adjustment in the Contract Price and Project Schedule. Such adjustment shall be limited to the extent DB's actual documented costs or the critical path of the Project Schedule have been adversely impacted by materially inaccurate design or prescriptive specifications that are inconsistent with meeting the Project's performance requirements.
- 1.5.3** The Owner assumes no responsibility for conclusions or interpretations made by the Proposer based on the information provided by the Owner. Oral statements made by the Owner representatives are not binding on the Owner unless the Owner confirms the statements and changes by written Addendum to the RFP. In the event of a conflict between codes, industry standards and the Performance Criteria Report, the most stringent requirements shall apply and Proposers shall submit their Proposals based on the most stringent requirements.

## **1.6 Sample Contract Documents**

Attachment B to this RFP is the proposed form of Contract between the Owner and DB. The Contract Documents will also include at a minimum the Attachments to the RFP, all Appendices to the Performance Criteria Report, and the finalized proposals submitted by the DB.

## **1.7 Expenses of the Proposers and Payment of an Honorarium**

The City will pay an honorarium equal to \$75,000 to each Proposer who provides a responsive, but unsuccessful, Proposal. If the City does not award the Design Build Contract following receipt of Proposals, all responsive Proposers will receive the honorarium amount.

The City will pay the honorarium to each eligible Proposer within 90 days after the award of the Design Build Contract or the decision not to award the Design Build Contract. Acceptance of the honorarium shall constitute a full, final, and complete release of all rights, claims, and demands of the Proposer against the City arising out of or pertaining to the Project. In consideration for paying the honorarium, the City may use any of the ideas or information contained in the Proposals in connection with any contract awarded for the

Project, or in connection with any subsequent procurement, without any obligation to pay any additional compensation to the unsuccessful Proposers.

A Proposer may elect to waive payment of the honorarium within 30 days after the award of the Design Build Contract, in which case the City will be precluded from using any ideas or information contained in its Proposal. The City will not be precluded, however, from using any idea or information that is common to a Proposal received from another Proposer accepting the honorarium, or otherwise is publicly available.

With the exception of payment of the honorarium as described in the subsequent paragraph, if applicable, the City accepts no liability for the costs and expenses incurred by the Proposers in responding to this RFP, responding to clarification requests and discussion meetings, preparing resubmittals and any other activities included as part of this procurement process. In addition, if a Proposer performs any additional investigations as part of the Proposal preparation activities, these costs shall be at the sole cost and expense of the Proposer. Each Proposer that enters into the procurement process shall prepare the required materials and submittals at its own expense and with the express understanding that they cannot make any claims whatsoever for reimbursement from the City for the costs and expenses associated with the process.

## SECTION 2 RFP PROCUREMENT PROCESS

To be responsive to the RFP and obtain the stipend/honorarium set forth in the RFP, Proposers must submit responsive Proposals and participate fully in the following RFP Procurement Process.

### **2.1 Pre-Proposal Conference**

A pre-proposal conference will be held at 10:00 a.m., on Tuesday February 6, 2018 in the Studio Room at the Morro Bay Community Center at 1001 Kennedy Way, Morro Bay, California 93442. Short-listed Proposers are required to attend. City Staff will be present to provide an overview of the Proposal Specifications; there will also be a project site walk. Any questions presented at this mandatory meeting will be recorded and responded to via Addendum. Proposers must follow the City safety procedures while attending the Site Walk. City safety procedures require that PPE including work boots and high visibility vests be worn during this site tour.

### **2.2 Proposed Changes in the Design-Build Contract Documents**

**2.2.1** Submission of a Proposal pursuant to this procurement is a representation by the Proposer that it has reviewed the Contract Documents, including but not limited to the Performance Criteria Report (including Appendices) and all attachments to this RFP, and the Proposer is willing to perform any and all work necessary including such technical, construction and any other work necessary to provide a fully operational facility that meets or exceeds those criteria detailed in the Performance Criteria Report for the terms set forth in the Contract Documents.

**2.2.2** Prior to the date set forth in the schedule, Proposers may propose changes to the Contract Documents, including but not limited to the insurance requirements, bonding requirements, Performance Criteria Report, and Design-Build Contract. The Owner's goals in requesting such proposed changes are: i) to discover provisions in the Contract Documents that unnecessarily increase the cost of the Project or complicate the performance of the Work, and ii) to identify contract provisions and commercial terms the DB intends to negotiate if selected. Therefore, with every proposed change, Proposers must include the following information:

- The document and section number
- Proposed alternate language
- An explanation for the requested change
- Any impact the requested change has on any commercial term in the Contract Documents or Performance Criteria Report

**2.2.3** The Owner may discuss any proposed changes at any point during the interview or negotiation process. The Owner reserves the right to reject any and all proposed changes and to accept any proposed change to the Contract Documents via Addendum to the RFP. The Owner also reserves the right to negotiate such provisions with the selected Proposer.

## **2.3 Alternative Technical or Management Concepts**

- 2.3.1** Prior to the date set forth in the schedule, Proposers may submit Alternative Technical or Management Concepts (“Alternative Concepts” or “ATCs”) that may offer alternative means in achieving the required performance criteria. The Owner’s goal in requesting Alternative Concepts is to encourage innovation by Proposers to better meet the Owner’s Project Objectives set forth in Section 2.B of the RFQ.
- 2.3.2** ATCs should meet or exceed the performance requirements set forth in the Performance Criteria Report; however, Proposers may submit ATCs that contain solutions that are substantially equal to the performance requirements set forth in the Performance Criteria Report if the solution provides a guaranteed cost savings for the Project. ATCs that merely cut a portion of the scope of Work or provide a lesser standard of performance or materials will not be considered.
- 2.3.3** Proposers must identify the portion of the Performance Criteria Report that is inconsistent with the solution presented in the ATC. By identifying any cost savings because of the Owner’s acceptance of the ATC, the Proposer guarantees both performance and cost savings to the Owner if the ATC is accepted.
- 2.3.4** The City will respond in writing to each ATC to let the proposer know if the ATC is rejected or if it may be submitted as an acceptable alternative to the Performance Criteria. The Owner reserves the right to consider Alternative Concepts and accept or reject such Alternative Concepts in whole or in part. If the Owner accepts an Alternative Concept that is contrary to the Performance Criteria Report, the Owner shall issue an Addendum to this RFP altering that portion of the RFP that is inconsistent with the accepted Alternative Concept. Such Addenda will be issued prior to the date set forth in the schedule.
- 2.3.5** The Owner will make an independent determination with respect to the extent to which the Alternative Concept is consistent with the Performance Criteria Report as well as any changes necessary to the Performance Criteria Report to allow the Owner to accept the Alternative Concept. Notwithstanding any consideration, acceptance, or rejection of an Alternative Concept as part of the procurement, the Owner reserves the right to consider such Alternative Concepts during the performance of the Project and amend the Performance Criteria Report to include the Alternative Concept.
- 2.3.6** If an Proposer claims that any portion of a submitted Alternative Concept is proprietary or confidential information, the Proposer shall identify that portion of the Alternative Concept that it considers to be proprietary. The Owner will consider the request to keep such information proprietary but reserves the right to make its own determination regarding the proprietary nature of the Alternative Concept. If the Owner disagrees with the Proposer’s designation of the information as proprietary, the Owner will provide written notice to the Proposer and an opportunity to withdraw or modify the proprietary information prior to disclosure.

## **2.4 Confidential Individual Meetings with the Owner**

### **2.4.1 Proprietary Meetings**

- The Owner will conduct up to two (2) Proprietary Meetings with each Proposer individually. The Proprietary Meetings will provide an opportunity for the Proposer to ask the Owner questions regarding the Proposal, Alternative Technical Concepts, and/or proposed changes in the form of contract. The Proprietary Meeting(s) will last no more than two (2) hour(s) and will occur before the submission of the Technical Proposal.

- The Short Listed Proposers will have an opportunity to describe their Proposal and any Alternative Technical Concepts or proposed changes in the Contract Documents. Proposers are encouraged to focus on how their proposed approach for the Project will distinguish themselves from other Proposers, meet the Owner's needs and objectives as well as achieve Design Excellence. The Owner will have an opportunity to ask questions regarding the submitted Proposals and/or proposed changes in the Contract Documents.
- Proposers may not rely on any oral statement to accept an ATC or Proposal in the Proprietary Meeting unless such oral statement is contained in a written Addendum to the RFP issued by the Owner.
- Any presentations at the Proprietary Meetings should be in Microsoft PowerPoint with paper handouts of the presentation.
- The intent of the Proprietary Meeting is to discuss the Proposal, Alternative Technical Concepts, and proposed changes to the Contract; therefore, the Proposers will not be scored with respect to the Proprietary Meeting itself. However, the Owner reserves the right to evaluate the interaction of the proposed Design-Build Team with the Owner with respect to the Proposer's ability to collaborate with the Owner.

#### **2.4.2 Interview**

- The Owner shall conduct an individual Interview with each Short-Listed Proposer. The Interview shall be approximately 2 hours and will occur after the submission of the Technical Proposal. The Proposers will be allowed 1 hour and 15 minutes for a project management and technical proposal presentation, followed by 45 minutes for questions from the Owner.
- Proposers should include in the presentation an explanation of the design solution and how the design solution meets or exceeds the Owner's Project Goals and the definition of Design Excellence for this Project. The presentation should include the project management approaches that will ensure the project is completed within the scheduled duration and within the project budget.
- The Owner reserves the right to ask questions of the Proposer, including but not limited to questions regarding the Proposer's SOQ and/or Technical Proposal.
- Any presentations at the Proprietary Meetings should be in in Microsoft PowerPoint with paper handouts of the presentation.
- Proposers will have access to the following equipment for their presentations: A laptop computer and a large monitor connected to the laptop.

#### **2.5 Technical Proposal**

Proposers shall submit the Technical Proposal pursuant to the instructions set forth herein (refer to section 3) at or before the time set forth in the schedule. Proposers are encouraged to focus on the concerns of the Owner as set forth below in submitting their Proposal.

#### **2.6 Price Proposal**

- 2.6.1** Proposers will submit Price Proposals (per section 1.3 above) with the other proposal documents pursuant to the Schedule and in compliance with the instructions set forth in Attachment C. Price Proposals shall be based on the RFP and Contract Documents as amended by Addenda. The prices submitted in the Price Proposals will be inserted into the appropriate sections of the Design-Build

Agreement with the selected Proposer. Proposers shall keep their Price Proposals open for 1 year after submission of their Price Proposal. Proposers shall be entitled to rely on the written information provided by the Owner in the RFP and any Addenda in developing their Price Proposal; however, the selected DB will be required to validate all Project information as set forth in the Contract Documents. By submitting a Price Proposal, the Proposer represents and warrants that it will enter into the Agreement set forth in Attachment B for the amount set forth in the Price Proposal, subject only to changes as allowed under the Agreement.

**2.6.2** The Proposer has carefully examined the RFP and the Performance Criteria Report and ascertained the nature, scope, and location of the Work. The Proposer has investigated and assured itself as to the general and local conditions that can affect the Work or its cost, all geotechnical and existing site conditions data, and all Plans, Specifications, Addenda, and Contract forms. The submittal of the Technical and Price Proposals shall be conclusive evidence that the Proposer has made such examinations and understands all the requirements for the performance of the completed Work. Failure of the Proposer to take these actions will not relieve it of responsibility for properly estimating the difficulty and cost of successfully completing the Work, or for proceeding to successfully complete the Work without additional cost to the Owner. The Proposer shall determine the methods, materials, labor, and equipment required to perform the completed Work and shall reflect their cost in the Price Proposal.

**2.7 Selection of Preferred Proposer**

The Owner will evaluate each Proposer pursuant to the selection criteria and weights established herein. The Owner will determine the Preferred Proposer and notify all Proposers in writing of its determination. The “Preferred Proposer” is the Proposer that the Owner determines achieves the apparent best value to the City.

Criterion	Possible Score
<b>Technical Proposal</b>	
<b>Management Approach</b>	3
<b>Quality Assurance and Quality Control</b>	3
<b>Schedule and Cost Controls</b>	4
<b>Team/City Collaboration and Integration</b>	3
<b>Design Development and Management</b>	3
<b>Project Sequencing and Scheduling</b>	4
<b>Proposed Design and Performance Guarantees</b>	20
<b>Price Proposal and Life-Cycle Cost</b>	60
<b>Total</b>	100

**2.7.1** At the Owner’s discretion, the Owner will initiate negotiations with the highest ranked Proposer. If the Owner cannot reach agreement with the highest ranked Proposer, the Owner may cease negotiations with the highest ranked Proposer and provided that such negotiations are terminated in writing, shall initiate negotiations with the next highest ranked Proposer. The Owner shall continue with this process with each such Proposer until it reaches agreement or cancels the procurement. Negotiations are at the Owner’s sole discretion. Proposers should not anticipate that any portion of the proposed Contract will be changed or modified. By submitting a Proposal pursuant to the RFP, the Proposer represents and warrants that it will enter into the contract provided by the Owner subject to the terms set forth in its Proposal.

## **2.8 Selection DeBriefing**

All Proposers may request a debriefing from the Owner with respect to the Procurement; however, Owner shall conduct no such debriefings until it has either reached an agreement on the Project or canceled the Procurement.

## **2.9 Public Records**

All records, documents, drawings, plans, specifications and other material relating to the Project including materials submitted by the Proposer in its Proposal and if selected during the course of performing under the Contract shall become the exclusive property of City and shall be deemed public records. Said materials are subject to the provisions of the California Public Records Act (Government Code sections 6250 et. Seq.). City’s use and disclosure of its records are governed by this Act.

City will not advise as to the nature or content of documents entitled to protection from disclosure under the California Public Records Act, including interpretations of the Act or the definitions of “TRADE SECRET” or “CONFIDENTIAL” or “PROPRIETARY” as determined by the Proposer. City will endeavor to notify Proposer of any request of the disclosure of such materials.

Under no circumstances, however, will City be liable or responsible for the disclosure of any such labeled materials whether the disclosure is required by law or a court order or occurs through inadvertence, mistakes or negligence on the part of City, its officials, officers, employees, agents, contractors or volunteers.

In the event of litigation concerning the disclosure of any material submitted by Proposer, City’s sole involvement will be as a stake holder, retaining the material until otherwise ordered by a court.

Proposer, at its sole expense and risk, shall be responsible for prosecuting or defending any action concerning the materials, and shall indemnify and hold City harmless from all costs and expenses including attorneys’ fees, in connection with such action.

## **2.10 Questions, Clarifications, and Concerns**

The Proposal Performance Criteria Report describing this project has been carefully prepared. Any questions or concerns relating to these requirements shall be directed in writing to the Public Works Director (see cover page) and shall be sent by email. A Proposal Question form for this purpose has been included as Attachment D.

Questions will be accepted only up to March 23, 2018 by 5:00 PM, to allow the City, if necessary, to issue an addendum to all proposers stating revisions, deletions, or additions to be made to the Proposal requirements as a result of any questions. If questions arise after the deadline, please contact the Public Works Director, Rob Livick, at [rlivick@morrobayca.gov](mailto:rlivick@morrobayca.gov), but the City will not guarantee a response.

Any communications initiated by a Design-Build Team with the City, City's representatives, and/or project stakeholders other than via email with Mr. Livick about the Water Reclamation Facility may result in disqualification. All communications shall be directed to Rob Livick. If a community member or group, or any other entity reportedly representing the City other than Rob Livick, initiates communications with a Design-Build Team regarding the project during the proposal period, the Design-Build Team shall note the day, time, and entity's information if provided, decline to discuss the project, and request that they contact Mr. Livick. DB Team shall also inform Mr. Livick about the communication.

The City will not be responsible for verbal responses made by City staff.

### **2.11 Notification of Staff Determination**

Once the City has reviewed and evaluated the proposals received and has determined for award the responsible proposal that provides the best value to the City, that determination will be posted on the City's website, **morrobaywrf.com**. It is the sole responsibility of interested Proposers to seek this information.

Any protests shall be received by the City Clerk at 595 Harbor Street, Morro Bay, California 93442, by 5:00 PM PT on the 10th day following the City's written notice of the selected Design-Build Teams. The protest shall be a letter correspondence submitted via US Mail or hand-delivery (not email or fax) and state the specific grounds for the protest, including facts supporting those specific grounds. Protests received after the stated deadline will not be considered.

Protests will be reviewed by the Public Works Director/City Engineer, and the City's response to protests will be issued within 20 business days from receipt of the protest. The Public Works Director/City Engineer will make the final determination, and no further appeals will be allowed.

## SECTION 3 DOCUMENTATION REQUIREMENTS

### 3.1 Submittal Process

**3.1.1** Proposers must submit eight hard copies of the Proposal documents and two copies of the Price Proposal. In addition to the hard copies of the Proposal documents and Price Proposal the Proposer must submit one copy electronically on a USB memory device.

- The submittal shall be sealed and include on the outside of the package the Request for Proposal number, title, Proposer's Name and due date and time. The Price Proposals must be included in the package an enclosed separate envelope in compliance with sections 1.3 and 2.6 above.
- The Owner will stamp the submittals with a date and time stamp to record timeliness.
- Proposers are responsible for ensuring timely delivery of submittals. The Owner is not responsible for late submittals.
- The electronic version must be submitted in a searchable .pdf format.

### 3.2 Submittal Format Requirements

All submittals shall comply with the following format requirements:

**3.2.1** Organized in accordance with the RFP.

**3.2.2** When printed, shall be limited to the page limitation set forth in the instructions for each section.

- The **only** documentation that is **not** included in the page count is the following:
  - Cover Letter
  - Appendices (provided that each Appendix meets the page count set forth in the requirement for the Appendix)
  - Table of contents or tabs will not be counted against the page count as long as these items are used exclusively for organization and contain no substantive written or graphic content
  - Attachment E Proposal Forms
  - Design proposal plans or drawings
- In the event that the page limit is exceeded, the Owner, at its sole discretion, reserves the right to remove pages from the sections of any non-conforming submittals to bring each non-conforming submittal within the page count requirement.
- A "page" shall be defined as one single-sided piece of paper that has words, charts, tables, pictures, or graphics. Pages shall be 8.5 x 11 inches, with the exception of 15 total pages, which may be presented in 11 x 17-inch format; however, larger pages may only contain graphics and/or designs and may not be used for a Proposer's narrative.
- The font on any portion of the submittal, including graphics, should be no smaller than 11 point.

### 3.3 Cover Letter

Proposers must include a cover letter that includes the following: (1) name, address, telephone number, and e-mail address for each Proposed Design-Build Team Member that has been added to the Proposed Design-

Build Team since submission of the SOQ and (2) any requested changes to the Proposed Design-Build Team since submission of the SOQ. Note that changes to the Proposed Design-Build Team continue to be subject to the RFQ, and Proposers should include an explanation justifying the changes to the Proposed Design-Build Team. The cover letter shall be a maximum of two (2) pages.

### **3.4 Technical Proposal**

The Technical Proposal may not be longer than 60 pages. Proposers should focus their discussions in the Technical Proposal on their approach to the Project.

#### **3.4.1 Overall Management Approach**

- Describe the Proposer’s overall management approach to the Project. In responding to this evaluation factor, Proposers should address the following:
  - Based on the information provided in the RFQ, RFP, and Proprietary Meetings, what is the Proposer’s current understanding of the goals and objectives of this Project?
  - What strategies will the Proposed Design-Build Team employ to achieve a thorough and clear understanding of the Owner’s goals and objectives?
  - Identify three (3) key challenges to the Project, and for each challenge identified, propose a strategy to mitigate the potential negative impacts of the challenge.
- Provide a Risk Register including mitigation strategies for the Top 5 Risks to the Owner’s Goals and Objectives identified by the Proposer.
- Identify any unique approaches, strengths, and/or differentiating resources (including specific Key Team Members) that will assist the Proposed Design-Build Team to implement the strategy and assist the Owner in achieving its goals.
- The Owner recognizes the importance of the entire design-build team, including specialty design-build subcontractors. For those subcontractors and subconsultants not proposed as part of the Design-Build Team,
  - Describe the Design-Build Team’s overall approach to subcontractor and subconsultant procurement for the Project.
  - Identify the challenges in the selection of subcontractors and subconsultants for the Project and how the Design-Build Team will address those challenges.
  - Identify how the Proposer will ensure compliance with DBE, MBE, WBE, and SBE requirements as well as any other procurement requirements as referenced in the Draft Design Build Agreement.
  - If applicable, describe in detail the Design-Build Team’s approach to early subcontractor involvement, including proposed design-build and design-assist subcontractors, and identify which scopes of Work are candidates for design-build or design-assist subcontracts.

#### **3.4.2 Quality Assurance/Quality Control (“QA/QC”)**

- Provide the following information regarding the Proposed Design-Build Team’s approach on QA/QC. Proposer will present QA/QC approach for both design and construction, since the approaches for each stage of project development may differ significantly. Include the following information:

- The overall approach to both design and construction QA/QC
- The Proposed Design-Build Team's processes and tools to facilitate QA/QC
- The reporting and functional relationship(s) between the Quality Management personnel and the Proposed Design-Build Team as a whole
- Description of the Design-Build Team's commitment to safety and what innovations the Team will bring to the Project to enhance safety.
- Description of the different safety plans for the proposed project for the Design-Build staff, City Staff, and public

The information provided in response to this Section of the RFP will be scored based on the following:

- The Proposed Design-Build Team's understanding of the delivery method
- The Proposer's technical approach to providing a project which meets all the project objectives
- The degree to which the Proposed Design-Build Team understands the Owner's goals and objectives with respect to the Project
- The strength of the Proposed Design-Build Team's management plan for the Project, including not only the specific topics and specialized components outlined in the RFP or discussed in the Confidential Individual Meetings, but also any other component or element that the Proposed Design-Build Team deems essential to the success of the Project
- The approach to overall project safety
- The approach to project staffing and potential benefits to co-location of Proposed Design-Build Team with Owner's management team

### **3.4.3 Project Controls, Cost Tracking**

Describe the DB's processes and tools for monitoring, reporting, and managing cost, including but not limited to:

- Design to budget control and reporting processes
- Scope, cost, and schedule baseline development
- Management/change control processes and the participation and interaction among the scheduling and estimating teams, project, design, construction, and operations management teams to execute these processes
- Risk management processes and how quantified risk cost and schedule values are factored into the cost and schedule baseline, projected cost and schedule performance, and cash flow reporting
- Cash flow reporting processes and basis for monthly cash flow estimated values
- Process to plan, track, and manage Disadvantaged, Minority, Small, and Woman owned businesses
- Process to plan, track, cash flow, and correctly bill Federal and State Grant and Loan eligible and ineligible work in place
- Document control system integration with work breakdown structure and responsibility assignment matrix or organizational structure
- Ensuring compatibility with City's Procore Project Management System

- Providing payroll and other cost information necessary for State and Federal regulatory compliance and funding agency requirements

The information provided in response to this Section of the RFP will be evaluated based on the following considerations:

- The robust nature of the Proposed Design-Build Team’s plan for tracking and measuring the metrics for the Project, including but not limited to costs and schedule
- The Proposed Design-Build Team’s plan to collaborate in the development and communication of budget, costs, and schedule to the Owner
- The differentiating resources that the Proposed Design-Build Team provides for the Project

#### **3.4.4 Collaboration and Integration**

One of the primary goals for the Project is to create a highly functioning, collaborative, and integrated team as early as possible and to incorporate the Owner’s staff and consultants as part of that team.

- Explain the Design-Build Team’s approach to creating a collaborative environment for the Project
- Describe how the Design-Build Team will engage City Staff and program management support team and incorporate their input into the Project
- Provide the DB’s approach to conflict resolution between the Owner and the DB and among members of the Design-Build Team

The information provided in response to this Section of the RFP to will be evaluated based on the following considerations:

- The strength and viability of the Design-Build Team’s plan to communicate and collaborate with the Owner, including not only the specific topics on which the Owner has requested discussion but any other topics that the Proposed Design-Build Team deems essential to the success of the Project
- The ideas and innovations submitted by the Design-Build Team that will enhance and foster collaboration and integration
- The differentiating resources that the Design-Build Team will bring to the Project and how those differentiating resources will enhance the Project

#### **3.4.5 Design Development and Management**

In developing the design for the Project, the DB will be required to seamlessly incorporate the new buildings and facilities; coordinate and integrate Owner information systems; obtain and incorporate design input from multiple external stakeholders as well as multiple stakeholders within the Owner; and satisfy the safety, regulatory, and security requirements of multiple governmental entities, all while satisfying the Performance Criteria Report requirements.

- Describe the Design-Build Team’s overall approach to Design Excellence, design commitment, design development, and management for the Project. Include a description of the design management process and the communications between the Owner and the DB during this process
- Identify the challenges in developing the design for the Project and how the Design-Build Team will address those challenges

- Provide details regarding the tools used in the design process, including any modeling, and how those tools will assist the DB in achieving those goals
- Describe the Proposed Design-Build Team’s approach to value engineering for the Project
- Describe the Proposed Design-Build Team’s process for managing quality assurance and quality control during the design process and identify the Key Team Members who will be tasked with the review and coordination of all phases of design documents
- Describe the Proposed Design-Build Team’s approach for managing the permitting process. (for those permits under responsibility of Design-Build Team)

The information provided in response to this Section of the RFP will be evaluated based on the following considerations:

- The strength and viability of the Proposed Design-Build Team’s design management plan, including not only the specific topics on which the Owner has requested discussion but any other topics that the Proposed Design-Build Team deems essential to the success of the Project
- The quality of the Proposed Design-Build Team’s approach to design excellence for the Project and the ideas and innovations proposed to achieve design excellence
- The differentiating resources that the Proposed Design-Build Team will bring to the Project and how those differentiating resources will enhance the Project

### **3.4.6 Project Sequencing and Scheduling**

Provide a project schedule showing all key project milestones and include a list of all assumptions used in developing the schedule for the services presented in Section 3 and other potentially driving factors including but not limited to the following:

- |                           |                                       |
|---------------------------|---------------------------------------|
| • Project Meetings        | • Controls Installation               |
| • Design Phase            | • Controls System Integration         |
| • Submittal Review        | • Training                            |
| • Equipment Procurement   | • Submission of O&M Manuals           |
| • Civil Construction      | • Point of Substantial Completion     |
| • Equipment Erection      | • As Built Drawings                   |
| • Mechanical Construction | • Point of Final Completion           |
| • Electrical Construction | • Performance and Operational Testing |

The construction schedule should meet the Owner’s estimated completion date, promote efficiency, and have the least amount of impact on Owner operations and the Project stakeholders as possible. Primavera P6 shall be used for scheduling.

- Describe the Proposed Design-Build Team’s overall approach to scheduling and construction sequencing for the Project, in addition to the overall approach, include a description as to how the Design-Build Team will address regulatory and stakeholder approvals for the permitting process

- Identify the challenges in scheduling the construction for the Project and how the Design-Build Team will address those challenges
- Provide details regarding the tools used in developing optimal sequencing and coordination of the Work and how those tools will assist the DB in achieving those goals including but not limited to administration of the consultants, subconsultants, suppliers, UV validation testing, and subcontractors
- Describe the assumptions and constraints under which the proposed schedule was based, including proposed durations, sequencing and logic, and skilled labor availability for determining manpower projections

The information provided in response to this Section of the RFP will be evaluated based on the following considerations:

- The strength and viability of the Design-Build Team’s project sequencing and scheduling plan, including not only the specific topics on which the Owner has requested discussion but any other topics that the Design-Build Team deems essential to the success of the Project
- The differentiating resources that the Design-Build Team will bring to the Project and how those differentiating resources will enhance the Project

### **3.4.7 Proposed Design**

Proposers shall submit a Design Proposal that meets or exceeds the criteria set forth in the Performance Criteria Report. The Design Proposal shall be submitted as follows:

- The Design Proposal shall include a written description of the facility design, a description of the operation strategies, and drawings
- The Design Proposal must be included in the format detailed in 3.2.2 above

The Proposed Design should be developed to the schematic phase and specifically include the following elements:

- Process flow diagram
- Hydraulic profile for the facility from influent through pump stations
- Facility, process, and equipment unit capacities including:
  - Influent characteristics with flow rates and constituent loading limits
  - Effluent characteristics with flow rates and constituent loading limits
- Major equipment to be purchased (over \$75K)
- Preliminary facility site plan
- Preliminary equipment layouts
- Complete a proposal form for each system (refer to Attachment E – Sample Proposal Forms). The proposal form should at minimum include the following: system description, types and number of major equipment items; size including volume, height, and footprint; manufacturer and model number; and other information necessary to provide the City with sufficient information to understand the proposed systems

- Projected power consumption requirements
- Single line electrical drawings
- Projected Operational and Maintenance costs
- Projected Lifecycle costs

The Owner, in its sole discretion, will determine whether the Proposed Design:

- Meets the Owner’s goals and objectives and is consistent with the Performance Criteria Report
- Describes an achievable strategy to meet the Owner’s Budget and Schedule

### **3.4.8 Performance Guarantee**

The Proposer shall include with the proposal a performance guarantee for the WRF systems which provides a detailed description of their performance. The performance guarantee is to be provided for City review and will be included in the final contract documents. These guarantees must be applicable for all flow rates and loadings included in the performance requirements. All assumptions and constraints must be included with each guarantee. The guarantees must include a stated quantifiable performance level and tolerances for the following:

- WRF Wastewater Influent Maximum/minimum process inputs – This guarantee is intended to provide the City and DB the ability to ensure the processes are compatible with the upstream processes enabling the WRF to effectively treat wastewater. The guarantee shall include all applicable inputs to the WRF and each treatment unit process.
- WRF Wastewater Effluent Maximum/minimum process outputs - This guarantee is intended to provide the City and DB the ability to ensure the processes will complement downstream processes enabling the WRF to effectively treat wastewater. This guarantee shall include all applicable process (max/min) outputs for the WRF and each treatment unit process.
- Power consumption and efficiencies (for all equipment over 10 hp) – This guarantee is intended to provide the City a guaranteed contractual benchmark to gage the efficient operation of the WRF. The power consumption (kWh) shall be stated per each piece of equipment with the WRF at steady state operation at both anticipated initial and future average day design flows.
- Consumables use rates – This guarantee is intended to provide the City with a guaranteed benchmark to ensure efficient use of consumables and operation of the WRF treatment systems. All consumable guarantees should be standardized to a base of per hour/mgd/etc. with the WRF at steady state operation at both anticipated initial and future average day design flows.
- Major Equipment availability (including at minimum rough and fine screening with conveyance and dewatering, membranes, blowers, UV system trains, advanced oxidation system, biosolids dewatering, and chemical systems). The purpose of this guarantee it to provide the City a guarantee of equipment availability to continuously treat wastewater. Equipment availability is the amount of time equipment is guaranteed to be in “Auto” operational mode. The amount of time necessary for maintenance, component rebuild, breakdowns and similar are not included in the time available.



## **SECTION 4 ATTACHMENTS TO THIS RFP**

Attachment A: Performance Criteria Report

Attachment B: Proposed Contract Documents (Design-Build Agreement)

Attachment C: Price Proposal and Life-Cycle Instructions

Attachment D: Proposal Question Form

Attachment E: Sample Proposal Forms





**City of Morro Bay  
Request for Proposals  
for  
DESIGN-BUILD SERVICES of the  
WATER RECLAMATION FACILITY (WRF)  
ONSITE IMPROVEMENTS**

**Attachment A:  
Performance Criteria Report**

**January 2018**

**Rob Livick, PE/PLS  
Public Works Director/City Engineer  
955 Shasta Avenue  
Morro Bay, California 93442**





CITY OF MORRO BAY  
REQUEST FOR PROPOSALS FOR  
DESIGN-BUILD SERVICES OF THE WATER  
RECLAMATION FACILITY (WRF) ONSITE  
IMPROVEMENTS

*Attachment A: Performance Criteria Report*

*Rob Livick, PE/PLS*

*Public Works Director/City Engineer*

*955 Shasta Avenue*

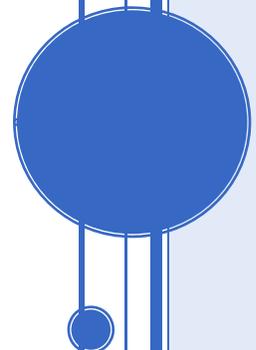




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Appendix B: SCADA Master Plan RFP

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Appendix H: Architectural Equipment and Furniture List

Appendix I: Access Road Conceptual Landscape Plans

Appendix J: Preliminary Geotechnical Baseline Report

Appendix K: Existing WWTP Lead Testing Report

Appendix L: Existing WWTP Asbestos Testing Report

Appendix M: Anticipated Environmental Mitigation Measures

Appendix N: Past Geotechnical Reports on Areas Near Access Road

List of Acronyms and Abbreviations

AABC	Associated Air Balance Council	DB	Design Build Entity
AAF	Average Annual Flow	DC	Direct Current
AC	Air Conditioning	DDW	Department of Drinking Water
AF	Acre-Foot	DHS	Department of Homeland Security
AFY	Acre-Feet per Year	DO	Dissolved Oxygen
AHRI	Air Conditioning, Heating, and Refrigeration Institute	EQ	Equalization
AMCA	Air Moving and Conditioning Association	ESA	Environmental Science Associates
ANSI	American National Standards Institute	FAT	Full Advanced Treatment
AOP	Advanced Oxidation Process	FMP	Facility Master Plan
ASCE	American Society of Civil Engineers	FRP	Fiber-Reinforced Plastic
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc.	GFCI	Ground Fault Circuit Interrupter
ASME	American Society of Mechanical Engineers	GFD	Gallon per Square Foot per Day
ASTM	American Society for Testing and Materials	GRRP	Groundwater Replenishment Reuse Project
AWS	American Welding Society	H2S	Hydrogen Sulfide
AWWA	American Water Works Association	HID	Host Intrusion Detector
BMP	Best Management Practice	HMI	Human Machine Interface
BOD	Biochemical Oxygen Demand	HVAC	Heating, Ventilation, and Air Conditioning
BOD <sub>5</sub>	5-Day Biochemical Oxygen Demand	IES	Illumination Engineers Society
CBC	California Building Code	IPR	Indirect Potable Reuse
CCR	California Code of Regulations	LAN	Local Area Network
CDP	Coastal Development Permit	LCP	Local Control Panel
CEnC	California Energy Code	LEL	Lower Explosive Limit
CEQA	California Environmental Quality Act	MBCSD	City of Morro Bay & Cayucos Sanitary District
CF	Cartridge Filter	MBR	Membrane Bioreactor
CFC	California Fire Code	MCP	Master Control Panel
CL2	Chlorine	MFR	Manufacturer
CMC	California Mechanical Code	mg/L	Milligrams per liter
CMMS	Computerized Maintenance Management System	MGD	Million Gallons per Day
CMU	Cement Mortar Unit	mL	Milliliter
CPVC	Chlorinated Polyvinyl Chloride	mm	Millimeter
CSD	Cayucos Sanitary District	MMF	Maximum Monthly Flow
CWI	Certified Welding Inspector	MSS	Manufacturer's Standardization Society
		NEMA	National Electrical Manufacturers Association
		NFPA	National Fire Protection Association
		NOV	Notice of Violation
		NPDES	National Pollution Discharge Elimination System
		O&M	Operation and Maintenance

OEM	Original Equipment Manufacturer	SS	Stainless Steel
OIT	Operator Interface Terminal	SSRV	Solid State Reduced Voltage
OSHA	Occupational Safety and Health Administration	SWRCB	State Water Resources Control Board
PDF	Peak Daily Flow	TOC	Total Organic Carbon
PFD	Process Flow Diagram	TKN	Total Kjeldahl Nitrogen
PG&E	Pacific Gas and Electric	TMP	Trans-Membrane Pressure
PHF	Peak Hour Flow	TSS	Total Suspended Solids
PID	Proportional, Integral, Derivative	TVSS	Transient Voltage Surge Suppression
PLC	Programmable Logic Controller	UL	Underwriters Laboratories, Inc.
ppm	Parts per million	UPS	Uninterruptible Power Supply
psf	Pounds per Square Foot	UV	Ultraviolet
psi	Pounds per Square Inch	UVAOP	Ultraviolet Advanced Oxidation Process
PVC	Polyvinyl Chloride	UVT	Ultraviolet Transmissivity
RO	Reverse Osmosis	VFD	Variable Frequency Drive
RWQCB	Regional Water Quality Control Board	WAN	Wide Area Network
SBB	South Bay Boulevard	wc	Water Column
SCADA	Supervisory Control and Data Acquisition	WDR	Waste Discharge Requirements
SMACNA	Sheet Metal and Air Conditioning Contractors National Association	WRF	Water Reclamation Facility
		WWE	Waterworks Engineers
		WWTP	Wastewater Treatment Plant

**SECTION 1 INTRODUCTION**

This Performance Criteria Report (PCR) is Attachment A of the Request for Proposals (RFP) for the City of Morro Bay Water Reclamation Facility (WRF) Onsite Improvements Project.

**1.1 Background and Project Goals**

The existing WWTP was originally constructed in 1953, and the WWTP was upgraded in 1964, 1982, and 1984. The WWTP is jointly owned and operated by the City of Morro Bay and Cayucos Sanitary District (CSD) under a Joint Powers Agreement, and currently serves approximately 14,000 people between the two communities. The WWTP has been operated under National Pollutant Discharge Elimination System (NPDES) Permit No. CA007881 and a 301(h) modified discharge permit since its last upgrade in 1984. The Central Coast Regional Water Quality Control Board (RWQCB) recently renewed the NPDES permit, which includes removal of the 301(h) waiver, meaning compliance with the California Ocean Plan and Federal Clean Water Act (including full secondary treatment) will be required. The permit indicates a time schedule order will be developed, with a time limit not to exceed 5 years.

After the California Coastal Commission denied a Coastal Development Permit (CDP) for construction to upgrade the wastewater treatment plant at its existing location in 2013, the City of Morro Bay began planning a new WRF. During 2013 and the beginning of 2014, the community defined goals to guide the planning and design process for the new WRF. From 2014 through 2016, the City evaluated many potential locations for the new WRF, before choosing the South Bay Boulevard site near Highway 1, based on detailed technical analysis and broad communitywide input. A draft Water Reclamation Facility Master Plan (FMP) that addressed adopted community goals was prepared for that site based on a series of technical workshops, and released in November 2016. A draft Master Water Reclamation Plan (MWRP) that addressed the most effective approach to water reuse was released in March 2017.

Following the release of these documents, the WRF program management team presented how the resulting cost estimates contained in those documents could translate into increased user rates. Both the City Council and many members of the general public expressed concern about the high project costs and their potential effect on user rates.

On April 25, 2017, the City Council explored this issue, seeking ways to reduce project costs, before committing to moving forward on the project described in the draft FMP and MWRP, including its analysis in the required Environmental Impact Report (EIR). As a result, the Council directed City staff to work with other local public works departments and convene a study session with key public works officials for the purpose of reviewing the assumptions contained in the City's draft master planning documents. The effort was to provide an outside professional perspective on the City's project, its inherent assumptions, and methodologies used in developing the cost estimates. The intent was for such a review to be a candid assessment, based on the experience of these public works professionals. The review workshop, consisting of a panel of four public works officials from around the County with relevant wastewater project experience occurred on June 7, 2017. The panel drew some key conclusions and findings and provided recommendations for potential cost cutting measures to consider for the project at the South Bay Boulevard. These recommendations, coupled with City Council's direction, resulted in revisions to the conceptualized project and reduced the engineer's opinion of the total program cost by approximately \$17M. The main revisions from the project described in the Draft FMP are summarized as follows:

- a. Minimize odor control from extensive to moderate, focusing on raw wastewater locations.
- b. Locate the WRF on the portion of the site that requires less grading, where space for the corporation yard was proposed, and do not save space for potential future public facilities.

- c. Remove the septage receiving station and remote operations building, and reduce the size of fire pump facility.

These changes are incorporated in the Project described in this RFP.

The WRF will be solely owned and operated by the City of Morro Bay, and will serve residents of the City as well as any customers under contract with the City. The CSD is pursuing their own wastewater treatment project.

The project goals were developed and revised throughout the planning process. The original project goals were adopted in December 2013 and were most recently amended on October 24, 2017 to emphasize the need to reduce impacts to ratepayers. These amended goals are below:

- All aspects of the WRF project shall be completed ensuring economic value with a special emphasis on minimizing rate payer and City expense
- Communicate WRF project progress including general project status, milestones, and budget/cost information to our community members regularly
- Produce tertiary disinfected wastewater in accordance with the California Code of Regulations (CCR) Title 22 requirements for unrestricted urban irrigation
- Design to produce reclaimed wastewater to augment the City's water supply, by either direct or indirect means, as described in a master water reclamation plan and to maximize funding opportunities
- Include features in the WRF project to maximize the City's opportunities to secure funding and maximize efficiencies, including energy generation and recovery.
- Design to minimize the impacts from contaminants of emerging concern in the future
- Ensure compatibility with neighboring land uses

## **1.2 Overview**

The City of Morro Bay WRF will be designed to treat an annual average flow of 0.97 million gallons per day (MGD) of wastewater through full advanced treatment (FAT). The WRF will provide primary, secondary, tertiary, and advanced treatment, and will produce recycled water meeting standards for a groundwater replenishment reuse project (GRRP) using subsurface application, as defined in California Code of Regulations (CCR) Title 22 recycled water requirements. The WRF will be located at the South Bay Boulevard (SBB) site (Figure 1-1). Flow equalization may be required to handle high summer and winter wastewater peaks. FAT recycled water will be conveyed to injection wells in the Morro Valley. An effluent pipeline will convey advanced treatment waste streams, including brine, to the existing Morro Bay Cayucos Sanitary District (MBCSD) jointly-owned ocean outfall at the site of the existing wastewater treatment plant (WWTP).

A new lift station near the existing wastewater treatment plant (WWTP) will convey raw wastewater through a force main to the WRF. The lift station and offsite pipelines will be designed and constructed by others under different contracts, provided in Appendix A for reference. At this time, preliminary design of the offsite improvements has begun, but the construction contract will not be advertised for bidding until 2019. Additionally, the City is pursuing development of a SCADA Master Plan for the water and sewer utilities, including the WRF. The SCADA Master Plan RFP is provided in Appendix B. The WRF, access road to the WRF, and all design and construction within the SBB site and adjacent area north of Highway 1 right-of-way (ROW) are collectively referred to herein as the WRF Onsite Improvements Project (Project).



Figure 1-1: South Bay Boulevard WRF Site

The following table summarizes the current and anticipated WRF Project efforts and coordination of work. Additional details on the division of responsibilities are provided in the following Sections of this Report.

Work Effort	Responsible Party	Comments
Environmental Documents: CEQA plus	Environmental Science Associates (ESA)	Draft EIR scheduled for March 2018; Certification anticipated in June 2018
WRF Lift Station and Offsite Pipeline Improvements Design	Waterworks Engineers (WWE)	
Program Management Support, Design-Build Owner’s Representative, and Construction Administration/Management	City and City’s Consultants	
WRF Lift Station and Offsite Pipelines Construction	TBD	
Injection Well Pilot Study, Design, and Construction	TBD	
Land Use Permitting and Planning Agency Coordination	City and City’s Consultants	

The WRF Onsite Improvements will consist of the following main components within the SBB site and adjacent access easement:

- Influent Screening
- Grit Removal
- Flow Equalization
- Fine Screening
- Membrane Bioreactor (or comparable activated sludge and membrane filtration)
- Aerobic Sludge Digester
- Sludge Dewatering
- Reverse Osmosis
- Ultraviolet Advanced Oxidation Process
- Odor Control
- Effluent Pump Station and Connection
- Recycled Water Tank, Pump Station, and Connection
- Influent Force Main Connection
- Operations and Maintenance Buildings
- Access Road and Site Access
- Utility Extension Through Site

The City plans to provide is full onsite WRF staffing 40 hours per week with remote and on-call operations on nights and weekends. A preliminary site layout showing property lines, planned easements, and preferred adjacency of the components is provided in Figure 1-2.

This WRF Performance Criteria Report includes the City's minimum design requirements. The City welcomes creativity in alternative solutions that provide capital or life cycle cost savings without sacrificing level of quality or performance during this proposal process and throughout design. The Report is not inclusive of all design requirements and does not relieve the Design Build Entity (DB) from its responsibility to execute the work according to the Contract Documents, reasonable engineering practices applicable to WRFs for GRRPs, and in full compliance with all regulations and laws including the NPDES Permit, WDRs, and Title 22 requirements. The DB is expected to complement these criteria with all needed facilities for a complete and operable WRF meeting the objectives of the Project and Contract.

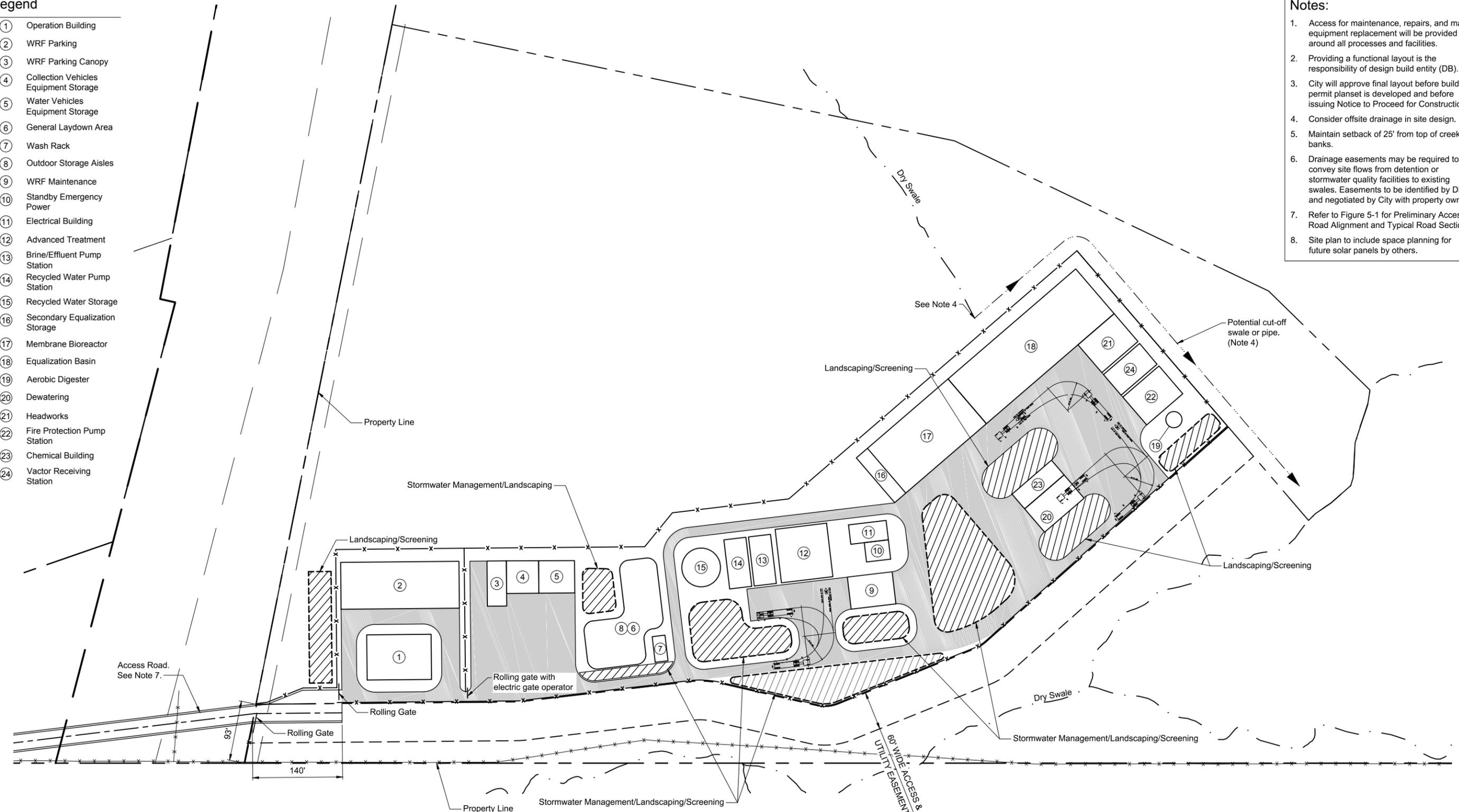
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**Legend**

- ① Operation Building
- ② WRF Parking
- ③ WRF Parking Canopy
- ④ Collection Vehicles Equipment Storage
- ⑤ Water Vehicles Equipment Storage
- ⑥ General Laydown Area
- ⑦ Wash Rack
- ⑧ Outdoor Storage Aisles
- ⑨ WRF Maintenance
- ⑩ Standby Emergency Power
- ⑪ Electrical Building
- ⑫ Advanced Treatment
- ⑬ Brine/Effluent Pump Station
- ⑭ Recycled Water Pump Station
- ⑮ Recycled Water Storage
- ⑯ Secondary Equalization Storage
- ⑰ Membrane Bioreactor
- ⑱ Equalization Basin
- ⑲ Aerobic Digester
- ⑳ Dewatering
- ㉑ Headworks
- ㉒ Fire Protection Pump Station
- ㉓ Chemical Building
- ㉔ Vector Receiving Station

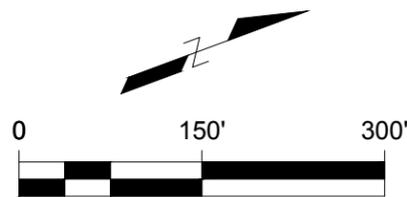
**Notes:**

1. Access for maintenance, repairs, and major equipment replacement will be provided around all processes and facilities.
2. Providing a functional layout is the responsibility of design build entity (DB).
3. City will approve final layout before building permit planset is developed and before issuing Notice to Proceed for Construction.
4. Consider offsite drainage in site design.
5. Maintain setback of 25' from top of creek banks.
6. Drainage easements may be required to convey site flows from detention or stormwater quality facilities to existing swales. Easements to be identified by DB and negotiated by City with property owner.
7. Refer to Figure 5-1 for Preliminary Access Road Alignment and Typical Road Section.
8. Site plan to include space planning for future solar panels by others.



1 SITE PLAN LAYOUT

Scale: 1:150



	City of Morro Bay Water Reclamation Facility Project	FIGURE <b>1-2</b>
	CONCEPTUAL LAYOUT	



**1.3 Design-Build Entity & City Responsibilities**

The table below identifies responsibilities for main components of the Project. This list may not represent all responsibilities, since the DB is responsible for designing and constructing a complete and operable WRF meeting the objectives of the Project and Contract. Specific requirements for additional studies, reports, plans, and design submittals are identified in the RFP, contract documents, and PCR. DB will submit written results from all testing, analyses, and studies required in this PCR or in Contract Documents.

<b>Project Management/Administration</b>	<b>DB</b>	<b>City</b>
Project Management	Lead	
Report of Waste Discharge and Title 22 Report	Support	Lead
Air Pollution Control District permit application for temporary and permanent facilities	Lead	Support
Reporting/correspondence with 3rd parties (stakeholders)	Support	Lead
Environmental Impact Report	Support	Lead
Progress reporting to Owner	Lead	
Conditional Use Permit/Coastal Development Permit	Support	Lead
<b>Engineering and Design Activities</b>	<b>DB</b>	<b>City</b>
Civil sitework	Lead	
Site layout	Lead	
Highway 1/South Bay Boulevard access	Lead	Support
Entrance road	Lead	Support
Building Permit	Lead	Support
Geotechnical investigations	Lead	
Utility connections	Lead	
Connections to influent force main, recycled water pipeline, dedicated City fiber optic line, and effluent pipe 20 feet north of access easement boundary at Highway 1 ROW	Lead	
All process systems and all support/ancillary systems, including components identified below (unless specifically identified as "Support")	Lead	
Flow equalization	Lead	
Odor control	Lead	
Screening and grit removal	Lead	
Membrane bioreactor	Lead	
Reverse osmosis	Lead	
Chemical feed systems	Lead	
Chemical clean in place system and chemical storage	Lead	
UVAOP system	Lead	
Dewatering	Lead	
Aerobic digestion/Storage	Lead	
Post treatment	Lead	
Recycled water pump station	Lead	
Effluent pump station	Lead	
On-site reclaimed water system	Lead	
Site ingress from Highway 1	Lead	
Recycled water storage	Lead	
Stormwater facilities including compliance with applicable City, County, State Requirements, Local Ordinances, and local development standards	Lead	

Structural	Lead	
Building plumbing	Lead	
Fire protection/detection/alarm systems and Fire Department compliance	Lead	
Standby emergency power	Lead	
HVAC	Lead	
Electrical/electrical building(s)	Lead	
Instrumentation and controls	Lead	
Valves	Lead	
Process and field piping	Lead	
Pumping	Lead	
Electrical metering equipment	Lead	
Electrical control panels	Lead	
Cables, conduits & trays	Lead	
Power and control wiring	Lead	
Transformers	Lead	
Switchgear	Lead	
PG&E Electrical Service Application and Handout	Support	Lead
Southern California Natural Gas Service Application	Support	Lead
Communications on site and with remote lift station PLC via fiber optic	Lead	
Communication service (internet/phone) from offsite to the access easement boundary at Highway 1 ROW	Support	Lead
Communication with lift station/outfall/injection well sites	Lead	
Process equipment layout	Lead	
System integration	Lead	
Security	Lead	
Operation building	Lead	
Maintenance building	Lead	
Equipment and vehicle storage	Lead	
Outdoor storage areas	Lead	
Covered and uncovered parking	Lead	
Existing facility demolition	Lead	
Existing facility decommissioning (See <b>Existing WWTP Decommissioning/Demolition</b> below for additional detail)	Support	Lead
Indoor/outdoor lighting	Lead	
Grounding/earthing	Lead	
Cathodic protection	Lead	
Lightning protection systems	Lead	
Specifications	Lead	
Project drawings	Lead	
As-built drawings	Lead	
Operations and maintenance equipment (cranes, hoist, etc.)	Lead	
Spare parts development	Lead	
Asset management program, Computerized Management and Maintenance System (CMMS), and development and implementation of proposed system(s)	Lead	
Operations and maintenance manuals	Lead	
<b>Operations and Maintenance Buildings</b>	<b>DB</b>	<b>City</b>

Operations Building equipment - DB to coordinate requirements with City	Lead	Support
Office equipment – DB to coordinate requirements with City	Lead	Support
Furnishing laboratory equipment	Support	Lead
Design, fit-out & permitting of laboratory		
Conference/training/break room – DB to coordinate requirements with City	Lead	Support
<b>General Construction Activities</b>	<b>DB</b>	<b>City</b>
Supply of power, water and other utilities, services, chemicals and all consumables necessary during the time of plant construction through to acceptance testing	Lead	
Equipment installation	Lead	
Temporary site access	Lead	
Outdoor lighting	Lead	
Fencing	Lead	
<b>Equipment Procurement</b>	<b>DB</b>	<b>City</b>
Specification development, equipment selection, procurement documentation development, purchase, delivery and installation	Lead	
Review and analysis for compliance with specifications	Lead	
Placement of purchase orders and issuance of subcontracts	Lead	
Critical item factory inspections and testing	Lead	Support
Equipment inspection upon arrival	Lead	
Processing of invoices for payment	Lead	
Spare parts list development and inventory	Lead	
<b>Site Construction Work</b>	<b>DB</b>	<b>City</b>
Site preparation	Lead	
Site security, signage, safety items	Lead	
South Bay Boulevard access improvements	Lead	
Access roadway improvements	Lead	
Civil sitework (grading, paving, drainage, fencing)	Lead	
On-site utility installations and connections	Lead	
Foundation and slab installation	Lead	
Building construction and installation	Lead	
Plumbing installation	Lead	
HVAC installation	Lead	
Fire protection equipment installation	Lead	
All process equipment installation	Lead	
Non-process equipment installation	Lead	
Connections to influent force main, recycled water pipeline, and treated effluent pipe at 20 feet inside site boundary	Lead	
Landscaping and Irrigation	Lead	
<b>Perimeter fencing</b>	Lead	
Signage and installation of signage	Lead	
Systems testing and approvals	Lead	
Site cleanup	Lead	
Stormwater management and SWPPP	Lead	
<b>Construction Management</b>	<b>DB</b>	<b>City</b>
Construction supervision	Lead	

Construction inspection	Lead	
Project quality control	Lead	
City interface/communication	Lead	
Public communication	Support	Lead
Permit support and adherence (construction)	Lead	
Permit support and adherence (occupancy and operation)	Lead	
Field generated Request for Information	Lead	
Shop drawing reviews	Lead	
Punch listing	Lead	Support
<b>Commissioning and Acceptance/Performance Testing</b>	<b>DB</b>	<b>City</b>
Startup/commissioning plan	Lead	Support
Factory acceptance tests	Lead	Support
Manufacturers' Certificate of Proper Installation	Lead	
Functional tests	Lead	Support
30-Day performance test	Lead	Support
Training of operations staff	Lead	Support
Operations plan	Lead	Support
Operations manual	Lead	Support
CMMS development and implementation	Lead	Support
Asset management program	Lead	Support
Spare parts inventory and management	Lead	Support
Supply of consumables during functional testing; acceptance testing; and performance and operation testing: power, water, chemicals, etc.	Lead	Support
Final acceptance	Lead	Support
Final project documentation	Lead	Support
Initial fill and all first oil changes on equipment	Lead	
<b>6 Month Transitional Operation</b>	<b>DB</b>	<b>City</b>
Plant operations	Support	Lead
Plant staffing	Support	Lead
City personnel training	Lead	Support
CMMS usage	Support	Lead
Plant maintenance activities, including costing & documenting	Support	Lead
Warranty repair items (1 <sup>st</sup> year)	Lead	
Asset management implementation	Support	Lead
Chemical deliveries		Lead
Electrical/mechanical/process/civil and environmental support	Lead	
Permit regulatory compliance	Lead	Support
Plant tours	Support	Lead
<b>Existing WWTP Decommissioning/Demolition</b>	<b>DB</b>	<b>City</b>
Existing WWTP shutdown/decommissioning		Lead
Tank cleaning	Lead	
Plant demolition	Lead	

**1.4 Influent Flows and Water Quality**

Influent flows and loading have long been studied for the existing MBCSD WWTP. Table 1-1 and 1-2 summarize the most recent basis of design for start-up and build-out flows and loads, which have been provided as a reference. Historical WWTP influent water quality information is included as Appendix C. Flow and loading analyses were performed as part of the City's Draft Water Reclamation Facility Master Plan

(Black & Veatch, November 2016), as part of the 2007 Wastewater Treatment Plant Facility Master Plan Report (Carollo, September 2007), the 2009 Wastewater Treatment Plant Facility Master Plan Amendment 1 (Carollo, August 2009), and 2010 Wastewater Treatment Plant Facility Master Plan Amendment 2 (MWH, July 2010), and a flow analysis was performed in the 2006 Sewer Collection System Master Plan Update (Wallace Group, May 2006). Additional, more recent flow information is available in the 2017 Sewer Flow Monitoring and Inflow/Infiltration Study (V&A, September 2017), which will be provided to the proposers. The DB will be responsible for reviewing, and verifying or revising the WRF basis of design for flows and loads.

<b>Table 1-1: Example Start-up Flow and Load Basis of Design Summary</b>							
<b>Parameter</b>	<b>Unit</b>	<b>Annual Average</b>	<b>Minimum 2-Hour</b>	<b>Minimum Day</b>	<b>Maximum Month</b>	<b>Peak Day *</b>	<b>Peak Hour</b>
Flow	MGD	0.85	0.28	0.64	1.02	2.35	6.16
BOD5 Concentration	mg/L	440			470		
BOD5 Load	lb/day	3,200	975	2,000	4,000	5,250	
BOD5 Load peaking factor	--	--	0.30	0.63	1.26	1.65	
TSS Concentration	mg/L	490			540		
TSS Load	lb/day	3,500	770	1,600	4,600	6,600	
TSS Load peaking factor	--	--	0.22	0.45	1.33	1.90	
TKN Concentration	mg/L	70			74		
TKN Load	lb/day	500	150	320	630	830	
TKN Load peaking factor	--	--	0.30	0.63	1.26	1.65	
Note: Adapted from Draft Morro Bay Water Reclamation Facility Master Plan (Black & Veatch, November 2016, Table 6-4) *Peak Day flow and loads may not coincide. DB to confirm design criteria.							

<b>Table 1-2: Example Build-out Flow and Load Basis of Design Summary</b>							
<b>Parameter</b>	<b>Unit</b>	<b>Annual Average</b>	<b>Minimum 2-Hour</b>	<b>Minimum Day</b>	<b>Maximum Month</b>	<b>Peak Day*</b>	<b>Peak Hour</b>
Flow	MGD	0.97	0.32	0.67	1.16	2.75	7.03
BOD5 Concentration	mg/L	440			470		
BOD5 Load	lb/day	3,600	1,100	2,250	4,500	5,900	
BOD5 Load peaking factor	--	--	0.30	0.63	1.26	1.65	
TSS Concentration	mg/L	490			540		
TSS Load	lb/day	4,000	880	1,800	5,300	7,500	
TSS Load peaking factor	--	--	0.22	0.45	1.33	1.90	
TKN Concentration	mg/L	70			74		
TKN Load	lb/day	570	170	360	720	940	
TKN Load peaking factor	--	--	0.30	0.63	1.26	1.65	
Note: Adapted from Draft Morro Bay Water Reclamation Facility Master Plan (Black & Veatch, November 2016, Table 3-17) *Peak Day flow and loads may not coincide. DB to confirm design criteria.							

**1.5 General Requirements**

**1.5.1 Overarching Requirements**

DB to submit written results from all testing, analyses, and studies required in this PCR or in Contract Documents.

<b>Item</b>	<b>Parameter</b>	<b>Criteria</b>	<b>Notes</b>
<b>1</b>	Integrated Design	The WRF must meet all requirements as an integrated facility and as a whole	
<b>2</b>	Overall Guarantees	<ul style="list-style-type: none"> <li>• Provide guarantees as specified for the entire facility. Provide documentation verifying the overall guarantee is built up from vendor performance guarantees. Provide documentation that the life cycle cost of operating and maintaining the facility is minimized including:                             <ul style="list-style-type: none"> <li>○ Power used per volume of water delivered</li> <li>○ Chemicals used per volume of water delivered</li> <li>○ Operator time required</li> <li>○ Maintenance costs</li> </ul> </li> </ul>	

		<ul style="list-style-type: none"> <li>○ Downtime for planned and unplanned maintenance</li> </ul>	
3	Equipment Warranty Period	Unless longer warranty requirements are specified in the contract documents, all equipment warranties shall be valid and in effect for 1 year after project substantial completion regardless of manufacturer’s stated warranty start date	
4	Confined Spaces	<ul style="list-style-type: none"> <li>● Minimize confined spaces in design</li> <li>● Identify all confined spaces and provide three sets of necessary gear for entry by O&amp;M staff</li> </ul>	
5	Intermediate Pumping	Minimize intermediate pumping	
6	Transitional Operation Period	<ul style="list-style-type: none"> <li>● Operate and maintain the WRF to:                             <ul style="list-style-type: none"> <li>○ Maximize the amount of recycled water produced</li> <li>○ Minimize costs, and in any case keep power use, chemical use, operator attendance and other costs and inputs to below guaranteed values</li> </ul> </li> </ul>	
7	Material of Construction/Durability	<ul style="list-style-type: none"> <li>● Select material of construction to meet the life cycle performance criteria</li> <li>● Include corrosion as a main criterion in detailed design</li> </ul>	
8	PG&E Savings by Design Incentives	Incorporate PG&E Savings by Design into design and coordinate with City to optimize its incentives	
9	Access for Haulers and Chemical Delivery	Design and construct access for routine maintenance (including but limited to sludge hauling, chemical deliveries, screenings hauling, and other routine activities) to minimize reversing and back and forth movements by vehicles.	

**1.6 Effluent Quality Requirements**

This section summarizes existing available information for the effluent quality requirements for the WRF. The effluent quality requirements will be set by the Department of Drinking Water (DDW) and the RWQCB as part of the permit (WDR/NPDES) for the WRF. The DB will work with the City, DDW, and RWQCB to determine the effluent water quality requirements for the Project.

The existing MBCSD WWTP operates under WDR Order No. R3-2017-0050, NPDES No. CA0047881 (Appendix D). However, a new permit will be developed for the WRF. At this time, the existing WDR/NPDES permit for the existing WWTP represents the best available information on anticipated permit requirements for the new

WRF with respect to ocean discharges through the existing ocean outfall. However, the City has established a goal of tertiary treatment for water discharged to the ocean.

<b>Table 1-3: Effluent Limits for Ocean Discharge for Selected Pollutants (WDR for Existing MBCSD WWTP Discharge to the Ocean, Order No. R3-2017-050)</b>				
Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand 5-day @ 20°C (BOD <sub>5</sub> ) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Total Suspended Solids (TSS) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Oil and Grease	mg/L	25	40	75
	lbs/day <sup>[2]</sup>	430	687	1,289
Settleable Solids	ml/L	1.0	1.5	3.0
pH	standard units	6.0 – 9.0 at all times		
Turbidity	NTU	75	100	225
[1] The average monthly percent removal for BOD <sub>5</sub> and TSS shall not be less than 85 percent.				
[2] Mass based effluent limitations were calculated using the following formula: $\text{lbs/day} = \text{pollutant concentration (mg/L)} * \text{Design flow (2.06 MGD)} * \text{conversion factor (8.34)}$				

In addition to the effluent limitations summarized in the table above, effluent limitations are included for metals, cyanide, phenolic compounds, endosulfan, endrin, hexachlorocyclohexane (HCH) and radioactivity for the protection of marine aquatic life. Limitations on levels of carcinogens and non-carcinogens regulated for the protection of human health are also specified in the NPDES permit.

The ultimate permit for the WRF will include recycled water requirements. The minimum requirements can be anticipated to be defined by CCR Title 22, Division 4, Chapter 3 Water Recycling Criteria, as applicable for Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application (injection wells).

### **1.7 Treatment Capacity**

The WRF shall be designed to receive, store (as needed to equalize), and treat the full influent wastewater flows from the City of Morro Bay in accordance with the effluent requirements described above. Available information on the anticipated influent wastewater flows and water quality characteristics is provided in Section 1.3. DB shall be responsible for reviewing and confirming design influent wastewater flows and water quality.

### **1.8 Plant Production Requirements**

The WRF shall be designed and constructed to produce a volume of recycled water for indirect potable reuse groundwater injection equal to 76% of the influent flow. This is estimated to be approximately 723 AFY at startup and 825 AFY at buildout; however, the DB shall determine design influent flows. The Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility, prepared by GSI Water Solutions and dated May 16, 2017, is available on the project website (morrobaywrf.com).

**1.9 Durability Requirements**

The minimum design life requirements for the different project components are listed below. The DB shall consider the location of the project in the coastal environment when selecting materials, coatings and equipment. The DB may consider the project components and facilities will be operated and maintained by qualified staff. The necessary maintenance, repair and replacement will also occur in accordance with warranty requirements and other procedures specified by the DB and equipment manufacturers.

Item	Parameter	Criteria	Notes
1	Overall WRF Design Life	30 Years	
2	Civil Component	<ul style="list-style-type: none"> <li>• Use concrete corrosion inhibitor in all structures in lieu of protective coatings to meet design life requirements</li> <li>• Pavement: 50 years</li> <li>• Site Fencing: 15 years</li> <li>• Concrete Structures, Tanks, etc.: 75 years</li> <li>• Chemical Storage Tanks: 20 years</li> </ul>	
3	Mechanical Components	<ul style="list-style-type: none"> <li>• Yard/Buried Piping: 50 years</li> <li>• In-Plant/Aboveground Piping: 30 years</li> <li>• Chemical Piping: 10 years</li> <li>• Chemical Pumps: 10 years</li> <li>• Pumps: 30 years</li> <li>• Control Valves: 25 years</li> <li>• Blowers: 25 years</li> <li>• Pressure Vessels: 30 years</li> <li>• Cartridge Filter Vessels: 30 years</li> <li>• Cartridge Filters: DB to define</li> <li>• Membrane Elements and Cleaning System: DB to define (minimum 10 years)</li> <li>• Pressure Vessels: 30 years</li> <li>• UV Reactors: 30 years</li> <li>• UV System Components i.e., lamps, ballasts, etc.: DB to define</li> <li>• RO System: 30 years</li> <li>• AOP System: 20 years</li> <li>• HVAC Systems: 25 years</li> </ul>	<ul style="list-style-type: none"> <li>• Durations assume regular maintenance, calibration, testing and certification per manufacturer’s recommendations</li> <li>• Unless longer warranty requirements are specified in the contract documents, all equipment warranties shall be valid and in effect for 1 year after project substantial completion regardless of manufacturer’s stated warranty start date</li> </ul>
4	Structural	<ul style="list-style-type: none"> <li>• Building Structure: 50 years</li> <li>• Structural Steelwork: 50 years</li> <li>• Membrane Skid Frame: 50 years</li> <li>• Pre-treatment System Structures: 50 years</li> <li>• RO Skid Frame: 50 years</li> <li>• AO Skid Frame: 50 years</li> </ul>	

		<ul style="list-style-type: none"> <li>• Metalwork, i.e. ladders, stairs and walkways: 25 years</li> </ul>	
5	Electrical and I&C Components	<ul style="list-style-type: none"> <li>• Motor Control Center: 30 years</li> <li>• Switchgear: 30 years</li> <li>• Dry-Type Transformer(s): 30 years</li> <li>• Instruments: 15 years</li> <li>• PLC System: 15 years</li> <li>• SCADA Hardware: 15 years</li> <li>• Electrical, general: 25 years</li> <li>• Telemetry: 25 years</li> <li>• Power electronics i.e. VFDs, UPS, etc.: 15 years</li> </ul>	<ul style="list-style-type: none"> <li>• Durations assume regular maintenance, calibration, testing and certification per manufacturer recommendations. Assumes all firmware and software updates are implemented when released. All systems with battery-backup batteries will be replaced as necessary</li> <li>• All equipment warranties will be in effect for 1 year after project substantial completion regardless of manufacturer’s warranty to the DB</li> </ul>

**1.10 Anticipated Environmental Mitigation Measures**

The environmental analysis and CEQA documents are currently being prepared. The Draft Environmental Impact Report (EIR) is anticipated to be available in March 2018, with certification of the final EIR expected in June 2018. Refer to Appendix M for additional information and anticipated mitigation measures.

## SECTION 2 TREATMENT PROCESS CRITERIA

### 2.1 General

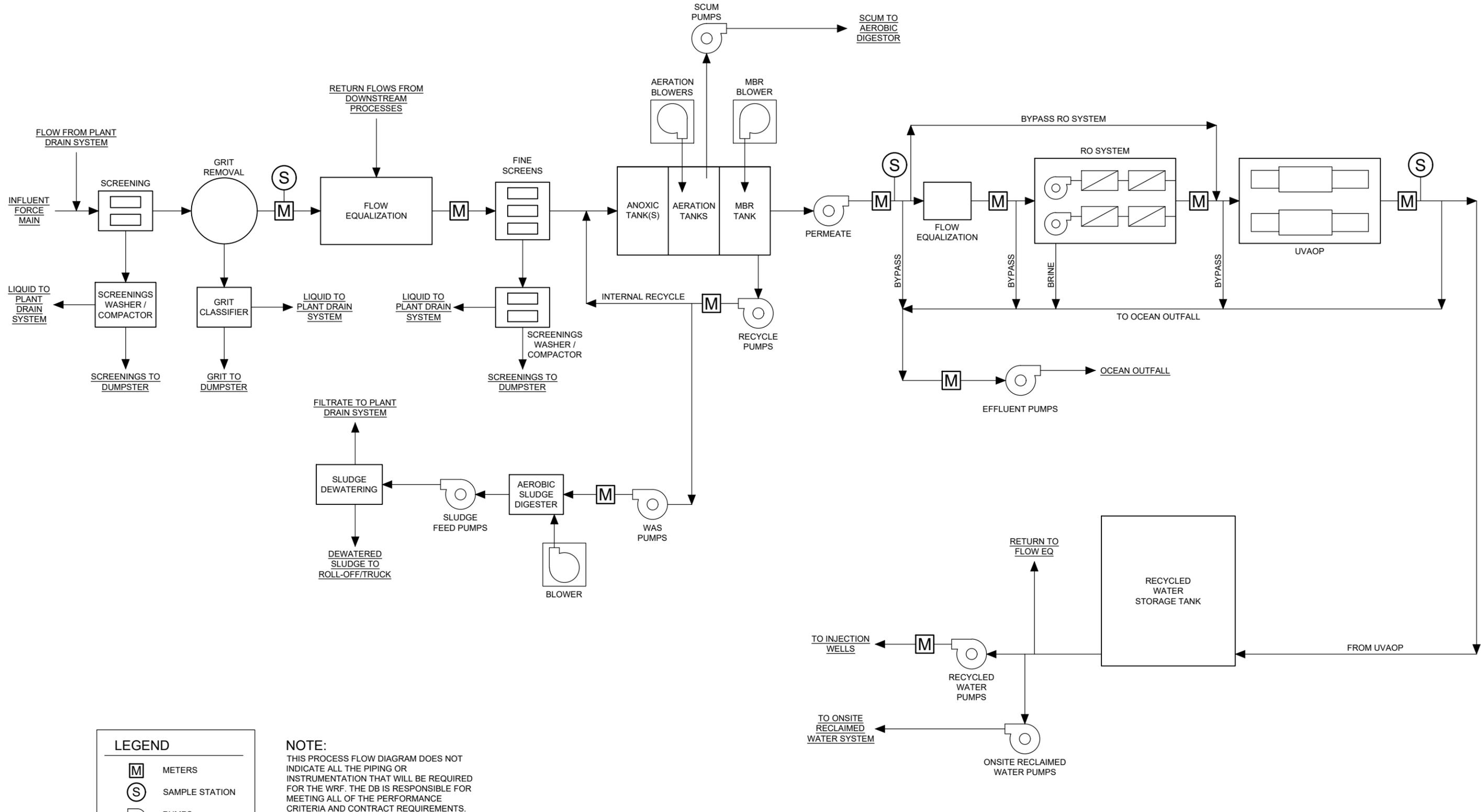
The WRF shall provide primary, secondary, tertiary, and full advanced treatment, with processes integrated to work as a whole and with operational flexibility to provide efficient treatment. The main treatment processes are summarized in the table below. Ancillary support facilities will also be required. A basic process flow diagram (PFD) is included as Figure 2-1.

Item	Process	Alternative	Notes
1	Influent (Coarse) Screening		
2	Grit Removal		
3	Flow Equalization		
4	Fine Screening		
5	Membrane Bioreactor (MBR)	Activated sludge and membrane filtration	
6	Aerobic Sludge Digester		
7	Sludge Dewatering		
8	Reverse Osmosis (RO)		
9	Ultraviolet Advanced Oxidation Process (UVAOP)		
10	Chemical Storage and Feed Facilities		
11	Odor Control		

The WRF treatment processes shall be integrated to work as a whole. Control systems throughout the WRF Treatment Processes shall be compatible with the overall site control system. Process monitoring shall be provided to allow for full regulatory compliance, monitoring, and recording of water quality and flow trends, evaluation of unit process performance, and evaluation of equipment condition.



DWG: \\MKNO1\Company\Projects\Morro Bay\MB-2015-001-002-003 WRF Program Management Services\300 Engineering\301 CAD\Exhibits\Figure 2.1.dwg USER: JmF  
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LEGEND	
	METERS
	SAMPLE STATION
	PUMPS

**NOTE:**  
 THIS PROCESS FLOW DIAGRAM DOES NOT INDICATE ALL THE PIPING OR INSTRUMENTATION THAT WILL BE REQUIRED FOR THE WRF. THE DB IS RESPONSIBLE FOR MEETING ALL OF THE PERFORMANCE CRITERIA AND CONTRACT REQUIREMENTS.

	City of Morro Bay	FIGURE <b>2-1</b>
	WRF PROCESS FLOW DIAGRAM	



**2.2 Influent (Coarse) Screening**

The Influent (Coarse) Screening System shall collect, wash, dewater, compress, convey, bag, and discharge solids to a rolling dumpster. Discharge area is to be paved with curbs and drainage to the WRF plant drain system. Conveyance, compaction, dewatering, and screening systems shall be provided by the same manufacturer. Minimize the distance and lift from screens to dumpsters to prevent conveyance system failures. Protect the screenings from wind, rain, and wet weather.

Item	Parameter	Criteria	Notes
1	Total Number of Units	<ul style="list-style-type: none"> <li>2 Screens: 1 duty and 1 standby</li> <li>1 Screenings Washer/Compactor</li> </ul>	
2	Design Flow	Peak Hour Flow (PHF)	Meet PHF. DB to determine design flow.
3	Cutoff Size	6 mm or smaller	Coordinate with fine screening and downstream treatment process requirements. DB to select cutoff size.
4	Type	Mechanically-cleaned bar screen	
5	Materials	Type 316 Stainless Steel (SS)	
6	Allowable Manufacturers/Vendors	Huber, Vulcan, Headworks Inc., Westech, Parkson, Duperon, Hydrodyne, or equal	
7	Approach Velocity	Within MFRs recommended min./max.	
8	Odor Control	Provide Odor Control to treat odorous air from Influent Screening System per Section 2.12 Odor Control	Provide removable covers for influent screening channels, and ductwork and fans to transport air to future treatment
7	Operational Flexibility	Provide valves and/or gates and piping to allow bypassing of the screening system to the flow equalization basin	
8	Freeboard	2-feet at PHF	

9	Compactor	Minimum 50% weight reduction and 50% volume reduction in screenings	
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**2.3 Grit Removal**

The Grit Removal System shall remove grit from influent wastewater and discharge collected grit via automated valve(s) to a grit dewatering and conveyance system. Grit discharge area is to be paved with curbs and drainage to the WRF plant drain system. Conveyance, dewatering, and grit removal systems to be provided by the same manufacturer. Minimize the distance from grit removal system to dumpsters to minimize conveyance system failures.

Item	Parameter	Criteria	Notes
1	Total Number of Units	<ul style="list-style-type: none"> <li>• 1 Grit Removal System</li> <li>• 2 Grit Pumps: 1 duty and 1 standby</li> <li>• 1 Grit Washer/Classifier</li> </ul>	
2	Design Flow	PHF	Meet PHF. DB to determine design flow.
3	Performance	At Average Annual Flow (AAF): 95% of grit greater than 50 mesh; 85% of grit greater than 70 mesh but less than 50 mesh; 65% of grit greater than 100 mesh but less than 80 mesh	AAF is estimated at 0.97 MGD per Draft FMP. DB to determine design flow.
4	Type	Vortex-type	
5	Allowable Manufacturers/Vendors	Westech, Fluidyne, Smith & Loveless, Hydro-International, or equal	
6	Odor Control	Provide Odor Control to treat odorous air from Grit Removal System per Section 2.12 Odor Control	Provide removable covers for grit channels, and ductwork and fans to transport air to future treatment
7	Operational Flexibility	Provide valves and/or gates and piping to allow bypass of the grit system to the flow equalization basin	
8	Freeboard: Channels and Basins	2-feet minimum	

**2.4 Flow Equalization Basin**

The Flow Equalization Basin will receive primary influent and is intended to buffer flows to the treatment processes to promote steady flows through the treatment process. DB shall provide evaluation of the cost/benefit of reducing the capacity of downstream processes (MBR, RO, UV, and AOP) by balancing equalization, recycled water production, and controlled release of treated effluent to the outfall during peak flows.

Provide floor slopes, sumps, and spray systems to allow operators from a catwalk to remove solids and clean the equalization bays when they are not in use. Solids and washdown water shall run to the Aerobic Sludge Digester. Provide above ground electric actuators on all control gates. The Flow Equalization Basin will be provided as part of the full WRF treatment process.

Item	Parameter	Criteria	Notes
1	Geometry	<ul style="list-style-type: none"> <li>Rectangular with at least 4 equivalent sized bays and optimal length-to-width ratio to promote mixing and reduce settling</li> <li>The primary EQ bay shall be covered</li> </ul>	At least one bay will be in service at all times to receive return/recycle flows and to buffer daily peaks to the MBR
2	Materials	Portland Cement Concrete with sulfide-resistant coating (wet areas only); 316 SS gates; aluminum or fiberglass for grating, hatches, and support	
3	Mixing System	Pump mix or coarse air	
4	Size	To be determined by DB	
5	Design Capacity	100% of influent flow into the basin; provide constant outflow to coordinate with downstream processes and production requirements	Provide steady flow to MBR
6	Pumps	Provide one pump per bay and one redundant pump	
7	Freeboard	Provide two feet freeboard; allow flow above two feet of freeboard in one bay to overflow into the next bay, such that all bays will be filled before an overflow occurs	
8	Odor Control	Provide odor control on primary EQ bay	Provide cover to contain odorous air, and ductwork and fans to transport air to

			treatment. Include provisions in cover to allow sufficient access for cleaning of bay.
9	Operational Flexibility	Provide valves and/or gates and piping to allow operators to direct flows to different and/or multiple bays. Provide flexibility to direct return flows from downstream processes to different bays	Provide optional flow path to return flows back to the equalization basin from each downstream process.

**2.5 Fine Screening**

The Fine Screening System shall collect, wash, dewater, compress, convey, and discharge solids to a rolling dumpster. Discharge area is to be paved with curbs and drainage to the WRF plant drain system. Conveyance, compaction, dewatering, and screening systems to be provided by the same manufacturer. Minimize the distance and lift from screens to dumpsters to prevent conveyance system failures. Protect the screenings from wind, rain, and wet weather.

Item	Parameter	Criteria	Notes
1	Total Number of Units	<ul style="list-style-type: none"> <li>3 Screens: each capable of handling 50% of equalized PDF</li> <li>2 Washer/ Compactor Systems: 1 duty and 1 standby</li> </ul>	
2	Design Flow	Equalized Peak Day Flow (2.75 MGD)	Meet equalized Peak Day Flow. Example flow rate shown in parentheses. DB to determine design flow.
3	Cutoff Size	2 mm, or size confirmed by MBR system provider	Coordinate with influent screening and downstream treatment process requirements. DB to select cutoff size
4	Type	Perforated Plate,	
5	Materials	Type 316 SS	
6	Allowable Manufacturers/Vendors	Huber, Vulcan, Headworks Inc., Westech, Parkson, Duperon, Hydrodyne, or equal	
7	Approach Velocity	Within MFRs recommended min./max.	

<b>8</b>	Compactors	Minimum 50% weight reduction and 50% volume reduction in screenings	
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**2.6 Membrane Bioreactor**

The Membrane Bioreactor (MBR) System will receive equalized flows from the Flow Equalization Basin and provide biological treatment and filtration. Pumps, control valves, compressors, blowers, instrumentation, controls, and other equipment necessary for operation shall be furnished as part of a single MBR manufacturer’s package. Provide the following as part of the MBR System:

- Scum and foam control measures
- Fine bubble diffusion for aeration basins with blowers independent of the MBR blowers
- Scouring system for MBR basins
- Mixing system for anoxic basins
- Chemical addition systems, as needed
- DO probes in each aeration basin (minimum of three), tied to SCADA
- Level indicators in each basin, tied to SCADA
- Complete clean in place (CIP) system to be furnished
- RO Permeate will be used for CIP
- Absolute and pro-rated warranty, along with Fiber Breakage Warranty
- Roofing system for protection from weather and UV degradation
- Bridge crane system for lifting cassette modules for maintenance

Item	Parameter	Criteria	Notes
<b>1</b>	Design Flow	Equalized Peak Day Flow (PDF)	Meet equalized Peak Day Flow. DB to determine design flow.
<b>2</b>	Configuration	Biological nutrient removal/MBR	
<b>3</b>	Design Flux	<ul style="list-style-type: none"> <li>• 17 gallons per square foot per day (GFD) at MMF</li> <li>• 10 GFD at AAF</li> </ul>	Example rates provided in Criteria. DB to determine design rates.
<b>4</b>	Allowable Manufacturers/Vendors	Koch, Suez, Enviroquip, Siemens, Evoqua, or equal	Suez formerly known as GE Water
<b>5</b>	Cleaning Cycles	<ul style="list-style-type: none"> <li>• Maintenance: No more than once/week to return to within 0.2 pounds per square inch (psi) of</li> </ul>	

		<p>starting trans-membrane pressure (TMP)</p> <ul style="list-style-type: none"> <li>Recovery: No more than 4 times/year to return within 1 psi of starting TMP</li> </ul>	
6	Regulatory Approvals	DDW Approval letter for pathogen reduction	
7	Water Quality Goals	Turbidity less than 0.5 NTU; Total Nitrogen (as N) less than 3 mg/L	
8	Mixed Liquor Suspended Solids	8,000 to 10,000 mg/L	
9	Biological Nutrient Removal Redundancy Requirements	<ul style="list-style-type: none"> <li>AAF: 1 train out of service</li> <li>MMF: All trains in service</li> <li>PDF: All trains in service</li> </ul>	
10	Membrane Bioreactor Redundancy Requirements	AAF, MMF, PDF: 1 train out of service for maintenance	
11	Minimum Blower Efficiency	75%	
12	Allowable Blower Manufacturers	APG Neuros, Atlas Copco, Hoffman, Piller, Sulzer, or equal	Blower Manufacturer shall provide blower, motor, air intake filters, silencers, valves, VFD, pipe connections, gauges, acoustic enclosure, MCP, LCP, and all other appurtenances as required
13	MBR Ancillary Equipment	Each treatment train shall be provided with: magnetic type flowmeter, motorized isolation valves, chemical addition systems as needed to meet treatment requirements, and all necessary equipment for periodic chemical cleaning of membranes. Provide access platform for ease of operation and maintenance, per manufacturer recommendations.	
14	Freeboard: Channels and Basins	2-feet minimum	

15	Other	WRF design shall reduce the potential for fats, oil, and grease to reach the MBR system	
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**2.7 Aerobic Sludge Digester**

The Aerobic Sludge Digester will receive, store, aerate, and digest activated sludge wasted from the MBR process. Minimize freeboard/head space in Aerobic Sludge Digester to reduce potential for odor accumulation. Provide a system that allows for installation of a future cover and connection to odor control.

Item	Parameter	Criteria	Notes
1	Total Number of Units	<ul style="list-style-type: none"> <li>• 1 Digester</li> <li>• 3 Blowers: 2 duty and 1 standby</li> </ul>	
2	Materials	Portland cement concrete with fiberglass grating	
3	Minimum Volume	14 days of storage at MMF conditions	
4	Safety Factor	1.15	Applied to volume
5	Aeration Type	Coarse bubble diffusion	
6	Minimum Blower Efficiency	75%	
7	Allowable Blower Manufacturers	APG Neuros, Atlas Copco, Hoffman, Piller, Sulzer, or equal	Blower Manufacturer shall provide blower, motor, air intake filters, silencers, valves, VFD, pipe connections, gauges, acoustic enclosure, MCP, LCP, and all other appurtenances as required

**2.8 Sludge Dewatering**

The Sludge Dewatering System will pump waste sludge from the Aerobic Sludge Digester, or directly from the MBR system, and perform dewatering to remove water and increase total solids concentration. Pumps, conveyance, polymer storage and feed system, and dewatering systems to be provided by the same manufacturer. Design the pumping, conveyance, and dewatering system to convey solids from dewatering equipment to rolloff container with minimal exposure for odor release. Design system to allow waste activated sludge to bypass the Aerobic Sludge Digester and be pumped directly to Sludge Dewatering System. Minimize the distance and lift between the Aerobic Sludge Digester, dewatering equipment, and rolloff container. Provide a design that achieves even distribution of dewatered sludge from conveyor into dumpster, such as Dumpster-veyor or equal, and tied to SCADA. Provide polymer storage and feed system to achieve required solids concentration. The Dewatering Building shall comply with the structural and architectural performance criteria specified in Sections 3 and 4.

Item	Parameter	Criteria	Notes
1	Total Number of Units	2: 1 duty and 1 standby	
2	Type	Screw Press or Belt Filter Press	
3	Materials	316 Stainless Steel	
4	Allowable Manufacturers/Vendors	BDP, Huber, FKC, Ashbrook or equal	
5	Operating Schedule	<ul style="list-style-type: none"> <li>Belt Filter Press: 8 hours per day</li> <li>Screw Press: 24 hours per day</li> <li>Maximum days per week: 2</li> </ul>	
6	Solids Loading Rate	To be determined by DB	
7	Minimum Solids Concentration	20% total dry solids	
8	Minimum Capture Efficiency	95%	
9	Ancillary Equipment	Provide polymer storage and feed system, and sludge feed pumps	Provide spill containment
10	Odor Control	Provide Odor Control to treat odorous air from Sludge Dewatering System per Section 2.12 Odor Control	Provide Dewatering Building with full ventilation and provisions to connect to odor control in future for dewatering unit, conveyance, and rolloff container/truck loading area for containment

**2.9 Reverse Osmosis**

The Reverse Osmosis (RO) System will receive water from the MBR System. The RO System shall be housed within a building, together with the UVAOP System. The Advanced Treatment Building shall comply with the structural and architectural performance criteria specified in Sections 3 and 4.

Item	Parameter	Criteria	Notes
<b>RO System General</b>			
1	Design Approach	<ul style="list-style-type: none"> <li>Conventional 2 stage RO system housed in a building</li> </ul>	Storage will be required to buffer PDF and diurnals. No bolted steel tanks unless glass-lined.

		<ul style="list-style-type: none"> <li>• Provide 3 trains, any 1 train will meet 33% of MMF</li> <li>• Trains shall be configured to meet minimum capacity of 0.67 MGD by shutting off one train</li> </ul>	
2	RO Energy Rebates	Provide evaluation of energy rebate programs, etc. that may offset some of the capital costs of Energy Recovery devices on the RO system.	
3	Post-Treatment	Provide post-treatment systems as required	If acid addition is required, provide a decarbonator.
<b>RO System Flows</b>			
1	Maximum RO Feed Flow	MMF (1.16 MGD)	Meet maximum month flow. Example flow rate shown in parentheses. DB to determine design flow
2	Overall RO Recovery	80% minimum	DB shall provide cost/benefit evaluation of increased recovery, including evaluation of independent 3 <sup>rd</sup> stage, energy recovery devices, and pretreatment chemical addition alternatives as indicated.
3	Total RO Permeate Flow	0.93 MGD	Example Design Criteria, DB to make final determination
4	RO Permeate Diverted for MBR and RO CIP	0.01 MGD	Example Design Criteria, DB to make final determination
5	Net RO Permeate Flow	0.92 MGD	Example Design Criteria, DB to make final determination
6	Total RO Concentrate Flow	0.23 MGD	Example Design Criteria, DB to make final determination
<b>Main RO Equipment</b>			
1	Technology	Spiral Wound Reverse Osmosis	
2	Supplier	Original Equipment Manufacturer (OEM)	

3	Allowable OEMs	Suez, Biwater, H2O Innovation, Evoqua, Harn RO	Suez formerly known as GE Water
4	Allowable RO Membrane Manufacturers	Suez, Toray, Dow, Hydranautics, CSM	
5	Membrane Type	Thin Film Polyamide	
6	Membrane Element Diameter	8 inches	
7	Pressure Vessels	Fiber-Reinforced Plastic (FRP), ASME Stamped	
8	System Configuration	Conventional 2-stage array	
9	Skid Height/Element Access	Skid height and element loading and unloading to be coordinated with building height limitations and other constraints	
<b>RO Design Flux &amp; Recovery</b>			
1	Flux	<ul style="list-style-type: none"> <li>Maximum average design flux: 12 GFD</li> <li>Maximum single-element flux: 16 GFD</li> </ul>	
2	Recovery	<ul style="list-style-type: none"> <li>Design Recovery: 80%</li> <li>DB to determine and demonstrate, via desktop analysis, maximum safe recovery</li> </ul>	
<b>RO System Ancillary Equipment</b>			
1	Pretreatment Chemical Addition	Sulfuric acid and antiscalant as required	Avoid acid if possible
2	Cartridge Filter Housings	316L SS or better, ASME Code with stamp	Maximum 5 gpm per 10-inch equivalent cartridge filter (CF)
3	Cartridge Filters	10-micron polypropylene, maximum	
4	RO High Pressure Pump	Vertical Turbine	

5	Energy Recovery	DB to determine and demonstrate, via desktop analysis, the optimum use of Energy Recovery Devices	Submit analysis
<b>RO System Ancillary Equipment – for Optional 3<sup>rd</sup> Stage</b>			
1	Pretreatment Chemical Addition	Maintain scaling indices as non-scaling as determined by antiscalant manufacturer	Provide cost-benefit analysis of increasing recovery with acid addition versus reduced recovery using scale inhibitor. City will determine preferred approach.
2	RO High Pressure Pump	Horizontal multistage centrifugal	Coordinate with Section 7
<b>RO System Chemicals</b>			
1	Pretreatment	Sulfuric Acid, Antiscalant as required	
2	CIP: Primary RO System	CIP System to allow for various high and low pH formulations, made from both powder and liquid. Include an eductor for delivery of dry powders, and transfer pumps for delivery of liquids from totes. CIP tank to include heater.	
<b>RO System Product Water Quality</b>			
1	Minimum Requirements	Recycled Water Requirements in Waste Discharge Order, CCR Title 22 for Indirect Potable Reuse: Groundwater Replenishment - Subsurface Application	
2	Total Organic Carbon (TOC)	Below 0.25 mg/L	
3	Ultraviolet Transmissivity (UVT)	95%	
<b>RO System - Other</b>			
1	Train Sizing	Provide 3x33% trains and meet MMF with all trains	Use storage to buffer flows from MBR

2	Minimum Capacity	Minimum Daily Flow (0.67 MGD)	Example flow rate shown in parentheses. DB to determine design flow
3	RO Train Flush System	A Flush Tank and pump(s) shall be provided to allow for complete flushing of all RO Trains upon sequential plant shutdown with RO permeate. In addition, Tank shall be sized, at a minimum, to allow for flushing all stages without a sequential plant shutdown (e.g. Emergency Shutdown).	<ul style="list-style-type: none"> <li>• DB to incorporate gravity flushing during emergency shutdowns, if possible</li> <li>• Flushing with RO permeate minimizes biogrowth during shutdown period</li> </ul>
4	Sample Taps	Each RO Train to be equipped with suitable sample taps for feed, concentrate and permeate lines. Each individual RO vessel must be equipped with a permeate sample tap. Route all sample taps to a common panel with a trough connected to a drain.	
5	Off Spec Water Discharge	Provide piping and valving to allow for off spec product water to be discharged to the ocean outfall or Flow Equalization Basin during start-up and normal operation	
6	Flow Equalization	Provide concrete tank for flow equalization upstream of RO System to allow for steady flow to the RO System	

**2.10 Ultraviolet Advanced Oxidation Process (UVAOP)**

The Ultraviolet Advanced Oxidation Process (UVAOP) System will receive water from the Reverse Osmosis (RO) system, or directly from the MBR System. UVAOP System to be capable of disinfecting MBR product water for disinfection prior to ocean outfall, and capable of providing final treatment for Indirect Potable Reuse. The UVAOP system shall be provided by a single system supplier and shall be installed in the same building as the RO System. The Advanced Treatment Building shall comply with the structural and architectural performance criteria specified in Sections 3 and 4.

Item	Parameter	Criteria	Notes
1	UV Technology	Low pressure, high output lamp	
2	Oxidant	Hydrogen Peroxide	

3	Approved Suppliers	Wedeco, Trojan, Calgon Carbon, Evoqua, or equal	
4	Standby capacity	100%	
5	UV Reactor Type	Closed vessel	
6	Minimum Number of Treatment Trains	2	Provide a minimum of 2 trains with N+1 redundancy
7	UV Treatment Train Capacity, Each	Equalized Peak Day Flow (2.75 MGD), minimum	Meet equalized Peak Day Flow, at a minimum. Example flow rate shown in parentheses. DB to determine final flow.
8	UV Reactor Materials	316L Stainless Steel	
9	Ancillary Equipment	Each treatment train shall be provided with magnetic type flowmeters and motorized isolation valves. Provide all necessary equipment for periodic chemical cleaning of UV reactor. Provide access platform for ease of operation and maintenance, per manufacturer recommendations.	
10	Sample Taps	Provide sample taps on each train to allow for adequate performance monitoring. Route all sample taps to a common panel with a trough connected to a drain to the WRF Plant Drain System.	
11	1,4-Dioxane Reduction	0.5 log	
12	Product Water Quality Requirements	Meet Recycled Water Requirements in Waste Discharge Order, CCR Title 22 for GRRP subsurface injection	
13	Off Spec Water Discharge	Provide piping and valving to allow for off spec product water to be discharged to the ocean outfall or Flow Equalization Basin during start-up and normal operation	

**2.11 Chemical Storage and Feed Facilities**

The following section includes the performance criteria associated with chemical storage and feed facilities of the WRF.

Item	Parameter	Criteria	Notes
<b>General</b>			
1	Safety Considerations	<ul style="list-style-type: none"> <li>• Design systems to allow safe operation</li> <li>• Provide all necessary Personal safety equipment, conveniently located at chemical facilities</li> </ul>	
2	Materials Compatibility	Select materials which are compatible with a wide range of chemicals, and specifically compatible with the selected chemical	
3	Design Coordination with Equipment and Chemical Vendors	Submit written approval from equipment and chemical vendors that the design meets their requirements for safe and optimized O&M	
<b>Chemical Storage</b>			
1	Storage Area Sizing	<ul style="list-style-type: none"> <li>• Establish one loading station for all chemicals with secondary containment, with one containment area in the access road suitable for the largest chemical delivery tank available</li> <li>• Chemical storage must be designed to allow forklift access for loading and unloading of chemical totes</li> <li>• Optimize size and number of totes for each chemical, complete with the necessary fittings and pipework to ensure connectivity between the totes</li> <li>• Provide isolated containment for incompatible chemicals</li> </ul>	
2	Quantity and Size of Totes	<ul style="list-style-type: none"> <li>• For chemicals using less than 1 tote in 15 days provide space for 2 totes</li> <li>• For chemicals using more than 1 tote in 15 days provide space for twice the number of totes used in 15 days</li> <li>• Consider the rate of chemical degradation when sizing totes</li> <li>• All chemical tote sizes must be commonly available to the industry.</li> <li>• Review chemical concentrations available to determine if higher concentrations are able to be delivered and diluted in process, and if so provide facilities and equipment for dilution</li> <li>• Size chemical storage tote quantities for both current flow and maximum WRF capacity</li> </ul>	Provide uniform tank heights in chemical storage design to the extent possible

3	Ancillary Facilities	<ul style="list-style-type: none"> <li>• Equip each tank with ultrasonic level transmitter connected to SCADA and magnetic level indicator.</li> <li>• Totes must be stored higher than chemical pumps to provide positive pressure to the pump suction.</li> <li>• Provide proper heating tapes/insulations for chemicals as needed.</li> </ul>	
4	Safety	<ul style="list-style-type: none"> <li>• Safety Handrails and Kickplates meeting current code requirements including OSHA, shall be provided where required</li> <li>• Provide Safety Shower/Eyewash per OSHA requirements</li> <li>• Provide safety chemical splash shields between chemical secondary containment areas and access walkways</li> <li>• Provide PVC spray sleeves on exposed chemical tubing</li> <li>• Provide safety bollards to protect chemical facilities from nearby traffic areas</li> </ul>	Coordinate with awning height requirements
5	SCADA Alarms	<ul style="list-style-type: none"> <li>• High Level--90 percent</li> <li>• Low Level--15 percent</li> <li>• Low-Low Level--10 percent</li> </ul>	Coordinate with SCADA alarm actions
6	Sumps and Washdown Areas	<ul style="list-style-type: none"> <li>• Each secondary containment area and truck loading area shall be provided with a sump. Establish plan for sump collection and discharge without need to enter the containment areas.</li> <li>• Provide concrete steps and rails to facilitate access and service to equipment within secondary containment areas.</li> <li>• Provide washdown facilities that can safely be used to access all areas.</li> <li>• Provide drains, sumps, pumping and dosing equipment from all areas and tote storage areas which allow chemicals to be neutralized, and/or collected and trucked off-site.</li> </ul>	
7	Piping Layout	<ul style="list-style-type: none"> <li>• Arrange chemical piping from loading area to and from chemical storage area to processes or buildings in specific corridors</li> <li>• Chemical piping between locations shall be below grade i.e., either in pipe trench or buried</li> </ul>	

8	Coating/Painting	<ul style="list-style-type: none"> <li>• Provide a chemical resistant coating to all surfaces within the containment area. The coating must be compatible for the chemical being stored.</li> <li>• Lining shall cover tops of tote storage pads, tops of equipment pedestals, and front vertical faces of steps and stairs, floors, steps, stair treads, sump floors, sump walls, and field-formed, non-prefabricated, trenches.</li> <li>• Consider staining property of the chemical when specifying coating and paint color.</li> </ul>	
9	Other O&M Requirements	<ul style="list-style-type: none"> <li>• Allow for ease of future installations/replacements of equipment e.g., provide forklift access to replace chemical totes</li> </ul>	
<b>Feed Pumps</b>			
1	Pump Type	<ul style="list-style-type: none"> <li>• Use peristaltic pumps only.</li> <li>• Equip with compression rollers that are retractable for tube loading. One roller shall be fully engaged with the tubing at all times to prevent backflow or siphoning.</li> <li>• Use no check valves or diaphragms and shall require no dynamic seals in contact with the pumped liquid.</li> <li>• Pump tubing shall be rated 60 psi back pressure for 1000 hours at 200 rpm.</li> <li>• Must be microprocessor controlled, variable speed, pulse-type pumps.</li> <li>• Dry self-priming, capable of being run dry without damaging effects to pump or tube, with a maximum suction lift of 15 feet water column (wc).</li> <li>• Provide a tubing element with molded fittings.</li> <li>• Removable cartridge-type tubing dispenser to allow for changing of pump head and tubing elements.</li> <li>• Liquid shall be contained within the tubing and not contact other pump elements.</li> </ul>	
2	Pump Materials	<ul style="list-style-type: none"> <li>• Housing including track, cradle, and side plates shall be fluoropolymer powder-coating aluminum</li> <li>• Shaft – Type 316 stainless</li> </ul>	

		<ul style="list-style-type: none"> <li>• Rotor – Type 316 stainless or coated with fluoropolymer powder-coated carbon steel</li> <li>• Rollers – Type 316 stainless or reinforced Delrin</li> <li>• Roller Bearings – Carbon steel</li> <li>• Tube Clamps and Double Y element location Knobs - Aluminum</li> </ul>	
3	Chemical Pump Sizing	All chemical pumps shall be designed to have a flow rate safety factor of 1.25 over the maximum feed rate.	
4	Control Panels	<ul style="list-style-type: none"> <li>• Pumps shall contain an integral microprocessor with local control keypad</li> <li>• Locate pump remote control panels adjacent to secondary containment areas for the respective pumps</li> <li>• Pumps, Electrical supply, and Controls must have quick disconnects to facilitate replacement with spare pumps</li> <li>• All pumps must be controllable through the SCADA system with on/off/Auto and speed adjustments</li> <li>• Pumps shall have flow monitor sensors installed to communicate with the SCADA system</li> <li>• SCADA must maintain resettable pump runtime</li> </ul>	
5	Number of Pumps	One per injection/transfer point	
6	Pump Redundancy	<ul style="list-style-type: none"> <li>• No mandatory online redundant pumps</li> <li>• Supply 20% of each chemical pump type as spare parts, 1 minimum</li> </ul>	Spare pump capacities shall span the range of all chemical feed pumps
7	Pump Supply and Discharge Tubing	<ul style="list-style-type: none"> <li>• Discharge shall have pulsation dampers to maintain even flow and pressure</li> <li>• Tubing shall be chemically compatible with pumped liquids.</li> <li>• Tubing shall be specifically for use with peristaltic pumps with pressure rating of 30 psi.</li> <li>• Materials shall be Norprene or Tygon as required for service</li> <li>• Tubing lubrication shall be food grade silicon grease</li> <li>• Equip each flexible influent and effluent tubing sections, to and from each pump,</li> </ul>	

		<p>with tri-clamp or cam-and groove couplings quick disconnects.</p> <ul style="list-style-type: none"> <li>• Provide a tubing element with molded fittings, which shall be self-locating when fitted into the pump head.</li> <li>• Replaceable with no disassembly of the pump head.</li> </ul>	
8	Spare Tubes for Pump Heads	<ul style="list-style-type: none"> <li>• Supply 2 spare pump tubes for each continuous feed pump</li> <li>• Provide a flexible spare tubing for each chemical system with quick disconnects</li> <li>• The length of the tubing shall be suitable to allow any pump discharge to be directed to any injection/transfer point for that chemical</li> <li>• The spare tubing shall be stored in a durable case and marked properly</li> </ul>	
9	Ancillary Facilities	<ul style="list-style-type: none"> <li>• Each chemical feed pump shall be equipped with quick disconnect flush connections, Pressure Relief Valve, Pressure Indicator/Pressure Switch High, Calibration Column, Leak Detection connected to SCADA</li> <li>• Provide a common 2" deep FRP drip/drain pan for each pump system which incorporates any leakage potential from the pump or suction and discharge tubing connections</li> <li>• Each pump must have isolation valves such that it is removable by disconnecting only the inlet and outlet connections</li> </ul>	
10	Manufacturers	Prominent, Watson Marlow -Flex-Pro by Blue-White Ind. or equal	
11	Chemical Piping	<ul style="list-style-type: none"> <li>• Use CPVC piping with clear PVC secondary containment with leak detection and alarm</li> <li>• Double wall containment fittings shall be prefabricated</li> <li>• Provide minimum of one redundant feed line and injection point for each chemical injection system</li> </ul>	

**2.12 Odor Control**

Odor control shall be provided for each process where indicated in this Report. Odorous air shall be contained and treated onsite.

Item	Parameter	Criteria	Notes
1	Treatment Type	Non-chemical Scrubber or Biofilter	
2	Hydrogen Sulfide Removal	More stringent of either 99% minimum, or 0.1 ppm max discharge for biofilter system and 0.025 ppm max discharge for activated carbon system	
3	Negative Pressure	Under equipment covers and decks: Maintain at 0.1 inches water and < 0.5 inches water	
4	Ventilation	<ul style="list-style-type: none"> <li>Minimum 6 air changes per hour for tanks, channels, and/or within process enclosures</li> <li>Minimum of 12 air changes per hour for process areas where personnel perform routine O&amp;M</li> <li>Ducts for odor control ventilation shall be FRP</li> </ul>	<ul style="list-style-type: none"> <li>Provide air changes in accordance with NFPA 820.</li> <li>Coordinate with architectural requirements. In the event of conflict, the more stringent shall prevail.</li> </ul>

**2.13 Effluent Pump Station**

The Effluent Pump Station will convey reverse osmosis concentrate discharge, bypass flows, and treated effluent that exceeds injection capacity and/or does not meet specification for groundwater injection to the ocean outfall. The Effluent Pump Station may be co-located with the Recycled Water Pump Station and shall be housed in a building, which shall meet the structural and architectural performance criteria specified in Sections 3 and 4.

Item	Parameter	Criteria	Notes
1	Flow Capacity	Equalized Peak Day Flow	Meet equalized Peak Day Flow, at a minimum. DB to determine design flow
2	Total Dynamic Head	DB to determine	<ul style="list-style-type: none"> <li>DB to coordinate with Offsite Pipeline Designer to define TDH requirements</li> <li>Elevation high point of preliminary pipeline route is near intersection of Quintana Rd and Kings Ave, approximately 150 feet</li> </ul>
3	Treated Effluent Discharge Pipeline Diameter	16 inches	Conceptual size. Pipeline size to be confirmed by DB, in coordination with the Offsite Pipeline Designer.

4	Redundancy	N +1	At a minimum, provide redundancy such that the design flow can be handled with the largest pump out of service
5	Materials of Construction	Non-metallic materials or duplex stainless steel	Provide life cycle cost analysis for various materials, including materials compatible with high salinity RO Concentrate
6	Other	<ul style="list-style-type: none"> <li>• Provide Variable Frequency Drives and speed control through SCADA</li> <li>• Provide isolation valves, slow-closing check valves, sample taps, magnetic type flow meters, and additional appurtenances to allow for efficient and effective operation</li> <li>• Provide surge control facilities to minimize transient events</li> </ul>	See Section 7 Mechanical Piping Criteria

**2.14 Recycled Water Pump Station**

The Recycled Water Pump Station will convey recycled water to injection wells located in the Morro Valley. Include provisions in the design and construction to allow for sodium hypochlorite addition in the future, in the case that the City desires it for recycled water pipeline maintenance. At a minimum these provisions should include space for chemical storage, feed system, and controls, and the pipeline alignment should provide a location for easy addition of chemical injection and mixing.

The Recycled Water Pump Station may be co-located with the Effluent Pump Station and shall be housed in a building, which shall meet the structural and architectural performance criteria specified in Sections 3 and 4.

Item	Parameter	Criteria	Notes
1	Flow Capacity	Coordinate with recycled water production requirements (0.92 MGD)	Example flow provided in parentheses. DB to determine design flow.
2	Total Dynamic Head	DB to determine	<ul style="list-style-type: none"> <li>• DB to coordinate with Recycled Water Pipeline Designer to define TDH requirements</li> <li>• Elevation high point of preliminary pipeline route is near intersection of Quintana Rd and Kings</li> </ul>

			Ave, approximately 150 feet
3	Recycled Water Pipeline Diameter	16 inches	Conceptual pipe size. Pipeline size to be confirmed by DB. Recycled Water Pipeline design will be performed by others under separate contract.
4	Redundancy	N duty +1 standby	Provide minimum redundancy such that the design flow can be handled with the largest pump out of service.
5	Materials of Construction	Compatible with the fluid pumped	
6	Other	<ul style="list-style-type: none"> <li>• Provide Variable Frequency Drives and speed control through SCADA</li> <li>• Provide isolation valves, slow-closing check valves, sample taps, magnetic type flow meters, and additional appurtenances to allow for efficient and effective operation</li> <li>• Provide surge control facilities to minimize transient events</li> </ul>	See Section 7 for Mechanical Piping Criteria

**2.15 Recycled Water Storage Tank**

The Recycled Water Storage Tank shall provide operational storage for the recycled water.

Item	Parameter	Criteria	Notes
1	Minimum Volume	500,000 gallons	
2	Materials of Construction	Pre-stressed Concrete	
3	Level Sensor	Provide two level sensors connected to SCADA: 1 duty, 1 redundant	See Section 9 for Instrumentation Criteria
4	Other	<ul style="list-style-type: none"> <li>• Meet AWWA D-110 requirements</li> <li>• Meet Structural Criteria for tanks</li> </ul>	See Section 4 for Structural Criteria

**2.16 On-site Reclaimed Water System**

The On-site Reclaimed Water System shall be designed and constructed to provide for washdown, foam and scum control, screening/grit washing, landscape irrigation and any other suitable application. The on-Site Reclaimed Water System shall be designed to operate between 60 and 80 psi, adjusted as appropriate per final design as determined by the DB.

Item	Parameter	Criteria	Notes
1	Design Approach	<ul style="list-style-type: none"> <li>Design system as a loop.</li> <li>Provide isolation valves at all tee fittings on each downstream piping</li> </ul>	Pipe materials per Section 7 Mechanical Piping Criteria
2	On-site Reclaimed Water Uses	Washdown, foam and scum control, screening/grit washing, landscaping, and other suitable applications to be determined by DB	
3	Washdown Areas	<ul style="list-style-type: none"> <li>Provide cleaning/washdown areas for proper maintenance of treatment equipment.</li> <li>Clearly mark all reclaimed water hose racks and landscaped areas with signs complying with Title 22 requirements.</li> <li>Provide hoses w/ racks in locations allowing ease of access near walkways or platforms, sufficient for full coverage of process areas.</li> <li>Provide proper drainage and discharge of wash water so all wash water runoff is collected and discharged into the plant drain system and returned to headworks. Wash water runoff cannot enter the storm drainage collection system.</li> <li>Provide heavy duty 50-ft flexible hose and adjustable nozzles at each hose bib.</li> </ul>	
4	Pipe Sizing	Prepare and provide pipe capacity hydraulic calculations to demonstrate the proposed pipe sizes are adequate	
5	Water Demand	The reclaimed water system shall be able to supply the determined water demands at each point of connection while meeting the minimum and maximum pressure requirements	
6	Flow Meter	Provide a magnetic-type flow meter on the on-site reclaimed water system to record	

		total on-site demands. Tie to SCADA system.	
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**2.17 Vactor Washdown Area**

The Vactor Washdown Area shall be designed and constructed to provide a location for dumping sewage from the City’s vactor trucks. The Vactor Washdown Area shall be paved with curbs, and include two areas, each sized to allow washdown of a full vactor truck, with sloping concrete floors draining to a sump. The sump shall be connected to the plant drain system to transport materials to the headworks. Provide hoses and hose racks for washdown.



**SECTION 3 ARCHITECTURAL AND LANDSCAPING CRITERIA****3.1 General**

Provide a facility that is durable, low maintenance, and aesthetically compatible with the community. Provide buildings that meet the space needs as described herein. Architectural finishes are specified to provide an example of the quality and durability that the City desires. DB is encouraged to provide alternatives that offer comparable life-cycle cost value, while meeting or exceeding the performance criteria requirements.

**3.2 Applicable Codes**

All facilities provided shall comply with all the current building, fire, or other health and safety codes and regulations applicable to the project site including:

- California Building Code
- California Plumbing Code
- California Mechanical Code
- California Fire Code
- California Electrical Code
- California Building Energy Efficiency Standards
- California Green Building Standards Code
- California Coastal Zone Management Act

Note that the project site is currently located within a Moderate Fire Hazard Severity Zone in a State Responsibility Area and the provisions of CBC Chapter 7A apply. The project site is also located within a Coastal Zone and is located off of a designated State Scenic Highway. The provisions of the Coastal Zone Management Act and the local Coastal Zone Land Use Ordinance also apply.

**3.3 Buildings****3.3.1 Operations Building**

The Operations Building will serve as the administrative hub for the facility. It will be the location at which visitors to the facility check in when arriving at the facility. The entrance to the building should be apparent when approaching the facility. The rear entry to the building should be approachable by vehicles for staff and for pick up and return of samples to the sample storage rooms. The break room should be adjacent to an outdoor patio area of similar size for use by staff. The patio area should be shielded from view by an enclosure. The Operations Building shall be fully ADA accessible throughout.

**3.3.2 Maintenance Building**

The Maintenance Building will have a drive through bay for service vehicles. Coordinate height requirements with City. All roll up door jambs to be protected by concrete filled steel pipe bollards on the exterior. The bottom 48 inches of the shop and storage area walls shall be solid grout CMU or concrete on the interior. The lab should incorporate the City's existing lab equipment and provide sufficient counter top work surfaces to support the function of the lab. City will provide DB with list of existing equipment.

### **3.4 Aesthetic Design**

The building site will be visible from Highway 1, which is designated as a Scenic Corridor. Building forms and exterior materials shall be consistent with the character and themes described herein. Generally, the building forms used should be recognizably agricultural, using simple rectangular floor plates and gable roofs of varying slopes that reflect the use of the enclosed volumes. These building shapes are articulated where appropriate with clerestories or roof vents, again in familiar proportions. The orientation and relationship between roofs should maximize solar exposure and the potential future application of photovoltaics on the roof for power generation.

While individual buildings should reflect their use, the overall impression of the complex from the public right of way should be of a dairy farm or ranch. Colors should be muted off whites and earth tones on the buildings and roofs should be a soft terra cotta red or similar color.

Architectural design themes shall be approved by the City.

### **3.5 Exterior Materials**

#### **3.5.1 Walls**

Exterior wall finishes are to be durable, noncombustible, and perform well in the coastal environment such as exposed concrete, exposed CMU, metal siding, fiber cement siding, or plaster. There shall be no ferrous metal siding or wood exposed on the exterior of the structures.

Exposed concrete walls are to have reveals at control joints and at cold joints. See Structural requirements below for additional requirements for exposed concrete walls.

Masonry walls or veneer shall generally be integral colored split face where exposed to view. Precision block is not allowed where it is exposed to view. Control and expansion joints shall be located to control cracking. CMU walls or veneer shall conform to ACI 530. See also Structural requirements below for CMU walls.

Metal siding shall be aluminum shall have a minimum thickness of 0.040 inches and shall conform to ASTM B209. Siding shall have a high performance organic coating finish such as Kynar 500 and shall come with a manufacturer's 20-year warranty for watertightness, color fading, and chalking. Metal siding shall not be used within 48 inches of the finished grade.

Fiber cement siding, trim, and soffit materials shall conform to ASTM C1186 and shall be covered by a manufacturer's 30-year warranty. If panel siding is used it shall be finished with fiber cement battens at no more than 12 inches on center. If lap siding is used it shall have a maximum exposure of 7 inches. All trim is to be fiber cement.

Plaster shall conform to ASTM C296 and shall be installed over metal lath as part of a three coat system and shall have a smooth troweled 100% acrylic based finish. Lath shall conform to ASTM C847 and ASTM C1063. Casing beads, corner beads, expansion joints, control joints and other exposed lath accessories shall be aluminum or PVC. Control joints and reveals shall be located to minimize cracking. Fiber reinforced plaster systems may be used to reduce or minimize control and expansion joints following manufacturer's recommendations.

Weather barrier provided under any siding shall be a vapor permeable membrane, either spun polyolefin fabric or liquid applied. Weather barrier shall be approved by manufacturer for up to 210 days of weather exposure. All window, door, and other openings shall be flashed with a compatible system as recommended

by the weather barrier manufacturer. Grade D building paper is only acceptable as the second layer under a lath and plaster system.

### **3.5.2 Roof**

The roof is to be low maintenance and long lasting. The preferred roofing would be metal standing seam roofing where exposed to view. In other areas where a flat roof is not visible a single ply roof membrane would be acceptable.

Metal roofing shall be aluminum, shall have a minimum thickness of 0.040 inches, and shall conform to ASTM B209. Roofing shall have a high performance organic coating finish such as Kynar 500 and shall come with a manufacturer's 20-year warranty for water tightness, color fading, and chalking. Roof panels shall have a minimum seam height of 2 inches and installation shall follow manufacturer's recommendations to obtain the specified warranty.

Thermoplastic membrane roofing shall be a minimum of 80 mil and shall be UL Class A and shall conform with FM DS 1-28. Installation, including deck sheathing and insulation shall conform to manufacturer's recommendations. Provide a 20-year non-prorated warranty including materials and labor and not excluding ponding water or wind speeds less than 90 mph for the roof.

Roof accessories such as roof hatches, flashings, and gutters shall be aluminum. Roof hatches shall be thermally broken and shall be provided with a minimum of a 5-year warranty. Gutters shall be provided with means to prevent the accumulation of leaves and debris as required by CBC chapter 7A. Flashings and gutters shall have the same finish as the roofing.

### **3.5.3 Windows**

Windows shall comply with the requirements of the California's Title 24 and may be aluminum or fiberglass. Clear or minimally tinted glazing is preferred. Tempered glazing shall be provided where required. Windows shall comply with the performance requirements of AAMA and shall include a system for internal weep drainage and shall be thermally broken. Windows shall be fixed or operable hopper windows and shall not project past the inside face of the wall more than 4 inches. The On-Call room shall be provided with a window that complies with CBC 1030. All operable windows shall be provided with non-ferrous insect screens.

### **3.5.4 Louvers and Vents**

Louvers and vents shall comply with CBC chapter 7A and shall comply with ASTM E2886. Louvers and vents shall be aluminum or fiberglass.

### **3.5.5 Doors**

Exterior doors shall be molded fiberglass reinforced plastic and shall have fiberglass reinforced plastic frames with no metal or wood components. Accessories such as glazing stops and louvers shall be fiberglass. Doors and frames shall have an ultraviolet stabilized polyester, marine grade NPG-isophthalic, with low luster unpatterned final finish a minimum of 25 mils thick. Doors and frames shall have a manufacturer's standard 10-year warranty covering degradation or failure due to chemical attack.

Overhead coiling doors shall be capable of withstanding maximum positive and maximum negative wind loads as described in the California Building Code design criteria without undue deflection or damage to components. Doors shall be of standard construction for normal use of up to 20 cycles a day and an expected lifetime of a minimum of 50,000 operating cycles. Doors shall be insulated with a minimum R value of 8.0 and a STC rating of 22 for the entire door assembly. The steel curtain shall be minimum of 18 gauge on the exterior face. Guides and other exposed components shall be galvanized steel. Operation shall be manual via

a chain and shall lock with a slide bolt from the inside. Installation shall comply with manufacturer's recommendations. Shop doors shall have a minimum clear width of 14 feet and a clear height of 14 feet.

### **3.5.6 Exterior Steel**

Exterior steel items are generally to be avoided due to the highly corrosive coastal atmosphere however there are times when there is no suitable alternative, such as bollards to protect roll up door openings. When used in exterior applications all steel shall be hot dip galvanized, coated with an epoxy paint and then a finish paint. Assemblies shall be fabricated such that components can be joined together with slip jointed fittings or bolted together. Field welding of assemblies is to be avoided. If provided, exterior barrier and handrails shall be hot dip galvanized but are not generally required to be painted.

## **3.6 Interior Materials and Building Elements**

### **3.6.1 Walls**

Gypsum board walls shall be constructed following GA-216 with 5/8 inch board. Interior finishes, per ASTM C840, shall be level 3 in service areas and areas to receive a wall covering, level 4 in areas to receive a light textured finish and egg shell or matt paint (typical), and level 5 in areas to receive a semi-gloss finish. Mold resistant gypsum products shall be used within 10 feet of a sink or other plumbing fixture. Textured surfaces should receive a light to medium orange peel finish. Walls at offices shall be acoustically sealed at the floor and at penetrations in the wall. Where possible penetrations shall be staggered.

Tile on walls shall follow the Tile Council of North America (TCNA) recommended procedures for each application and substrate. Wall tiles shall be standard 4x4 ANSI A137.1 semi-gloss glazed wall tile. Tile on walls in toilet and shower rooms shall be a minimum of 7 feet tall and shall run continuously behind any applied fixtures such as mirrors. Utilize tiles with matching bead, bullnose, cove, and base shapes. Grout shall be polymer modified cement per ANSI A118.7. Provide waterproof membrane at all showers and within 24 inches of sinks.

Fiberglass reinforced paneling shall comply with ASTM D5319. Trim should be PVC in a color to match panel. Panels to be installed as per manufacturer's recommendations.

Insulation shall be installed at all interior partition walls for acoustics. Insulation shall fill the cavity space and shall comply with ASTM C665. Insulation shall be formaldehyde free.

Corner guards shall be provided on outside corners of walls unless covered in tile. Corner guards shall be stainless steel or vulcanized rubber consistent with ASTM F1861.

### **3.6.2 Ceilings**

Gypsum board ceilings shall be constructed following GA-216 with 5/8-inch board. Interior finishes, per ASTM C840, shall be level 3 in service areas and areas to receive a wall covering, level 4 in areas to receive a light textured finish and egg shell or matt paint (soffits), and level 5 in areas to receive a semi-gloss finish (toilets and showers). Mold resistant gypsum products shall be used within 10 feet of a shower. Textured surfaces should receive a light to medium orange-peel finish.

Acoustic tile ceilings and suspension systems shall comply with ASTM C635, ASTM 636, and ASTM E1264. Installation of grid shall conform to ASTM E580 for areas subject to earthquake ground motions and shall be heavy duty. Ceiling tiles shall be tegular and shall have minimum NRC of 0.75 and a CAC of at least 35.

### **3.6.3 Floors**

Polished concrete floors shall be consistent with the Retroplate system as a level of quality. Concrete floors shall be stained, utilizing a minimum of two colors. Concrete after treatment for polishing shall exhibit a uniform level of grind in each space or area. Final polish shall have a hard-shell satin finish (400 grit).

Sealed concrete shall be achieved with a liquid densifier hardener that penetrates into the concrete and reacts with the concrete to create a dustproof sealed finish.

Tile on floors shall follow TCNA recommended procedures for a full mortar bed application in a wet location. Floor tiles shall be ANSI A137.1 standard grade ceramic mosaic tile. Grout shall be polymer modified cement per ANSI A118.7 and shall be sealed with a water based colorless silicone. Provide waterproof cleavage membrane at all floors.

Wall base shall be consistent with ASTM F1861, Type TS vulcanized rubber a minimum of 4 inches tall and shall have a satin finish.

Underslab vapor barrier shall be provided continuously under all floor slabs and shall comply with ASTM E1745 Class A with a minimum thickness of 15 mils and a water vapor permeance of not more than 0.010 perms.

### **3.6.4 Doors**

Interior doors and frames shall be hollow metal and shall conform to SDI-100 standards for Level 2 heavy duty doors. Doors shall be full flush with a face gage of at least 18 and shall have an A60/ZF180 galvanized coating. Hollow metal door frames shall be full profile, continuously welded type with a minimum of 16-gauge steel. Doors and frames shall be rated as required by code.

At shower room provide removable fixed door and frame capable of being relocated without the use of any special tools to adjust the ratio of men's and women's shower stalls.

Access doors shall be provided where required to access plumbing or attic spaces. The minimum size of an access door shall be 12 inches by 12 inches. Access doors in drywall or plaster shall use a bead type frame. Access doors shall be factory fabricated doors and frame units with welded corners, filled and ground flush. Minimum thickness of frames shall be 16 gauge and of doors shall be 14 gauge. Doors located in wet areas or in tile shall be stainless steel. Doors shall be equipped with a latch with a screw driver slot to operate. Doors that are intended for the passage of a person shall have a latch that is operable from an interior space.

### **3.6.5 Casework**

Cabinets shall be constructed per AWI/WI standards for premium grade with Style A frameless construction with flush overlay door and drawer fronts. Millwork supplier shall furnish a W.I. certificate of compliance. Installer shall provide a Certified Seismic Installation Report confirming that acceptable backing is provided in all locations. Cabinet faces, doors, and exposed surfaces shall have NEMA LD 3 type high pressure laminate faces. Interior surface shall have a melamine finish. Doors and drawer fronts shall have a 3mm PVC edge. Pulls shall be closed wire loop type with a stainless steel finish. Drawer sides shall be commercial grade, side mounted. Drawer slides for drawers deeper than 6 inches shall be side mounted self-closing type with full extension. Hinges shall be stainless steel 5 knuckle 270-degree swing hospital type. Clear silencers shall be installed at each cabinet door.

### **Countertops**

Plastic laminate countertops shall be NEMA LD 3 type high pressure laminate with a minimum nominal thickness of 0.048 inches. Countertops shall have a front edge laminate built up to 1 ¼ inch thick with a raised radiused edge, integral coved backsplash and radiused top edge. The back and end splashes shall be of the same construction. Backsplash shall be a minimum of 4 inches tall. Exterior grade plywood backing shall be used at all wet locations. Provide backer sheet on underside of countertop substrate. No seams shall occur within 18 inches of a sink and sink cut outs shall be sealed.

### **Lab Countertops**

Solid epoxy resin countertops shall be used in the lab. The physical properties of the lab surface shall be consistent with Durcon epoxy resin countertops as a standard of quality. Countertops shall have a marine edge and shall be a minimum of 1 inches deep. Material shall be covered by a manufacturer's standard 10-year warranty to repair or replace any defective material at no cost to the City.

### **3.6.6 Hardware**

Provide each type of door hardware from only one manufacturer. All hardware shall comply with provisions of CBC chapter 11B for accessibility. All doors to be commissioned prior to occupancy to assure that all the aforementioned requirements are met in the installed doors. All door hardware shall be satin finish stainless steel.

Locks and latches shall be provided for each door with appropriate function for the space. Locks shall be standard interchangeable core and shall utilize Schlage Everest 29 7 pin cylinders.

Hinges shall be stainless steel five-knuckle full mortise butt hinges. Provide non-removable pins and security studs at all exterior out-swinging doors. Hinges shall allow doors to open to maximum width. Provide ball-bearing hinges at all doors having closers.

Exit devices shall be push-through push-pad design and shall be independent lab tested to 1,000,000 cycles. No exposed push-pad fasteners, no exposed cavities when operated. Lever shall be breakaway type.

Closers shall be full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body and shall be independent lab tested to 1,000,000 cycles. Closer to have double heat-treated pinion shaft, single piece forged piston, and chrome-silicon steel spring. Closer to have separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where required. Exterior door closers shall have been tested to 100 hours of ASTM B117 salt spray test. Pressure Relief Valves (PRV) not permitted. Closers to be installed on each door that leads to the exterior. Doors from break room to exterior and from shop to exterior are to be equipped with a hold open function.

Gaskets are to be provided at each exterior door at top, sides, and meeting stile or pairs. At each exterior door provide door bottom sweep.

Protection plates are to be provided on the push side of each door equipped with a closer.

Floor stop, overhead stop, or wall protection bumper are to be provided for each door.

Thresholds shall be provided at all exterior doors and shall comply with CBC Chapter 11B.

Door silencers are to be provided at all doors not otherwise provided with gasketing.

### **3.6.7 Stretched Fabric Wall Panels**

Stretched fabric wall panels are to be provided in the break room and the conference room. Field installed, fabric is stretched and set into framework and laid over acoustic material anchored to substrate. Framework consists of continuous perimeter and intermediate mounting frames anchored to substrate, and designed to permit removal and replacement of fabric within framed areas without affecting adjacent areas. Installed system shall have a NRC of 0.70 minimum, when tested in accordance with ASTM C423, Type A mounting. Prefabricated, fabric covered and individually framed panels are not permitted. Fabric to be installed over acoustic material and into framework without use of adhesives, tapes, or fasteners. Seams in fabric are not permitted; base the frame layout dimensions on fabric at least 66-inch-wide. Fabric shall be class I per ASTM E84. Acoustic material shall be 100% polyester with zero volatile organic compounds or formaldehyde.

### **3.6.8 Marker Boards**

Marker boards shall be provided as indicated on the room forms. Marker boards to be porcelain enamel on minimum 24 gauge steel, laminated to core. Frame to be extruded aluminum with concealed fasteners and corner guards. Each markerboard shall include a full-length aluminum tray. Markerboard to be covered by manufacturer's 20-year warranty against discoloration due to cleaning, crazing or cracking, and staining.

### **3.6.9 Signage**

Signage for identification and wayfinding shall be provided. Signage shall be visible at the entrance road to the facility and another sign shall be visible at the exterior of the building. Entry and building identification signage shall be free standing.

Signage for room identification shall be provided at the facility to identify each space at each door. Space identification signage shall comply with CBC Chapter 11B, Division 7. Signs shall be of engraved construction on fiberglass (exterior) or melamine (interior) plastic. Acrylic and photopolymer substrate are not acceptable.

Signage for parking stalls as required by CBC Chapter 11B shall conform to the requirements of the code.

### **3.6.10 Toilet Compartments**

Toilet compartments shall be provided as described on plans or as required. Partition configurations shall comply with the requirements of CBC Chapter 11B. Partitions may be HDPE or solid phenolic. All hardware shall be aluminum or stainless steel. Partitions shall be overhead braced.

### **3.6.11 Toilet, Bath, and Laundry Accessories**

Toilet, bath, and laundry accessories shall be manufactured by a company specializing in the manufacture of such accessories with a minimum of 10 years' experience. All accessories shall be ASTM A666 type 304 stainless steel with a number 4 brushed finish.

Accessories to be provided include:

Toilet Paper Dispensers: Two roll capacity

Paper Towel Dispensers: Fan fold

Electric Hand Dryers: High velocity capable or drying hands in 12 seconds

Soap Dispensers: liquid

Mirrors: Stainless steel framed, full height at locker rooms, 18 by 36 inches at each lavatory.

Seat Cover Dispensers

Grab Bars: Satin finish, concealed fasteners

Sanitary Napkin Disposal Units

- Utility Shelf with Mop and Broom Holder
- Shower Rods
- Shower Curtains
- Robe Hooks
- Flip up Shower Seat at Fully Accessible Shower Stalls

### **3.6.12 Lockers**

Lockers at shower rooms shall be HDPE with antimicrobial additive tested per JIS Z2801 to be greater than 4.0 efficacy rating. Lockers shall be single tier a minimum of 15 inches wide by 18 inches deep and 72 inches tall. Lockers shall have sloped tops, shall be fully ventilated, standard hasps, and shall include a stainless steel coat rod. Lockers shall be placed on a raised concrete curb with a tiled face.

Lockers for gear and personal equipment storage shall be HDPE with antimicrobial additive tested per JIS Z2801 to be greater than 4.0 efficacy rating. Lockers shall be single tier a minimum of 24 inches wide by 24 inches deep and 72 inches tall. Lockers shall have sloped tops, shall be fully ventilated, standard hasps, and shall include a stainless steel coat rod.

### **3.6.13 Fire Protection Specialties**

Fire extinguishers shall be provided as required by code and shall comply with NFPA 10. Extinguishers may be surface mounted.

### **3.6.14 Residential Equipment**

Residential equipment shall be provided as shown on conceptual layouts and described herein. Finishes shall be stainless steel or similar color painted finish at washer and dryer.

#### Microwaves

- Countertop style
- 1000 watt minimum
- 1.1 cubic foot minimum

#### Range

- Size: 30 inches
- Capacity: Minimum of 5.0 cubic foot
- Type: Electric radiant heat elements with porcelain top
- Controls to be mounted on front surface of range

#### Refrigerator

- Energy Star rated
- Bottom freezer
- Ice maker
- LED lighting
- Ice/water filter
- Interior filtered water dispenser no higher than 48 inches to controls
- Minimum capacity 24.5 cubic feet

#### Hood

- Wall mounted standard range hood
- 2-speed fan
- 180 CFM minimum at high
- 4.5 Sones maximum at low speed
- Filters: Washable grease
- Ducted to exterior via 7" diameter duct

- Provide remote switches for fan within reach range
- Dishwasher
  - Energy Star rated
  - Internal water heater
- Washer
  - Energy Star qualified
  - Front loading
  - Minimum capacity of 4.5 cubic feet
- Dryer
  - Electric
  - Controls located on the front face
  - Dryer and Washer to be a matched set by the same manufacturer

### **3.6.15 Furnishings**

Furnishings shall be provided in all spaces to support the intended use of the room. Including desks, tables, chairs, work benches, lab benches, and other office furnishings equipment to support the intended use of the room and as described.

Shop and storage areas shall be provided with work benches, storage cabinets, storage shelves, a work sink, a compressor and permanently mounted compressed air lines with quick connect couplings compatible with the City's existing tools and equipment. The DB shall coordinate with City for relocation and reuse of any existing equipment.

Bridge crane shall be provided at shop for use in drive through bay. Crane shall be overhead supported with a capacity of 4 tons minimum. Controls shall be located on pendant suspended from sliding track. Crane clearance shall be a minimum of 14 feet with a minimum hoist lift of 10 feet. Bridge, trolley, and hoist shall be electrically controlled at pendant. Bridge and trolley motors shall be variable frequency drive with sealed dust-proof brakes. Crane shall be protected from overload with weight limit switches and limit switches to prevent running crane beyond its boundaries Crane shall be fully compliant with OSHA standard 1910.179.

Lab area shall be furnished with all cabinetry and ventilation systems to provide an efficient and effective working area. The DB shall coordinate the relocation and reuse of existing City laboratory equipment necessary to perform the on-site sample analysis required for compliance with all applicable agencies and process control. An eyewash/shower station shall be provided near the Lab and Shop.

### **3.6.16 Fire Protection System**

Fire Sprinkler system shall be provided as required by CBC and shall include everything required for a complete system including underground supply lines, backflow preventer, fire department connection, and valve tamper switches tied into fire alarm system. All equipment shall be in compliance with NFPA #13 standards. Furnish and install signs as required. Sprinkler heads shall be aligned with ceiling components.

For electrical supply rooms the fire sprinkler system provided shall be a double interlocking preaction system. This system shall consist of a dry pipe valve and a pre-action valve. To activate water flow, both the preaction valve must be activated by the supplemental detection system and the sprinklers must activate. The system shall be NFPA approved.

For computer and communication rooms the fire protection system must be a waterless system approved for use with sensitive computer equipment. The system shall be fully self-contained with cylinders and control panel located within the room. The system must include a warning alarm that the system is pending activation. The system shall be NFPA approved.

The fire alarm shall simultaneously contact the fire department and annunciate in the operations control room when any alarm is activated.

### **3.6.17 Domestic Plumbing**

Plumbing systems shall be complete as required by CBC. Toilet and restroom fixtures (toilets, lavatories, urinals) shall be vitreous china. Sinks shall be stainless steel. Showers shall be furnished with single piece terrazzo shower receptors including at fully ADA compliant shower provided for each locker room. Water in recessed box shall be provided for ice maker at break room. Floor drains with automatic trap primers shall be provided in all restrooms and locker rooms. Provide water hammer arrestors as needed. Provide key operated hose bibs on each accessible face of buildings. Provide hot water supply sufficient for each building's needs including lab and shop sinks. Provide telephone shower near staff entry to Operations Building for wash down of boots or protective clothing. Wash down shower to be connected to the sanitary sewer and protected from storm water.

Waste, vent, sewer and storm lines shall be of cast iron soil pipe and fittings and shall conform to the requirements of CISPI Standard 301, ASTM A-888 or ASTM A-74 for all pipe and fittings.

### **Domestic Water Service**

Below grade (water service) shall be as follows:

- 3" NPS and smaller: Schedule 40 PVC Plastic Pipe and fittings. ASTM D1785, D2466, with Solvent Cement Joints ASTM D2564.
- 2" NPS and smaller: Type K Soft Annealed Temper Copper Tube ASTM B88 with wrought copper pressure fittings, ANSI B16.22. SIL-FOS - High Temperature Brazing Metal Filler.

Above grade (distribution system) shall be as follows:

- Pipe: For soldered, brazed and mechanical joints, 4" and smaller Copper Water Tube Type L Annealed Temper (Hard Drawn) ASTM B75 or ASTM B88. All underground water piping within the building boundaries shall be ASTM B88-93a Type "L" annealed (soft) copper tube made up without fittings below the floor level.
- Fittings: Wrought copper pressure solder fittings, ASME B16.22 or ASME B16-25,95-5 Tin-Antimony Filler Metal.

### **3.6.1 Heating Ventilation and Air Conditioning**

Heating ventilation and air conditioning systems shall be in conformance with CBC/Title 24 requirements. All regularly occupied spaces in the Operations Building shall be provided with both heat and air conditioning. Shop support spaces and Lab shall be provided with heat and ventilation. Shop shall be provided with provision for radiant heaters to be installed at some time in the future at work areas.

Sheet Metal Ductwork including Rectangular supply, return, outside air and exhaust ducts, single leaf dampers and plenums shall be fabricated from prime grade galvanized steel sheets of lock form quality and shall be constructed in accordance with appropriate tables of the latest ASHRAE "Guide and Data Book" and SMACNA "HVAC Duct Construction Standards" handbook and Chapter 6 of the California Mechanical Code, current edition. Each duct or plenum shall be diagonally cross-broken for rigidity.

### **3.6.1.1 Flexible Ductwork**

Flexible ductwork shall consist of an inner core having two layers of polyester film encapsulating a steel wire helix surrounded by a blanket of fiberglass insulation and sheathed in a metalized polyester vapor barrier reinforced with fiberglass scrim. All air ducts shall be UL listed under the UL-181 standard as a Class 1 Air Duct also conforming to NFPA standards 90A and 90B. This air duct shall have a certified thermal resistance rating of R-8 in accordance with ASTM C518 at 75 degrees F and carry the ADC "Thermal Performance" seal. Use only the minimum length required to make the connection. In no case shall any section of flexible duct exceed 7 feet in length. The number of bends shall not exceed a combined total of 90 degrees. 90-degree bends will not be allowed at diffuser connections.

### **3.6.1.2 Damper Regulators and Bearings**

Lever type with matching end bearing. Regulator set shall include rubber gasket between regulator and duct, spring washer between core and housing, wedge pin, dial indicator and handle. Matching end bearing shall be closed end with rubber gasket.

### **3.6.1.3 Access Panels**

Access panels shall be located at all points where adjustable mechanisms are installed internal to or on the surfaces of the ductwork. Where adjustable mechanisms are concealed by walls or ceilings, access doors shall be installed. Size shall be suitable for convenient servicing.

### **3.6.1.4 Fire Dampers**

Fire dampers shall be installed where required, and shall be of a type approved by the U.L. Laboratories, Inc. and the State of California Fire Marshal. Dampers shall be installed per manufacturer's instructions. Provide access door in duct at each fire damper such that damper is easily accessible.

### **3.6.1.5 Volume Dampers**

- Rectangular ducts greater than 1.5 sq. ft.: Provide factory fabricated opposed blade damper, 16 gauge blades, and brass bearings. Blade width shall not exceed six inches.
- Rectangular ducts 1.5 sq. ft. and less: Provide single leaf dampers as described.
- Round ducts 15" in diameter and less: Provide shop fabricated galvanized sheet metal plate dampers. Plate shall be 18 gauge or shall be two even gauges heavier than duct; minimum thickness 22 gauge. Provide stiffening beads at 1/3 points in dampers lighter than 18 gauge.
- Round ducts 16" and greater: Provide opposed blade damper.
- Round ducts 4" – 24" in diameter above "hard" ceilings: Provide cable operated damper. Cable length to be between 3 and 15 FT long.

### **3.6.1.6 Flexible Connections**

Provide fireproof, insulated, non-porous, flexible connections between fans and ducts or casings and where ducts are of dissimilar metals. For round ducts, securely fasten flexible connections by zinc coated steel clinch-type drawbands. Provide a duct support next to each flex connector to prevent any strain on connection.

**3.6.1.7 Condensate Drains and Drain Pans**

- Air conditioning cooling coils shall have a condensate drain pipe, type "M" copper, to drain the condensate.
- Fan coils or DX cooling coils located in an attic or furred space shall have a secondary drain pan constructed of 20 gauge galvanized steel sheet metal. This pan shall have a drain line discharging to a conspicuous location. This pan and drain is in addition to the normal condensate drain line from the coil.

**3.6.1.8 Motor Starters**

Motor starters shall be provided complete with properly sized thermal overload protection and other appurtenances necessary for motor control. Mount starter adjacent to equipment. Maintain minimum of 3' clearance to front of devices. Motor starters shall be NEMA I or III as appropriate, general purpose, weather-resistant, with watertight enclosure where required.

**3.6.1.9 Insulation**

Insulation of heating and cooling ducts shall conform to requirements of CMC. Insulation shall be installed after the required tests have been applied to the piping and duct systems, and the systems have been inspected and approved.

**3.6.1.10 Temperature Controls**

Temperature controls shall be provided for zones with similar use, loads and exposure. Thermostats shall be capable of 7 day programming and shall incorporate a minimum 5 degree deadband.

**3.6.1.11 Labeling**

Labels shall be provided for all equipment and switches. Labels shall be 2" x 1" x 1/8" thick plastic engraving stock beveled on both sides and with two 3/16" diameter holes near the top uppermost tag corners. Labels shall be white with 3/8" high red engraved letters. Labels shall be attached to the equipment with adhesive or screws.

**3.6.1.12 Mechanical Systems Balancing**

Mechanical systems balancing shall be performed by an independent balancing company certified by Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB). Testing and balancing shall be performed by a company other than the mechanical system installers/contractor. Upon completion of the balancing operation and prior to final acceptance of the systems, the balancing firm shall submit an Air Side Report certifying to the proper performance of the system for approval by the City.

**Air Side Report**

The following information shall be included in the Air Side Report:

- Fan speeds.
- Motor current readings and voltage readings.
- Air quantities in CFM at supply, return, exhaust terminals, and outside air intakes, both at design value and actual measured value. Test and adjust each terminal to within +10% of design requirements.

- Air velocities in FPM at supply, return, and exhaust terminals at design value and actual measured value.
- Positive static pressure, negative and total pressures and total air quantities for each fan system.
- Equipment nameplate data.

### **3.6.2 Electrical and Lighting**

Electrical and Lighting systems shall be in conformance with CBC/Title 24 requirements.

Lighting shall meet IES recommended levels for each space and use. All lighting fixtures to be manufactured by a company with a minimum of 10 years' experience. Interior lighting controls (daylighting and occupancy sensors) shall be produced by the same manufacturer as light fixtures. All light fixtures shall be independently tested to verify manufacturer's listed light levels. All exterior light fixtures shall be housed in non-ferrous housings with stainless steel fittings. All exterior light fixtures shall be full cut off. Exterior lighting shall be provided with dual light levels and controls to allow light levels to be dropped to minimum levels when the facility is not actively occupied.

Power shall be provided as required for the intended use of each space and as required by code. Power outlets controlled by switches shall be identified with permanent labels or color-coded outlets. Three phase power shall be provided in shop area for anticipated service equipment. Power outlets shall be provided for wall mounted display screens.

### **3.6.3 Telecommunication Systems**

Telecommunication system shall be provided as required for the anticipated use of each space including voice and data communications. Each workstation or office shall be provided with a minimum of four data outlets. Data outlets shall also be provided for provision of Wi-Fi access points, printers, security cameras, and the SCADA system. All materials shall be UL Listed and shall be marked as such. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled. All modular jacks, patch cords, consolidation point, and patch cords performance shall be verified (not just tested) by a third party to be category 6 component and channel compliant. All data outlets shall be permanently labeled with a printed label identifying the outlet.

Telecommunications cabling shall adhere to the current version of the following standards

- ANSI/TIA/EIA - 568-C.0, Generic Telecommunications Cabling for Customer Premises
- ANSI/TIA/EIA - 568-C.1, Commercial Building Telecommunications Cabling Standard.
- ANSI/TIA/EIA - 568-C.2, Balanced Twisted Pair Cabling Components, Addendum 1 –
- ANSI/TIA/EIA - 568-C.3, Optical Fiber Cabling Components
- ANSI/TIA/EIA – 569-A, Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA/EIA – 606-A, Administration Standard for Telecommunications Infrastructure of Commercial Buildings
- ANSI/TIA/EIA – 607-A, Commercial Building Grounding and Bonding Requirements for Telecommunications
- ANSI/ TIA/EIA – 758, Customer-Owned Outside Plant Telecommunications Cabling Standard
- BICSI - TDMM, Building Industries Consulting Services International, Telecommunications Distribution Methods Manual (TDMM)
- National Fire Protection Agency (NFPA – 70)

California Electrical Code

### **3.7 Plantings**

Planting shall be provided to enhance the visual appeal of the entrance to the facility and around the public areas of the Operations building and to provide a screening buffer for the neighboring property to the east.

#### **3.7.1 Visual Aesthetic**

The project landscaping shall generally serve to enhance the visual corridor of the entrance to the site and provide a screening buffer for the neighboring property to the east. Plants shall be grouped in masses to appeal to the aesthetics as viewed at vehicular speeds. The overall plant palette does not require more than 10 to 15 plant species to convey the aesthetic.

#### **3.7.2 Drought Tolerance**

Landscaping shall primarily comprise of heavily drought tolerant species suitable for the coastal exposure. A good target percentage for the landscape palette is 80% drought tolerant low water using plants (based on WUCOLS standards), and 20% moderate water using plant material.

#### **3.7.3 Plant Sizes**

As a general rule of thumb, the following guidelines are provided for container sizes:

- Shrub: 1-gallon size minimum. 40% of plant material shall be upsized to a minimum of 5 gallon.
- Trees: 15-gallon size minimum. 50% of plant material shall be upsized to a minimum of 24" box. Trees intended to provide shade, or with slow growing habits shall be considered for upsizing first.
- Ground cover: 1-gallon size minimum. Large spreading groundcovers (5-6 ft on center spacing minimum) shall be 5-gallon size minimum.

#### **3.7.4 Planter Mulch**

All landscape areas shall be dressed with a non-combustive, weed free, organic mulch. No eucalyptus material is acceptable. The mulch shall be installed in a 3" minimum layer.

#### **3.7.5 Plant Layout**

Plant material shall be designed and located such that larger/taller plant material creates a backdrop for shorter lower growing plant material in the foreground. Accent plant material is encouraged at focal points like street intersections, and entry ways. Plant material shall be spaced at  $\frac{3}{4}$  of anticipated full spread. This will avoid large void spaces between plant material and allow plants to fill in quicker.

#### **3.7.6 Soil Preparation**

Soils shall be amended per the requirements of the State or local Model Water Efficient Landscape Ordinance. Soil samples shall be taken and tested for fertility. Soil amendments shall conform to the requirements obtained through this testing. Where soils are non-conductive to plant life, due to heavy thick clay, contaminants or rock, the top 6" of existing soils in planted areas shall be exported off site and topsoil imported. Topsoil shall conform to SSPWC standards for Grade A topsoil.

### **3.7.7 Plant Establishment**

An establishment period of 90 days (minimum) shall be required for initial maintenance and warranty of plant material. Site observation meetings shall be scheduled at 30-day intervals to observe plant material. Repairs shall be provided on an ongoing basis.

### **3.7.8 Plant Warranty**

The installer shall warranty all trees for a minimum of 1 year. All shrubs shall be warranted for a minimum of 30 days beyond the completion of the establishment period.

## **3.8 Irrigation**

Irrigation System shall comprise of equipment selected from manufacturer's having been in the business a minimum of 15 years and have a good track record of long lasting equipment. Equipment shall be comprised of components designed to perform with high water efficiency.

### **3.8.1 Irrigation Emission Devices**

- The following guidelines are provided for the design/implementation of the irrigation system.
- Large slopes – Low flow rotors or rotary nozzles shall be utilized to keep runoff down. Dripline is discouraged in this application.
- Large landscape areas – Low flow rotors or rotary nozzles shall be utilized. Drip may be utilized if approved by City.
- Small and Linear planters – Low flow rotary nozzles or drip irrigation shall be utilized. Drip may be required when parkway planter sizes are less than 10 ft in width.

### **3.8.2 Piping**

PVC pipe shall be SCH 40 minimum. Do not use pipe sizes less than ¾" for laterals. Mainlines should have a minimum size of 1½".

### **3.8.3 Remote Control Valves**

Utilize brass globe valves intended for dirty water use.

### **3.8.4 Ball Valves**

Bronze or brass, not plastic. Locate along mainline periodically and at crossings to allow for mainline shut off for maintenance.

### **3.8.5 Valve Boxes**

Shall be locking. Purple where dirty water is in use.

### **3.8.6 Controller**

Weather based controller capable of adjusting runtimes based on live input data and historical data. Shall have ports for a master valve, flow sensor, rain sensor/moisture sensor. Shall have minimum 48 stations to allow for future expansion. 2 wire is acceptable.

**3.8.7 Flow Sensor**

Manufactured by same company as the controller. Shall be able to read high and low flows of the design system.

**3.8.8 Master Valve**

Brass normally closed valve intended for dirty water use.

**3.8.9 Quick Couplers**

Locate periodically for maintenance purposes. Dirty water compatible.

**3.9 Decorative Fences and Gates**

Decorative fences and gates shall be provided at the public face of the facility facing Highway 1. Fence shall be capable of resisting vertical load, horizontal load and infill performance requirements for fence categories defined in ASTM F2408. Fence shall be hot dip galvanized steel, epoxy primed, and painted with a total minimum coating thickness of 2 mils. Fence shall be assembled from panels joined to posts, with no field welding. Gates to be lockable in both the open and closed position. Spacing between pickets shall result in a clear space between them of not more than 4 inches.

**3.10 Space Needs**

See Appendix E for a summary of space needs of the Operations and Maintenance Buildings.

**3.11 Space Needs Identification Forms**

See Appendix G for Space Needs Identification Forms with specific requirements for the rooms identified.

**3.12 Equipment and Furniture List**

See Appendix H for an equipment and furniture list for rooms identified.

**3.13 Landscape Plan**

See Appendix I for a conceptual landscape plan of the front entry and access road.

**SECTION 4 STRUCTURAL CRITERIA**

**4.1 General**

All structural design shall be prepared under the direct supervision of a Structural Engineer licensed by the State of California. Design all structures for a service life of not less than 50 years, in accordance with the most current applicable codes and standards.

The structural criteria presented in this section define the general requirements. Variation from any standards shall be identified in a report and provided to the City for consideration. City acceptance shall be obtained prior to implementing such variations, and shall be provided at the sole discretion of the City.

**4.2 Load and Deflection**

Item	Parameter	Criteria	Notes
1	Loads	All loads to structures and components shall be developed with the latest version of the ASCE 7 referenced by the CBC	
2	Live Loads	<ul style="list-style-type: none"> <li>• Conform to ASCE-7 with traffic loads per AASHTO.</li> <li>• Use minimum live loads for structures that will allow equipment to be moved to other locations or additional equipment to be added.</li> <li>• Floor live loads in equipment rooms, pump rooms, electrical rooms and areas where equipment may be moved to various locations shall be not less than those given in ASCE-7 for light manufacturing: 150 pounds per square foot uniform load and 2,000 pound concentrated load.</li> <li>• Where the loads of specific equipment give higher design forces and stress for a specific area, the higher loading shall be used. No live load reduction may be used.</li> <li>• For heavy equipment greater than five tons, floor live loads shall be designed for the greater of 250 pounds per square foot uniform load or the load of the specific equipment.</li> </ul>	
3	Wind Loads	ASCE-7 wind load design forces and wind load detailing requirements shall apply for all buildings, equipment anchorage, and hydraulic or water-holding structures.	

4	Seismic Loads	<ul style="list-style-type: none"> <li>• ASCE 7 seismic load design forces and seismic load detailing requirements shall apply for all buildings, equipment anchorage, and hydraulic or water-holding structures</li> <li>• All structures and components shall be designed with the values below:                         <ul style="list-style-type: none"> <li>○ Latitude = 35.3707</li> <li>○ Longitude = -120.8217</li> <li>○ Site Class = C</li> <li>○ <math>S_s = 1.135</math></li> <li>○ <math>S_1 = 0.421</math></li> <li>○ Importance Factor = 1.25</li> <li>○ Component Importance = 1.0 to 1.5</li> </ul> </li> </ul>	Refer to Geotechnical Baseline Report
5	Deflection	<p>Serviceability design shall ensure against deflections causing adverse functional or aesthetic effects over the life of the plant. The live load and total load deflections criteria given in the CBC for general loading combination and specific to the various design material (concrete, steel, CMU, timber, etc.) shall be the minimum for buildings, building-like structures, and for structural and material types not specifically covered elsewhere.</p>	

**4.3 Building Structure Types**

Item	Parameter	Criteria	Notes
1	Operations Building	<ul style="list-style-type: none"> <li>• Steel-framed with no internal columns</li> <li>• Provide a CMU wainscot exterior, to a height of 4 feet from top of slab</li> <li>• Concrete slab on grade shall be 4 inches, minimum</li> <li>• If a Pre-Engineered Metal Building system is used, it shall be designed for the following dead loads:                         <ul style="list-style-type: none"> <li>○ Self-weight</li> <li>○ Weight of steel framing and deck</li> <li>○ Collateral Load made up of:                                 <ul style="list-style-type: none"> <li>○ 5-PSF partition wall load</li> <li>○ mechanical, electrical, and plumbing load</li> <li>○ ceiling and ceiling support system load</li> <li>○ insulation load</li> </ul> </li> </ul> </li> </ul>	

		<ul style="list-style-type: none"> <li>○ 4 pounds per square foot solar panels</li> <li>○ 5 pounds per square foot additional load</li> </ul>	
2	Maintenance Building	<ul style="list-style-type: none"> <li>• Steel-framed with no internal columns. CMU wainscot exterior, to a height of 4 feet from top of slab</li> <li>• 4-ton overhead structure-supported bridge crane in Shop</li> </ul>	
3	Advanced Treatment Building	Steel framing on a concrete slab on grade. Structure shall be one story, but designed for gravity and lateral loads from a second-story addition of the same floor area.	
4	Miscellaneous Covered Structures	<ul style="list-style-type: none"> <li>• Steel-framed and consistent with architectural features and structural elements of other facilities on the site</li> <li>• Where adjacent to other structures, covered structures shall be separated by 6 inches or seismic separation required by the ASCE 7, whichever is greater</li> </ul>	
5	Miscellaneous Building Structures	Constructed in a style consistent with architectural features and structural elements of other facilities on the site	Unless otherwise specified, all other structures shall be consistent with performance criteria stated for Operations Building

**4.4 Tanks and Basins**

Item	Parameter	Criteria	Notes
1	Material	<ul style="list-style-type: none"> <li>• No steel or aluminum tanks shall be allowed for the storage of any water, sludge or other materials.</li> <li>• Process tanks and facilities shall be of reinforced concrete. Process chemical tanks may be of FRP or similar materials.</li> </ul>	
2	Tank Wall Design	<ul style="list-style-type: none"> <li>• The walls of water-containing structures, including tanks and basins, shall be designed for the following conditions:                             <ul style="list-style-type: none"> <li>○ Tank or basin at full liquid level without soil backfill.</li> <li>○ Empty tank or basin with soil backfill and maximum ground water.</li> <li>○ Basin or tank cells in any combination of empty and full.</li> <li>○ Increased soil backfill pressures and liquid pressures due to seismic conditions.</li> <li>○ Seismic impulsive and convective loading under operating conditions.</li> <li>○ Operational level shall include maximum flooded condition unless passive methods are provided to prevent flooding. Passive methods include overflow weirs, upstream or downstream hydraulic controls not dependent on pumps, monitors, electronic controlled valves, or operators.</li> <li>○ If passive level controls are present, then the maximum operational level is defined as the liquid elevation when those controls are in effect.</li> </ul> </li> </ul>	
3	Backfilling	Water-containing structures shall not be backfilled until the basin passes the watertightness testing	
4	Uplift Loads	<ul style="list-style-type: none"> <li>• Tanks and basins shall be designed for uplift based on the following safety factors and groundwater conditions:</li> </ul>	<ul style="list-style-type: none"> <li>• These conditions only apply to the uplift calculations.</li> </ul>

		<ul style="list-style-type: none"> <li>○ Maximum groundwater levels expected during a 100-year storm and/or 199-year flood events in the structure area, as a minimum, with basins at normal minimum operating levels and a minimum safety factor of 1.1. Groundwater elevation: 10 feet below existing grade. Floodwater elevation: 3 feet above existing grade.</li> <li>○ Groundwater at normal levels with basins empty and a minimum safety factor of 1.5.</li> <li>○ In all cases side friction shall not be considered as resisting uplift.</li> </ul>	<ul style="list-style-type: none"> <li>● Maximum ground water level is the level that can be obtained adjacent to the structure being evaluated. Drain systems, external to the structure, may be provided to reduce the maximum ground water level. The reduced level shall only be used in uplift calculation when the drain system is entirely passive, i.e. relying only on gravity. The reduced ground water levels from drain systems that rely on pumping, monitoring, or operator intervention shall not be substituted for the maximum ground water level obtainable if components of such a drains system did not operate.</li> </ul>
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**4.5 Non-Building and Miscellaneous Structural Elements**

Item	Parameter	Criteria	Notes
1	Headworks and Equalization Basin	The Headworks and Equalization Basin shall be partially buried basin structures with a concrete slab on grade, and concrete walls/retaining walls and a concrete lid where specified	
2	Site Retaining Walls	<ul style="list-style-type: none"> <li>● Walls shall be at least 8-inch thick cast-in-place concrete construction</li> <li>● Where grade behind wall exceeds 1:1 slope, retaining wall shall be designed and detailed for 1.5 feet in additional retained height, in anticipation of erosion that will occur over the service life of the site</li> </ul>	Reference Geotechnical Baseline Report for preliminary soils design values. DB may find it necessary to update and expand on current Geotechnical Baseline Report for values that fit each

			specific retained condition.
3	Anchorage for Equipment	Anchorage shall be designed in accordance with ASCE 7, Chapters 13 and 15. Slab and housekeeping pad thicknesses must be coordinated with anchorage depth during design of the structure. All supporting concrete edges must be at least 8 inches from any anchor location.	
4	Equipment Pads	<ul style="list-style-type: none"> <li>All equipment and associated panels and cabinets shall be installed on reinforced concrete equipment pads, a minimum of 6 inches above grade, or 3.5 inches above adjacent floor or slab</li> <li>All pads shall extend a minimum three inches outside the equipment, panels or cabinets, while also meeting the anchor edge distance specified above</li> </ul>	
5	Vehicle and Equipment Wash Rack	<ul style="list-style-type: none"> <li>Concrete slab on grade, with a CMU wall on three sides</li> <li>Slab on grade shall be 8 inches thick minimum and capable of withstanding maintenance vehicle and equipment loads.</li> <li>CMU wall shall be capable of withstanding 2,000-pound point load at 2 feet from top of slab at any location along the wall</li> </ul>	

**4.6 Foundations**

Item	Parameter	Criteria	Notes
1	Design	<ul style="list-style-type: none"> <li>Foundations shall be designed in accordance with the Geotechnical Baseline Report</li> <li>Structures shall be located on the site such that foundations for each structure are of the same type</li> <li>If it is necessary to locate foundation partially in rock, the design of the foundation shall be such that the expected settlement of the portion founded in soil is equivalent to the portion founded in rock</li> </ul>	The DB may need to update and expand on current Geotechnical Baseline Report for values that fit each specific foundation condition

**4.7 Structural Materials**

Item	Parameter	Criteria	Notes
1	Concrete Design	Concrete structures, including tanks and buildings, shall be designed and constructed in accordance with all applicable codes. The concrete mix design shall meet the requirements of ACI 318 and ACI 350. Ground water shall be sampled and tested for salinity and sulfate levels. The concrete mix design shall be adjusted to provide appropriate sulfate resistance per ACI 318 and ACI 350.	
2	Structural Steel	Structural steel shall be designed, fabricated and erected according to the latest applicable CBC Chapter 22 as modified by ESP 550.1.	
3	Connections	<ul style="list-style-type: none"> <li>• Structural connections shall be shop welded and field bolted. Welds shall be designed and executed in accordance to ANSI/AWS D1.1 Structural Welding Code — Steel. Welding procedures shall be qualified in accordance to ANSI/AWS DI. I Section 5. Welders, Welding Operators and Tack Welders shall be currently qualified in accordance to ANSI/AWS D1.1 Section 5. Welders' certifications should be made available to City. Welding inspectors shall have current certification as an AWS Certified Welding Inspector (CWI) in accordance with AWS QCI Standard and Guide for Qualification and Certification of Welding Inspectors.</li> <li>• Bolted connections for steel buildings, building-like structures and platforms that enclose or support process equipment, shall be designed as snug-tightened connections with the threads included in the shear plane. The actual bolts provided for the connection shall have the threads excluded from the shear plane. Bolted connections shall conform to AISC Specifications for Structural Joints Using ASTM A325 or A490 Bolts.</li> </ul>	
4	Metal Roof Deck	Design and fabrication of metal roof deck shall be in accordance with the latest specifications of the Steel Deck Institute. Steel used in the fabrication of deck units shall conform to the	

		requirements of the AISI Light Gage Cold-Formed Steel Design Manual.	
5	Miscellaneous Metals	<ul style="list-style-type: none"> <li>• Miscellaneous metals shall include such items as gratings, metal floor plates, railings and toe plates, loose lintels and miscellaneous framing and ladders. Materials of construction shall be selected to provide maximum service life for the expected environmental conditions, including exposure to corrosive atmospheres and marine conditions. Any metal item that is submerged shall be 316 stainless steel unless the corrosivity of the environment requires different. Any metal item located in a corrosive atmosphere shall be 316 stainless steel, unless noted otherwise or if aluminum or another material is suitable and complies with the reference standards. No dissimilar metal items what would result in corrosion if in contact shall be used.</li> <li>• Aluminum shall be insulated from direct contact with concrete.</li> <li>• Miscellaneous metal shall be fabricated in accordance with the most recent applicable CBC, OSHA, or ASTM standards. All metal fabrications exposed in the finished construction, both interior and exterior, whether painted or not, shall be hot-dip galvanized (heavy duty type coating) except in aluminum only for railings, toe plates and stairways. Galvanizing of miscellaneous metal after fabrication shall be in conformance with ASTM A123 and A153.</li> <li>• Cadmium plating of miscellaneous metals shall be in accordance with ASTM A165, Type TS.</li> <li>• All anchor bolts shall be stainless steel Type 316.</li> <li>• Cages, ladders, and fall protection devices shall conform to applicable OSHA regulations.</li> </ul>	
6	Aggregate	Structural concrete materials shall have certification of compliance for meeting ASTM specifications and test reports certifying that no material contains asbestos and that all aggregates are non-reactive to alkalinity. All certifications, submittals, and reports shall be current within three months of use and shall be	

		<p>identifiable to the materials supplied for both fine and coarse aggregate. Provide reports for aggregate tests performed specifically for this project, for each source of aggregate including chemical tests (ASTM 289) and accelerated mortar bar expansion tests (ASTM C1260).</p>	
7	Cement	<ul style="list-style-type: none"> <li>• The Geotechnical Baseline Report identified a potential for soil corrosivity towards concrete. DB shall either perform additional soils testing, to verify that corrosive soils do not exist, or shall furnish corrosion resistant concrete using Type II/V cement.</li> <li>• Structural Concrete Class A Concrete <math>f'c = 4000</math> psi</li> <li>• Shall contain a mineral admixture fly ash Class F not to exceed or replace more than 15 percent of the cement material required without the mineral admixture. Mineral admixture shall conform to ASTM A618.</li> </ul>	



**SECTION 5 CIVIL CRITERIA****5.1 General**

The following section includes the performance criteria associated with site-civil elements of the WRF.

**5.2 Site Improvements**

<b>Item</b>	<b>Parameter</b>	<b>Criteria</b>	<b>Notes</b>
<b>1</b>	Finish Surface Type	<ul style="list-style-type: none"> <li>• Concrete: sidewalks, equipment pads, foundations, site entrance, truck stopping and parking areas</li> <li>• Asphalt: paved roads</li> <li>• Crushed rock: unpaved areas</li> <li>• Native material: unimproved areas</li> </ul>	All improved areas within the site that are not concrete, asphalt, or landscaping shall be crushed rock
<b>2</b>	Backfill and Compaction	Refer to Geotechnical Baseline Report	See Appendix J: Geotechnical Baseline Report for additional geotechnical information
<b>3</b>	Existing Finished Surface	Native vegetation	Existing site has not been developed
<b>4</b>	Site Setbacks	Building and process areas shall be located to comply with San Luis Obispo County and the City of Morro Bay Building standards	Maintain setback for creeks/drainages
<b>5</b>	Bollards	where equipment maintenance is necessary bollards shall be removeable	
<b>6</b>	Perimeter Fence	The WRF perimeter shall be enclosed with a 6-foot tall galvanized chain-link fence with 3 strands of barbed wire on the top	Coordinate with Section 3.9
<b>7</b>	Survey and Utility Information	The City will provide the survey files and available utility information for informational purposes. The DB is responsible for validating the information provided by the City. The DB is responsible for obtaining additional survey and utility information.	

### 5.3 Site Layout

Item	Parameter	Criteria	Notes
1	Building/Facility Locations	Proximity of buildings to Highway 1, nearest to furthest: <ul style="list-style-type: none"> <li>• Operations Building</li> <li>• Storm Drainage Facilities</li> <li>• Equipment/Vehicle Storage</li> <li>• Material Laydown Areas</li> <li>• Maintenance Building</li> <li>• Treatment/Process Facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the visibility of the storage and process areas from the Highway.</li> <li>• Locate headworks, EQ basins, and other processes subject to odor as far from the Operations Building as feasible.</li> </ul>
2	Future 800 kW solar Facility	The site planning must include space for a future 800 kW solar facility	Provisions for a future solar facility are to be included in the site layout to facilitate future constructability and access
3	Site Vehicle Circulation	<p>The WRF facility shall be designed to allow truck and service vehicle traffic to flow smoothly without creating areas of congestion and dead-ends</p> <p>The WRF facility shall be designed such that chemical delivery and biosolids hauling trucks are not required to backup.</p>	
4	Fire Equipment Access	The WRF facility must be designed to allow full access for emergency responder vehicles and equipment. Emergency responder vehicles shall be able to drive continuously throughout the site without any reverse movements.	

### 5.4 Site Access Road

Item	Parameter	Criteria	Notes
1	Site Access Road Design	Access road shall provide vehicular access to the WRF site from the Highway 1 on and off ramps. Design of the access road shall match the geometrics and pavement section defined in Figure 5-1.	
2	Site Access Road Location	The access road shall be generally located per Figure 5-1	

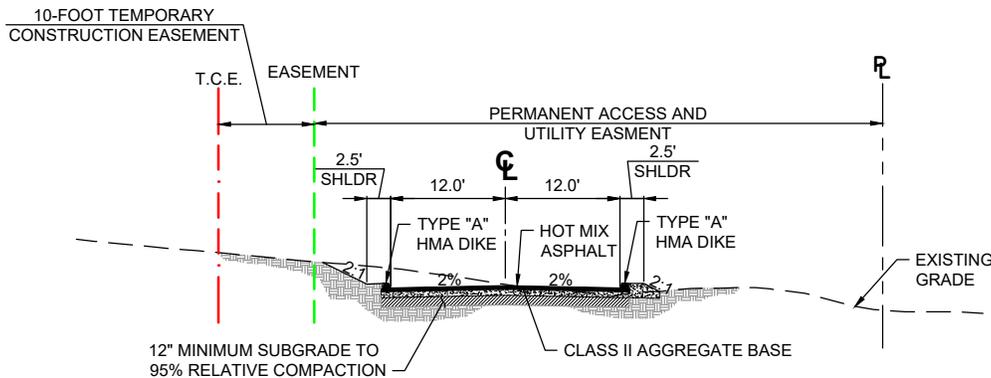
<b>3</b>	Geotechnical Investigation	Geotechnical information for past projects located near the access road has been provided for informational purposes and can be found in Appendix N. The DB is responsible for performing additional geotechnical investigations if determined to be necessary.	
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**ACCESS ROAD SITE PLAN**

Scale: 1:100



**TYPICAL ROAD SECTION**

Scale: 1:20

**GENERAL NOTES**

- ① EXTEND EDGE OF ROAD AND ADJUST CENTERLINE AS SHOWN. SUBGRADE, BASE AND ASPHALT TO MATCH THICKNESS AND MATERIAL SPECIFICATION FOR ACCESS ROAD.
- ② DB WILL BE RESPONSIBLE FOR PROTECTING EXISTING INFRASTRUCTURE. ASSUME 4,890 SF OF ROAD REPAIR WILL BE REQUIRED TO REPAIR EXISTING ROADWAY IMPACTED DURING CONSTRUCTION. SUBGRADE, BASE AND ASPHALT TO MATCH THICKNESS AND MATERIAL SPECIFICATION FOR ACCESS ROAD.



City of Morro Bay  
Water Reclamation Facility Project

Preliminary Access Road Alignment

FIGURE

5-1



**5.5 Offsite Pipeline Coordination**

Item	Parameter	Criteria	Notes
1	Connection point	<ul style="list-style-type: none"> <li>Connect to the influent force main, recycled water pipeline, dedicated City fiber optic line, and effluent pipe, at approximately 20 feet north of the access and utility easement boundary at Highway 1 ROW</li> <li>The exact location and connection details within the access and utility easement to the WRF site shall be determined as part of the access road improvements and provided to the City by the 30% (Schematic) design submittal</li> <li>DB to connect to City potable water main offsite and extend throughout WRF property</li> <li>Refer to Utility Coordination Plan (Figure 5-2)</li> </ul>	
2	Stubs	Any temporary or permanent stubs should be capped, blind-flanged, or protected in a manner to prevent foreign materials from entering the pipeline.	

**5.6 Potable Water**

Provide on-site water distribution facilities for domestic water services at the WRF. Provide connection(s) to City water supply as shown on Figure 5-1. City will provide water meter and DB will install service and connect to City water main. System shall be completely separated and isolated from the fire water and process water systems.

Item	Parameter	Criteria	Notes
1	Design Approach	<ul style="list-style-type: none"> <li>Design system as a loop.</li> <li>Provide isolation valves at all tee fittings on each downstream piping.</li> <li>Potable water system design shall be based on a connection to City’s water main. DB to extend water line from City water main offsite then throughout WRF property.</li> </ul>	
2	Potable Water Uses	<ul style="list-style-type: none"> <li>Operations Building, Maintenance Building, and Fire Water System</li> <li>Emergency eyewash, fire, personal hygiene, kitchen, and laboratory</li> </ul>	DB to confirm final service uses

3	Separation of Buried Piping	Horizontal and vertical separation between potable water pipelines and non-potable water pipelines shall meet the requirements of the SWRCB Division of Drinking Water’s (formerly the Department of Health Services) Criteria for the Separation of Water Mains and Non-Potable Pipelines guidance memo	
4	Backflow Prevention	<ul style="list-style-type: none"> <li>• Provide appropriate backflow prevention systems for the potable water supply to site</li> <li>• Where potable water is used for landscape irrigation or process usage, provide a reduced pressure principle backflow assembly system complete with test cock and isolation valves</li> </ul>	Backflow devices must be testable.
5	Air Release/Vacuum Valves and Blow Offs	<ul style="list-style-type: none"> <li>• Provide air and vacuum relief valves at high points on pressure pipes</li> <li>• Provide drains or blow-offs at low points</li> </ul>	Consider location of actual points of discharge/ disposal when placing drains or blow-offs.
6	Piping Layout	<ul style="list-style-type: none"> <li>• Lay piping in utility corridors that are at least 10’ wide and accessible for service or repairs. Include overhead and peripheral clearance to allow for work by excavating and lifting equipment such as backhoes.</li> <li>• Where feasible, align utility corridors along roadways or other corridors to avoid conflicts and future construction areas.</li> <li>• Utility corridors shall be placed outside the mature dripline of trees.</li> <li>• High and low points in the fire water system shall be minimized to reduce the need for ARVs and prevent sediment buildup.</li> </ul>	
7	Pipe Sizing	Prepare and provide pipe capacity hydraulic calculations to demonstrate the proposed pipe sizes are adequate	Include 20 percent spare capacity
8	Water Demand	<ul style="list-style-type: none"> <li>• The water demand shall be determined based on the applicable building and fire codes</li> <li>• The potable water system shall be able to supply the determined water demands at each point of connection</li> </ul>	

		while meeting the minimum and maximum pressure requirements	
9	Water Meter	<ul style="list-style-type: none"> <li>Potable water service connection shall be metered and independent of the fire water service connection</li> </ul>	







**5.7 Fire Protection**

Provide on-site water distribution facilities for fire water services at the WRF. Fire water system shall include storage, booster pumps, distribution piping, fire sprinklers, and fire department connections, capable of meeting the requirements of Cal Fire and the City Morro Bay Fire Protection requirements for isolated structures that are not served by a water utility. Fire water system shall be separate and isolated from the potable water system.

Item	Parameter	Criteria	Notes
1	Code	Comply with National Fire Protection Association (NFPA) Standard 13 for a “light hazard” and local fire codes	
2	Source Water	Fire water shall be provided from the potable water supply system	
3	Fire Hydrant Locations	<ul style="list-style-type: none"> <li>• Submit fire hydrant locations for review and approval by City and local Fire Department.</li> <li>• Fire hydrants shall be placed throughout the WRF Site at a distance of no more than three hundred (300) feet.</li> <li>• Place fire hydrants near access roads with fire truck access and where they are readily visible. Mark with reflective blue dot street markers located in the center of the access road adjacent to the fire hydrant.</li> <li>• Provide bollards for fire hydrants that are vulnerable to vehicular damage.</li> </ul>	
4	Design Flow and Pressure	<ul style="list-style-type: none"> <li>• Fire water system shall be capable of supplying 1500 gpm @ 20 psi (minimum) to any point within the fire water system for a period of 2 hours.</li> <li>• Provide additional storage and/or booster pumps to meet the fireflow requirement.</li> </ul>	
5	Pipe Velocity	Velocities in pipes shall not exceed 12 feet per second during a fire flow scenario	
6	System Layout	High and low points in the fire water system shall be minimized to reduce the need for ARVs and prevent sediment buildup	
7	Fire Alarm	<ul style="list-style-type: none"> <li>• Design of the system shall be coordinated with the fire detection/alarm system and</li> </ul>	

		<p>communicate status to the SCADA system, see Section 8.8</p> <ul style="list-style-type: none"> <li>The fire alarm shall simultaneously contact the fire department and annunciate in the operations control room when any alarm is activated</li> </ul>	
8	Water Tank	<ul style="list-style-type: none"> <li>Tank storage shall include required fire storage plus at least 1000 gallons of storage for the process water system</li> <li>Tank shall have a level detection instrument that is connected to SCADA, with an alarm that alerts when water level is at or below the minimum fire storage requirement</li> </ul>	
9	Water Meter	Fire water service connection shall be metered and independent of the potable water service connection	
10	Fire Protection for Electrical Equipment	See Section 3.6 for fire protection criteria for electrical, computer, and communication areas	

**5.8 Grading and Drainage**

Provide grading improvements and a stormwater collection system consisting of gutters, swales, storm drain piping, and catch basins that collect stormwater runoff from the improved WRF Site and discharge into a detention basin. For the control of stormwater discharge from the project site the DB shall meet the requirements of the State Water Resources Control Board’s Water Quality Order 97-03-DWQ, NPDES General Permit No. CAS000001 Waste Discharge Requirements for Discharges of Stormwater Associated with Industrial Activities Excluding Construction activities.

Item	Parameter	Criteria	Notes
1	Code Requirements	<p>Grading activities shall be in compliance with:</p> <ul style="list-style-type: none"> <li>San Luis Obispo County Code, Title 22 – Land Use Ordinance, Article 5 – Site Development Standards, Chapter 22.52 – Grading and Drainage</li> <li>Provisions of the latest edition of the Uniform Building Code Appendix Chapter 33</li> <li>Latest edition of the California Building Code.</li> </ul>	<p>Any conflict with geotechnical baseline report shall be provided in a written report and presented to the City for consideration. Geotechnical Engineer Transfer of Responsibility Form will be required for any deviations from the GBR.</p>

2	Design Requirements	Grading design shall meet the requirements of the City of Morro Bay Building Permit Application and Minimum Building Permit Submittal Requirements	Grading permits will be processed by the City
3	Design Approach	<ul style="list-style-type: none"> <li>• Grading plan shall direct runoff away from walkways, buildings, cut and fill slopes, and yard activities</li> <li>• Slopes of unpaved areas shall not exceed 3:1 (horizontal to vertical)</li> </ul>	
4	Gutters	Minimize use of cross gutters or ribbon gutters.	Adding catch basins and laterals shall be used in lieu of cross gutters, unless an unmovable obstruction prevents the use of subsurface drainage facilities
5	Site Access Road Grades	Longitudinal grades along roadways shall generally not exceed 5%, and shall be designed to be as uniform as possible to minimize grade breaks	
6	Accessibility Requirements	All building entrances for the Operations Building shall be universally accessible	See Section 3
7	Finished Grade	<ul style="list-style-type: none"> <li>• Finished grades around structures, slabs, and buildings shall be at least 6-inches below floor or slab elevation</li> <li>• Grading shall be performed to accommodate process areas to maintain drainage away from all structures</li> <li>• Water from treatment process areas should be routed to the WRF headworks</li> <li>• The site shall be graded such that all facilities and accessible walkways and roadways are not inundated by a 100-year rainfall event</li> </ul>	
8	Drainage Piping	Drainage piping shall be at least 6-inch nominal size for connections to roof downspouts and 15-inch for main collection lines	
9	Culverts	Provide culverts where collected drainage must cross walkways	

10	Inlet Structures	<ul style="list-style-type: none"> <li>• Design inlet structures where it will not hinder facility operation</li> <li>• Provide a design to eliminate soil or debris from entering storm drain system for large areas</li> <li>• Drain inlet openings shall be a minimum 2 feet in length</li> </ul>	
11	Storm Drain and Catch Basin Laterals	Storm drains and catch basin laterals shall be a minimum of 18-inches diameter	
12	Detention Basins	<ul style="list-style-type: none"> <li>• Provide a detention basin capable of retaining all on-site runoff</li> <li>• Detention basin shall also serve as the emergency overflow pond storage for untreated wastewater, and provide the City the ability to evacuate the entire pond by pumping stormwater or untreated wastewater back into the headworks</li> </ul>	
13	Hydrologic Analysis Criteria	<ul style="list-style-type: none"> <li>• Stormwater pipes and drain inlets shall be capable of collecting and conveying a ten-year, twenty-four-hour event without causing nuisance flooding or surcharging of any pipe</li> <li>• The stormwater system shall be capable of conveying a 100-year,24-hour rainfall event without flooding any facility or building</li> <li>• Use rainfall intensity data from the San Luis Obispo County Department of Public Works &amp; Transportation Improvement Standards</li> <li>• Stormwater detention requirements shall comply with City and County development standards</li> </ul>	

**5.9 Pavement/Roadways**

Provide asphalt roadways and concrete pavement to provide vehicular access and circulation throughout the WRF Project site.

Item	Parameter	Criteria	Notes
1	Type	<ul style="list-style-type: none"> <li>• Concrete pavement may be used in lieu of asphalt pavement</li> <li>• Use concrete paving where truck parking, loading, washdown, or unloading is anticipated and where asphalt paving is incompatible with the</li> </ul>	

		materials handling requirements for the area	
2	Pedestrian Walkways	<ul style="list-style-type: none"> <li>Construct pedestrian walkways between structures and buildings of concrete with a minimum width of 4 feet and minimum thickness of 4 inches</li> <li>All pedestrian paving shall be designed to accommodate service and maintenance vehicles up to twenty-two thousand (22,000) pounds</li> </ul>	
3	Access to Process Areas	<ul style="list-style-type: none"> <li>Extend pavement to all process areas to provide for maintenance access by forklift and maintenance vehicles</li> <li>Design all hauling access, including but not limited to sludge and screenings, and chemical delivery access to minimize reverse and back and forth movements by vehicles.</li> </ul>	
4	Equipment Areas Not Abutted by AC Paving	<ul style="list-style-type: none"> <li>Provide 3" thick layer of ¾" crushed rock compacted to 85% relative compaction conforming to Caltrans standards in and around these areas.</li> <li>Unless specified otherwise, provide minimum 4-foot gravel apron adjacent to concrete areas. Native vegetation shall not abut concrete areas.</li> </ul>	
5	Road Width	<ul style="list-style-type: none"> <li>Use a minimum width of 24 feet for two-way traffic</li> <li>Use a minimum width of 14 feet for single lane roads</li> </ul>	Include provisions for a turn-around at dead ends
6	Curb Turning Radius	<ul style="list-style-type: none"> <li>Site access roads shall accommodate the minimum turning paths for AASHTO Intermediate Semitrailer vehicles for facilities requiring semitrailer access</li> <li>All other site access roads shall accommodate the minimum turning paths for AASHTO Single-Unit Trucks</li> <li>Fire access roads shall accommodate minimum turning paths for fire trucks</li> </ul>	
7	Fire Truck Access	<ul style="list-style-type: none"> <li>Design buildings to be accessible to fire department apparatus by roads with a minimum unobstructed width of 20 feet, and vertical clearance of 15 feet.</li> </ul>	To be defined during Planning Permit application

		<ul style="list-style-type: none"> <li>Roadway design criteria and layout shall be approved by local Fire Department</li> </ul>	
8	Signs and Marking	Provide directional and traffic signs and markings for all roads and direct traffic to key buildings	
9	Design Approach	<ul style="list-style-type: none"> <li>Design pavements for a 50-year design life</li> <li>R values for subgrade soils under pavement shall be determined by a State of California Registered Geotechnical Engineer</li> <li>All paving shall be uniform vehicular quality paving, constructed with appropriate subgrade preparation, subbase, and base to handle all anticipated traffic demands for loading, speed, turning, stopping and starting with no rutting or buckling</li> <li>All paving designs shall be based on a Traffic Index (TI) calculation determined in accordance with Caltrans Highway Design Manual (2012)</li> <li>Design access roads with a maximum traffic index of 7.0</li> </ul>	Coordinate with Geotechnical Baseline Report
10	Curb and Gutter	Portland cement concrete curb and gutter meeting City of Morro Bay standards shall be provided on established roadways and parking areas	

**5.10 Construction Dust Control and SWPPP Stormwater Management**

**5.10.1 Dust Control**

Prepare, obtain approval and implement all the requirements of the latest Fugitive Dust Control Plan (FDCP) in accordance with the San Luis Obispo County Air Pollution Control District Regulations. Also, the DB shall prepare, obtain approval, and implement all of the requirements of the latest State National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ and industry standards according to the State Water Quality Control Board (SWQCB).

Item	Parameter	Criteria	Notes
1	Fugitive Dust Control Plan	<ul style="list-style-type: none"> <li>Prepared using latest APCD regulations.</li> <li>DB must obtain APCD Approval</li> <li>After APCD approval of FDCP amend as required</li> </ul>	Public requests to review the approved

		<ul style="list-style-type: none"> <li>Supply approval and amendments to City, DB general office and in job site construction office</li> <li>Approved copies and amendments shall be available for US EPA</li> </ul>	FDCP shall go to the City's Representative
2	Air Pollution Control District Rules	DB shall be familiar with APCD requirements and maintain a copy at the Construction Sites	
3	Earthmoving Activity	<ul style="list-style-type: none"> <li>DB must notify the City 48-hours in advance of activity</li> <li>Keep daily record of dust control measures every day earthmoving is conducted</li> </ul>	

**5.10.2 Stormwater Management During Construction**

Comply with all of the requirements of the latest NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ according to SWQCB and standard industry practice. This includes, but is not limited to, preparing plans and application, maps as well as all necessary reporting on the SWQCB's Stormwater Multiple Application and Report Tracking System (SMARTS System).

Item	Parameter	Criteria	Notes
1	Stormwater Pollution Prevention Plan (SWPPP)	<ul style="list-style-type: none"> <li>DB must have a Certified Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer (QSD) prepare a SWPPP</li> <li>DB must submit SWPPP to City's Construction Manager for Approval</li> <li>DB to submit NOI and necessary documents in SWQCB's SMARTS system for approval by LRP</li> <li>DB shall implement SWPPP and start Construction activity only after written approval from SWQCB</li> <li>Supply SWPPP approval and amendments to City, DB general office and in job site construction office</li> </ul>	Must comply with latest State NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ
2	SWPPP Implementation	<ul style="list-style-type: none"> <li>DB shall implement SWPPP and start Construction activity only after written approval from SWQCB</li> <li>During project DB shall have a Quality SWPPP Practitioner (QSP) conduct audits, inspections, testing, and prepare reports</li> <li>QSP shall coordinate with the QSD any updates</li> </ul>	

		<ul style="list-style-type: none"> <li>The SWPPP shall be made available upon request of a representative of the Flood Control District, Regional Water Quality Control Board, State Water Resources Control Board or U. S. Environmental Protection Agency. Requests by the public shall be directed to the Owner’s representative</li> </ul>	
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**Notice of violation and/or fines for any non-compliance will be the responsibility of the DB.**

**5.11 Facility Stormwater Management Post-Construction Requirements**

Stormwater management for the WRF shall meet the requirements of the City of Morro Bay Stormwater Management Guidance Manual for Low Impact Development & Post-Construction Requirements, Main Manual (Dated March 6, 2014 and updated July 1, 2017).

**5.12 Noise Control**

Incorporate noise reduction measures into the project design and construction. Retain an acoustical engineer to measure or calculate post-project operational noise levels at the nearest sensitive receptor based upon the final project design as implemented. If the project results in noise levels exceeding the City of Morro Bay or San Luis Obispo County Noise Ordinance thresholds, the DB shall develop additional sound-attenuation measures which may include additional enclosures for noise generating equipment to ensure that noise levels at nearby sensitive receptors are reduced to the acceptable noise levels as identified in the County thresholds for noise generators.

Item	Parameter	Criteria	Notes
1	General Requirements	<ul style="list-style-type: none"> <li>Sound pressure level guidelines are provided by the Code of Federal Regulations Title 29, Part 1910.95 (29 CFR 1910.95) and enforced by OSHA.</li> <li>These guidelines provide acceptable sound pressure levels for different frequencies and durations. Comply with City of Morro Bay Noise Ordinance regulations regarding community impacts and San Luis Obispo County Noise regulations.</li> </ul>	
2	Construction Methods and Equipment	<ul style="list-style-type: none"> <li>Utilize construction methods or equipment that will meet local ordinances for the maximum decibel rating at the property line</li> <li>All construction vehicles and fixed or mobile equipment shall be equipped with properly operating and maintained mufflers</li> <li>Schedule construction such that the minimum number equipment would be operating at the same time</li> </ul>	

3	Portable Noise Barriers	If equipment used can cause hearing damage, portable noise barriers shall be installed to reduce noise levels below hearing damage thresholds	
4	Hearing Protection to Construction Staff	Provide all employees that will be exposed to noise levels greater than 75 dB over an extended period with adequate hearing protection devices to mitigate hearing damage	
5	Staging Areas	Locate vehicle staging areas and stockpiling as far as is practicable from the existing buildings along Teresa Road	
6	Noise Control Design	<ul style="list-style-type: none"> <li>• Noise control shall be accomplished by a combination of isolating mechanical, equipment in mechanical rooms, properly selecting equipment to meet noise criteria requirements for all equipment and components</li> <li>• Blower and compressor equipment associated with the MBR system shall be located within a dedicated mechanical room in the process building to mitigate noise levels</li> <li>• The RO feed pumps, may require individual noise enclosures to control noise levels in consideration for operators who may be working on the RO system</li> </ul>	
7	Sound Attenuation	Exterior mechanical equipment such as air cooled condensing units shall be provided with sound attenuating features (i.e. compressor blankets). The sound power levels from mechanical equipment shall meet minimum requirements.	
8	Construction Hours	Construction shall be limited to between the hours of 07:00 AM and 04:00 PM to reduce construction generated noise.	Exceptions may be requested in writing from the City for work requiring special accommodations. See Appendix M for limitations to mitigate noise impacts for hours outside of those listed.



## **SECTION 6 GEOTECHNICAL CRITERIA**

A Preliminary Geotechnical Baseline Report was performed for the Project site to identify geotechnical and geologic conditions and establish design performance criteria for the new plant. See Appendix J. The DB is responsible for performing additional geotechnical investigations if determined to be necessary.



**SECTION 7 MECHANICAL PIPING CRITERIA****7.1 General**

Item	Parameter	Criteria	Notes
1	Equipment Design Approach	<ul style="list-style-type: none"> <li>Maximize consistency and optimize spare part requirements for mechanical equipment such as valves, actuators, flowmeter and other equipment across packaged treatment systems</li> <li>Maximize access to mechanical equipment for O&amp;M purposes</li> <li>Provide necessary isolation valves to facilitate hydro testing; taking into account different pipe pressure classes</li> </ul>	
2	Special Tools	Provide special tools required for equipment repair	
3	Equipment Pads	Provide housekeeping/plinth pads for all equipment	
4	Pipe Mounting in Trenches	Mount pipes in pipe trenches in trench walls, to the extent possible	
5	Pipe Labeling/Flow Direction	Provide painted pipe labeling, and painted flow direction arrows for proper operation for all pipework	<ul style="list-style-type: none"> <li>Labels for piping 2 inches and larger shall bear the full piping system name as shown in the Piping Schedule. Provide separate flow directional arrows next to each label. Color, size, and labeling shall conform to ANSI A13.1 and Z535.1.</li> <li>Labels for piping shall be painted.</li> </ul>
6	Joint Restraint	Provide restrained fittings for all pressure piping	
7	Spare Sample Taps	Include convenient spare sample taps throughout treatment process trains	<ul style="list-style-type: none"> <li>Sample taps shall be accessible and properly labeled</li> <li>Locate sample taps in common areas with drains</li> </ul>
8	Valve Arrangements	Provide isolation valves and bypass piping for critical mechanical	

		equipment that require removal for routine maintenance/calibration	
9	Equipment Tagging and Labeling	Submit comprehensive tag program for all mechanical equipment and as specified in the individual sections of this Performance Criteria Report	<ul style="list-style-type: none"> <li>• Provide a label for each pump, blower, compressor, tank, feeder, flocculator, flash mixer, clarifier mechanism, or other piece of mechanical equipment. Label shall show the equipment name and tag number. Labels shall be 1 1/2 inches (minimum) by 4 inches (minimum) brass, stainless steel, or aluminum.</li> <li>• Tag shall show the tag number and/or name or designation in coordination with the asset management criteria.</li> <li>• Provide stainless steel wire for tags.</li> </ul>

**7.2 Piping**

Item	Parameter	Criteria	Notes
1	Piping Schedule	Submit comprehensive piping schedule indicating size, information, type, material of construction, lining, coating, and other critical information	See partial piping schedule below indicating minimum requirements
2	Unions	Provide unions on threaded exposed piping 3 inches and smaller: at every change in direction (horizontal and vertical); 6 to 12 inches downstream of valves; Every 40 feet in straight pipe runs	
3	Painting and Coating: General	<ul style="list-style-type: none"> <li>• Required for the interior and exterior surfaces of ferrous pipe</li> <li>• Pipe lining shall be appropriate for the application</li> </ul>	<ul style="list-style-type: none"> <li>• All pipe color shall be gray, with the exception of color-coded chemical piping.</li> <li>• Cement-mortar lining shall be per AWWA C104. Lining thickness shall be the double thickness listed in AWWA C104, Section 4.7.</li> </ul>

	Painting and Coating: Buried Pipes	<ul style="list-style-type: none"> <li>Asphaltic or epoxy coated and wrapped with polyethylene encasement</li> <li>Epoxy thickness: 50 mils, 100 mils on nuts, bolts, and sharp projections</li> </ul>	
	Painting and Coating: Above-Ground Pipes	Provide epoxy with polyurethane topcoat on exposed pipe. Follow manufacturer’s recommendations for surface prep for topcoating of fusion bonded epoxy surfaces	<ul style="list-style-type: none"> <li>Provide polyurethane topcoat on exposed pipe</li> <li>All pipe color shall be gray, with the exception of color-coded chemical piping</li> </ul>
<b>4</b>	Underground Pipe Marking	All buried non-metallic pipe must include an electronic detectable underground warning tape	

**Partial Piping Schedule**

<b>Item</b>	<b>Process Service</b>	<b>Minimum Piping Material</b>	<b>Remarks</b>
<b>1</b>	Sanitary Sewer	PVC	
<b>2</b>	Equipment/Truck Wash Station	C900 PVC	
<b>3</b>	Raw Wastewater	DIP	
<b>4</b>	Screened Influent	DIP	
<b>5</b>	On-site Reclaimed Water	C900 PVC	4” and Larger Buried
<b>6</b>	On-site Reclaimed Water	PVC	Smaller than 4” Buried
<b>7</b>	On-site Reclaimed Water	Steel	Exposed
<b>8</b>	Chemical Piping	PVC/CPVC	Refer to Section 2
<b>9</b>	Return Activated Sludge	DIP	
<b>10</b>	Waste Activated Sludge	DIP	
<b>11</b>	Scum	DIP	
<b>12</b>	Air	Stainless Steel	
<b>13</b>	Grit Classifier Drain	DIP	Exposed
<b>14</b>	Grit Classifier Drain	PVC	Buried

15	Grit Pump Piping	Glass Lined DIP	
16	Plant Drain	PVC	
17	Mixed Liquor	DIP	
18	MBR Filtrate	DIP	
19	Recycled Water	DIP	Conveyance to reuse project
20	Potable Water	C900 PVC	4" and Larger, Buried
21	Potable Water	Steel	Smaller than 4" Buried
22	Potable Water	Steel	Exposed
23	Effluent	PVC, HDPE	Conveyance to ocean outfall
24	High Pressure RO Feed/RO Concentrate	Stainless Steel, minimum 316L	<ul style="list-style-type: none"> <li>• High Pressure: &gt;150 psi</li> <li>• DB to select final materials with approval from Owner. Final piping material of construction to be coordinated with Durability Requirements</li> </ul>
25	Low Pressure RO Feed/RO concentrate	Schedule 80 PVC	Less than 150 psi
26	RO Permeate and Flushing	Schedule 80 PVC	
27	Clean-in-Place /Chemical Addition	Schedule 80 PVC, CPVC, or other as required	
28	Stormwater Piping	HDPE	Smaller than 18"
29	Stormwater Piping	Concrete	18" and larger

**7.3 Valves**

Item	Parameter	Criteria	Notes
1	Valve Location	Valves shall be accessible (i.e., not buried), unless otherwise necessary. Minimize locating valves with actuators in confined areas, when possible.	

2	Valve and Gate Automation	Provide automation on all equipment needed for remote normal operation	
3	Valve Maintenance	<ul style="list-style-type: none"> <li>Incorporate dismantling joints where necessary into design layout to facilitate removal of valves</li> <li>Provide access hatches, building entry, and lifting devices for large and critical valves</li> </ul>	
4	Surge Control	Specify speed of opening and closing to avoid significant increase in pressures	
5	Factory Testing Data	Submit Factory Acceptance Test data before shipment of the valve. The data shall also include certification of quality and test results for factory-applied coatings.	
6	Labeling and Valve Tags	Label all valves with manufacturer's name and working pressure cast in raised letters on valve body	<ul style="list-style-type: none"> <li>Provide each valve of size 2 inches and larger with an identification tag. Tag shall be 2-inch-square or circular aluminum or 316 SS: W. H. Brady B-60, Seton Name Plate Corp. Series SVT, or equal. Aluminum tags shall have black-filled letters.</li> <li>Tag shall show the valve tag number and/or name or designation in coordination with the asset management criteria.</li> <li>Provide stainless steel wire for tags.</li> </ul>
7	Painting and Coating: General	Required for the interior and exterior surfaces of valves	All exterior pipe color shall be gray, with the exception of color-coded chemical piping
	Painting and Coating: Buried Valves	<ul style="list-style-type: none"> <li>Epoxy coated and wrapped with polyethylene encasement</li> <li>Thickness: 50 mils, 100 mils on nuts, bolts, and sharp projections</li> </ul>	
	Painting and Coating: Above-Ground Valves	<ul style="list-style-type: none"> <li>Ferrous interior surfaces: epoxy.</li> <li>Provide polyurethane topcoat on exposed valves and pipe. Follow manufacturer's</li> </ul>	<ul style="list-style-type: none"> <li>Provide polyurethane topcoat on exposed valves and pipe</li> </ul>

		<p>recommendations for surface prep for topcoating of fusion bonded epoxy surfaces.</p>	<ul style="list-style-type: none"> <li>All pipe color shall be gray, with the exception of color-coded chemical piping</li> </ul>
8	End Connections	<ul style="list-style-type: none"> <li>2.5-inch and smaller may be provided with threaded or flanged end connections</li> <li>3-inches and larger require flanged end connections</li> <li>Unless otherwise shown or otherwise specified, all flanged valves shall have ends conforming to AWWA C115, 125 lb flange</li> </ul>	<p>All pressurized connections shall have restrained fittings</p>
9	Manufacturer	<ul style="list-style-type: none"> <li>All valves shall be by a single manufacturer to the extent possible</li> <li>Manufacturer shall have a successful record of not less than 5 years in the manufacture of the valves selected</li> </ul>	
10	Acceptable Manufacturers	<ul style="list-style-type: none"> <li>Gate Valves: Clow, AVK, American Flow Control, Waterous, Kennedy, DeZurik, or equal</li> <li>Check Valves: M&amp;H, Clow, DeZurik, or equal</li> <li>Check Valves (Chemicals): Ryan Herco, GF Plastic Systems, Asahi/America</li> <li>Butterfly Valves: Pratt, DeZurik, or equal</li> <li>Pressure Reducing and Pressure Relief Valves: Cla-Val Company</li> <li>Diaphragm Valves: ITT Grinnel, Asahi/America</li> <li>Air release, Air and Vacuum, and Combination Air Valves: DeZurik, A.R.I. Flow Control Accessories</li> <li>Solenoid Valves: Hayward, ASCO, DeZurik, or equal</li> <li>Gates: Rodney-Hunt, Waterman, Whipps, Golden Harvest, or equal</li> <li>Plug valves – Victaulic, Clow, DeZurik, Pratt, Milliken, or equal</li> <li>Telescoping Valve - Waterman Industries, Inc., Coldwell-Wilcox Company, or equal</li> </ul>	

		<ul style="list-style-type: none"> <li>Knife Gate Valve - DeZurik, ITT Fabri-Valve, or equal</li> </ul>	
11	Ball Valves: PVC, CPVC	<ul style="list-style-type: none"> <li>Line size ball valve and union shall be installed upstream of each solenoid valve, in-line flow switch, or other in-line electrical device for isolation during maintenance</li> <li>Body, ball, stem and connector: Schedule 80 PVC</li> <li>Manufacturers: Hayward, Spears, Ryan Herco Products Corp, or equal</li> </ul>	Provide vented ball for all valves in hypochlorite service
12	Ball Valves: Bronze, SS	Manufacturers: Apollo Ball Valve Division, Wall, or equal	
13	Material	<ul style="list-style-type: none"> <li>Select corrosion resistant and chemically compatible material and maximize durability of equipment selected</li> <li>Gates, including body, gate, and trim, shall be 316L SS</li> </ul>	
14	Valve Schedule	Submit comprehensive valve schedule indicating size, tag information, type, material of construction, manufacturer, and other critical information.	

**7.4 Valve Actuators**

Item	Parameter	Criteria	Notes
1	Electric Actuators	<ul style="list-style-type: none"> <li>Provide on all equipment needed for remote normal operation</li> <li>Manufacturers: AUMA, Rotorque, or equal</li> </ul>	<ul style="list-style-type: none"> <li>Provide actuators from the same manufacturer throughout the facility</li> <li>Must meet area classification requirements</li> </ul>
2	Spur Gear and Hand Wheel	Required for gate valves 18-inches and larger	
3	Actuator Sizing	Oversize actuator to allow for aging, corrosion, scaling, clogging of equipment	Oversize 20 percent
4	Manual Operator: Exposed	<ul style="list-style-type: none"> <li>Worm gear drive and nut</li> <li>Chain wheel, sprocket, and aluminum chain required if mounted more than 7 feet above the operating floor</li> </ul>	

5	Manual Operator: Buried Valves	<ul style="list-style-type: none"> <li>• Provide valve box, 2-inch square operating nut, and position indicator</li> <li>• Extension: required if top of valve nut is greater than 12-inches below the top of valve box</li> </ul>	
6	Portable Valve Operator	Provide a portable electric non-rising stem valve operator with torque limiting adapter rated at 250 ft-lb	

**7.5 Pumps**

Item	Parameter	Criteria	Notes
1	Configuration	The pumps and pumping appurtenances shall be by a single manufacturer responsible for furnishing and functional operation of complete pump system	All pumps in plant shall be by same manufacturer to the extent possible
2	Testing	Submit non-witnessed Factory Acceptance Test data before shipment of the pump	
3	Design	Specify pump type and identify process. Specify performance curve and pump data. Specify electrical requirements and controls. Assemble drawings showing location and process. Specify pump drive and motor and provide bearing calculations, indicate points on H/Q curves, pump detailed description, installation drawings.	
4	Seals	<ul style="list-style-type: none"> <li>• Provide mechanical and double mechanical seals wherever possible</li> <li>• Mechanical seals shall be of the best quality, using the Manufacturer’s suggested materials best suited for the specific application</li> </ul>	
5	Flanges: Suction and Discharge	Cast Iron (ANSI/ASME B16.1), Class 25, 125, 250, and 800. Or ANSI/ASME B16.5	

6	Lubrication	<ul style="list-style-type: none"> <li>• Vertical pump shafts (clean water): Product water lubricated</li> <li>• Deep-well/dry barrels: Water or oil lubricated bearings, seals, and enclosed line shafts</li> <li>• Vertical propeller, mixed-flow, and turbine pumps or bowl sizes 10-inches and larger (other than deep well pumps): stainless steel tube attached to the column for grease lubrication of the bottom bearing</li> </ul>	
7	Vortex Suppressors	Provide for vertical pumps with marginal submergence	
8	Pump Casing	<ul style="list-style-type: none"> <li>• Select materials based on specific application. Minimum material requirements include:                             <ul style="list-style-type: none"> <li>• Ductile Iron, Austenitic (ASTM A 439)</li> <li>• Cast Iron, Stainless Steel or Bronze</li> <li>• Stainless Steel, Type 416 or 316, SAE63 Bronze</li> <li>• Hot-dipped galvanized (not buried or submerged), stainless steel (buried or submerged)</li> </ul> </li> </ul>	
9	Material	Select corrosion resistant and chemically compatible material and maximize durability of equipment selected	Provide duplex SS for RO concentrate pump materials
10	Pump Schedule	Submit comprehensive pump schedule indicating size, tag information, type, material of construction, manufacturer, and other critical information	
11	Labeling and Pump Tags	Label all pumps with manufacturer's name and working pressure cast in raised letters on valve body	<ul style="list-style-type: none"> <li>• Provide each pump with an identification tag. Tag shall be 2-inch-square or circular aluminum or 316 SS: W. H. Brady B-60, Seton Name Plate Corp. Series SVT, or equal. Aluminum tags shall have black-filled letters.</li> <li>• Tag shall show the valve tag number and/or name or designation in coordination</li> </ul>

			with the asset management criteria. <ul style="list-style-type: none"> <li>• Provide stainless steel wire.</li> </ul>
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**7.6 Nuts and Bolts**

Item	Parameter	Criteria	Notes
1	Bolts and Nuts for Flanges	Bolts and nuts for buried or submerged Class 125 or 150 flanges and Class 125 or 150 flanges located indoors, outdoors above ground or in vaults and structures shall be Type 316 stainless steel conforming to ASTM A193, Grade B8M for bolts and ASTM A194, Grade 8M for nuts	Bolts used in flange insulation kits shall conform to ASTM A193 (Grade B7). Nuts shall conform to ASTM A194 (Grade 2H).
2	Lubricant for Stainless Steel Bolts and Nuts	Prior to assembly, coat threaded portions of stainless steel bolts and nuts with lubricant	Lubricant shall be chloride free and shall be RAMCO TG-50, Anti-Seize by RAMCO, Specialty Lubricants Corporation Husky™ Lube O'Seal, or equal

**SECTION 8 ELECTRICAL SYSTEM CRITERIA**

**8.1 Utility Electrical Service**

The City is coordinating the effort to obtain the electrical service from Pacific Gas & Electric (PG&E). Service voltage shall be obtained at 480Y/277V, three-phase four-wire. Install the on-site infrastructure for the primary service to a utility pad-mounted transformer and for the transformer secondary lateral to the service switchboard as identified on the drawings prepared by PG&E.

**8.2 Data Service**

The City is coordinating the effort to obtain the data service from the local utility. Install the on-site infrastructure.

**8.3 Alternative Solar Power**

Provide sufficient floor area, headroom space, and clearances adjacent to the main service switchboard for installation of a future photovoltaic inverter, minimum 800kW, and future net energy metering switchboard for connection to the PG&E grid. Conduits of adequate sizes shall be installed between the inverter and grade mounted handholes outside of the main electrical building, in quantities and locations as required for connection to the future photovoltaic strings. All monitor points and alarms for the proposed photovoltaic system shall be transmitted to the SCADA system.

**8.4 Electrical Distribution**

Provide a radial distribution network for both of the normal and emergency 480Y/277V, three-phase, four wire systems and the 208Y/120V, three-phase, four-wire systems. The main electrical building will house the main service switchboard and transfer switch, a motor control center for the dewatering area and chemical storage, and a transformer for serving the panel that will provide the 120V branch-circuits at and near the equipment. The generator shall be located in an exterior enclosure. Radial feeds from the service board distribution section shall be provided to motor control centers. The motor control centers and distribution switchboards shall include the feeders for distribution transformers and 208Y/120V, three-phase, four-wire panelboards in each electrical room.

**8.5 Basic Electrical Work**

**8.5.1 Raceways**

Item	Parameter	Criteria	Notes
1	Exposed	PVC coated rigid steel conduit shall be used for all exposed locations around process areas, in vaults and structures, and in corrosive locations	
2	Concealed	Concealed conduits shall be rigid galvanized steel except in the Operations and Maintenance Buildings, where electrical metallic tubing may be used	

3	Underground	<ul style="list-style-type: none"> <li>Bury underground conduits containing maximum 600-volt conductor insulation a minimum depth of 24" from surface of finished grade to the top surface of the conduit. Where they run under roadways or parking areas, depth shall be 30" minimum from finished grade.</li> <li>Conduits shall be PVC coated rigid steel conduit. Schedule 40 PVC conduits shall be permissible where encased in a minimum two inch concrete envelope.</li> </ul>	
4	Final Connections	Use liquid-tight non-metallic flexible conduit for final connection to equipment	

**8.5.2 Conductors**

Item	Parameter	Criteria	Notes
1	Indoor Feeders and Indoor and Outdoor Branch-Circuits	Use 600V copper conductors with THWN/THHN insulation	
2	Outdoor Feeders and Load Side of VFDs	Use 600V copper conductors with XHHW insulation	
3	Terminations	Branch-circuit terminations in wet locations shall be listed for the applications. Provide insulated tap blocks for feeder splices.	

**8.5.3 Wiring Devices**

Provide power to receptacles from 208Y/120V panel boards. Feed adjacent receptacles from alternate panelboard circuits. Locate separately powered receptacles adjacent to HVAC and other specialized equipment. In interior and exterior process areas locate receptacles every 50 feet, and every 12 feet of wall space in occupied areas. Ground fault circuit interrupting (GFCI) type receptacles shall be located in lavatories, outdoors, wash-down process areas, below-grade structures, rooftops and tunnels.

**8.5.4 Grounding**

Provide a maximum 2 ohm resistance earth to ground and conform to IEEE Standard 142. Structures shall have perimeter ground grid with rods in test wells. Interconnect individual structure grounding systems. Building steel, process equipment, electrical equipment and enclosures, and exposed metal which might become a current conductor shall be connected to the ground grid. Exposed ground connections shall be compression lug type. Concealed, buried, or embedded ground connections shall be made by the exothermic method, except for the connection to the ground rod which shall be compression lug type. All conduits shall contain an equipment grounding conductor.

**8.5.5 Boxes**

Item	Parameter	Criteria	Notes
1	Underground Manholes and Handholes	<ul style="list-style-type: none"> <li>Provide concrete handholes with sufficient depth to accommodate the branch-circuits and/or feeders. Provide with steel lid in traffic areas and concrete lids in parkways and planters.</li> <li>Provide concrete manholes with a minimum size of 4'6" x 8' x 8'd, permanent galvanized ladder, and pulling rings.</li> <li>Provide fiberglass racks in each handhole with a footprint equal to or larger than 2'6" x 3'0" and in all manholes.</li> </ul>	Provide H2O bridge loading in all areas with incidental or regular traffic
2	Cast-Iron Outlet Boxes	Install cast-iron outlet boxes in surface mounted applications. Provide explosion-proof boxes and fittings as required by the hazard classifications.	
3	Sheet-Metal Outlet Boxes	Provide sheet-metal outlet boxes at dry non-hazardous locations in the Operations and Maintenance buildings	
4	Pull Boxes	Provide IP 68 NEMA 4X boxes in all locations. Pull boxes subject to damage shall be stainless steel. Pull boxes in hazardous locations shall be listed explosion-proof.	Locate pull boxes above grade to the extent possible

**8.5.6 Identification**

Item	Parameter	Criteria	Notes
1	Conduit Identification	Where electrical conduit is exposed in spaces with exposed mechanical piping that is identified by a color-coded method, provide color-coded identification on electrical conduit in a manner similar to piping identification	
2	Cable/Conductor Identification	Provide method for cable/conductor identification including voltage, phase, and feeder number on each cable and conductor in each box/enclosure/cabinet where wires of more than one lighting or power circuit occur or where alarm	

		conductors of communication, signal, or alarm systems are present, except where another form of identification (such as color-coded conductors) is provided	
3	Equipment Labeling	Submit comprehensive labeling schedule indicating tag information, type, material of construction, manufacturer, and other critical information	

**8.5.7 Supports and Anchors**

Provide seismic anchorage for all floor, wall, and rack mounted electrical equipment. Base-specific seismic criteria shall use values determined in accordance with ASCE 7-102 as amended by the 2016 CBC, Chapter 16. Arrange for grouping of parallel runs of horizontal conduits to be supported together on seismically braced trapeze type hangers where possible.

**8.6 Distribution Equipment**

**8.6.1 General**

Certify distribution equipment for base-specific seismic criteria using values determined in accordance with ASCE 7-102 as amended by the 2016 CBC, Chapter 16. Provide withstand ratings greater than the maximum short-circuit current available at the line terminals of the equipment. Series rated systems shall not be used.

**8.6.2 Switchboards**

Item	Parameter	Criteria	Notes
1	Service Switchboard	Provide 480Y/277V, three-phase, four-wire switchboard with adequate capacity to carry the calculated load. Include pull section, distribution section, and automatic transfer section bussed together for a complete unit.	
2	Circuit Breakers	Provide main circuit breaker and distribution circuit breakers rated for the calculated load. Provide insulated case power circuit breakers with zone selective interlocking for system selectivity.	
3	Ground-Fault Protection	Provide ground-fault protection for the main circuit breaker and distribution circuit breakers immediately downstream of the main circuit breaker	
4	Bus Material	Provide fully rated tin plated copper bus bars. Tapered bus shall not be used.	

		Provide with full rated neutral. Provide copper ground bus.	
5	Enclosure	<ul style="list-style-type: none"> <li>All cabinetry located outdoors should be fully enclosed, no false fronts or HMI on outside doors.</li> <li>Provide NEMA 4X enclosure for exterior locations and in process areas. Install in a dry non-hazardous location where possible.</li> </ul>	Any internal equipment requiring regular maintenance shall be out of arc flash area

**8.6.3 Motor Control Centers**

Item	Parameter	Criteria	Notes
1	General	Provide grouped motor controls in a motor control center including supporting structures, bus systems, starter units, controllers, disconnects, overload protection, and motor control accessories	
2	Standards	The control centers shall be NEMA Class II, Type B, plug-in, designed, manufactured, and tested to meet the latest IEEE and NEMA standard	
3	Controls	<ul style="list-style-type: none"> <li>Selector switches and pilot lights shall be heavy-duty, oil-tight, and have the number of positions and poles indicated</li> <li>Control relays shall be machine tool type with 115-volt AC coils</li> </ul>	
4	Starters	Except where VFDs are provided, magnetic starters shall be combination motor circuit protector type, full voltage, single speed or two speed, reversing or non-reversing	
5	Bus Material	Provide fully rated tin plated copper bus bars. Provide with full rated neutral. Provide copper ground bus.	
6	Enclosure	<ul style="list-style-type: none"> <li>All cabinetry located outdoors should be fully enclosed, no false fronts or HMI on outside doors.</li> <li>Provide NEMA 4X enclosure for exterior locations and in process areas. Install in a dry non-hazardous location where possible.</li> </ul>	Any internal equipment requiring regular maintenance must be out of arc flash area

**8.6.4 Distribution Transformers**

Provide dry-type distribution transformers with aluminum windings and enclosures suitable for the installed environment. Transformers shall have 480V primary and 208Y/120V three-phase, four-wire secondary.

**8.6.5 Panelboards**

Item	Parameter	Criteria	Notes
1	Enclosures	<ul style="list-style-type: none"> <li>All cabinetry located outdoors should be fully enclosed, no false fronts or HMI on outside doors.</li> <li>Provide NEMA 4X enclosure for exterior locations and in process areas. Install in a dry non-hazardous location where possible.</li> </ul>	Any internal equipment requiring regular maintenance shall be out of arc flash area
2	Circuit breakers	Provide bolt fastened thermal magnetic circuit breakers with ratings appropriate for the calculated loads. Provide 30% spare breakers in each panel.	
3	Bus Material	Provide fully rated tin plated copper bus bars. Provide with full rated neutral. Provide copper ground bus.	

**8.6.6 Motors**

Item	Parameter	Criteria	Notes
1	Motor Selection	Select motors to permit the connected load to develop its specified output continuously without encroaching on the service factor under normal operating conditions. The service factor shall be 1.15 for motors 200 horsepower and less. Motors larger than 200 horsepower shall have a service factor of 1.0.	
2	Motor Design	<ul style="list-style-type: none"> <li>Design motors for full voltage starting and frequent starting, where required. Provide motors suitable for continuous duty in the specified ambient conditions. Intermittent duty motors will be selected where recognized and defined as standard by the equipment standards and codes.</li> <li>The following design parameters shall be considered: Motor manufacturer, environment, including special enclosure requirements, voltage,</li> </ul>	

		frequency, and phases, running and starting requirements and, limitations and duty cycle, motor type (synchronous, induction, DC, etc.) and construction, power factor, service factor, speed and direction of rotation, insulation, bearing construction, rating life of rolling elements, and external lube oil system for sleeve or plate bearings, ambient noise level and noise level for motor and driven equipment, termination provisions for power, grounding, and accessories, installation, testing, and maintenance requirements, special features (shaft grounding, temperature and vibration monitoring, etc.), and motor space heater requirements.	
3	Motor Starting	The torque of all induction motors will be required to accelerate inertia loads of both motor and driven equipment to full speed without damage to the motor or other equipment. Provide maximum 20 percent voltage drop from the specified motor nameplate rating for motor starting. Provide minimum NEMA size 1 starters.	
4	VFDs	Motors connected to VFDs shall be inverter duty rated	

**8.6.7 Motor Controls**

Item	Parameter	Criteria	Notes
1	Combination Starters	<ul style="list-style-type: none"> <li>Provide full voltage starting for all motors less than 25 HP that are not operated with a VFD. Minimum size starter shall be NEMA size 1.</li> <li>Unless motor is operated with a VFD, Solid State Reduced-Voltage (SSRV) soft starters shall be used for motors larger than 25 HP</li> </ul>	
2	Variable Frequency Drives (VFDs)	Provide 18 pulse VFDs where specified	
3	Manual Motor Starters	Where fractional horsepower motors are not automatically started, provide manual motor starters using toggle switch mechanism and enclosure rated for the	

		environment. Provide with or without overcurrent protection as required by the installation.	
4	Enclosures	<ul style="list-style-type: none"> <li>All cabinetry located outdoors should be fully enclosed, no false fronts or HMI on outside doors.</li> <li>Provide NEMA 4X enclosure for exterior locations and in process areas. Install in a dry non-hazardous location where possible.</li> </ul>	
5	Pilot Lights and Switches	<ul style="list-style-type: none"> <li>Selector switches and pilot lights shall be heavy-duty, oil-tight, and have the number of positions and poles indicated</li> <li>Control relays shall be machine tool type with 115-volt AC coils</li> </ul>	

**8.6.8 Standby Generator**

Item	Parameter	Criteria	Notes
1	Capacity	Provide a standby generator rated 480Y/277V, three-phase, four-wire with capacity to carry the entire treatment plant electrical load. The generator shall be connected and operated as a separately derived system.	
2	Fuel Source	Provide diesel powered generator. The generator shall have a double containment separate aboveground double containment fuel tank, with leak detection and sufficient fuel storage to operate the plant on backup power for a minimum of 24 hours without refueling. Provide alarm contacts for reporting to the SCADA system.	
3	Main Circuit Breaker	<ul style="list-style-type: none"> <li>Provide a main circuit breaker rated to carry the calculated load. Provide insulated case power circuit breakers with zone selective interlocking for system selectivity.</li> <li>The circuit breaker shall be either wall or rack mounted at a location adjacent to the generator enclosure.</li> </ul>	
4	Enclosure	Provide a sound-attenuated weatherproof generator enclosure meeting 70dB(A) at fifty feet	

5	Accessories	Provide generator enclosure complete with battery charger, engine block heater, and generator condensation heater, battery, and exhaust silencer	
6	Engine Oil	DB to provide initial fill of oil and the first oil change, including oil filters	
7	Alarms	Provide electronic generator control panel with discrete alarm contacts for each alarm for reporting on the SCADA system. Comply with NFPA 110 for remote alarm annunciation.	Coordinate with Section 9
8	Alternative Generator Proposal	Provide an option for a natural gas-powered generator supplied by the natural gas service with a liquid propane tank system as backup fuel supply. The liquid propane tank shall provide fuel storage to operate the plan on backup power for a minimum of 24 hours without refueling.	

**8.6.9 Automatic Transfer Switch**

Provide a 480V four-pole transfer switch for connecting the plant load to the standby generator upon loss of utility company power. Transfer switch shall be solenoid operated and mounted in a bussed lineup with the main service switchboard for installation in a dry non-hazardous location.

**8.7 Lighting Equipment**

Item	Parameter	Criteria	Notes
1	Illumination Engineering Society (IES)	Comply with the IES Recommended Practice for Lighting Industrial Facilities RP-7-17.	
2	Interior Lighting	<ul style="list-style-type: none"> <li>Provide LED strip lighting with door switch inside control panels if the enclosure size is greater than or equal to 30" wide and greater than or equal to 12" deep.</li> <li>Adequate lighting, ventilation and access for maintenance or removal of equipment and screenings shall be provided. Adequate lighting throughout the wastewater treatment facility shall be provided, particularly in areas of operation and maintenance activities.</li> </ul>	

		<ul style="list-style-type: none"> <li>• Provide metallic or non-metallic luminaire housings appropriate for the classification of the area.</li> <li>• Lighting shall be included in all treatment buildings. Battery operated emergency lights shall be provided at all confined spaces. Lights shall be located in an area that is easily accessible to replace components.</li> </ul>	
3	Exterior Lighting	<ul style="list-style-type: none"> <li>• Provide full cutoff LED site lighting in each process area. Lighting standards adjacent to any open process structure flush or below grade shall be provided with hinged pole base. Provide poles with 316SS anchors and hardware.</li> <li>• Aim exterior pole and building lighting to avoid any light trespass on adjacent property lines. All pole and building luminaires shall be full cutoff and located to minimize glare.</li> </ul>	Coordinate with Section 9
4	Lighting Controls	<ul style="list-style-type: none"> <li>• Provide switches, photocells, and receptacles at all lighting poles. Provide for automated lighting control through the SCADA system so that the facility is only illuminated to the degree necessary to maintain safe operation.</li> <li>• Provide lighting software calculations showing compliance with California Title 24 Energy Standard requirements in all areas.</li> </ul>	

**8.8 Fire Alarm System**

Provide a plant-wide addressable fire detection and alarm system, with audible as well as visual alarm signals, conforming to the requirements of the local fire marshal, NFPA, and Factory Mutual requirements. System shall be connected to SCADA and, through the SCADA System, simultaneously contact the fire department and annunciate in the operations control room when any alarm is activated.

**8.9 Hazardous and Environmental Locations**

Item	Parameter	Criteria	Notes
1	Classified Locations	Classify areas where flammable and combustible liquids, gases, and dusts are handled and stored for determining the minimum criteria for design and installation of electrical equipment to minimize the possibility of ignition. Use the latest edition of NFPA 820 and Article 500 of the latest	

		California Electrical Code for determining the appropriate classification.	
2	NFPA 820	Enclosed areas with exposure to raw wastewater, wastewater sludges, and corrosive or hazardous atmospheres will require that the lighting and electrical systems be of the appropriate hazard classification as defined in NFPA 820	
3	Electrical Code	Install electrical equipment in areas classified as hazardous in accordance with the requirements of Articles 501 and 502 of the California Electrical Code (latest edition)	
4	Drawing Notations	Identify classified locations in all process areas on the construction drawings	
5	Confined Spaces	The design shall minimize confined spaces to the extent possible.	
6	Environmental Locations	All electrical equipment shall be rated for the environment in the installed locations. Outdoor installations shall include equipment rated for wet locations. Identify all other indoor wet, damp, and dry locations on the drawings. All cabinetry installed outdoors or in damp or wet locations shall be fully enclosed, with no false fronts or HMI on outside doors. Only lights are allowed on top of cabinetry.	
7	Equipment Maintenance	Locate all electrically operated equipment requiring regular maintenance outside of arc-flash equipment boundaries	

**8.10 Electrical System Studies**

Item	Parameter	Criteria	Notes
1	Preliminary Short-Circuit Study	During the design phase, prepare a preliminary short-circuit study based on maximum available fault current provided by the utility. The results of this study will determine the minimum withstand and interrupting ratings of the electrical equipment.	

2	Final Short-Circuit Study	Prepare a final short-circuit study using the as installed feeder lengths. The results of this study will be used to complete the Coordination Study.	
3	Coordination Study	Prepare a Coordination Study showing required selective coordination between the installed overcurrent devices. The results of this study will be used to complete the Arc-Flash Study.	
4	Arc-Flash Study	Prepare an Arc-Flash Study to determine the incident energy levels, protection boundaries and personnel protective equipment	Any internal equipment requiring regular maintenance shall be out of arc flash area
5	Computer Program	Perform each electrical system study using software purchased from industry recognized organizations. Provide for submittal of the project specific software results for each electrical system study.	

**8.11 Electrical Testing**

Item	Parameter	Criteria	Notes
1	Manufacturer Requirements	Perform all field testing per manufacturer's instructions. Submit results of testing.	
2	ANSI/NETA	Provide electrical system testing as identified in Standard for Acceptance Testing Specifications ANSI/NETA ATS, Latest Edition. Submit results of testing.	
3	NFPA 110	Test generator and generator alarms per the requirements of Standard for Emergency and Standby Power System NFPA-110-2016. Submit results of testing.	
4	NFPA 72	Test fire alarm system per the requirements of National Fire Alarm and Signaling Code NFPA 72 (latest edition). Submit results of testing.	

**SECTION 9 INSTRUMENTATION AND CONTROLS**

**9.1 General**

The City is in the process of developing a SCADA system Master Plan (by others) to develop a standardized platform of PLCs, Operator Interface Terminals (OITs), SCADA software, and telemetry for the Water and Wastewater Divisions. The City intends to upgrade the remote sites with the new SCADA system (by others). It is assumed that all remote sites will communicate to a central location located at the existing WWTP site. From this location, communications will be relayed to the new WRF via fiber-optic. Water and Wastewater Division SCADA facilities including software and hardware will be located at the new WRF.

The SCADA Master Plan is scheduled for completion in June 2018. The new WRF SCADA system shall meet the following performance criteria, and be based upon and fully compatible with the recommendations in the SCADA Master Plan.

**9.2 System Description**

**9.2.1 Plant Architecture and Software**

This section describes the plant architecture, from the Wide Area Network (WAN), through the Plant Local Area Network (LAN) and the PLC network to the instrumentation networking.

Item	Parameter	Criteria	Notes
<b>City Wide Area Network</b>			
1	Communications Medium	<ul style="list-style-type: none"> <li>Data transmission to be via encrypted packet-switched network communications over the telecommunications provider network</li> <li>City will provide phone/internet service facilities and connection point at the front gate of the WRF site for connection to plant by DB.</li> </ul>	SCADA Master Plan is being developed by the City and will be available June 2018. Summary requirements of the Master Plan are included in this section.
2	Bandwidth	Sufficient bandwidth will be provided by City for ultimate plant capacity	
3	Transitional Operation and Commissioning	<ul style="list-style-type: none"> <li>Remote monitoring shall be integrated into the design as necessary for the DB to monitor the plant during the Transitional Operation period</li> <li>The DB design shall address any security concerns associated with additional communications link(s)</li> <li>Secure access procedures, protocols, and any operations communications access required for the Transitional Operation period and during commissioning shall require approval by the City</li> </ul>	For example, a View Client license on a nominated, dedicated machine in another operations facility may be required

		<ul style="list-style-type: none"> <li>Any licenses purchased for Transitional Operation period shall be transferred to the City when the Transitional Operation period is completed</li> </ul>	
<b>Plant Local Area Network</b>			
<b>1</b>	Server Hardware	<ul style="list-style-type: none"> <li>Two (2) local redundant servers with secondary network cards and Redundant Message Channel between the two servers installed in a server rack</li> <li>Hot standby required for backup server</li> <li>Server operational status to be rotated monthly</li> </ul>	Coordinate manufacturer with SCADA Master Plan
<b>2</b>	Human Machine Interface (HMI)	<ul style="list-style-type: none"> <li>HMI software shall be as defined in the SCADA Master Plan.</li> <li>Workstations with full control and monitoring of the WRF.</li> <li>Wireless access points throughout the plant to enable full coverage to the perimeter of the facility. Operators shall be able to access the full software HMI system via tablet computers.</li> <li>Tablet computers to be provided by the City. DB to install software and integrate tablet computers.</li> <li>Wireless network shall be a fully encrypted, secure network.</li> <li>Application Objects Servers running on primary and redundant server hardware.</li> </ul>	SCADA Master Plan is being developed by the City and will be available June 2018.
<b>3</b>	Historian	<ul style="list-style-type: none"> <li>Historian by manufacturer of HMI Software.</li> <li>License shall include sufficient tags for the entire plant and 20% spare at the end of the Transitional Operation period.</li> <li>Redundant arrangement, with a historian running on each of the two (2) local servers (main and backup). The primary historian will be a full historian and the backup will be a local (7-day) historian.</li> <li>Historian client shall run on each of the workstations.</li> </ul>	SCADA Master Plan is being developed by the City and will be available June 2018
<b>4</b>	Interface with PLC Network	A data access server and device communication drivers shall run on each of the primary and backup servers to communicate with the PLC network	SCADA Master Plan is being developed by the City and will be available June 2018

5	Dial-out Alarms	Alarm notification software shall be installed on both servers, only running on the active server	Coordinate software with SCADA Master Plan
6	Licensing	<ul style="list-style-type: none"> <li>• All licensing required for the local Historian, Alarming and SCADA system software shall be furnished by the DB</li> <li>• During the operations period the City shall cover the update costs for the local equipment as new versions of the software are released, however the DB Transitional Operation staff shall be responsible for coordinating and scheduling the installation of updates</li> <li>• The DB shall be responsible for costs associated with any upgrade required to the software licenses arising from incorrect specification, or changes initiated by the DB during the Transitional Operation period</li> <li>• At the end of the Transitional Operation period all software shall be fully updated to the latest version</li> </ul>	
7	Business Network	Provide access to City Business Network in all offices in Operations Building	<ul style="list-style-type: none"> <li>• City utilizes Cityworks at City Hall</li> <li>• Fiber-optic service to WRF site will be provided by others</li> </ul>
8	Computerized Maintenance Management System (CMMS) and Implementation	<ul style="list-style-type: none"> <li>• The DB is required to provide a CMMS to allow the City to manage its resources, work orders, delivery of services, and monthly costings for payment purposes to manage and report its operational, minor maintenance, and major maintenance works.</li> <li>• The DB shall be responsible for providing a CMMS system that can publish data and reports.</li> <li>• The DB shall be responsible for inputting all asset data into the CMMS.</li> <li>• The DB shall provide integration services focused on publishing of data from the SCADA system to the CMMS in batch or real time, to support the following:             <ul style="list-style-type: none"> <li>○ Asset or equipment statistics that would be captures in the CMMS to trigger preventative maintenance</li> </ul> </li> </ul>	Asset ID to align with SCADA and asset labeling/tagging program by DB

		<p>work, including: run hours, flows, pressure readings (or pressure differentials)</p> <ul style="list-style-type: none"> <li>○ Triggering of a work or service request when an alarm is identified in the process (identifying the type of alarm (e.g. high bearing temperature), SCADA location and SCADA tag)</li> <li>○ Triggering of a simple work order when a fault is identified in the process (identifying the type of fault (e.g. electrical failure), SCADA location and SCADA tag)</li> <li>○ Ability to assess data from the SCADA historian on an ad hoc basis to analyze equipment process data e.g. availability, pressures, flows, and temperatures.</li> </ul> <ul style="list-style-type: none"> <li>● Include all spare parts into the CMMS for the real-time tracking of Capitalized Assets spare parts until installed as fixed working assets.</li> </ul>	
<b>Programmable Logic Controller (PLC) Network</b>			
<b>1</b>	Communications	<ul style="list-style-type: none"> <li>● Ethernet shall be used for communications between PLCs and the SCADA server.</li> <li>● A self-healing Ethernet fiber optic ring shall be installed for Ethernet communications around the plant. Convergence time after failure of a single component or switch shall be adequate to prevent plant shutdown.</li> <li>● Ensure bandwidth is suitable for ultimate data requirements.</li> </ul>	
<b>2</b>	Locations of PLCs and Remote IO	<ul style="list-style-type: none"> <li>● Consolidate operation of multiple HMIs by providing operator access nodes located throughout the plant utilizing simple computer workstations</li> <li>● Remote IO and PLCs shall be installed in a manner that minimizes hardwire and field network cabling to instruments. Install in locations with a high density of I/O</li> </ul>	
<b>3</b>	Vendor Packages	<ul style="list-style-type: none"> <li>● Vendor PLCs for each package system shall communicate via Ethernet with a local area PLC</li> </ul>	DB shall ensure fully integrated and tested communications with all

		<ul style="list-style-type: none"> <li>All vendor system PLCs shall be of the same manufacturer per the SCADA Master Plan</li> </ul>	vendor systems. Coordinate with SCADA Master Plan.
4	Access to PLC information	All PLC information shall be accessible to the operator via the workstations in the control room, and at operator access nodes located throughout plant. This shall include vendor package system PLCs.	
<b>Field Bus Device Network</b>			
1	Field Connections	Hardwired, or network connected, to the nearest area MCC or Control Panel	
2	Requirement for Networking Devices	<ul style="list-style-type: none"> <li>Devices shall communicate via Ethernet or an appropriate field bus protocol, instead of analog and digital hard-wired I/O, unless otherwise approved</li> <li>Diagnostics and setup for networked field devices and instruments shall be available from the control room</li> </ul>	
3	Field Bus Compatibility	<ul style="list-style-type: none"> <li>If a field bus protocol is used this shall be limited to a single protocol at the plant</li> <li>Compatible with the PLC and field devices with a minimal number of converters</li> <li>Any device installed onto the Ethernet IP network shall be IEEE 802.3 compliant</li> </ul>	
4	Industry Standard	<ul style="list-style-type: none"> <li>Industry standard field bus protocol used extensively in the water industry in California</li> <li>Commissioning, configuration, operations support and replacement parts shall be readily available for the life of the equipment</li> </ul>	

**9.2.2 Redundancy, Reliability, and Spares**

Item	Parameter	Criteria	Notes
1	Requirement	The inventory of spares shall be maintained during the DB Transitional Operation period such that all spares noted in the original inventory are still available at the conclusion of the Transitional Operation period	

2	PLC	Online redundant PLCs may be required for critical processes	
3	PLC Uninstalled Spares	<ul style="list-style-type: none"> <li>• Provide spares sufficient to allow any of the following to be swapped out on failure:                             <ul style="list-style-type: none"> <li>○ PLC IO cards (hot-swapped)</li> <li>○ backplane</li> <li>○ CPU</li> <li>○ Power supply</li> </ul> </li> </ul>	
4	I/O Cards	Duty/standby unit I/O and equipment from separate process trains shall be connected to separate I/O cards	
5	I/O Capacity	Installed spare IO capacity of 25% in all PLCs, excluding vendor-supplied PLCs associated with specific equipment	
6	Program Backup	<ul style="list-style-type: none"> <li>• Programs and configuration backups shall be stored for fast upload into new modules or CPUs if they are replaced</li> <li>• During Transitional Operation period backup copies of the PLC programs will be made every 2 months, minimum</li> </ul>	
7	Server Redundancy	Provide redundant servers for HMI Application Servers, Device Integration Servers and Historian	Provide hot standby for SCADA server
8	Power Supply	PLC Hardware Racks shall have adequate power supplies installed to support a minimum of 25 percent I/O expansion	
9	Reliability	The network system shall be designed to be robust and reliable and shall meet latest Department of Homeland Security (DHS) Best Management Practices (BMPs)	Coordinate with SCADA Master Plan
10	Battery Backup & UPS	All control CPU's, PLC's and additional hardware necessary to keep the WRF functioning or automatically restart after a power loss shall be powered through UPS power circuit(s). This requirement includes the main operation control room computers and monitors.	

**9.3 Cyber Security**

Item	Parameter	Criteria	Notes
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1	Software	<ul style="list-style-type: none"> <li>• Provide Host Intrusion Detection (HID) and Malicious Intrusion detection software on all SCADA computers hosting operating systems, as well as computers identified as functioning only as Human Machine Interface (HMI) nodes</li> <li>• Configure the software to interface with the SCADA system software, such that abnormal conditions or intrusions are annunciated on SCADA operator PCs</li> <li>• Make all log files accessible on SCADA operator PCs</li> </ul>	Coordinate software with SCADA Master Plan
2	SCADA Login and Passwords	<ul style="list-style-type: none"> <li>• Require user specific operator login credentials for access at all computerized host access points</li> <li>• Provide prescribed automatic logout functionality (i.e. logout upon programmable period of inactivity)</li> <li>• Coordinate login credential protocol with Owner</li> <li>• Provide unique login identification for all users with programmable access rights</li> </ul>	Coordinate with SCADA Master Plan
3	Default Passwords	Delete all default login credentials, and store passwords in a secure location, once	
4	Secure Design	<ul style="list-style-type: none"> <li>• Apply network architecture design elements that effectively implement firewall appliances, data diodes, data encryption appliances, and data encrypted communications mediums to prevent network intrusion and unauthorized data access</li> <li>• Utilize industry best practice and design in accordance with ISA/IEC-62443 Industrial Network and System Security</li> <li>• Provide system operator notification indicating system and device status, with controls that permit manual and automatic blocking of network access points</li> <li>• Comply with latest Department of Homeland Security (DHS) Best Management Practices (BMPs)</li> </ul>	Coordinate with SCADA Master Plan

**9.4 Control System Hardware**

**9.4.1 Programmable Logic Controllers**

Item	Parameter	Criteria	Notes
1	Manufacturer	Area PLC Manufacturer shall be by same manufacturer	Coordinate with SCADA Master Plan
2	Operator Controls	All PLC programs shall be configured to allow modification to set points, pump sequencing, timers, etc. readily by Plant personnel	
3	Vendor Package Systems	<ul style="list-style-type: none"> <li>Vendor PLCs shall be the same type and manufacturer as the rest of the site.</li> <li>Vendor PLCs shall have processor program and vital configuration information backed up in a similar manner to the other site PLCs.</li> </ul>	
4	Latest Equipment	Each PLC shall utilize the latest CPU processors, communications modules and the latest I/O modules	
5	Programming Software	The PLCs shall be programmed using the latest version of software identified in the SCADA Master Plan	
6	Input/Output	<ul style="list-style-type: none"> <li>Input modules shall be 24 volts Direct Current (DC) modules only</li> <li>Output modules shall be relay modules used to trigger interposing relays</li> <li>Analog modules shall be 4-20 mA 24VDC isolated input and output channel design</li> <li>Analog input isolators shall be used</li> <li>Utilize RTD modules for RTD monitoring</li> <li>All analog inputs shall be scaled into specified engineering units at the PLC</li> <li>High and low alarm trip points shall be provided at 90% and 10% of span for all analog points</li> </ul>	
7	Transient Voltage Surge Suppression (TVSS)	All analog signals exiting buildings to or from devices or instruments shall have transient voltage surge suppression (TVSS) to reduce risk of lightning or power surge conditions	
8	Startup Procedure	<ul style="list-style-type: none"> <li>All PLCs shall be configured to have a startup procedure in the event that a PLC needs to be shut down and restarted</li> </ul>	

		<ul style="list-style-type: none"> <li>The startup program shall have either a fixed startup procedure or have retentive values</li> </ul>	
9	Programming	<ul style="list-style-type: none"> <li>Use object-oriented programming, based on function blocks for all typical equipment and functions, in accordance with IEC 61131-3</li> <li>Configured to allow modification using the programming and integration devices and software installed in the system</li> </ul>	

**9.4.2 Instrumentation and Field Devices**

Item	Parameter	Criteria	Notes
1	Level: Radar	<ul style="list-style-type: none"> <li>Manufacturer: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal</li> <li>Measurement Range: 0 % through 100 % level</li> <li>Measurement Resolution: 0.1 inch or less</li> <li>Measurement Accuracy: +/- 0.25 % of measured distance for distances greater than 3.3 feet</li> </ul>	Consider where foaming may be an issue, especially in cases where ultrasonic LT may not be suitable
2	Level: Ultrasonic	<ul style="list-style-type: none"> <li>Manufacturer: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal</li> <li>Measurement Range: 0 % through 100 % level</li> <li>Measurement Resolution: 0.1 inch or less</li> <li>Measurement Accuracy: +/- 0.25 % of measured distance for distances greater than 3.3 feet</li> </ul>	Non-contact level monitoring
3	Level: Pressure	<ul style="list-style-type: none"> <li>Manufacturers: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal</li> <li>Measurement Accuracy: +/- 0.1 % of range.</li> </ul>	Where non-contact level monitoring is not required and ease of access to the transmitter is desired e.g. water tanks
4	Level: Submersible Hydrostatic	<ul style="list-style-type: none"> <li>Manufacturers: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal</li> <li>Measurement Accuracy: +/- 0.25 %</li> </ul>	Covered basins
5	Level: Conductivity Probe	Manufacturers: Warrick or equal	
6	Level: Float Switch	<ul style="list-style-type: none"> <li>Manufacturers: Magnetrol, Kari, Flygt, or equal</li> <li>Mercury shall not be acceptable in float switch devices</li> </ul>	Level alarm detection. Not used for primary process control applications.
7	Pressure: Absolute, Diaphragm Type	<ul style="list-style-type: none"> <li>Manufacturers: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal.</li> <li>Accuracy: +/- 0.1 % of range</li> </ul>	Pipe pressure, pump discharge/suction, general process pressure

		<ul style="list-style-type: none"> <li>• Chemical Installation: Isolation Diaphragm Seal</li> <li>• Calibration/Testing: 3-way valve manifold for calibration/testing and tapping point for pressure gauge</li> </ul>	
8	Pressure: Differential	<ul style="list-style-type: none"> <li>• Manufacturers: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal</li> <li>• Accuracy: +/- 0.1 % of range</li> <li>• Chemical Installation: Isolation Diaphragm Seal</li> <li>• 3-way valve manifold for calibration/testing and tapping point for pressure gauge</li> </ul>	Pressure drop across filters, etc
9	Pressure Switch	Manufacturers: Ashcroft or equal.	
10	Flow: Electromagnetic, Full Pipe	<ul style="list-style-type: none"> <li>• Manufacturers: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal</li> <li>• Installation: Vault or above ground. Shall not be direct buried</li> <li>• Maintenance: Provide maintenance bypass for critical applications where a bypass or standby does not exist</li> <li>• Accuracy: Max 1 % of measured, for flow velocities between 10 % and 100 % of full scale</li> <li>• Grounding: Provide grounding rings on all installations</li> <li>• Repeatability: Max 0.25 % of full scale</li> </ul>	Primary and secondary process flows
11	Flow: Open Channel	<ul style="list-style-type: none"> <li>• Manufacturers: ABB, Siemens, Rosemount, Endress &amp; Hauser or equal</li> <li>• Accuracy: Product shall be chosen for maximum accuracy based on the dimensions and flow pattern of the channel</li> </ul>	
12	Flow: Air	Manufacturers: FCI Insertion, or equal	
13	Flow: Liquid Switch	Manufacturers (thermal flow switch): Dwyer, IFM, or equal	Pump no flow, sample line no flow, etc.
14	Flow: Air Switch	Manufacturers: FCI, or equal	Ventilation/extraction fan no flow, etc.
15	Limit: Switch	Manufacturer: Square D, Class 9007 Type C, or equal	
16	Temperature: Transmitter	Manufacturer: ABB, Siemens, Rosemount, Endress & Hauser or equal	Process temperature
17	Temperature: Switch	Manufacturer: Ashcroft, Allen Bradley, or equal	

18	Vibration: Transmitter	Manufacturer: Bently Nevada, or equal	Vibration monitoring for large pumps, motors, blowers, etc.
19	Online Analyzers: General	All online analyzers should be same manufacturer to extent possible	Hach is preferred
20	Residual Chlorine Analyzer	<ul style="list-style-type: none"> <li>Manufacturer: Hach, or equal</li> <li>Type: Free chlorine type</li> <li>Accuracy: Max + 0.5% of reading</li> <li>Repeatability: Max 0.2% of reading.</li> </ul>	
21	Turbidity Analyzer	<ul style="list-style-type: none"> <li>Manufacturer: Hach, or equal</li> <li>Accuracy: Max 2% of NTU reading</li> <li>Repeatability: Max 1% of NTU reading</li> </ul>	
22	TOC Analyzer	<ul style="list-style-type: none"> <li>Manufacturer: Hach or equal</li> <li>Accuracy/reliability: Max + 3% of reading or 0.3 mg C/L</li> <li>Compensation: Automatic compensation for atmospheric pressure changes</li> <li>Other Requirements: In addition to the above requirements, DB specification shall include requirements for self-testing and self-cleaning requirements, sample system and pumps, service frequency, cycle time, etc.</li> </ul>	Regulatory monitoring for plant product water
23	pH Analyzer	<ul style="list-style-type: none"> <li>Manufacturer: Hach, or equal</li> <li>Accuracy: Max + 0.5% of reading</li> <li>Repeatability: Max 0.2% of reading</li> </ul>	
24	Conductivity Analyzer	<ul style="list-style-type: none"> <li>Manufacturer: Hach, or equal</li> <li>Accuracy: Max 3% of reading</li> <li>Repeatability: Max 0.2% of reading</li> </ul>	
25	Exterior Lighting	All exterior lighting shall be SCADA controllable (on-off times)	

**9.4.3 Junction Boxes**

Item	Parameter	Criteria	Notes
1	Mounting	Shall be accessible from floor or platforms	
2	Doors	Doors shall be able to open without interference	
3	Pull Boxes	Provide above-grade pull boxes to the extent feasible	

**9.4.4 Local Control Panels**

Item	Parameter	Criteria	Notes
1	Location	<ul style="list-style-type: none"> <li>• Located close to the equipment</li> <li>• Local control switches and indicators only where required to address specific safety or maintenance concerns, otherwise all manual control shall be available via SCADA only (accessible locally via wireless tablet or operator node computers)</li> </ul>	
2	Local-Off-Remote Switch and Control Devices, Indicator Lights and Pushbuttons	<ul style="list-style-type: none"> <li>• Where required, LOR switch shall allow an operator to take manual control of a device or piece of equipment and operate it from that panel manually.</li> <li>• LCPs should be protected from the weather and/or be appropriate for the environment that they are operated in. All exterior enclosures shall be NEMA 4X.</li> </ul>	
3	Enclosures	<ul style="list-style-type: none"> <li>• All cabinetry located outdoors should be fully enclosed, no false fronts or HMI on outside doors.</li> <li>• Any internal equipment requiring regular maintenance shall be out of arc flash area.</li> </ul>	

**9.4.5 Instrument Mounting and Access**

Item	Parameter	Criteria	Notes
1	Housing	All outdoor process instruments shall be housed in IP68, NEMA 4X enclosures, or vendor requirements, whichever is more stringent	
2	Access	Access shall be considered in the selection of instrumentation. For example, tanks shall be measured using pressure at the base of the tank wherever practical, to eliminate the need for maintenance access to the top of tanks.	
3	Instrument Height	Instruments mounted at a working level between 3 and 5 feet above the operating floor	
4	Indicator Height	Process indicators and indicating transmitters mounted in a position that is readable by an operator without requiring the use of a ladder or the building of platforms	
5	Capillary Tube Installation	Temperature and pressure instruments capillary sensors shall be installed and clamped in tube racks. Excess capillary tube shall be	

		coiled and clamped to the mounting stand below the instrument.	
6	Grouping	Instruments located near each other shall be grouped to the maximum extent possible on a common mounting stand, wall bracket or instrument rack	
7	Dirt/Moisture Removal	Instrument impulse lines shall incorporate a blowdown leg or contamination accumulation leg for the removal of dirt and moisture	
8	Isolation Valves	<ul style="list-style-type: none"> <li>• Instrumentation taps to process lines shall be isolated by a root valve at the connection</li> <li>• Isolation valves for taps to process lines shall be 1/4-turn ball valves of materials compatible with the process fluid</li> <li>• Isolation valves for chemical service shall match isolation valves used in other portions of that chemical piping</li> </ul>	
9	Analyzers	<ul style="list-style-type: none"> <li>• Analyzers for primary process lines shall be installed in bypass assemblies external to the main process headers to allow routine maintenance</li> <li>• Analyzer assemblies shall include an isolation valve at each process connection tap, pressure regulator, manual sample valve, rotameter flow element with integral flow metering valve, check valve, miscellaneous piping and fittings</li> <li>• Generally, panel mounted and located in close proximity to the relevant sample point in a designated analyzer room (where possible) for improved access for common operational and maintenance activities on these units</li> <li>• The analyzer waste streams shall be discharged into a tundish and drained to a common collection point for either pumped return to a specified point along the process or drained to waste</li> <li>• All analyzers shall have zero flow detection and pressure and flow control valves on the inlet to ensure a constant rate of feed through the analyzer</li> <li>• Manual sample points shall be provided for sampling water at various points through the main process, typically with each change in process unit and upstream and</li> </ul>	

		<p>downstream of chemical dose points for manual checks of water quality and chemistry</p> <ul style="list-style-type: none"> <li>Assemblies for analyzer sensors which must remain wetted at all times (e.g., pH sensors) shall incorporate a vacuum breaker in the drain piping</li> <li>Sample drain shall be routed to a hub drain</li> </ul>	
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**9.5 Monitoring and Control**

**9.5.1 Control Philosophy**

Item	Parameter	Criteria	Notes
1	Vendor Packaged Systems	<ul style="list-style-type: none"> <li>Duplicate functionality of vendor HMI screens on the SCADA HMI, such that all parameters can be monitored and controlled except where safety concerns dictate local control only or where controls are related to maintenance tasks that can only be carried out locally</li> <li>Preliminary vendor supplied screens shall be provided to the City for approval before final screen development</li> <li>Vendor screens shall be developed in accordance with City SCADA standard</li> </ul>	SCADA Master Plan is being developed by the City and will be available June 2018
2	Level of Automation	<ul style="list-style-type: none"> <li>Fully automated such that, as far as practical, all day-to-day operational adjustments and reporting can be conducted from the SCADA screens</li> <li>Provide sufficient automation such that critical processes can be controlled remotely</li> </ul>	The plant will be staffed 40 hours per week and will be operated remotely on nights and weekends
3	Network Communications Alarms	Failure of Ethernet switches, PLCs, or any network communications shall be alarmed	
4	Local Control	<ul style="list-style-type: none"> <li>Local manual override shall be accomplished with a hard-wired switch except where personnel, equipment or the process are protected by equipment software interlocks that need to be maintained at all times.</li> <li>The system shall not be able to create a safety issue for the local operator. For example, do not allow remote operation if local manual override is selected.</li> </ul>	

		<ul style="list-style-type: none"> <li>Automatically indicate on SCADA screens when a device in automatic or local control.</li> </ul>	
5	Startup/Shutdown	<ul style="list-style-type: none"> <li>Shutdown of the Plant units shall be fully automated</li> <li>Recovery after a power outage or shutdown shall be mostly automatic, but shall require operator intervention in order for the process to begin, and may require additional operator intervention through the startup sequence as determined during the plant design in order to ensure safety and compliance requirements are met</li> </ul>	
6	Control Locations	<ul style="list-style-type: none"> <li>Allow the automatic and manual operation of the new system from the Operator Workstations and from wireless tablet devices</li> <li>Additional remote-control access may be incorporated during the Transitional Operation period, with limited secure control access, subject to approval by the City</li> </ul>	Coordinate operator privileges with login program
7	Downtime	Minimize the down time due to monitoring and control component failure	
8	Future	<ul style="list-style-type: none"> <li>Use the latest available technology to efficiently and responsibly ensure ease of expansion or modification in the future as requirements change</li> <li>Allow bandwidth in the control system infrastructure for future monitoring, control and diagnostics</li> </ul>	
9	Power Monitoring	Monitor and alarm standby power and alternative power (solar)	

**9.5.2 SCADA HMI**

Item	Parameter	Criteria	Notes
1	Scope and Type	Refer to section "Plant Architecture & Software"	
2	Integration	<ul style="list-style-type: none"> <li>Submit written control descriptions and sample control screens for City approval prior to integration</li> <li>Duplicate functionality of vendor HMI screens on the SCADA HMI, such that all parameters can be monitored and</li> </ul>	City shall attend factory performance testing

		controlled except where safety concerns dictate local control only or where controls are related to maintenance tasks that can only be carried out locally	
3	Standards	New HMI screens shall be developed following City SCADA standards	SCADA Master Plan is being developed by the City and will be available June 2018.
4	Analog Signal Monitoring	<ul style="list-style-type: none"> <li>All analog and discrete inputs to the PLC shall be displayed on the SCADA screens</li> <li>Real-time and historical trending for all analog inputs to the PLC shall be available from the local screens</li> </ul>	
5	Alarm Hierarchy	<ul style="list-style-type: none"> <li>A hierarchy of alarms shall be specified, which shall be adjustable by the operators.</li> <li>Each alarm shall be classified with a corresponding value representing criticality. The system shall present the alarms in different ways based on the criticality, per City SCADA standards.</li> </ul>	SCADA Master Plan is being developed by the City and will be available June 2018
6	Alarms	<ul style="list-style-type: none"> <li>All alarm functions shall be carried out at the PLC level.</li> <li>All alarms shall display on a common alarm screen.</li> <li>All alarms must be acknowledged by the Plant operating staff before they can be cleared.</li> <li>Some alarms may be cleared from SCADA. Others shall need local reset. Philosophy shall be based on safety and equipment protection.</li> <li>No alarm shall clear automatically until it has been properly acknowledged.</li> </ul>	
7	Alarm/Interlock Effect on MANUAL/AUTO Control	<ul style="list-style-type: none"> <li>Equipment safety interlocks specified to shutdown equipment "independent of control mode" or other like description shall be active regardless of PLC (MANUAL/AUTO) or field control station (ON, LOCAL/REMOTE) operating status</li> <li>Other software generated alarms shall remain active independent of operating mode, but only effect specified control actions in AUTO (PLC) and REMOTE (field) operating modes</li> </ul>	

<p><b>8</b></p>	<p>Equipment Monitoring</p>	<ul style="list-style-type: none"> <li>• For all equipment controlled by the PLC, the equipment shall receive and display applicable status and alarm signals, such as operating mode (LOCAL, REMOTE, etc.), operating status (ON, OPEN, CLOSED, etc.) and alarm status (FAIL, LOCKED-OUT, etc.).</li> <li>• For multistate devices where an actual digital input is not provided, provide PLC logic based on the status of the other inputs to develop the remaining status. For example, for LOR switches use the status of the LOCAL and REMOTE inputs to develop and display the status of the OFF position.</li> </ul>	
<p><b>9</b></p>	<p>SCADA AUTO/MANUAL</p>	<p>For all equipment controlled by the PLC, DB shall provide separate displays and poke points for selection of AUTO/MANUAL operating modes. In AUTO mode, the device shall be controlled by the PLC. In MANUAL mode, the device shall be operated by START/STOP, OPEN/CLOSE poke points, as appropriate. The workstation shall display the current operating status of each device and an alarm if the equipment fails to respond to a command signal after an operator adjustable time period.</p>	
<p><b>10</b></p>	<p>Proportional, Integral, Derivative (PID) Control</p>	<ul style="list-style-type: none"> <li>• PID control functions shall be performed at the PLC with controller faceplate displays at the workstation</li> <li>• Standard PID control operator interface shall be provided, including AUTO/MANUAL mode selection:             <ul style="list-style-type: none"> <li>○ In AUTO, the controller output shall be based on the PID control function at the PLC</li> <li>○ In MANUAL, the output of the controller shall be based on an operator set value</li> <li>○ Transfer between MANUAL and AUTO shall be bumpless</li> <li>○ At the workstation, DB shall provide AUTO/MANUAL selection poke points for PID controlled equipment, with graphic loading displays for manual control</li> </ul> </li> </ul>	

		<ul style="list-style-type: none"> <li>• PID loop tuning parameters shall be available via SCADA, but shall require engineering login to make adjustments</li> </ul>	
11	Enclosures	<ul style="list-style-type: none"> <li>• All cabinetry located outdoors should be fully enclosed, no false fronts or HMI on outside doors</li> <li>• Any internal equipment requiring regular maintenance shall be out of arc flash area</li> </ul>	

**9.5.3 Typical Monitoring and Control**

Item	Parameter	Criteria	Notes
1	All Analog Transmitters	Transmitter fail alarm	
2	Level Transmitters	<ul style="list-style-type: none"> <li>• Continuous level monitoring</li> <li>• PLC calculated high/low level alarm</li> <li>• PLC calculated high-high/low-low level alarm</li> </ul>	
3	Level Switches	<ul style="list-style-type: none"> <li>• High/ low level alarms</li> <li>• High-high/low-low level alarms</li> </ul>	
4	Flow Transmitters	<ul style="list-style-type: none"> <li>• Continuous flow monitoring</li> <li>• PLC calculated flow totals</li> <li>• PLC calculated high/low flow alarms</li> </ul>	
5	Flow Switches	Flow alarms where applicable	
6	Pressure Transmitters	<ul style="list-style-type: none"> <li>• Continuous pressure monitoring</li> <li>• PLC calculated high/low pressure alarms</li> </ul>	
7	Analyzers (pH/LEL/H2S/CL2/DO etc.)	<ul style="list-style-type: none"> <li>• Continuous signal monitoring</li> <li>• Dry contact high/low level alarm</li> <li>• PLC calculated high-high/low-low level alarm</li> </ul>	
8	Temperature Transmitters	<ul style="list-style-type: none"> <li>• Continuous temperature indication</li> <li>• PLC calculated high/low temperature alarm</li> </ul>	
9	Temperature Switches	<ul style="list-style-type: none"> <li>• High temperature alarm</li> <li>• Low temperature alarm</li> </ul>	
10	Open/Close Valve or Gate	<ul style="list-style-type: none"> <li>• Valve open/close command</li> <li>• Valve open/close position indication</li> <li>• Valve in Auto or Remote indication</li> <li>• Valve fault indication</li> </ul>	
11	Modulating Flow Control Valve	<ul style="list-style-type: none"> <li>• Valve position set point</li> <li>• Valve position feedback</li> <li>• Valve open/close position indication if applicable</li> <li>• Valve fault indication</li> </ul>	
12	Constant Speed Drive	<ul style="list-style-type: none"> <li>• Drive start/stop command</li> <li>• Drive running indication</li> </ul>	

		<ul style="list-style-type: none"> <li>• Drive in auto or remote indication</li> <li>• Drive faulted: General Fault or Multiple Fault Indicators, etc.</li> <li>• PLC calculated drive run time</li> <li>• Failure to respond to command or change of status when not commanded</li> <li>• Diagnostics, DB to confirm specific parameters</li> </ul>	
13	Variable Speed Drive	<ul style="list-style-type: none"> <li>• VFD start/stop command</li> <li>• VFD running indication</li> <li>• VFD in auto indication</li> <li>• VFD faulted</li> <li>• VFD speed set point</li> <li>• VFD speed feedback</li> <li>• PLC calculated VFD run time</li> <li>• Diagnostics, DB to confirm specific parameters</li> </ul>	
14	Chemical Dosing/Feed System	<ul style="list-style-type: none"> <li>• Chemical dosing/feed systems</li> <li>• Chemical volume/quantity used calculated values</li> </ul>	

**9.5.4 Labeling**

Item	Parameter	Criteria	Notes
1	Equipment Labeling	Submit comprehensive labeling schedule indicating tag information, type, material of construction, manufacturer, and other critical information	



**SECTION 10 MECHANICAL HVAC CRITERIA**

**10.1 General**

The following section includes the performance criteria for the mechanical HVAC systems for the WRF. Coordinate these requirements with Section 9.

**10.1.1 Code Requirements**

All work shall conform to the requirements of the latest edition of the following codes:

Item	Parameter	Criteria	Notes
1	Building	California Building Code (CBC)	
2	Mechanical	California Mechanical Code (CMC)	
3	Energy	California Energy Code (CEnC)	
4	Fire	California Fire Code (CFC)	
5	Ventilation	NFPA 820	

**10.1.2 Referenced Standards**

All work shall comply with the latest edition of the referenced standards from the following organizations:

Item	Parameter	Criteria	Notes
1	Organizations	<ul style="list-style-type: none"> <li>• Air Conditioning, Heating, and Refrigeration Institute (AHRI)</li> <li>• Air Moving and Conditioning Association (AMCA)</li> <li>• American National Standards Institute (ANSI)</li> <li>• American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (ASHRAE)</li> <li>• American Society of Mechanical Engineers (ASME)</li> <li>• American Society for Testing Materials (ASTM)</li> <li>• American Welding Society (AWS)</li> <li>• Associated Air Balance Council (AABC)</li> <li>• Manufacturer’s Standardization Society (MSS)</li> <li>• National Electrical Manufacturers Association (NEMA).</li> <li>• National Fire Protection Association (NFPA)</li> </ul>	

		<ul style="list-style-type: none"> <li>• Sheet Metal and Air Conditioning Contractors National Association (SMACNA)</li> <li>• Underwriters Laboratories, Inc. (UL)</li> </ul>	
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**10.1.3 Installation Requirements**

Conform to the manufacturers' installation requirements for materials and equipment furnished.

**10.1.4 Design Criteria - Temperature**

Item	Parameter	Criteria	Notes
1	Outdoor Design Temperatures	<ul style="list-style-type: none"> <li>• Buildings containing WRF processes or equipment:                             <ul style="list-style-type: none"> <li>○ Summer: 88/65 degrees F dry bulb/wet bulb</li> <li>○ Winter: 31 degrees F</li> </ul> </li> <li>• Operations Building and Maintenance Building:                             <ul style="list-style-type: none"> <li>○ Summer: 82/64 degrees F dry bulb/wet bulb</li> <li>○ Winter: 31 degrees F</li> </ul> </li> <li>• Electrical building, electrical rooms, and server room:                             <ul style="list-style-type: none"> <li>○ Summer - 95/63 degrees F dry bulb/wet bulb</li> <li>○ Winter - 31 degrees F</li> </ul> </li> </ul>	Confirm requirements and conform to ASHRAE standards
2	Indoor Design Temperatures	<ul style="list-style-type: none"> <li>• Buildings containing WRF processes or equipment:                             <ul style="list-style-type: none"> <li>○ Cooling: design outdoor temperature plus 10 degrees F</li> </ul> </li> <li>• Operations Building and Maintenance Building (non-shop and storage areas):                             <ul style="list-style-type: none"> <li>○ Cooling: 70 to 76 degrees F and 20 to 60% relative humidity</li> <li>○ Heating: 65 to 68 degrees F and 20 to 60% relative humidity</li> </ul> </li> <li>• Maintenance Building Shop and Storage Area:                             <ul style="list-style-type: none"> <li>○ 60 degrees F minimum</li> </ul> </li> <li>• Electrical building and electrical rooms:                             <ul style="list-style-type: none"> <li>○ 85 degrees F maximum</li> </ul> </li> <li>• Server Room:                             <ul style="list-style-type: none"> <li>○ 68 to 74 degrees F dry bulb and 40 to 60% relative humidity</li> </ul> </li> </ul>	

**10.1.5 Design Criteria - Ventilation**

Item	Parameter	Criteria	Notes
1	Buildings Containing WRF Processes or Equipment	Supply air and exhaust air ventilation in accordance with NFPA 820, latest edition	
2	Operations Building and Maintenance Building	<ul style="list-style-type: none"> <li>Outdoor air ventilation in accordance with the 2016 CEnC and ASHRAE 62</li> <li>Exhaust air ventilation in accordance with 2016 CMC and ASHRAE 62, minimum 10 air changes per hour</li> <li>Provide a minimum of 6 air changes per hour for tanks, channels, and/or within process enclosures</li> </ul>	
3	Electrical Building, Electrical Rooms, and Server Room	Outdoor air ventilation sufficient to maintain the spaces at a positive differential pressure of 0.1 inches water column relative to ambient	

**10.1.6 Configuration of Systems**

Item	Parameter	Criteria	Notes
1	Buildings Containing WRF Processes or Equipment	HVAC systems serving buildings containing WRF processes or equipment shall provide sufficient ventilation to achieve the lowest electrical hazardous location classification indicated in NFPA 820. Centrifugal fans and air cleaning devices should be used for ventilation. Multiple fans shall be employed with one supply fan and one exhaust fan on standby to become operations if a supply fan or exhaust fan fails.	
2	Operations Building and Maintenance Building: Non-Shop and Storage Areas	Rooftop package air conditioning (AC) units, power ventilators, and air cleaning devices should be used for HVAC systems	Minimum four AC units
3	Maintenance Building Shop and Storage Area: 60 degrees F minimum	Power ventilators and air cleaning devices should be used	
4	Electrical Building and Electrical Rooms	Split system air conditioner, (100% redundant), power ventilators, and air	

		cleaning devices should be used for HVAC systems	
5	Server Room	Split system air conditioner, (100% redundant), power ventilator, and air cleaning devices should be used for HVAC system	

**10.2 Basic Mechanical HVAC Work**

Item	Parameter	Criteria	Notes
1	Listing	All equipment, devices, and control panels furnished as part of this work shall be listed, labeled, or certified for the intended use by a Nationally Recognized Testing Laboratory as recognized by the United States Department of Labor, Occupational Safety, and Health Administration	
2	Motors	All motors shall conform to NEMA Standards MG 1	
3	Supports and Anchors	Pipe supports and anchors shall conform to the requirements of MSS SP-58, SP-69, and SP-89	
4	Identification	All piping, valves, ductwork, and equipment shall be label in accordance with ANSI A13.1	
5	Insulation	Insulate refrigerant piping, condensate drain piping within buildings, and supply and return ductwork	
6	Access	Provide permanent access via ladders or stairs for all equipment	

**10.3 Fuel Storage for Emergency Generator**

Item	Parameter	Criteria	Notes
1	Storage Tank	Provide propane backup tank and dual fuel generator with sufficient volume to provide full plant power for minimum 12 hours	

**10.4 Mechanical HVAC Equipment**

Item	Parameter	Criteria	Notes
1	Rooftop Package Air Conditioning Units	<p>Unit shall be outdoor type, rooftop mounted, electrically controlled, cooling unit utilizing a hermetic scroll compressor and gas heating. Unit shall use R-410A refrigerant. Unit shall meet ASHRAE 90.1 minimum efficiency requirements, be rated in accordance with AHRI Standards 210/240 and 340/360, be designed to conform to ASHRAE 15, 2001, and be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed. Roof curb shall be designed to conform to NRCA Standards. Unit shall be designed in accordance with UL Standard 1995, including tested to withstand rain. High efficient motors shall meet section 313 of the Energy Independence and Security Act of 2007 (EISA 2007). Interior cabinet surfaces of evaporator compartment shall be insulated with a minimum 1/2 inch thick, minimum 1-1/2 lb. density, flexible fiberglass insulation. Controls shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24V transformer side. Safeties shall include compressor over-temperature and over-current and low-pressure switch, and high-pressure switch. Unit shall use 2-inch disposable filter. Unit shall be furnished with enthalpy economizer, barometric relief dampers, and hinged access panels.</p>	
2	Split System Air Conditioning Units	<p>Indoor Unit: Unit includes a chassis, coil, insulation, drain pan assembly, fan, and motor. Unit shall be horizontal, ductless, indoor system with field-installed condensate pump, automatic fan speed control, auto restart after power outage, self-check function, and integral diagnostics. Cabinet is heavy gauge with formed edges and access panels. Cooling coils shall be copper tube with aluminum fins and copper tube connections. All coils shall be burst tested at 450 psig air pressure and leak tested at 100 psig air</p>	

		<p>pressure under water. The maximum working pressure shall be 300 psig. Fan wheel shall be centrifugal forward curved double width. Fan wheel and housing shall be formed material and corrosion resistant. Fan speed control is automatic. Motors shall be brushless, permanently lubricated, have characteristics as scheduled, and be furnished with integral thermal overload protection. Motors shall be factory run tested and assembled prior to shipping. Controls shall be wall-mounted wireless. Outdoor Unit includes chassis, coil, compressor, refrigerant piping, condenser fan and motor, and controls. Cabinet is heavy gauge galvanized steel with formed edges and access openings for piping and conduit. Compressor is twin rotor with inverter drive. Refrigerant type is R410A. Piping connections are flared. Controls include automatic condenser fan speed control, auto restart after power outage, self-check function, integrated diagnostics, anti-recycle timer, defrost, and low-ambient lock out.</p>	
3	Centrifugal Fans	<p>Fans for ventilation systems serving hazardous areas classified under provisions of Article 500 of NFPA 70 shall be fabricated in accordance with AMCA Type A or Type B spark-resistant construction. Provide centrifugal vent sets. Fan shall be manufactured in an ISO 9001 certified facility. Fan shall be listed by Underwriters Laboratories in conformance with UL 705. Fan shall bear the AMCA Certified Ratings Seal for Sound and Air Performance. The housing shall be able to be rotated in the field to eight discharge positions. Construction shall be bolted and welded utilizing corrosion resistant fasteners. Bearing support shall be 10-gauge welded steel. Fan shall include a weather cover with latched side access inspection ports for the motor compartment. Provide an engrave nameplate indicating fan performance and model number.</p>	
4	Power and Gravity Ventilators	<p>Spun aluminum housing, roof-mounted, belt-driven, upblast centrifugal exhaust</p>	

		ventilator. Fan shall be manufactured in an ISO 9001 certified facility. Fan shall be listed by Underwriters Laboratories in conformance with UL 705. Fan shall bear the AMCA Certified Ratings Seal for Sound and Air Performance. Gravity ventilator shall have spun aluminum housing similar to exhaust ventilator.	
5	Air Cleaning Devices	Factory fabricated, replaceable, dry, pleated air filters in the, minimum 2" thick, minimum MERV 8 in accordance with ASHRAE Test Standard 52.2-2007. Filters shall be listed as UL 900. Factory-assembled side servicing housings with flanges for insertion into ductwork. Construct of 16-gauge galvanized steel. Provide access doors with continuous gasketing.	

**10.5 Ductwork and Appurtenances**

Item	Parameter	Criteria	Notes
1	Ductwork	<ul style="list-style-type: none"> <li>Construct rigid ducts using ASTM A653M-2003 G90 sheet metal in accordance with recommendations of the ASHRAE Guide, SMACNA 1985 HVAC Duct Construction Standards Metal and Flexible, NFPA 90A, and the California Mechanical Code. Flexible ducts with an exterior reinforced vapor barrier, minimum R = 8.0 insulation, encapsulated steel wire helix, and impervious, smooth, non-perforated interior polymer liner. The maximum length shall be seven feet. Flexible ducts shall be limited to use at the terminal ends of the duct system only. Flexible ducts shall conform to UL-181.</li> <li>Ducts for odor control ventilation shall be FRP.</li> </ul>	
2	Ductwork Accessories	Round ducts and rectangular ducts with maximum dimension 16" or smaller shall have butterfly type balancing damper with quadrant locks, fabricated according to SMACNA standards. Rectangular ducts with maximum dimension greater than or equal to 17" shall have opposed blade configuration with quadrant locks. Provide	

		flexible connections and sunshields (if outdoor) for each duct connection to a piece of equipment.	
3	Air Outlets and Inlets	Construct with steel backpans and removable perforated steel faces, and compatible with the ceiling system in which installed. Diffusers shall be equipped with four cores consisting of pattern control vanes that individually pivot to adjust air pattern from horizontal to vertical. The air pattern can be adjusted further by rotating the cores in the field to provide a 1-way, 2-way, 3-way, or 4-way air pattern. Provide volume dampers in the necks of the devices.	Provide plastic materials in corrosive areas

**10.6 Mechanical Controls and Monitoring**

Item	Parameter	Criteria	Notes
1	Controls	Controls shall be based on digital equipment and shall monitor and control space temperature and/or space humidity to maintain indoor temperatures within the ranges established in the design criteria.	
2	Setpoints	Setpoints shall be adjustable by occupants but shall be limited within a range determined by the City	
3	Monitoring	All continuously operating ventilation systems serving WRF processes shall include flow detector devices connected to alarm signaling systems to indicate inadequate ventilation and ventilation system failure. The flow detection devices shall monitor both the supply and exhaust fans. Distinct local and remote alarms shall be provided in accordance with NFPA 820.	

**10.7 Startup, Commissioning, and Testing**

Item	Parameter	Criteria	Notes
1	Startup	Startup for all equipment addressed by this section is required. Startup shall be performed by factory trained technicians and shall address all requirements in the	

		manufacturers' installation and startup documentation.	
2	Commissioning	Commissioning is required for all HVAC systems addressed by this section. Requirements for system commissioning shall be based on the guidelines established by ASHRAE 202-2013.	
3	Testing	Testing required by codes, referenced standards, and installation instructions shall be performed in accordance with those requirements	
4	Testing, Adjusting, and Balancing	Testing, adjusting, and balancing of all equipment and HVAC systems addressed by this section is required. Work shall be in accordance with the 7th Edition of the AABC National Standards for Total System Balance and the requirements of ASHRAE Standard 111-2008 (RA 2017).	



**SECTION 11 DEMOLITION AND REMOVAL OF EXISTING WWTP**

**11.1 General**

The DB shall be responsible for the sequencing and coordination of the shutdown and demolition of the existing WWTP. The DB shall conduct a planning meeting with the City of Morro Bay and the Cayucos Sanitary District (CSD) and then prepare and submit a shutdown and demolition plan to the City of Morro Bay for review and approval. The existing 5.7-acre WWTP must remain in full operation until the new WRF is in full operation and the collection system is no longer delivering flow to the WWTP from the City of Morro Bay or the CSD. CSD is currently pursuing a new wastewater treatment facility. It is assumed the self-contained electronic and household hazardous waste collection facility operated by the San Luis Obispo Integrated Waste Management Association (IWMA) will be relocated by the IWMA prior to the demolition of the WWTP. The City of Morro Bay has completed lead and asbestos analyses of the existing WWTP. The lead testing report is included in Appendix K of this document. The asbestos testing report is included in Appendix L of this document. Additional information regarding existing WWTP facilities is available in the City’s Draft Water Reclamation Facility Master Plan available on the project website (morrobaywrf.com).

**11.2 Decommissioning and Demolition**

Once influent has ceased in the liquid treatment train, City plant operators will take processes out of service. DB will empty and clean the existing basins and process units. Liquid from the treatment train may be conveyed to the new WRF. After the remaining sludge is processed the DB shall empty and clean the digesters and sludge drying beds. Waste from the digester shall be screened to ¼-inch, dewatered, and disposed of at an appropriate facility. Filtrate from dewatering may be transferred to the WRF.

The decommissioning of the existing WWTP will include the shutdown, demolition and complete removal of all WWTP facilities. Only piping below 6 feet in depth may remain. The DB may abandon in place piping deeper than 6 feet and fill it with a low strength cement slurry. After demolition and removal, the DB shall backfill, compact and regrade the site leaving the site cleared, clean and available for other purposes. The DB’s regrading shall fit the basic drainage pattern of the surrounding facility and be surfaced with a 1” layer of gravel.

The following table lists all the structures to be demolished and removed by the DB from the existing WWTP site. The outfall air release structure, outfall piping, and related junction box(es) used for the WRF and the new CSD treatment facility are expected to remain.

<b>Existing WWTP Structures to be Demolished</b>	
Administration Building	Chlorine Building/Storage Room
Primary Sedimentation Tanks	Chlorine Contact Tank
Biofilter Pump Station & Motor Control Center Building	Digesters
Biofilters	Maintenance Building
Secondary Sedimentation Tank	Hydropneumatic Tank
Secondary MCC Building	Waste Gas Burner
Sludge Drying Beds	Collection Shed

**11.3 Disposal**

The DB will either salvage or dispose of all materials in appropriately classed landfills. Demolition rubble will be disposed of at a nearby Class 3 landfill , while hazardous waste will be transported to a Class 1 or Class 2 landfill.



**SECTION 12 FACILITY STARTUP AND COMMISSIONING AND TRANSFER OF OPERATIONS****12.1 General**

Equipment testing and startup are required for satisfactory completion of the construction phase of the contract and therefore shall be completed prior to operation of the facility.

**12.2 Definitions**

For purposes of facility startup and commissioning, the following definitions shall apply:

- *Manufacturer's Representative*: Employee of manufacturer who is factory trained and knowledgeable in the technical aspects of the products and systems.
- *Functional Testing*: Tests necessary to demonstrate that the installed equipment and systems function as specified and operate in the manner intended.
- *Startup Period*: Startup of any portion of the entire facility will be considered complete when the facility or designated portion has properly operated 2 weeks without interruption. This period is in addition to any specified functional or performance testing and training.
- *Acceptance Testing*: The operation of the entire facility to demonstrate the successful operation and integration of all the elements including ancillary systems.
- *Performance and Operation Testing*: The operation of the entire facility to demonstrate the facility's ability to meet performance requirements of the RFP, design documents generated by the DB, and finally to verify the performance guarantees submitted by the DB.

**12.3 Facility Testing Plan**

The DB shall organize and conduct a meeting to coordinate the development of the factory acceptance tests, manufacturers installation certification, functional tests, performance testing, and 6-month operational verification plan. The meeting must have participation from manufacturers' representatives, the City, and DB. After the planning meeting but no later than 3 months prior to the acceptance testing, the DB shall submit a draft Facility Testing Plan to the City. The Facility Testing Plan shall include the Functional Testing plan, the Acceptance Testing plan, and the Performance and Operation Testing plan. All permit-required confirmation testing shall be done by a third-party ELAP certified lab, to be paid for by the DB during the acceptance testing period. The DB shall submit the results of each testing program.

All testing plans and protocols shall define the procedures to be used, methods to verify compliance with the performance criteria, and include the following minimum components:

- The specific measurements that will be made, including identification of permanent and temporary measurement devices
- Calibration procedures for measuring devices
- Redundancy of any measuring device to demonstrate accuracy
- Organization of the testing team, including responsibilities
- The testing program and schedule
- Operations and maintenance schedule during the test period
- Specific detailed sampling protocols to be used in conducting the acceptance test

- Include testing plan to conduct all necessary facility and system performance tests to meet DDW and Title 22 testing and reporting requirements for GRRP's using subsurface application
- The quantities of influent that will be used and selected equipment that will demonstrate the capability of equipment to handle the design flows

#### **12.4 Functional Testing**

- The DB shall furnish the services of a manufacturer's representative for each piece of major equipment, to inspect, to check, and to adjust, if necessary, the equipment installation. In each case, the DB shall arrange to have the manufacturer's representative revisit the project site as often as necessary until any issues have been corrected, and the equipment installation and operation is acceptable to the manufacturer's representative. The DB shall conduct, with the assistance of the manufacturer's representative, startup and field tests on equipment, systems, and subsystems.
- Functional testing shall be required for all mechanically or electrically operated equipment and process systems, including but not limited to mechanical, electrical, instrumentation, and controls. Functional testing shall also be required for all control equipment and meters. Testing shall include checking for proper rotation, alignment, speed excessive vibration, quiet operation, and full capability of all other required functions. The DB shall perform initial equipment and system adjustments and calibrations in the presence and with the assistance of the manufacturer's representative.
- The DB shall furnish the manufacturer's representative a written report certifying that the equipment has been properly installed and lubricated, is in accurate alignment, is free from any undue stress imposed by connecting piping or anchor bolts, and has been operated satisfactorily under full-load conditions.
- The DB shall schedule all manufacturer certification testing. The manufacturer's representative and the operating personnel and the owner's representative will witness manufacturer certification testing.

#### **12.5 Acceptance Testing**

- The acceptance test shall demonstrate the ability of the WRF to meet contract requirements.
- After all certification, functional and equipment tests have been performed and all equipment has successfully met startup requirements, the facility shall be operated as a complete system for two weeks prior to entering the Transitional Operation Phase.
- The acceptance test shall not be conducted until the acceptance test plan is approved by the City and Regulatory agencies, and authorization is received from the City. The acceptance test plan shall describe the provisions for disposal of non-compliant effluent that may be generated during the execution of the acceptance test.
- All labor (excluding certified operators), materials, and equipment necessary to perform the acceptance test shall be provided by the DB. Once the facility is treating wastewater, the City will provide certified operators. During the acceptance test, the DB will operate, and be responsible for all costs for all systems under normal operating conditions, including but not limited to, routine equipment operation, maintenance services, and chemicals. Electricity will be paid by the City.
- The acceptance test shall also demonstrate the WRF's ability to operate on the emergency generator, in the event of total plant power failure, including automatic transfer to the emergency

generator. The system should demonstrate that the quality of effluent, and capability to process the influent is not diminished due to an automatic transfer to the emergency generator.

- The acceptance test should demonstrate the UPS for power and controls performing without loss of data and control.
- The acceptance test shall demonstrate manual shutdown, manual start-up, automatic shutdown, automatic start-up, and automatic transfer of equipment that requires any or all of those functions, without interruption of flow, or quality of effluent.
- Acceptance test shall include all necessary facility and system performance tests to meet DDW and Title 22 testing and reporting requirements for GRRP's using subsurface application.
- The City operational staff and owner's representative will witness acceptance testing. The City will provide at least one operator for eight hours per day, during the acceptance test period.
- The DB shall provide reports in accordance with the requirements of the regulatory agencies, with certification of the results demonstrating performance, all relevant data measured and recorded during the testing, and any calculations that were used in determining test results, and any certifications from equipment manufacturers that equipment was operated according to manufacturer's recommendations, any other available documentation reasonably requested by the City or regulatory agencies.
- DB shall provide initial oil fill and first oil change on all equipment as required by manufacturers recommendations prior to the facility transfer to City for Performance and Operation Testing.

## **12.6 Performance and Operation Testing**

- After all startup, certification, functional, and acceptance testing is complete the performance and operational testing of the WRF as a whole system will commence. The purpose of the testing is to demonstrate the ability of the equipment and fully integrated system to meet the performance requirements as identified in the RFP, meet manufacturers specifications, design documents generated by the DB, and finally to verify the performance guarantees submitted by the DB.
- The performance and operations testing will be conducted by the City at the direction of the DBs representative in accordance with the approved performance and operations plan.
- All labor, materials, and equipment necessary for the performance and operation testing shall be provided by the City. During performance and operation testing the City is responsible for all costs for all systems under normal operating conditions, including but not limited to routine equipment operation, maintenance services, and chemical and electric usage. During performance and operation testing DB will be responsible for all warranty repairs. DB is responsible for any costs associated with permit violations.
- The Performance and Operational Testing period shall be 6 months in duration. The City reserves the right to extend the performance and operation testing period upon a failure to reach the performance guarantees.



**SECTION 13 SECURITY****13.1 General**

Provide a security system that gives the City the ability to remotely monitor key areas within the site and notify the City of any intrusions. The completed security system shall be integrated with the City's SCADA system.

Item	Parameter	Criteria	Notes
1	Construction/Work Area	Make adequate provision for the protection of the work area against fire, theft, and vandalism, and for the protection of the public against exposure to injury	
2	General Design Principles	<ul style="list-style-type: none"> <li>Discrete security measures shall be planned into the facility</li> <li>Site design shall address security issues related to access control; electronic protection; and protection against man-made and natural disasters</li> <li>Security measures shall be consistent with Department of Homeland Security (DHS) Best Management Practices (BMPs)</li> </ul>	
3	Security Measures	Intrusion detection, access control and CCTV video surveillance system security zoning shall provide a defensible perimeter and provide visual surveillance and defensible perimeter space to deter trespassing and vandalism	Do not monitor perimeter fence integrity i.e. cut wire or short circuit detection
4	Intrusion Detection System (IDS)	<ul style="list-style-type: none"> <li>An IDS shall be provided. IDS field devices shall be connected to alarm panel. Alarm signals shall be relayed and integrated with SCADA system.</li> <li>Provide IDS devices on all exterior doors on Operations and Maintenance Buildings.</li> <li>Provide motion detectors on interior of Operations and Maintenance Buildings.</li> <li>Provide IDS with capability of assigning unique staff identification numbers and logging time and individual staff input to IDS system. Provide ability to activate and inactivate unique staff IDs.</li> </ul>	
5	Access Control System (ACS)	<ul style="list-style-type: none"> <li>An ACS at the gate to the non-public portions of the plant shall be comprised of an electrically operated vehicle gate, the gate shall be operated by</li> </ul>	Fire Department access and keypad entry station shall be

		<p>contactless badges, and hardwired gate opener switch at the reception desk. Exiting vehicles shall trigger the gate to open automatically.</p> <ul style="list-style-type: none"> <li>• Automatic Security Gates shall be equipped with pre-emptive equipment. This shall satisfy the following conditions:</li> <li>• During power loss, the device shall be capable of manual operation to unlock and open the gates.</li> <li>• Confirm device is suitable with local Fire Department.</li> </ul>	available at the gate for entry.
6	Closed Circuit Television (CCTV)	<ul style="list-style-type: none"> <li>• CCTV security cameras for main front gate access and site security purposes.</li> <li>• The system shall include weatherproof high-resolution IP or panoramic video cameras.</li> <li>• The video surveillance system shall provide recording capacity of 30 days.</li> <li>• The system shall have night vision capability and utilize video motion detection for alarm recording. Video motion detection events shall be recorded at full speed and camera resolution.</li> <li>• The video surveillance system shall be available through the SCADA network.</li> <li>• Provide video surveillance at critical points throughout the plant.</li> </ul>	
7	Battery Backup & UPS	<ul style="list-style-type: none"> <li>• All electronic security systems shall be powered from an UPS/generator supported power circuit(s)</li> <li>• IDS and ACS systems shall have power supplies with minimum of 8 hours of battery power backup</li> <li>• Video surveillance system shall be supported with UPS system with a minimum of 2-hour run time</li> </ul>	
8	Supervisory Control and Data Acquisition (SCADA) Integration	<ul style="list-style-type: none"> <li>• The SCADA system shall incorporate intrusion detection alarms from following electronic security systems: <ul style="list-style-type: none"> <li>○ Main Gate</li> <li>○ Operations Building</li> <li>○ Maintenance Building</li> <li>○ Space Motion Detection</li> </ul> </li> </ul>	
9	Main Access Gate	Main gate to the plant shall be manually operated and locked with a padlock.	

		Coordinate manual access and entry with Emergency Services.	
<b>10</b>	Exterior Lighting	All exterior lighting shall be SCADA controllable (on-off times)	



**Works Cited**

(Wallace Group, May 2006): Sewer Collection System Master Plan Update, Wallace Group, May 2006.

(Carollo, September 2007) Wastewater Treatment Plant Facility Master Plan Report, Carollo Engineers, P.C., September 4, 2007.

(Carollo, August 2009) Morro Bay/Cayucos Sanitary District Wastewater Treatment Plant Facility Master Plan – Amendment No. 1, Carollo Engineers, P.C., August 6, 2009.

(MWH, July 2010) Wastewater Treatment Plant Upgrade Project Facility Master Plan Draft Amendment No. 2, MWH, July 2010.

(V&A, September 2017) 2017 Sewer Flow Monitoring and Inflow/Infiltration Study, V&A Consulting Engineers, September 2017.

(MKN, April 2017) Draft Master Water Reclamation Plan, Michael K. Nunley and Associates, Inc., April 2017.

(Black & Veatch, November 2016) Draft Water Reclamation Facility Master Plan Black & Veatch, November 9, 2016.

(Yeh, November 2017) Preliminary Geotechnical Baseline Report Water Reclamation Facility South Bay Boulevard Site APN 073-101-017 Morro Bay, California, Yeh and Associates, Inc., November 28, 2017.



# Appendix A: Lift Station and Offsite Piping Design Contract



## CITY OF MORRO BAY

### AGREEMENT FOR CONSULTANT SERVICES

THIS AGREEMENT is made, by and between, the City of Morro Bay, a municipal corporation (“City”) and Water Works Engineers, LLC, an Arizona Limited Liability Company (“Consultant”). In consideration of the mutual covenants and conditions set forth herein the parties agree as follows:

1. TERM

This Agreement shall commence on November 15, 2017, and shall remain and continue in effect until tasks described herein are completed, but in no event later than March 30, 2022, unless sooner terminated pursuant to the provisions of this Agreement.

2. SERVICES

Consultant shall perform the tasks described and set forth in Exhibit A, attached hereto and incorporated herein as though set forth in full. Consultant shall complete the tasks according to the schedule of performance which is also set forth in Exhibit A.

3. PERFORMANCE

Consultant shall at all times faithfully, competently and to the best of their ability, experience, and talent, perform all tasks described herein. Consultant shall employ, at a minimum, generally accepted standards and practices utilized by persons engaged in providing similar services as are required of Consultant hereunder in meeting its obligations under this Agreement.

4. CITY MANAGEMENT

City’s Public Works Director shall represent City in all matters pertaining to the administration of this Agreement, review and approval of all products submitted by Consultant, but not including the authority to enlarge the Tasks to Be Performed or change the compensation due to Consultant. City’s City Manager shall be authorized to act on City’s behalf and to execute all necessary documents which enlarge the Tasks to Be Performed or change Consultant’s compensation, subject to Section 5 hereof.

5. PAYMENT

(a) City agrees to pay Consultant monthly, in accordance with the payment rates and terms and the schedule of payment as set forth in Exhibit A, attached hereto and incorporated herein by this reference as though set forth in full, and based upon actual time spent on the above tasks. That amount shall not exceed One Million, Three Hundred Fifty Three Thousand, Five

Hundred Seventy-Four Dollars and No Cents (\$1,353,574.00) for the total term of the Agreement unless additional payment is approved as provided in this Agreement.

(b) Consultant shall not be compensated for any services rendered in connection with its performance of this Agreement which are in addition to those set forth herein, unless such additional services are authorized in advance and in writing by the City Manager. Consultant shall be compensated for any additional services in the amounts and in the manner as agreed to by City Manager and Consultant at the time City's written authorization is given to Consultant for the performance of said services. The City Manager may approve additional work not to exceed ten percent (10%) of the amount of the Agreement, but in no event shall such sum exceed One Hundred Thirty Five Thousand Three Hundred Fifty Seven Dollars and No Cents (\$135,357). Any additional work in excess of this amount shall be approved by the City Council.

(c) Consultant will submit invoices monthly for actual services performed. Invoices shall be submitted on or about the first business day of each month, or as soon thereafter as practical, for services provided in the previous month. Payment shall be made within thirty (30) days after receipt of each invoice as to all non-disputed fees. If City disputes any of Consultant's fees, then it shall give written notice to Consultant within fifteen (15) days of receipt of an invoice of any disputed fees set forth on the invoice.

#### 6. SUSPENSION OR TERMINATION OF AGREEMENT WITHOUT CAUSE

(a) City may at any time, for any reason, with or without cause, suspend or terminate this Agreement, or any portion hereof, by serving upon Consultant at least ten-days' (10-days') prior written notice. Upon receipt of said notice, Consultant shall immediately cease all work under this Agreement, unless the notice provides otherwise. If City suspends or terminates a portion of this Agreement, then such suspension or termination shall not make void or invalidate the remainder of this Agreement.

(b) In the event this Agreement is terminated pursuant to this Section, City shall pay to Consultant the actual value of the work performed up to the time of termination. Upon termination of the Agreement pursuant to this Section, Consultant will submit an invoice to City pursuant to Section 5.

#### 7. DEFAULT OF CONSULTANT

(a) Consultant's failure to comply with the provisions of this Agreement shall constitute a default. In the event Consultant is in default for cause under the terms of this Agreement, City shall have no obligation or duty to continue compensating Consultant for any work performed after the date Consultant is notified of default and can terminate this Agreement immediately by written notice to Consultant. If such failure by Consultant to make progress in the performance for work hereunder arises out of causes beyond Consultant's control, and without fault or negligence of Consultant, then it shall not be considered a default.

(b) If the City Manager or his/her delegate determines that Consultant is in default in the performance of any of the terms or conditions of this Agreement, then he/she shall cause to be

served upon Consultant a written notice of the default. Consultant shall have ten (10) days after service upon it of said notice in which to cure the default by rendering a satisfactory performance. In the event that Consultant fails to cure its default within such period of time, City shall have the right, notwithstanding any other provision of this Agreement, to terminate this Agreement without further notice and without prejudice to any other remedy to which it may be entitled at law, in equity or under this Agreement.

## 8. OWNERSHIP OF DOCUMENTS

(a) Consultant shall maintain complete and accurate records with respect to sales, costs, expenses, receipts, and other such information required by City that relate to the performance of services under this Agreement. Consultant shall maintain adequate records of services provided in sufficient detail to permit an evaluation of services. All such records shall be maintained in accordance with generally accepted accounting principles and shall be clearly identified and readily accessible. Consultant shall provide free access to the representatives of City or its designees at reasonable times to such books and records; shall give City the right to examine and audit said books and records; shall permit City to make transcripts therefrom as necessary; and shall allow inspection of all work, data, documents, proceedings, and activities related to this Agreement. Such records, together with supporting documents, shall be maintained for a period of three (3) years after receipt of final payment.

(b) Upon completion of, and full payment by City for services performed pursuant to, this Agreement, all final work product such as documents, designs, drawings, maps, models, computer files, surveys, notes, and other documents prepared in the course of providing the services to be performed pursuant to this Agreement shall become the sole property of City and may be used, reused, or otherwise disposed of by City without the permission of Consultant. With respect to computer files, Consultant shall make available to City, as a service in addition to those set forth herein, at Consultant's office and upon reasonable written request by City, the necessary computer software and hardware for purposes of accessing, compiling, transferring, and printing computer files.

## 9. INDEMNIFICATION

(a) Indemnification for Professional Liability. When the law establishes a professional standard of care for Consultant's Services, to the fullest extent permitted by law, Consultant shall indemnify, protect, defend and hold harmless City and any and all of its officials, employees and agents ("Indemnified Parties") from and against any and all losses, liabilities, damages, costs and expenses, including reasonable attorney's fees and costs to the extent same are caused by any negligent act, error or omission of Consultant, its officers, agents, employees or subconsultants (or any entity or individual that Consultant shall bear the legal liability thereof) in the performance of professional services under this agreement. City agrees to hold harmless and indemnify Consultant from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising out of or in any way connected with the modification, misinterpretation, misuse or reuse by others of the computer files or any other document provided by Consultant under this Agreement.

(b) Indemnification for Other Than Professional Liability. Other than in the performance of professional services and to the full extent permitted by law, Consultant shall indemnify, defend and hold harmless City, and any and all of its employees, officials and agents from and against any liability (including liability for claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged or threatened, including attorneys' fees and costs, court costs, interest, defense costs, and expert witness fees), where the same arise out of, are a consequence of, or are in any way attributable to, in whole or in part, the performance of this Agreement by Consultant or by any individual or entity for which Consultant is legally liable, including but not limited to officers, agents, employees or subconsultants of Consultant.

(c) General Indemnification Provisions. Consultant agrees to obtain executed indemnity agreements with provisions identical to those set forth here in this section from each and every subconsultant or any other person or entity involved by, for, with or on behalf of Consultant in the performance of this agreement. In the event Consultant fails to obtain such indemnity obligations from others as required here, Consultant agrees to be fully responsible according to the terms of this section. Failure of City to monitor compliance with these requirements imposes no additional obligations on City and will in no way act as a waiver of any rights hereunder. This obligation to indemnify and defend City as set forth here is binding on the successors, assigns or heirs of Consultant and shall survive the termination of this agreement or this section.

#### 10. INSURANCE

Consultant shall maintain prior to the beginning of and for the duration of this Agreement insurance coverage as specified in Exhibit B attached to and part of this agreement.

#### 11. INDEPENDENT CONSULTANT

(a) Consultant is and shall at all times remain as to City a wholly independent Consultant. The personnel performing the services under this Agreement on behalf of Consultant shall at all times be under Consultant's exclusive direction and control. Neither City nor any of its officers, employees, or agents shall have control over the conduct of Consultant or any of Consultant's officers, employees, or agents, except as set forth in this Agreement. Consultant shall not at any time or in any manner represent that it or any of its officers, employees, or agents are in any manner officers, employees, or agents of City. Consultant shall not incur or have the power to incur any debt, obligation, or liability whatever against City, or bind City in any manner.

(b) No employee benefits shall be available to Consultant in connection with the performance of this Agreement. Except for the fees paid to Consultant as provided in the Agreement, City shall not pay salaries, wages, or other compensation to Consultant for performing services hereunder for City. City shall not be liable for compensation or indemnification to Consultant for injury or sickness arising out of performing services hereunder.

12. LEGAL RESPONSIBILITIES

Consultant shall keep itself informed of State and Federal laws and regulations which in any manner affect those employed by it or in any way affect the performance of its service pursuant to this Agreement. Consultant shall at all times observe and comply with applicable legal requirements in effect at the time the drawings and specifications are prepared. City, and its officers and employees, shall not be liable at law or in equity occasioned by failure of Consultant to comply with this Section.

13. UNDUE INFLUENCE

Consultant declares and warrants that no undue influence or pressure is used against or in concert with any officer or employee of City in connection with the award, terms or implementation of this Agreement, including any method of coercion, confidential financial arrangement, or financial inducement. No officer or employee of City will receive compensation, directly or indirectly, from Consultant, or from any officer, employee or agent of Consultant, in connection with the award of this Agreement or any work to be conducted as a result of this Agreement. Violation of this Section shall be a material breach of this Agreement entitling City to any and all remedies at law or inequity.

14. NO BENEFIT TO ARISE TO LOCAL EMPLOYEES

No member, officer, or employee of City, or their designees or agents, and no public official who exercises authority over or responsibilities with respect to the Project during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in any agreement or sub-agreement, or the proceeds thereof, for work to be performed in connection with the Project performed under this Agreement.

15. RELEASE OF INFORMATION/CONFLICTS OF INTEREST

(a) All information gained by Consultant in performance of this Agreement shall be considered confidential and shall not be released by Consultant without City's prior written authorization. Consultant, its officers, employees, agents, or subconsultants, shall not without written authorization from the City Manager or unless requested by the City Attorney, voluntarily provide declarations, letters of support, testimony at depositions, response to interrogatories, or other information concerning the work performed under this Agreement or relating to any project or property located within City. Response to a subpoena or court order shall not be considered "voluntary" provided Consultant gives City notice of such court order or subpoena.

(b) Consultant shall promptly notify City if Consultant, or any of its officers, employees, agents, or subconsultants are served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions, or other discovery request, court order, or subpoena from any person or party regarding this Agreement and the work performed thereunder or with respect to any project or property located within City. City retains the right, but has no obligation, to represent Consultant or be present at any deposition, hearing, or similar proceeding. Consultant agrees to cooperate with City by providing the

opportunity to review any response to discovery requests provided by Consultant. However, City's right to review any such response does not imply or mean the right by City to control, direct, or rewrite said response.

16. NOTICES

Any notices which either party may desire to give to the other party under this Agreement must be in writing and may be given either by (i) personal service, (ii) delivery by a reputable document delivery service, such as but not limited to, Federal Express, which provides a receipt showing date and time of delivery, or (iii) mailing in the United States Mail, certified mail, postage prepaid, return receipt requested, addressed to the address of the party as set forth below or at any other address as that party may later designate by notice:

To City: City of Morro Bay  
595 Harbor Street  
Morro Bay, CA 93442  
Attention: Robert S. Livick, PE/LS  
Public Works Director

To Consultant: Water Works Engineering, LLC  
1730 S. El Camino Real Suite 280  
San Mateo, CA 94402  
Attention: Michael J. Fisher, PE

17. ASSIGNMENT

Consultant shall not assign the performance of this Agreement, nor any part thereof, nor any monies due hereunder, without prior written consent of City.

18. LICENSES

At all times during the term of this Agreement, Consultant shall have in full force and effect, all licenses required of it by law for the performance of the services described in this Agreement.

19. GOVERNING LAW

City and Consultant understand and agree that the laws of the State of California shall govern the rights, obligations, duties, and liabilities of the parties to this Agreement and also govern the interpretation of this Agreement. Any litigation concerning this Agreement shall take place in the municipal, superior, or federal district court with jurisdiction over City.

20. ENTIRE AGREEMENT

This Agreement contains the entire understanding between the parties relating to the obligations of the parties described in this Agreement. All prior or contemporaneous agreements, understandings, representations, and statements, oral or written, are merged into this Agreement and shall be of no further force or effect. Each party is entering into this Agreement based solely upon the representations set forth herein and upon each party's own independent investigation of any and all facts such party deems material.

21. AUTHORITY TO EXECUTE THIS AGREEMENT

The person or persons executing this Agreement on behalf of Consultant warrants and represents he/she has the authority to execute this Agreement on behalf of Consultant and has the authority to bind Consultant to the performance of its obligations hereunder.

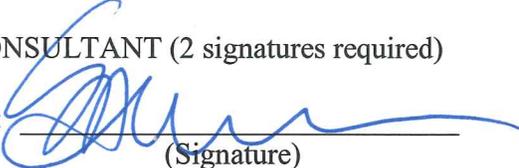
IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed the day and year first above written.

CITY OF MORRO BAY

By:   
Scott Collins, City Manager

Attest:   
Dana Swanson, City Clerk

CONSULTANT (2 signatures required)

By:   
(Signature)

SAMI KADER  
(Typed Name)

Its: PRINCIPAL  
(Title)

By:   
(Signature)

MICHAEL J FISHER  
(Typed Name)

Its: PRINCIPAL  
(Title)

Approved As To Form:

  
Joseph W. Pannone, City Attorney

## Exhibit A

City of Morro Bay (CITY or CLIENT)  
 Consultant Services Agreement with  
 Water Works Engineers (CONSULTANT, ENGINEER, Water Works, or WWE)

Scope of Engineering Services for the Water Reclamation Facility (WRF) Lift Station and Offsite Pipelines

**PROJECT DESCRIPTION**

The project specifics are as follows:

<b>Location</b>	Morro Bay, CA
<b>Facility Name</b>	WRF Lift Station and Offsite Pipelines
<b>Facility Type</b>	Wastewater (WW) Pump Station and Raw WW and Treated Effluent Pipelines
<b>Facility Components</b>	<ul style="list-style-type: none"> <li>• 0.5 to 7 MGD WW Pump Station with Sanks trench style self-cleaning wet well with separate electrical controls building with Radio SCADA communications</li> <li>• Electrical generator for backup power</li> <li>• ~14,500-lineal feet of raw wastewater forcemain from LS to WRF property line</li> <li>• ~14,500-lineal feet of treated effluent pipeline from WRF property line to ocean outfall connection structure (assumed to be on Atascadero Rd just west of the existing City WWTP)</li> <li>• WW gravity pipeline(s) from existing collection system to Pump Station</li> <li>• Trenchless crossing of California State Highway 1 (and potentially Morro Creek and Morro Bay Blvd &amp; Quintana Rd. intersection)</li> <li>• Connection structure for effluent pipeline to existing ocean outfall</li> </ul>
<b>General Project Objectives</b>	<ul style="list-style-type: none"> <li>• Develop, Assess, Identify and Recommend:               <ul style="list-style-type: none"> <li>○ Site and design criteria for WRF Lift Station</li> <li>○ Alignment and design criteria for forcemain and effluent pipeline</li> <li>○ Clearance considerations for future recycled water main that may be added in future (or for which design contract may be amended)</li> </ul> </li> <li>• Complete final design of recommended lift station and pipelines with focus on cost effectiveness; long term quality and viability; and schedule compliance.               <ul style="list-style-type: none"> <li>○ Incorporate City staff input into final design</li> <li>○ Coordinate final design with WRF design and construction</li> <li>○ Consider transition from existing lift station to future lift station in developing the contractor's coordination requirements for the contract documents</li> </ul> </li> <li>• Provide field and office support for final design, including:               <ul style="list-style-type: none"> <li>○ Survey</li> <li>○ Geotechnical</li> <li>○ Existing utility research and potholing</li> <li>○ Easement identification, recommendations, and assistance (Property acquisition by other City resources)</li> <li>○ Permitting and Environmental assistance (EIR by other City resources)</li> </ul> </li> <li>• Deliver construction phase oversite to support successful implementation of design</li> </ul>

## ASSUMPTIONS

The following assumptions have been made in the development of this scope and fee. Additional Task Orders would be required to perform any of the work which is not listed in this scope or has been specifically identified as out of scope in the assumptions below:

1. Environmental Permitting assumptions: This project is covered under the WRF project specific Environmental Impact Report (EIR). ENGINEER will support CITY in limited areas of EIR development, however, no special studies or CEQA document preparation is included in this scope of work except as specifically delineated.
2. Special Use and Building Permitting assumptions: ENGINEER will develop plans and technical specifications in accordance with design criteria developed and delineated during preliminary and final design with input from City staff. 100% design submittal shall be used by City to acquire special use and/or building permits, as required by City and other 3<sup>rd</sup> party building officials and/or stakeholders. ENGINEER shall rely on City to identify and assist with scheduling a review meeting with the building and permitting officials to address 100% design submittal review comments (if any) from those officials. The cost of building permits will be paid for by City and all permits will be applied for with City as the applicant. If re-submittal for building department approval is required, Final Bid Documents shall be used for this purpose and shall address building review comments. Re-submittals to address new comments (if any) on Final Bid Documents shall be considered additional services.
3. Geotechnical, surveying and potholing assumptions: These services have been scoped in this project based on preliminary site and alignment alternatives. Should the preferred site and/or alignment require additional survey, field potholing and geotechnical investigations beyond those defined herein, those shall be completed as additional services.
4. Project Funding assumptions: City is handling all project funding. If a project funding source has specific contractual requirements, City shall inform ENGINEER and ENGINEER will address those requirements in the development of the design. ENGINEER shall assume funding will be provided by the State Revolving Fund and/or WIFIA programs. City also intends to pursue a United States Bureau of Reclamation WaterSmart grant.
5. Project Bid Packaging assumptions: The project will be packaged as one project (WRF LS and Pipelines). Splitting the project into multiple bid packages shall be considered additional services.
6. Engineering Services During Construction assumptions: The duration of construction and level of on-site Engineering Services During Construction specifically defined in the scope will be adequate for all parties (accommodating Contractor schedule, Regulatory Agency requirements, City requirements, etc.). Additional project duration or requirements for Services During Construction will require additional scope. This scope of services assumes that Construction Management Services (Quality Control, Inspection and documentation of construction, Contract Management, Negotiations and Payment of Change Orders, Contractor correspondence coordination, etc.) will be provided separately by City personnel, under a separate consultant services agreement, or as an additional service to this consultant services agreement.

## SCOPE

The following services will be provided by CONSULTANT:

Task	Title
1	Project Management
2	Site Alternatives Evaluation
3	Easement Acquisition Support
4	Survey, Geotechnical Investigation, and Potholing
5	Concept Design Report
6	Construction Documents and Specifications
7	Permitting Support
8	Engineering and Services during Construction

## Task 1: Project Management

Water Works Engineers will be responsible for providing project management and quality control for the services described herein. The following outline describes the services that will be provided under this task:

1. Project Communication and Control
  - A. Coordination/documentation of key team activities & meetings, including agenda and meeting notes
  - B. Coordination and consultation with appropriate regulatory agencies (Caltrans,
  - C. Coordination and consultation with project stakeholders (City, WRFAC, City Council, Caltrans, PG&E)
  - D. Schedule maintenance
  - E. Monthly communication of project progress and issues to City staff / WRF Program Manager
    - Summary of work accomplished each month
    - Description of current / future activities and schedule update for each task/sub-task
    - Identification of problem areas and corrective actions
    - Invoice showing total contract, invoice amounts, cumulative amounts and remaining budget, as well as the following:
      - Hours billed by individual Water Works staff member for the billing period, including dates.
      - Subconsultant invoices.
      - Receipts for direct costs.
    - Invoice shall be submitted within 90 days of work being performed, unless authorized by PM team or City in advance. It is understood that services provided by Water Works subconsultants will be billed as expeditiously as possible, but in some instances, may be delayed based on receipt of invoice for completed work. The City operates and manages budget based on their fiscal year, so an invoice that covers all ENGINEER's remaining expenses through the end of the City's fiscal year (June 30) will be required within 60 days of the end of the fiscal year.
  - F. Availability to City staff for meetings, updates or to discuss concerns at any time
  - G. Communication and file maintenance
    - Standardized electronic and hard copy file maintenance by entire WWE team
    - Water Works will promote communication and exchange of files, including use of City's Procore project management system.
      - City will provide Water Works access to Procore
2. Quality Assurance/Quality Control
  - A. Assign QA/QC Manager for project – Sami Kader
  - B. Develop and implement project specific work plan with the entire project team, including Water Works Engineers Quality Assurance/Quality Control Policy
  - C. Ensure QA/QC procedures are being followed, recorded and reported to the City at each step in the design process
3. Facilitation of progress / coordination meeting with City staff and WRF Program Manager. Drafts of all major deliverables will be reviewed with the CLIENT at Workshops. Following the Workshop, comments from the CLIENT will be addressed and the document made FINAL and delivered to CLIENT.
  - A. Kick-off Meeting
  - B. Alternatives Site Analysis Workshop (coordinated with pertinent Task 2 workshops)
  - C. Route Study / Lift Station Site Selection Review Workshop (coordinated with Task 2 workshops)
  - D. Design Confirmation Meeting (coordinated with pertinent Task 2 workshops)
  - E. Concept Design Report Workshop
  - F. 60% Design Submittal Review Workshop
  - G. 90% Design Review Workshop
4. Presentation to Public Entities  
ENGINEER will submit draft presentation materials to City staff / Program Manager one week prior to presentation date. Mutually agreed upon revisions will be incorporated and final documents produced.
  - A. WRFAC (Qty. 2)
  - B. City Council (Qty. 2)
  - C. City Planning Commission (LS architecture) (Qty. 2)

## Task 2: Site Alternatives Evaluation

WWE will conduct a series of focused, topic-specific workshops in the development of the Site Alternatives Assessment. These workshops will not have specific deliverables, but are intended to be information gathering and detailed discussion meetings regarding each topic. At the City's option, several workshop topics can be combined into a single workshop. However, breaking up these topics is our proposed approach to keep workshops relatively short and make best use of time. The proposed workshops are as follows:

1. Workshop 1: Site Alternatives, Pipeline Routes and Construction Methodology Review
  - A. WRF LS Sites Confirmation
    - i. WRF MP Site 1A
    - ii. WRF MP Site 5A
  - B. Pipeline Route Alternatives Confirmation
    - i. WRF MP "west" Alignment
    - ii. Modified "west" alignment along Embarcadero to by-pass Quintana / Morro Bay Blvd
2. Workshop 2: Hydraulics, WRF Master Plan Design Criteria Review and Modifications
  - A. Detailed review of flow analyses from the WRF MP to confirm Peak Hour Flow and Peak Day Flow to ensure "feasible" alternatives are vetted and potential savings identified and realized in design.
  - B. Wetwell Design, Pump Type and Quantity (3+1 same size or 2+1 Wet & 1+1 Dry or other arrangements as deemed appropriate by ENGINEER and City)
    - i. Example 3D "Rotators" of similar station layouts
  - C. Pipeline Design, Size and Quantity (single versus redundant / pressurized & gravity segments)
3. Workshop 3: Desktop Geotechnical Evaluation and Trenchless Feasibility, Pipeline Route Fatal Flaws
4. Workshop 4: Environmental Constraints and EIR Support Review and Confirmation
5. Workshop 5: Pipeline Route Analysis
  - A. Discussion of pipeline route constraints:
    - i. Accessibility / O&M
    - ii. Constructability / Traffic Impacts
    - iii. Construction Method
    - iv. Environmental / Permitting
    - v. Utility Coordination
    - vi. Right-of-Way / Easement / Encroachment
    - vii. Geotechnical
    - viii. Key stakeholder coordination
    - ix. Other identified constraints
  - B. Project Location (Map of project location and key areas of concern)
  - C. Project Hydraulics (System design flows, peaking factors, dry weather versus wet weather, cleaning velocities, hydraulic profile, maximizing capacity versus minimizing depth, etc.);
  - D. Pipeline Planning (Connections/transition between existing and new pipe segments, alignment, pipe materials, trenchless versus traditional construction – with emphasis on congested areas, transportation crossings, and deep segments, etc.);
  - E. Construction standards and project delivery (review City standards and if deemed necessary possible modifications required, etc.);
  - F. Schedule confirmation (confirm critical path items, Environmental processing, encroachment permit processing, Right-of-Way procurement, etc.);
  - G. Confirm stakeholders (City, gas pipe operators, Caltrans, etc.) design requirements, discuss key areas of concern, and requirements of specific areas (bike path behind power plant, creek, roundabout, Hwy 1, etc.);
  - H. Analysis Methodology and Results
    - i. "Hard" Construction Costs (25% contingency level)
    - ii. "Soft" Constraint Costs
6. Workshop 6: Pump Selections Discussion and General Mechanical Layout
  - A. Updated DRAFT 3D "Rotators" of station layouts

7. Workshop 7: Control Building Architectural, Odor Control, Back-Up Power, Aesthetics
  - A. Draft visual simulations of building produced and delivered at this workshop
  - B. Final Draft visual simulation of building will be prepared under Task 5 in Design Concept Report.
  - C. FINAL visual simulation of building will be based on Final Design and produced under Task 6.
8. Workshop 8: Operations Planning (Bypass System, Pump and Electrical System Redundancy, Pigging, etc.)
9. Workshop 9: Electrical Systems, Local Controls and SCADA
10. Workshop 10: Construction Sequencing

Workshop presentations shall be a succinct, clear, and concise with alternatives and resultant design criteria presented as PowerPoint slides to the City at the Workshop. Water Works will field and address City questions and comments during the workshop. Discussion and decisions made at the Workshop(s) will serve several key functions as follows:

1. Identify all engineering issues and constraints and recommended resolutions;
2. Provide detailed guidance for effective and efficient execution of preliminary and final design;
3. Illustrate tie-in requirements and expectations so City can confirm;
4. Calculate cost estimations for each alternative (including both "hard" construction costs and "soft" non-construction constraint costs);
5. Coordinate environmental constraints and requirements into site assessment and route selection;
6. Confirm field studies and analysis included in scope of services is sufficient to provide design criteria for Final Design of preferred lift station and pipeline alternatives; and
7. Provide a detailed guidance on any permit, encroachment, right-of-way, easement requirements.

The resulting information gathered from the workshops, supported with select field investigations and office evaluations (Tasks 3 & 4) will be used to produce draft and final Concept Design Report (Task 5).

Task 2 Deliverables:

- ✓ Workshop PowerPoint (or similar electronic deliverable), workshop summary notes and decision log (15 copies of final work products and PDF electronic copy)

### **Task 3: Easement Acquisition Support**

WWE will provide property rights procurement support for the Project. For the CLIENT to complete the proposed sewer project permanent easement (PE), temporary construction easement (TCE), and access rights (right of entry, ROE) must be acquired from several separate parcels. Water Works and our survey Subconsultant, Praxis Consolidated International, Inc., will assist with easement and property rights research; preparation of schematics, maps and descriptions necessary for the City's acquisition agent to complete notice, appraisal, negotiation and easement procurement.

1. Preliminary Title Report(s)

Praxis Consolidated International, Inc. will obtain preliminary title reports as soon possible for the following assessor parcels to identify existing easements, leases, and other encumbrances that may affect the alignment of the pipeline. Most the proposed pipeline route(s) appear to be in existing public road right of way. Small portions of the proposed lift station and pipeline route will affect about eight parcels. Praxis will obtain Preliminary Title Reports (PTR) from a local title company that will cover the affected parcels. Review PTR to confirm ownership information and plot exception items to evaluate possible impact on design and right of way acquisition. The intent of this work is to identify potential significant delays related to easement procurement (potentially "fatal flows") for final design. The WRF MP "west" route assumes the pipeline(s) will follow a bike path after crossing the creek near the City ballfields. Preliminary analysis indicates the underlying property is owned by the power plant company and City ownership of an existing easement or other agreement for the bike path may be key to the feasibility of this alignment and associated construction cost and timeline.

- i. 066-331-040
- ii. 066-331-036

- iii. 068-411-002
- iv. 068-411-007
- v. 068-411-017
- vi. 068-412-001
- vii. 068-412-010
- viii. 073-100-017

The remaining segments of the proposed “west” pipeline appears to fall within street right of ways. If that changes (or if the alternate Embarcadero alignment does not have similar characteristics), we recommend obtaining preliminary title report for any other parcels affected by an alignment change. Eight PTRs at an assumed cost of \$750/PTR are included in this scope of services and fee.

2. Plat and Legal Description(s)

Praxis Consolidated International, Inc. will use proposed right of way from design team to calculate permanent and temporary easements. Prepare proposed right of way and appraisal maps. Coordinate with City during appraisal and acquisition process. Prepare legal descriptions and plats for each negotiated permanent and temporary easement or acquisition. ENGINEER has included preparation of up to nine legal descriptions with map exhibits.

Task 3 Deliverables:

- ✓ PTRs (scanned electronic copies)
- ✓ Plat and Legal Description (PDF electronic copies of Draft, 1 hard copy of FINAL signed and wet stamped and PDF electronic copy)

### Task 4: Survey, Geotechnical Investigation, and Potholing

WWE teaming partners will provide the requested field studies in support of preliminary and final design.

1. Topographical Survey and Base Mapping for Design – Praxis Consolidated International, Inc. will complete topographic mapping utilizing aerial mapping augmented by ground survey and research. The area to be mapped will be the pipeline corridor from the existing WWTP area to the “South Bay Boulevard”, as well as the selected WRF Lift Station Site. The pipeline reach will include a strip approximately between edges of existing right of way (from property boundary, fence or other inaccessible or immovable feature to similar limit on alternate side) along the proposed route.

A. Aerial Mapping

Services will be executed using softcopy digital stereo plotters. The mapping scale will be 1"=40' with 1' Cl. This job will consist of approx. 2.97 miles 150' wide and developed in an AutoCAD (.dwg) format. (Note that while mapping scale will be 1"=40', pipeline plan and profile design sheets will be produced at a more refined scale, likely 1"=20', to promote ease of viewing existing utilities and proposed improvements in tight utility corridors along the pipe alignment.)

B. Ground Survey

Services will include development of a control network survey that will serve as the basis of mapping surveys and future construction layout and as-built surveys. Notification of affected landowners and arrange access for ground survey. Set ground control and coordinate with aerial mapping subconsultant. Perform supplemental field surveys to obtain additional detail as directed by WWE. Work will include “dipping” of storm drainage and culverts crossing of roads to obtain inverts.

C. Existing Utility Research and Subsurface Utility Engineering

Services will include coordination with existing utility providers to obtain mapping necessary to display these utilities on base mapping. ENGINEER team will request record drawings and schematics from City, utilities, locate paint markings by City and other utilities if available, request record drawings and schematics from Caltrans, SLO County, and other identified utility providers near the project work. ENGINEER team will identify utility providers in the project area and prepare utility information request letters on City letterhead. Follow up and organize maps and atlases received and post for use by the project team. Perform field survey of visible surface utility features, including cover, paint, patches and signs. Open sewer and storm manholes and inlets to measure invert depths. Compute alignments of subsurface utilities from record maps and atlases. Subsurface alignments will be

oriented and adjusted to the topographic mapping using the surveyed locations of surface features where possible. (Quality Level C&D) Consultant team will perform field survey as deemed necessary by ENGINEER after utility location consultant uses underground locating techniques, or performs air vacuum potholing. Adjust subsurface mapping with information. (Quality Level B & A)

D. Right of Way Mapping

Services will include research record maps, right of way maps, and recorded deeds. Perform field survey to search for existing monuments and obtain measurements. Analyze measurements, maps and found monuments, and determine location of existing public street right of way and parcel lines along pipeline route and lift station site. ENGINEER team will prepare Record of Survey map to document land net and right of way survey as required by PLS Act. These services will be provided in two phases. Phase 1 will include initial records research and mapping analysis in support of pipeline alignment feasibility assessment. Phase 2 will include record deed research and Record of Survey map to document land net and right of way survey in support of Design Concept Report and Final Desing of selected alignment.

E. Biological & Cultural Resource Mapping

ENGINEER team will add existing and readily available biological and cultural resource features (provided in AutoCAD compatible electronic format) from EIR consultants to project mapping as deemed necessary by ENGINEER and City. An allowance has been included in the scope of services and fee under Task 7 specific to additional mapping and work related to environmental requirements that may be requested by City. See Task 7 for additional details.

2. Geotechnical Investigation – Yeh and Associates, Inc will perform a program of data review, field exploration, laboratory testing and engineering analysis and prepare a Preliminary Geotechnical Report and a Geotechnical Report for the design of the new lift station and pipelines. Services will be provided in two phases. Phase 1 - Preliminary Geotechnical Services to support lift station site selection and preferred pipeline route, and Phase 2 - Design Geotechnical Services for design of preferred improvements.

A. Phase 1 - Preliminary Geotechnical Services

- i. Initiation and Review Existing Data. Consult with the design team and City to coordinate project initiation, collect project information and existing geotechnical data available from the site, and to request a map showing the layout of the improvements and pipeline alignment be provided for use in planning the field exploration program. Collect available geologic and geotechnical data from published maps; reports for the existing wastewater treatment facility; Caltrans Log of Test Borings for the Highway 1 bridges over Morro Creek, the Main Street Undercrossing at Highway 1, the South Bay Boulevard Overcrossing at Highway 1; and previous geotechnical studies prepared for the City for public improvements along the alignment if available. Update and submit a Field Exploration Plan for the project showing the locations of planned field explorations and phasing of exploration.
- ii. Coordination, Health and Safety, and Permits. Coordinate the locations of field exploration with the design team and City relative to access and existing buried utilities or structures. Mark the locations along the alignment and contact Underground Services Alert (USA) to notify utility companies. Prepare a health and safety plan for the field work to be performed by Yeh. Procure an encroachment permit from the City of Morro Bay for work in city streets. Coordinate field exploration with the subcontractors and procure well permits from the County of San Luis Obispo for qualifying borings.
  - a. Borings for the Highway 1 pipeline crossing will be drilled outside of the Caltrans right-of-way and no encroachment permit with that agency will be required. We assume that if any environmental studies, reports or monitors are required for this work that those will be provided by others. Yeh will not be responsible for locating utilities or buried structures or damages resulting from encountering unmarked or improperly marked utilities for the project.
- iii. Field Exploration Program. Yeh will provide a 3-day drilling program to explore the subsurface conditions at the lift station site, Morro Creek Crossing, Quintana Road/Morro Bay Boulevard

Crossing, and Highway 1 Crossing. During this period, we expect to drill one (1) boring for the lift station and three (3) borings (one each) at the trenchless crossings to depths of 40 to 60 feet. Traffic control will be provided by a subcontractor (Associated Traffic Safety of Atascadero, California) and will consist of lane closures with flagging for boring locations. The multi-use path should be closed during drilling operations because of the restricted width of the path relative to the rig.

- a. Drilling will be subcontracted to S/G Drilling Company of Lompoc, California. The borings for the pipeline and lift station will be drilled using hollow-stem augers and supplemented with drilling mud when needed. Borings will typically be sampled at 5-foot intervals by driving 2-inch or 3-inch split spoon samplers using Standard Penetration Test protocols or by pushing thin-walled (Shelby) tubes. The types and depths of the samples may be varied depending on subsurface conditions. Bulk samples will be collected from auger flights during drilling. Pavement sections will be measured and documented where borings are drilled in pavement. Excess spoils and drill fluid from the drilling will be drummed and Yeh will arrange for disposal of drummed material as needed. The cost for required testing and disposal of drums has been included.
  - b. Borings for the preliminary phase of work will be completed as standpipe piezometers (2-inch diameter PVC) equipped with flush mount or elevated locking well-heads as needed. Yeh will obtain field measurements of groundwater depths in the piezometers using a hand-held well-sounder on a monthly basis for 12 months. Data will be presented as updated in monthly memorandums and in the design Geotechnical Report.
  - c. Perform laboratory tests on selected samples collected from the drilling. Tests for classification, strength, corrosion, consolidation, and compaction will be performed on selected samples recovered from the borings. The types and numbers of tests will be selected based on the results of the field exploration program.
- iv. Geotechnical Constraints Report. Yeh will prepare a Preliminary Geotechnical Report (Geotechnical Constraints Report / Desktop Study) for the design of the project. The report will describe the project understanding, existing site conditions, work performed, and subsurface conditions encountered. The report will include the data collected during the field and laboratory test program including boring logs, laboratory test results, and graphics showing the boring locations. The report will be prepared and issued in portable document file (PDF) format to the City and design team. The report will provide conclusions and recommendations regarding:
- a. Geologic setting;
  - b. Soil and groundwater conditions encountered;
  - c. Potential for the pipeline alignment to be impacted by geologic hazards such as from seismic shaking, faulting, liquefaction, coastal flooding or tsunamis, or landsliding based on review of published data and the work performed;
  - d. Subsurface conditions and suitability of using jack and bore, HDD, or microtunneling to complete the installation;
  - e. Ground conditions relative to groundwater, hard rock, presence of cobbles or boulders, heading stability, caving or running ground;
  - f. Preliminary gassy estimation per tunneling guidelines;
  - g. Results of preliminary seismic hazard analyses;
  - h. Estimated liquefaction potential and seismic settlement based on the results of the field exploration program and the need to include any special geotechnical considerations or mitigation in the design of the project;
  - i. Suitable foundation type(s) for the subsurface conditions encountered; and
  - j. Construction considerations regarding excavation characteristics of soil encountered, temporary slopes and shoring, and construction dewatering.
- B. Phase 2 – Design Geotechnical Services

Once the final LS site layout and preferred pipeline route for the project has been determined, Yeh will prepare a design-level Geotechnical Report for the design of the project. The scope of the design-level work should be reviewed at that time to evaluate if the scope of the proposed geotechnical services is sufficient to address the proposed improvements, any special mitigations that should be included in the project based on the results of the preliminary study, or changes that may occur to the project.

- i. Initiation and Review Existing Data. Consult with the design team and City to update project alignment and design. Update and submit a Field Exploration Plan for the project showing the locations of planned field explorations for Phase II.
- ii. Coordination, Health and Safety, and Permits. Coordinate the locations of field exploration with the design team and City relative to access and existing buried utilities or structures. Mark the locations along the alignment and contact Underground Services Alert (USA) to notify utility companies. Prepare a health and safety plan for the field work to be performed by Yeh. Procure an encroachment permit from the City of Morro Bay for work in city streets. Coordinate field exploration with the subcontractors and procure well permits from the County of San Luis Obispo for qualifying borings.
  - a. We assume that if any environmental studies, reports or monitors are required for this work that those will be provided by others. Yeh will not be responsible for locating utilities or buried structures or damages resulting from encountering unmarked or improperly marked utilities for the project.
- iii. Field Exploration Program. Yeh will provide a 3-day drilling program to explore the subsurface conditions along pipeline alignment not investigated in Phase I. The field exploration program will consist of drilling and sampling at no more than approximately 1,500-foot intervals along the pipeline alignment. During this period, we expect to drill twelve (12) borings along the offsite pipeline route to depths ranging from 20 to 40 feet. Traffic control will be provided by a subcontractor (Associated Traffic Safety of Atascadero, California) and will consist of lane closures with flagging for boring locations along Main Street, Quintana Road and on Atascadero Road. The multi-use path should be closed during drilling operations because of the restricted width of the path relative to the rig.
  - a. Drilling will be subcontracted to S/G Drilling Company of Lompoc, California. The borings for the pipeline will be drilled using hollow-stem augers and supplemented with drilling mud when needed. Borings will typically be sampled at 5-foot intervals by driving 2-inch or 3-inch split spoon samplers using Standard Penetration Test protocols or by pushing thin-walled (Shelby) tubes. The types and depths of the samples may be varied depending on subsurface conditions. Bulk samples will be collected from auger flights during drilling. Pavement sections will be measured and documented where borings are drilled in pavement. Coring of boring locations will also be provided for borings on Quintana Road south of the intersection of Morro Bay Boulevard where concrete is known to be under the asphalt concrete pavement. Borings will be backfilled with bentonite cement grout, cement slurry and/or approved native fill in accordance with permit requirements. Borings drilled in roadway areas will be capped with rapid setting quickcrete. Excess spoils and drill fluid from the drilling will be drummed and Yeh will arrange for disposal of drummed material as needed. The cost for required testing and disposal of drums has been included.
  - b. Perform laboratory tests on selected samples collected from the drilling. Tests for classification, strength, corrosion, consolidation, and compaction will be performed on selected samples recovered from the borings. The types and numbers of tests will be selected based on the results of the field exploration program.
- iv. Evaluation and Draft – Geotechnical Report. Yeh will prepare a Geotechnical Report for the design of the project. The report will describe the project understanding, existing site conditions,

work performed, and subsurface conditions encountered. The report will include findings presented in the Preliminary Geotechnical Report, the data collected during the field and laboratory test program in both phases of work including boring logs, laboratory test results, and graphics showing the boring locations. Interpreted subsurface profiles will be prepared summarizing boring information along the pipeline route and at the trenchless installations. A draft of the report will be prepared and issued in portable document file (PDF) format for review by the City and design team. The report will provide conclusions and recommendations regarding:

- a. Geologic setting;
  - b. Soil and groundwater conditions encountered;
  - c. Groundwater elevations from standpipe piezometers;
- The design of the new pipelines:
- a. Foundation support for the pipe and subexcavation of the trench bottom, if needed;
  - b. Material and compaction requirements for bedding, pipe zone and trench backfill;
  - c. Suitability of the materials encountered in the borings for reuse as fill or backfill material;
  - d. Pipe buoyancy considerations relative to groundwater, flooding and liquefaction, if needed;
  - e. Typical trench detail for use with City standards;
  - f. Existing pavement thicknesses encountered and pavement structural section(s) for trench patching;
  - g. Backfill loading on underground conduits;
  - h. Soil moduli ( $E'$ ) for estimating pipe deflection;
  - i. Passive resistance,  $K_0$  and pipe-backfill friction to resist thrust along the pipe and for sizing thrust blocks, if needed;
  - j. Corrosion test data; and
  - k. Construction considerations regarding excavation characteristics of soil and rock encountered, temporary excavations, shoring requirements, and groundwater.
- The design of trenchless pipe installations at Morro Creek, Quintana Road/Morro Bay Boulevard Roundabout, and Highway 1:
- Subsurface conditions and suitability of using jack and bore, HDD, or microtunneling to complete the installation;
  - Ground conditions relative to groundwater, hard rock, presence of cobbles or boulder, heading stability, caving or running ground;
  - Preliminary gassy estimation per tunneling guidelines;
  - Jacking or thrust resistance for launching the pipe;
  - Monitoring requirements for settlement or heave; and
  - Frac-out potential and response planning.
- Recommendations for design of the lift station and control building:
- Seismic data for use with the California Building Code;
  - Mitigation of liquefaction using seismic settlement considerations, deepened foundations, pile support, or compaction grouting, if needed;
  - Grading and site preparation for surface structures (generator pad, odor control pad, and control building);
  - Stabilization and foundation preparation for the lift station considering depth of excavation, groundwater and subgrade conditions encountered;
  - Material and compaction requirements for backfill around the lift station;
  - Resistance to buoyancy forces associated with groundwater or flooding;
  - Shallow foundation design (allowable bearing resistance, estimated total and differential settlements considering static and seismic loads, and minimum footing embedment and widths);

- Mat foundation design (allowable bearing resistance and subgrade modulus (spring constant) from settlement analyses);
  - Expansive soil considerations;
  - Resistance to lateral loads from friction and passive resistance;
  - Lateral earth pressures for buried structures;
  - Downdrag due to seismic settlement on buried structures, if needed;
  - Construction considerations regarding excavation characteristics of soil encountered, temporary slopes and shoring, and construction dewatering.
- v. Final - Geotechnical Report. Prepare and issue the final Geotechnical Report incorporating comments and input from the design team. This scope of work assumes that the final report will not involve addressing new alignments, changes in the project or additional field exploration. One PDF and one (1) hard copy of the final report will be submitted unless otherwise requested.
- vi. Plan and Specification Review. Provide consultation and review project plans and specifications to confirm the geotechnical recommendations have been incorporated into the construction documents. Provide comments via email or memorandum, and review the revised plans to confirm the comments have been addressed. Issue a letter confirming that the construction plans have been prepared in general accordance with the Geotechnical Report.
3. Potholing - Based on previously completed tasks, ENGINEER will identify select utility locations where the proposed pipe improvements are near one another and more precise utility location data is required to avoid or mitigate conflict. ENGINEER will communicate these locations to CLIENT and confirm that expenditure of funds to locate utility is consistent with Client's desire to mitigate utility conflict risk on this project. Water Works utility potholing subconsultant, EXARO Technologies Corporation or other local utility locating firm as deemed appropriate by ENGINEER at time of work, will complete vacuum excavation to confirm underground utility location and depth. For budgeting purposes, our team has included three (3) days of vacuum excavation in the budget, where typical production is 4-8 pothole locations per day.

#### Task 4 Deliverables:

- ✓ Survey (AutoCAD electronic files incorporated into and delivered with FINAL Design)
- ✓ Geotechnical Report(s) (PDF electronic copies of Draft, 1 hard copy of FINAL signed and wet stamped and PDF electronic copy)

### Task 5: Concept Design Report

The resulting information gathered from the workshops, field investigations and office analysis will be used as the basis for the Concept Design Report, which shall include, at a minimum, the following:

1. Description of existing facilities, proposed new facility alternatives and the selected improvements;
  - a. Lift Station Site Alternatives and Selection Summary, including copies and/or reference to pertinent Task 2 workshop materials, meeting notes and decision logs.
  - b. Pipeline Route Study and Preferred Alignment Selection Summary, including copies and/or reference to pertinent Task 2 workshop materials, meeting notes and decision logs.
2. Design criteria;
3. Hydraulic analysis and pump schematic;
4. Electrical, controls, instrumentation, SCADA, HVAC, and power supply / backup power details;
5. Flood protection
6. Pipeline leak detection
7. Site layout considerations including vector truck access
8. Construction sequencing plan;
9. Schedule;

10. Cost opinion (with design and construction contingencies)
11. Major equipment cut sheets and catalog cuts; and
12. Summary of all field investigations (including survey, Geotech and potholing).

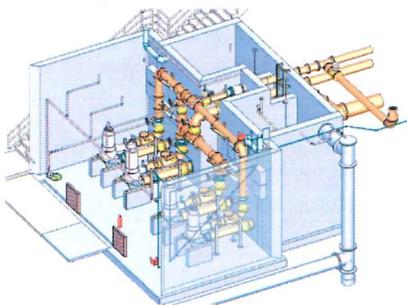
**Task 5 Deliverables:**

- ✓ WRF Lift Station and Offsite Pipelines Concept Design Report (15 hard copies, Draft and Final, 1 hard copy of FINAL signed and wet stamped and PDF electronic copy)

**Task 6: Construction Documents and Specifications**

WWE will prepare contract documents (improvement plans, technical specifications and cost estimates) in three submittals: 60%, 90% and 100% (Final Bid Documents). The Concept Design Report will serve as the foundation for detailed design and the effort put into producing a very high quality and detailed preliminary design will pay off exponentially in detailed design execution. Prior to each submittal, the work product will be reviewed and revised through Water Works QA/QC process. Submittal of the 60% and 90% review documents will occur at Project Review Workshops with the entire project team. The submittal will be presented to City staff to familiarize the group with the information submitted and the design thought process behind the work. Following the Project Review Workshop, City staff will have a 2-week review period to provide any additional comments which were not brought forward in the Project Review Workshop. In our experience, this kind of active review of submittal documents more fully engages the entire project team in the design process.

**60% Improvement Plans and Technical Specifications**



3-Dimensional CADD Modeling - WWE will perform all detailed design using 3-dimensional CADD tools. This is our standard practice and leads to better coordination, integrated cross-checking and clearer contract documents. The 3-dimensional CADD models also function as an invaluable communications tool, especially at the 60% design stage. At this stage, all the facilities will be completely modeled. Water Works Engineers design staff will present the model to City staff so that staff can more easily and thoroughly visualize how the finished facilities will look and function. This approach to the 60% submittal allows for a clearer understanding of facility

geometry, access and clearance issues, and overall system functionality. The 3-dimensional design model is provided in addition to the standard drawings and specifications for the 60% deliverable (the 3-dimensional design model is used to create the plans and sections presented in the 60% design drawings).

**90% Improvement Plans and Technical Specifications**

In general, the 90% design submittal will be a complete project package, with all design drawings, details and specifications completed. The period between 90% and 100% will solely be dedicated to minor inter-disciplinary coordination and final QA/QC checking of all documents. In the 90% submittal, we incorporate both 2-dimensional plan and section drawings with 3-dimensional isometrics to clearly show how complex piping systems are to be constructed. This provides for clear drawings and reduced risk on the bidding contractors' part. The 90% design will be reviewed the City and each review comment that was received during the design process and how it was addressed will be discussed to ensure that all comments have been recognized and addressed. Updated cost opinion will be provided.

**100% Design and Bid Documents**

The 100% Bid-Ready Design Documents Submittal incorporates comments provided by the CLIENT at the 90% design stage and/or QA/QC comments generated by WWE's QA/QC review team. The result is clear, complete, cross-checked bid-ready design documents. The City will complete one final review of the 100% set to confirm compliance with all permitting and other final coordination items, and ENGINEER will make minimal final revisions and produce a Final set of Bid Documents.

The following is a preliminary technical specification list and sheet count for the anticipated improvements.

**Technical Specifications:**

SUMMARY OF WORK  
SPECIAL PROJECT CONSTRAINTS  
MEASUREMENT AND PAYMENT  
PROJECT MEETINGS  
PROGRESS SCHEDULE  
SUBMITTAL PROCEDURES  
QUALITY CONTROL  
REFERENCE STANDARDS AND  
ABBREVIATIONS  
TEMPORARY CONSTRUCTION FACILITIES  
AND UTILITIES  
MOBILIZATION  
GENERAL PRODUCT REQUIREMENTS  
OPERATIONAL COMPLETION AND PROJECT  
CLOSEOUT  
CLEANING  
SITE PREPARATION  
EARTHWORK  
PIPE BORE AND JACK REQUIREMENTS  
RIPRAP  
ASPHALT CONCRETE PAVEMENT  
FABRICATED STEEL GATES AND OPERATORS  
HYDROSEEDING  
CONCRETE FORMWORK  
CONCRETE REINFORCING  
CONCRETE JOINTS  
CAST-IN-PLACE CONCRETE  
PRECAST CONCRETE  
GROUT  
CONCRETE UNIT MASONRY  
ANCHORS, INSERTS, AND DOWELS  
MISCELLANEOUS METALS  
ALUMINUM HANDRAILS AND RAILINGS  
GRATING AND CHECKERED PLATE  
ROUGH CARPENTRY  
PLASTIC LINER FOR CONCRETE PIPE AND  
STRUCTURES  
CEMENTITIOUS WATERPROOFING  
BUILDING INSULATION  
CONCRETE ROOF TILE  
METAL FLASHING, GUTTERS, DOWNSPOUTS  
AND OTHER ROOFING SPECIALTIES  
JOINT SEALANTS  
METAL DOORS  
ACCESS HATCHES  
DOOR HARDWARE  
GYPSUM WALLBOARD  
CONCRETE COATINGS FOR WASTEWATER  
STRUCTURES  
PAINTING

IDENTIFICATION DEVICES  
SAFETY EQUIPMENT  
FABRICATED SLIDE GATE  
SUBMERSIBLE SEWAGE PUMPS  
RAW SEWAGE GRINDER  
MISCELLANEOUS FURNISHINGS  
ODOR CONTROL UNIT  
PIPING SUPPORT SYSTEMS  
PIPING INSULATION  
PIPE AND FITTINGS  
PIPE SCHEDULE  
PIPING SYSTEM DATA SHEET – COPPER PIPE  
PIPING SYSTEM DATA SHEET – DUCTILE IRON  
PIPE  
PIPING SYSTEM DATA SHEET – FUSIBLE  
POLYVINYL CHLORIDE PIPE  
PIPING SYSTEM DATA SHEET – GALVANIZED  
STEEL PIPE  
PIPING SYSTEM DATA SHEET – FUSIBLE HIGH  
DENSITY POLYETHYLENE PIPE  
PIPING SYSTEM DATA SHEET – HIGH DENSITY  
POLYETHYLENE DRAINAGE PIPE  
PIPING SYSTEM DATA SHEET – SOLVENT  
WELDED POLYVINYL CHLORIDE PIPE  
PIPING SYSTEM DATA SHEET – POLYVINYL  
CHLORIDE DRAIN, WASTE AND VENT PIPE  
PVC SEWER PIPE  
PIPING SYSTEM DATA SHEET – REINFORCED  
CONCRETE PRESSURE PIPE  
PIPING SPECIALTIES  
VALVES AND OPERATORS  
VALVE SCHEDULE  
PLUMBING FIXTURES  
HEATING, VENTILATION AND AIR  
CONDITIONING EQUIPMENT  
DUCTWORK AND ACCESSORIES  
PRESSURE TESTING OF PIPING SYSTEMS  
ELECTRICAL GENERAL  
CONDUIT, BOXES AND GROUNDING  
WIRE, FUSES AND TERMINAL BOXES  
ENGINE GENERATOR  
AUTOMATIC TRANSFER SWITCH  
LOW VOLTAGE SWITCHBOARD  
PANELBOARD AND POWER TRANSFORMER  
VARIABLE FREQUENCY DRIVE  
FACTORY AND FIELD TESTING  
TEST FORMS  
CONTROL PANEL  
PLC & OI HARDWARE  
INSTRUMENTATION

**General Sheets (qty 12)**

COVER SHEET, VICINITY AND LOCATION MAPS  
 INDEX TO DRAWINGS  
 ABBREVIATIONS  
 GENERAL DESIGNATIONS  
 CIVIL LEGEND  
 ARCHITECTURAL LEGEND AND MATERIAL SYMBOLS  
 STRUCTURAL LEGEND ABBREVIATIONS AND NOTES  
 STRUCTURAL NOTES  
 STRUCTURAL NOTES  
 STRUCTURAL SPECIAL INSPECTIONS TABLES  
 MECHANICAL LEGEND  
 BUILDING SERVICES LEGEND  
 GENERAL NOTES  
 PROCESS FLOW DIAGRAM

**Civil / Yard Piping (Qty. 24-38)**

OVERALL PLAN  
 DEMOLITION PLAN  
 TREE REMOVAL AND PRESERVATION PLAN  
 PUMP STATION SITE PLAN  
 PUMP STATION SECTIONS  
 PLAN AND PROFILE (14-28 sheets)  
 BORE AND JACK DETAIL (2 Sheets)  
 HDD DETAIL  
 YARD PIPING  
 EMERGENCY STORAGE DETAIL

**Structural / Mechanical (Qty. 15)**

LIFT STATION RENDERING  
 LIFT STATION TOP PLAN- STRUCTURAL  
 LIFT STATION LOWER PLAN AND SECTION-  
 STRUCTURAL

LIFT STATION SECTIONS - STRUCTURAL (5 sheets)  
 LIFT STATION TOP PLAN- MECHANICAL  
 LIFT STATION LOWER PLAN AND SECTION-  
 MECHANICAL  
 LIFT STATION SECTIONS - MECHANICAL (5 sheets)

**Electrical/Instrumentation (Qty. 18)**

PROCESS AND INSTRUMENTATION DIAGRAM  
 FLOOR AND ROOF PLAN  
 SECTION – ELECTRICAL  
 ELEVATIONS – ELECTRICAL  
 NOTES, SYMBOLS AND ABBREVIATIONS  
 MASTER / MAIN ONE-LINE AND ELEVATION  
 ATS AND DISTRIBUTION ONE-LINE AND ELEVATION  
 ELEMENTARY DIAGRAMS  
 CONTROL PANEL ELEVATION AND BACKPANEL  
 LAYOUT  
 POWER DISTRIBUTION AND COMMUNICATION  
 BLOCK DIAGRAMS  
 CONTROL PANEL ELEVATION AND BACKPANEL  
 LAYOUT  
 BACK-UP CONTROLS AND PLC WIRING DIAGRAMS  
 ELECTRICAL ROOM, DRY WELL/ WET WELL POWER  
 AND CONTROL PLAN  
 DRY WELL/WET WELL LIGHTING AND RECEPTACLE  
 PLAN  
 BUILDING LIGHTING AND RECEPTACLE PLAN, TOP  
 DECK ELECTRICAL PLAN  
 AREA ELECTRICAL PLAN  
 ELECTRICAL DETAILS  
 CONDUIT SCHEDULE

**Standard Details (8 sheets)**

Water Works standard details can be provided within the Plans or Technical Specifications as directed by City. It has been our experience that City Building Department Reviewers prefer that the standard details are included within the Plans, so we have made that assumption for this scope of services.

Task 6 Deliverables shall include:

- ✓ 60% Design Submittal (PDF)
- ✓ 90% Design Submittal (PDF)
- ✓ 100% Design Submittal (PDF)
- ✓ Bid Documents (PDF and source files)
- ✓ Final cost opinion

## **Task 7: Permitting Support**

Water Works team shall be available to provide support for permitting efforts related to the WRF Lift Station and Offsite Pipeline Project. Work shall be completed on an as-needed / on-call basis as directed by the City or the WRF Program Manager (as approved by the City). ENGINEER will provide technical information, exhibits and other requested items as part of the Permitting Support allowance budget.

Also included under this task as part of the Permitting Support allowance budget and as requested in Addendum 2, Water Works subconsultant, Praxis, will shall be available on an as-needed basis to complete mapping of biological and cultural resources depicted by the City's environmental consultant.

Also included under this task as part of the Permitting Support allowance budget, Water Works shall be available to provide support for Planning Commissions review and approval efforts related to the WRF Lift Station and Offsite Pipeline Project. Participation in two (2) Planning Commission Meeting(s) is included as part of Task 1: Project Management under Presentation to Public Entities. However, it is anticipated that additional services shall be completed on an as-needed / on-call basis as directed by the City or the WRF Program Manager (as approved by the City) to support efforts related to Planning Commission approval outside of these meetings. ENGINEER will provide coordination, technical information, exhibits and other requested items to support these activities.

## **Task 8: Engineering and Services during Construction**

ENGINEER will provide the following Engineering Services During Construction for the project. This assumes an 18-month concurrent construction schedule for both Lift Station and Forcemain construction.

### ***Bid Period Assistance***

WWE will provide bid period assistance for the Lift Station and Offsite Pipelines as follows:

1. Participate in Pre-bid Conferences and preparation (assume 1 meeting) – to be led by PM team
2. Provide responses to contractor inquiries during bid advertisement for City use (assume qty. 4)
3. Prepare addenda as required for City use (assume qty. 2)
4. Review bids received with City

### ***Construction Phase Assistance***

1. Pre-Construction Conference Attendance (assume 1 meeting)
2. It is understood that the City intends to use Procore as the construction management software for tracking and documentation of RFIs, submittals, etc. Procore software platform will be provided and maintained by the City and PM team. ENGINEER will be responsible for inputting responses via this software platform.
3. Complete all submittal reviews (assume qty. 80)
4. Request for Information (RFI) and Request for Clarification (RFC) review, documentation and tracking (assume qty. 30)
  - a.
5. Change Order Request review, documentation and tracking (assume qty, 6)
6. Attend Weekly Jobsite Meetings (assume 12 months at 2x per month = qty. 24)
7. Assist in observing operational test of lift station (assume 3 site visits, one each for planning, initial, and final operational test)
8. Final Inspection, Report and Project Completion Recommendation Letter (assume 3 site visits, one each for development, progress review, and final punch list acceptance)
9. Record Drawings (assume redlines provided from Contractor and City Inspector, assume 80 hours for pump station and 40 hours for pipelines)

The following additional post-construction services could be provided by WWE should the City request additional services:

1. Arc-Flash and Device Coordination Study (per NFPA 70E and IEEE 1584)
2. O&M Manual Preparation

# WRF Lift Station and Offsite Pipelines Project Schedule

ID	Task Name	Duration	Start	Finish	2018	2019	2020	2021
1	City of Morro Bay WRF Lift Station and Offsite Pipelines	1058 days	Tue 11/14/17	Thu 12/22/21				
2	Notice to Proceed	0 days	Tue 11/14/17	Tue 11/14/17				
3	Kick-off Meeting	1 day	Wed 11/15/17	Thu 11/15/17				
4	Task 2: Site Alternatives Evaluation	91 days	Wed 11/15/17	Thu 3/22/18				
5	Data Collection, Review and Analysis	90 days	Fri 11/17/17	Thu 3/22/18				
6	Workshops	75 days	Wed 11/15/17	Wed 2/28/18				
7	Workshop 1: Site Alternatives, Pipeline Routes and Construction Methodology Review	0 days	Wed 11/15/17	Wed 11/15/17				
8	Workshop 2: Hydraulics, WRF Master Plan Design Criteria Review and Modifications	0 days	Wed 12/20/17	Wed 12/20/17				
9	Workshop 3: Desktop Geotechnical, Trenchless Feasibility, Pipeline Route Fatal Flaws	0 days	Wed 1/24/18	Wed 1/24/18				
10	Workshop 4: Environmental Constraints and EIR Support Review and Confirmation	0 days	Wed 12/20/17	Wed 12/20/17				
11	Workshop 5: Pipeline Route Analysis	0 days	Wed 2/14/18	Wed 2/14/18				
12	Workshop 6: Pump Selections Discussion and General Mechanical Layout, Grinders	0 days	Wed 1/17/18	Wed 1/17/18				
13	Workshop 7: Control Building Architectural, Odor Control, Back-Up Power, Aesthetics	0 days	Wed 2/7/18	Wed 2/7/18				
14	Workshop 8: Operations Planning	0 days	Wed 2/28/18	Wed 2/28/18				
15	Workshop 9: Electrical Systems, Local Controls and SCADA	0 days	Wed 2/28/18	Wed 2/28/18				
16	Workshop 10: Construction Sequencing	0 days	Wed 2/28/18	Wed 2/28/18				
17	Workshop: Task 2 Results Summary	0 days	Wed 3/21/18	Wed 3/21/18				
18	Lift Station Site Alternatives and Selection & Design Criteria Summary	0 days	Wed 3/21/18	Wed 3/21/18				
19	Pipeline Route Study and Preferred Alignment & Design Criteria Summary	0 days	Wed 3/21/18	Wed 3/21/18				
20	Task 3: Easement Acquisition Support	415 days	Thu 11/16/17	Wed 6/19/19				
21	Support Activities	240 days	Thu 11/16/17	Wed 10/17/18				
22	Preliminary Title Reports	30 days	Thu 11/16/17	Wed 12/27/17				
23	Complete Legal and Plats, QA/QC and Revisions	90 days	Thu 11/16/17	Wed 3/6/19				
24	Submit to City	0 days	Wed 3/6/19	Wed 3/6/19				
25	City Review, Provide Comments, Updates to Agent, Property Acquisition	75 days	Thu 3/7/19	Wed 6/19/19				
26	Task 4: Survey, Geotechnical Investigation, and Potholing	210 days	Thu 11/16/17	Wed 9/5/18				
27	Topographical Survey and Base Mapping for Design	210 days	Thu 11/16/17	Wed 9/5/18				
28	Existing Utility Research	45 days	Thu 11/16/17	Wed 1/17/18				
29	Preliminary Biological & Cultural Mapping Needs Assessment	120 days	Thu 12/21/17	Wed 6/6/18				
30	Phase 1 - Right of Way Mapping	45 days	Thu 11/16/17	Wed 1/17/18				
31	Aerial Mapping	60 days	Thu 3/22/18	Wed 6/13/18				
32	Ground Survey	90 days	Thu 3/22/18	Wed 7/25/18				
33	Subsurface Utility Engineering	120 days	Thu 3/22/18	Wed 9/5/18				
34	Phase 2 - Right of Way Mapping	120 days	Thu 3/22/18	Wed 9/5/18				
35	Phase 1 - Preliminary Geotechnical Services	40 days	Thu 11/16/17	Wed 1/10/18				
36	Phase 2 - Design Geotechnical Services	90 days	Thu 3/22/18	Wed 7/25/18				
37	Potholing	30 days	Thu 3/22/18	Wed 5/2/18				
38	Task 5: Concept Design Report	116 days	Thu 3/22/18	Thu 8/30/18				
39	Production	70 days	Thu 3/22/18	Wed 6/27/18				
40	Internal QA/QC and Revisions	15 days	Thu 6/28/18	Wed 7/18/18				

Date: Thu 11/2/17

Task Split Milestone

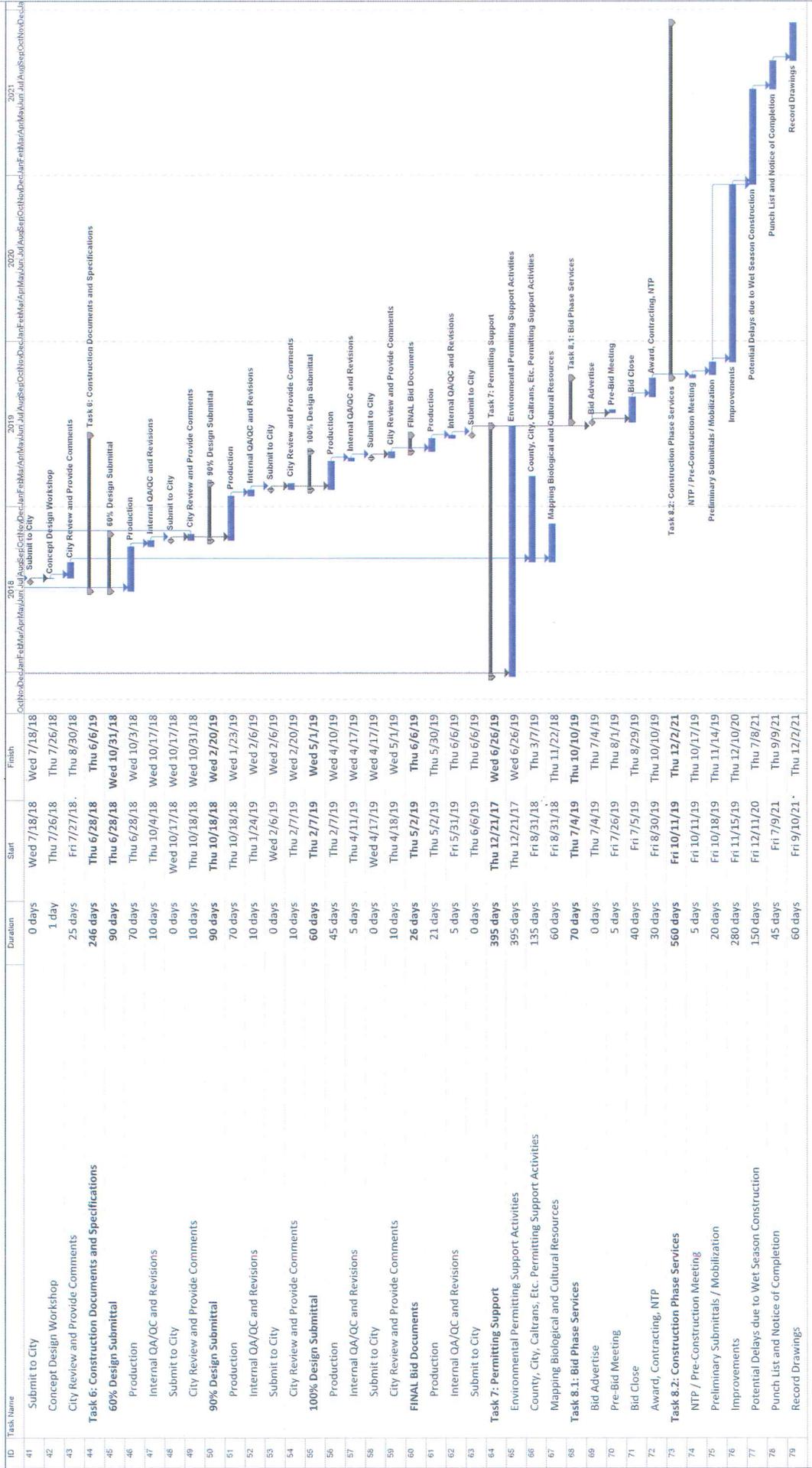
Summary Project Summary External Tasks

External Milestone Inactive Task Inactive Milestone

Manual Summary Rollup Manual Summary Start-only

Finish-only Progress Deadline

# WRF Lift Station and Offsite Pipelines Project Schedule



Date: Thu 11/2/17

Task: █ Task █ Split █ Milestone

Summary: █ Summary █ Project Summary █ External Tasks

External Milestone: █ External Milestone █ Inactive Task █ Inactive Milestone

Inactive Summary: █ Inactive Summary █ Manual Task █ Duration-only

Manual Summary Rollup: █ Manual Summary █ Manual Summary █ Start-only

Finish-only: █ Finish-only █ Progress █ Deadline

## PROPOSED COMPENSATION

Water Works Engineers proposes to complete the services described herein on a Time and Expense basis not to exceed \$1,353,574 without written consent from CLIENT and invoiced in accordance with our Hourly Billing Rates table below.

The total budget for each task will be as follows:

Subtask	Title	Budget*
1	Task 1: Project Management	\$64,090
2	Task 2: Site Alternatives Evaluation	\$106,236
3	Task 3: Easement Acquisition Support (Allowance)	\$34,090
4	Task 4: Survey, Geotechnical Investigation, and Potholing	\$254,423
5	Task 5: Concept Design Report	\$159,806
6	Task 6: Construction Documents and Specifications	\$506,749
7	Task 7: Permitting Support (Allowance)	\$45,500
8	Task 8: Engineering and Services during Construction	\$182,680
	<b>Total Budget</b>	<b>\$1,353,574</b>

\*A detailed fee basis work plan is provided on the following page for reference.

Classification	Title	Hourly Rate
AA	Administrative	\$96
E1	Staff Engineer	\$119
E2	Associate Engineer	\$146
E3	Project / Structural Engineer	\$165
E4	Senior Project Engineer / Manager	\$191
E5	Principal Engineer	\$221
I1	Field Inspector	\$129
I2	Senior Inspector	\$144
I3	Supervising Inspector	\$160
T1	CADD Tech 1	\$81
T2	CADD Tech 2	\$109
T3	CADD Tech 3	\$133

**Notes:**

1. A markup of 10% will be applied to all project related Direct Costs and Expenses.
2. An additional premium of 25% will be added to the above rates for Expert Witness and Testimony Services.
3. Rate effective through December 31, 2017. A 3% increase will be added for any services performed in each year thereafter.



## Exhibit B

### INSURANCE REQUIREMENTS

*Prior to the beginning of and throughout the duration of the Agreement, Consultant will maintain insurance in conformance with the requirements set forth below. Consultant will use existing coverage to comply with these requirements. If that existing coverage does not meet the requirements set forth here, Consultant agrees to amend, supplement or endorse the existing coverage to do so. Consultant acknowledges that the insurance coverage and policy limits set forth in this section constitute the minimum amount of coverage required. Any insurance proceeds available to City in excess of the limits and coverage required in this agreement and which is applicable to a given loss, will be available to City.*

*Consultant shall provide the following types and amounts of insurance:*

Commercial General Liability Insurance using Insurance Services Office “Commercial General Liability” policy from CG 00 01 or the exact equivalent. Defense costs must be paid in addition to limits. There shall be no cross liability exclusion for claims or suits by one insured against another. Limits are subject to review but in no event less than \$1,000,000 per occurrence.

Business Auto Coverage on ISO Business Auto Coverage from CA 00 01 including symbol 1 (Any Auto) or the exact equivalent. Limits are subject to review, but in no event to be less than \$1,000,000 per accident. If Consultant owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the general liability policy described above. If Consultant or Consultant’s employees will use personal autos in any way to perform the Scope of Services, then Consultant shall provide evidence of personal auto liability coverage for each such person.

Property Damage Insurance in an amount of not less than \$1,000,000 for damage to the property of each person on account of any one occurrence.

Workers Compensation on a state-approved policy form providing statutory benefits as required by law with employer’s liability limits.

Excess or Umbrella Liability Insurance (Over Primary) if used to meet limit requirements, shall provide coverage at least as broad as specified for the underlying coverages. Any such coverage provided under an umbrella liability policy shall include a drop down provision providing primary coverage above a maximum \$25,000 self-insured retention for liability not covered by primary but covered by the umbrella. Coverage shall be provided on a “pay on behalf” basis, with defense costs payable in addition to policy limits. Policy shall contain a provision obligating insurer at the time insured’s liability is determined, not requiring actual payment by the insured first. There shall be no cross liability exclusion precluding coverage for claims or suits by one insured against another. Coverage shall be applicable to City for injury to employees of Consultant, subContractors or others involved in the Work. The scope of coverage provided is subject to approval of City following receipt of proof of insurance as required herein. Limits are subject to review but in no event less than \$1,000,000 per occurrence.

Professional Liability or Errors and Omissions Insurance as appropriate shall be written on a policy

form coverage specifically designated to protect against acts, errors or omissions of the Consultant and "Covered Professional Services" as designated in the policy must specifically include work performed under this agreement. The policy limit shall be no less than \$2,000,000 per claim and in the aggregate. The policy must "pay on behalf of" the insured and must include a provision establishing the insurer's duty to defend. The policy retroactive date shall be on or before the effective date of this agreement.

*Insurance procured pursuant to these requirements shall be written by insurer that are admitted carriers in the state California and with an A.M. Bests rating of A- or better and a minimum financial size VII.*

General conditions pertaining to provision of insurance coverage by Consultant. Consultant and City agree to the following with respect to insurance provided by Consultant:

1. Consultant agrees to have its insurer endorse the third party general liability coverage required herein to include as additional insureds the City of Morro Bay and its officials, employees and agents, using standard ISO endorsement No. CG 2010 with an edition prior to 1992. Consultant also agrees to require all Consultants, and sub-Contractors to do likewise.
2. No liability insurance coverage provided to comply with this Agreement shall prohibit Consultant, or Consultant's employees, or agents, from waiving the right of subrogation prior to a loss. Consultant agrees to waive subrogation rights against City regardless of the applicability of any insurance proceeds, and to require all Consultants and sub-Contractors to do likewise.
3. All insurance coverage and limits provided by Consultant and available or applicable to this agreement are intended to apply to the full extent of the policies. Nothing contained in this Agreement or any other agreement relating to the City or its operations limits the application of such insurance coverage.
4. None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to City and approved of in writing.
5. No liability policy shall contain any provision or definition that would serve to eliminate so-called "third party action over" claims, including any exclusion for bodily injury to an employee of the insured or of any Consultant or subcontractor.
6. All coverage types and limits required are subject to approval, modification and additional requirements by the City, as the need arises. Consultant shall not make any reductions in scope of coverage (e.g. elimination of contractual liability or reduction of discovery period) that may affect City's protection without City's prior written consent.
7. Proof of compliance with these insurance requirements, consisting of certificates of insurance evidencing all of the coverages required and an additional insured endorsement to

Consultant's general liability policy, shall be delivered to City at or prior to the execution of this Agreement. In the event such proof of any insurance is not delivered as required, or in the event such insurance is canceled at any time and no replacement coverage is provided, City has the right, but not the duty, to obtain any insurance it deems necessary to protect its interests under this or any other agreement and to pay the premium. Any premium so paid by City shall be charged to and promptly paid by Consultant or deducted from sums due Consultant, at City's option.

8. It is acknowledged by the parties of this agreement that all insurance coverage required to be provided by Consultant or any sub-Contractor, is intended to apply first and on a primary, noncontributing basis in relation to any other insurance or self-insurance available to City.
9. Consultant agrees to ensure that subcontractors, and any other party involved with the Scope of Services who is brought onto or involved in the Scope of Services by Consultant, provide the same minimum insurance coverage required of Consultant. Consultant agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Consultant agrees that upon request, all agreements with subcontractors and others engaged in the Scope of Services will be submitted to City for review.
10. Consultant agrees not to self-insure or to use any self-insured retentions or deductibles on any portion of the insurance required herein and further agrees that it will not allow any Consultant, subContractor, Architect, Engineer or other entity or person in any way involved in the performance of the Scope of Services to self-insure its obligations to City. If Consultant's existing coverage includes a deductible or self-insured retention, the deductible or self-insured retention must be declared to the City. At the time the City shall review options with the Consultant, which may include reduction or elimination of the deductible or self-insured retention, substitution of other coverage, or other solutions.
11. The City reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving the Consultant ninety (90) days advance written notice of such change. If such change results in substantial additional cost to the Consultant, the City will negotiate additional compensation proportional to the increase benefit to City.
12. For purposes of applying insurance coverage only, this Agreement will be deemed to have been executed immediately upon any party hereto taking any steps that can be deemed to be in furtherance of or towards performance of this Agreement.
13. Consultant acknowledges and agrees that any actual or alleged failure on the part of City to inform Consultant of non-compliance with any insurance requirements in no way imposes any additional obligations on City nor does it waive any rights hereunder in this or any other regard.
14. Consultant will renew the required coverage annually as long as City, or its employees or agents face an exposure from operations of any type pursuant to this agreement. This obligation applies whether or not the agreement is canceled or terminated for any reason.

Termination of this obligation is not effective until City executes a written statement to that effect.

15. Consultant shall provide proof that policies of insurance required herein expiring during the term of this Agreement have been renewed or replaced with other policies providing at least the same coverage. Proof that such coverage has been ordered shall be submitted prior to expiration. A coverage binder or letter from Consultant's insurance agent to this effect is acceptable. A certificate of insurance and/or additional insured endorsement as required in these specifications applicable to the renewing or new coverage must be provided to City within five days of the expiration of the coverages.
16. The provisions of any workers' compensation or similar act will not limit the obligations of Consultant under this agreement. Consultant expressly agrees not to use any statutory immunity defenses under such laws with respect to City, its employees, officials and agents.
17. Requirements of specific coverage features or limits contained in this section are not intended as limitations on coverage, limits or other requirements nor as a waiver of any coverage normally provided by any given policy. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue, and is not intended by any party or insured to be limiting or all-inclusive.
18. These insurance requirements are intended to be separate and distinct from any other provision in this agreement and are intended by the parties here to be interpreted as such.
19. The requirements in this Section supersede all other sections and provisions of this Agreement to the extent that any other section or provision conflicts with or impairs the provisions of this Section.
20. Consultant agrees to be responsible for ensuring that no contract used by any party involved in any way with the Scope of Services reserves the right to charge City or Consultant for the cost of additional insurance coverage required by this agreement. Any such provisions are to be deleted regarding City. It is not the intent of City to reimburse any third party for the cost of complying with these requirements. There shall be no recourse against City for payment of premiums or other amounts with respect thereto.
21. Consultant agrees to provide immediate notice to City of any claim or loss against Consultant arising out of the work performed under this agreement. City assumes no obligation or liability by such notice, but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve City.

# Appendix B:

# SCADA Master Plan RFP





**NOTICE TO CONSULTANTS  
REQUEST FOR PROPOSAL  
FOR  
PROFESSIONAL SERVICES FOR  
SCADA SYSTEM MASTER PLAN**

**October 27, 2017**

**Issued by:**

X \_\_\_\_\_  
Rob Livick, PE/PLS – Public Works Director/City Engineer



## CITY OF MORRO BAY

Mailing Address: 595 Harbor Street, Morro Bay, California 93442  
Physical Address: 955 Shasta Avenue, Morro Bay, California 93442  
Telephone (805) 772-6261 FAX (805) 772-6268  
<http://www.morrobayca.gov/>

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October 27, 2017

### **Subject: Notice Requesting Proposals for Professional Services for the City of Morro Bay SCADA System Master Plan**

The City of Morro Bay (City) is requesting sealed proposals from professional controls and instrumentation service providers for the development of the City of Morro Bay SCADA System Master Plan.

All proposals must be received by the City of Morro Bay Public Works Department by 2:00 PM on Friday, December 1, 2017.

Proposals received after said time will not be considered. To guard against premature opening, each proposal shall be submitted to the City of Morro Bay Public Works Department in a sealed envelope plainly marked with the proposal title proposer's name, address, and time and date of the proposal submittal deadline.

Questions may be submitted to the City's Utilities Division Manager, Joe Mueller, via e-mail at [jmueller@morrobayca.gov](mailto:jmueller@morrobayca.gov) until November 17, 2017, at 5:00 PM. Responses and addenda will be posted to the City's website (<http://www.morro-bay.ca.us>) by November 27, 2017.

Onsite review of information related to the City's SCADA Master Plan Project will be provided at a non-mandatory Pre-Proposal Meeting to be held at 10 AM on November 10, 2017, at the Veteran's Memorial Building (209 Surf Street, Morro Bay).

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## **I. INSTRUCTIONS TO PROPOSERS**

### **A. Pre-Proposal Meeting**

A non-mandatory pre-proposal meeting for this request for proposal (RFP) will be held at 10:00 AM on November 10, 2017, at the Veteran's Memorial Building, located at 209 Surf Street, Morro Bay, CA 93442.

### **B. Receipt and Opening of Proposals**

The City invites qualified firms to submit sealed proposals for professional services for the City of Morro Bay SCADA System Master Plan. Proposals will be received at the City's Public Works Department by 2:00 PM on Friday, December 1, 2017, located at:

City of Morro Bay Public Works Department  
595 Harbor Street  
Morro Bay, CA 93442

An envelope containing five (5) hard copies and one electronic copy of the proposal must be sealed and clearly labeled "Proposal for Professional Services for the City of Morro Bay SCADA Master Plan." Include the electronic copy in Adobe PDF format on a CD, DVD, or flash drive. FAX submittals will not be accepted.

### **C. Examination of Requirements**

Each proposer must carefully examine the requirements of the request for proposal (RFP). Each proposer shall meet all of the terms and conditions of the RFP. By submitting a proposal, the proposer acknowledges acceptance of all provisions of the RFP.

### **D. Communications and Availability of Staff**

All timely requests for information submitted in writing will receive a written response from the City. Any oral communication shall not be binding on the City. All requests for information must be provided in writing and directed to the City's Utilities Division Manager, Joe Mueller, via e-mail at [jmueller@morrobayca.gov](mailto:jmueller@morrobayca.gov). To be considered, all requests for information must be received by 5:00 PM on November 17, 2017. Responses and addenda will be posted to the City's website (<http://www.morro-bay.ca.us>) by November 27, 2017.

The Utilities Division Manager and City staff are available for meetings and/or site visits with each potential proposer to discuss the project. All visits will be scheduled through the Utilities Division Manager by email (above) or by phone at (916) 826-3912.

## **II. DESCRIPTION OF WORK**

### **A. Project Description**

The City of Morro Bay, CA located in San Luis Obispo County, provides water and wastewater services to a population of approximately 10,300. Currently, the City has no system-wide or standardized SCADA system for either the water or wastewater utilities. In addition to the existing wastewater treatment plant (WWTP), the City operates multiple remote sites, including:

- Four brackish water wells (Morro wells)

- Five seawater wells
- Water treatment plant with separate seawater reverse osmosis and brackish water reverse osmosis treatment systems with associated automatic control system
- Wastewater treatment plant, which is expected to be replaced by a new Water Reclamation Facility
- State Water Project turnout, Coastal Branch
- Four water storage facilities
- Two water booster stations
- Three lift stations

The WWTP and remote sites operate primarily on Allen Bradley Programmable Logic Controllers (PLCs) and Opto-22 programmable automation controllers (PACs) from variety of manufacturers. With the exception of the four water storage facilities, alarms and reporting are accomplished via telephone auto-dialers and monitored alarm service. Water storage facilities communicate to the Corporation Yard via serial radio.

It is the City's intent to develop a standardized platform of PLCs, Operator Interface Terminals (OITs), SCADA software, and telemetry for the Water and Wastewater Divisions. The City intends to upgrade the remote sites and the existing WWTP (to the extent practicable) with the new SCADA system. It is assumed that all existing telephone or serial radio communication will be replaced with Ethernet radio where feasible.

The City is currently in the planning stages of a major capital improvement project to replace the 60-year-old Morro Bay-Cayucos Wastewater Treatment Plant with a new Water Reclamation Facility (WRF). It is anticipated the project will follow a "Guaranteed Maximum Price" (GMP) design build process. The Master Plan must consider the needs of the new facility during the evaluation of alternatives, and will provide a framework for development of specifications for the SCADA facilities at the new WRF. The new WRF will feature fiber-optic and/or radio communications for remote operation. The WRF will be manned 8 hours per day, five days per week, with full remote operation at all other times.

Decisions regarding recommended SCADA system design will be made based on overall value. New technologies that can reduce labor costs and overall cost of ownership should be considered. However, investment in new control and information systems will be limited to technologies that have been demonstrated on successful installations at similar sites. In addition, technology advances and history will be considered as part of a strategy to minimize risks associated with avoiding costs related to technology obsolescence. City staff have prior positive experience with Modicon and Allen-Bradley PLCs, and iFix, WonderWare, ClearScada, and ControlLogix software packages.

The City is requesting proposals from qualified system integrators to evaluate the existing system and its use by staff and to develop a Master Plan as a guide to update the existing and future SCADA systems. The City prefers a qualified instrumentation and control systems integrator to develop the SCADA Master Plan, as opposed to an engineering firm that only performs design and specifications. The system integrator selected to prepare the SCADA Master Plan will not be

precluded from participating on the Design/Build team that is selected for the construction of the new WRF. If the integrator selected to prepare the SCADA Master Plan is not part of the design/build team, the scope of this work may be expanded to include office engineering support to the City during construction of the new WRF (e.g. submittal review, response to RFIs, etc.).

The City's high-level goals for the SCADA Master Plan include:

- An evaluation of the existing facilities and SCADA system to determine any deficiencies
- Identification of City operational requirements and information / control needs
- Confirming Radio Path performance
- Developing a Master Plan to develop standardized water and wastewater SCADA facilities, upgrades to existing SCADA components to maximize reliability, responsiveness, cost effectiveness, security, and scalability
- Providing recommendations for system-wide software and communication hardware that will be utilized at the City's new WRF (to be designed by others), in order to ensure all systems are compatible

The Consultant selected for this project will be required to provide equipment, materials, and labor to complete the Scope of Work, and to prepare interim technical memoranda as documentation of the project elements. The City will provide the selected consultant with access to staff for interviews as needed throughout the project. Technical memoranda shall be prepared as a draft for City review, followed by final revision that incorporates comments received. It is expected that the Master Plan report will be based upon the interim technical memoranda, and will outline a planned approach and schedule to implement recommended changes or upgrades. Planning level cost estimates for each modification shall be included.

Maps showing City water and wastewater infrastructure are included in Appendix B.

## **B. Scope of Work**

The objective of this Scope of Work is to provide a framework for development of a Master Plan to achieve a flexible, reliable, and comprehensive SCADA environment. The Master Plan shall include specific recommendations with budgetary cost estimates and schedule for the next five to ten years. The Scope of Work anticipates four steps to developing the Master Plan: Assess Current Environment; Identify Goals and Metrics; Perform Radio Path Survey; and Prepare SCADA Master Plan report.

All deliverables will include four (4) hardbound copies and one electronic copy (.pdf) for each element of each deliverable.

## **1. Project Meetings and Coordination**

During project, the Consultant will attend progress/coordination meetings with the City staff to discuss issues related to the project and to update the City regarding progress. Anticipated meetings, at a minimum, are as follows:

- Project kick-off meeting
- WWTP and Remote Sites Visit (Assess Current Environment)
- Goals and Metrics Development Meeting
- Draft Goals and Metrics Tech Memo Review Meeting
- Draft Master Plan Review Meeting

The Consultant shall attend as many other working meetings as needed to complete the Master Plan. The Consultant will coordinate with the City on activities including scheduling meetings, tracking activities, and reporting on work in progress.

## **2. Assess Current Environment**

The assessment will provide an inventory and detailed written and graphical descriptions of the current environment that will enable effective analysis and recommendations.

The assessment shall accomplish the following tasks:

- Review and understand the existing SCADA system currently in use
- Document how the current SCADA system is used by operations staff
- Provide recommendations regarding capabilities that should be considered based on the observed operational practices
- Review and document current SCADA system deficiencies or needed upgrades

Elements to be identified and described at each facility may include:

- Hardware (Servers, HMIs, RTUs, PCs, PLCs, printers, etc.)
- Software (iFix, WonderWare, ClearScada, Financial Edge, Maintenance Connection, Rockwell, MS Office, Alchemy, etc.)
- Networks (cell, routers/switches, SAN-layer, cables/radios, protocols, providers, Internet access)
- Databases (process control (SCADA), financial, work, inventory, location (GIS), spreadsheets, etc.)
- Functions (process control (SCADA), financial management, work management, document management, production, telecommunications, security, reporting, website, backups, etc.)

The assessment report will include graphical presentations of each component in sufficient detail to analyze performance improvement opportunities. The report will document details of each component, including:

- Hardware (brand name, model, CPU type, speed, memory, age of equipment, etc.)
- Software (application vendor, product name, version, number of users, etc.)

- Network (network diagram showing media, number of channels/pairs, and protocols, list of network equipment with brand name, model, age, etc.)
- Databases (conceptual data model showing key indices, applications, interfaces and attributes)
- Functions (brief description of the function and necessary components)

Deliverable: Draft and Final Assessment Report

### **3. Identify Goals and Metrics**

This task will develop SCADA system performance goals and metrics designed to meet the City's needs. Examples of performance goals include:

- Capital cost
- Cost for implementation
- Backup
- Resiliency
- Redundancy/disaster recovery
- Reliability
- Security
- Flexibility
- Functionality
- Hardware
- Software
- Radio systems and frequencies
- Licensing requirements (e.g. FCC, software, support, etc.)
- Support
- Expandability
- Maintenance
- Ease of use
- Integration into enterprise management systems
- Operator interface (cloud-based, local, central, etc.)

During the Goals and Metrics meeting with City staff, the Consultant shall solicit feedback from City staff on goals for the SCADA system and future system upgrades. The Consultant shall discuss options and alternatives with City staff, compile City goals and requirements, and document the Consultant's understanding, along with alternatives and recommendations to meet the identified requirements. The outcome of the Goals and Metrics Task shall provide the Consultant with sufficient information to develop the recommendations of the Master Plan.

The Consultant shall prepare a draft and final Tech Memo (TM) summarizing the understanding of City needs and goals. The TM shall include a thorough discussion of solutions to be carried forward in the Master Plan.

Deliverable: Draft and Final Goals and Metrics Technical Memorandum

#### **4. Radio Path Survey**

The existing City water storage facilities communicate to the City Corporation Yard via serial radio. It is anticipated that it will be recommended that all remote City sites (water and wastewater) be upgraded to ethernet radio communication for future improvements. Site-specific field-based radio path surveys shall be performed at all remote sites to provide the City and consultant with information necessary to recommend system hardware and remote telemetry facilities. The survey shall include “as-measured” Remote Signal Strength Indicated (RSSI) values, and “projected” RSSI values to correct for limitations in the test equipment.

The radio survey shall document, at a minimum, the following:

- Test and existing (if present) antenna type, height, location, orientation/bearing
- RSSI
- Signal/Noise ratio
- Path length
- Fade margin (dB)
- Minimum Tx rate (Mbps)
- Antenna direction (degrees)

The outcome of the survey shall provide, at a minimum, recommendations for the following:

- Proposed antenna type, height, location, orientation/bearing
- Radio frequency and licensing requirements
- Radio path
- Gain
- Antenna wind survival rating

Remote sites will communicate to the existing WWTP. The consultant shall coordinate with the City to determine feasible sites and antenna height at the existing WWTP, and maximum allowable height at remote sites. The future WWTP will be connected to the existing WWTP through fiber-optic connection.

Deliverable: Radio Path Survey Report

## **5. Master Plan Report**

Following review and incorporation of the City's comments in all previous tasks, the Consultant shall incorporate all deliverables produced, and prepare a Master Plan Report and executive summary. The executive summary will include a summary description and a Gantt chart showing all action items for a five to ten-year implementation program.

This task shall include an evaluation of a variety of systems, a ranking and discussion of recommended solutions, and shall provide a thorough discussion of final recommendations.

The Master Plan Report shall include:

- Recommendations for replacement SCADA systems
- Information developed in interim Technical Memoranda
- Recommendations that meet Department of Homeland Security (DHS) Best Management Practices (BMPs)
- Written Disaster Recovery Plan meeting DHS requirements
- Recommendations for redundancy requirements (e.g. hot standby for primary PLCs)
- Recommendations that all packaged control systems utilize standardized PLCs recommended for all City facilities
- Recommendations for Factory Performance Testing (FAT) requirements during construction
- Cost estimates for implementation
- Ongoing system maintenance requirements (e.g. staffing needs, licensing, associated cost estimates)
- Estimated system life cycle and strategies to maximize the system life
- Telemetry system block diagrams showing existing and recommended systems
- Remote site instrumentation and PLC I/O lists
- PLC-Based Master Telemetry Unit (Location to be determined by Radio Site Survey)
- Radio Repeater (if required)
- Communication recommendations and installation diagrams
- Recommended Historian and reporting additions
- Timeline for five-year implementation

Deliverables: Draft and Final Master Plan Report

### C. Project Schedule

The anticipated project schedule is summarized below.

Milestone	Date
Pre-Proposal Meeting	11/10/17
Written Questions Due	11/17/17
Responses to Questions Posted	11/27/17
Proposals Due	12/1/17
Consultant Interviews (at the City's Option)	12/11/17 – 12/15/17
Consultant Selection / Council Approval	1/9/18
Notice to Proceed	1/12/18
Draft Assessment Report	2/9/18
Final Assessment Report	3/2/18
Draft Goals and Metrics Technical Memorandum	3/23/18
Final Goals and Metrics Technical Memorandum	4/20/18
Draft Master Plan Report	5/4/18
Final Master Plan Report	6/1/18

## GENERAL TERMS AND CONDITIONS

### A. Proposal Requirements

#### 1. Requirement to Meet All Provisions.

Each individual or firm submitting a proposal shall meet all of the terms and conditions of the Request for Proposals (RFP) package. By virtue of its proposal submittal, proposing consultant acknowledges agreement with and acceptance of all provisions of the RFP specifications.

#### 2. Proposal Submittal.

Each proposal must be submitted on the form(s) provided in the RFP and accompanied by any other required submittals or supplemental materials.

#### 3. Insurance Certificate.

Each proposal must include a current certificate of insurance showing:

- a. The insurance carrier and its A.M. Best rating.
- b. Scope of coverage and limits.
- c. Deductibles and self-insured retention.

The purpose of this submittal is to generally assess the adequacy of the proposing consultant's insurance coverage during proposal evaluation; endorsements are not required until contract award.

#### 4. Proposal Withdrawal and Opening.

A proposing consultant may withdraw its proposal, without prejudice, prior to the time specified for the proposal opening, by submitting a written request to the Public Works Director for its withdrawal, in which event the proposal will be returned to the consultant unopened. The City will not consider proposals received after the time specified or at any place other than that stated in the "Notice Requesting Proposals." The City will open and declare all proposals in public. Proposing consultants or their representatives are invited to be present at the opening of the proposals.

#### 5. Submittal of One Proposal Only.

No individual or business entity of any kind shall be allowed to make or file, or to be interested in more than one proposal, except an alternative proposal when specifically requested in writing by the City; however, an individual or business entity which has submitted a sub-proposal to a proposing consultant submitting a proposal, or who has quoted prices on materials to such proposing consultant, is not thereby disqualified from submitting a sub-proposal or from quoting prices to other proposing consultants submitting proposals.

#### 6. Content:

The Proposal shall be concise, well organized and demonstrate the proposer's understanding of the Project and their applicable qualifications and experience. The proposal shall be limited to twenty (20) pages, double sided, exclusive of resumes, cover letter (2 pages), graphics, fee schedule, project schedule, and covers. Proposals should include the minimum Proposal Content as described in Section IV. Any additional materials that will support your Proposal may be included. However, if they do not directly address the stated requirements, please include them

in a separate appendix. The City will consider all material submitted within the page limit, but concentrate on that which addresses the City's Project requirements.

7. Subconsultants:

Identify all subconsultants to be used during the term of the project and provide a list of responsible staff and their qualifications.

8. Insurance:

The consultant shall obtain at their own cost an insurance policy meeting the City's requirements as described in the City's Standard Agreement (Appendix A).

9. Consultant's Compensation:

The Consultant shall include a breakdown of labor, subconsultants, and other direct costs with estimated fees; a fee schedule with hourly rates; and the basis for charging other direct costs (including materials, travel, and subconsultants).

10. Commitment:

The Proposal shall be signed by the individual with power to bind the company to the scope of work and approach identified in the document. Parts or the entire Proposal will be the basis for the subsequent proposal and contract for the work.

11. Statement of Contract Disqualifications:

Consultant shall include a signed statement of whether it or any of its employees or officers who have a proprietary interest in it has ever been disqualified, removed or otherwise prevented from proposing on or completing a municipal government project for any reason. If so, provide a description and explanation of the circumstances.

12. Exceptions:

Consultant shall certify that they take no exceptions to this RFP, including but not limited to the provisions of the City's Standard Agreement (**Appendix A**). If the Consultant takes any exceptions, identify the specific portion and provide a full explanation.

**B. Contract Award and Execution**

1. The City reserves the right to retain all proposals for a period of 60 days for examination and comparison. The City also reserves the right to waive non-substantial irregularities in any proposal, to reject any or all proposals, to reject or delete one part of a proposal and accept the other, except to the extent that proposals are qualified by specific limitations. The special terms and conditions of these specifications include proposal evaluation and contract award criteria.
2. The City reserves full discretion to determine the competence and responsibility, professionally and/or financially, of proposing consultants. Proposing consultants will provide, in a timely manner, all information that the City deems necessary to make such a decision.

3. The proposing consultant to whom award is made (Consultant) shall execute a written contract with the City within ten (10) calendar days after notice of the award has been sent by mail to it at the address given in its proposal. The contract shall be made in substantially the form adopted by the City and incorporated in these specifications.
4. Even if selected, the City reserves the right to terminate any agreement reached with the selected firm at any time and in an appropriate manner.
5. The proposing consultant to whom award is made (Consultant) shall execute a written contract with the City within ten (10) calendar days after notice of the award has been sent by mail to it at the address given in its proposal. The contract shall be made in substantially the form adopted by the City and incorporated in these specifications.
6. The Consultant shall provide insurance policies and endorsements of insurance policies in the form, coverages, and amounts specified in the Consultant Services Agreement within 10 (ten) calendar days after notice of contract award as a precondition to contract execution.
7. The Consultant must have a valid City of Morro Bay business license prior to execution of the contract. Additional information regarding the City's business license program is available at the City of Morro Bay City Hall at 595 Harbor Street, Morro Bay, CA, 93442, (805) 772-6200.

### **III. PROPOSAL CONTENT AND SELECTION PROCESS**

#### **A. Proposal Content**

1. Cover Letter/Executive Summary
2. Project Organization and Key Personnel – Provide a project organization chart showing the names of all key personnel assigned to the Project and their primary responsibility. Any changes in key personnel and subconsultants after the award of contract must be proposed in writing and approved by the City before any change is made.
3. Experience and References - Include professional references for five (5) similar projects performed with the proposed project team members. Provide project descriptions and current contact information for references that illustrate the quality of past performance of the project team.
4. Project Understanding – Describe the consultant's understanding of the project. Identify the potential challenges and critical tasks, the recommended project approach, and describe how the consultant's team is best suited to address the key issues.
5. Proposed Scope of Work – Address and detail all the tasks identified in this RFP. Additional tasks identified during development of the RFP that may be applicable may be included as optional. Include a project schedule showing anticipated completion time for each task.

6. Proposed Compensation
7. Exceptions, statement of past disqualifications, insurance certificate, and other items identified in Section III and throughout the remainder of this RFP.
8. Resumes – Include resumes of all key personnel, including subconsultants, tailored for this project.
9. Submittal Forms and Requirements
  - Certificate of insurance
  - Subconsultant list
  - References from at least three firms for whom you have provided similar services (use form in proposal package)
  - Statement and explanation of any instances regarding past governmental agency bidding or contract disqualifications or removal from a project.

**B. Proposal Evaluation and Consultant selection**

1. Selection Criteria

Proposals will be evaluated by a review committee based on the following criteria:

<b>Criteria</b>	<i>Points</i>
1. Understanding of the Scope of Work (e.g. completeness of proposal; demonstrated grasp of work to be completed under this contract; expressed understanding of the project scope, objectives, and complexity).	15
2. Past performance and related experience of firm in planning, implementing, and integrating new water and wastewater SCADA systems with existing and new facilities (e.g. previous experience in performing similar projects, results of reference checks, administrative information)	30
3. Expertise of technical and professional team members assigned to the project (e.g. team qualifications, specialized experience, professional competency of members in critical aspects, proven innovative approaches/techniques, knowledge of issues associated with the facility master plan).	25
4. Proposed project approach (e.g. conceptual and technical approach in preparing the plan, including assurance of the consultant’s ability to provide deliverables in a timely fashion and with high quality).	20
6. Demonstrated ability to conform to City contract requirements (The City’s standard general consultant contract is attached to this Request for Proposals).	10
Total	100

## 2. Contract Award

Subject to the reservations set forth in Section B of the General Terms and Conditions of these specifications, the City will award the contract to the most qualified, responsible, responsive proposing consultant, using the proposal evaluation and selection criteria.

Following the award of contract, the consultant will negotiate with the City a final compensation and payment schedule tied to accomplishing key tasks. The proposed compensation and payment schedule shall be tabulated in spreadsheet form, presenting each task complete with the level of effort from each team member. The Consultant shall monitor costs throughout the project. The “not to exceed fee” for this project will not be increased unless the scope of work is amended to include additional consulting services. Any increase in fees for additional consulting services must be confirmed in writing by the City **prior** to undertaking extra work.

## 3. Failure to Accept Contract

The following will occur if the Consultant whose proposal is accepted fails or refuses to enter into the contract: the City may negotiate with the next most qualified proposing consultant.

## 4. Ownership of Materials

All original drawings, plan documents, computer models and other materials prepared by or in possession of the Consultant as part of the work or services under these specifications shall become the permanent property of the City. The Consultant shall deliver any or all of these materials and documents to the City upon demand.

## 5. Release of Reports and Information

Any reports, information, data, or other material given to, prepared by or assembled by the Consultant as part of the work or services under these specifications shall be the property of City and shall not be made available to any individual or organization by the Consultant without the prior written approval of the City.

## 6. Copies of Reports and Information

If the City request additional copies of reports, drawings, specifications, or any other material in addition to what the Consultant is required to furnish in limited quantities as part of the work or services under these specifications, the Consultant shall provide such additional copies as are requested, and City shall compensate the Consultant for the costs of duplicating of such copies at the Consultant's direct expense.

## 7. Accuracy of Scope of Consultant Services

The City finds the Scope of Consultant Services for this project to be accurate and to contain no affirmative misrepresentation or any concealment of fact. Although the effect of ambiguities or defects in the Scope will be as determined by law, any patent ambiguity or defect shall give rise to a duty of proposing consultant to inquire prior to proposal submittal. To the extent that the Scope of Consultant Services constitute performance parameters, the City shall not be liable for costs incurred by the successful proposing consultant to achieve the project's objectives or standards beyond the amounts provided therefore in the proposal.

**V. PROPOSAL SUBMITTAL FORMS**

**Subconsultant Listing**

**References**

**Statements of Past Contract Disqualification**

## SUBCONSULTANT LISTING

Describe briefly the work scope of each sub-consultant. Attach additional pages if required.

### Sub-consultant

Company Name	
Contact Individual	
Telephone & FAX number	
Street Address	
City, State, Zip Code	
Description of services to be provided.	

### Sub-consultant

Company Name	
Contact Individual	
Telephone & FAX number	
Street Address	
City, State, Zip Code	
Description of services to be provided	

### Sub-consultant

Company Name	
Contact Individual	
Telephone & FAX number	
Street Address	
City, State, Zip Code	
Description of services to be provided	

## REFERENCES

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Number of years engaged in providing the services included within the scope of the consultant services under the present business name: \_\_\_\_\_.

Describe fully the last three contracts performed by your firm that demonstrate your ability to provide the services included with the scope of the consultant services. Attach additional pages if required. The City reserve the right to contact each of the references listed for additional information regarding your firm's qualifications.

**Reference No. 1**

Customer Name	
Contact Individual	
Telephone & FAX number	
Street Address	
City, State, Zip Code	
Description of services provided including contract amount, when provided and project outcome	

**Reference No. 2**

Customer Name	
Contact Individual	
Telephone & FAX number	
Street Address	
City, State, Zip Code	
Description of services provided including contract amount, when provided and project outcome	

**Reference No. 3**

Customer Name	
Contact Individual	
Telephone & FAX number	
Street Address	
City, State, Zip Code	
Description of services provided including contract amount, when provided and project outcome	



## Appendices

A.

City Consultant Agreement

CITY OF MORRO BAY

AGREEMENT FOR CONSULTANT SERVICES

THIS AGREEMENT is made, by and between, the City of Morro Bay, a municipal corporation (“City”) and \_\_\_\_\_, a California corporation, *and/or* [insert individual’s name] dba [insert business name if not a corporation] (“Consultant”). In consideration of the mutual covenants and conditions set forth herein the parties agree as follows:

1. TERM

This Agreement shall commence on \_\_\_\_\_, 20\_\_, and shall remain and continue in effect until tasks described herein are completed, but in no event later than \_\_\_\_\_, 20\_\_, unless sooner terminated pursuant to the provisions of this Agreement.

2. SERVICES

Consultant shall perform the tasks described and set forth in Exhibit A, attached hereto and incorporated herein as though set forth in full. Consultant shall complete the tasks according to the schedule of performance which is also set forth in Exhibit A.

3. PERFORMANCE

Consultant shall at all times faithfully, competently and to the best of their ability, experience, and talent, perform all tasks described herein. Consultant shall employ, at a minimum, generally accepted standards and practices utilized by persons engaged in providing similar services as are required of Consultant hereunder in meeting its obligations under this Agreement.

4. CITY MANAGEMENT

City’s \_\_\_\_\_ Director shall represent City in all matters pertaining to the administration of this Agreement, review and approval of all products submitted by Consultant, but not including the authority to enlarge the Tasks to Be Performed or change the compensation due to Consultant. City’s City Manager shall be authorized to act on City’s behalf and to execute all necessary documents which enlarge the Tasks to Be Performed or change Consultant’s compensation, subject to Section 5 hereof.

5. PAYMENT

(a) City agrees to pay Consultant monthly, in accordance with the payment rates and terms and the schedule of payment as set forth in Exhibit A, attached hereto and incorporated herein by this reference as though set forth in full, and based upon actual time spent on the above

tasks. That amount shall not exceed *{INSERT AMOUNT IN THE FOLLOWING FORMAT}. Twenty-five Thousand, Seven Hundred Fifty-three Dollars and No Cents (\$25,753.00)* for the total term of the Agreement unless additional payment is approved as provided in this Agreement.

(b) Consultant shall not be compensated for any services rendered in connection with its performance of this Agreement which are in addition to those set forth herein, unless such additional services are authorized in advance and in writing by the City Manager. Consultant shall be compensated for any additional services in the amounts and in the manner as agreed to by City Manager and Consultant at the time City's written authorization is given to Consultant for the performance of said services. The City Manager may approve additional work not to exceed twenty five (25%) of the amount of the Agreement, but in no event shall such sum exceed *{INSERT AMOUNT 25% OF THE ABOVE TOTAL, IN THE FOLLOWING FORMAT} Six Thousand, Four Hundred Thirty-eight Dollars and Twenty-five cents (\$6,438.25)*. Any additional work in excess of this amount shall be approved by the City Council.

(c) Consultant will submit invoices monthly for actual services performed. Invoices shall be submitted on or about the first business day of each month, or as soon thereafter as practical, for services provided in the previous month. Payment shall be made within thirty (30) days after receipt of each invoice as to all non-disputed fees. If City disputes any of Consultant's fees, then it shall give written notice to Consultant within fifteen (15) days of receipt of an invoice of any disputed fees set forth on the invoice.

## 6. SUSPENSION OR TERMINATION OF AGREEMENT WITHOUT CAUSE

(a) City may at any time, for any reason, with or without cause, suspend or terminate this Agreement, or any portion hereof, by serving upon Consultant at least ten-days' (10-days') prior written notice. Upon receipt of said notice, Consultant shall immediately cease all work under this Agreement, unless the notice provides otherwise. If City suspends or terminates a portion of this Agreement, then such suspension or termination shall not make void or invalidate the remainder of this Agreement.

(b) In the event this Agreement is terminated pursuant to this Section, City shall pay to Consultant the actual value of the work performed up to the time of termination. Upon termination of the Agreement pursuant to this Section, Consultant will submit an invoice to City pursuant to Section 3.

## 7. DEFAULT OF CONSULTANT

(a) Consultant's failure to comply with the provisions of this Agreement shall constitute a default. In the event Consultant is in default for cause under the terms of this Agreement, City shall have no obligation or duty to continue compensating Consultant for any work performed after the date Consultant is notified of default and can terminate this Agreement immediately by written notice to Consultant. If such failure by Consultant to make progress in the performance for work hereunder arises out of causes beyond Consultant's control, and without fault or negligence of Consultant, then it shall not be considered a default.

(b) If the City Manager of his/her delegate determines that Consultant is in default in the performance of any of the terms or conditions of this Agreement, then he/she shall cause to be served upon Consultant a written notice of the default. Consultant shall have ten (10) days after service upon it of said notice in which to cure the default by rendering a satisfactory performance. In the event that Consultant fails to cure its default within such period of time, City shall have the right, notwithstanding any other provision of this Agreement, to terminate this Agreement without further notice and without prejudice to any other remedy to which it may be entitled at law, in equity or under this Agreement.

## 8. OWNERSHIP OF DOCUMENTS

(a) Consultant shall maintain complete and accurate records with respect to sales, costs, expenses, receipts, and other such information required by City that relate to the performance of services under this Agreement. Consultant shall maintain adequate records of services provided in sufficient detail to permit an evaluation of services. All such records shall be maintained in accordance with generally accepted accounting principles and shall be clearly identified and readily accessible. Consultant shall provide free access to the representatives of City or its designees at reasonable times to such books and records; shall give City the right to examine and audit said books and records; shall permit City to make transcripts therefrom as necessary; and shall allow inspection of all work, data, documents, proceedings, and activities related to this Agreement. Such records, together with supporting documents, shall be maintained for a period of three (3) years after receipt of final payment.

(b) Upon completion of, and full payment by City for services performed pursuant to, this Agreement, all final work product such as documents, designs, drawings, maps, models, computer files, surveys, notes, and other documents prepared in the course of providing the services to be performed pursuant to this Agreement shall become the sole property of City and may be used, reused, or otherwise disposed of by City without the permission of Consultant. With respect to computer files, Consultant shall make available to City, as a service in addition to those set forth herein, at Consultant's office and upon reasonable written request by City, the necessary computer software and hardware for purposes of accessing, compiling, transferring, and printing computer files.

## 9. INDEMNIFICATION

(a) Indemnification for Professional Liability. When the law establishes a professional standard of care for Consultant's Services, to the fullest extent permitted by law, Consultant shall indemnify, protect, defend and hold harmless City and any and all of its officials, employees and agents ("Indemnified Parties") from and against any and all losses, liabilities, damages, costs and expenses, including reasonable attorney's fees and costs to the extent same are caused by any negligent act, error or omission of Consultant, its officers, agents, employees or subconsultants (or any entity or individual that Consultant shall bear the legal liability thereof) in the performance of professional services under this agreement. City agrees to hold harmless and indemnify Consultant from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising out of or in any way connected with the

modification, misinterpretation, misuse or reuse by others of the computer files or any other document provided by Consultant under this Agreement.

(b) Indemnification for Other Than Professional Liability. Other than in the performance of professional services and to the full extent permitted by law, Consultant shall indemnify, defend and hold harmless City, and any and all of its employees, officials and agents from and against any liability (including liability for claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged or threatened, including attorneys' fees and costs, court costs, interest, defense costs, and expert witness fees), where the same arise out of, are a consequence of, or are in any way attributable to, in whole or in part, the performance of this Agreement by Consultant or by any individual or entity for which Consultant is legally liable, including but not limited to officers, agents, employees or subconsultants of Consultant.

(c) General Indemnification Provisions. Consultant agrees to obtain executed indemnity agreements with provisions identical to those set forth here in this section from each and every subconsultant or any other person or entity involved by, for, with or on behalf of Consultant in the performance of this agreement. In the event Consultant fails to obtain such indemnity obligations from others as required here, Consultant agrees to be fully responsible according to the terms of this section. Failure of City to monitor compliance with these requirements imposes no additional obligations on City and will in no way act as a waiver of any rights hereunder. This obligation to indemnify and defend City as set forth here is binding on the successors, assigns or heirs of Consultant and shall survive the termination of this agreement or this section.

## 10. INSURANCE

Consultant shall maintain prior to the beginning of and for the duration of this Agreement insurance coverage as specified in Exhibit B attached to and part of this agreement.

## 11. INDEPENDENT CONSULTANT

(a) Consultant is and shall at all times remain as to City a wholly independent Consultant. The personnel performing the services under this Agreement on behalf of Consultant shall at all times be under Consultant's exclusive direction and control. Neither City nor any of its officers, employees, or agents shall have control over the conduct of Consultant or any of Consultant's officers, employees, or agents, except as set forth in this Agreement. Consultant shall not at any time or in any manner represent that it or any of its officers, employees, or agents are in any manner officers, employees, or agents of City. Consultant shall not incur or have the power to incur any debt, obligation, or liability whatever against City, or bind City in any manner.

(b) No employee benefits shall be available to Consultant in connection with the performance of this Agreement. Except for the fees paid to Consultant as provided in the Agreement, City shall not pay salaries, wages, or other compensation to Consultant for performing services hereunder for City. City shall not be liable for compensation or indemnification to Consultant for injury or sickness arising out of performing services hereunder.

12. LEGAL RESPONSIBILITIES

Consultant shall keep itself informed of State and Federal laws and regulations which in any manner affect those employed by it or in any way affect the performance of its service pursuant to this Agreement. Consultant shall at all times observe and comply with applicable legal requirements in effect at the time the drawings and specifications are prepared. City, and its officers and employees, shall not be liable at law or in equity occasioned by failure of Consultant to comply with this Section.

13. UNDUE INFLUENCE

Consultant declares and warrants that no undue influence or pressure is used against or in concert with any officer or employee of City in connection with the award, terms or implementation of this Agreement, including any method of coercion, confidential financial arrangement, or financial inducement. No officer or employee of City will receive compensation, directly or indirectly, from Consultant, or from any officer, employee or agent of Consultant, in connection with the award of this Agreement or any work to be conducted as a result of this Agreement. Violation of this Section shall be a material breach of this Agreement entitling City to any and all remedies at law or inequity.

14. NO BENEFIT TO ARISE TO LOCAL EMPLOYEES

No member, officer, or employee of City, or their designees or agents, and no public official who exercises authority over or responsibilities with respect to the Project during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in any agreement or sub-agreement, or the proceeds thereof, for work to be performed in connection with the Project performed under this Agreement.

15. RELEASE OF INFORMATION/CONFLICTS OF INTEREST

(a) All information gained by Consultant in performance of this Agreement shall be considered confidential and shall not be released by Consultant without City's prior written authorization. Consultant, its officers, employees, agents, or subconsultants, shall not without written authorization from the City Manager or unless requested by the City Attorney, voluntarily provide declarations, letters of support, testimony at depositions, response to interrogatories, or other information concerning the work performed under this Agreement or relating to any project or property located within City. Response to a subpoena or court order shall not be considered "voluntary" provided Consultant gives City notice of such court order or subpoena.

(b) Consultant shall promptly notify City if Consultant, or any of its officers, employees, agents, or subconsultants are served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions, or other discovery request, court order, or subpoena from any person or party regarding this Agreement and the work performed thereunder or with respect to any project or property located within City. City retains the right, but has no obligation, to represent Consultant or be present at any deposition,

hearing, or similar proceeding. Consultant agrees to cooperate with City by providing the opportunity to review any response to discovery requests provided by Consultant. However, City's right to review any such response does not imply or mean the right by City to control, direct, or rewrite said response.

16. NOTICES

Any notices which either party may desire to give to the other party under this Agreement must be in writing and may be given either by (i) personal service, (ii) delivery by a reputable document delivery service, such as but not limited to, Federal Express, which provides a receipt showing date and time of delivery, or (iii) mailing in the United States Mail, certified mail, postage prepaid, return receipt requested, addressed to the address of the party as set forth below or at any other address as that party may later designate by notice:

To City: City of Morro Bay  
595 Harbor Street  
Morro Bay, CA 93442  
Attention: **City Clerk**

To Consultant:

17. ASSIGNMENT

Consultant shall not assign the performance of this Agreement, nor any part thereof, nor any monies due hereunder, without prior written consent of City.

18. LICENSES

At all times during the term of this Agreement, Consultant shall have in full force and effect, all licenses and tax certificates required of it by law for the performance of the services described in this Agreement.

19. GOVERNING LAW

City and Consultant understand and agree that the laws of the State of California shall govern the rights, obligations, duties, and liabilities of the parties to this Agreement and also govern the interpretation of this Agreement. Any litigation concerning this Agreement shall take place in the municipal, superior, or federal district court with jurisdiction over City.

20. ENTIRE AGREEMENT

This Agreement contains the entire understanding between the parties relating to the obligations of the parties described in this Agreement. All prior or contemporaneous agreements, understandings, representations, and statements, oral or written, are merged into this Agreement and shall be of no further force or effect. Each party is entering into this Agreement based solely upon the representations set forth herein and upon each party's own independent investigation of any and all facts such party deems material.

21. CONTENTS OF PROPOSAL

Consultant is bound by the contents of the proposal submitted by Consultant, Exhibit A hereto.

22. AUTHORITY TO EXECUTE THIS AGREEMENT

The person or persons executing this Agreement on behalf of Consultant warrants and represents he/she has the authority to execute this Agreement on behalf of Consultant and has the authority to bind Consultant to the performance of its obligations hereunder.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed the day and year first above written.

CITY OF MORRO BAY

CONSULTANT (2 signatures required)

By: \_\_\_\_\_  
David Buckingham, City Manager

By: \_\_\_\_\_  
(Signature)

Attest:  
  
\_\_\_\_\_  
Dana Swanson, City Clerk

\_\_\_\_\_  
(Typed Name)

Its: \_\_\_\_\_  
(Title)

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed Name)

Its: \_\_\_\_\_  
(Title)

Approved As To Form:

\_\_\_\_\_  
Joseph W. Pannone, City Attorney

**EXHIBIT A**

**TASKS TO BE PERFORMED**

**EXHIBIT B**  
**PAYMENT SCHEDULE**

**EXHIBIT C**  
**INSURANCE REQUIREMENTS**

*Prior to the beginning of and throughout the duration of the Agreement, Consultant will maintain insurance in conformance with the requirements set forth below. Consultant will use existing coverage to comply with these requirements. If that existing coverage does not meet the requirements set forth here, Consultant agrees to amend, supplement or endorse the existing coverage to do so. Consultant acknowledges that the insurance coverage and policy limits set forth in this section constitute the minimum amount of coverage required. Any insurance proceeds available to City in excess of the limits and coverage required in this agreement and which is applicable to a given loss, will be available to City.*

*Consultant shall provide the following types and amounts of insurance:*

Commercial General Liability Insurance using Insurance Services Office “Commercial General Liability” policy from CG 00 01 or the exact equivalent. Defense costs must be paid in addition to limits. There shall be no cross liability exclusion for claims or suits by one insured against another. Limits are subject to review but in no event less than \$1,000,000 per occurrence.

Business Auto Coverage on ISO Business Auto Coverage from CA 00 01 including symbol 1 (Any Auto) or the exact equivalent. Limits are subject to review, but in no event to be less than \$1,000,000 per accident. If Consultant owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the general liability policy described above. If Consultant or Consultant’s employees will use personal autos in any way to perform the Scope of Services, then Consultant shall provide evidence of personal auto liability coverage for each such person.

Property Damage Insurance in an amount of not less than \$1,000,000 for damage to the property of each person on account of any one occurrence.

Workers Compensation on a state-approved policy form providing statutory benefits as required by law with employer’s liability limits.

Excess or Umbrella Liability Insurance (Over Primary) if used to meet limit requirements, shall provide coverage at least as broad as specified for the underlying coverages. Any such coverage provided under an umbrella liability policy shall include a drop down provision providing primary coverage above a maximum \$25,000 self-insured retention for liability not covered by primary but covered by the umbrella. Coverage shall be provided on a “pay on behalf” basis, with defense costs payable in addition to policy limits. Policy shall contain a provision obligating insurer at the time insured’s liability is determined, not requiring actual payment by the insured first. There shall be no cross liability exclusion precluding coverage for claims or suits by one insured against another. Coverage shall be applicable to City for injury to employees of Consultant, subcontractors or others involved in the Work. The scope of coverage provided is subject to approval of City following receipt of proof of insurance as required herein. Limits are subject to review but in no event less than \$1,000,000 per occurrence.

Professional Liability or Errors and Omissions Insurance as appropriate shall be written on a policy form coverage specifically designated to protect against acts, errors or omissions of Consultant and "Covered Professional Services" as designated in the policy must specifically include work performed under this agreement. The policy limit shall be no less than \$2,000,000 per claim and in the aggregate. The policy must "pay on behalf of" the insured and must include a provision establishing the insurer's duty to defend. The policy retroactive date shall be on or before the effective date of this agreement.

*Insurance procured pursuant to these requirements shall be written by insurer that are admitted carriers in the state California and with an A.M. Best's rating of A- or better and a minimum financial size VII.*

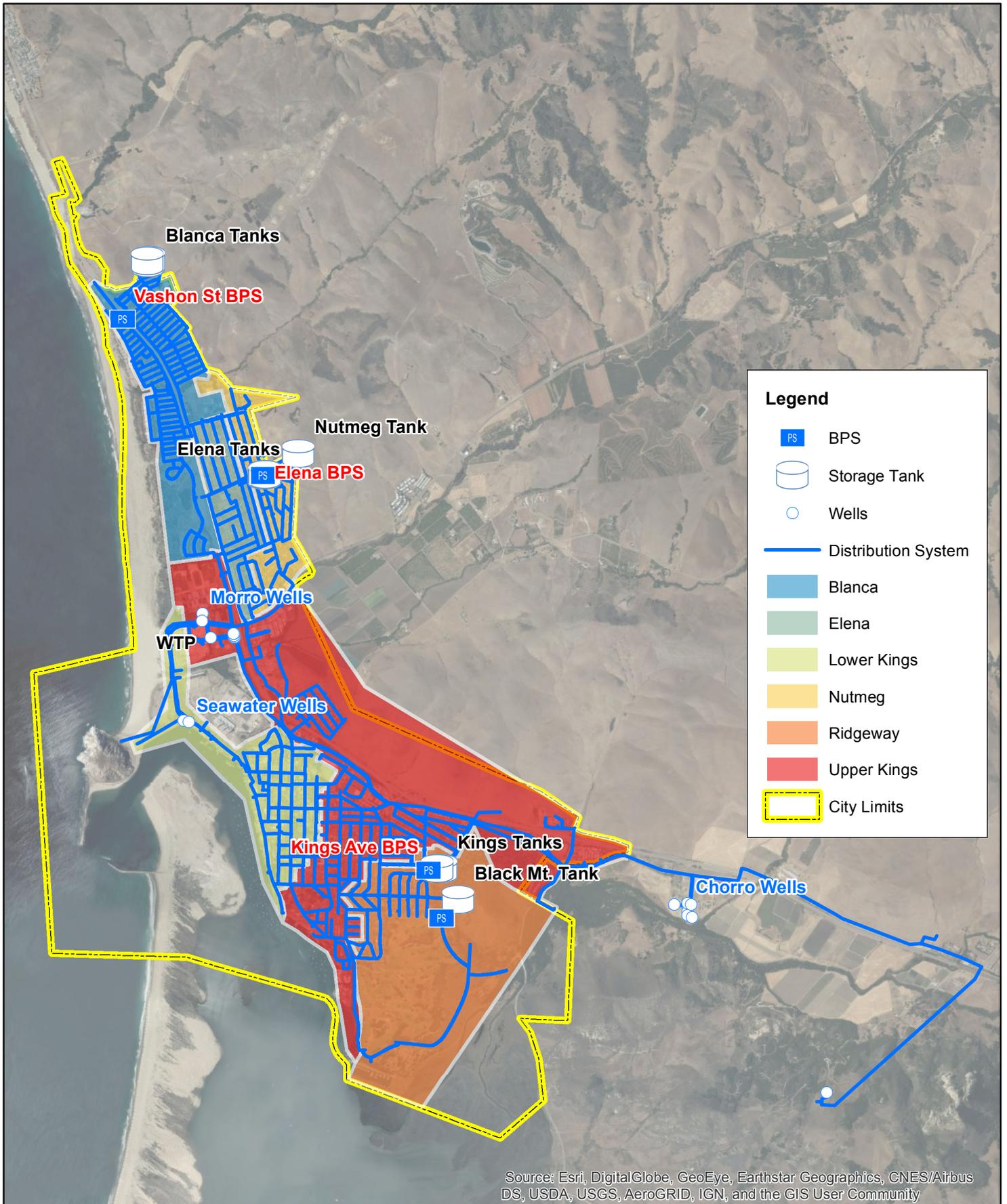
General conditions pertaining to provision of insurance coverage by Consultant. Consultant and City agree to the following with respect to insurance provided by Consultant:

1. Consultant agrees to have its insurer endorse the third party general liability coverage required herein to include as additional insureds the City of Morro Bay, its officials, employees and agents, using standard ISO endorsement No. CG 2010 with an edition prior to 1992. Consultant also agrees to require all Consultants, and subcontractors to do likewise.
2. No liability insurance coverage provided to comply with this Agreement shall prohibit Consultant, or Consultant's employees, or agents, from waiving the right of subrogation prior to a loss. Consultant agrees to waive subrogation rights against City regardless of the applicability of any insurance proceeds, and to require all Consultants and subcontractors to do likewise.
3. All insurance coverage and limits provided by Consultant and available or applicable to this agreement are intended to apply to the full extent of the policies. Nothing contained in this Agreement or any other agreement relating to City or its operations limits the application of such insurance coverage.
4. None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to City and approved of in writing.
5. No liability policy shall contain any provision or definition that would serve to eliminate so-called "third party action over" claims, including any exclusion for bodily injury to an employee of the insured or of any Consultant or subcontractor.
6. All coverage types and limits required are subject to approval, modification and additional requirements by City, as the need arises. Consultant shall not make any reductions in scope of coverage (e.g. elimination of contractual liability or reduction of discovery period) that may affect City's protection without City's prior written consent.

7. Proof of compliance with these insurance requirements, consisting of certificates of insurance evidencing all of the coverages required and an additional insured endorsement to Consultant's general liability policy, shall be delivered to City at or prior to the execution of this Agreement. In the event such proof of any insurance is not delivered as required, or in the event such insurance is canceled at any time and no replacement coverage is provided, City has the right, but not the duty, to obtain any insurance it deems necessary to protect its interests under this or any other agreement and to pay the premium. Any premium so paid by City shall be charged to and promptly paid by Consultant or deducted from sums due Consultant, at City's option.
8. It is acknowledged by the parties of this agreement that all insurance coverage required to be provided by Consultant or any subcontractor, is intended to apply first and on a primary, noncontributing basis in relation to any other insurance or self-insurance available to City.
9. Consultant agrees to ensure that subcontractors, and any other party involved with the Scope of Services who is brought onto or involved in the Scope of Services by Consultant, provide the same minimum insurance coverage required of Consultant. Consultant agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Consultant agrees that upon request, all agreements with subcontractors and others engaged in the Scope of Services will be submitted to City for review.
10. Consultant agrees not to self-insure or to use any self-insured retentions or deductibles on any portion of the insurance required herein and further agrees that it will not allow any Consultant, Subcontractor, Architect, Engineer or other entity or person in any way involved in the performance of the Scope of Services to self-insure its obligations to City. If Consultant's existing coverage includes a deductible or self-insured retention, the deductible or self-insured retention must be declared to City. At the time City shall review options with Consultant, which may include reduction or elimination of the deductible or self-insured retention, substitution of other coverage, or other solutions.
11. City reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving Consultant ninety (90) days advance written notice of such change. If such change results in substantial additional cost to Consultant, the City will negotiate additional compensation proportional to the increase benefit to City.
12. For purposes of applying insurance coverage only, this Agreement will be deemed to have been executed immediately upon any party hereto taking any steps that can be deemed to be in furtherance of or towards performance of this Agreement.
13. Consultant acknowledges and agrees that any actual or alleged failure on the part of City to inform Consultant of non-compliance with any insurance requirements in no way imposes any additional obligations on City nor does it waive any rights hereunder in this or any other regard.

14. Consultant will renew the required coverage annually as long as City, or its employees or agents face an exposure from operations of any type pursuant to this agreement. This obligation applies whether or not the agreement is canceled or terminated for any reason. Termination of this obligation is not effective until City executes a written statement to that effect.
15. Consultant shall provide proof that policies of insurance required herein expiring during the term of this Agreement have been renewed or replaced with other policies providing at least the same coverage. Proof that such coverage has been ordered shall be submitted prior to expiration. A coverage binder or letter from Consultant's insurance agent to this effect is acceptable. A certificate of insurance and/or additional insured endorsement as required in these specifications applicable to the renewing or new coverage must be provided to City within five days of the expiration of the coverages.
16. The provisions of any workers' compensation or similar act will not limit the obligations of Consultant under this agreement. Consultant expressly agrees not to use any statutory immunity defenses under such laws with respect to City, its employees, officials and agents.
17. Requirements of specific coverage features or limits contained in this section are not intended as limitations on coverage, limits or other requirements nor as a waiver of any coverage normally provided by any given policy. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue, and is not intended by any party or insured to be limiting or all-inclusive.
18. These insurance requirements are intended to be separate and distinct from any other provision in this agreement and are intended by the parties here to be interpreted as such.
19. The requirements in this Section supersede all other sections and provisions of this Agreement to the extent that any other section or provision conflicts with or impairs the provisions of this Section.
20. Consultant agrees to be responsible for ensuring that no contract used by any party involved in any way with the Scope of Services reserves the right to charge City or Consultant for the cost of additional insurance coverage required by this agreement. Any such provisions are to be deleted with reference to City. It is not the intent of City to reimburse any third party for the cost of complying with these requirements. There shall be no recourse against City for payment of premiums or other amounts with respect thereto.
21. Consultant agrees to provide immediate notice to City of any claim or loss against Consultant arising out of the work performed under this agreement. City assumes no obligation or liability by such notice, but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve City.

B.  
Water and Sewer Collection System Schematics



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



City of Morro Bay - SCADA Master Plan RFP

Water Distribution System







**Legend**

-  Lift Stations
-  Manhole
-  6"
-  8
-  10" to 12"
-  15" to 18"
-  Force Main
-  City Limits

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**City of Morro Bay - SCADA Master Plan RFP**

Sewer Collection System





# Appendix C: Existing WWTP Influent Quality



Existing Morro Bay/CSD WWTP - Influent Sampling Data

Date	Total BOD5	Soluble BOD5	Total CBOD5	Soluble CBOD5	Total COD	Filter Floc. COD (ffCOD)	Filtered COD	Soluble COD
	5210 B	5210 B	5210 B	5210 B	5220 B	5220 B	5220 B	5220 B
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
12/01/15	375	113	280	80.3	920	130	310	290
12/03/15	330	113	359	82.5	670	130	290	270
12/05/15	348	38.3	248	19.4	640	140	260	260
12/07/15	436	46.8	338	106	680	160	310	280
12/09/15	376	110	301	44	810	160	310	290
12/11/15	265	62.6	246	14.6	820	140	260	250
12/13/15	344	113	296	103	690	150	270	250
05/24/16	296	127	485	110	680	310	160	300
05/26/16	365	124	430	83	700	150	290	260
05/28/16	301	96	327	82.8	730	130	230	220
05/30/16	378	1.32	331	112	770	160	280	260
06/03/16	386	118	308	97.8	780	290	140	260
06/05/16	348	129	340	95.4	720	280	150	240
06/30/16	384	160	343	117	830	150	300	280
07/02/16	346	109	322	114	780	160	280	250
07/05/16	436	152	315	154	980	180	330	300
07/06/16	784	135	363	146	920	180	330	310
07/08/16	187	75.4	278	99.8	930	160	310	270
07/10/16	330	124	277	117	820	160	280	270
08/17/16	165	162	373	73.5	800	120	210	200
08/19/16	280	92.2	256	84.1	820	130	230	220
08/21/16	362	113	317	98.3	1440	140	250	240
08/28/16	338	113	303	77	770	140	260	230
08/31/16	350	98.5	251	99	760	140	280	260
09/02/16	298	42.1	335	92.2	790	150	280	250



Existing Morro Bay/CSD WWTP - Influent Sampling Data

Date	Fixed Suspended Solids 2540D mg/L	Total Suspended Solids 2540 D (mg/L)	Volatile Suspended Solids 2540 E (mg/L)	Total Kjeldahl Nitrogen EPA351.2 (mg/L)	Soluble Total Kjeldahl Nitrogen (mg/L)	Ammonia Nitrogen (NH3-N) 4500-NH3 (mg-N/L)	Nitrite Nitrogen (NO2-N) 4500-NO2-F (mg-N/L)	Nitrate-Nitrogen (NO3-N) 4500-NO3-F (mg-N/L)
12/01/15	41	329	288	65	51	53	ND	ND
12/03/15	40	310	270	51	40	49	ND	ND
12/05/15	30	220	190	56	44	57	ND	0.2
12/07/15	30	310	280	52	39	49	ND	0.1
12/09/15	ND	293	293	46	42	57	ND	ND
12/11/15	34	328	294	39	50	46	ND	0.1
12/13/15	30	270	240	49	51	53	ND	0.1
05/24/16	90	700	610	52	44	42	ND	ND
05/26/16	20	163	143	56	43	46	ND	ND
05/28/16	30	170	140	63	54	43	ND	0.2
05/30/16	50	340	300	59	52	56	ND	0.1
06/03/16	30	360	330	56	44	52	ND	0.2
06/05/16	20	280	260	62	55	55	ND	ND
06/30/16	23	233	210	65	47	45	ND	ND
07/02/16	30	240	210	66	49	41	ND	ND
07/05/16	44	550	506	74	62	47	ND	ND
07/06/16	40	340	300	67	56	50	ND	0.1
07/08/16	30	270	240	64	63	40	ND	0.1
07/10/16	30	310	280	68	64	54	ND	ND
08/17/16	37	369	332	56	37	46	ND	ND
08/19/16	53	374	321	60	47	57	ND	0.1
08/21/16	40	340	300	66	57	46	ND	0.1
08/28/16	30	350	320	57	60	48	ND	ND
08/31/16	46	341	295	67	54	47	ND	ND
09/02/16	37	320	283	73	43	36	ND	0.2



Existing Morro Bay/CSD WWTP - Influent Sampling Data

Date	Total Phosphorous	Soluble Phosphorous	Ortho Phosphorous	Alkalinity	Bicarbonate	Carbonate	Hydroxide	pH	Temp
	4500-P	4500-P	4500-P	2320 B	2320 B	2320 B	2320 B	(Std units)	(deg C)
	(mg/L)	(mg/L)	(mg/L)	(mg/L as CaCO <sub>3</sub> )					
12/01/15	8.9	5.3	5	380	460	ND	ND	7.4	
12/03/15	6.7	5.5	4	320	390	ND	ND	7.5	
12/05/15	6.6	4.4	5	350	420	ND	ND	Not analyzed	
12/07/15	6.8	4.5	4	310	370	ND	ND	7.4	
12/09/15	6.3	4.1	4	330	400	ND	ND	7.5	
12/11/15	6.8	4.1	4	330	400	ND	ND	7.6	
12/13/15	6.7	4.3	4	290	350	ND	ND	7.5	
05/24/16	7.9	6.3	5.1	340	410	ND	ND	7.68	
05/26/16	9.1	6.4	5	360	430	ND	ND	7.48	
05/28/16	7.9	4.1	3.5	350	430	ND	ND	7.58	
05/30/16	9.1	4.4	4	360	440	ND	ND	7.59	
06/03/16	8.5	4.7	2.8	340	410	ND	ND	7.58	
06/05/16	8.5	5.1	5	340	420	ND	ND	7.52	
06/30/16	8.8	6	8	330	400	ND	ND	7.34	
07/02/16	9.1	4.8	4.7	320	400	ND	ND	7.32	
07/05/16	9	6	8	340	420	ND	ND	7.39	
07/06/16	8.6	5.5	4.7	330	410	ND	ND	7.3	
07/08/16	9.4	5.6	2.8	330	410	ND	ND	7.36	
07/10/16	8.2	4.7	4.1	70	80	ND	ND	7.83	
08/17/16	9.8	4.8	5	250	310	ND	ND	7.42	
08/19/16	9.8	5.3	3.3	240	300	ND	ND	7.4	
08/21/16	9	4.2	8	300	360	ND	ND	7.36	8.7
08/28/16	7.9	4.1	3.9	300	360	ND	ND	7.38	8.6
08/31/16	8.9	5.5	5.2	280	350	ND	ND	7.41	
09/02/16	9.8	5.6	5	290	360	ND	ND	7.3	



Appendix D:  
Order No. R3-2017-0050,  
NPDES No. CA0047881



**Central Coast Regional Water Quality Control Board**

**ORDER NO. R3-2017-0050  
NPDES NO. CA0047881**

**WASTE DISCHARGE REQUIREMENTS  
FOR THE MORRO BAY AND CAYUCOS WASTEWATER TREATMENT PLANT  
DISCHARGE TO THE PACIFIC OCEAN**

The following Discharger is subject to waste discharge requirements as set forth in this Order:

**Table 1. Discharger Information**

<b>Discharger</b>	City of Morro Bay and Cayucos Sanitary District
<b>Name of Facility</b>	City of Morro Bay/Cayucos Sanitary Wastewater Treatment Plant
<b>Facility Address</b>	160 Atascadero Road
	Morro Bay, California, 93442
	San Luis Obispo

**Table 2. Discharge Location**

<b>Discharge Point</b>	<b>Effluent Description</b>	<b>Discharge Point Latitude</b>	<b>Discharge Point Longitude</b>	<b>Receiving Water</b>
001	Municipal Wastewater	35°, 23', 11" N	120°, 52', 29" W	Pacific Ocean

**Table 3. Administrative Information**

This Order was adopted by the Central Coast Water Board on:	December 7, 2017
This Order shall become effective on:	March 1, 2018
This Order shall expire on:	February 28, 2023
The Discharger shall file a Report of Waste Discharge as an application for reissuance of waste discharge requirements in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	September 1, 2022
The U.S. Environmental Protection Agency (U.S. EPA) and the Central Coast Water Board have classified this discharge as follows:	Major

IT IS HEREBY ORDERED, that Order No. R3-2008-0065 is superseded upon the effective date of this Order and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this amended Order.

John M. Robertson, Executive Officer

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## I. FINDINGS

The California Regional Water Quality Control Board, Central Coast Region (hereinafter Central Coast Water Board) finds:

- A. Legal Authorities.** This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters.
- B. Background and Rationale for Requirements.** The Central Coast Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes findings for this Order. Attachments A through E are also incorporated into this Order.
- C. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections III.B, III.C, and IV.B are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- D. Notification of Interested Parties.** The Central Coast Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet of this Order.
- E. Consideration of Public Comment.** The Central Coast Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R3-2008-0065 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Coast Water Board from taking enforcement action for past violations of the previous Order. If any part of this Order is subject to a temporary stay of enforcement, unless otherwise specified, the Discharger shall comply with the analogous portions of the previous Order, which shall remain in effect for all purposes during the pendency of the stay.

## II. DISCHARGE PROHIBITIONS

- A.** Discharge of treated wastewater to the Pacific Ocean at a location other than 35° 23' 11" N latitude and 120° 52' 29" W longitude is prohibited.
- B.** The discharge of any radiological, chemical, or biological warfare agent or high level radioactive waste to the Ocean is prohibited.

- C.** The discharge of municipal or industrial waste sludge to the Pacific Ocean is prohibited. The discharge of sludge digester supernatant, without further treatment, directly to the Ocean or to a waste stream that discharges to the Ocean is prohibited.
- D.** The overflow of bypass or wastewater from the Discharger’s collection, treatment, or disposal facilities and the subsequent discharge of untreated or partially treated wastewater, except as provided for in Attachment D, Standard Provision I.G.a (Bypass), is prohibited.
- E.** Bypass of the treatment facility and discharge of any wastes not meeting the discharge specifications of this Order and permit are prohibited.
- F.** The discharge of materials and substances in the wastewater that results in any of the following is prohibited:
  - 1. Float or become floatable upon discharge.
  - 2. May form sediments which degrade benthic communities or other aquatic life.
  - 3. Accumulate to toxic levels in marine waters, sediments, or biota.
  - 4. Decrease the natural light to benthic communities and other marine life.
  - 5. Result in aesthetically undesirable discoloration of the ocean surface.
- G.** The discharge of chlorine or any other toxic substance used for disinfection and cleanup of sewage overflows to any surface water body is prohibited. This prohibition does not apply to the chlorine in the potable water used for final wash down and cleanup of overflows.

**III. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS**

**A. Effluent Limitations – Discharge Point No. 001**

**1. Final Effluent Limitations – Discharge Point No. 001**

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001 with compliance measured at Monitoring Location EFF-001 as described in the attached MRP:

**Table 4. Effluent Limitations**

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand 5-day @ 20°C (BOD <sub>5</sub> ) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Total Suspended Solids (TSS) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Oil and Grease	mg/L	25	40	75
	lbs/day <sup>[2]</sup>	430	687	1,289
Settleable Solids	ml/L	1.0	1.5	3.0
pH	standard units	6.0 – 9.0 at all times		

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Turbidity	NTU	75	100	225

<sup>[1]</sup> The average monthly percent removal for BOD<sub>5</sub> and TSS shall not be less than 85 percent.

<sup>[2]</sup> Mass based effluent limitations were calculated using the following formula:  
lbs/day = pollutant concentration (mg/L) \* Design flow (2.06 MGD) \* conversion factor (8.34)

**Table 5. Effluent Limitations, Protection of Marine Aquatic Life**

Parameter	Units	Effluent Limitation		
		6-Month Median <sup>[1]</sup>	Maximum Daily <sup>[2]</sup>	Instantaneous Maximum <sup>[3]</sup>
Arsenic, Total Recoverable	µg/L	670	3,890	10,300
	lbs/day	12	67	177
Cadmium, Total Recoverable	µg/L	130	540	1,340
	lbs/day	2.2	9.3	23
Chromium (VI), Total Recoverable	µg/L	270	1,070	2,680
	lbs/day	4.64	18	46
Mercury, Total Recoverable	µg/L	5.29	21.4	53.5
	lbs/day	0.091	0.37	0.92
Nickel, Total Recoverable	µg/L	670	2,680	6,700
	lbs/day	12	46	115
Silver, Total Recoverable	µg/L	70	350	920
	lbs/day	1.2	6.01	16
Total Chlorine Residual	µg/L	268	1,072	8,040
	lbs/day	4.6	18	138
Acute Toxicity	TUa	--	4.3	--
Chronic Toxicity	TUc	--	134	--
Phenolic Compounds (non-chlorinated)	µg/L	4,020	16,100	40,200
	lbs/day	69	277	691
Phenolic Compounds (chlorinated)	µg/L	130	540	1,340
	lbs/day	2.2	9.3	23
Endosulfan <sup>[4]</sup>	µg/L	1.21	2.41	3.62
	lbs/day	0.021	0.041	0.062
Endrin	µg/L	0.27	0.54	0.80
	lbs/day	0.0046	0.0093	0.014
HCH <sup>[5]</sup>	µg/L	0.54	1.07	1.61
	lbs/day	0.0093	0.018	0.028
Radioactivity		<sup>[6]</sup>		

Parameter	Units	Effluent Limitation		
		6-Month Median <sup>[1]</sup>	Maximum Daily <sup>[2]</sup>	Instantaneous Maximum <sup>[3]</sup>

- <sup>1]</sup> The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered equal to zero for days on which no discharge occurred. The six-month median limit on daily mass emissions shall be determined using the six-month medial effluent concentration  $C_e$  and the observed flow rate,  $Q$ , in million gallons per day (MGD).
- <sup>2]</sup> The daily maximum shall apply to flow weighted 24-hour composite samples. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as  $C_e$  and the observed flow rate,  $Q$ , in MGD.
- <sup>3]</sup> The instantaneous maximum shall apply to grab sample determinations.
- <sup>4]</sup> Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.
- <sup>5]</sup> HCH shall mean the sum of the alpha, beta, gamma (Lindane) and delta isomers of hexachlorocyclohexane.
- <sup>6]</sup> Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations.

**Table 6. Effluent Limitations – Protection of Human Health – Non-Carcinogens**

Parameter	Units	Effluent Limitation
		30-day Average
Acrolein	µg/L	29,500
	lbs/day	507
Antimony	µg/L	160,800
	lbs/day	2,763
Bis(2-chloroethoxy) methane	µg/L	590
	lbs/day	10
Bis(2-chloroisopropyl) ether	µg/L	160,800
	lbs/day	2,763
Chlorobenzene	µg/L	76,400
	lbs/day	1,313
Chromium (III) <sup>[1]</sup>	µg/L	25,500,000
	lbs/day	438,100
Di-n-butyl phthalate	µg/L	469,000
	lbs/day	8,058
Dichlorobenzenes <sup>[2]</sup>	µg/L	683,000
	lbs/day	11,734
Diethyl phthalate	µg/L	4,420,000
	lbs/day	75,937
Dimethyl phthalate	µg/L	109,900,000
	lbs/day	1,888,126
4,6-dinitro-2-methylphenol	µg/L	29,500
	lbs/day	507
2,4-dinitrophenol	µg/L	540
	lbs/day	9.3
Ethylbenzene	µg/L	549,000
	lbs/day	9,432
Fluoranthene	µg/L	2,000

Parameter	Units	Effluent Limitation
		30-day Average
Hexachlorocyclopentadiene	lbs/day	34
	µg/L	7,800
Nitrobenzene	lbs/day	134
	µg/L	660
Thallium	lbs/day	11
	µg/L	270
Toluene	lbs/day	4.64
	µg/L	11,400,000
Tributyltin	lbs/day	195,857
	µg/L	0.188
1,1,1-trichloroethane	lbs/day	0.0032
	µg/L	72,400,000
	lbs/day	1,243,860
	µg/L	

[1] Discharger may at its option meet this objective as a total chromium objective.

[2] Sum of 1,2- and 1,3-dichlorobenzene.

**Table 7. Effluent Limitations – Protection of Human Health – Carcinogens**

Parameter	Units	Effluent Limitation
		30-day Average
Acrylonitrile	µg/L	13.4
	lbs/day	0.23
Aldrin	µg/L	0.00295
	lbs/day	5.07 x 10 <sup>-5</sup>
Benzene	µg/L	791
	lbs/day	14
Benzidine	µg/L	0.00925
	lbs/day	0.00016
Beryllium	µg/L	4.42
	lbs/day	0.076
Bis(2-chloroethyl) ether	µg/L	6.03
	lbs/day	0.10
Bis(2-ethylhexyl) phthalate	µg/L	469
	lbs/day	8.06
Carbon tetrachloride	µg/L	121
	lbs/day	2.08
Chlordane <sup>[1]</sup>	µg/L	0.00308
	lbs/day	5.3 x 10 <sup>-5</sup>
Chlorodibromomethane	µg/L	1,152
	lbs/day	20
Chloroform	µg/L	17,400
	lbs/day	299
DDT <sup>[2]</sup>	µg/L	0.0228
	lbs/day	0.00039

Parameter	Units	Effluent Limitation
		30-day Average
1,4-dichlorobenzene	µg/L	2,410
	lbs/day	41
3,3-dichlorobenzidine	µg/L	1.09
	lbs/day	0.019
1,2-dichloroethane	µg/L	3,750
	lbs/day	64
1,1-dichloroethylene	µg/L	120
	lbs/day	2.06
Dichlorobromomethane	µg/L	830
	lbs/day	14
Dichloromethane	µg/L	60,300
	lbs/day	1,036
1,3-dichloropropene	µg/L	1,190
	lbs/day	20
Dieldrin	µg/L	0.00536
	lbs/day	9.21 x 10 <sup>-5</sup>
2,4-dinitrotoluene	µg/L	348
	lbs/day	6.0
1,2-diphenylhydrazine	µg/L	21.4
	lbs/day	0.37
Halomethanes <sup>[3]</sup>	µg/L	17,400
	lbs/day	299
Heptachlor	µg/L	0.0067
	lbs/day	1.15 x 10 <sup>-4</sup>
Heptachlor epoxide	µg/L	0.00268
	lbs/day	4.6 x 10 <sup>-5</sup>
Hexachlorobenzene	µg/L	0.0281
	lbs/day	0.00048
Hexachlorobutadiene	µg/L	1,880
	lbs/day	32
Hexachloroethane	µg/L	335
	lbs/day	5.8
Isophorone	µg/L	98,000
	lbs/day	1,684
N-nitrosodimethylamine	µg/L	978
	lbs/day	17
N-nitrosodi-n-propylamine	µg/L	50.9
	lbs/day	0.87
N-nitrosodiphenylamine	µg/L	335
	lbs/day	5.8
PAHs <sup>[4]</sup>	µg/L	1.18
	lbs/day	0.020
PCBs <sup>[5]</sup>	µg/L	0.00255

Parameter	Units	Effluent Limitation
		30-day Average
	lbs/day	4.38 x 10 <sup>-5</sup>
1,1,2,2-tetrachloroethane	µg/L	310
	lbs/day	5.3
Tetrachloroethylene	µg/L	268
	lbs/day	4.6
Toxaphene	µg/L	0.0281
	lbs/day	0.00048
Trichloroethylene	µg/L	3,620
	lbs/day	62
1,1,2-trichloroethane	µg/L	1,260
	lbs/day	22
2,4,6-trichlorophenol	µg/L	39
	lbs/day	0.67
Vinyl chloride	µg/L	4,820
	lbs/day	83

- [1] Sum of chlorodane-alpha, chlorodane-gamma, chlorodene-alpha, chlorodene-gamma, nonachlor-alpha, nonachlor gamma, and oxychlorodane.
- [2] Sum of 4,4'-DDT, 2,4'-DDT, 4,4'-DDE, 2,4'-DDE, 4,4'-DDD, and 2,4'-DDD.
- [3] Sum of bromoform, bromoethane (methyl bromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.
- [4] Sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,1,2-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorine, ideno[1,2,3-cd]pyrene, phenanthrene, and pyrene.
- [5] Sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

- 2. **Percent Removal:** The average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.
- 3. **Dry Weather Flow.** Effluent peak seasonal dry weather flow shall not exceed a monthly average of 2.36 million gallons per day.
- 4. **Bacteria**
  - a. Total Coliform
    - i. The total coliform concentrations shall not exceed a 30-day geometric mean of 23 MPN/100 mL.
    - ii. No total coliform single sample shall exceed 2,400 MPN/100 mL.

**B. Land Discharge Specifications – Not Applicable**

**C. Recycling Specifications – Not Applicable**

**IV. RECEIVING WATER LIMITATIONS**

**A. Surface Water Limitation**

Receiving water limitations are based on water quality objectives contained in the Ocean Plan and Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Pacific Ocean:

**1. Bacterial Characteristics**

- a.** At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column.
  - i.** The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.
- b.** Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., waters designated REC-1), but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column.
  - i.** 30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:
    - (a) Total coliform density shall not exceed 1,000 per 100 ml;
    - (b) Fecal coliform density shall not exceed 200 per 100 ml; and
    - (c) Enterococcus density shall not exceed 35 per 100 ml.
  - ii.** Single Sample Maximum:
    - (a) Total coliform density shall not exceed 10,000 per 100 ml;
    - (b) Fecal coliform density shall not exceed 400 per 100 ml;
    - (c) Enterococcus density shall not exceed 104 per 100 ml; and
    - (d) Total coliform density shall not exceed 1,000 per 100 ml when the fecal coliform to total coliform ratio exceeds 0.1.

**2. Physical Characteristics**

- a.** Floating particulates and grease and oil shall not be visible on the ocean surface.
- b.** The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.
- c.** Natural light shall not be significantly reduced at any point outside the zone of initial dilution as the result of the discharge of waste.
- d.** The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

- e. Temperature of the receiving water shall not be altered to adversely affect beneficial uses, as set forth in the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California.

### **3. Chemical Characteristics**

- a. The dissolved oxygen concentration shall not, at any time, be depressed more than 10 percent from that which occurs naturally, or fall below 5.0 mg/L, as the result of the discharge of oxygen demanding waste materials. The mean annual dissolved oxygen concentration shall not be less than 7.0 mg/L.
- b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally, and shall be within the range of 7.0 to 8.5 at all times.
- c. The dissolved sulfide concentrations of waters in and near sediments shall not be significantly increased above that present under natural conditions.
- d. The concentrations of substances set forth in Table 1 of the Ocean Plan shall not be increased in marine sediments to that which would degrade indigenous biota.
- e. The concentration of organic materials in marine sediments shall not be increased to that which would degrade marine life.
- f. Nutrient materials shall not cause objectionable aquatic growth or degrade indigenous biota.

### **4. Biological Characteristics**

- a. Marine communities, including vertebrate, and plant species, shall not be degraded.
- b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.
- c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

### **5. Radioactivity**

- a. Discharge of radioactive waste shall not degrade marine life.
- b. Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

### **6. General Standards**

- a. The discharge shall not cause a violation of any applicable WQO or standard for receiving waters adopted by the Central Coast Water Board or State Water Board, as required by the CWA and regulations adopted thereunder.

- b. Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
- c. Waste effluents shall be discharged in a manner that provides sufficient initial dilution to minimize the concentrations of substances not removed in the treatment.

**B. Groundwater Limitations – Not Applicable**

**V. PROVISIONS**

**A. Standard Provisions**

- 1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.
- 2. **Central Coast Water Board Standard Provisions.** The Discharger shall comply with the Central Coast Water Board Standard Provisions included in Attachment D of this Order.

**B. Monitoring and Reporting Program (MRP) Requirements**

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order. All monitoring shall be conducted according to 40 C.F.R. 136, *Guidelines Establishing Test Procedures for Analysis of Pollutants*.

**C. Special Provisions**

**1. Reopener Provisions**

- a. This Order may be reopened and modified in accordance with NPDES regulations at 40 C.F.R. 122 and 124, as necessary, to include additional conditions or limitations based on newly available information or to implement any U.S. EPA approved, new, State WQO.
- b. This Order may be reopened for modification to include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a California Ocean Plan (Ocean Plan) Table 1 water quality objective.

**2. Special Studies, Technical Reports and Additional Monitoring Requirements**

**a. Toxicity Reduction Requirements**

As indicated in section V.C of the MRP, when chronic toxicity is detected in the effluent above the applicable effluent limitations, the Discharger shall resample immediately, retest, and report the results to the Executive Officer, who will determine whether to initiate an enforcement action, require a Toxicity Reduction Evaluation (TRE) in accordance with the Discharger's TRE Workplan, or implement other measures.

A TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first step of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases – characterization, identification, and confirmation using aquatic organism's toxicity tests. The TRE shall include all reasonable steps to identify the source of toxicity. The Discharger shall take all reasonable steps to reduce toxicity to the required level once the source of toxicity is identified.

The Discharger shall maintain a TRE Workplan, which describes steps that the Discharger intends to follow in the event that a toxicity effluent limitation established by this Order is exceeded in the discharge. The workplan shall be prepared in accordance with current technical guidance and reference material, including:

- i. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants (EPA/833/B-99-022).*
- ii. *Toxicity Identification Evaluation, Phase I (EPA/600/6-91/005F).*
- iii. *Methods for Aquatic Toxicity Identification Evaluations, Phase II (EPA/600/R-92/080).*
- iv. *Methods for Aquatic Toxicity Identification Evaluations, Phase III (EPA/600/R-92/081).*

At a minimum, the TRE Workplan shall include:

- i. Actions that will be taken to investigate/identify the causes/sources of toxicity,
- ii. Actions that will be evaluated to mitigate the impact of the discharge, to correct the non-compliance, and/or to prevent the recurrence of chronic toxicity (this list of action steps may be expanded, if a TRE is undertaken), and
- iii. A schedule under which these actions will be implemented.

When monitoring measures chronic toxicity above the toxicity trigger of 134 TUc established by this Order, the Discharger shall resample immediately, and retest for chronic toxicity. Results of an initial failed test and results of subsequent monitoring shall be reported to the Executive Officer as soon as possible following receipt of monitoring results, not to exceed 15 days from the conclusion of each test. The Executive Officer will determine whether to initiate enforcement action, whether to require the Discharger to implement a TRE, or to implement other measures. When the Executive Officer requires the Discharger to conduct a TRE, the TRE shall be conducted giving due consideration to guidance provided by the U.S. EPA's Toxicity Reduction Evaluation Procedures, Phases 1, 2, and 3 (EPA document Nos. EPA 600/R-91/003, 600/6/91/005F, and 600/R-92/080, and 600/R-92/081, respectively). A TRE, if necessary, shall be conducted in accordance with the following schedule.

**Table 8. Toxicity Reduction Evaluation Schedule**

Action Step	When Required
Take all reasonable measures necessary to immediately reduce toxicity, where the source is known.	Within 24 hours of identification of noncompliance.
Initiate the TRE in accordance to the Workplan.	Within 7 days of notification by the Executive Officer.
Conduct the TRE following the procedures in the Workplan.	Within the period specified in the Workplan (not to exceed one year, without an approved Workplan).
Submit the results of the TRE, including summary of findings, required corrective action, and all results and data.	Within 60 days of completion of the TRE.
Implement corrective actions to meet Permit limits and conditions.	To be determined by the Executive Officer.

**b. Receiving Water Monitoring for Bacteria**

If effluent limitations for total coliform bacteria are exceeded in consecutive monitoring events, the Discharger shall conduct near shore and surf zone monitoring for bacteria in accordance with section VIII.A of the Monitoring and Reporting Program. Results of the increased monitoring for bacteria shall be summarized and submitted in a report to the Executive Officer.

**3. Best Management Practices and Pollution Prevention**

**a. Pollution Prevention Program**

The Discharger shall continue to implement a pollution prevention program (approved by the Central Coast Water Board) to prevent the introduction of incompatible pollutants into the Facility. At a minimum, the program shall include:

- i. Inventory all chemicals used for the operation and maintenance of the treatment plant that may enter the discharge and classify each according to its potential to cause toxicity to be present in the effluent. If toxicity data is not available for the chemicals used at the plant, and toxicity is found to be present in the effluent, the Discharger should conduct toxicity tests for the individual chemicals that potentially contribute to toxicity.
- ii. Develop and implement a public educational program targeted at residential and commercial sources of toxic pollutants emphasizing the need to properly manage and minimize the disposal (i.e., source reduction) of potentially harmful pollutants (oil, antifreeze, herbicides, paints, solvents, etc.).
- iii. Develop and implement program(s) which provide convenient means for people to properly dispose of (and/or recycle) oil, antifreeze, pesticides, herbicides, paints, solvents, and other potentially harmful chemicals.
- iv. Develop and implement waste minimization measures to reduce or eliminate incompatible pollutants discharged to the treatment plant. Waste minimization measures must address all significant controllable sources of pollutants including residential, industrial, and commercial sources.

- v. On an annual basis, to be submitted with the annual report specified in the MRP, the Discharger shall submit a status report to U.S. EPA and Central Coast Water Board detailing efforts of compliance with regard to the Pollution Prevention Program specified herein.
- vi. In order to provide adequate legal authority for the Discharger to protect its Facility and to evaluate sources of industrial discharges, the Discharger must perform the following activities:
  - (a) Develop and implement a sewer use ordinance to provide the legal authorities described in 40 C.F.R. 403.8(f)(1).
  - (b) Update annually (and summarized in the annual report) industrial waste survey as described in 40 C.F.R. 403.8(f)(2)(i)-(ii).
  - (c) Update annually (and summarized in the annual report) potential impacts of industrial discharges, identified in section V.C.3.a.ii above, upon the POTW. The report must address the need for regulation of industrial discharges to implement the objectives of the pollution prevention program.
  - (d) If, in the evaluation of section V.C.3.a.i and section V.C.3.a.ii, above, the Executive Officer determines that a formal pretreatment program is necessary to adequately meet program objectives, then the Discharger shall develop such a program in accordance with 40 C.F.R. 403.9.
  - (e) The Discharger shall comply, and ensure affected indirect Dischargers comply, with the Reporting Requirements of the Standard Provisions.

**b. Pollutant Minimization Program (PMP)**

i. Pollutant Minimization Program Goal

The goal of the PMP is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a PMP, required in accordance with CA Water Code section 13263.3(d) will fulfill the PMP requirements in this section.

ii. Determining the Need for a PMP

- (a) The Discharger shall develop and conduct a PMP if all of the following conditions are true:

- (1) The calculated effluent limitation is less than the reported Minimum Level (ML);

- (2) The concentration of the pollutant is reported as DNQ; and,
  - (3) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation. Such evidence may include: health advisories for fish consumption; presence of whole effluent toxicity; results of benthic or aquatic organism tissue sampling; sample results from analytical methods more sensitive than methods included in the permit; and the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL.
- (b) Alternatively, the Discharger must develop and conduct a PMP if all of the following conditions are true:
- (1) The calculated effluent limitation is less than the Method Detection Limit (MDL);
  - (2) The concentration of the pollutant is reported as ND; and,
  - (3) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation. Such evidence may include: health advisories for fish consumption; presence of whole effluent toxicity; results of benthic or aquatic organism tissue sampling; sample results from analytical methods more sensitive than methods included in the permit; and the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL.

iii. Elements of a PMP

The Regional Board may consider cost-effectiveness when establishing the requirements of a PMP. The program shall include actions and submittals acceptable to the Central Coast Water Board including, but not limited to, the following:

- (a) An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling;
- (b) Quarterly monitoring for the reportable pollutant in the influent to the wastewater treatment system;
- (c) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the calculated effluent limitation;
- (d) Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and,
- (e) An annual status report that shall be sent to the Executive Officer that includes:
  - (1) All PMP monitoring results for the previous year;

- (2) A list of potential sources of the reportable pollutant;
- (3) A summary of all action taken in accordance with the control strategy; and,
- (4) A description of actions to be taken in the following year.

**4. Construction, Operation and Maintenance Specifications**

- a. The Facility shall be operated as specified under Standard Provision D of Attachment D.

**5. Special Provisions for Municipal Facilities (POTWs Only)**

**a. Biosolids Management**

- i. The handling, management, and disposal of sludge and solids derived from wastewater treatment must comply with applicable provisions of U.S. EPA regulations at 40 C.F.R. 257, 258, 501, and 503, including all monitoring, record keeping, and reporting requirements.
- ii. Sludge and wastewater solids must be disposed of in a municipal solid waste landfill, reused by land application, or disposed of in a sludge-only landfill in accordance with 40 C.F.R. 258 and 503 and Title 23, Chapter 15 of the CCR. If the Discharger desires to dispose of solids and/or sludge in a different manner, a request for permit modification must be submitted to the U.S. EPA and to the Central Coast Water Board at least 180 days prior to beginning the alternative means of disposal.
- iii. Sludge that is disposed of in a municipal solid waste landfill must meet the requirements of 40 C.F.R. Part 258 pertaining to providing information to the public. In the annual self-monitoring report, the Discharger shall include the amount of sludge placed in the landfill as well as the landfill to which is was sent.
- iv. All requirements of 40 C.F. R. Part 503 and 23 CCR Chapter 15 are enforceable whether or not the requirements of those regulations are stated in an NPDES permit or any other permit issued to the Discharger.
- v. The Discharger shall take all reasonable steps to prevent and minimize any sludge use or disposal in violation of this Order that has a likelihood of adversely affecting human health or the environment.
- vi. Solids and sludge treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, and shall not result in ground water contamination.
- vii. The solids and sludge treatment and storage site shall have adequate facilities to divert surface water runoff from adjacent areas to protect the boundaries of the site from erosion, and to prevent drainage from the treatment and storage site. Adequate protection is defined as protection, at the minimum, from a 100-year storm and protection from the highest possible tidal stage that may occur.

- viii. The discharge of sewage sludge and solids shall not cause waste material to be in position where it is, or can be, conveyed from the treatment and storage sites and deposited in waters of the State.
- ix. The Discharger shall submit an annual report to the U.S. EPA and the Central Coast Water Board containing monitoring results and pathogen and vector attraction reduction requirements, as specified by 40 C.F.R. Part 503. The Discharger shall also report the quantity of sludge removed from the Facility and the disposal method. This self-monitoring report shall be submitted by February 19 of each year and report for the period of the previous calendar year.

## 6. Other Special Provisions

- a. **Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (State Water Board Order No. 2006-0003-DWQ).** This General Permit, adopted on May 2, 2006, is applicable to all “federal and State agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publically owned treatment facility in the State of California.” The purpose of the General Permit is to promote the proper and efficient management, operation, and maintenance of sanitary sewer systems and to minimize the occurrences and impacts of sanitary sewer overflows. The Dischargers enrolled separately under the General WDR. The City of Morro Bay received enrollment status on January 8, 2007, and Cayucos Sanitary District received enrollment status on January 9, 2007.
- b. **Loss of Disinfection.** As soon as possible after learning of a significant loss of disinfection, the Discharger shall notify the California Department of Public Health’s Preharvest Shellfish Protection and Marine Biotoxin Monitoring Program (510-412-4638), the San Luis Obispo Public Health Services (805-781-5553), the Central Coast Water Board (805-549-3147), and any shellfish leaseholders with active shellfish growing operations in the area of the discharge, as set forth in a list to be obtained from DHS, and regularly updated. The Discharger shall determine at its discretion if a loss of disinfection has occurred, and provide notification by fax within four hours of an occurrence during weekday hours of 6:00 AM to 5:00 PM. Notification shall be given by 10:00 AM on the following business day, if a loss of disinfection has occurred, the Discharger shall also conduct monitoring for bacteria in the receiving water in accordance with section VIII.A of the MRP.

## VI. COMPLIANCE DETERMINATION

### A. General

Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Central Coast and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the reportable pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (ML).

**B. Multiple Sample Data**

When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple samples analyses and the data set contains one or more reported determinations of “Detected, but Not Quantified” (“DNQ”, or “Not Detected” (ND), the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

**C. Average Monthly Effluent Limitation (AMEL)**

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

**D. Average Weekly Effluent Limitation (AWEL)**

If the average of daily discharges over a calendar week exceeds the AWEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Discharger will be considered out of compliance for that calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

**E. Maximum Daily Effluent Limitation (MDEL)**

If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

## ATTACHMENT A – DEFINITIONS

### Acute Toxicity

- a. Acute Toxicity (TUa)  
Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{-hr LC } 50\%}$$

- b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Ocean Plan Appendix III. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log(100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

### Areas of Special Biological Significance (ASBS)

Those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.

### Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

### Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

### Chlordane

Shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

**Chronic Toxicity**

This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Ocean Plan Appendix II.

**Daily Discharge**

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

**DDT**

Shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

**Degrade**

Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

**Detected, but Not Quantified (DNQ)**

Sample results that are less than the reported Minimum Level, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

**Dichlorobenzenes**

Shall mean the sum of 1,2- and 1,3-dichlorobenzene.

**Downstream Ocean Waters**

Waters downstream with respect to ocean currents.

**Dredged Material**

Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as “spoil.”

**Enclosed Bays**

Indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

**Endosulfan**

The sum of endosulfan-alpha and -beta and endosulfan sulfate.

**Estuaries and Coastal Lagoons** are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

**Halomethanes** shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

**HCH** shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

**Initial Dilution**

The process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

**Instantaneous Maximum Effluent Limitation**

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

**Instantaneous Minimum Effluent Limitation**

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

**Kelp Beds**

For purposes of the bacteriological standards of the Ocean Plan, are significant aggregations of marine algae of the genera Macrocystis and Nereocystis. Kelp beds include the total foliage canopy of Macrocystis and Nereocystis plants throughout the water column.

**Mariculture**

The culture of plants and animals in marine waters independent of any pollution source.

**Material**

(a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of the Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.

**Maximum Daily Effluent Limitation (MDEL)**

The highest allowable daily discharge of a pollutant.

**Method Detection Limit (MDL)**

The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 C.F.R. part 136, Attachment B.

**Minimum Level (ML)**

The concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

**Natural Light**

Reduction of natural light may be determined by the Central Coast Water Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Central Coast Water Board.

**Not Detected (ND)**

Those sample results less than the laboratory's MDL.

**Ocean Waters**

The territorial marine waters of the state as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the state could affect the quality of the waters of the state, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

**PAHs (polynuclear aromatic hydrocarbons)**

The sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

**PCBs (polychlorinated biphenyls)**

The sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

**Pollutant Minimization Program (PMP)**

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of Ocean Plan Table 1 pollutants through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Coast Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

**Reported Minimum Level**

The reported ML (also known as the Reporting Level or RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Central Coast Water Board either from Appendix II of the Ocean Plan in accordance with section III.C.5.a. of the Ocean Plan or established in accordance with section III.C.5.b. of the Ocean Plan. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the reported ML.

**Shellfish**

Organisms identified by the California Department of Health Services as shellfish for public health purposes (i.e., mussels, clams and oysters).

**Significant Difference**

Defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

**Six-Month Median Effluent Limitation**

The highest allowable moving median of all daily discharges for any 180-day period.

**State Water Quality Protection Areas (SWQPAs)**

Non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) that were previously designated by the State Water Board in Resolution Nos. 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by the Ocean Plan.

**TCDD Equivalents**

The sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

Isomer Group	Toxicity Equivalence Factor
	1.0
2,3,7,8-tetra CDD	
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CDF	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

**Toxicity Reduction Evaluation (TRE)**

A study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

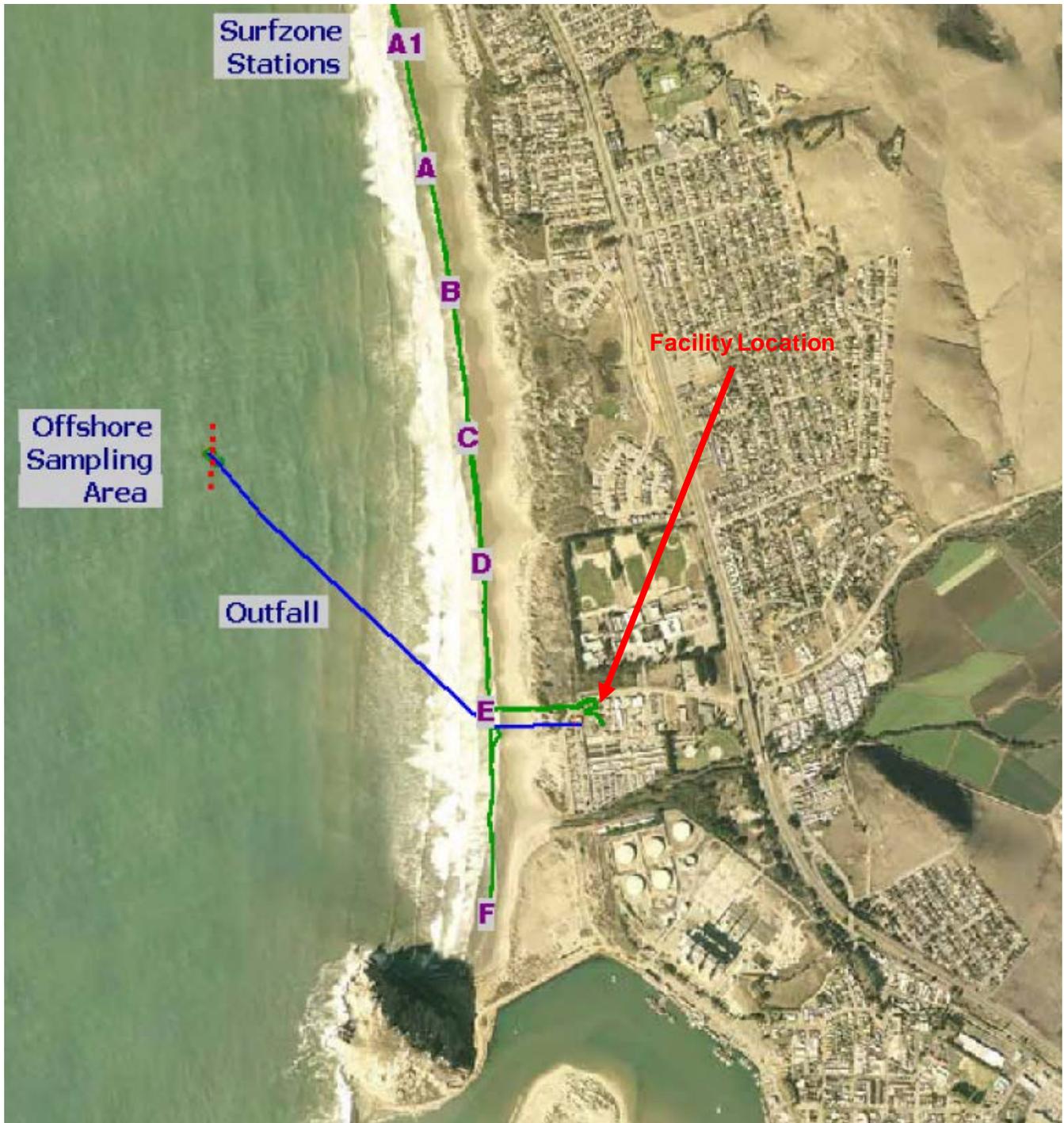
**Waste**

As used in the Ocean Plan, waste includes a Discharger’s total discharge, of whatever origin, i.e., gross, not net, discharge.

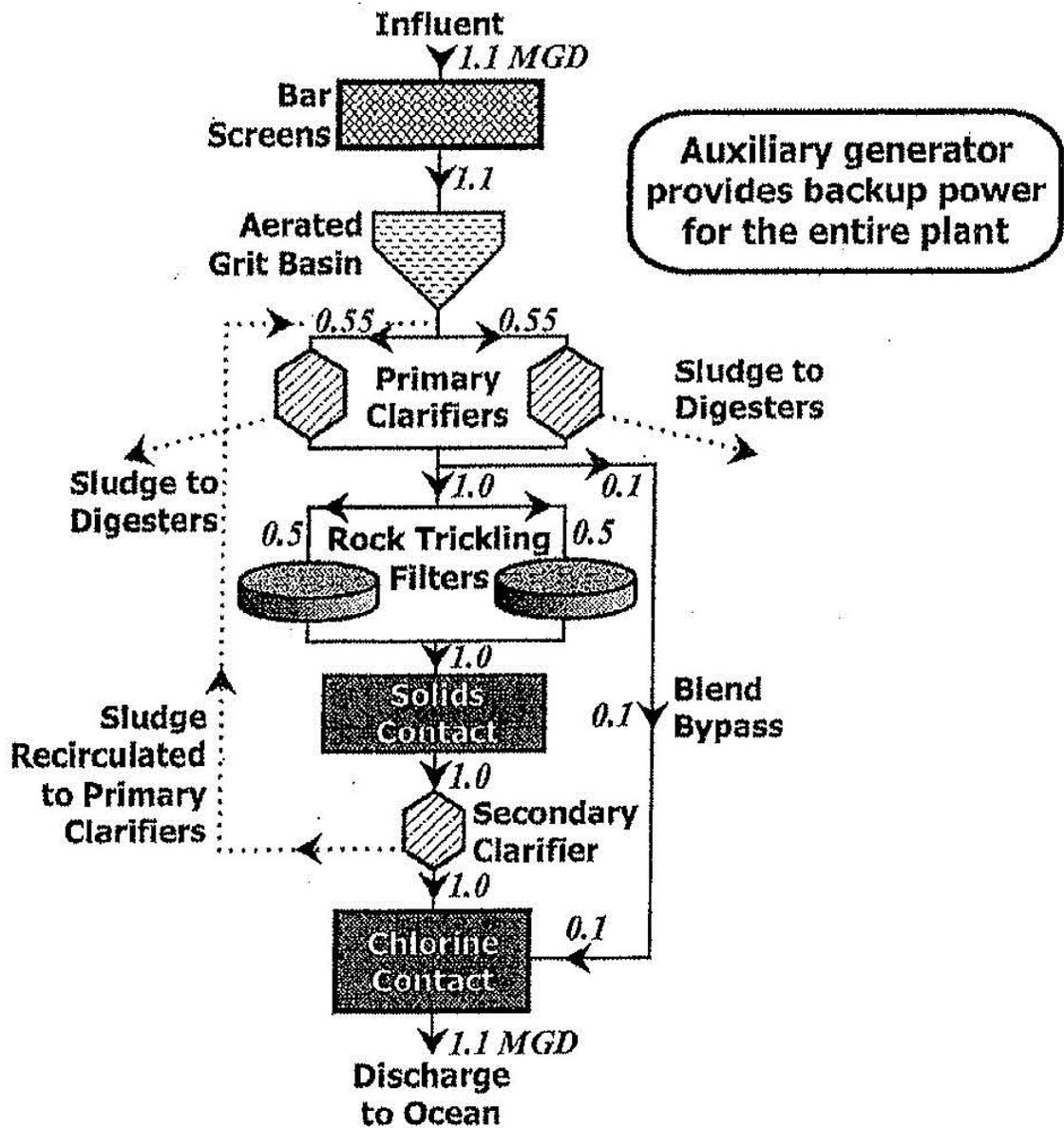
**Water Recycling**

The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC



## ATTACHMENT D – STANDARD PROVISIONS

### I. STANDARD PROVISIONS – PERMIT COMPLIANCE

#### A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

#### B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

#### C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

#### D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

#### E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

## **F. Inspection and Entry**

The Discharger shall allow the Central Coast Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

## **G. Bypass**

1. Definitions
  - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
  - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Central Coast Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
  - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
  - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering



- d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
  3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

## II. STANDARD PROVISIONS – PERMIT ACTION

### A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

### B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

### C. Transfers

This Order is not transferable to any person except after notice to the Central Coast Water Board. The Central Coast Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

## III. STANDARD PROVISIONS – MONITORING

- A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)
- B. Monitoring results must be conducted according to test procedures under 40 C.F.R. part 136 or, in the case of sludge use or disposal, approved under 40 C.F.R. part 136 unless otherwise specified in 40 C.F.R. part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

## IV. STANDARD PROVISIONS – RECORDS

- A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Coast Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

**B. Records of monitoring information shall include:**

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

**C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):**

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

**V. STANDARD PROVISIONS – REPORTING**

**A. Duty to Provide Information**

The Discharger shall furnish to the Central Coast Water Board State Water Board, or U.S. EPA within a reasonable time, any information which the Central Coast Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Coast Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

**B. Signatory and Certification Requirements**

1. All applications, reports, or information submitted to the Central Coast Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).)
3. All reports required by this Order and other information requested by the Central Coast Water Board, State Water Board, or U.S. EPA shall be signed by a person described in

Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
  - c. The written authorization is submitted to the Central Coast Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Coast Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
  5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. § 122.22(d).)

### **C. Monitoring Reports**

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Coast Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Coast Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

#### **D. Compliance Schedules**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

#### **E. Twenty-Four Hour Reporting**

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
  - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
  - b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Central Coast Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

#### **F. Planned Changes**

The Discharger shall give notice to the Central Coast Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
2. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

**G. Anticipated Noncompliance**

The Discharger shall give advance notice to the Central Coast Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

**H. Other Noncompliance**

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

**I. Other Information**

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Coast Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

**VI. STANDARD PROVISIONS – ENFORCEMENT**

The Central Coast Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

**VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS**

**A. Publicly Owned Treatment Works (POTWs)**

All POTWs shall provide adequate notice to the Central Coast Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

**VIII. CENTRAL COAST WATER BOARD STANDARD PROVISIONS**

**A. Central Coast Standard Provision – Prohibitions**

1. Introduction of “incompatible wastes” to the treatment system is prohibited.

2. Discharge of high-level radiological waste and of radiological, chemical, and biological warfare agents is prohibited.
3. Discharge of “toxic pollutants” in violation of effluent standards and prohibitions established under section 307(a) of the Clean Water Act (CWA) is prohibited.
4. Discharge of sludge, sludge digester or thickener supernatant, and sludge drying bed leachate to drainageways, surface waters, or the ocean is prohibited.
5. Introduction of pollutants into the collection, treatment, or disposal system by and “indirect discharger” that:
  3. Inhibit or disrupt the treatment process, system operation, or the eventual use or disposal of sludge; or,
  4. Flow through the system to the receiving water untreated; and,
  5. Cause or “significantly contribute” to a violation of any requirement of this Order, is prohibited.
6. Introduction of “pollutant free” wastewater to the collection, treatment, and disposal system in amounts that threaten compliance with this order is prohibited.

**B. Central Coast Standard Provision – Provisions**

1. Collection, treatment, and discharge of waste shall not create a nuisance or pollution, as defined by California Water Code (CWC) 13050.
2. All facilities used for transport or treatment of wastes shall be adequately protected from inundation and washout as the result of a 100-year frequency flood.
3. Operation of collection, treatment, and disposal systems shall be in a manner that precludes public contact with wastewater.
4. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed in a manner approved by the Executive Officer.
5. Publicly owned wastewater treatment plans shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Title 23 of the California Administrative Code.
6. After notice and opportunity for a hearing, this order may be terminated for cause, including, but not limited to:
  - a. Violation of any term or condition contained in this order;
  - b. Obtaining this order by misrepresentation, or by failure to disclose fully all relevant facts;
  - c. A change in any condition or endangerment to human health or environment that requires a temporary or permanent reduction or elimination of the authorized discharge; and,



13. Production and use of reclaimed water is subject to the approval of the Central Coast Board. Production and use of reclaimed water shall be in conformance with reclamation criteria established in Chapter 3, Title 22, of the California Administrative Code and Chapter 7, Division 7, of the CWC. An engineering report pursuant to section 60323, Title 22, of the California Administrative Code is required and a waiver or water reclamation requirements from the Central Coast Board is required before reclaimed water is supplied for any use, or to any user, not specifically identified and approved either in this Order or another order issued by this Board.

**C. Central Coast Standard Provisions – General Monitoring Requirements**

1. If results of monitoring a pollutant appear to violate effluent limitations based on a weekly, monthly, 30-day, or six-month period, but compliance or non-compliance cannot be validated because sampling is too infrequent, the frequency of sampling shall be increased to validate the test within the next monitoring period. The increased frequency shall be maintained until the Executive Officer agrees the original monitoring frequency may be resumed.

For example, if copper is monitored annually and results exceed the six-month median numerical effluent limitation in the permit, monitoring of copper must be increased to a frequency of at least once every two months (Central Coast Standard Provisions – Definitions I.G.13.). If suspended solids are monitored weekly and results exceed the weekly average numerical limit in the permit, monitoring of suspended solids must be increased to at least four (4) samples every week (Central Coast Standard Provisions – Definitions I.G.14.).

2. Water quality analyses performed in order to monitor compliance with this permit shall be by a laboratory certified by the State Department of Health Services (DHS) for the constituent(s) being analyzed. Bioassay(s) performed in order to monitor compliance with this permit shall be in accord with guidelines approved by the State Water Resources Control Board (State Water Board) and the State Department of Fish and Game. If the laboratory used or proposed for use by the discharger is not certified by the DHS or, where appropriate, the Department of Fish and Game due to restrictions in the State's laboratory certification program, the discharger shall be considered in compliance with this provision provided:
  - a. Data results remain consistent with results of samples analyzed by the Central Coast Water Board;
  - b. A quality assurance program is used at the laboratory, including a manual containing steps followed in this program that is available for inspections by the staff of the Central Coast Water Board; and,
  - c. Certification is pursued in good faith and obtained as soon as possible after the program is reinstated.
3. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Samples shall be taken during periods of peak loading conditions.

4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.

**D. Central Coast Standard Provisions – General Reporting Requirements**

1. Reports of marine monitoring surveys conducted to meet receiving water monitoring requirements of the Monitoring and Reporting Program shall include at least the following information:
  - a. A description of climatic and receiving water characteristics at the time of sampling (weather observations, floating debris, discoloration, wind speed and direction, swell or wave action, time of sampling, tide height, etc.).
  - b. A description of sampling stations, including differences unique to each station (e.g., station location, grain size, rocks, shell litter, calcareous worm tubes, evident life, etc.).
  - c. A description of the sampling procedures and preservation sequence used in the survey.
  - d. A description of the exact method used for laboratory analysis. In general, analysis shall be conducted according to Central Coast Standard Provisions – C.1 above, and Federal Standard Provision – Monitoring III.B. However, variations in procedure are acceptable to accommodate the special requirements of sediment analysis. All such variations must be reported with the test results.
  - e. A brief discussion of the results of the survey. The discussion shall compare data from the control station with data from the outfall stations. All tabulations and computations shall be explained.
2. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule shall be submitted within 14 days following each scheduled date unless otherwise specified within the permit. If reporting noncompliance, the report shall include a description of the reason, a description and schedule of tasks necessary to achieve compliance, and an estimated date for achieving full compliance. A second report shall be submitted within 14 days of full compliance.
3. The “Discharger” shall file a report of waste discharge or secure a waiver from the Executive Officer at least 180 days before making any material change or proposed change in the character, location, or plume of the discharge.
4. Within 120 days after the discharger discovers, or is notified by the Central Coast Water Board, that monthly average daily flow will or may reach design capacity of waste treatment and/or disposal facilities within four (4) years, the discharger shall file a written report with the Central Coast Water Board. The report shall include:
  - a. the best estimate of when the monthly average daily dry weather flow rate will equal or exceed design capacity; and,



8. A discussion of operator certification and a list of current operating personnel and their grades of certification.
9. The date of the facility's Operation and Maintenance Manual (including contingency plans as described in Provision B.9), the date the manual was last reviewed, and whether the manual is complete and valid for the current facility.
10. A discussion of the laboratories used by the discharger to monitor compliance with effluent limits and a summary of performance relative to section C, General Monitoring Requirements.
11. If the facility treats industrial or domestic wastewater and there is no provision for periodic sludge monitoring in the Monitoring and Reporting Program, the report shall include a summary of sludge quantities, analyses of its chemical and moisture content, and its ultimate destination.
12. If appropriate, the report shall also evaluate the effectiveness of the local source control or pretreatment program using the State Water Resources Control Board's "Guidelines for Determining the Effectiveness of Local Pretreatment Program."

**E. Central Coast Standard Provisions – General Pretreatment Provisions**

1. Discharge of pollutants by "indirect dischargers" in specific industrial sub-categories (appendix C, 40 C.F.R. Part 403), where categorical pretreatment standards have been established, or are to be established, (according to 40 C.F.R. Chapter 1, Subchapter N), shall comply with the appropriate pretreatment standards:
  - a. By the date specified therein;
13. Within three (3) years of the effective date specified therein, but in no case later than July 1, 1984; or,
14. If a new indirect discharger, upon commencement of discharge

**F. Central Coast Standard Provision – Enforcement**

1. Any person failing to file a report of waste discharge or other report as required by this permit shall be subject to a civil penalty not to exceed \$5,000 per day.
2. Upon reduction, loss, or failure of the treatment facility, the "Discharger" shall, to the extent necessary to maintain compliance with this permit, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided.

**G. Central Coast Standard Provisions – Definitions (Not otherwise included in Attachment A to this Order)**

1. A "composite sample" is a combination of no fewer than eight (8) individual samples obtained at equal time intervals (usually hourly) over the specified sampling (composite) period. The volume of each individual sample is proportional to the flow rate at the time of sampling. The period shall be specified in the Monitoring and Reporting Program ordered by the Executive Officer.

2. "Daily Maximum" limit means the maximum acceptable concentration or mass emission rate of a pollutant measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling. It is normally compared with results based on "composite samples" except for ammonia, total chlorine, phenolic compounds, and toxicity concentration. For all exceptions, comparisons will be made with results from a "grab sample".
3. "Discharger", as used herein, means, as appropriate: (1) the Discharger, (2) the local sewerage entity (when the collection system is not owned and operated by the Discharger), or (3) "indirect discharger" (where "Discharger" appears in the same paragraph as "indirect discharger", it refers to the discharger.)
4. "Duly Authorized Representative" is one where:
  - a. the authorization is made in writing by a person described in the signatory paragraph of Federal Standard Provision V.B.;
5. the authorization specifies either an individual or the occupant of a position having either responsibility for the overall operation of the regulated facility, such as the plant manager, or overall responsibility for environmental matters of the company; and,
6. the written authorization was submitted to the Central Coast Water Board.
7. A "grab sample" is defined as any individual sample collected in less than 15 minutes. "Grab samples" shall be collected during peak loading conditions, which may or may not be during hydraulic peaks. It is used primarily in determining compliance with the daily maximum limits identified in Central Coast Standard Provision – Provision G.2. and instantaneous maximum limits.
8. "Hazardous substance" means any substance designated under 40 C.F.R. Part 116 pursuant to section 311 of the Clean Water Act.
9. "Incompatible wastes" are:
  - a. Wastes which create a fire or explosion hazard in the treatment works;
10. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0 unless the works is specifically designed to accommodate such wastes;
11. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation of treatment works;
12. Any waste, including oxygen demanding pollutants (BOD, etc), released in such volume or strength as to cause inhibition or disruption in the treatment works and subsequent treatment process upset and loss of treatment efficiency; and,
13. Heat in amounts that inhibit or disrupt biological activity in the treatment works or that raise influent temperatures above 40°C (104°F) unless the treatment works is designed to accommodate such heat.

14. "Indirect Discharger" means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.
15. "Log Mean" is the geometric mean. Used for determining compliance of fecal or total coliform populations, it is calculated with the following equation:

$$\text{Log Mean} = (C_1 \times C_2 \times \dots \times C_n)^{1/n},$$

in which "n" is the number of days samples were analyzed during the period and any "C" is the concentration of bacteria (MPN/100 ml) found on each day of sampling. "n" should be five or more.

16. "Mass emission rate" is a daily rate defined by the following equations:

$$\text{mass emission rate (lbs/day)} = 8.34 \times Q \times C; \text{ and,}$$

$$\text{mass emission rate (kg/day)} = 3.79 \times Q \times C,$$

where "C" (in mg/L) is the measured daily constituent concentration or the average of measured daily constituent concentrations and "Q" (in MGD) is the measured daily flowrate or the average of measured daily flow rates over the period of interest.

17. The "Maximum Allowable Mass Emission Rate," whether for a month, week, day, or six-month period, is a daily rate determined with the formulas in paragraph G.10, above, using the effluent concentration limit specified in the permit for the period and the average of measured daily flows (up to the allowable flow) over the period.
18. "Maximum Allowable Six-Month Median Mass Emission Rate" is a daily rate determined with the formulas in Central Coast Standard Provision – Provision G.10, above, using the "six-month Median" effluent limit specified in the permit, and the average of measured daily flows (up to the allowable flow) over a 180-day period.
19. "Median" is the value below which half the samples (ranked progressively by increasing value) fall. It may be considered the middle value, or the average of two middle values.
20. "Monthly Average" (or "Weekly Average", as the case may be) is the arithmetic mean of daily concentrations or of daily mass emission rates over the specified 30-day (or 7-day) period.  
$$\text{Average} = (X_1 + X_2 + \dots + X_n) / n$$

in which "n" is the number of days samples were analyzed during the period and "X" is either the constituent concentration (mg/l) or mass emission rate (kg/day or lbs/day) for each sampled day. "n" should be four or greater.
21. "Municipality" means a city, town, borough, county, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial waste, or other waste.

22. "Overflow" means the intentional or unintentional diversion of flow from the collection and transport systems, including pumping facilities.

23. "Pollutant-free wastewater" means inflow and infiltration, stormwaters, and cooling waters and condensates which are essentially free of pollutants.
24. "Primary Industry Category" means any industry category listed in 40 C.F.R. Part 122, Appendix A.
25. "Removal Efficiency" is the ratio of pollutants removed by the treatment unit to pollutants entering the treatment unit. Removal efficiencies of a treatment plant shall be determined using "Monthly averages" of pollutant concentrations (C, in mg/l) of influent and effluent samples collected about the same time and the following equation (or its equivalent):

$$C_{\text{Effluent}} \text{ Removal Efficiency (\%)} = 100 \times (1 - C_{\text{Effluent}} / C_{\text{Influent}})$$

26. "Severe property damage" means substantial physical damage to property, damage to treatment facilities which causes them to become inoperable, or substantial and permanent loss to natural resources which can reasonably be expected to occur in the absence of a "bypass". It does not mean economic loss caused by delays in production.
27. "Sludge" means the solids, residues, and precipitates separated from, or created in, wastewater by the unit processes of a treatment system.
28. To "significantly contribute" to a permit violation means an "indirect discharger" must:
  - a. Discharge a daily pollutant loading in excess of that allowed by contract with the "Discharger" or by Federal, State, or Local law;
15. Discharge wastewater which substantially differs in nature or constituents from its average discharge;
16. Discharge pollutants, either alone or in conjunction with discharges from other sources, which results in a permit violation or prevents sewage sludge use or disposal; or
17. Discharge pollutants, either alone or in conjunction with pollutants from other sources that increase the magnitude or duration of permit violations.
29. "Toxic Pollutant" means any pollutant listed as toxic under section 307 (a) (1) of the Clean Water Act or under 40 C.F.R. Part 122, Appendix D. Violation of maximum daily discharge limitations are subject to 24-hour reporting (Federal Standard Provisions V.E.).
30. "Zone of Initial Dilution" means the region surrounding or adjacent to the end of an outfall pipe or diffuser ports whose boundaries are defined through calculation of a plume model verified by the State Water Board

**ATTACHMENT E – MONITORING AND REPORTING PROGRAM**

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## **ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)**

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Central Coast Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

### **I. GENERAL MONITORING PROVISIONS**

#### **A. Laboratory Certification**

Laboratories analyzing monitoring samples shall be certified by the Department of Public Health (DPH), in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

**B.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall now be changed without notification to and approval of the Central Coast Water Board.

**C.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than  $\pm 10$  percent from true discharge rates throughout the range of expected discharge volumes. Guidance in selection, installation, calibration, and operation of acceptable flow measurement devices can be obtained from the following references.

1. *A Guide to Methods and Standards for the Measurement of Water Flow*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 96 pp. (Available from the U.S. Government Printing Office, Washington, D.C. 20402. Order by SD Catalog No. C13.10:421.)
2. *Water Measurement Manual*, U.S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. (Available from the U.S. Government Printing Office, Washington D.C. 20402. Order by Catalog No. 172.19/2:W29/2, Stock No. S/N 24003-0027.)
3. *Flow Measurement in Open Channels and Closed Conduits*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 484, October 1977, 982 pp. (Available in paper copy or microfiche from National Technical Information Services (NTIS) Springfield, VA 22050. Order by NTIS No. PB-273 535/5ST.)
4. *NPDES Compliance Sampling Manual*, U.S. Environmental Protection Agency, Office of Water Enforcement, Publication MCD-51, 1977, 140 pp. (Available from the General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, CO 80225.)

- D. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this MRP.
- F. Unless otherwise specified by this MRP, all monitoring shall be conducted according to test procedures established at 40 C.F.R. 136, Guidelines Establishing Test Procedures for Analysis of Pollutants. All analyses shall be conducted using the lowest practical quantitation limit achievable using the specified methodology. Where effluent limitations are set below the lowest achievable quantitation limits, pollutants not detected at the lowest practical quantitation limits will be considered in compliance with effluent limitations. Analysis for toxic pollutants specified in Table 1 of the California Ocean Plan shall be conducted in accordance with procedures described in the California Ocean Plan and restated in this MRP.

G. Monitoring and sampling periods are defined as follows unless otherwise specified in this MRP:

**Daily:** Midnight through 11:59 PM, or any 24-hour period that reasonably represents a calendar day for purposes of sampling.

**Weekly:** Sunday through Saturday (Note: For weekly monitoring and sampling periods that start in one monthly reporting period but end in the next, the Discharger may report the weekly data in the monthly monitoring report containing the last day of the weekly period.)

**Monthly:** 1<sup>st</sup> day of calendar month through last day of calendar month.

**Annually:** January 1<sup>st</sup> through December 31<sup>st</sup>

**II. MONITORING LOCATIONS**

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

**Table E-1. Monitoring Station Locations**

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
--	INF-001 (formally M-INF)	Influent wastewater prior to treatment and following all significant input of wastewater to the treatment system, and upstream of Facility return flows.
001	EFF-001 (formally M-001)	Location where representative sample of effluent, to be discharged through the ocean outfall, can be collected after treatment. Latitude: 35° 22' 47" N Longitude: 120° 51' 40" W
--	RSW-001 (formally RW-1)	Upcoast Midfield Latitude: 35° 23' 15" N Longitude: 120° 52' 30" W
--	RSW-002 (formally RW-2)	Upcoast Nearfield Latitude: 35° 23' 14" N Longitude: 120° 52' 30" W

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
--	RSW-003 (formally RW-3)	Upcoast ZID Latitude: 35° 23' 13" N Longitude: 120° 52' 30" W
--	RSW-004 (formally RW-4)	Downcoast ZID Latitude: 35° 23' 19" N Longitude: 120° 52' 30" W
--	RSW-005 (formally RW-5)	Downcoast Nearfield Latitude: 35° 23' 10" N Longitude: 120° 52' 30" W
--	RSW-006 (formally RW-6)	Downcoast Midfield Latitude: 35° 23' 9" N Longitude: 120° 52' 30" W
--	SRF-A1 (formally SZ-A1)	Upcoast Reference Latitude: 35° 23' 58" N Longitude: 120° 52' 07" W
--	SRF-A (formally SZ-A)	Upcoast Midfield Latitude: 35° 23' 45" N Longitude: 120° 52' 07" W
--	SRF-B (formally SZ-B)	Upcoast Nearfield Latitude: 35° 23' 31" N Longitude: 120° 52' 00" W
--	SRF-C (formally SZ-C)	Onshore of Diffuser Latitude: 35° 23' 15" N Longitude: 120° 51' 57" W
--	SRF-D (formally SZ-D)	Downcoast Nearfield Latitude: 35° 23' 02" N Longitude: 120° 51' 55" W
--	SRF-E (formally SZ-E)	Downcoast Midfield Latitude: 35° 22' 46" N Longitude: 120° 51' 54" W
--	SRF-F (formally SZ-F)	Downcoast Reference Latitude: 35° 22' 24" N Longitude: 120° 51' 53" W
--	SRF-G (formally SZ-G)	Morro Creek immediately before flowing to the ocean.
--	B-002	Upcoast Reference Latitude: 35° 23' 17" N Longitude: 120° 52' 30" W
--	B-003	Downcoast Nearfield Latitude: 35° 23' 14" N Longitude: 120° 52' 30" W
--	B-004	Upcoast ZID Latitude: 35° 23' 13" N Longitude: 120° 52' 30" W
--	B-005	Downcoast ZID Latitude: 35° 23' 11" N Longitude: 120° 52' 30" W
--	B-006	Downcoast Nearfield Latitude: 35° 23' 10" N Longitude: 120° 52' 30" W
--	B-007	Downcoast Reference Latitude: 35° 23' 7" N Longitude: 120° 52' 30" W

The north latitude and west longitude information in Table E-1 are approximate for administrative purposes.

### III. INFLUENT MONITORING REQUIREMENTS

#### A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the Facility at INF-001 as follows:

**Table E-2. Influent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency
Daily Flow	MG	Metered	Daily
Maximum Daily Flow	MGD	Metered	Daily
Mean Daily Flow	MGD	Calculated	Monthly
Biochemical Oxygen Demand 5-day @ 20°C (BOD <sub>5</sub> )	mg/L	C-24 <sup>[1]</sup>	Weekly
Total Suspended Solids (TSS)	mg/L	C-24 <sup>[1]</sup>	Weekly

**Footnotes to Table E-2:**

**Units:**

mg/L = milligrams per liter

C-24 = 24 hour composite

<sup>[1]</sup> Composite samples may be taken by a proportional sampling devise approved by the Executive Officer or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed one hour.

2. Effluent flow metering shall be reported in place of influent flow metering when the flume is surcharged. Monitoring reports shall indicate the dates and times for which the influent flow meter was surcharged and effluent flow is being reported in place of influent flow.

**IV. EFFLUENT MONITORING REQUIREMENTS**

**A. Monitoring Location EFF-001**

1. The Discharger shall monitor effluent at Monitoring Location EFF-001, as follows.

**Table E-3. Effluent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency
Total Chlorine Residual	µg/L	Grab	1/Day
Chlorine Usage	lbs/day	Recorded	1/Day
Total Coliform	MPN	Grab	5/Week <sup>[1]</sup>
Temperature	°C	Grab	5/Week
Turbidity	NTU	Grab	5/Week
BOD <sub>5</sub>	mg/L	C-24	1/Week
TSS	mg/L	C-24	1/Week
pH	standard units	Grab	1/Week
Settleable Solids	mL/L	Grab	1/Week
Oil and Grease	mg/L	Grab	1/Week
Chronic Toxicity	TUc	C-24	1/Year
Ammonia (as N)	mg/L	Grab	1/Year
Nitrate (as N)	mg/L	Grab	1/Year
Urea (as N)	mg/L	Grab	1/Year
Orthophosphate (as P)	mg/L	Grab	1/Year
Dissolved Silica (SiO <sub>2</sub> )	mg/L	Grab	1/Year

Parameter	Units	Sample Type	Minimum Sampling Frequency
<b>Protection of Marine Aquatic Life</b>			
Arsenic, Total Recoverable	µg/L	C-24	1/Year
Cadmium, Total Recoverable	µg/L	C-24	1/Year
Chromium (VI) , Total Recoverable	µg/L	C-24	1/Year
Copper, Total Recoverable	µg/L	C-24	1/Year
Lead, Total Recoverable	µg/L	C-24	1/Year
Mercury, Total Recoverable	µg/L	C-24	1/Year
Nickel, Total Recoverable	µg/L	C-24	1/Year
Selenium, Total Recoverable	µg/L	C-24	1/Year
Silver, Total Recoverable	µg/L	C-24	1/Year
Zinc, Total Recoverable	µg/L	C-24	1/Year
Cyanide, Total	µg/L	C-24	1/Permit
Phenolic Compounds (non-chlorinated)	µg/L	Grab	1/Permit
Phenolic Compounds (chlorinated)	µg/L	Grab	1/Permit
Endosulfan <sup>[2]</sup>	µg/L	C-24	1/Permit
Endrin	µg/L	C-24	1/Permit
HCH <sup>[3]</sup>	µg/L	C-24	1/Permit
Radionuclide	pCi/L	C-24	1/Permit
<b>Protection of Human Health – Noncarcinogens</b>			
Acrolein	µg/L	C-24	1/Permit
Antimony	µg/L	C-24	1/Permit
Bis(2-chloroethoxy)methane	µg/L	C-24	1/Permit
Bis(2-chloroisopropyl)ether	µg/L	C-24	1/Permit
Chlorobenzene	µg/L	C-24	1/Permit
Chromium (III)	µg/L	C-24	1/Permit
Di-n-butyl phthalate	µg/L	C-24	1/Permit
Dichlorobenzenes <sup>[4]</sup>	µg/L	C-24	1/Permit
Diethyl phthalate	µg/L	C-24	1/Permit
Dimethyl phthalate	µg/L	C-24	1/Permit
4,6-dinitro-2-methylphenol	µg/L	C-24	1/Permit
2,4-dinitrophenol	µg/L	C-24	1/Permit
Ethylbenzene	µg/L	C-24	1/Permit
Fluoranthene	µg/L	C-24	1/Permit
Hexachlorocyclopentadiene	µg/L	C-24	1/Permit
Isophorone	µg/L	C-24	1/Permit
Nitrobenzene	µg/L	C-24	1/Permit
Thallium	µg/L	C-24	1/Permit
Toluene	µg/L	C-24	1/Permit
Tributyltin	µg/L	C-24	1/Permit
1,1,1-trichlorethane	µg/L	C-24	1/Permit
1,1,2-trichloroethane	µg/L	C-24	1/Permit

Parameter	Units	Sample Type	Minimum Sampling Frequency
<b>Protection of Human Health – Carcinogens</b>			
Acrylonitrile	µg/L	C-24	1/Permit
Aldrin	µg/L	C-24	1/Permit
Benzene	µg/L	C-24	1/Permit
Benzidine	µg/L	C-24	1/Permit
Beryllium	µg/L	C-24	1/Permit
Bis(2-chloroethyl)ether	µg/L	C-24	1/Permit
Bis(2-ethylhexyl)phthalate	µg/L	C-24	1/Permit
Carbon tetrachloride	µg/L	C-24	1/Permit
Chlordane <sup>[5]</sup>	µg/L	C-24	1/Permit
Chlorodibromomethane	µg/L	C-24	1/Permit
Chloroform	µg/L	C-24	1/Permit
DDT <sup>[6]</sup>	µg/L	C-24	1/Permit
1,4-dichlorobenzene	µg/L	C-24	1/Permit
3,3-dichlorobenzidine	µg/L	C-24	1/Permit
1,2-dichloroethane	µg/L	C-24	1/Permit
1,1-dichloroethylene	µg/L	C-24	1/Permit
Dichlorobromomethane	µg/L	C-24	1/Permit
Dichloromethane	µg/L	C-24	1/Permit
1,3-dichloropropene	µg/L	C-24	1/Permit
Dieldrin	µg/L	C-24	1/Permit
2,4-dinitrotoluene	µg/L	C-24	1/Permit
1,2-diphenylhydrazine	µg/L	C-24	1/Permit
Halomethanes <sup>[7]</sup>	µg/L	C-24	1/Permit
Heptachlor	µg/L	C-24	1/Permit
Heptachlor epoxide	µg/L	C-24	1/Permit
Hexachlorobenzene	µg/L	C-24	1/Permit
Hexachlorobutadiene	µg/L	C-24	1/Permit
Hexachloroethane	µg/L	C-24	1/Permit
N-nitrosodimethylamine	µg/L	C-24	1/Permit
N-nitrosodi-N-propylamine	µg/L	C-24	1/Permit
N-nitrosodiphenylamine	µg/L	C-24	1/Permit
PAHs <sup>[8]</sup>	µg/L	C-24	1/Permit
PCBs <sup>[9]</sup>	µg/L	C-24	1/Permit
TCDD Equivalents <sup>[10]</sup>	µg/L	C-24	1/Permit
1,1,2,2-tetrachloroethane	µg/L	C-24	1/Permit
Tetrachloroethylene	µg/L	C-24	1/Permit
Toxaphene	µg/L	C-24	1/Permit

[1] If effluent limitations are exceeded for total coliform, the Discharger shall monitor as specified in section VIII.A.1 of this MRP.

[2] Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

[3] HCH shall mean the sum of alpha, beta, gamma (Lindane) and delta isomers of hexachlorocyclohexane.

[4] Dichlorobenzenes shall mean the sum of 1,2- and 1,3-dichlorobenzene.

- [5] Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordane-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.
- [6] DDT shall mean the sum of 4,4'DDT; 2,4'DDT; 4,4"DDE; 4,4"DDD; and 2,4'DDD.
- [7] Halomethanes shall mean the sum of bromoform, bromomethane and chloromethane.
- [8] PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,1,2-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorine, ideno[1,2,3-cd]pyrene, phenanthrene, and pyrene.
- [9] Sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.
- [10] TCDD equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown below:

Isomer Group	Toxicity Equivalent Factor	Isomer Group	Toxicity Equivalent Factor
2,3,7,8-tetra CDD	1.0	1,2,3,7,8-penta CDF	0.05
2,3,7,8-penta CDD	0.5	2,3,4,7,8-penta CDF	0.5
2,3,7,8-hexa CDDs	0.1	2,3,7,8-hexa CDFs	0.1
2,3,7,8-hepta CDD	0.01	2,3,7,8-hepta CDFs	0.01
octa CDD	0.001	octa CDF	0.001
2,3,7,8-tetra CDF	0.1	--	--

**B. Mass Emission Goals**

1. The Discharger shall report the mass emission rates for all constituents that have mass emission effluent goals listed below, and the flow used to calculate the mass emission rates for each constituent. Annual mass emissions will be compared to performance based mass emission goals. For compounds with detectable concentrations, exceedances of performance-based mass emission goals shall be considered indicative of a statistically significant increase in loading and will trigger an antidegradation analysis prior to any future permit renewals.

**Table E-4. Mass Emission Goals**

Constituent	Value	Units
<b><i>Protection of Marine Life</i></b>		
Arsenic, Total Recoverable	17	kg/yr
Cadmium, Total Recoverable	88	kg/yr
Chromium, Total Recoverable	93	kg/yr
Copper, Total Recoverable	690	kg/yr
Lead, Total Recoverable	465	kg/yr
Mercury, Total Recoverable	1.4	kg/yr
Nickel, Total Recoverable	142	kg/yr
Selenium, Total Recoverable	65	kg/yr
Silver, Total Recoverable	28	kg/yr
Zinc, Total Recoverable	244	kg/yr
Cyanide, Total	71	kg/yr
Endosulfan <sup>[1]</sup>	3	kg/yr
Endrin	1	kg/yr

Constituent	Value	Units
HCH <sup>[2]</sup>	228	kg/yr
<b>Protection of Human Health - Noncarcinogens</b>		
Acrolein	--	--
Antimony	285	kg/yr
Bis(2-chloroethoxy) methane	142	kg/yr
Bis(2-chloroisopropyl) ether	--	--
Chlorobenzene	--	--
Chromium III	--	--
Di-n-butyl phthalate	142	kg/yr
Dichlorobenzene <sup>[3]</sup>	5.7	kg/yr
1,1-dichloroethene	3	kg/yr
Diethyl phthalate	191	kg/yr
Dimethyl phthalate	142	kg/yr
1-methyl-4,6-dinitrophenol	142	kg/yr
2,4-dinitrophenol	342	kg/yr
Ethylbenzene	3	kg/yr
Fluoranthene	142	kg/yr
Hexachlorocyclopentadiene	--	--
Isophorone	142	kg/yr
Nitrobenzene	142	kg/yr
Thallium	285	kg/yr
Toluene	4	kg/yr
1,1,2,2-tetrachloroethane	3	kg/yr
1,1,1-trichloroethane	3	kg/yr
1,1,2-trichloroethane	3	kg/yr
<b>Protection of Human Health - Carcinogens</b>		
Acrylonitrile	--	--
Aldrin	0.01	kg/yr
Benzene	12	kg/yr
Benzidine	0.03	kg/yr
Beryllium	28	kg/yr
Bis(2-chloroethyl) ether	17	kg/yr
Bis(2-ethylhexyl) phthalate	320	kg/yr
Carbon tetrachloride	3	kg/yr
Chlordane <sup>[4]</sup>	8.8	kg/yr
Chloroform	5	kg/yr
DDT <sup>[5]</sup>	60	kg/yr
1,4-dichlorobenzene	57	kg/yr
3,3'-dichlorobenzidine	3.1	kg/yr
1,2-dichloroethane	3	kg/yr
Dichloromethane	--	--
1,3-dichloropropene	--	--
Dieldrin	0.02	kg/yr
2,4-dinitrotoluene	142	kg/yr

Constituent	Value	Units
1,2-diphenylhydrazine	60	kg/yr
Halomethanes <sup>[6]</sup>	25	kg/yr
Heptachlor	0.27	kg/yr
Hexachlorobenzene	0.08	kg/yr
Hexachlorobutadiene	142	kg/yr
Hexachloroethane	142	kg/yr
N-nitrosodimethylamine	342	kg/yr
N-nitrosodiphenylamine	142	kg/yr
PAHs <sup>[7]</sup>	3.4	kg/yr
PCBs <sup>[8]</sup>	7.3	g/yr
Dibenzofuran	57	kg/yr
TCDD Equivalents <sup>[9]</sup>	1.48	mg/yr
Tetrachloroethene	4	kg/yr
Toxaphene	0.08	kg/yr
Trichloroethene	3	kg/yr
2,4,6-trichlorophenol	114	kg/yr
Vinyl chloride	3	kg/yr

- [1] Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.
- [2] HCH shall mean the sum of alpha, beta, gamma (Lindane) and delta isomers of hexachlorocyclohexane.
- [3] Dichlorobenzenes shall mean the sum of 1,2- and 1,3-dichlorobenzene.
- [4] Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordane-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.
- [5] DDT shall mean the sum of 4,4'DDT; 2,4'DDT; 4,4"DDE; 4,4"DDD; and 2,4'DDD.
- [6] Halomethanes shall mean the sum of bromoform, bromomethane and chloromethane.
- [7] PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,1,2-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorine, ideno[1,2,3-cd]pyrene, phenanthrene, and pyrene.
- [8] Sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.
- [9] TCDD equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown below :

Isomer Group	Toxicity Equivalent Factor	Isomer Group	Toxicity Equivalent Factor
2,3,7,8-tetra CDD	1.0	1,2,3,7,8-penta CDF	0.05
2,3,7,8-penta CDD	0.5	2,3,4,7,8-penta CDF	0.5
2,3,7,8-hexa CDDs	0.1	2,3,7,8-hexa CDFs	0.1
2,3,7,8-hepta CDD	0.01	2,3,7,8-hepta CDFs	0.01
octa CDD	0.001	octa CDF	0.001
2,3,7,8-tetra CDF	0.1	--	--

**V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS**

**A. Whole Effluent Chronic Toxicity – Monitoring Location EFF-001**

The presence of chronic toxicity shall be estimated as specified in *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, EPA-821/600/R-95/136; *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, EPA-600-4-01-003; *Procedures Manual for Conducting Toxicity Tests developed by the Marine Bioassay Project*, SWRCB 1996, 96-1WQ; and/or *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, EPA/600/4-87-028 or subsequent editions.

Chronic toxicity measures a sublethal effect (e.g., reduced growth or reproduction) to experimental test organisms exposed to an effluent compared to that of the control organisms.

$$\text{Chronic Toxicity (TUc)} = 100/\text{NOEL}$$

The no observed effect level (NOEL) is the maximum tested concentration in a medium which does not cause known adverse effects upon chronic exposure in the species in question (i.e., the highest effluent concentration to which organisms are exposed in a chronic test that causes no observable adverse effects on the test organism; e.g., the highest concentration of a toxicant to which the values for the observed responses are not statistically significantly different from the controls). Examples of chronic toxicity include, but are not limited to, measurements of toxicant effects on reproduction, growth, and sublethal effects that can include behavioral, physiological, and biochemical effects.

In accordance with the 2015 Ocean Plan, Appendix III, *Standard Monitoring Procedures*, the Discharger shall use the critical life stage toxicity tests specified in the table below to measure TUc. Other species or protocols will be added to the list after the State Water Board review and approval.

A minimum of three test species with approved test protocols shall be used to measure compliance with the toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period of no fewer than three sampling events, monitoring can be reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

**Table E-6. Approved Tests – Chronic Toxicity**

Species	Effect	Tier	Reference
Giant Kelp, <i>Macrocystis pyrifera</i>	Percent germination; germ tube length	1	a, c
Red abalone, <i>Haliotis rufesens</i>	Abnormal shell development	1	a, c
Oyster, <i>Crassostrea gigast</i> ; Mussels, <i>Mytilus spp.</i>	Abnormal shell development; percent survival	1	a, c
Urchin, <i>Strongylocentrotus purpuratus</i> ; Sand dollar, <i>Dendraster excentricus</i>	Percent normal development; percent fertilization	1	a, c
Shrimp, <i>Holmesimysis costata</i>	Percent survival; growth	1	a, c
Shrimp, <i>Mysidopsis bahia</i>	Percent survival; growth; fecundity	2	b, d
Topsmelt, <i>Atherinops affinis</i>	Larval growth rate; percent survival	1	a, c
Silversides, <i>Menidia beryllina</i>	Larval growth rate; percent survival	2	b, d

[1] First tier methods are preferred for compliance monitoring. If first tier organisms are not available, the Discharger can use a second tier test method following approval by the Regional Water Board.

[2] Protocol References:

- a. Chapman, G.A., D.L. Denton, and J.M. Lazochak. 1995. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. U.S. EPA Report No. EPA/600/R-95/136.
- b. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Pelier, and M.A. Heber. 1994. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to marine and estuarine organisms. U.S. EPA Report No. EPA-600-4-91-003.
- c. SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marin Bioassay Project. 96-1WQ.
- d. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Neiheisel, P.A. Lewis, E.L. Robinson, J. Menkedick and F. Kessler (eds). 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-87/028. National Information Service, Springfield, VA.

Dilution and control waters shall be obtained from an area of the receiving waters, typically upstream, which is unaffected by the discharge. Standard dilution water can be used, if the receiving water itself exhibits toxicity or if approved by the Central Coast Water Board. If the dilution water used in testing is different from the water in which the test organisms were cultured, a second control sample using culture water shall be tested.

If the effluent to be discharged to a marine or estuarine system (e.g., salinity values in excess of 1,000 mg/L) originates from a freshwater supply, salinity of the effluent must be increased with dry ocean salts (e.g., FORTY FATHOMS®) to match salinity of the receiving water. This modified effluent shall then be tested using marine species.

## **B. Accelerated Monitoring Requirements**

1. When chronic toxicity is detected in the effluent above an effluent limitation established by this Order, and the testing meets all test acceptability criteria, the Discharger shall resample immediately and confirm the effluent toxicity. If the retest results in toxicity greater than the applicable effluent limitation, the Discharger shall initiate accelerated monitoring.
2. Accelerated monitoring frequency consists of performing six toxicity tests (one per week) in a six-week period following the first failed test result (test results exceed effluent limitation or toxicity trigger), or as otherwise instructed by the Executive Officer. Test results shall be submitted to the Central Coast Water Board within 15 days of the conclusion of each test.
3. Unless otherwise specified by the Executive Officer, if the implementation of the generic Toxicity Reduction Evaluation (TRE) work plan indicates the source of the exceedance of the toxicity trigger (for instance, a temporary plan upset), then only one additional test is necessary. If an exceedance of the toxicity effluent limitation or toxicity trigger is detected in this test, the Discharger shall continue with accelerated monitoring requirements or implement the Toxicity Identification and Toxicity Reduction Evaluations.
4. Unless otherwise specified by the Executive Officer, if none of the six accelerated tests indicates exceedances of the toxicity effluent limitation or toxicity trigger, then the Discharger may return to the normal bioassay testing frequency.

## **C. Conducting Toxicity Identification Evaluations (TIE) and Toxicity Reduction Evaluations (TRE)**

1. A TRE shall be implemented by the Discharger as specified by the Executive Officer. A TIE may be required as part of the TRE.
2. The TIE shall be conducted to identify and evaluate toxicity in accordance with procedures recommended by the United States Environmental Protection Agency (U.S. EPA) which include the following:
  - a. Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, (U.S. EPA, 1992a);
  - b. Methods for Aquatic Toxicity Identification Evaluations: Phase 1 Toxicity Characterization Procedures, Second Edition (U.S. EPA, 1991a);
  - c. Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Sampling Exhibiting Acute and Chronic Toxicity (U.S. EPA, 1993a); and
  - d. Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity (U.S. EPA, 1993b).
3. As part of the TIE investigation, the Discharger shall be required to implement its TRE work plan. The Discharger shall take all reasonable steps to control toxicity once the source of the toxicity is identified. A failure to conduct required toxicity tests or a TRE within a designated period may result in the establishment of numerical effluent limitations for chronic toxicity in a permit or appropriate enforcement action. Recommended guidance in conducting a TRE includes the following:
  - a. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, August 1999, EPA/833B-99/002; and
  - b. *Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program* dated May 27, 2001, U.S. EPA Office of Wastewater Management, Office of Regulatory Enforcement.

#### **D. Toxicity Reporting**

1. The Discharger shall include a full report of toxicity test results with the regular monthly monitoring report and include the following information.
  - a. Toxicity test results,
  - b. Dates of sample collection and initiation of each toxicity test, and
  - c. And/or toxicity discharge limitations (or value).
2. Toxicity test results shall be reported according to the appropriate guidance – *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, U.S. EPA Office of Water, PA821-R-02-012 (2002) or the latest edition, or EPA-821-R-02-012 (2002) or subsequent editions.
3. If the initial investigation TRE workplan is used to determine that additional (accelerated) toxicity testing is unnecessary, these results shall be submitted with the monitoring report for the month in which investigations conducted under the TRE workplan occurred.

4. Within 14 days of receipt of a chronic toxicity test result which exceeds 134 TUc, the Discharger shall provide written notification to the Executive Officer of:
  - a. Findings of the TRE of other investigation to identify the cause(s) of toxicity,
  - b. Actions the Discharger has taken/will take to mitigate the impact of the discharge and to prevent the recurrence of toxicity. When corrective actions, including TRE, have not been completed, a schedule under which corrective actions will be implemented, or the reason for not taking corrective action, if no action has been taken.

When corrective actions, including a TRE, have not been completed, a schedule under which corrective actions will be implemented, or the reason for not taking corrective action, if no action has been taken, will be completed.

**VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE**

**VII. RECYCLING MONITORING REQUIREMENTS**

If reclaimed water is used, the Discharger shall comply with applicable State and local monitoring requirements regarding the production and use of reclaimed wastewater, including requirements established by the DGS at title 22, sections 60301 – 60357 of the CCR, Water Recycling Criteria.

**VIII. RECEIVING WATER MONITORING REQUIREMENTS**

**A. Surf Zone Monitoring – Monitoring Locations SRF-A1 through SRF-G, and RSW-003 and RSW-004**

1. If the total coliform limitations specified in section III.A.4 of the Order are exceeded, the Discharger shall monitor for total and fecal coliform and enterococcus bacteria in the receiving water at all surf zone monitoring locations, and at one station directly up coast (RSW-003) and one station directly down coast (RSW-004) of the point of discharge. The Discharger shall monitor these stations daily for a minimum of 7 days at indicated in Table E-7. A report summarizing the results of monitoring, and comparing the results to the Ocean Plan water quality objectives for bacteria shall be submitted to the Executive Officer with the next monitoring report to be submitted to the Central Coast Water Board.
2. In the event of a malfunction of the Discharger’s wastewater treatment facility’s disinfection process that results in a potential or actual discharge or inadequately disinfected effluent into the receiving water, the Discharger shall monitor receiving water for bacteria as indicated in Table E-7, and provide notice in accordance with requirements established by section V.C.6.b of the Order.

**Table E-7. Bacteria Monitoring Schedule**

Parameter	Units	Minimum Sampling Frequency
Total Coliform	MPN/100 mL	1/Day for 7 days <sup>[1][2]</sup>
Fecal Coliform	MPN/100 mL	1/Day for 7 days <sup>[1][2]</sup>
Enterococcus	MPN/100 mL	1/Day for 7 days <sup>[1][2]</sup>
Standard Observations	--	1/Day for 7 days <sup>[2][3]</sup>

- [1] For all bacterial analyses, sample dilutions shall be performed so the range of values extends from 2 to 16,000 MPN/100 mL. The detection methods used for each analysis shall be reported with the results of the analysis. Detection methods used for total and fecal coliform shall be those presented in the most recent edition of *Standard Methods for the Examination of Water and Wastewater* or any improved method determined by the Central Coast Water Board (and approved by U.S. EPA) to be appropriate. Detection methods used for enterococcus shall be those presented in U.S. EPA publication EPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water by Membrane Filter Procedure*, or an improved method determined by the Central Coast Water Board (and approved by U.S. EPA) to be appropriate.
- [2] If a single sample exceeds any of the single sample maximum receiving water limitations established in section IV.A.1.b.ii of the Order, repeat sampling at that location shall be conducted to determine the extent and persistence of the exceedance. Repeat sampling shall be conducted within 24 hours of receiving analytical results and continued until the sample result is less than the single sample maximum receiving water limitation or until the source of the high bacterial densities has been identified and positively determined to not be caused or contributed to be discharge of effluent by the Facility. When repeat sampling is required because of an exceedance of any one single sample maximum, values from all samples collected during that 30-day period will be used to determine compliance with the 30-day geometric mean receiving water limitations in section IV.A.1.a.i of the Order.
- [3] Standard observations shall include observation of wind direction and speed, weather (e.g., cloudy, sunny, rainy), the quantity of rainfall precipitated over the previous 7 day period, sea conditions, longshore currents (e.g., directions), and tidal conditions (e.g., high, slack, or low tide). Observations of water discoloration, floating oil and grease, turbidity, odor, materials of sewage origin in the water or on the beach, and temperature (°C) shall be recorded and reported.

**IX. BENTHIC MONITORING**

**A. Benthic Sediment Monitoring – Monitoring Locations B-002 through B-007**

Sediment monitoring shall be conducted once per permit term, in October 2018. Three grab samples shall be collected using a 0.1 m<sup>2</sup> Van Veen grab sampler at each benthic monitoring station. A composite of these three samples should be analyzed as follows:

**Table E-8. Benthic Sediment Monitoring**

Parameter	Units	Minimum Frequency of Sampling/Analysis
Sediment particle size	Phi size (% volume)	Once during permit term (October 2018)
Organic Matter	Volatile solids or TOC (mg/kg)	Once during permit term (October 2018)
Biochemical Oxygen Demand	mg/L	Once during permit term (October 2018)
Total Kjeldahl Nitrogen	mg/L	Once during permit term (October 2018)
Oil and Grease	mg/L	Once during permit term (October 2018)
Aluminum	µg/kg	Once during permit term (October 2018)
Iron	µg/kg	Once during permit term (October 2018)
Arsenic	µg/kg	Once during permit term (October 2018)
Cadmium	µg/kg	Once during permit term (October 2018)
Total Chromium	µg/kg	Once during permit term (October 2018)
Copper	µg/kg	Once during permit term (October 2018)
Lead	µg/kg	Once during permit term (October 2018)
Mercury	µg/kg	Once during permit term (October 2018)
Nickel	µg/kg	Once during permit term (October 2018)
Silber	µg/kg	Once during permit term (October 2018)
Zinc	µg/kg	Once during permit term (October 2018)
Nonchlorinated Phenolics	µg/kg	Once during permit term (October 2018)
Chlorinated Phenolics	µg/kg	Once during permit term (October 2018)
Aldrin	µg/kg	Once during permit term (October 2018)
Diieldrin	µg/kg	Once during permit term (October 2018)

Parameter	Units	Minimum Frequency of Sampling/Analysis
Chlordane	µg/kg	Once during permit term (October 2018)
DDT, DDE, DDD	µg/kg	Once during permit term (October 2018)
Endrin	µg/kg	Once during permit term (October 2018)
PAHs	µg/kg	Once during permit term (October 2018)
PCBs	µg/kg	Once during permit term (October 2018)
Toxaphene	µg/kg	Once during permit term (October 2018)

When processing samples for analysis, macrofauna and large remnants greater than 0.25 inches (0.64 cm) should be removed, taking care to avoid contamination.

Sediment samples shall be analyzed according to *Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods* (EPA 430/9-86-004, 1987) and *Analytical Methods for U.S. EPA Priority Pollutants and 301(h) Pesticides in Estuarine and Marine Sediments* (EPA 503-6-90-004, 1986).

All sediment chemistry results shall be reported in the raw form and expressed on a dry weight basis. For all non-detect results, parameter detection limits shall be reported. Dry weight concentration target detection levels are indicated for National Oceanic and Atmospheric Administration (NOAA) National Status and Trends Program analyses.

Benthic monitoring results shall be included in the report with a complete discussion of benthic sediment survey results and potential influence of the discharge on sediment conditions in the study area. The discussion should be based on graphical, tabular, and/or appropriate statistical analyses of spatial and temporal patterns observed for raw sediment parameters. The report should also present an analysis of natural variation in sediment conditions, etc., which could influence the validity of study results. The Discharger’s sediment results may also be compared with the results of other applicable studies, numerical protective levels, etc., as appropriate.

Survey results shall be compared to pre-discharge and/or historical data using appropriate statistical methods.

**B. Benthic Community Monitoring**

Benthic infaunal organisms shall be monitored once per permit term in October 2018 at the benthic monitoring stations described in section II, Monitoring Locations, above. Benthic infaunal monitoring shall assess the temporal and spatial status of local benthic communities in relation to the outfall. Sampling shall be conducted as follows:

1. **Collection:** Five replicate samples shall be collected at each station using a 0.1 m<sup>2</sup> Van Veen grab sampler.
2. For benthic infauna analyses, each replicate sample shall be passed through a 1 mm screen, and the organisms retained and preserved as appropriate for subsequent identification. It is recommended that sample preservation, sample processing, and data analyses be conducted according to *Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods* (EPA 430/9-86-004, 1987).
3. Benthic infauna from each replicate sample shall be counted and identified to the lowest possible taxon. For each replicate sample, number of individuals, number of species,

and number of individuals per species, and within each major taxonomic group (polychaetes, molluscs, crustaceans, echinoderms, and all other macroinvertebrates) shall be recorded.

4. The benthic sampling report shall include a complete discussion of benthic infaunal survey results and (possible) influence of the outfall on benthic infauna communities in the study area. The discussion should be based on graphical, tabular, and/or appropriate statistical analyses of spatial and temporal patterns. Temporal trends in the number of individuals, number of species, number of individuals per species, and community structure indices, species richness (S), Margalef index (d), Shannon-Wiener index (H'), Brillouin index (h), Simpson's Index (SI), Swartz's dominance, and Infaunal Trophic Index (IT) shall be reported. The report should also present an analysis of natural community variation including the effects of different sediment conditions, oceanic seasons, and water temperatures, etc., that could influence the validity of study results. Survey results shall be compared to pre-discharge and/or historical data using appropriate statistical methods.

**X. BIOSOLIDS MONITORING**

- A. The following information shall be submitted with the Annual Report required by Standard Provision C.16. Adequate detail should be included to characterize biosolids in accordance with 40 C.F.R. 503.
  1. A representative sample of residual solids (biosolids) shall be obtained from the last point in the handling process (i.e., in the drying beds just prior to removal). All constituents shall be analyzed annually for total concentrations for comparison with total threshold limit concentration (TTLC) criteria. The Waste Extraction Test shall be performed on any constituent when the total concentration of the waste exceeds ten times the STLC limit for that substance. Twelve (12) discrete representative samples shall be collected at separate locations in the biosolids ready for disposal. These 12 samples shall be composited to form one (1) sample for constituent analysis. For accumulated, previously untested biosolids, the Discharger shall develop a representative sampling plan including number and location of sampling points, and collect representative samples. The analysis shall test for the metals required in 40 C.F.R. 503.16 (for land application) or 503.26 (for surface disposal), using the methods in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (EPA Publication SW-846, all applicable editions and updates), as required in 503.8(b)(4), at the minimum frequencies established therein, provided in the table below.

**Table E-9. Amount of Biosolids and Frequency for Analysis**

<b>Amount<sup>[1]</sup> (dry metric tons/365 day period)</b>	<b>Frequency<sup>[2]</sup></b>
Greater than zero, but less than 290	1/Year.
Equal to or greater than 290 but less than 1,500	1/Quarter (four times per year)
Equal to or greater than 1,500 but less than 15,000	1/60 days (six times per year)
Greater than 15,000	1/Month (twelve times per year)

<sup>[1]</sup> For land application, either the amount of bulk biosolids applied to the land or the amount prepared for sale or give-away in a bag or other container for application to the land (dry weight basis). If the Discharger's biosolids are directly land applied without further treatment by another preparer, biosolids shall also be tested for organic-N, ammonium-N, and nitrate-N at the frequencies required. For surface disposal, the amount of biosolids placed on an active sludge unit (dry weight basis).

<sup>[2]</sup> Test results shall be expressed in mg pollutants per kg biosolids on a 100% dry weight basis.

Biosolids shall be analyzed annually for the constituents in the following table.

**Table E-10. Biosolids Monitoring Requirements**

Constituent	Units	Type of Sample	Sampling/Analysis Frequency
Quantity Removed	Tons or yds <sup>3</sup>	Measured	Continual
Pathogen Density	--	--	Per 40 C.F.R. 503
Location Reuse/Disposal	General Public or Specific Site	--	--
Moisture Content	%	Grab	1/Year
pH	standard units	Grab	1/Year
Total Kjeldahl Nitrogen	mg/kg (dry) <sup>1</sup>	Grab	1/Year
Ammonia (N)	mg/kg	Grab	1/Year
Nitrate (N)	mg/kg	Grab	1/Year
Total Phosphorus	mg/kg	Grab	1/Year
Oil and Grease	mg/kg	Grab	1/Year
Arsenic	mg/kg	Grab	1/Year
Boron	mg/kg	Grab	1/Year
Cadmium	mg/kg	Grab	1/Year
Copper	mg/kg	Grab	1/Year
Chromium (Hexavalent)	mg/kg	Grab	1/Year
Lead	mg/kg	Grab	1/Year
Mercury	mg/kg	Grab	1/Year
Molybdenum	mg/kg	Grab	1/Year
Nickel	mg/kg	Grab	1/Year
Selenium	mg/kg	Grab	1/Year
Silver	mg/kg	Grab	1/Year
Zinc	mg/kg	Grab	1/Year
Priority Pollutants (excluding asbestos)	mg/kg	Grab	1/Year

<sup>[1]</sup> Total sample (including solids and any liquid portion) to be analyzed and results reported as mg/kg based on the dry weight of the sample.

2. Prior to land application, the Discharger shall demonstrate that the biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed in 40 C.F.R. 503.32 (unless transferred to another preparer who demonstrates pathogen reduction).

Prior to disposal in a surface disposal site, the Discharger shall demonstrate that the biosolids meet Class B levels or shall ensure that the site is covered at the end of each operating day.

If pathogen reduction is demonstrated using a “Process to Significantly/Further Reduce Pathogens” (PFRP), the Discharger shall maintain daily records of the operating parameters to achieve this reduction.

The following applies when biosolids from the Discharger are directly land applied as Class B, without further treatment by a second preparer. If the Discharger demonstrates pathogen reduction by direct testing for fecal coliforms and/or pathogens, samples must be drawn at the frequency in Table E-7. If the Discharger demonstrates Class B pathogen reduction by testing for fecal coliform, at least seven grab samples must be drawn and analyzed during each monitoring event, and a geometric mean calculated from these seven samples. If the Discharger demonstrates Class A pathogen reduction by testing for fecal coliform and/or salmonella, plus one of the PFRP processes or testing

for enteric viruses and helminth ova at least four samples of fecal coliform or salmonella must be drawn during each monitoring event. All four samples must meet the limits specified in 40 C.F.R. 503.32(a).

3. For biosolids that are land applied or placed in a surface disposal site, the Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction requirements in 40 C.F.R. 503.33(b).
4. Class 1 facilities (facilities with pretreatment programs or others designated as Class 1 by the regional administrator) and Federal facilities with greater than five MGD influent flow shall sample biosolids for pollutants listed under section 307(a) of the CWA (as required in the pretreatment section of the permit for POTWs with pretreatment programs). Class 1 facilities and Federal facilities greater than five MGD shall test dioxins/dibenzofurans using a detection limit of less than one pg/g at the times of their next priority pollutant scan if they have not done so within the past five years, and once per five years thereafter.
5. The biosolids shall be tested annually, or more frequently if necessary, to determine hazardousness. All constituents regulated under CCR Title 22, division 5, chapter 11, article 3 shall be analyzed for comparison with Total Threshold Limit Concentration (TTCL) criteria. The Waste Extraction Test shall be performed on any constituent when the total concentration of the waste exceeds ten times the Soluble Threshold Limit Concentration (STLC) limit for that substance.
6. If biosolids are placed in a surface disposal site (dedicated land disposal site or monofill), a qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on the site will not contaminate an aquifer.
7. Biosolids placed in a municipal landfill shall be tested by the Paint Filter Liquids Test (EPA Methods 9095) at the frequency determined by Table E-8, or more often if necessary to demonstrate that there are no free liquids.
8. The Discharger, either directly or through contractual agreements with their biosolids management contractors, shall comply with the following notification requirements:
  - a. *Notification of non-compliance.* The Discharger shall notify EPA Region 9, the Central Coast Water Board, and the Regional Board located in the region where the biosolids are used or disposed, of any non-compliance within 24 hours if the non-compliance may seriously endanger health or the environment. For other instances of non-compliance, the Discharger shall notify EPA Region 9 and the affected Regional Water Quality Boards of any non-compliance in writing within five working days of becoming aware of the non-compliance. The Discharger shall require their biosolids management contractors to notify EPA Region 9 and the affected Regional Water Quality Boards of any non-compliance within the same time frames.
  - b. If biosolids are shipped to another State or Indian lands, the Discharger must send notice at least 60 days prior to the shipment to the permitting authorities in the receiving State or Indian land (the EPA Region Office for that area and the State/Indian authorities).

- c. *For land application (in cases where Class B biosolids are directly applied without further treatment):* Prior to reuse of any biosolids from the Discharger's facility to a new or previously unreported site, the Discharger shall notify EPA, the Central Coast Water Board, and any other affected Regional Water Quality Board. The notification shall include description of the crops or vegetation to be grown, proposed loading rates and determination of agronomic rates.

If any biosolids within a given monitoring period do not meet 40 C.F.R. 503.13 metals concentration limits, the Discharger (or its contractor) must pre-notify EPA, and determine the cumulative metals loading to that site to date, as required in 40 C.F.R. 503.12.

The Discharger shall notify the applier of all the applier's requirements under 40 C.F.R. 503, including the requirement that the applier certify that the management practices, site restrictions, and any applicable vector attraction reduction requirements have been met. The Discharger shall require the applier to certify at the end of 38 months following application of Class B biosolids that the harvesting restrictions in effect for up to 38 months have been met.

- d. *For surface disposal:* Prior to disposal to a new or previously unreported site, the Discharger shall notify EPA and the Central Coast Water Board. The notice shall include a description and a topographic map of the proposed site, depth to groundwater, whether the site is lined or unlined, site operator, site owner, and any State or local permits. The notice shall describe procedures for ensuring public access and grazing restrictions for three years following site closure. The notice shall include a groundwater monitoring plan or description of why groundwater monitoring is not required.

- 9. The Discharger shall submit an annual biosolids report to the EPA Region 9 Biosolids Coordinator and Central Coast Water Board by February 19<sup>th</sup> of each year (per U.S. EPA guidance and 40 C.F.R. 503) for the period covering the previous calendar year. This report shall include:

- a. Annual biosolids removed in dry tons and percent solids.
- b. If appropriate, a narrative description of biosolids dewatering and other treatment processes, including process parameters, including a schematic diagram showing biosolids handling facilities. For example, if drying beds are used, report depth of application and drying time. If composting is used, report the temperature achieved and duration.
- c. A description of disposal methods, including the following information as applicable related to the disposal methods used at the facility. If more than one method is used, include the percentage and tonnage of annual biosolids production disposed by each method.
  - i. For landfill disposal include: 1) the central Coast Water Board WDR numbers that regulate the landfills used, 2) the present classifications of the landfills used, 3) the results of any groundwater monitoring, 4) certifications of management practices, and 5) the names and locations of the facilities receiving biosolids.

- ii. For land application include: 1) the location of the site(s), 2) the Central Coast Water Board's WDR numbers that regulate the site(s), 3) the application rate in lbs/acre/year (specify wet or dry), 4) certifications of management practices and site restrictions, and 5) subsequent uses of the land.
- iii. For offsite application by a licensed hauler and composter include: 1) the name, address and U.S. EPA license number of the hauler and composter.
- d. Copies of analytical data required by other agencies (i.e., U.S. EPA or County Health Department) and licensed disposal facilities (i.e., landfill, land application, or composting facility) for the previous year.
- e. Descriptions of pathogen reduction methods and vector attraction reduction methods. Including supporting time and temperature data, and certifications, as required in 40 C.F.R. 503.17 and 503.27.
- f. Names, mailing address, and street addresses of persons who received biosolids for storage, further treatment, disposal in a municipal waste landfill, or for other use or disposal methods not covered above, and amounts delivered to each.
- g. For all biosolids used or disposed at the Discharger's facility, the site and management practice information and certification required in 40 C.F.R. 503.17 and 503.27.
- h. For all biosolids temporarily stored, the information required in 40 C.F.R. 503.20 is required to demonstrate temporary storage.
- i. Reports shall be submitted to:  
  
Regional Biosolids Coordinator  
U.S. EPA (WTR-7)  
75 Hawthorne St.  
San Francisco, CA 94105-3901  
  
Executive Officer  
Central Coast Regional Water Quality Control Board  
895 Aerovista Place, Suite 101  
San Luis Obispo, CA 93401-7906

## **XI. OTHER MONITORING REQUIREMENTS**

### **A. Ocean Outfall and Diffuser Inspection**

The Discharger shall conduct an inspection of the outfall pipe/diffuser system annually to ensure the proper operation and structural integrity of the system. This inspection shall include general observations and photographic records of the outfall pipe/diffuser system and the surrounding ocean bottom in the vicinity of the outfall/diffuser. The inspection shall be conducted along the outfall pipe/diffuser system from landfall to its ocean terminus. A report detailing inspection results shall be submitted to the Central Coast Water Board and U.S. EPA with the annual report required in Standard Provisions C.8.

## **XII. REPORTING REQUIREMENTS**

**A. General Monitoring and Reporting Requirements**

1. The Discharger shall comply with all Federal Standard Provisions and Central Coast Water Board Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

**B. Self-Monitoring Reports (SMRs)**

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). The CIWQS Web site will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. The Discharger shall use the current version of the Permittee Entry Template (PET) tool to configure data into the applicable CIWQS Data Format, and shall update that template according to this Order (e.g., add/delete parameters, revise limits, update monitoring locations, etc.). Blank versions of the latest PET tool are available at [http://www.waterboards.ca.gov/water\\_issues/program/ciwqs/chc\\_npdes.shtml](http://www.waterboards.ca.gov/water_issues/program/ciwqs/chc_npdes.shtml).
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Sampling and monitoring as required by this MRP shall begin on the effective date of this Order. The Discharger shall complete all required monitoring and reporting according to the following schedule unless otherwise directed by the Executive Officer:

**Table E-11. Monitoring Periods and Reporting Schedule**

SMR Name	Permit Section for Monitoring and Sampling Data Included in Report	SMR Submittal Frequencies	SMR Due Date
NPDES Monitoring Report	MRP sections III (Influent), IV (Effluent) V (Whole Effluent Toxicity), and	Monthly	First day of second calendar month following period of sampling
NPDES Monitoring Report	MRP section IV (Effluent)	Semiannually	March 1 <sup>st</sup> and September 1 <sup>st</sup> (following January and July sampling, respectively)
NPDES Monitoring Report	MRP section IV (Effluent)	Annual	February 1 <sup>st</sup> following calendar year of sampling
NPDES Monitoring Report	MRP section VIII (Receiving Water)	Quarterly	First day of second calendar month following period of sampling
NPDES Monitoring Report	MRP section IX (Benthic)	Once per permit	February 1, 2019

SMR Name	Permit Section for Monitoring and Sampling Data Included in Report	SMR Submittal Frequencies	SMR Due Date
Biosolids Technical Report	MRP section X (Biosolids)	Annually	February 1 <sup>st</sup> following calendar year of sampling
Ocean Outfall Inspection Technical Report	MRP section XI (Ocean Outfall and Diffuser Inspection)	Annually	February 1 <sup>st</sup> following calendar year of sampling
Summary Report	Attachment D, Standard Provision, VIII.D.8	Annually	April 1st following calendar year of sampling
Effluent Bacteria	Order section V.C.2.b Special Provisions	Quarterly	First day of second calendar month following period of sampling

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable reported Minimum Level (reported ML, also known as the Reporting Level, or RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136. For each parameter identified in Table 1 of the Ocean Plan, the Discharger shall use a ML no greater than specified in Appendix II of the Ocean Plan.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the reported ML, but greater than or equal to the laboratory’s MDL, shall be reported as “Detected, but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words “Estimated Concentration” (may be shorted to “Est. Conc.”). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy ( $\pm$  a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
- d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Compliance Determination.** Compliance with effluent limitations for Ocean Plan Table 1 parameters shall be determined using sample reporting protocols defined above and

Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the Ocean Plan Table 1 parameter in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (ML).

- 6. Multiple Sample Data.** When determining compliance with an average monthly effluent limitation (AMEL), average weekly effluent limitation (AWEL), or maximum daily effluent limitation, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
  - a.** The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
  - b.** The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
- 7.** The Discharger shall submit SMR’s in accordance with the following requirements:
  - a.** The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
  - b.** The Discharger shall include in their CIWQS upload a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation. Uploaded reports must also include laboratory data sheets for the analytical results being presented.
  - c.** An Annual Self-Monitoring Report Summary shall be due on April 1 following each calendar year and shall include:
    - i.** All data required by this MRP for the corresponding monitoring period, including appropriate calculations to verify compliance with effluent limitations.
    - ii.** A discussion of any incident of non-compliance and corrective actions taken.

### **C. Discharge Monitoring Reports (DMRs)**

1. At any time during the term of this permit, the State or Central Coast Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of DMRs. Until such notification is given specifically for the submittal of DMR's, the Discharger shall submit DMRs in accordance with the requirements described below.
2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to one of the addresses listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 <sup>th</sup> Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official U.S. EPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

**D. Other Reports**

1. Sanitary sewer overflows associated with the Discharger's collection system are subject to the online reporting and notifications requirements set forth in the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems Order No. 2006-0003-DWQ. The Discharger has enrolled under the statewide waste discharge requirements for sanitary sewer systems. Therefore, all prohibitions, provisions, and monitoring and reporting requirements apply to the Discharger. For any discharges of sewage to a drainage channel or surface water, the Discharger is required to notify the State Office of Emergency Services, the local health officer of directors of environmental health with jurisdiction over affected water bodies, and the Central Coast Water Board within two (2) hours after becoming aware of the discharge. Additionally, within 24-hours the Discharger shall submit to the Central Coast Water Board certification that the appropriate agencies (i.e., Office of Emergency Services and Environmental Health) have been notified of the sewage discharge to surface water bodies.

Additionally, any sanitary sewer overflows of wastewater (either partially treated or untreated) that are released at the wastewater treatment plant are subject to the same notifications requirements as mentioned above for collections systems.

2. The Discharger shall report the results of any special studies, monitoring, and reporting required by Special Provisions – VI.C. (Special Studies, Technical Reports, and Additional Monitoring) of the Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

## ATTACHMENT F – FACT SHEET

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**ATTACHMENT F – FACT SHEET**

As described in section I, the Central Coast Water Board incorporates this Fact Sheet as findings of the Central Coast Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

**I. PERMIT INFORMATION**

The following table summarizes administrative information related to the facility.

**Table F-1. Facility Information**

<b>WDID</b>	3 400103001
<b>Discharger</b>	City of Morro Bay/Cayucos Sanitary District
<b>Name of Facility</b>	The City of Morro Bay/Cayucos Sanitary District Wastewater Treatment Plant
<b>Facility Address</b>	160 Atascadero Road
	Morro Bay, CA 93442
	San Luis Obispo
<b>Facility Contact, Title and Phone</b>	Rob Livick, Public Services Director/City Engineer, (805) 772 - 6261
<b>Authorized Person to Sign and Submit Reports</b>	Rob Livick, Public Services Director/City Engineer, (805) 772 - 6261
<b>Mailing Address</b>	955 Shasta Avenue, Morro Bay, CA 93442
<b>Billing Address</b>	955 Shasta Avenue, Morro Bay, CA 93442
<b>Type of Facility</b>	POTW
<b>Major or Minor Facility</b>	Major
<b>Threat to Water Quality</b>	1
<b>Complexity</b>	B
<b>Pretreatment Program</b>	No
<b>Recycling Requirements</b>	None
<b>Facility Permitted Flow</b>	Peak seasonal dry weather flow of 2.36 million gallons per day (MGD)
<b>Facility Design Flow</b>	Annual average of 2.06 MGD, peak seasonal dry weather flow of 2.36 MGD
<b>Watershed</b>	Estero Bay
<b>Receiving Water</b>	Pacific Ocean
<b>Receiving Water Type</b>	Ocean waters

- A.** The City of Morro Bay and Cayucos Sanitary District (hereinafter Discharger) are the owners and operators of the City of Morro Bay – Cayucos Sanitary District Wastewater Treatment Plant (hereinafter Facility), a publicly owned treatment works (POTW).

For the purposes of this Order, references to the “discharger” or “permittee” in applicable

federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B.** The Facility discharges wastewater to the Pacific Ocean, a water of the United States. The Discharger was previously regulated by Order No. R3-2008-0065 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0047881 adopted on December 4, 2008, and expired on January 6, 2014. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

- C.** The Discharger filed a report of waste discharge and submitted an application for reissuance of its WDRs and NPDES permit on August 26, 2013.

**II. FACILITY DESCRIPTION**

**A. Description of Wastewater and Biosolids Treatment and Controls**

The Discharger owns and operates a wastewater treatment plant that provides sewerage service to the communities of the City of Morro Bay and Cayucos Sanitary District, serving approximately 12,835 people. All wastewater goes through primary treatment, including screening, grit removal, and primary sedimentation. A portion of the flow is diverted for secondary treatment process using biofilters, a solids-contact chamber, and a secondary clarifier. The secondary process also includes parallel single-stage, high-rate, trickling filters whose combined outflow goes to a solids contact channel and finally on to a secondary sedimentation tank. When flows exceed 1 MGD, secondary-treated effluent can be blended with primary treated effluent, and the blend is chlorinated and dechlorinated before discharge. This blending process will be discontinued as part of the planned new Facility, and all flows will meet at least full secondary treatment standards.

Biosolids removed by the primary clarifiers is heated in two mixed-primary digesters then transferred to a secondary digester. Stabilized sludge from the secondary digester is transferred to one of 12 sludge-drying beds. Drying times range from two to four months, and once dried, biosolids are removed from the beds and stored in a concrete containment area. Biosolids are stored in this area, usually for less than a year, until they are removed from the WWTP for composting and eventual use as a soil amendment.

**B. Discharge Points and Receiving Waters**

Wastewater is discharged to the Pacific Ocean through a 170-foot outfall/diffuser system. The outfall is 27 inches in diameter and is 2,900 feet from shore under approximately 50 feet of water. The diffuser was modeled to achieve a minimum initial dilution s of 133 to 1. The zone of initial dilution is approximately 103 feet wide and 240 feet long.

**Table F-2. Outfall Location**

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
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001	Municipal Wastewater	35° 23' 11"N	120° 52' 29"W	Estero Bay, Pacific Ocean
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**C. Regulatory History**

The treatment plant was originally constructed in 1954 to provide primary treatment and was upgraded in 1964 to a capacity of 1.0 MGD. In 1982, the outfall was extended further offshore to its current location. A new treatment plant was designed in 1981 to expand treatment capacity and meet full secondary treatment standards. However, financial aid from state and federal agencies and sufficient alternative funding was not available. Consequently, the treatment plant's design was modified to provide biological treatment to a portion of the influent (approximately 1 MGD), of the projected flow. In March 1983, Central Coast Water Board staff tentatively concurred that such a discharge would comply with applicable state laws, including water quality standards, and would not result in requirements for additional treatment, pollution control, or other requirements on any other point or non-point sources.

The treatment plant was upgraded from 1983 to 1985 to a peak seasonal dry weather flow of 2.36 MGD. In 1985, U.S. EPA approved a Clean Water Act section 301(h) modified NPDES permit that waived fully secondary treatment requirements for biochemical oxygen demand (5-day @ 20°C) (BOD<sub>5</sub>) and total suspended solids (TSS). The permit required 75% removal of TSS and included a 30-day average TSS effluent limit of 70 mg/L. The permit required 30% removal of BOD<sub>5</sub> and included a 30-day average BOD<sub>5</sub> effluent limit of 120 mg/L. The permit also required an extensive monitoring program.

The permit was reissued in 1992 and the second permit reissuance process began in May 1997. Multiple discussions between the Discharger, Central Coast Water Board staff, and U.S. EPA staff resulted in several revisions to the permit and monitoring program, including a slight reduction in allowed mass-emissions of BOD<sub>5</sub>, TSS, and oil and grease; expanded biosolids reporting; revised benthic sampling locations; and a revised receiving water sampling program. In July 1998, staff again determined that the discharge would comply with applicable state laws, including water quality standards, and would not result in requirements for additional treatment, pollution control, or other requirements on any other pollutant sources. U.S. EPA issued a tentative decision to grant another modification of secondary treatment requirements in September 1998. In December 1998 the Central Coast Water Board approved the NPDES permit, waiving secondary treatment requirements. On January 13, 1998, the California Coastal Commission determined the permit was consistent with the Coast Zone Management Act. U.S. EPA issued the permit on January 26, 1999, which became effective March 1, 1999.

The Facility is now one of only two remaining in California that operates under a 301(h) modified permit, the other being Point Loma in San Diego County. In anticipation of the 2004 permit reissuance process, Central Coast Water Board staff met with and sent a letter to the Discharger in January 2003 that requested that it consider upgrading the treatment plant to meet federal secondary treatment standards and forgo its 301(h) modified permit. In a March 20, 2003 response, City of Morro Bay Manager Robert Hendrix wrote:

“...we are using your correspondence as a catalyst for the formation of a long-term future policy on wastewater treatment. The [Morro Bay] City Council and [Cayucos] Sanitary District Board have selected members to serve on a subcommittee to work with your staff to consider a number of alternatives, formulate a draft policy or policies, and then return to the full legislative body in the late Spring of this year [2003] with a recommended course of action.”

In mid-2003, the subcommittee commissioned a study as to whether an equalization basin could be added to improve treatment efficiency and allow the discharge to meet secondary treatment standards. The study concluded that an equalization basin would not accomplish this goal.

The Discharger submitted an application for reissuance of its Clean Water Act section 301(h) modified NPDES permit on July 7, 2003. It also requested a determination (“401 Certification”) as to whether the discharge will comply with applicable state laws, including water quality standards, and will not result in requirements for additional treatment, pollution control, or other requirements on any other pollutant sources. In an August 26, 2003 letter, Central Coast Water Board staff declined to make such a determination, instead deferring to the Central Coast Water Board to make such a determination through approval or disapproval of the NPDES permit.

The existing permit expired on March 1, 2004, but continued in force until the effective date of reissuance, in accordance with 40 C.F.R. part 122.6.

In June 2004, after public opposition to the 301(h) modified permit, the Discharger commenced a process to upgrade the treatment plant to meet secondary treatment standards. The Discharger hired Carollo Engineers to assist in development of a detailed timeline to implement the upgrade. Central Coast Water Board staff and U.S. EPA chose to delay the permit reissuance process until the timeline was developed. In April 2005, Carollo Engineers presented a 15-year timeline at a public meeting of the Discharge. After considering many public comments in opposition to the 15-year timeline, the Discharger rejected the 15-year timeline and directed Carollo Engineers to return with a timeline that was “quick as possible.”

In May 2005, Carollo Engineers returned and presented a 9.5-year timeline to the Discharger. The 9.5-year timeline was based on the shortest reasonable time necessary to select an engineering consultant, coordinate between the Dischargers, develop a facility plan, obtain financing and permits, and design and construct the improvements. The 9.5-year timeline required the Discharger to achieve full compliance with secondary treatment standards by June 23, 2015. The Discharger accepted the 9.5-year timeline and formally proposed it to Central Coast Water Board staff on June 15, 2005. Central Coast Water Board staff and the Discharger drafted a tentative settlement agreement that enforces the 9.5-year timeline, and provided for one more 301(h) modified permit. This 301(h) modified permit is necessary because the timeline to achieve compliance with secondary treatment standards exceeds the five-year life of an NPDES permit.

Prior to the May 11, 2006 meeting to present the modified 301(h) waiver NPDES permit, Central Coast Water Board staff and the Discharger entered into a revised settlement agreement that expedited the conversion schedule to 8.5 years. The Central Coast Water Board had questions regarding the potential effects of continued discharges from the Facility; more specifically, whether the continued Facility discharges would affect the southern sea otter and brown pelican. As a result, the Central Coast Water Board continued the hearing to allow U.S. EPA to develop an Endangered Species Act Biological Evaluation (BE) on the potential effects. Furthermore, the BE would be required to receiving concurrence of “no likely adverse effects” pursuant to section 7 of the Federal Endangered Species Act from the United States Fish and Wildlife Service (U.S. FWS).

The U.S. EPA drafted the BE on September 6, 2007, and requested concurrence of “no likely adverse effects” on the brown pelican and southern sea otter from the U.S. FWS. The BE recognizes no likely adverse effects on the southern sea otter and brown pelican provided that the Discharger implements conservation measures, which included:

- Public outreach program to minimize the input of cat litter-box wastes into the municipal sewer systems;
- Regular monitoring of nutrient loading from the facility’s ocean outfall; and
- Facility upgrade to at least full secondary or tertiary by 2014.

The U.S. FWS formally responded to the U.S. EPA’s request for concurrence in a letter dated December 21, 2007. The U.S. FWS letter concurred with the U.S. EPA’s findings indicating that continued discharges from the Facility would not likely have adverse effects to endangered species in the area. The U.S. FWS letter stated, “[w]e concur with your determination that the proposed project is not likely to adversely affect the brown pelican or southern sea otter.” However, the U.S. FWS letter recognized that there are material gaps in current data and that additional data gathering would optimize the understanding of potential effects from the continued discharge. The U.S. FWS letter stated, “[w]e recognize that the conservation measures proposed in the Biological Evaluation for this action will assist in gathering information useful in evaluation this issue, as will independent research being conducted by a number of interested parties.”

The Discharger submitted to Central Coast Water Board staff drafts for the development and implementation of a nutrient monitoring program and a Cat Litter Public Outreach program consistent with the conservation measures as proposed by U.S. EPA. These conservation measures were incorporated into the NPDES permit. The May 11, 2006 settlement agreement was updated to revise the conversion schedule and make other revisions to reflect new factual information available since the May 11, 2006 hearing. The Dischargers presented the updated settlement agreement to their governing boards for approval on November 19, 2008. In December 2008, the Discharger executed a Settlement Agreement with the Central Coast Water Board to upgrade the existing Facility to eliminate the need for the 301(h) waiver modified permit. The Settlement Agreement stated that the Central Coast Water Board Executive Officer shall recommend that the Central Coast Water Board concur in the issuance of the 2008 301(h) modified permit and that the Discharger shall upgraded the Facility so that all effluent is treated to at least secondary levels.

The 2008 Settlement Agreement contains a conversion schedule outlining the upgrade process and includes milestones for achieving critical phases of the proposed upgrade project.

**Table F-3. 2008 Settlement Agreement Conversion Schedule**

Task	Required Date of Completion
<b>Preliminary Activities</b>	
Issuance of Request for Consulting Engineering Proposals for Facilities Master Plan	November 11, 2005
Award of Consulting Engineer Contracts	April 27, 2006
<b>Facilities Planning</b>	
Submit Final Draft Facilities Master Plan	November 30, 2007

<b>Task</b>	<b>Required Date of Completion</b>
Submit Final Facilities Master Plan	September 30, 2009
<b>Environmental Review and Permitting</b>	
Complete and Circulate Draft CEQA Document	February 27, 2009
Obtain Coastal Development Permit	May 31, 2011
<b>Financing</b>	
Complete Draft Plan for Project Design and Construction Financing	December 31, 2007
Complete Final Plan for Project Financing	June 30, 2008
Submit proof that all necessary financing has been secured, including compliance with Proposition 218	October 30, 2009
<b>Design and Construction</b>	
Initiate Design	September 30, 2010
Issue Notice to Proceed with Construction	March 29, 2012
Construction Progress Reports	Quarterly (with self monitoring reports)
Complete Construction and Commence Debugging and Startup	January 31, 2014
Achieve Full Compliance with Secondary Treatment	March 31, 2014

The 2008 Settlement Agreement further states that in the second permit cycle following the expiration of the 301(h) modified permit, that the Central Coast Water Board shall issue a NPDES permit that includes effluent limitations consistent with full secondary treatment requirements, or any more stringent requirements that are necessary or that the Discharger agrees to, and concurrently issue a 13385(j)(3) Order. The 13385(j)(3) Order shall include interim effluent limits for BOD<sub>5</sub> and suspended solids that are the same as those in the 301(h) modified permit.

The 2008 Settlement Agreement provides enforcement relief due to a “force majeure event,” defined as any event beyond the control of the Discharger, its contractors, or any entity controlled by the Discharger, including, but not limited to third-party litigation that delays the performance of any obligation under the Settlement Agreement despite the Discharger’s best efforts to fulfill the obligation. If the Executive Officer agrees that a violation of the Conversion Schedule has been caused by a force majeure event, the time for performance of an affected requirement shall be extended for a period not to exceed the actual delay in performance resulting from such circumstance.

The Discharger ultimately proposed to demolish the existing Facility and to construct a new wastewater treatment plant on the same site in the City of Morro Bay just inland of the beach. On September 20, 2010, the draft CEQA document for the project was completed and publicly noticed for comments, and on January 10, 2011, the Morro Bay City Council certified the final Environmental Impact Report and issued a Coastal Development Permit (CDP). The CDP was immediately appealed to the California Coastal Commission (CCC). On January 10, 2013, the CCC denied the CDP at a de novo hearing for construction of an upgraded wastewater treatment facility at its existing location. The denial was based on zoning inconsistency, failure to avoid coastal hazards, failure to include a sizable reclaimed water component, and the project is located within an LCP-designated sensitive view area.

On February 23, 2011, per the terms of the Settlement Agreement, the Discharger submitted a letter to the Central Coast Water Board stating that the appeal of the CDP to the CCC constituted a force majeure event under the terms of the Settlement Agreement. On March 24, 2011, the Central Coast Water Board responded that it agreed that the appeal constituted

a force majeure event, and in a letter from the same day stated, "In considering the JPA's compliance with the Compliance Schedule, the Water Board will extend the dates of the remaining Conversion Schedule for tasks contained with the Agreement paragraph B.1 for a period not to exceed the actual delay resulting from this force majeure event."

Following the January 10, 2013 CDP denial, on May 18, 2013, the City of Morro Bay issued a request for proposal for the preliminary planning consultant for a new water reclamation facility (WRF). On May 14, 2013, the City Council selected the consultant for the preliminary planning of the new WRF. A contract with the contractor was executed on June 10, 2013.

On December 10, 2013, the City of Morro Bay City Council chose three possible sites for development of the new WRF. In February 2014, the City of Morro Bay City Council established the goal of having the new WRF operational in five years.

On May 8, 2014, the consultant submitted to the City of Morro Bay a Report on Reclamation and Council Recommended WRF Sites that provided a comparative analysis of the three proposed sites. Based on the report, the City Council is expected to choose a single site to continue moving forward with a Work Plan and begin due diligence toward the eventual design and construction of the new WRF. The Discharger has made measured and deliberate progress in achieving secondary treatment consistent with the 2008 Settlement Agreement.

Since the time the Discharger originally applied for Order renewal, there have been significant changes in their planning for future treatment facilities to address the need for full secondary treatment, pursuant to the Settlement Agreement. The Discharger will be providing an updated compliance schedule as part of this planning effort, and Water Board staff anticipates preparing a time schedule order of no more than five-years duration to accompany the proposed facilities. No additional extension of schedule is available to meet these final effluent discharge limitations contained within this proposed Order.

Additionally, the Cayucos Sanitary District has moved forward with plans to design, construct, and operate its own wastewater treatment plant, separate from its existing use of the subject Facility. Water Board staff is working with Cayucos Sanitary District on those plans and expects to draft a separate NPDES and WDRs for its facility, when appropriate.

The Discharger has requested that this Order contain revised effluent limitation and monitoring requirements to reflect this changing status. CWA section 301(h) provides for a modification of secondary treatment standards for publicly owned treatment works that discharge into marine waters if the modified requirements do not interfere with the attainment or maintenance of water quality. U.S. EPA has promulgated specific regulations pertaining to CWA section 301(h) in 40 CFR, subpart G.

In order to obtain a 301(h) modified permit, an applicable must demonstrate that:

- There is an applicable water quality standard specific to the pollutant for which the modification is requested (usually BOD<sub>5</sub> and TSS);
- The discharge of pollutants in accordance with such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures protection of public water supplies and protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife, and allows recreational activities, in and on the water;

- The applicant has established a system for monitoring the impact of such discharge on a representative sample of aquatic biota, to the extent practicable, and the scope of such monitoring is limited to include only those scientific investigations which are necessary to study the effects of the proposed discharge;
- Such modified requirements will not result in any additional requirements on any other point or nonpoint source;
- All applicable pretreatment requirements for sources introducing waste into such treatment works will be enforced;
- In the case of any treatment works serving a population of 50,000 or more, with respect to any toxic pollutant introduced into such works by an industrial discharger for which pollutant there is no applicable pretreatment requirement in effect, sources introducing waste into such works are in compliance with all applicable pretreatment requirements, the applicant will enforce such requirements, and the applicant has in effect a pretreatment program which, in combination with the treatment of discharges from such works, removes the same amount of such pollutant as would be removed if such works were to apply secondary treatment to discharges and if such works had no pretreatment program with respect to such pollutant;
- To the extent practicable, the applicant has established a schedule of activities designed to eliminate the entrance of toxic pollutants from nonindustrial sources into such treatment works;
- There will be no new or substantially increased discharges from the point source of the pollutant to which the modification applies above that volume of discharge specified in the permit;
- The applicant at the time such modification becomes effective will be discharging effluent which has received at least primary or equivalent treatment and which meets the criteria established under section 304(a)(1) [of the CWA] after initial mixing in the waters surrounding or adjacent to the point at which such effluent is discharged [40 CFR part 125.57].

The conditions of the 2008 Settlement Agreement prohibited the Discharger from applying to U.S. EPA for a 301(h) waiver. U.S. EPA has not granted a 301(h) waiver, and full secondary treatment requirements must be implemented within this Order.

Consistent with Part B.2.b of the 2008 Settlement Agreement, this Order contains final effluent limitations and monitoring requirements. Concurrently with the issuance of this Order, the Central Coast Water Board shall consider a 13385(j)(3) order that includes interim effluent limitations for BOD<sub>5</sub> and TSS that are the same as those in the previous 301(h) modified permit. The compliance dates established within the 13385(j)(3) order will consider the 2008 Settlement Agreement Conversion Schedule, the force majeure event (the 2013 CCC denial of the CDP), and a projected five-year schedule.

#### **D. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data**

Effluent limitations contained in the existing Order for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of the previous Order are as follows:

**Table F-4. Historic Effluent Limitations and Monitoring Data**

Parameter	Units	Effluent Limitation			Monitoring Data (From March 2009 – To Sept 2013)		
		Average Monthly	Average Weekly	Instant Max	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Instant Max Discharge
Biochemical Oxygen Demand (5-day @ 20°C) (BOD <sub>5</sub> )	mg/L	120	--	180	87.5	--	154
	lbs /day	2,062	--	3,092	NR	--	NR
	kg/ day	936	--	1,404	NR	--	NR
Total Suspended Solids (TSS)	mg/L	70	--	105	37	--	97
	lbs /day	1,203	--	1,804	NR	--	NR
	kg/ day	546	--	819	NR	--	NR
Settleable Solids	mL/L	1.0	1.5	3.0	0.06	0.09	0.3
Turbidity	NTU	75	100	225	41	52	78
Oil and Grease	mg/L	25	40	75	9.5	25	25
	lbs /day	430	687	1,288	NR	NR	NR
	kg/ day	195	312	585	NR	NR	NR
pH	standard units	6.0 – 9.0 at all times			7.2 – 7.9		

NR – Not Reported

**Table F-5. Historic Effluent Limitations and Monitoring Data, Protection of Marine Aquatic Life**

Parameter	Units	Effluent Limitation			Monitoring Data <sup>[1]</sup> (From July 2009 – To July 2013)		
		6-Month Median	Maximum Daily	Instant Max	Highest 6-Month Median	Highest Maximum Daily	Highest Instant Max
Arsenic	µg/L	670	3,890	10,300	J 2.0	J 2.0	J 2.0
Cadmium	µg/L	130	540	1,340	J 10	J 10	J 10
Chromium (VI)	µg/L	270	1,070	2,680	J 10	J 10	J 10
Copper	µg/L	140	1,340	3,750	22	22	22
Lead	µg/L	270	1,070	2,680	1.8	1.8	1.8
Mercury	µg/L	5.29	21.4	53.5	J 0.09	J 0.09	J 0.09
Nickel	µg/L	670	2,680	6,700	J 10	J 10	J 10
Selenium	µg/L	2,010	8,040	20,100	2.7	2.7	2.7
Silver	µg/L	70	350	920	J 4.6	J 4.6	J 4.6
Zinc	µg/L	1,620	9,660	25,700	59	59	59
Cyanide	µg/L	130	540	1,340	50	50	50
Total Chlorine Residual	mg/L	0.27	1.07	8.04	7.4	7.4	7.4
Ammonia (as N)	mg/L	80.4	322	804	42	64	64
Acute Toxicity	TUa	--	4.3	--	--	NR	--
Chronic Toxicity	TUc	--	134	--	--	31	--
Phenolic Compounds (non-chlorinated)	µg/L	4,020	16,100	40,200	3.3	3.3	3.3

Phenolic Compounds (chlorinated)	µg/L	130	540	1,340	<0.2	<0.2	<0.2
Endosulfan	µg/L	1.21	2.41	3.62	<0.0014	<0.0014	<0.0014
Endrin	µg/L	0.27	0.54	0.80	<0.0008	<0.0008	<0.0008
HCH	µg/L	0.54	1.07	1.61	<0.0009	<0.0009	<0.0009
Radioactivity	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations			19	19	19

NR = Not Reported

<sup>[1]</sup> Values preceded with a "J" represent maximum effluent concentrations that were detected, but not quantifiable.

**Table F-6. Historic Effluent Limitations and Monitoring Data for Non-Carcinogens and Carcinogens**

Parameter	Units	Effluent Limitation	Monitoring Data <sup>[1]</sup> July 2009– To July 2013
		Average Monthly	Highest Average Monthly Discharge
<b>Non- Carcinogens</b>			
Acrolein	µg/L	29,500	<7.3
Antimony	µg/L	160,800	34
Bis(2-chloroethoxy) methane	µg/L	590	<0.27
Bis(2-chloroisopropyl) ether	µg/L	160,800	<0.3
Chlorobenzene	µg/L	76,400	<0.06
Chromium (III)	µg/L	25,500,000	J 2.6
Di-n-butyl phthalate	µg/L	469,000	<0.39
Dichlorobenzenes	µg/L	683,00	<0.05
Diethyl phthalate	µg/L	4,420,000	<0.33
Dimethyl phthalate	µg/L	109,900,00	<0.39
4,6-dinitro-2-methylphenol	µg/L	29,500	<0.34
2,4-dinitrophenol	µg/L	540	<0.2
Ethylbenzene	µg/L	549,000	J 0.5
Fluoranthene	µg/L	2,000	<0.2
Hexachlorocyclopentadiene	µg/L	7,800	<0.3
Nitrobenzene	µg/L	660	<0.26
Thallium	µg/L	270	<0.08
Toluene	µg/L	11,400,000	<0.5
Tributyltin	µg/L	0.188	<0.03
1,1,1-trichloroethane	µg/L	72,400,00	<0.063
<b>Carcinogens</b>			
Acrylonitrile	µg/L	13.4	<0.75
Aldrin	µg/L	0.00295	<0.0013
Benzene	µg/L	791	<0.061
Benzidine	µg/L	0.00925	<7.1
Beryllium	µg/L	4.42	J 1.2

Parameter	Units	Effluent Limitation	Monitoring Data <sup>[1]</sup> July 2009– To July 2013
		Average Monthly	Highest Average Monthly Discharge
Bis(2-chloroethyl) ether	µg/L	6.03	<0.68
Bis(2-ethylhexyl) phthalate	µg/L	469	9.2
Carbon tetrachloride	µg/L	121	<0.074
Chlordane	µg/L	0.00308	<0.38
Chlorodibromomethane	µg/L	1,152	<0.067
Chloroform	µg/L	17,400	J 0.97
DDT	µg/L	0.0228	<0.00076
1,4-dichlorobenzene	µg/L	2,410	J 0.1
3,3-dichlorobenzidine	µg/L	1.09	<8.2
1,2-dichloroethane	µg/L	3,750	<0.09
1,1-dichloroethylene	µg/L	120	<0.07
Dichlorobromomethane	µg/L	830	<0.15
Dichloromethane	µg/L	60,300	<0.28
1,3-dichloropropene	µg/L	1,190	<0.07
Dieldrin	µg/L	0.00536	<0.0012
2,4-dinitrotoluene	µg/L	348	<0.26
1,2-diphenylhydrazine	µg/L	21.4	<0.34
Halomethanes	µg/L	17,400	J 0.25
Heptachlor	µg/L	0.0067	<0.0012
Heptachlor epoxide	µg/L	0.00268	<0.00099
Hexachlorobenzene	µg/L	0.0281	<0.2
Hexachlorobutadiene	µg/L	1,880	<0.24
Hexachloroethane	µg/L	335	<0.32
Isophorone	µg/L	98,000	<0.31
N-nitrosodimethylamine	µg/L	978	<0.61
N-nitrosodi-n-propylamine	µg/L	50.9	<1.3
N-nitrosodiphenylamine	µg/L	335	<0.44
PAHs	µg/L	1.18	<0.2
PCBs	µg/L	0.00255	<0.02
TCDD equivalents	µg/L	0.00000052	<0.00000131
1,1,2,2-tetrachloroethane	µg/L	310	<0.17
Tetrachloroethylene	µg/L	268	<0.095
Toxaphene	µg/L	0.0281	<0.42
Trichloroethylene	µg/L	3,620	<0.07
1,1,2-trichloroethane	µg/L	1,260	<0.15
2,4,6-trichlorophenol	µg/L	39	<0.6
Vinyl chloride	µg/L	4,820	<0.11

[1] Values preceded with a “J” represent maximum effluent concentrations that were detected, but not quantifiable.

**E. Compliance Summary**

The Discharger violated numeric effluent limitations during the term of the previous Order. Three violations were for total chlorine violations due to equipment changes/malfunctions. The fourth violation was for total suspended solids and no further incidences of violation have occurred. The following table summarizes the violations of effluent limitations based on data collected from July 2009 through August 2017.

**Table F-7. Effluent Limitations Compliance Summary**

Date	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
12/16/2014	Maximum Daily	Chlorine Total Residual	3.0	1.07	mg/L
04/15/2015	Maximum Daily	Chlorine Total Residual	7.2	1.07	mg/L
12/11/2015	Maximum Daily	Chlorine Total Residual	4.5	1.07	mg/L
11/04/2016	Instantaneous Maximum	Total Suspended Solids	106	105	mg/L

**F. Planned Changes**

The Discharger will begin construction on a new wastewater treatment plant within this permit term. However, the Discharger points out that the current wastewater treatment facility will need to remain in service and continue operations and that significant improvement is required to maintain compliance. The Discharger has thus adopted a Major Repair and Maintenance Plan (MMRP) schedule to ensure compliance is maintained. The draft MMRP schedule provided in the Discharger’s Report of Waste Discharge provided projected maintenance and improvement projects from fiscal year 2013 through 2018. The adopted budgets contain maintenance and improvement projects including the installation of new influent screens at the headworks, replacement of chains and flights in the chlorine contact tank, cleaning and repairs to a digester, pump and valve rebuild and replacement project, and the rehabilitation of the chlorine building. These projects have been partially completed, or are scheduled to be completed.

Since the time the Discharger originally applied for Order renewal, there have been significant changes in their planning for future treatment facilities to address the need for full secondary treatment, pursuant to the Settlement Agreement. The Discharger will be providing an updated compliance schedule as part of this planning effort, and Water Board staff anticipates preparing a time schedule order of no more than five-years duration to accompany the proposed facilities. No additional extension of schedule is available to meet these final effluent discharge limitations contained within this proposed Order.

**III. APPLICABLE PLANS, POLICIES, AND REGULATIONS**

The requirements contained in this Order are based on the requirements and authorities described in this section.

**A. Legal Authorities**

This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing

regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters.

**B. California Environmental Quality Act (CEQA)**

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code.

**C. State and Federal Laws, Regulations, Policies, and Plans**

**1. Water Quality Control Plan.** The Regional Water Quality Control Board (Central Coast Water Board) adopted the *Water Quality Control Plan for the Central Coastal Basin* (hereinafter Basin Plan), the most recent version released in June 2011, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for the Pacific Ocean and other receiving waters addressed through the plan. Requirements in this Order implement the Basin Plan.

Beneficial uses applicable to the Pacific Ocean are as follows:

**Table F-8. Basin Plan Beneficial Uses**

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	Water Contact (REC-1) Non-Contact Recreation (REC-2) Industrial Supply (IND) Navigation (NAV) Marine Habitat (MAR) Shellfish Harvesting (SHELL) Commercial and Sport Fishing (COMM) Rare, Threatened, or Endangered Species (RARE) Wildlife Habitat (WILD)

**2. California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, and 2012. The State Water Board adopted the latest amendment on October 16, 2012, and it became effective on August 19, 2013. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies beneficial uses of ocean waters of the state to be protected as summarized below:

**Table F-9. Ocean Plan Beneficial Uses**

Discharge Point	Receiving Water	Beneficial Uses
001	Pacific Ocean	Industrial water supply (IND) Water Contact and non-contact recreation, including aesthetic enjoyment (REC-1 and REC-2) Navigation (NAV) Commercial and sport fishing (COMM)

		Mariculture (MARI) Preservation and enhancement of designated Areas of Special Biological Significance (ASBS) Rare and endangered species (RARE) Marine habitat (MAR) Fish migration (MIGR) Fish spawning and shellfish harvesting (SPWN)
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In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Ocean Plan.

3. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Coast Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of section 131.12 and State Water Board Resolution 68-16.
4. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
5. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state, including protecting rare and endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

**D. Impaired Water Bodies on CWA 303(d) List**

CWA section 303(d) requires states to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. For all 303(d) listed water bodies and pollutants, the Central Coast Water Board must develop and implement Total Maximum Daily Loads (TMDLs) that will specify Waste Load Allocations (WLAs) for point sources and Load Allocations (LAs) for non-point sources.

The U.S. EPA approved the State's 2010 303(d) list of impaired water bodies on November 12, 2010. The 2010 303(d) list does not identify the coast of the Pacific Ocean at Estero Bay in the vicinity of the point of discharge as being impaired.

## E. Other Plans, Polices and Regulations

1. **Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (State Water Board Order No. 2006-0003-DWQ).** The General Permit, adopted on May 2, 2006, is applicable to all “federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California.” The purpose of the General Permit is to promote the proper and efficient management, operation, and maintenance of sanitary sewer systems and to minimize the occurrences and impacts of sanitary sewer overflows. The Discharger is covered under the General Permit and must comply with its requirements.

## IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

### A. Discharge Prohibitions

1. **Discharge Prohibition III.A.** (Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited). This prohibition is similar to the previous Order and is based on 40 C.F.R. 122.21(a), duty to apply, and CWC section 13260, which requires filing a ROWD before discharges can occur.
2. **Discharge Prohibition III.B.** (Discharges of radiological, chemical, or biological warfare agent or high level radioactive waste to the Ocean is prohibited). This prohibition is based on the 2015 Ocean Plan Discharge Prohibition I.1.a.
3. **Discharge Prohibition III.C.** (The discharge of municipal or industrial waste sludge to the Pacific Ocean is prohibited). This prohibition is retained from the current permit and is based on the 2015 Ocean Plan Discharge Prohibition I.3.
4. **Discharge Prohibition III.D, III.E** (The overflow or bypass of wastewater from the Discharger’s collection, treatment, or disposal facilities and the subsequent discharge of untreated or partially treated wastewater, except as provided for in Attachment D, Standard Provision I.G (Bypass), is prohibited.) The discharge of untreated or partially treated wastewater from the Discharger’s collection, treatment, or disposal facilities represents an unauthorized bypass pursuant to 40 C.F.R. 122.41(m) or an unauthorized discharge, which poses a threat to human health and/or aquatic life, and therefore, is explicitly prohibited by the Order. Discharge Prohibitions III.E is retained from the current permit.
5. **Discharge Prohibition III.F.** (Materials and substances that are prohibited). This prohibition is based on requirements of the Ocean Plan.

- 6. **Discharge Prohibition III.G.** (Discharge of chlorine or toxic substances used for disinfection prohibited). This prohibition is retained from the current Order.

**B. Technology-Based Effluent Limitations**

**1. Scope and Authority**

CWA section 301(b) requires U.S. EPA to develop secondary treatment standards for publicly-owned treatment works at a level of effluent quality attainably through applying secondary or equivalent treatment. U.S. EPA promulgated such technology-based effluent guidelines at 40 C.F.R. 133. These secondary treatment regulations include the following minimum requirements.

**Table F-10. Secondary Treatment Requirements**

Parameter	Units	30-Day Average	7-Day Average
BOD <sup>[1]</sup>	mg/L	30	45
TSS <sup>[1]</sup>	mg/L	30	45
pH	standard units	6.0 – 9.0	

<sup>[1]</sup> The 30-day average percent removal for BOD<sub>5</sub> and TSS shall not be less than 85 percent.

In addition to the secondary treatment standards established in 40 C.F.R. 133, the State Water Board, in Table 2 of the Ocean Plan, has supplemented these technology-based requirements with additional requirements for conventional pollutants (settleable matter, oil and grease), which are applicable to the Facility. The Ocean Plan requirements are discussed in section IV.B.2 of this Fact Sheet.

**2. Applicable Technology-Based Effluent Limitations**

Title 40 C.F.R. 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 C.F.R. 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration and mass limitations are not necessary to protect the beneficial uses of the receiving waters.

- a. **BOD<sub>5</sub> and TSS.** Federal Regulations, 40 C.F.R. 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD and TSS. Effluent limitations for BOD<sub>5</sub> and TSS have thus been established in this Order based on these standards.

Additionally, 40 C.F.R. 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order includes a limitation requiring an average of 85 percent removal of BOD and TSS over each calendar month.

- b. **pH.** Federal Regulations, 40 C.F.R. 133, establishes technology-based effluent limitations for pH. The secondary treatment standards require the pH of the effluent

to be no lower than 6.0 and no greater than 9.0 standard units. This pH range is also consistent with the Ocean Plan Table 2 effluent limitations.

- c. **Settleable Solids.** The Ocean Plan Table 2 establishes the minimum weekly, monthly, and maximum average of effluent quality attainable by secondary treatment for settleable solids. Effluent limitations for settleable solids have been established in this Order based on these requirements.
- d. **Oil and Grease.** The Ocean Plan Table 2 establishes the minimum weekly, monthly, and maximum average of effluent quality attainable by secondary treatment for oil and grease. Effluent limitations for oil and grease have been established in this Order based on these requirements.
- e. **Turbidity.** The Ocean Plan Table 2 establishes the minimum weekly, monthly, and maximum average of effluent quality attainable by secondary treatment for turbidity. Effluent limitations for turbidity have been established in this Order based on these requirements.

The following table summarizes technology-based effluent limitations established by the Order.

**Table F-11. Technology-Based Effluent Limitations**

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand 5-day @ 20°C (BOD <sub>5</sub> ) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Total Suspended Solids (TSS) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Oil and Grease	mg/L	25	40	75
	lbs/day <sup>[2]</sup>	430	687	1,289
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	6.0 – 9.0 <sup>[3]</sup>		

<sup>[1]</sup> The 30-day average percent removal for BOD and TSS shall not be less than 85 percent.

<sup>[2]</sup> Mass-based effluent limitations were calculated using the following formula:  
lbs/day = pollutant concentration (mg/L) \* Design flow (2.06 MGD) \* conversion factor (8.34)

<sup>[3]</sup> Applied as an instantaneous minimum and maximum.

**C. Water Quality-Based Effluent Limitations**

**1. Scope and Authority**

CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been

established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the Ocean Plan.

## **2. Applicable Beneficial Uses and Water Quality Criteria and Objectives**

Beneficial uses for ocean waters of the Central Coast Region are established by the Basin Plan and Ocean Plan and are described in section III.C of this Fact Sheet.

Water quality criteria applicable to ocean waters of the Region are established by the Ocean Plan, which includes WQOs for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. The WQOs from the Ocean Plan are incorporated as receiving water limitations in this Order. In addition, Table 1 of the Ocean Plan contains numeric WQOs for 83 toxic pollutants for the protection of marine aquatic life and human health. Pursuant to NPDES regulations at 40 C.F.R. 122.44(d)(1), and in accordance with procedures established by the Ocean Plan (2015), the central Coast Water Board has performed a reasonable potential analysis (RPA) to determine the need for effluent limitations for Table 1 toxic pollutants.

## **3. Determining the Need for WQBELs**

Procedures for performing an RPA for ocean dischargers are described in section III.C and Appendix VI of the Ocean Plan. The procedure is a statistical method that projects an effluent data set while taking into account the averaging period of WQOs, the long term variability of pollutants in the effluent, limitations associated with sparse data sets, and uncertainty associated with censored data sets. The procedure assumes a lognormal distribution of the effluent data set, and compares the 95<sup>th</sup> percentile concentration at 95 percent confidence of each Table 1 pollutant, accounting for dilution, to the applicable water quality criterion. The RPA results in one of the three following endpoints:

- Endpoint 1 - There is "reasonable potential." An effluent limitation must be developed for the pollutant. Effluent monitoring for the pollutant, consistent with the monitoring frequency in Appendix III (Ocean Plan), is required.
- Endpoint 2 - There is no "reasonable potential." An effluent limitation is not required for the pollutant. Appendix III (Ocean Plan) effluent monitoring is not required for the pollutant; the Central Coast Board, however, may require occasional monitoring for the pollutant or for whole effluent toxicity as appropriate.

Endpoint 3 - The RPA is inconclusive. Monitoring for the pollutant or whole effluent toxicity testing, consistent with the monitoring frequency in Appendix III, is required. An existing effluent limitation for the pollutant shall remain in the permit, otherwise the permit shall include a reopener clause to allow for subsequent modification of the permit to include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contribute to an excursion above a Table 1 water quality objective.

The State Water Board has developed a reasonable potential calculator, which is available at:

[http://www.waterboards.ca.gov/water\\_issues/programs/ocean/docs/trirev/stakeholder050505/rpcalc22\\_setup.zip](http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/trirev/stakeholder050505/rpcalc22_setup.zip)

The calculator (RPcalc 2.2) was used in the development of this Order and considers several pathways in the determination of reasonable potential.

**a. First Path**

If available information about the receiving water or the discharge supports a finding of reasonable potential without analysis of effluent data, the Central Coast Water Board may decide that WQBELs are necessary after a review of such information. Such information may include: the facility or discharge type, solids loading, lack of dilution, history of compliance problems, potential toxic effects, fish tissue data, 303(d) status of the receiving water, the presence of threatened or endangered species or their critical habitat, or other information.

**b. Second Path**

If any pollutant concentration, adjusted to account for dilution, is greater than the most stringent applicable WQO, there is reasonable potential for that pollutant.

**c. Third Path**

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the minimum level (ML)), and all values in the data set are at or above the ML, a parametric RPA is conducted to project the range of possible effluent values. The 95<sup>th</sup> percentile concentration is determined at 95 percent confidence for each pollutant, and compared to the most stringent applicable water quality objective to determine reasonable potential. A parametric analysis assumes that the range of possible effluent values is distributed log-normally. If the 95<sup>th</sup> percentile value is greater than the most stringent applicable water quality objective, there is reasonable potential for that pollutant.

**d. Fourth Path**

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the ML), but at least one value in the data set is less than the ML, a parametric RPA is conducted according to the following steps:

- i. If the number of censored values (those expressed as a “less than” value) account for less than 80 percent of the total number of effluent values, calculate the  $M_L$  (the mean of the natural log of transformed data) and  $S_L$  (the standard deviation of the natural log of transformed data) and conduct a parametric RPA, as described above for the Third Path.
- ii. If the total number of censored values account for 80 percent of the total number of effluent values, conduct a non-parametric RPA, as described below for the Fifth Path. (A non-parametric analysis becomes necessary when the effluent data is limited, and no assumptions can be made regarding its possible distribution).

**e. Fifth Path**

A non-parametric RPA is conducted when the effluent data set contains less than three detected and quantified values, or when the effluent data set contains three or more detected and quantified values but the number of censored values accounts for 80 percent or more of the total of effluent values. A non-parametric analysis is conducted by ordering the data, comparing each result to the applicable WQO, and accounting for ties. The sample number is reduced by one for each tie, when the dilution-adjusted method detection limit (MDL) is greater than the water quality objective. If the adjusted sample number, after accounting for ties, is greater than 15, the pollutant has no reasonable potential to exceed the WQO. If the sample number is 15 or less, the RPA is inconclusive, monitoring is required, and any existing effluent limits in the expiring permit are retained.

In this case, a RPA was conducted using effluent monitoring data from January 2009 to July 2013. The implementation provisions for Table 1 in section III.C of the Ocean Plan specify that the minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates shall be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents of sufficient strength to influence the initial dilution process flow across the discharge structure. Order No. 2008-0065 determined the minimum initial dilution factor (Dm) for the discharge to be 133 to 1 (seawater to effluent). This Dm of 133:1 will be retained from the current Order and applied to the WQBELs established herein. If the actual dilution ratio is found to be different, then the ratio will be recalculated and this Order may be reopened when and as appropriate.

A summary of the RPA results is provided below.

**Table F-12. RPA Results**

Parameter	Units	N <sup>[1]</sup>	MEC <sup>[2],[3]</sup>	Most Stringent Criteria	Background	RPA Endpoint <sup>[4]</sup>
Arsenic, Total Recoverable	µg/L	9	J 2	8 <sup>[5]</sup>	3 <sup>[6]</sup>	3
Cadmium, Total Recoverable	µg/L	9	J 10	1 <sup>[5]</sup>	0	3
Chromium (VI), Total Recoverable	µg/L	9	J 10	2 <sup>[5]</sup>	0	3
Copper, Total Recoverable	µg/L	9	22	3 <sup>[5]</sup>	2 <sup>[6]</sup>	2
Lead, Total Recoverable	µg/L	9	1.8	2 <sup>[5]</sup>	0	2
Mercury, Total Recoverable	µg/L	9	0.016	0.04 <sup>[5]</sup>	0.0005 <sup>[6]</sup>	3
Nickel, Total Recoverable	µg/L	9	J 10	5 <sup>[5]</sup>	0	3
Selenium, Total Recoverable	µg/L	9	2.7	15 <sup>[5]</sup>	0	2

Parameter	Units	N <sup>[1]</sup>	MEC <sup>[2],[3]</sup>	Most Stringent Criteria	Background	RPA Endpoint <sup>[4]</sup>
Silver, Total Recoverable	µg/L	9	J 4.6	0.7 <sup>[5]</sup>	0.16 <sup>[6]</sup>	3
Zinc, Total Recoverable	µg/L	9	59	20 <sup>[5]</sup>	8 <sup>[6]</sup>	2
Cyanide, Total	µg/L	28	70	1 <sup>[5]</sup>	0	2
Total Residual Chlorine	µg/L	1,681	7,400	2 <sup>[5]</sup>	0	1
Ammonia	µg/L	63	64,000	600 <sup>[5]</sup>	0	2
Acute Toxicity	TUa	--	--	0.3 <sup>[7]</sup>	0	--
Chronic Toxicity	TUc	12	31.2	1 <sup>[7]</sup>	0	2
Phenolic Compounds <sup>[8]</sup>	µg/L	6	3.3	30 <sup>[5]</sup>	0	3
Chlorinated Phenolics <sup>[9]</sup>	µg/L	6	<0.2	1 <sup>[5]</sup>	0	3
Endosulfan <sup>[10]</sup>	µg/L	5	<0.0014	0.009 <sup>[5]</sup>	0	3
Endrin	µg/L	6	<0.00082	0.002 <sup>[5]</sup>	0	3
HCH <sup>[11]</sup>	µg/L	5	<0.00094	0.004 <sup>[5]</sup>	0	3
Radioactivity <sup>[12]</sup>	pCi/L	5	--	<sup>[12]</sup>	0	3
Acrolein	µg/L	5	<7.3	220 <sup>[13]</sup>	0	3
Antimony	µg/L	5	34	1,200 <sup>[13]</sup>	0	3
Bis(2-chloroethoxy) methane	µg/L	5	<0.27	4.4 <sup>[13]</sup>	0	3
Bis(2-chloroisopropyl) ether	µg/L	5	<0.3	1,200 <sup>[13]</sup>	0	3
Chlorobenzene	µg/L	5	<0.06	570 <sup>[13]</sup>	0	3
Chromium (III)	µg/L	4	J 2.6	190,000 <sup>[13]</sup>	0	3
Di-n-butyl phthalate	µg/L	5	<0.39	3,500 <sup>[13]</sup>	0	3
Dichlorobenzenes <sup>[14]</sup>	µg/L	5	<0.05	5,100 <sup>[13]</sup>	0	3
Diethyl phthalate	µg/L	5	<0.33	33,000 <sup>[13]</sup>	0	3
Dimethyl phthalate	µg/L	5	<0.39	820,000 <sup>[13]</sup>	0	3
4,6-dinitro-2-methylphenol	µg/L	6	<0.34	220 <sup>[13]</sup>	0	3
2,4-dinitrophenol	µg/L	6	<0.2	4.0 <sup>[13]</sup>	0	3
Ethylbenzene	µg/L	5	J 0.5	4,100 <sup>[13]</sup>	0	3
Fluoranthene	µg/L	5	<0.2	15 <sup>[13]</sup>	0	3
Hexachlorocyclopentadiene	µg/L	5	<0.3	58 <sup>[13]</sup>	0	3
Nitrobenzene	µg/L	5	<0.26	4.9 <sup>[13]</sup>	0	3
Thallium	µg/L	5	<0.08	2 <sup>[13]</sup>	0	3
Toluene	µg/L	5	0.5	85,000 <sup>[13]</sup>	0	3
Tributyltin	µg/L	5	<0.03	0.0014 <sup>[13]</sup>	0	3
1,1,1-trichloroethane	µg/L	5	<0.063	540,000 <sup>[13]</sup>	0	3
Acrylonitrile	µg/L	5	<0.75	0.10 <sup>[13]</sup>	0	3
Aldrin	µg/L	6	<0.0013	0.000022 <sup>[13]</sup>	0	3
Benzene	µg/L	5	<0.061	5.9 <sup>[13]</sup>	0	3
Benzidine	µg/L	5	<7.1	0.000069 <sup>[13]</sup>	0	3
Beryllium	µg/L	5	J 1.2	0.033 <sup>[13]</sup>	0	3
Bis(2-chloroethyl) ether	µg/L	5	<0.68	0.045 <sup>[13]</sup>	0	3
Bis(2-ethylhexyl) phthalate	µg/L	5	9.2	3.5 <sup>[13]</sup>	0	3
Carbon tetrachloride	µg/L	5	<0.074	0.90 <sup>[13]</sup>	0	3
Chlordane <sup>[15]</sup>	µg/L	5	<0.38	0.000023 <sup>[13]</sup>	0	3
Chlorodibromomethane	µg/L	5	<0.067	8.6 <sup>[13]</sup>	0	3
Chloroform	µg/L	5	J 0.97	130 <sup>[13]</sup>	0	3
DDT <sup>[16]</sup>	µg/L	6	<0.00076	0.00017 <sup>[13]</sup>	0	3

Parameter	Units	N <sup>[1]</sup>	MEC <sup>[2],[3]</sup>	Most Stringent Criteria	Background	RPA Endpoint <sup>[4]</sup>
1,4-dichlorobenzene	µg/L	6	J 0.1	18 <sup>[13]</sup>	0	3
3,3'-dichlorobenzidene	µg/L	5	< 8.2	0.0081 <sup>[13]</sup>	0	3
1,2-dichloroethane	µg/L	5	< 0.09	28 <sup>[13]</sup>	0	3
1,1-dichloroethylene	µg/L	5	< 0.07	0.9 <sup>[13]</sup>	0	3
Dichlorobromomethane	µg/L	5	< 0.15	6.2 <sup>[13]</sup>	0	3
Dichloromethane	µg/L	5	< 0.28	450 <sup>[13]</sup>	0	3
1,3-dichloropropene	µg/L	6	< 0.07	8.9 <sup>[13]</sup>	0	3
Dieldrin	µg/L	6	< 0.0012	0.00004 <sup>[13]</sup>	0	3
2,4-dinitrotoluene	µg/L	5	< 0.26	2.6 <sup>[13]</sup>	0	3
1,2-diphenylhydrazine	µg/L	5	< 0.34	0.16 <sup>[13]</sup>	0	3
Halomethanes <sup>[17]</sup>	µg/L	6	J 0.25	130 <sup>[13]</sup>	0	3
Heptachlor	µg/L	6	< 0.0012	0.00005 <sup>[13]</sup>	0	3
Heptachlor epoxide	µg/L	6	< 0.00099	0.00002 <sup>[13]</sup>	0	3
Hexachlorobenzene	µg/L	5	< 0.2	0.00021 <sup>[13]</sup>	0	3
Hexachlorobutadiene	µg/L	5	< 0.24	14 <sup>[13]</sup>	0	3
Hexachloroethane	µg/L	5	< 0.32	2.5 <sup>[13]</sup>	0	3
Isophorone	µg/L	5	< 0.31	730 <sup>[13]</sup>	0	3
N-nitrosodimethylamine	µg/L	5	< 0.61	7.3 <sup>[13]</sup>	0	3
N-nitrosodi-N-propylamine	µg/L	5	< 1.3	0.38 <sup>[13]</sup>	0	3
N-nitrosodiphenylamine	µg/L	5	< 0.44	2.5 <sup>[13]</sup>	0	3
PAHs <sup>[18]</sup>	µg/L	5	< 0.2	0.0088 <sup>[13]</sup>	0	3
PCBs <sup>[19]</sup>	µg/L	5	< 0.02	0.000019 <sup>[13]</sup>	0	3
TCDD equivalents <sup>[20]</sup>	µg/L	14	<0.00000131	0.0000000039 <sup>[13]</sup>	0	2
1,1,2,2-tetrachloroethane	µg/L	5	< 0.17	2.3 <sup>[13]</sup>	0	3
Tetrachloroethylene	µg/L	5	< 0.095	2.0 <sup>[13]</sup>	0	3
Toxaphene	µg/L	5	< 0.42	0.00021 <sup>[13]</sup>	0	3
Trichloroethylene	µg/L	5	< 0.07	27 <sup>[13]</sup>	0	3
1,1,2-trichloroethane	µg/L	5	< 0.15	9.4 <sup>[13]</sup>	0	3
2,4,6-trichlorophenol	µg/L	6	< 0.6	0.29 <sup>[13]</sup>	0	3
Vinyl chloride	µg/L	5	< 0.11	36 <sup>[13]</sup>	0	3

[1] Number of data points available for the RPA.

[2] If there is a detected value, the highest reported value is summarized in the table. If there are no detected values, the lowest MDL is summarized in the table. Values preceded with a "J" represent maximum effluent concentrations that were detected, but not quantifiable.

[3] Note that the reported MEC does not account for dilution. The RPA does account for dilution; therefore it is possible for a parameter with an MEC in exceedance of the most stringent criteria not to present a RP (i.e., Endpoint 1).

[4] Endpoint 1 – RP determined, limit required, monitoring required.

Endpoint 2 – Discharger determined not to have RP, monitoring may be established.

Endpoint 3 – RPA was inconclusive, carry over previous limits if applicable, establish monitoring.

[5] Based on the 6-Month Median in Table 1 of the Ocean Plan.

[6] Background concentrations contained in Table 3 of the Ocean Plan.

[7] Based on the Daily Maximum in Table 1 of the Ocean Plan.

[8] Non-chlorinated phenolic compounds represent the sum of 2,4-dimethylphenol; 4,6-dinitro-2-methylphenol; 2,4,5-dinitrophenol; 2-methylphenol; 4-methylphenol; 2-nitrophenol; 4-nitrophenol; and phenol.

[9] Chlorinated phenolic compounds represent the sum of 4-chloro-3-methylphenol; 2-chlorophenol; pentachlorophenol; 2,4,5-trichlorophenol; and 2,4,6-trichlorophenol.

Parameter	Units	N <sup>[1]</sup>	MEC <sup>[2],[3]</sup>	Most Stringent Criteria	Background	RPA Endpoint <sup>[4]</sup>
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- [10] Endosulfan represents the sum of alpha-endosulfan, beta-endosulfan, and endosulfan sulfate.
- [11] HCH (hexachlorocyclohexane) represents the sum of the alpha, beta, gamma (Lindane), and delta isomers of hexachlorocyclohexane.
- [12] Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations.
- [13] Based on 30-Day Average in Table 1 of the Ocean Plan.
- [14] Dichlorobenzenes represent the sum of 1,2- and 1,3-dichlorobenzene.
- [15] Chlordane represents the sum of chlordane-alpha, chlordane-gamma, chlordane-alpha, chlordane-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.
- [16] DDT represents the sum of 4,4'-DDT; 2,4'-DDT; 4,4'-DDE; 2,4'-DDE; 4,4'-DDD; and 2,4'-DDD.
- [17] Halomethanes represent the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).
- [18] PAHs (polynuclear aromatic hydrocarbons) represent the sum of acenaphthene; anthracene; 1,2-benzanthracene; 2,4-benzofluoranthene; benzo[k]fluoranthene; 1,12-benzoperylene; benzo[a]pyrene; chrysene; dibenzo[a,h]anthracene; fluorine; ideno[1,2,3-cd]pyrene; phenanthrene; and pyrene.
- [19] PCBs (polychlorinated biphenyls) represent the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.
- [20] TCDD equivalents represent the sum of concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown by the table below. U.S. EPA Method 8280 may be used to analyze TCDD equivalents.

Isomer Group	Toxicity Equivalence Factor
2,3,7,8 – tetra CDD	1.0
2,3,7,8 – penta CDD	0.5
2,3,7,8 – hexa CDD	0.1
2,3,7,8 – hepta CDD	0.01
octa CDD	0.001
2,3,7,8 – tetra CDF	0.1
1,2,3,7,8 – penta CDF	0.05
2,3,4,7,8 – penta CDF	0.5
2,3,7,8 – hexa CDFs	0.1
2,3,7,8 – hepta CDFs	0.01
octa CDF	0.001

**4. WQBEL Calculations**

- a. From the Table 1 WQOs in the Ocean Plan, effluent limitations were calculated according to the following equation for all pollutants, except for acute toxicity and radioactivity:

$C_e = C_o + D_m (C_o - C_s)$  where,

$C_e$  = the effluent limitation ( $\mu\text{g/L}$ )

$C_o$  = the WQO to be met at the completion of initial dilution ( $\mu\text{g/L}$ )

$C_s$  = background seawater concentration

$D_m$  = minimum probable initial dilution expressed as parts seawater per part wastewater

- b. Initial dilution (Dm) has been determined to be 133 to 1 by the Central Coast Water Board.
- c. Table 3 of the Ocean Plan establishes background concentrations for some pollutants to be used when determining reasonable potential (represented as “Cs”). In accordance with Table 1 implementing procedures, Cs equals zero for all pollutants not established in Table 3. The background concentrations provided in Table 3 are summarized below:

**Table F-13. Pollutants Having Background Concentrations**

Pollutant	Background Seawater Concentration
Arsenic	3 µg/L
Copper	2 µg/L
Mercury	0.0005 µg/L
Silver	0.16 µg/L
Zinc	8 µg/L

- d. A summary of WQBELs established for Discharge Point No. 001 in this Order are provided in Tables F-14a – F-14c.

**Table F-14a. Effluent Limitations, Protection of Marine Aquatic Life**

Parameter	Units	Effluent Limitation		
		6-Mo Median <sup>[1]</sup>	Maximum Daily <sup>[2]</sup>	Instantaneous Maximum <sup>[3]</sup>
Arsenic, Total Recoverable	µg/L	670	3,890	10,300
	lbs/day	12	67	177
Cadmium, Total Recoverable	µg/L	130	540	1,340
	lbs/day	2.2	9.3	23
Chromium (VI) , Total Recoverable	µg/L	270	1,070	2,680
	lbs/day	4.64	18	46
Mercury, Total Recoverable	µg/L	5.29	21.4	53.5
	lbs/day	0.091	0.37	0.92
Nickel, Total Recoverable	µg/L	670	2,680	6,700
	lbs/day	12	46	115
Silver, Total Recoverable	µg/L	70	350	920
	lbs/day	1.2	6.01	16
Total Chlorine Residual	µg/L	268	1,072	8,040
	lbs/day	4.6	18	138
Acute Toxicity	TUa	--	4.3	--
Chronic Toxicity	TUc	--	134	--
Phenolic Compounds (non-chlorinated)	µg/L	4,020	16,100	40,200
	lbs/day	69	277	691
Phenolic Compounds (chlorinated)	µg/L	130	540	1,340
	lbs/day	2.2	9.3	23
Endosulfan	µg/L	1.21	2.41	3.62
	lbs/day	0.021	0.041	0.062
Endrin	µg/L	0.27	0.54	0.80
	lbs/day	0.0046	0.0093	0.014

Parameter	Units	Effluent Limitation		
		6-Mo Median <sup>[1]</sup>	Maximum Daily <sup>[2]</sup>	Instantaneous Maximum <sup>[3]</sup>
HCH	µg/L	0.54	1.07	1.61
	lbs/day	0.0093	0.018	0.028
Radioactivity	[4]			

<sup>[1]</sup> The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered equal to zero for days on which no discharge occurred. The six-month median limit on daily mass emissions shall be determined using the six-month medial effluent concentration  $C_e$  and the observed flow rate,  $Q$ , in million gallons per day (MGD).

<sup>[2]</sup> The daily maximum shall apply to flow weighted 24-hour composite samples. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as  $C_e$  and the observed flow rate,  $Q$ , in MGD.

<sup>[3]</sup> The instantaneous maximum shall apply to grab sample determinations.

<sup>[4]</sup> Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations

**Table F-14b. Effluent Limitations – Protection of Human Health – Non-Carcinogens**

Parameter	Units	Effluent Limitation
		30-day Average
Acrolein	µg/L	29,500
	lbs/day	507
Antimony	µg/L	160,800
	lbs/day	2,763
Bis(2-chloroethoxy) methane	µg/L	590
	lbs/day	10
Bis(2-chloroisopropyl) ether	µg/L	160,800
	lbs/day	2,763
Chlorobenzene	µg/L	76,400
	lbs/day	1,313
Chromium (III) <sup>[1]</sup>	µg/L	25,500,000
	lbs/day	438,100
Di-n-butyl phthalate	µg/L	469,000
	lbs/day	8,058
Dichlorobenzenes <sup>[2]</sup>	µg/L	683,000
	lbs/day	11,734
Diethyl phthalate	µg/L	4,420,000
	lbs/day	75,937
Dimethyl phthalate	µg/L	109,900,000
	lbs/day	1,888,126
4,6-dinitro-2-methylphenol	µg/L	29,500
	lbs/day	507
2,4-dinitrophenol	µg/L	540
	lbs/day	9.3
Ethylbenzene	µg/L	549,000
	lbs/day	9,432

Parameter	Units	Effluent Limitation
		30-day Average
Fluoranthene	µg/L	2,000
	lbs/day	34
Hexachlorocyclopentadiene	µg/L	7,800
	lbs/day	134
Nitrobenzene	µg/L	660
	lbs/day	11
Thallium	µg/L	270
	lbs/day	4.64
Toluene	µg/L	11,400,000
	lbs/day	195,857
Tributyltin	µg/L	0.188
	lbs/day	0.0032
1,1,1-trichloroethane	µg/L	72,400,000
	lbs/day	1,243,860

[1] Discharger may at their option meet this objective as a Total Chromium objective.

[2] Sum of 1,2- and 1,3-dichlorobenzene.

**Table F-14c. Effluent Limitations – Protection of Human Health –Carcinogens**

Parameter	Units	Effluent Limitation
		30-day Average
Acrylonitrile	µg/L	13.4
	lbs/day	0.23
Aldrin	µg/L	0.00295
	lbs/day	5.07 x 10 <sup>-5</sup>
Benzene	µg/L	791
	lbs/day	14
Benzidine	µg/L	0.00925
	lbs/day	0.00016
Beryllium	µg/L	4.42
	lbs/day	0.076
Bis(2-chloroethyl) ether	µg/L	6.03
	lbs/day	0.10
Bis(2-ethylhexyl) phthalate	µg/L	469
	lbs/day	8.06
Carbon tetrachloride	µg/L	121
	lbs/day	2.08
Chlordane <sup>[1]</sup>	µg/L	0.00308
	lbs/day	5.3 x 10 <sup>-5</sup>
Chlorodibromomethane	µg/L	1,152
	lbs/day	20
Chloroform	µg/L	17,400
	lbs/day	299
DDT <sup>[2]</sup>	µg/L	0.0228

Parameter	Units	Effluent Limitation
		30-day Average
	lbs/day	0.00039
1,4-dichlorobenzene	µg/L	2,410
	lbs/day	41
3,3-dichlorobenzidine	µg/L	1.09
	lbs/day	0.019
1,2-dichloroethane	µg/L	3,750
	lbs/day	64
1,1-dichloroethylene	µg/L	120
	lbs/day	2.06
Dichlorobromomethane	µg/L	830
	lbs/day	14
Dichloromethane	µg/L	60,300
	lbs/day	1,036
1,3-dichloropropene	µg/L	1,190
	lbs/day	20
Dieldrin	µg/L	0.00536
	lbs/day	$9.21 \times 10^{-5}$
2,4-dinitrotoluene	µg/L	348
	lbs/day	6.0
1,2-diphenylhydrazine	µg/L	21.4
	lbs/day	0.37
Halomethanes <sup>[3]</sup>	µg/L	17,400
	lbs/day	299
Heptachlor	µg/L	0.0067
	lbs/day	$1.15 \times 10^{-4}$
Heptachlor epoxide	µg/L	0.00268
	lbs/day	$4.6 \times 10^{-5}$
Hexachlorobenzene	µg/L	0.0281
	lbs/day	0.00048
Hexachlorobutadiene	µg/L	1,880
	lbs/day	32
Hexachloroethane	µg/L	335
	lbs/day	5.8
Isophorone	µg/L	98,000
	lbs/day	1,684
N-nitrosodimethylamine	µg/L	978
	lbs/day	17
N-nitrosodi-n-propylamine	µg/L	50.9
	lbs/day	0.87
N-nitrosodiphenylamine	µg/L	335
	lbs/day	5.8
PAHs <sup>[4]</sup>	µg/L	1.18
	lbs/day	0.020

Parameter	Units	Effluent Limitation
		30-day Average
PCBs <sup>[5]</sup>	µg/L	0.00255
	lbs/day	4.38 x 10 <sup>-5</sup>
1,1,2,2-tetrachloroethane	µg/L	310
	lbs/day	5.3
Tetrachloroethylene	µg/L	268
	lbs/day	4.6
Toxaphene	µg/L	0.0281
	lbs/day	0.00048
Trichloroethylene	µg/L	3,620
	lbs/day	62
1,1,2-trichloroethane	µg/L	1,260
	lbs/day	22
2,4,6-trichlorophenol	µg/L	39
	lbs/day	0.67
Vinyl chloride	µg/L	4,820
	lbs/day	83

- [1] Sum of chlorodane-alpha, chlorodane-gamma, chlorodene-alpha, chlorodene-gamma, nonachlor-alpha, nonachlor gamma, and oxychlorodane.
- [2] Sum of 4,4'-DDT, 2,4'-DDT, 4,4'-DDE, 2,4'-DDE, 4,4'-DDD, and 2,4'-DDD.
- [3] Sum of bromoform, bromoethane (methylbromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.
- [4] Sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,1,2-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorine, ideno[1,2,3-cd]pyrene, phenanthrene, and pyrene.
- [5] Sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

**5. Whole Effluent Toxicity (WET)**

WET limitations protect receiving water from the aggregated toxic effect of a mixture of pollutants in effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative “no toxics in toxic amounts” criterion while implementing numeric criteria for toxicity. There are two types of WET tests – acute and chronic. An acute test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth.

Order No. R3-2008-0065 established effluent limitations for both acute and chronic toxicity and semiannual monitoring for chronic toxicity. There was no acute toxicity monitoring requirement, thus an RPA could not be performed. The effluent limitations and monitoring requirements will be retained in this permit. The RPA for chronic toxicity demonstrates that chronic toxicity does not appear to have reasonable potential to exceed water quality objectives. However, effluent data for total residual chlorine indicate reasonable potential to exceed water quality objectives for the protection of marine aquatic life. Due to the potential for toxic impacts to aquatic life, reasonable potential for chronic toxicity is retained based on Step 13 of Appendix VI of the Ocean Plan, which

requires the consideration of all available information to determine if a WQBEL is required. Further, section III.C.4.c of the Ocean Plan requires that chronic toxicity be monitored when dilution is between 100:1 and 350: 1. Monitoring for chronic toxicity has been retained to evaluate compliance with the applicable effluent limitation and based on the available dilution for the discharge location of 133:1.

The Discharger will be required to implement a Toxicity Reduction Evaluation (TRE) Workplan, as described in section V.C.2.a of the Order. When monitoring measures WET in the effluent above the limitation established by the Order, the Discharger must resample, if the discharge is continuing, and retest.

#### **D. Final Effluent Limitation Considerations**

##### **1. Anti-Backsliding Requirements**

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order, with some exceptions discussed below, are at least as stringent as the effluent limitations in the previous Order.

Effluent limitations for ammonia, copper, lead, selenium, and zinc have been removed from this Order. The removal of the effluent limitations for these parameters is based on the availability of new information, including available effluent data, consistent with 40 C.F.R. 122.44(i)(B).

##### **2. Antidegradation Policies**

Provisions of this Order are consistent with applicable anti-degradation policy expressed by NPDES regulations at 40 C.F.R. 131.12 and by State Water Board Resolution No. 68-16. The Order does not authorize increases in discharge rates or pollutant loadings, and its limitations and conditions otherwise assure maintenance of the existing quality of receiving waters.

##### **3. Stringency of Requirements for Individual Pollutants**

This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD<sub>5</sub>, TSS, oil and grease, turbidity, pH, and settleable solids. Restrictions on these pollutants are discussed in the Fact Sheet, in section IV.B. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. These limitations are not more stringent than required by the CWA.

##### **4. Summary of Final Effluent Limitations – Discharge Point No. 001**

**Table F-15. Final Effluent Limitations**

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand 5-day @ 20°C (BOD <sub>5</sub> ) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Total Suspended Solids (TSS) <sup>[1]</sup>	mg/L	30	45	--
	lbs/day <sup>[2]</sup>	515	773	--
Oil and Grease	mg/L	25	40	75
	lbs/day <sup>[2]</sup>	430	687	1,289
Settleable Solids	ml/L	1.0	1.5	3.0
pH	standard units	6.0 – 9.0 at all times		
Turbidity	NTU	75	100	225

<sup>[1]</sup> The average monthly percent removal for BOD and TSS shall not be less than 85 percent.

<sup>[2]</sup> Mass based effluent limitations were calculated using the following formula:  
lbs/day = pollutant concentration (mg/L) \* Design flow (2.06 MGD) \* conversion factor (8.34)

5. **Percent Removal:** The average monthly percent removal of BOD<sub>5</sub> and TSS shall not be less than 85 percent.
6. **Dry Weather Flow.** Effluent peak seasonal dry weather flow shall not exceed a monthly average of 2.36 million gallons per day.
7. **Bacteria**
  - a. Total Coliform
    - i. The total coliform concentrations shall not exceed a 30-day geometric mean of 23 MPN/100 mL.
    - ii. No total coliform single sample shall exceed 2,400 MPN/100 mL.

**Table F-16a. Final Effluent Limitations, Protection of Marine Aquatic Life**

Parameter	Units	Effluent Limitation		
		6-Mo Median <sup>[1]</sup>	Maximum Daily <sup>[2]</sup>	Instantaneous Maximum <sup>[3]</sup>
Arsenic, Total Recoverable	µg/L	670	3,890	10,300
	lbs/day	12	67	177
Cadmium, Total Recoverable	µg/L	130	540	1,340
	lbs/day	2.2	9.3	23
Chromium (VI), Total Recoverable	µg/L	270	1,070	2,680
	lbs/day	4.64	18	46
Mercury, Total Recoverable	µg/L	5.29	21.4	53.5
	lbs/day	0.091	0.37	0.92
Nickel, Total Recoverable	µg/L	670	2,680	6,700
	lbs/day	12	46	115
Silver, Total Recoverable	µg/L	70	350	920
	lbs/day	1.2	6.01	16
Total Chlorine Residual	µg/L	268	1,072	8,040
	lbs/day	4.6	18	138
Acute Toxicity	TUa	--	4.3	--
Chronic Toxicity	TUc	--	134	--

Parameter	Units	Effluent Limitation		
		6-Mo Median <sup>[1]</sup>	Maximum Daily <sup>[2]</sup>	Instantaneous Maximum <sup>[3]</sup>
Phenolic Compounds (non-chlorinated)	µg/L	4,020	16,100	40,200
	lbs/day	69	277	691
Phenolic Compounds (chlorinated)	µg/L	130	540	1,340
	lbs/day	2.2	9.3	23
Endosulfan	µg/L	1.21	2.41	3.62
	lbs/day	0.021	0.041	0.062
Endrin	µg/L	0.27	0.54	0.80
	lbs/day	0.0046	0.0093	0.014
HCH	µg/L	0.54	1.07	1.61
	lbs/day	0.0093	0.018	0.028
Radioactivity		[4]		

<sup>[1]</sup> The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered equal to zero for days on which no discharge occurred. The six-month median limit on daily mass emissions shall be determined using the six-month medial effluent concentration  $C_e$  and the observed flow rate, Q, in million gallons per day (MGD).

<sup>[2]</sup> The daily maximum shall apply to flow weighted 24-hour composite samples. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as  $C_e$  and the observed flow rate, Q, in MGD.

<sup>[3]</sup> The instantaneous maximum shall apply to grab sample determinations.

<sup>[4]</sup> Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations.

**Table F-16b. Final Effluent Limitations – Protection of Human Health – Non-Carcinogens**

Parameter	Units	Effluent Limitation
		30-day Average
Acrolein	µg/L	29,500
	lbs/day	507
Antimony	µg/L	160,800
	lbs/day	2,763
Bis(2-chloroethoxy) methane	µg/L	590
	lbs/day	10
Bis(2-chloroisopropyl) ether	µg/L	160,800
	lbs/day	2,763
Chlorobenzene	µg/L	76,400
	lbs/day	1,313
Chromium (III) <sup>[1]</sup>	µg/L	25,500,000
	lbs/day	438,100
Di-n-butyl phthalate	µg/L	469,000
	lbs/day	8,058
Dichlorobenzenes <sup>[2]</sup>	µg/L	683,000
	lbs/day	11,734
Diethyl phthalate	µg/L	4,420,000
	lbs/day	75,937
Dimethyl phthalate	µg/L	109,900,000

Parameter	Units	Effluent Limitation
		30-day Average
	lbs/day	1,888,126
4,6-dinitro-2-methylphenol	µg/L	29,500
	lbs/day	507
2,4-dinitrophenol	µg/L	540
	lbs/day	9.3
Ethylbenzene	µg/L	549,000
	lbs/day	9,432
Fluoranthene	µg/L	2,000
	lbs/day	34
Hexachlorocyclopentadiene	µg/L	7,800
	lbs/day	134
Nitrobenzene	µg/L	660
	lbs/day	11
Thallium	µg/L	270
	lbs/day	4.64
Toluene	µg/L	11,400,000
	lbs/day	195,857
Tributyltin	µg/L	0.188
	lbs/day	0.0032
1,1,1-trichloroethane	µg/L	72,400,000
	lbs/day	1,243,860

[1] Discharger may at its option meet this objective as a total chromium objective.

[2] Sum of 1,2- and 1,3-dichlorobenzene.

**Table F-16c. Final Effluent Limitations – Protection of Human Health – Carcinogens**

Parameter	Units	Effluent Limitation
		30-day Average
Acrylonitrile	µg/L	13.4
	lbs/day	0.23
Aldrin	µg/L	0.00295
	lbs/day	5.07 x 10 <sup>-5</sup>
Benzene	µg/L	791
	lbs/day	14
Benzidine	µg/L	0.00925
	lbs/day	0.00016
Beryllium	µg/L	4.42
	lbs/day	0.076
Bis(2-chloroethyl) ether	µg/L	6.03
	lbs/day	0.10
Bis(2-ethylhexyl) phthalate	µg/L	469
	lbs/day	8.06
Carbon tetrachloride	µg/L	121
	lbs/day	2.08

Parameter	Units	Effluent Limitation
		30-day Average
Chlordane <sup>[1]</sup>	µg/L	0.00308
	lbs/day	5.3 x 10 <sup>-5</sup>
Chlorodibromomethane	µg/L	1,152
	lbs/day	20
Chloroform	µg/L	17,400
	lbs/day	299
DDT <sup>[2]</sup>	µg/L	0.0228
	lbs/day	0.00039
1,4-dichlorobenzene	µg/L	2,410
	lbs/day	41
3,3-dichlorobenzidine	µg/L	1.09
	lbs/day	0.019
1,2-dichloroethane	µg/L	3,750
	lbs/day	64
1,1-dichloroethylene	µg/L	120
	lbs/day	2.06
Dichlorobromomethane	µg/L	830
	lbs/day	14
Dichloromethane	µg/L	60,300
	lbs/day	1,036
1,3-dichloropropene	µg/L	1,190
	lbs/day	20
Dieldrin	µg/L	0.00536
	lbs/day	9.21 x 10 <sup>-5</sup>
2,4-dinitrotoluene	µg/L	348
	lbs/day	6.0
1,2-diphenylhydrazine	µg/L	21.4
	lbs/day	0.37
Halomethanes <sup>[3]</sup>	µg/L	17,400
	lbs/day	299
Heptachlor	µg/L	0.0067
	lbs/day	1.15 x 10 <sup>-4</sup>
Heptachlor epoxide	µg/L	0.00268
	lbs/day	4.6 x 10 <sup>-5</sup>
Hexachlorobenzene	µg/L	0.0281
	lbs/day	0.00048
Hexachlorobutadiene	µg/L	1,880
	lbs/day	32
Hexachloroethane	µg/L	335
	lbs/day	5.8
Isophorone	µg/L	98,000
	lbs/day	1,684
N-nitrosodimethylamine	µg/L	978

Parameter	Units	Effluent Limitation
		30-day Average
	lbs/day	17
N-nitrosodi-n-propylamine	µg/L	50.9
	lbs/day	0.87
N-nitrosodiphenylamine	µg/L	335
	lbs/day	5.8
PAHs <sup>[4]</sup>	µg/L	1.18
	lbs/day	0.020
PCBs <sup>[5]</sup>	µg/L	0.00255
	lbs/day	4.38 x 10 <sup>-5</sup>
1,1,2,2-tetrachloroethane	µg/L	310
	lbs/day	5.3
Tetrachloroethylene	µg/L	268
	lbs/day	4.6
Toxaphene	µg/L	0.0281
	lbs/day	0.00048
Trichloroethylene	µg/L	3,620
	lbs/day	62
1,1,2-trichloroethane	µg/L	1,260
	lbs/day	22
2,4,6-trichlorophenol	µg/L	39
	lbs/day	0.67
Vinyl chloride	µg/L	4,820
	lbs/day	83

[1] Sum of chlorodane-alpha, chlorodane-gamma, chlorodene-alpha, chlorodene-gamma, nonachlor-alpha, nonachlor gamma, and oxychlorodane.

[2] Sum of 4,4'-DDT, 2,4'-DDT, 4,4'-DDE, 2,4'-DDE, 4,4'-DDD, and 2,4'-DDD.

[3] Sum of bromoform, bromoethane (methylbromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.

[4] Sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,1,2-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorine, ideno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

[5] Sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

**E. Land Discharge Specifications – Not Applicable**

**F. Recycling Specifications – Not Applicable**

**V. RATIONALE FOR RECEIVING WATER LIMITATIONS**

**A. Surface Water**

Receiving water quality is a result of many factors, some unrelated to the discharge. This Order considers these factors and is designed to minimize the influence of the discharge on the receiving water. Receiving water limitations for Discharge Point No. 001 to the Pacific Ocean are consistent with the water quality objectives contained in the Ocean Plan and Basin Plan, and are retained from the previous Order.

**B. Groundwater – Not Applicable**

**VI. RATIONALE FOR PROVISIONS**

**A. Standard Provisions**

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D to the order.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the State to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

**B. Special Provisions**

**1. Reopener Provisions**

The Order may be modified in accordance with the requirements set forth at 40 C.F.R. 122 and 124, to include appropriate conditions or limits based on newly available information, or to implement any new State water quality objectives that are approved by the U.S. EPA. As effluent is further characterized through additional monitoring, and if a need for additional effluent limitations becomes apparent after additional effluent characterization, the Order will be reopened to incorporate such limitations.

**2. Special Studies and Additional Monitoring Requirements**

**a. Toxicity Reduction Requirements**

The Order contains the requirement to perform a TRE, if chronic toxicity limitation is exceeded. When toxicity monitoring measures toxicity in the effluent above a whole effluent toxicity effluent limitation established by the Order, the Discharger is required to resample and retest. When all monitoring results are available, the Executive Officer can determine whether to initiate enforcement action, whether to require the Discharger to implement TRE requirements, or whether other measures are warranted.

**b. Effluent Bacteria Evaluation**

To evaluate potential impacts on human health and assist in public health determinations, the Order contains requirements to conduct monitoring when effluent limitations for total coliform bacteria are exceeded in consecutive monitoring events. The Discharger shall conduct near shore and surf zone monitoring for bacteria in accordance with section VIII.A of the Monitoring and Reporting Program. Results of the increased monitoring for bacteria shall be summarized and submitted in a report to the Executive Officer.

### **3. Best Management Practices and Pollution Prevention**

#### **a. Pollution Prevention Program**

A Pollution Prevention Program is a regulatory program administered by the Discharger to prevent the introduction of pollutants into the Facility which will interfere with the operation of the treatment works, pass through the treatment facility, reduce opportunities to recycle and reuse municipal wastewater and sludge, or expose the Facility employees to hazardous chemicals. Although a 301(h) waiver was not applied for or granted to the Discharger, the Facility is anticipated to continue to operate as it has under previous 301(h) waivers, and is unable to provide full secondary treatment to all effluent discharged from the Facility. Thus, this permit continues to implement pollution prevention requirements specified in 40 C.F.R. Part 125.66(d) in lieu of the general pretreatment regulations specified in 40 C.F.R. Part 403.

#### **b. Pollutant Minimization Program**

The 2015 Ocean Plan establishes requirements for a Pollutant Minimization Program (PMP) to reduce all potential sources of a pollutant through pollutant minimization control strategies. This Order implements the requirements of section III.C.9 of the Ocean Plan.

### **4. Construction, Operation, and Maintenance Specifications**

The Facility shall be operated as specified under Standard Provisions, Attachment D.

### **5. Special Provisions for Municipal Facilities (POTWs Only)**

#### **a. Biosolids Management**

The use and disposal of biosolids is regulated under federal and State laws and regulations, including permitting requirements and technical standards included in 40 C.F.R. 503. The Discharger is required to comply with the standards and time schedules contained in 40 C.F.R. 503.

Title 27, CCR, Division 2, Subdivision 1, section 20005 establishes approved methods for the disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. Requirements to ensure the Discharger disposes of solids in compliance with State and federal regulations have been included in this Order.

### **6. Other Special Provisions**

#### **a. Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (State Water Board Order No. 2006-003-DWQ).**

The Order requires coverage by and compliance with applicable provisions of General Waste Discharge Requirements for Sanitary Sewer Systems (State Water Board Order No. 2006-003-DWQ). This General Permit, adopted on May 2, 2006, is applicable to all "federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one

mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California.” The purpose of the General Permit is to promote the proper and efficient management, operation, and maintenance of sanitary sewer systems and to minimize the occurrences and impacts of sanitary sewer overflows.

## VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Coast Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E, establishes monitoring and reporting requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

### A. Influent Monitoring

In addition to influent flow monitoring, monitoring for BOD<sub>5</sub> and TSS is required to determine compliance with the Order’s 85 percent removal requirement for these pollutants. Influent monitoring requirements have been retained from the previous Order.

### B. Effluent Monitoring

Effluent monitoring is necessary to determine compliance with effluent limitations and evaluate compliance with applicable water quality objectives and criteria. Effluent monitoring requirements from the previous Order for Discharge Point No. 001 are retained in this Order, with some exceptions.

The previous Order established an effluent limitation for acute toxicity, but did not require monitoring. Due to the procedures in Appendix VI of the Ocean Plan, and State and federal anti-backsliding regulations, the effluent limitation for acute toxicity has been carried over to this Order. Acute toxicity monitoring requirements have not been added, based on the use of the more sensitive chronic toxicity monitoring required and initial dilution of 133:1.

Although the effluent limitations for chronic toxicity was retained due to the determination of reasonable potential for various Ocean Plan Table 1 parameters, the MEC for chronic toxicity was 31.2 TUc. This is significantly less than the applicable WQBEL of 134 TUc. Thus, due to the limited risk to exceed the applicable WQBEL, the monitoring frequency for chronic toxicity has been reduced from semiannual to annual.

Monitoring for Ocean Plan Table 1 metals and non-metals for protection of marine aquatic life without reasonable potential was established as once per year. This reduces the monitoring frequency from semiannual to annual.

Monitoring of the parameters for protection of human health without reasonable potential was established as once per permit term. This is consistent with other ocean discharge permits within the region.

Because ammonia did not demonstrate reasonable potential to exceed water quality objectives, the monitoring for ammonia was reduced from monthly to annually. Because the data is not necessary to evaluate compliance with applicable water quality objectives,

monitoring for nitrate, urea, orthophosphate, and dissolved silica was reduced from semiannual to annual.

### **C. Whole Effluent Toxicity Testing Requirements**

See the previous section regarding monitoring frequencies for chronic toxicity. WET limitations protect receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. Chronic toxicity testing is conducted over a longer period of time and may measure mortality, reproduction, and/or growth. Accelerated monitoring requirements have been established in the attached MRP in order to confirm the presence of toxicity in the effluent prior to implementation of TIE and TRE procedures.

### **D. Receiving Water Monitoring**

#### **1. Surface Water**

Surf zone monitoring is conducted to assess bacteriological conditions in areas used for body-contact sports (e.g., surfing) and where shellfish may be harvested for human consumption and to assess aesthetic conditions for general recreational uses (e.g., picnicking, boating, etc.).

Ocean monitoring is necessary to evaluate the impacts of the discharge on the receiving water and to determine compliance with surface water limitations.

Surface water receiving water monitoring requirements have been reduced to annually, consistent with the Discharger's demonstrated compliance and consistent with other ocean discharge permits within the region.

Water column surveys have been removed from this permit based on consistent compliance with surface water limitations, analysis of previous water column surveys, planned upgrades to full secondary treatment, and consistent with other municipal wastewater treatment facilities permitted to discharge to ocean waters in the Central Coast region.

#### **2. Groundwater – Not Applicable**

### **E. Other Monitoring Requirements**

#### **1. Benthic Monitoring**

Benthic monitoring is necessary to assess the temporal and spatial occurrence of pollutants in local marine sediments and to evaluate the physical and chemical quality of the sediments in relation to the outfall. This Order decreases the frequency of benthic sampling from annual to once per permit based on the Facility upgrade to full secondary treatment, previous monitoring results, and consistent with other similar municipal wastewater treatment facilities permitted to discharge to ocean waters in the Central Coast region. Monitoring is required in the first year of the permit in order to maintain a continuous dataset with previous monitoring.

#### **2. Biosolids Monitoring**

Biosolids monitoring shall be reported in the annual report in accordance with 40 C.F.R. 503. Biosolids monitoring requirements are similar to the previous Order.

### 3. Ocean Outfall Inspection

This Order retains the requirement of the previous Order to conduct annual visual inspections of the outfall and diffuser structure and provide a report of this inspection to the Central Coast Water Board regarding the system's physical integrity.

## VIII. PUBLIC PARTICIPATION

The Central Coast Water Board considered the issuance of WDRs that will serve as an NPDES permit for the City of Morro Bay/Cayucos Sanitary District Wastewater Treatment Plant. As a step in the WDRs adoption process, Central Coast Water Board staff developed tentative WDRs and encouraged public participation in the WDR adoption process.

### A. Notification of Interested Parties

The Central Coast Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through publication in the local paper and posting in Discharger's City Hall.

The public had access to the agenda and any changes in dates and locations through the Central Coast Water Board's web site at:  
<http://www.waterboards.ca.gov/centralcoast/>

### B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDRs as provided through the notification process. Comments were encouraged to be sent via email to [centralcoast@waterboards.ca.gov](mailto:centralcoast@waterboards.ca.gov). Comments may also have been submitted in person, or by mail, to the Executive Office at the Central Coast Water Board at:

Central Coast Water Board  
895 Aerovista Place, Suite 101  
San Luis Obispo, CA 93401-7906

To be fully responded to by staff and considered by the Central Coast Water Board, the written comments were due at the Central Coast Water Board office by 5:00 p.m. on **November 6, 2017**.

The Central Coast Water Board received written comments from the City of Morro Bay on November 6, 2017, as follows below. Water Board staff's response to comments is provided as well.

- 1. Provide additional time to review an administrative draft of the pending time schedule order.** We understand a time schedule order with interim limits will be prepared to address compliance with the new permit. We are concerned that some of the monitoring requirements are not consistent with a secondary treatment permit and may carry over to a permit for the new facility. We respectfully request sufficient time for the City to review an administrative draft of the pending time schedule order.

**Staff response:** Water Board staff will be working closely with Discharger to develop realistic milestones and compliance dates for the pending time schedule order. Water Board staff intends to have the time schedule order implemented prior to the effective date of this permit.

2. **Update the Draft Permit to conform to the current Ocean Plan.** The Draft Permit cites objectives from the 2012 California Ocean Plan. However, that plan has been superseded by the 2015 Ocean Plan. The Tentative Order (Draft Permit) should revise its requirements to conform to the current Ocean Plan.

**Staff Response:** Corrections have been made.

3. **Cite a Consistent Annual Report Due Date of April 1.** The Draft Permit contains conflicting dates for the submission of the Annual Monitoring Report, including January 30 (Page D-13), February 1 (Table E-12), and April 1 (Page E-26). We request the various references to an annual monitoring report submission deadline be revised to reflect an April 1 deadline. Only the April 1st deadline is tenable. That date is consistent with the Current Permit's submission deadline requirement. Earlier submission dates would be difficult to achieve. The data collection, laboratory processing of field samples, and analysis of instrumental data are sequential and require a finite amount of time. Many of these steps can only be initiated after the beginning of the year. An earlier deadline would leave little time for assimilating and reporting on the results, and the quality and scope of the final report would suffer greatly.

**Staff Response:** Annual monitoring report expectation is April 1<sup>st</sup>; corrections have been made for consistency.

4. **Eliminate the Cat-Litter Public-Outreach Program.** The Draft Permit retains a nebulous cat-litter requirement that is an outdated relic of the previous permit-renewal process conducted a decade ago. This problematic permit requirement has been the subject of considerable criticism in every annual monitoring report since the current permit was approved (See Pages 2-17, 2-18, and 3-9 in <http://www.morro-bay.ca.us/Archive.aspx?ADID=2757> and prior annual reports posted on the City of Morro Bay Website since 2009). As discussed in those reports, we request elimination of this requirement for the following reasons.
  - a) The requirement arose out of a Section 7 consultation with the USFW service by the EPA as part of their biological evaluation of current 301(h)-modified permit. The new Draft Permit is not 301(h) modified, and therefore EPA and USFW evaluations and Section 7 consultations are no longer part of the regulatory process. Consequently, there is no mechanism for those regulatory agencies to address new scientific information and revisit the original Cat-Litter requirement.
  - b) Shortly after final approval of the current MBCSD permit in 2009, results from a comprehensive field study (Johnson et al. 2009) were published that confirmed that disease vectors unrelated to WWTP discharge are responsible for the observed *T. gondii* exposure in otters, and that the epicenter for sea otter infection is not within Estero Bay. As such, there is no longer any scientific rationale for continuation of a dedicated outreach program specific to cat-litter disposal in the MBCSD collection system.
  - c) None of the other regional ocean dischargers have a similar requirement, including the recently approved permits for Goleta, Avila, and Carpinteria. It is not as though the MBCSD is the only ocean discharger with cats located within its collection area, or that have southern sea otters within its receiving waters.
  - d) Numerous nebulous requirements dealing with cat litter are included in multiple locations within the Draft Permit (Pages 20, E-27, F-7, F-40, and F-41). The

annual requirements for “implementation goals...work plans...quantifiable measures for goals...descriptions of actions taken...reevaluations with adequate justification” are vague and make quantitative evaluation of compliance with the requirement unattainable.

**Staff Response:** Water Board staff concurs with Discharger’s comments and has reviewed the data from the annual reports submitted. Since the time of the original cat-litter public outreach program, the Central Coast Water Board has shifted similar programs to NPDES stormwater programs, when the programs are deemed necessary. Consistent with this practice for other areas in the Central Coast region, we will remove the cat-litter program from this permit and the stormwater program would be the appropriate regulatory program, if deemed necessary.

**5. Eliminate the Acute Toxicity Requirement.** A requirement for an annual acute toxicity test was added to the Draft Permit apparently because the Current Permit did not require that test and therefore, an RPA could not be performed (Page F-31). However, the acute toxicity test requirement was specifically excluded from the Current Permit for a variety of reasons. All of those same reasons apply to the Draft Permit. Specifically, ammonia interference introduces substantial inaccuracy in reported test results, and there is no technical or regulatory rationale for requiring acute toxicity testing of MBCSD effluent. For the following reasons, we request elimination of the acute toxicity testing requirement from the effluent monitoring requirements (Table E-3 on Page E-56). Alternatively, if inclusion of some form of acute testing requirement is deemed necessary, the requirement for conducting an acute test should be triggered by an elevated chronic test result that exceeds 90% (120 TUc) of the effluent limit. At a minimum, given the great uncertainty in the reported acute toxicity results, all Toxicity Reduction Requirements should only be based on a chronic toxicity triggering level, and not a trigger related to the acute bioassay results. Much of the rationale for eliminating the acute toxicity monitoring requirement was presented during the development of the current discharge permit, and has been presented in annual monitoring reports prior to 2009 (see Pages 2-38 thru 2-41 of the 2008 Annual Report available at: <http://www.morro-bay.ca.us/Archive.aspx?ADID=124>). Some of the major points are summarized below.

- a) The Draft Permit fact sheet [Page F-31] correctly states that the California Ocean Plan (COP) requires chronic toxicity testing for dischargers when dilution is between 100:1 to 350:1, but does not acknowledge that the COP also states that acute tests are discretionary within that dilution range. In fact, at 133:1, the MBCSD discharge is at the lower end of that range, and for dischargers with slightly lower dilutions, below 100:1, acute testing is not required under any circumstances.
- b) Acute testing is unnecessarily redundant when chronic testing is also required as part of the WDRs because chronic tests provide far more accurate and sensitive measures of effluent toxicity. In Functional Equivalent Documents supporting the COP, State Board “Staff agrees that critical life stage tests are more sensitive indicators of receiving water impacts than acute toxicity tests.”
- c) Acute tests conducted on MBCSD effluent during prior permit cycles have resulted in highly erroneous measures of toxicity that provided no insight into the actual toxicity of the discharge. Over two decades of acute testing prior to the current permit have demonstrated that the presence of ammonia in the MBCSD effluent samples severely compromises the accurate determination of acute toxicity.
- d) Even within these past artificially elevated acute-toxicity measurements, the reported acute toxicity of the MBCSD discharge has been less than half of the more-stringent effluent limitation cited in the WDRs of that period. Consequently,

even the past artificially inflated acute-toxicity values cannot be considered a threat to beneficial uses.

- e) The acute toxicity limit is intended to prevent lethality to organisms passing through the acute mixing zone. For the MBCSD discharge, the prescribed mixing zone is highly localized around the outfall, and extends only 1.5 m (4.9 ft) from the point of discharge. Field measurements collected at that distance within MBCSD discharge jets show that the effluent had already been diluted more than 100-fold, which is 25-times more dilute than the effluent tested in the bioassays. The only conceivable beneficial use that could be impacted within that narrow zone would be fishing. However, finfish are likely to avoid the turbulent discharge jet. Acute toxicity tests continuously expose organisms over a four-day period and do not reflect the brief duration of any potential finfish exposure.

**Staff Response:** Water Board staff has reviewed the existing Order's permitting history with regards to acute toxicity testing requirements. The existing permit's Fact Sheet (page F-36) provided Staff Response 6 regarding the removal of acute toxicity monitoring requirement. The same conditions still apply. Chronic toxicity testing is a more sensitive and accurate measure of whole effluent toxicity than acute toxicity. In this case, with an initial dilution of 133:1, chronic toxicity testing provides adequate protection of beneficial uses. Acute toxicity testing is unnecessary. Staff has removed the acute toxicity monitoring requirement.

6. **Reduce the Monitoring Frequency for Cyanide and TCDD Equivalents.** Based on an RPA conducted on a limited dataset collected 3 years ago, the Draft Permit established monitoring frequencies for cyanide of twice per year and a TCDD equivalents (dioxin) monitoring frequency of once per year. However, the RPA finding that these two constituents have a reasonable potential to exceed water-quality objectives is an artifact of uncertainty introduced by the limited time span of the datasets. Attachment A to the comment letter contains the RPA input and results for a more representative 14-year dataset spanning the period from 2004 thru 2017. Analysis of that data conclusively determines an RPA endpoint of 2, indicating that an effluent limitation is not required for those pollutants. We request the monitoring frequency for cyanide and TCDD equivalents be reduced to once in the life of the permit.

**Staff Response:** Water Board staff reviewed the updated reasonable potential analysis for cyanide and TCDD provided by the Discharger. The data supports an endpoint of 2, and therefore similar to other endpoint 2 pollutants, an effluent limitation is not required for those pollutants, and the frequency of monitoring has been changed to similarly grouped parameters with endpoint 2 (once per permit term).

7. **Remove the effluent nutrient monitoring requirement.** A provision for nutrient monitoring was incorporated into the Current Permit to address concerns regarding the MBCSD's potential nutrient contribution to the generation of harmful algal blooms offshore central California. However, chemical analyses on nitrate, urea, orthophosphate, and silica that were conducted in every annual report produced in the current permit cycle, demonstrate unequivocally that nutrient concentrations within the MBCSD effluent, and their mass loading to the marine environment from its discharge, are miniscule compared to both other central-coast dischargers, and the contribution from regional streams and rivers. These nutrient comparisons are provided in Section 2.2.11 on Pages 2-32 thru 2-34 and on Pages 5-9 and 5-10 of 2015 Annual Report available at: <http://www.morro-bay.ca.us/Archive.aspx?ADID=2757>. Some of that discussion is summarized below. We request that the effluent nutrient monitoring requirement (nitrate, urea, orthophosphate, and dissolved silica in Table E-3 on Page E-5 of the draft permit) be removed.

- a) In contrast to the other effluent parameters, there are no effluent limits associated with these four nutrients and therefore, they have no bearing on compliance assessments.
- b) Nutrient loading from the MBCSD WWTP is several orders-of-magnitude lower than both runoff and discharge from other central-coast WWTP's, and far smaller than the nutrient loading from naturally occurring processes such as upwelling.
- c) Additionally, it is clear that nutrient loads from the MBCSD discharge are unrelated to the frequency or intensity of the algal blooms occurring along this stretch of coastline. Consequently, continued nutrient monitoring provides no scientifically valid or usable information relevant to the prediction or management of algal blooms, and should be discontinued.
- d) Other, much larger central coast dischargers are no longer required to monitor for nutrients and it is unreasonable to impose this additional requirement only on the MBCSD discharge.

**Staff Response:** Water Board staff does not recommend revisions to the draft permit based on Discharger's comments. Nutrient discharge and loading continues to be a concern in the region, and other municipal wastewater treatment plants are monitoring for nutrient discharges. The nutrient monitoring data continues to provide value to potential impacts to the discharge environment.

- 8. Reduce the requirements for offshore benthic surveys and eliminate the requirement for water-column surveys.** The requirement for annual offshore benthic and water-column surveys is not warranted for a variety of reasons. We request that the requirement for water-column surveys be eliminated, and the frequency of benthic surveying be reduced to once-in-the-life of the permit. Justification and discussion is provided below.
- a) The offshore benthic and water-column surveys are labor intensive to conduct and time consuming to analyze, and as a result, are far more expensive than end-of-pipe chemical assays.
  - b) The months of effort expended on these offshore surveys will not result in monitoring program that is more protective of the marine environment than achieved by the routine onshore effluent monitoring already implemented in the permit. End-of-pipe monitoring provides an immediate and easily-interpreted assessment of potential marine impacts that may result from a decline in effluent quality. In contrast, offshore monitoring requires complex analyses to determine the presence of long-term changes in a highly variable marine environment.
  - c) The quarter-century of data already amassed by the MBCSD offshore monitoring program has never indicated any marine impacts from the discharge. It is highly unlikely that continued offshore monitoring of similar intensity will result in a different finding.
  - d) The proposed offshore monitoring program is more intensive than that of other dischargers of similar or larger discharge volume. For example, as with most small ocean dischargers, the new Goleta permit does not require offshore water-column surveys, and limits the benthic sampling to once-in-the-life of the permit. This level of monitoring is also appropriate for the MBCSD discharge given that its flow is four-times smaller, its offshore dilution is 10% greater, and it services a less-industrialized collection area.
  - e) The small volume of effluent discharged by the MBCSD is much higher quality than that achieved by primary treatment alone because the majority of effluent receives secondary treatment. TSS and BOD concentrations within the MBCSD discharge are the only effluent constituents that may occasionally slightly exceed

full-secondary standards, but because of the limited discharge volume, TSS and BOD loading to the environment is similarly limited. Moreover, the MBCSD discharge volume has declined in recent years and additional declines are expected when the Cayucos treatment plant is commission next year.

- f) The Draft MBCSD Permit is no longer covered by Section 301(h) of the Clean Water Act, and as such, it not legally subject to the intensive offshore monitoring program specifically mandated in that section of the Federal Regulations. From a regulatory standpoint, it is inconsistent to impose these exhaustive monitoring requirements when the other 301(h) provisions were eliminated in the Draft Permit.

**Staff Response:** Water Board staff agrees with the Discharger's comments regarding the conclusions from the existing, intensive monitoring program. The comprehensive data set gathered during the previous Orders' offshore monitoring programs do not indicate an impact from the discharge on the marine environment. Additionally, since the Facility will no longer operate with a 301(h) waiver, reducing the monitoring to requirements consistent with other facilities within the region is supported. Monitoring requirements have been changed accordingly.

- 9. **Correct the effluent concentration and loading limits for heptachlor and Heptachlor epoxide in Table 7 on Page 9, Table F-6 on Page F-13, and Table F14c on Pages F-29 and F-30.** The respective concentration limits should be 0.0067 µg/L and 0.00268 µg/L, and the loadings should be 1.15 x 10<sup>-4</sup> lbs/day and 4.6 x 10<sup>-5</sup> lbs/day. This request was made in Comment 32 of Attachment F – Fact Sheet for the current permit, but was never implemented in the final permit.

**Staff Response:** Water Board staff verified the units with the 2015 California Ocean Plan. The Discharger is correct regarding the values. Corrections have been made.

- 10. The City also requests the Regional Water Quality Control Board acknowledge the City is pursuing a recycled water program, and salt reduction in the collection system will be critical to reducing capital and operating cost for production of recycled water. Based on sampling conducted in June and July of 2015, the City estimated that brine from self-regenerating water softeners contributed 12% of total dissolved solids (TDS) and 19% of chlorides to wastewater treatment plant (WWTP) influent (January 5, 2016, Presentation to Water Reclamation Facility Citizens Advisory Committee).

**Staff Response:** The Central Coast Water Board encourages, consistent with the State Recycled Water Policy, communities to plan for maximizing the extent of recycled water production and use. Water Board staff will continue to work with Dischargers to encourage and facilitate recycled water projects, including the City of Morro Bay.

### C. Public Hearing

The Central Coast Water Board held a public hearing on the proposed WDRs during its regular Board meeting as follows:

Date: December 7, 2017  
Time: 8 am – 5 pm  
Location: Central Coast Water Board  
895 Aerovisa Place, Suite 101

San Luis Obispo, CA 93401

Interested persons were invited to attend. At the public hearing, the Central Coast Water Board offered to hear testimony, pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony is requested in writing. The item was considered on the consent calendar. Mr. Rob Livick from the City of Morro Bay Public Works Department provided a brief update on the City's activities presented in the Staff Report for this item. No members of the public requested comment, or was any provided.

**D. Reconsideration of Waste Discharge Requirements**

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be received by the State Water Board at the following address within 30 calendar days of the Regional Water Board's action.

State Water Resources Control Board  
Office of Chief Counsel  
P.O. Box 100, 1001 I Street  
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see:

[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality/wqpetition\\_instr.shtml](http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

**E. Information and Copying**

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:00 a.m. and 5:00 p.m., Monday through Friday. Copying of documents may be arranged through the Central Coast Water Board by calling (805) 549-3147.

**F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Central Coast Water Board reference this Facility, and provide a name, address, and phone number.

**G. Additional Information**

Requests for additional information or questions regarding this order should be directed to Katie DiSimone at (805) 542-4638 ([Katie.disimone@waterboards.ca.gov](mailto:Katie.disimone@waterboards.ca.gov)) or Sheila Soderberg at (805) 549-3592 ([Sheila.soderberg@waterboards.ca.gov](mailto:Sheila.soderberg@waterboards.ca.gov)).



# Appendix E: Architectural Space Needs Outline



# Morro Bay Water Reclamation Facility

## ARCHITECTURAL SPACE NEEDS OUTLINE

### OPERATIONS BUILDING

Provide an operations and administration building that will provide workspace for up to sixteen employees. Include three private office spaces, a control room/operations center with work spaces for thirteen employees (not necessarily all at the same time), a map storage and copy room, a break/training room, a conference room, sufficient gender-neutral showers and restrooms, uniform storage, an electrical room, a server room, and a janitorial/mechanical room.

#### Administration

Space Function
Three Private Offices (Manager plus two)

#### Operations

Space Function	Notes
Control Room-OPS Center	Work stations for up to 8 simultaneously
Map/Copy-Work Room	
Two Sample Storage Rooms	Access from exterior

#### Support Spaces

Space Function	Notes
Training-Break Room	
Storage Room	
Conference Room	
Gender-Neutral Restrooms	Adjacent to Uniform storage
Gender-Neutral Locker Room and Showers	
Uniform Storage (Lockers)	
Server Room	
Janitor-Mechanical Room	
Electrical Room	

### SHOP/MAINTENANCE BUILDING

Provide a shop/maintenance building that will provide an open shop/storage area with drive through bay for service vehicles, plus a laboratory, restroom, instrumentation and controls (I&C) workshop, and a satellite operations room.

Space Function
Shop and Storage Space
I + C Workshop
Restroom
Laboratory – for process, not regulatory lab work
Satellite Operations Room



# Appendix F: Not Used



# Appendix G: Architectural Space Needs Identification Forms



**SPACE IDENTIFICATION**

ROOM NAME: **Offices**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b> Meeting space	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> 3 offices near reception; 2 closer to Staff Entry	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input checked="" type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input checked="" type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input checked="" type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input checked="" type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> SCADA access				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

**ROOM NAME: Control Room - Operations Center**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input type="checkbox"/> 10 HRS / DAY <input checked="" type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Control workstations	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input checked="" type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input checked="" type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input checked="" type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b> Whiteboards, bank of three large monitors

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input checked="" type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input checked="" type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input checked="" type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> SCADA display				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **Map Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Maps and Reference Library	<b>SECONDARY ACTIVITIES:</b> Meeting space	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input checked="" type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Operations	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input type="checkbox"/> 9'-0' <input checked="" type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input checked="" type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b> Whiteboard, Tables to lay out maps, wall mounted maps, free-standing flat files for maps

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input checked="" type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **Sample Storage**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Storage	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b> Access from exterior – direct outdoor access				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Lab	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input checked="" type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input checked="" type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input checked="" type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> FIBERGLASS <input checked="" type="checkbox"/> FIBERGLASS FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input checked="" type="checkbox"/> LOUVER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input checked="" type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **Training - Break Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Training Classroom	<b>SECONDARY ACTIVITIES:</b> Meeting space-break room	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b>	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b> Would like to be accessible to outdoor patio		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input checked="" type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input checked="" type="checkbox"/> BASE CABINET <input checked="" type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input checked="" type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input checked="" type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b> Selected cabinets to have locks

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input checked="" type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input checked="" type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input checked="" type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input checked="" type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> SCADA data, Large wall monitor, whiteboards . Filter system for drinking water				
<b>GENERAL COMMENTS/REMARKS:</b>				

**SPACE IDENTIFICATION**

ROOM NAME: **Table and Chair Storage**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Storage	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input checked="" type="checkbox"/> NO LOCK <input type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Training-Break Room	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input checked="" type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input checked="" type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER <input type="checkbox"/> HEIGHT _____ <input type="checkbox"/> DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

GENERAL COMMENTS/REMARKS:

**SPACE IDENTIFICATION**

ROOM NAME: **Conference Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Meeting Space	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input checked="" type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b>	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input checked="" type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input checked="" type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input checked="" type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input checked="" type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> SCADA data, Large wall monitor, whiteboards				
<b>GENERAL COMMENTS/REMARKS:</b>				

**SPACE IDENTIFICATION**

ROOM NAME: **Copier-Work Alcove**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Printer-Copier-Supplies Room	<b>SECONDARY ACTIVITIES:</b> Office Work area	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input checked="" type="checkbox"/> NO LOCK <input type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Manager offices and reception	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input checked="" type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input type="checkbox"/> METAL <input type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input checked="" type="checkbox"/> BASE CABINET <input checked="" type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> Space for recycling and trash bins				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **Reception - Lobby**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b> Reception-Waiting Area	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input checked="" type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Offices	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input type="checkbox"/> METAL <input type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input checked="" type="checkbox"/> ALUMINUM STOREFRONT	<b>DOOR FINISH</b> <input type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input checked="" type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input checked="" type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL-ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input checked="" type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input checked="" type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> Drinking fountain in general vicinity of reception/main public entry				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME **Restrooms and Locker Rooms**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Toilet, Shower	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input type="checkbox"/> 10 HRS / DAY <input checked="" type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Near staff entry	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b> Custodial space nearby		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> COLOR CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input checked="" type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input checked="" type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input checked="" type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input checked="" type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input checked="" type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input checked="" type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input checked="" type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input checked="" type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	
<b>SPECIAL REQUIREMENTS:</b> Hanging space for uniforms, dirty uniform and towel bins, full length mirrors, lockers					

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input checked="" type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input checked="" type="checkbox"/> HOSE BIBB <input checked="" type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> Showers, exhaust air inlets near towels and laundry bins, GFI outlets at lavatories for blow dryers.				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **On-Call Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Bunk Room during flood events	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Located directly off Operations Center	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> METAL <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input checked="" type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b> Window size to comply with emergency egress requirements

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input checked="" type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input checked="" type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

GENERAL COMMENTS/REMARKS:

**SPACE IDENTIFICATION**

ROOM NAME: **Uniform Storage – Wash Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Clean Up – Mud Room	<b>SECONDARY ACTIVITIES:</b> Uniform Storage	<b>UTILIZATION</b> <input type="checkbox"/> 10 HRS / DAY <input checked="" type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Staff Entry to Operations Facility; Outdoor Wash Off Area	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> COLOR CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input checked="" type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input checked="" type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input checked="" type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input checked="" type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> FIBERGLASS <input checked="" type="checkbox"/> FIBERGLASS FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input checked="" type="checkbox"/> OPEN HANGING RACKS <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	
<b>SPECIAL REQUIREMENTS:</b>					

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input checked="" type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> Passive air flow ideal to dry boots and gear, on adjacent, outside wall provide handheld sprayer for washing down boots and waders				
<b>GENERAL COMMENTS/REMARKS:</b>				

**SPACE IDENTIFICATION**

ROOM NAME: **Server Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Network Servers	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input type="checkbox"/> 10 HRS / DAY <input checked="" type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b>	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input checked="" type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input checked="" type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
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<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input checked="" type="checkbox"/> SERVER RACKS	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____
<b>SPECIAL REQUIREMENTS:</b>				

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input checked="" type="checkbox"/> OTHER - AC	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input checked="" type="checkbox"/> EMERGENCY POWER <input checked="" type="checkbox"/> OTHER UPS	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input checked="" type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

GENERAL COMMENTS/REMARKS:

**SPACE IDENTIFICATION**

ROOM NAME: **Janitor and Mechanical Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Janitor Closet	<b>SECONDARY ACTIVITIES:</b> Maintenance	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Close to restrooms	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input checked="" type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input checked="" type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input checked="" type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input checked="" type="checkbox"/> OTHER - LOUVER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input checked="" type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b> Work bench for minor repairs, storage system for bicycles

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input checked="" type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input checked="" type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input checked="" type="checkbox"/> OTHER – Floor Sink	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **Electrical Room**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Electrical Equipment	<b>SECONDARY ACTIVITIES:</b> Maintenance	<b>UTILIZATION</b> <input type="checkbox"/> 10 HRS / DAY <input checked="" type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b>	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b> Access from Exterior		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input checked="" type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> COLOR CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input checked="" type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input checked="" type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input checked="" type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> FIBERGLASS <input checked="" type="checkbox"/> FIBERGLASS FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER – Floor Sink	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input checked="" type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

GENERAL COMMENTS/REMARKS:

**SPACE IDENTIFICATION**

ROOM NAME: **Shop and Storage**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b> Storage	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Maintenance work areas	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input checked="" type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> COLOR CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input type="checkbox"/> DRY WALL <input checked="" type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input checked="" type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> FIBERGLASS <input checked="" type="checkbox"/> FIBERGLASS FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input checked="" type="checkbox"/> OTHER – ROLL UPS	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input checked="" type="checkbox"/> METAL <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input checked="" type="checkbox"/> METAL <input type="checkbox"/> CHEMICAL RESISTANT HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b> Equipment layout to be further developed by staff includes drill press, press, lathe, tool storage, parts washing, bead blast

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> OTHER - SHOP	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input checked="" type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input checked="" type="checkbox"/> HOSE BIBB <input checked="" type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input checked="" type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> Eyewash station at trough sink, gantry crane				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **I and C Workshop**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Maintenance work areas	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input checked="" type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input checked="" type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input checked="" type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input checked="" type="checkbox"/> BASE CABINET <input checked="" type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input checked="" type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input checked="" type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input checked="" type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

GENERAL COMMENTS/REMARKS:

**SPACE IDENTIFICATION**

ROOM NAME: **Shop Bathroom**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b> Safety	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Maintenance machine shop	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO VISUAL: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input checked="" type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> COLOR CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input checked="" type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input checked="" type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input checked="" type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input type="checkbox"/> STANDARD <input type="checkbox"/> TINTED <input type="checkbox"/> BLINDS <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	
<b>SPECIAL REQUIREMENTS:</b>					

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input checked="" type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **Lab**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b> Storage	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Shop and Maintenance work area	<b>FLOOR LEVEL LOCATION</b> <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input checked="" type="checkbox"/> SEALED CONCRETE <input type="checkbox"/> COLOR CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input checked="" type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> BLINDS <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> METAL <input checked="" type="checkbox"/> METAL FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input checked="" type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT FIBERGLASS <input checked="" type="checkbox"/> DOOR+FRAME @ EXTERIOR	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input checked="" type="checkbox"/> METAL <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK  <input type="checkbox"/> BUILT-IN  <input type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input checked="" type="checkbox"/> CHEMICAL RESISTANT <input type="checkbox"/> HEIGHT _____ <input type="checkbox"/> DEPTH _____	
<b>SPECIAL REQUIREMENTS:</b> Equipment layout to be further developed by staff includes portable welding and cutting equipment, tables, tool storage					

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input checked="" type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input checked="" type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input checked="" type="checkbox"/> COMPRESSED AIR <input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> HOSE BIBB <input checked="" type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input checked="" type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input checked="" type="checkbox"/> EMERGENCY POWER <input checked="" type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b> Accomodate owner-furnished lab equipment. Provide eyewash and meet specified ventilation requirements				

**GENERAL COMMENTS/REMARKS:**

**SPACE IDENTIFICATION**

ROOM NAME: **Operations**

**SPACE USE**

<b>PRIMARY ACTIVITIES:</b> Work space	<b>SECONDARY ACTIVITIES:</b>	<b>UTILIZATION</b> <input checked="" type="checkbox"/> 10 HRS / DAY <input type="checkbox"/> 24 HRS / DAY <input type="checkbox"/> OTHER	<b>ACCESS</b> <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> STAFF <input type="checkbox"/> SECURE	<b>SECURITY</b> <input type="checkbox"/> NO LOCK <input checked="" type="checkbox"/> KEY LOCK <input type="checkbox"/> KEYPAD <input type="checkbox"/> CARD KEY
<b>SPECIAL REQUIREMENTS:</b>				

**SPACE RELATIONSHIPS**

<b>ADJACENCIES:</b> Maintenance Shop, Library alcoves	<b>FLOOR LEVEL LOCATION</b> <input type="checkbox"/> FIRST <input type="checkbox"/> SECOND <input checked="" type="checkbox"/> NO PREFERENCE	<b>ISOLATION</b> SOUND: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO VISUAL: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>SPECIAL REQUIREMENTS:</b>		

**SPACE CHARACTERISTICS**

<b>FLOOR FINISH</b> <input type="checkbox"/> SEALED CONCRETE <input checked="" type="checkbox"/> POLISHED CONCRETE <input type="checkbox"/> CARPET <input type="checkbox"/> CARPET TILE <input type="checkbox"/> RESILIENT <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> RUBBER	<b>WALL FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> TACKABLE SURFACE <input type="checkbox"/> CERAMIC TILE <input type="checkbox"/> WALLCOVERING <input type="checkbox"/> WAINSCOT	<b>CEILING FINISH</b> <input type="checkbox"/> ACOUSTIC TILE <input checked="" type="checkbox"/> DRY WALL <input type="checkbox"/> EXPOSED <input type="checkbox"/> SKYLIGHT <input type="checkbox"/> OTHER	<b>CEILING HEIGHT</b> <input checked="" type="checkbox"/> 9'-0' <input type="checkbox"/> 12'-14' <input type="checkbox"/> OTHER	<b>GLAZING/WINDOW COVER</b> <input checked="" type="checkbox"/> TITLE 24 <input type="checkbox"/> TINTED <input checked="" type="checkbox"/> ROLLER SHADE <input type="checkbox"/> NO WINDOW <input type="checkbox"/> OTHER: <input type="checkbox"/> ONE-WAY GLASS	<b>SOUND/ACOUSTIC TREATMENT</b> <input type="checkbox"/> NONE <input checked="" type="checkbox"/> WALL INSULATION <input type="checkbox"/> CEILING INSULATION <input type="checkbox"/> INSULATED DOOR <input type="checkbox"/> OTHER
<b>DOOR</b> <input type="checkbox"/> WOOD <input checked="" type="checkbox"/> FIBERGLASS <input checked="" type="checkbox"/> FIBERGLASS FRAME <input type="checkbox"/> DOUBLE <input type="checkbox"/> FULL LITE <input type="checkbox"/> HALF LITE <input type="checkbox"/> SIDE LIGHT <input type="checkbox"/> OTHER	<b>DOOR FINISH</b> <input checked="" type="checkbox"/> PAINT <input type="checkbox"/> STAINED <input type="checkbox"/> LAMINATE	<b>CASEWORK FINISH</b> <input type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> PAINTED WOOD <input type="checkbox"/> STAINED WOOD <input type="checkbox"/> SOLID PHENOLIC	<b>CASEWORK TYPE</b> <input type="checkbox"/> BASE CABINET <input type="checkbox"/> UPPER CABINET <input type="checkbox"/> FULL HEIGHT CABINET <input type="checkbox"/> PANTRY <input type="checkbox"/> WARDROBE <input type="checkbox"/> EXPOSED SHELVING <input type="checkbox"/> LOCK <input type="checkbox"/> BUILT-IN <input checked="" type="checkbox"/> SYSTEM FURNISHING	<b>COUNTERTOPS</b> <input checked="" type="checkbox"/> PLASTIC LAMINATE <input type="checkbox"/> SOLID PHENOLIC <input type="checkbox"/> SOLID SURFACE POLYMER HEIGHT _____ DEPTH _____	<b>SPECIAL REQUIREMENTS:</b>

**MECHANICAL AND ELECTRICAL REQUIREMENTS**

<b>LIGHTING</b> <input checked="" type="checkbox"/> NATURAL LIGHT <input type="checkbox"/> TASK <input checked="" type="checkbox"/> DIMMER <input checked="" type="checkbox"/> GENERAL ROOM	<b>HVAC</b> <input type="checkbox"/> EXHAUST FAN <input type="checkbox"/> THERMOSTAT <input type="checkbox"/> OTHER	<b>PLUMBING</b> <input type="checkbox"/> COMPRESSED AIR <input type="checkbox"/> GAS <input type="checkbox"/> HOSE BIBB <input type="checkbox"/> SINK <input type="checkbox"/> DRINKING FOUNTAIN <input type="checkbox"/> OTHER	<b>ELECTRICAL POWER</b> <input type="checkbox"/> 120V DEDICATED OUTLET <input type="checkbox"/> EMERGENCY POWER <input type="checkbox"/> OTHER	<b>COMMUNICATION</b> <input checked="" type="checkbox"/> PHONE/DATA <input type="checkbox"/> VIDEO/CABLE <input type="checkbox"/> AUDIO SYSTEM <input type="checkbox"/> CCTV <input type="checkbox"/> OTHER:
<b>SPECIAL REQUIREMENTS:</b>				

GENERAL COMMENTS/REMARKS:

# Appendix H: Architectural Equipment and Furniture List



<b>OPERATIONS BUILDING</b>		
<b>Offices - Total 5 offices</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Computer Workstations	5	
Telephones	5	
<b>Furniture</b>		
Office Workstation Furniture	5	
Desk Chairs with arms	5	
Guest Chair without arms	5	
Lateral File Cabinet	5	
Bookcase	5	
<b>Control Room - Operations Center</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Control Workstations	3	
Computer Workstations	8	
Telephones	3	
50" Diagonal Wall-mounted Monitors	3	High quality/warranty for heavy use
<b>Furniture</b>		
Control Console	3	
Work Station Counters	8	
Desk Chairs with Arms	3	
Desk Chairs without Arms	8	
<b>Map Room</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Whiteboards	2	
<b>Furniture</b>		
Layout Tables	4	
Flat Files-Map Cases	6	Stacks of two
<b>Sample Storage</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Exposed Shelving	1	
<b>Furniture</b>		
No furniture		

<b>Training-Break Room</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Computer workstation	1	
Large Monitor	2	Good Quality for occasional use
Whiteboards	2	
Refrigerator	1	
Microwave Oven	2	
Telephone	1	

<b>Furniture</b>		
Listing and Description	Quantity	Notes
Tables	16	Two-person seminar tables
Chairs without arms	60	Stackable on dolly

<b>Table and Chair Storage</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Chair Storage Dolly	tbd	Qty. as needed for selected chairs
Table Storage Dolly	tbd	Qty. as needed for selected tables

<b>Furniture</b>		
No furniture		

<b>Conference Room</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
TV-Monitor	1	Good quality for occasional use
Whiteboards	2	

<b>Furniture</b>		
Conference Table	1	
Conference Chairs with arms	8	

<b>Copier-Work Alcove</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Printer-Copier-Fax	1	Shared by all occupants
Shredder	1	
Trash-Recycling Bins	2	

<b>Furniture</b>		
No furniture		

<b>Reception Area / Lobby</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
Computer Workstation	1	
Phone	1	

<b>Furniture</b>		
Workstation Furniture	1	
Desk Chair with arms	1	
Lobby Seating - Visitor Chairs	3	

<b>Men's Restroom</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
No equipment		

<b>Furniture</b>		
No furniture		

<b>Men's Shower + Locker Room</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
No equipment		

<b>Furniture</b>		
No furniture		

<b>Women's Restroom</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
No equipment		

<b>Furniture</b>		
No furniture		

<b>Women's Shower + Locker Room</b>		
<b>Equipment</b>		
Listing and Description	Quantity	Notes
No equipment		

<b>Furniture</b>		
No furniture		

On-Call Room		
Equipment		
Listing and Description	Quantity	Notes
Phones	1	

Furniture		
Bed w/ box spring mattress + frame	1	Extra-long twin
Night table	1	

Uniform Storage + Wash Room		
Equipment		
Listing and Description	Quantity	Notes
Washer	1	
Dryer	1	

Furniture		
No furniture		

Server Room		
Equipment		
Listing and Description	Quantity	Notes
Equipment Racks	tbd	
Radio system, alarm, CCTV	tbd	

Furniture		
No furniture		

Janitor-Mechanical Room		
Equipment		
Listing and Description	Quantity	Notes
Exposed Shelving	1	

Furniture		
No furniture		

Electrical Room		
Equipment		
Listing and Description	Quantity	Notes
No equipment		

Furniture		
No furniture		

**SHOP BUILDING**

**Shop and Storage**

Equipment		
Listing and Description	Quantity	Notes
Relocate Existing City Equipment		
Phone	1	

Furniture		
No furniture		

**I + C Workshop**

Equipment		
Listing and Description	Quantity	Notes
Relocate Existing City Equipment		
Phone	1	

Furniture		
No furniture		

**Bathroom**

Equipment		
Listing and Description	Quantity	Notes
No equipment		

Furniture		
No furniture		

**Lab**

Equipment		
Listing and Description	Quantity	Notes
Relocate Existing City Equipment		
Phone	1	

Furniture		
Relocate Existing City Furniture		

**Operations**

Equipment		
Listing and Description	Quantity	Notes
Relocate Existing City Equipment		
Phone	1	
Printer/Copier / Fax	1	Desktop all-in-one

Furniture		
Relocate Existing City Furniture		

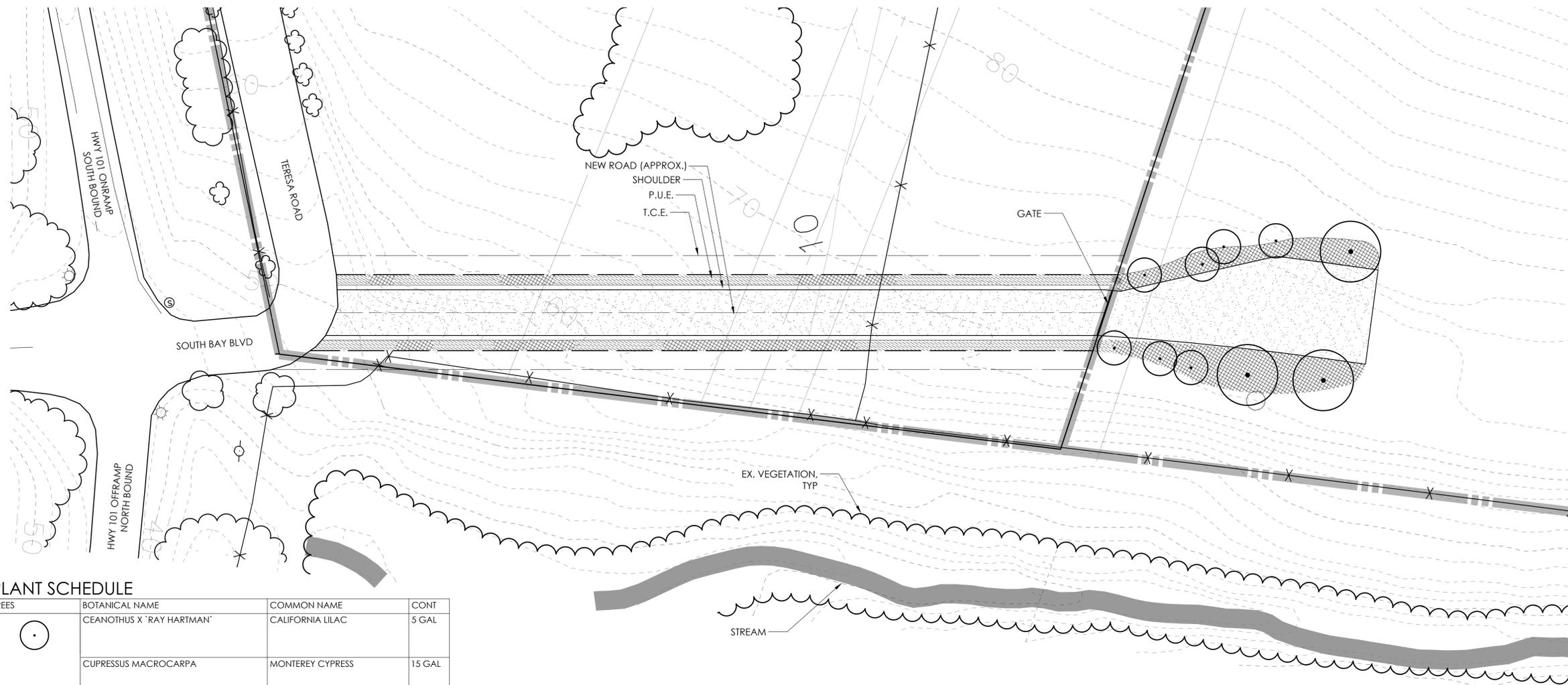


# Appendix I: Access Road Conceptual Landscape Plans



NOT FOR CONSTRUCTION

THE INCLUDED DRAWINGS, SPECIFICATIONS, DESIGN AND APPROPRIATE REPRESENTED THEREBY ARE AND SHALL REMAIN THE PROPERTY OF RRM DESIGN GROUP AND NO PART THEREOF SHALL BE COPIED, REPRODUCED, COPIED OR USED IN CONNECTION WITH ANY WORK OR PROJECT OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY HAVE BEEN PREPARED AND DEVELOPED HEREUNDER WITHOUT THE WRITTEN CONSENT OF RRM DESIGN GROUP. RRM DESIGN GROUP AND ITS EMPLOYEES OR REPRESENTATIVES SHALL CONTROL, CONCLUDE, ENFORCE OR ACCEPTANCE OF THESE REPRESENTATIONS, SUBMITTALS OF THESE DOCUMENTS FOR PUBLIC AGENCY REVIEW SHALL NOT BE CONSIDERED A WAIVER OF RRM DESIGN GROUP'S RIGHTS. RRM DESIGN GROUP COPYRIGHT 2018 RRM IS A CALIFORNIA CORPORATION



**PLANT SCHEDULE**

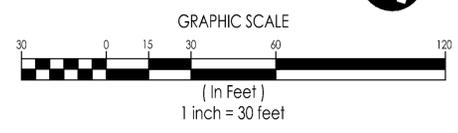
TREES	BOTANICAL NAME	COMMON NAME	CONT	
	CEANOTHUS X 'RAY HARTMAN'	CALIFORNIA LILAC	5 GAL	
	CUPRESSUS MACROCARPA	MONTEREY CYPRESS	15 GAL	
	METROSIDEROS EXCELSA	NEW ZEALAND CHRISTMAS TREE	15 GAL	
	PINUS RADIATA	MONTEREY PINE	15 GAL	
	QUERCUS AGRIFOLIA	COAST LIVE OAK	15 GAL	
SHRUBS 36-48" O.C.	BOTANICAL NAME	COMMON NAME	CONT	
	ARTEMISIA CALIFORNICA	CALIFORNIA SAGEBRUSH	1 GAL	
	CEANOTHUS GLORIOSUS 'HEART'S DESIRE'	HEART'S DESIRE LILAC	5 GAL	
	DIPLACUS AURANTIACUS	STICKY MONKEYFLOWER	1 GAL	
	ERIOGONUM GRANDE RUBESCENS	RED BUCKWHEAT	1 GAL	
	HESPEROYUCCA WHIPPLEI	CHAPARRAL YUCCA	5 GAL	
	SALVIA CLEVELANDII 'ALLEN CHICKERING'	CLEVELAND SAGE	5 GAL	
	SALVIA MELLIFERA	BLACK SAGE	1 GAL	
	TRICHOSTEMA LANATUM	WOOLLY BLUE CURLS	5 GAL	
	SHRUBS 60-72" O.C.	BOTANICAL NAME	COMMON NAME	CONT
		BACCHARIS PILULARIS CONSANGUINEA	COYOTE BRUSH	5 GAL
BACCHARIS PILULARIS 'PIGEON POINT'		DWARF COYOTE BRUSH	5 GAL	
HETEROMELES ARBUTIFOLIA		TOYON	5 GAL	
RHAMNUS CALIFORNICA		CALIFORNIA COFFEE BERRY	5 GAL	
RHUS INTEGRIFOLIA		LEMONADE BERRY	5 GAL	

STREAM

EX. VEGETATION, TYP

GATE

NEW ROAD (APPROX.)  
SHOULDER  
P.U.E.  
T.C.E.



**MORRO BAY WRF**  
MORRO BAY, CA

**LANDSCAPE CONCEPT PLAN**

NO.	REVISION	DATE
△		
△		
△		
△		
△		

PROJECT MANAGER  
CHRIS DUFOR  
DRAWN BY  
CD/CM  
CHECKED BY  
CD  
DATE  
**JANUARY 9, 2018**  
PROJECT NUMBER  
**0218-01-IN15**

SHEET  
**L-1**

N:\2018\0218-01-IN15\_Morro Bay WRF Program Management\Deliverables\Planning\Landscapes\0218-01\_LP\_Plan\_L-1\_Jan24\_2018\_4:27pm\_CBD\hour



Appendix J:  
Preliminary Geotechnical  
Baseline Report  
- Provided separately-



# Appendix K: Existing WWTP Lead Testing Report





September 4, 2010

Bruce Keogh  
Morro Bay Wastewater Treatment Facility  
160 Atascadero Road  
Morro Bay, CA 93442

**RE: Lead Building Inspection - Morro Bay Wastewater Treatment Facility, 160 Atascadero Road, Morro Bay, California**

## INTRODUCTION

This report presents the findings of West Coast Safety Consultants inspection for lead containing building materials at the Morro Bay Wastewater Treatment Facility located at 160 Atascadero Road, Morro Bay, California on August 28, 2010. The inspection was conducted for CAL-OSHA and EPA compliance in conjunction with the renovation of the structure. All accessible areas were visibly inspected and representative samples of suspect materials were obtained and analyzed. Samples were not collected from every painted surface, however samples were obtained which represent the majority of the painted surfaces inside and outside the buildings.

## LEAD SAMPLE ANALYSIS

Our survey involved a visual inspection of each structure and sample collection from painted surfaces and ceramic tile. There were 34 samples analyzed by Forensic Analytical Specialties using Flame Atomic Absorption in accordance with the Environmental Protection Agency (EPA) Method (3050B/7420) to identify lead content. Forensic Analytical Specialties, Incorporated is a laboratory which is certified to analyze for lead. They are accredited by the American Industrial Hygiene Association, the National Institute of Standards and Technology, and the California Department of Public Health (CDPH). Please note the attached laboratory report.

## LEAD FINDINGS

West Coast Safety Consultants visual inspection indicated the ceramic tile and painted surfaces inside and outside the building were generally intact, and in good condition, however flaking and peeling paint was observed in the following areas:

1. Administration and Boiler Building's exterior parapet cap.
2. Upper Head Works Building exterior equipment.
3. Old Chlorine Building exterior fascia boards.

Thirty (30) paint samples and four (4) ceramic tile samples were collected and analyzed for lead content. The results in parts per million (ppm) are as follows:

<u>Sample #</u>	<u>Location</u>	<u>Description</u>	<u>Lead Content</u>
MB-101	Administration Building Wall	Blue Paint	None Detected
MB-102	Administration Building Ceiling	White Paint	None Detected
MB-103	Administration Building Door	Brown Paint	1,400 ppm
MB-104	Administration Building Door Frame	Blue Paint	630 ppm
MB-105	Administration Building Door Frame	Beige Paint	3,300 ppm
MB-106	Administration Building Door	Blue Paint	7,300 ppm
MB-107	Admin. Building Roof Access Ladder	Beige Paint	870 ppm
MB-108	Administration Building Generator Stand	Beige Paint	4,400 ppm
MB-109	Administration Building Exterior Walls	Beige Paint	None Detected
MB-110	Administration Building Entryway Wall	Beige Tile	None Detected
MB-111	Administration Building Entryway Floor	Brown Tile	None Detected
MB-112	Administration Building Restroom Wall	Beige Tile	None Detected
MB-113	Administration Building Restroom Floor	Beige Tile	None Detected
MB-114	Administration Building Diesel Tank	Brown Paint	None Detected
MB-115	Administration Building Exterior Posts	Yellow Paint	150 ppm
MB-116	Interstage Building Interior Wall	Blue Paint	None Detected
MB-117	Interstage Building Interior Ceiling	White Paint	None Detected
MB-118	Interstage Building Door	Brown Paint	4,600 ppm
MB-119	Interstage Building Exterior Pipe	Grey Paint	None Detected
MB-120	Interstage Building Exterior Lamp Post	Grey Paint	None Detected
MB-121	Chlorine Disinfectant Stairway	Grey Paint	190 ppm
MB-122	Chlorine Disinfectant Pipe	Grey Paint	None Detected
MB-123	Boiler Building Door	Brown Paint	690 ppm

<u>Sample #</u>	<u>Location</u>	<u>Description</u>	<u>Lead Content</u>
MB-124	Boiler Building Exterior Wall	Beige Paint	None Detected
MB-125	Digester/Sludge Exterior Pipe	Grey Paint	230 ppm
MB-126	Digester/Sludge Exterior Pipe	Grey Paint	None Detected
MB-127	Upper Head Works Electrical Ceiling	White Paint	None Detected
MB-128	Upper Head Works Electrical Wall	Blue Paint	None Detected
MB-129	Lower Head Works Pipe	Grey Paint	None Detected
MB-130	Upper Head Works Exterior Hoist	Yellow Paint	72,000 ppm
MB-131	Upper Head Works Exterior Equipment	Grey Paint	90 ppm
MB-132	Collection Building Exterior Wall	White Paint	None Detected
MB-133	Old Chlorine Building Exterior Fascia	Beige Paint	150 ppm
MB-134	Old Chlorine Building Exterior I-Beam	Beige Paint	80 ppm

As a comparison, the EPA and CDPH consider a material to be lead based paint when it exceeds .5% or 5,000 ppm. In addition, the Consumer Product Safety Commission (CPSC) set a limit of .009% or 90 ppm of lead in paint for children's toys and CAL-OSHA regulates workers who disturb lead coated surfaces at any detectable lead level.

Lead based paint was detected on the blue painted metal door in the Administration Building and the yellow painted hoist located outside the Upper Headworks Building. The yellow painted hoist located in the Boiler Building and the Old Chlorine Building were not sampled and therefore should be assumed to contain lead in excess of 5,000 ppm. The paint on all of those surfaces was intact and in good condition. No lead hazards were detected on the inspection.

The remaining painted surfaces contained no lead or relatively low levels of lead in the paint. The painted metal doors throughout the facility contained 630 - 4,600 ppm lead. The grey painted pipe, equipment, light posts and stairways contained up to 230 ppm lead.

No lead was detected in the ceramic tile located in the Administration Building or the interior and exterior painted walls and ceilings on all of the buildings except the Old Chlorine Building which contained 80-150 ppm lead on the exterior painted surfaces.

Although the majority of painted surfaces are below the EPA and CDPH threshold of 5,000 ppm lead, the paint still contains levels of lead, which when disturbed, trigger compliance with the CAL-OSHA regulations. Contractors disturbing painted surfaces or ceramic tile should receive notification of the lead content and the condition of the painted surfaces prior to demolition, renovation, or any activity which would disturb the material. **All work should be conducted in compliance with the CAL-OSHA and EPA regulations.**

## CLOSURE

The findings and conclusions rendered in this report are based on the scope of work authorized by the client and laboratory analysis of building material samples collected during this inspection. This report does not reflect variations which may exist between sampling points. These variations can not be anticipated, nor could they be entirely accounted for even with exhaustive testing. All work has been performed in accordance with generally accepted practices in the field of lead consultation.

The conclusions and recommendations listed in this report are based on the requirements set forth in the Department of Housing and Urban Development Interim Guidelines for Lead-based Paint, 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), and Section 1532.1 the Lead Standard of the California Occupational Safety and Health Administration.

I have enclosed the required CDPH notification of a Lead Inspection, a sample location diagram, a laboratory report from Forensic Analytical and a copy of my lead credentials. If you have any questions, please contact me at 805-748-8832. Thank you for choosing West Coast Safety Consultants.

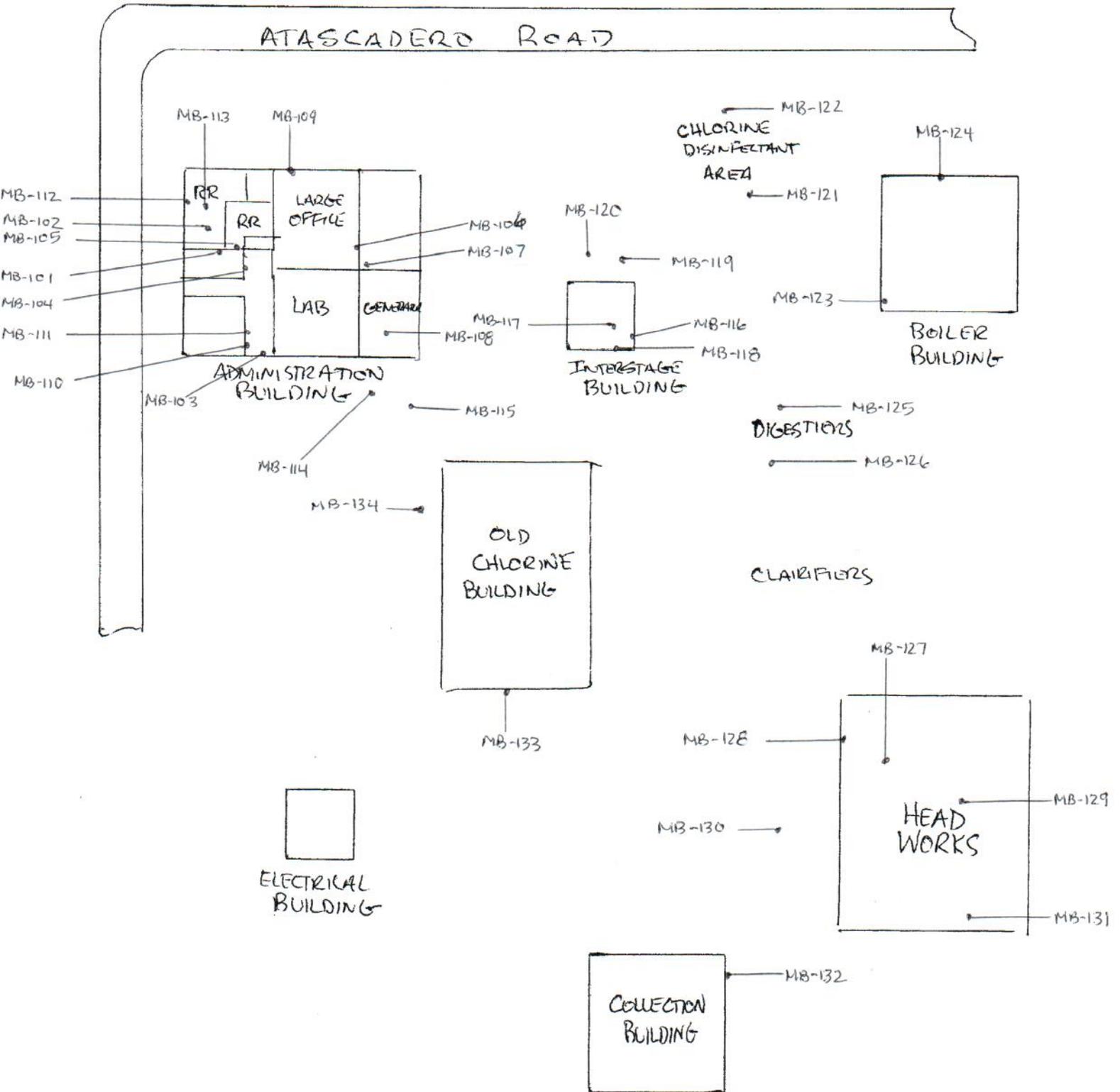
Sincerely,



Michael Mc Guire, CSP  
Lead-Related Construction Certificate #379

# SAMPLE LOCATION DIAGRAM

160 Atascadero Road  
Morro Bay, California



Client Name & Address: # 5318 West Coast Safety Consultants  
 4581 Wavertree,  
 San Luis Obispo, CA 93405

P.O. #: \_\_\_\_\_ Date: 8/28/10

Turn Around Time: \_\_\_\_\_ hr / 12hr / 24hr / 48 hr / ext: \_\_\_\_\_

Due Date: / / Due Time: : am/pm

PLM:  Standard /  Point Count  PCM: NIOSH 7400

TEM Air:  AHERA /  Yamate2 /  NIOSH 7402  
 TEM Bulk:  Quantitative /  Qualitative /  Chatfield  
 TEM Water:  Potable /  Non-Potable /  Wt %  
 TEM Microvac

Phone #: 805/544-5303 ext. \_\_\_\_\_  
 Fax #: 805/544-4623 \_\_\_\_\_

Site: 160 ATASCADERO RD., MORRO BAY  
 Job: CITY OF MORRO BAY

Matrix: PAINT  
 Analytes: LEAD

Comments: \_\_\_\_\_

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-101	8-28-10	ADMINISTRATION BLDG. WALL	BLUE PAINT	A P C			
MB-102		ADMINISTRATION BLDG. CEILING	WHITE PAINT	A P C			
MB-103		ADMINISTRATION DOOR	BROWN PAINT	A P C			
MB-104		ADMINISTRATION DOOR FRAME	BLUE PAINT	A P C			
MB-105		" "	BEIGE PAINT	A P C			
MB-106		ADMINISTRATION BLDG. DOOR	BLUE PAINT	A P C			
MB-107		ADMINISTRATION BLDG. LADDER	BEIGE PAINT	A P C			
MB-108		ADMINISTRATION GENERATOR	BEIGE PAINT	A P C			
MB-109		ADMINISTRATION EXTERIOR	BEIGE PAINT	A P C			
MB-114		ADMINISTRATION DIESEL TANK	BROWN PAINT	A P C			

Sampled by: M. McGuire Date: 8/28/10 Time: 8:00 AM

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: [Signature] Date/Time: 8-28-10 @ 7:30 PM

Received by: Betty Fedex Date/Time: 8/31/10 10:30 AM

Condition Acceptable?  Yes  No



Client Name & Address:		P.O. #:	Date: / /
# 5318	West Coast Safety Consultants	Turn Around Time: _____ hr/ 12hr / 24hr / 48 hr / ext: _____	
4531 Wavertree,		Due Date: / /	Due Time: : _____ am/pm
San Luis Obispo, CA 93405		<input type="checkbox"/> PLM; <input type="checkbox"/> Standard / <input type="checkbox"/> Point Count <input type="checkbox"/> PCM: NIOSH 7400	
Contact:	Michael McGuire	<input type="checkbox"/> TEM Air; <input type="checkbox"/> AHERA / <input type="checkbox"/> Yamate2 / <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> TEM Bulk; <input type="checkbox"/> Quantitative / <input type="checkbox"/> Qualitative / <input type="checkbox"/> Chatfield <input type="checkbox"/> TEM Water; <input type="checkbox"/> Potable / <input type="checkbox"/> Non-Potable / <input type="checkbox"/> Wt % <input type="checkbox"/> TEM Microvac	
Phone #:	805/544-5303 ext.	<input type="checkbox"/> Special Project:	
Fax #:	805/544-4623	<input type="checkbox"/> Metals Analysis: Method _____	
Site:		Matrix: _____	
Job:		Analytes: _____	

Comments:

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-115	8-25-10	ADMINISTRATION EXT. POSTS / YELLOW PAINT	A P C				
MB-116		INTERSTAGE WALL / BLUE PAINT	A P C				
MB-117		INTERSTAGE CEILING / WHITE PAINT	A P C				
MB-118		INTERSTAGE DOOR / BROWN PAINT	A P C				
MB-119		INTERSTAGE EXT. PIPE / GREY PAINT	A P C				
MB-120		INTERSTAGE LIGHT POST / DARK GREY PAINT	A P C				
MB-121		CHLORINE DISINFECTANT STAIR / GREY PAINT	A P C				
MB-122		CHLORINE APE DISINFECTANT / GREY PAINT	A P C				
MB-123		BOILER BLDG DOOR / BROWN PAINT	A P C				
MB-124		BOILER BLDG EXTERIOR / BEIGE PAINT	A P C				

Sampled by: \_\_\_\_\_ Date: / / Time: :

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: <i>MAG</i>	Relinquished by:	Relinquished by:
Date / Time: 8-28-10 @ 7:30am	Date / Time:	Date / Time:
Received by: <i>Betty Fick</i>	Received by:	Received by:
Date / Time: 8/31/10 10:30am	Date / Time:	Date / Time:
Condition Acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No



Client Name & Address:		P.O. #:	Date: / /
# 5313	West Coast Safety Consultants	Turn Around Time: ___ hr / 12hr / 24hr / 48 hr / ext: ___	
4581 Wavertree,		Due Date: / /	Due Time: : am/pm
San Luis Obispo, CA 93405		<input type="checkbox"/> PLM: <input type="checkbox"/> Standard / <input type="checkbox"/> Point Count <input type="checkbox"/> PCM: NIOSH 7400	
Contact:	Michael McGuire	<input type="checkbox"/> TEM Air: <input type="checkbox"/> AHERA / <input type="checkbox"/> Yamate2 / <input type="checkbox"/> NIOSH 7402	
Phone #:	805/544-5303 ext.	<input type="checkbox"/> TEM Bulk: <input type="checkbox"/> Quantitative / <input type="checkbox"/> Qualitative / <input type="checkbox"/> Charfield	
Fax #:	805/544-4623	<input type="checkbox"/> TEM Water: <input type="checkbox"/> Potable / <input type="checkbox"/> Non-Potable / <input type="checkbox"/> Wt %	
Site:		<input type="checkbox"/> TEM Microvac	
Job:		<input type="checkbox"/> Special Project:	
Comments:		<input type="checkbox"/> Metals Analysis: Method _____	
		Matrix: _____	
		Analytes: _____	

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-125	8-28-10	DIGESTER SLUDGE PIPE / GREY PAINT	A P C				
MB-126			A P C				
MB-127		UPPER HEADWORKS / WHITE PAINT CEILING	A P C				
MB-128		UPPER HEADWORKS / BLUE PAINT WALL	A P C				
MB-129		LOWER HEADWORKS / GREY PAINT PIPE	A P C				
MB-130		HEADWORKS / YELLOW PAINT HOIST	A P C				
MB-131		HEADWORKS / GREY PAINT EXT. EQUIPMENT	A P C				
MB-132		COLLECTION / WHITE PAINT BLDG. EXT. WALL	A P C				
MB-133		OLD CHLORINE / BEIGE PAINT EXT. <del>PIPE</del> PASCIA	A P C				
MB-134		OLD CHLORINE /    I-BEAM	A P C				

Sampled by: \_\_\_\_\_ Date: / / Time: :

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: <i>MAN</i>	Relinquished by:	Relinquished by:
Date / Time: 8-28-10 @ 7:30pm	Date / Time:	Date / Time:
Received by: <i>Betty Redt</i>	Received by:	Received by:
Date / Time: 8/31/10 1:30pm	Date / Time:	Date / Time:
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No

Client Name & Address: # 5318 West Coast Safety Consultants 4581 Wavertree, San Luis Obispo, CA 93405		P.O. #:	Date: 8/28/10
Contact: Michael McGuire		Turn Around Time: _____ hr/ 12hr / 24hr (48) hr / ext: _____	Due Date: / / Due Time: : am/pm
Phone #: 805/544-5303 ext.		<input type="checkbox"/> PLM: <input type="checkbox"/> Standard / <input type="checkbox"/> Point Count <input type="checkbox"/> PCM: NIOSH 7400	
Fax #: 805/544-4623		<input type="checkbox"/> TEM Air: <input type="checkbox"/> AHERA / <input type="checkbox"/> Yamata2 / <input type="checkbox"/> NIOSH 7402	
Site: 160 ATASCADERO RD., MORRO BAY		<input type="checkbox"/> TEM Bulk: <input type="checkbox"/> Quantitative / <input type="checkbox"/> Qualitative / <input type="checkbox"/> Chatfield	
Job: CITY OF MORRO BAY		<input type="checkbox"/> TEM Water: <input type="checkbox"/> Potable / <input type="checkbox"/> Non-Potable / <input type="checkbox"/> Wt %	
		<input type="checkbox"/> TEM Microvac	
		<input type="checkbox"/> Special Project:	
		<input checked="" type="checkbox"/> Metals Analysis: Method	
		Matrix: CERAMIC TILE	
		Analytes: LEAD	

Comments:

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-110	8-28-10	ADMINISTRATION ENTRYWAY WALL CERAMIC TILE	A P C				
MB-111		ADMINISTRATION ENTRYWAY FLOOR //	A P C				
MB-112		ADMINISTRATION RR WALL //	A P C				
MB-113		ADMINISTRATION RR FLOOR //	A P C				
			A P C				
			A P C				
			A P C				
			A P C				
			A P C				

Sampled by: M. McGuire Date: 8/28/10 Time: 8:00 AM

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: M. McGuire	Relinquished by:	Relinquished by:
Date / Time: 8-28-10 @ 7:30 PM	Date / Time:	Date / Time:
Received by: Betty Feck	Received by:	Received by:
Date / Time: 8/31/10 1:30 PM	Date / Time:	Date / Time:
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No



# Metals Analysis of Paints

West Coast Safety Consultants  
Michael McGuire

4581 Wavertree  
San Luis Obispo, CA 93405

**Client ID:** 5318  
**Report Number:** M113417  
**Date Received:** 08/31/10  
**Date Analyzed:** 09/02/10  
**Date Printed:** 09/02/10  
**First Reported:** 09/02/10

**Job ID / Site:** City of Morro Bay, 160 Atascadero Rd., Morro Bay  
**Date(s) Collected:** 08/28/10

**FALI Job ID:** 5318  
**Total Samples Submitted:** 30  
**Total Samples Analyzed:** 30

Sample Number	Lab Number	Analyte	Result	Result Units	Reporting Limit*	Method Reference
MB-101	30383111	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-102	30383112	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-103	30383113	Pb	0.14	wt%	0.006	EPA 3050B/7420
MB-104	30383114	Pb	0.063	wt%	0.006	EPA 3050B/7420
MB-105	30383115	Pb	0.33	wt%	0.02	EPA 3050B/7420
MB-106	30383116	Pb	0.73	wt%	0.03	EPA 3050B/7420
MB-107	30383117	Pb	0.087	wt%	0.006	EPA 3050B/7420
MB-108	30383118	Pb	0.44	wt%	0.02	EPA 3050B/7420
MB-109	30383119	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-114	30383120	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-115	30383121	Pb	0.015	wt%	0.006	EPA 3050B/7420
MB-116	30383122	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-117	30383123	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-118	30383124	Pb	0.46	wt%	0.02	EPA 3050B/7420
MB-119	30383125	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-120	30383126	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-121	30383127	Pb	0.019	wt%	0.006	EPA 3050B/7420
MB-122	30383128	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-123	30383129	Pb	0.069	wt%	0.006	EPA 3050B/7420
MB-124	30383130	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-125	30383131	Pb	0.023	wt%	0.006	EPA 3050B/7420
MB-126	30383132	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-127	30383133	Pb	< 0.007	wt%	0.007	EPA 3050B/7420
MB-128	30383134	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-129	30383135	Pb	< 0.006	wt%	0.006	EPA 3050B/7420
MB-130	30383136	Pb	7.2	wt%	0.3	EPA 3050B/7420
MB-131	30383137	Pb	0.009	wt%	0.006	EPA 3050B/7420



# Metals Analysis of Paints

West Coast Safety Consultants  
Michael McGuire

4581 Wavertree  
San Luis Obispo, CA 93405

**Client ID:** 5318  
**Report Number:** M113417  
**Date Received:** 08/31/10  
**Date Analyzed:** 09/02/10  
**Date Printed:** 09/02/10  
**First Reported:** 09/02/10

**Job ID / Site:** City of Morro Bay, 160 Atascadero Rd., Morro Bay  
**Date(s) Collected:** 08/28/10

**FALI Job ID:** 5318  
**Total Samples Submitted:** 30  
**Total Samples Analyzed:** 30

Sample Number	Lab Number	Analyte	Result	Result Units	Reporting Limit*	Method Reference
MB-132	30383138	Pb	< 0.02	wt%	0.02	EPA 3050B/7420
MB-133	30383139	Pb	0.015	wt%	0.006	EPA 3050B/7420
MB-134	30383140	Pb	0.008	wt%	0.006	EPA 3050B/7420

\* The Reporting Limit represents the lowest amount of analyte that the laboratory can confidently detect in the sample, and is not a regulatory level. The Units for the Reporting Limit are the same as the Units for the Final Results.

Dave Sandusky, CIH, Laboratory Supervisor, Hayward Laboratory

Analytical results and reports are generated by Forensic Analytical at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by Forensic Analytical to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by Forensic Analytical. The client is solely responsible for the use and interpretation of test results and reports requested from Forensic Analytical. Forensic Analytical is not able to assess the degree of hazard resulting from materials analyzed. Forensic Analytical reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Any modifications that have been made to referenced test methods are documented in Forensic Analytical's Standard Operating Procedures Manual. Sample results have not been blank corrected. Quality control and sample receipt condition were acceptable unless otherwise noted.



# Metals Analysis of Bulks

West Coast Safety Consultants  
Michael McGuire

4581 Wavertree  
San Luis Obispo, CA 93405

**Client ID:** 5318  
**Report Number:** M113418  
**Date Received:** 08/31/10  
**Date Analyzed:** 09/01/10  
**Date Printed:** 09/01/10  
**First Reported:** 09/01/10

**Job ID / Site:** City of Morro Bay, 160 Atascadero Rd., Morro Bay  
**Date(s) Collected:** 08/28/10

**FALI Job ID:** 5318  
**Total Samples Submitted:** 4  
**Total Samples Analyzed:** 4

Sample Number	Lab Number	Analyte	Result	Result Units	Reporting Limit*	Method Reference
MB-110	30383141	Pb	< 7	mg/kg	7	EPA 3050B/7420
MB-111	30383142	Pb	< 7	mg/kg	7	EPA 3050B/7420
MB-112	30383143	Pb	< 6	mg/kg	6	EPA 3050B/7420
MB-113	30383144	Pb	< 8	mg/kg	8	EPA 3050B/7420

\* The Reporting Limit represents the lowest amount of analyte that the laboratory can confidently detect in the sample, and is not a regulatory level. The Units for the Reporting Limit are the same as the Units for the Final Results.

Dave Sandusky, CIH, Laboratory Supervisor, Hayward Laboratory

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## LEAD HAZARD EVALUATION REPORT

**Section 1 – Date of Lead Hazard Evaluation** 8-28-10

**Section 2 – Type of Lead Hazard Evaluation (Check one box only)**

Lead Inspection     Risk assessment     Clearance Inspection     Other (specify) \_\_\_\_\_

**Section 3 – Structure Where Lead Hazard Evaluation Was Conducted**

Address [number, street, apartment (if applicable)] <u>160 ATASCADERO ROAD</u>		City <u>MORRO BAY</u>	County <u>SAN LUIS OBISPO</u>	Zip Code <u>93442</u>
Construction date (year) of structure <u>UNKNOWN</u>	Type of structure <input type="checkbox"/> Multi-unit building <input type="checkbox"/> School or daycare <input type="checkbox"/> Single family dwelling <input checked="" type="checkbox"/> Other <u>WASTEWATER TREATMENT</u>		Children living in structure? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Don't Know	

**Section 4 – Owner of Structure (if business/agency, list contact person)**

Name <u>CITY OF MORRO BAY - BRUCE KEOGH</u>		Telephone number <u>805-704-3647</u>		
Address [number, street, apartment (if applicable)] <u>160 ATASCADERO ROAD</u>		City <u>MORRO BAY</u>	State <u>CA</u>	Zip Code <u>93442</u>

**Section 5 – Results of Lead Hazard Evaluation (check all that apply)**

No lead-based paint detected     Intact lead-based paint detected     Deteriorated lead-based paint detected  
 No lead hazards detected     Lead-contaminated dust found     Lead-contaminated soil found     Other \_\_\_\_\_

**Section 6 – Individual Conducting Lead Hazard Evaluation**

Name <u>MIKE MCGUIRE</u>		Telephone number <u>805-544-5303</u>		
Address [number, street, apartment (if applicable)] <u>4581 WAVERSTREE</u>		City <u>SAN LUIS OBISPO</u>	State <u>CA</u>	Zip Code <u>93401</u>
CDPH certification number <u>379</u>	Signature <u>M. McGuire</u>			Date <u>9-6-10</u>

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

**Section 7 – Attachments**

- A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;
- B. Each testing method, device, and sampling procedure used;
- C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector  
 Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:  
 California Department of Public Health  
 Childhood Lead Poisoning Prevention Branch Reports  
 850 Marina Bay Parkway, Building P, Third Floor  
 Richmond, CA 94804-6403  
 Fax: (510) 620-5656

State of California Department of Public Health

Lead-Related  
Construction  
Certificate

Certificate  
Type

Expiration  
Date

<b>Inspector/Assessor</b>	<b>10/07/2010</b>
<b>Project Designer</b>	<b>10/07/2010</b>
<b>Project Monitor</b>	<b>10/07/2010</b>



**Michael L. McGuire**

ID #: **379**

# Appendix L: Existing WWTP Asbestos Testing Report





September 2, 2010

Bruce Keogh  
Morro Bay Wastewater Treatment Facility  
160 Atascadero Road  
Morro Bay, CA 93442

**RE: Asbestos Building Inspection - Morro Bay Wastewater Treatment Facility, 160 Atascadero Road, Morro Bay, California**

## INTRODUCTION

This report presents the findings of West Coast Safety Consultants inspection for asbestos containing building materials at the Morro Bay Wastewater Treatment Facility, 160 Atascadero Road, Morro Bay, California on August 28, 2010. All accessible areas were visibly inspected and samples of suspect material were obtained and analyzed.

Our survey involved sampling and analyzing suspect materials to test for the presence of asbestos. A detailed description of the work is outlined below.

1. Inspected all accessible areas of the building for Category I Non-friable, Category II Non-friable, and other Regulated Asbestos Containing Materials. Samples were collected recording:
  - a. Sample location
  - b. Sample description
  - c. Friability
  - d. Condition of the material
  - e. Potential for disturbance
  
2. Submitted samples to an EPA accredited laboratory which will provide a report containing the following:
  - a. West Coast Safety Consultants sample identification number
  - b. Laboratory sample identification number
  - c. Analytical technique
  - d. Quality control procedures
  - e. Type and percentage of asbestos in each material

3. Analyzed the sample results and generated this report which includes:
  - a. Definitions
  - b. Executive Summary
  - c. Findings
  - d. Conclusions and Recommendations
  - e. Sample Result Summary (Appendix A)
  - f. Sample Location Diagram (Appendix B)
  - g. Laboratory Report (Appendix C)
  - h. Inspectors Credentials (Appendix D)

## **DEFINITIONS**

### **Asbestos**

Types of asbestos include chrysotile, amosite, crocidolite, tremolite, anthophyllite, actinolite and any of these minerals that have been chemically treated and/or altered.

### **Asbestos Containing Material (ACM)**

Means any material containing more than one percent asbestos.

### **Category I Non-friable ACM**

Asbestos containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM).

### **Category II Non-friable ACM**

Any non-friable material, excluding Category I Non-friable ACM, containing more than 1% asbestos as determined using PLM.

### **Friable ACM**

Any material containing more than 1% asbestos as determined using PLM that when dry can be crumbled, pulverized, or reduced to powder by hand pressure.

### **NESHAPS**

The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).

### **Regulated Asbestos Containing Material (RACM)**

Any material containing more than 1% asbestos which is:

- a. Friable or;
- b. Category I Non-friable ACM that has become friable or;
- c. Category I Non-friable ACM that will be or has been subjected to sanding, grinding, cutting, abrading or;
- d. Category II ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to a powder by the forces expected to act on the material in the course of demolition.

## EXECUTIVE SUMMARY

### **MATERIALS WHICH CONTAIN ASBESTOS:**

**Floor Tile** located in the administration building contains a trace (less than 1%) chrysotile asbestos.

**Tar** located around the roof penetrations and patches on all of the buildings contain 5% chrysotile asbestos.

**Transite Panels** located in the fume hood in the administration building contain 20% chrysotile asbestos.

### **SUSPECT MATERIALS WHICH NO ASBESTOS WAS DETECTED:**

**Baseboard Mastic** located in administration building was sampled and no asbestos was detected.

**Plaster** located on the interior walls in the administration building was sampled and no asbestos was detected in any of the samples.

**Drywall/Joint Compound** located in the attic area of the administration building and the boiler building restroom was sampled and no asbestos was detected in any of the samples.

**Drop-in Ceiling Panel** located in the administration building was sampled and no asbestos was detected.

**Rolled Shingle/Tar and Felt Roofing Materials** located on all of the buildings was sampled and no asbestos was detected in any of the samples.

**Putty** located on the roof parapet of the administration building was sampled and no asbestos was detected.

**Pipe Gaskets** located throughout the facility were sampled and no asbestos was detected in any of the samples.

**Stucco** located on the exterior walls of the administration building and the boiler building was sampled and no asbestos was detected in any of the samples.

## FINDINGS

West Coast Safety Consultants collected samples of each suspect asbestos containing building material (ACBM) encountered at the specific site location. The Environmental Protection Agency (EPA) sampling protocol was utilized which requires multiple samples of suspect asbestos containing materials which are applied by spraying or troweling. A total of 34 samples were submitted to Forensic Analytical Services, Inc., an EPA accredited laboratory for analytical testing. Laboratory results are found in appendix C of this report. The asbestos samples were analyzed for the presence of asbestos by Polarized Light Microscopy (PLM) with dispersion staining in accordance with the EPA Method 600/R-93-116, Visual Area Estimation.

Of the 34 samples that were analyzed for asbestos, four (4) were found to contain asbestos. The location of these samples, their description, and our recommended solution to mitigate any potential hazards emanating from contact with these materials is as follows:

**Sample Number:** MB-01

**Sample Description:** Floor Tile/Mastic

**Location of Material:** Throughout Administration Building

**Quantity of Material:** Approximately 600 Square Feet

**Type and % Asbestos:** Trace (<1%) Chrysotile (In Floor Tile Only)

**NESHAP Classification:** Not regulated because the material contains less than 1% asbestos.

**Overall Condition:** The material is intact and in good condition.

**Disturbance Potential:** Slight, because the material is very resilient.

**Recommended Response:** This material should be maintained in good condition and removed prior to demolition, renovation, or any activity which would disturb the material by an asbestos abatement contractor that is licensed by the State of California. Do not sand, cut, saw or abrade the material.

**Inspectors Note:** The County Air Pollution Control District requires additional sample analysis to verify sample results which are less than 1% asbestos. If additional analysis is not conducted, the floor tile should be assumed to contain greater than 1% asbestos and classified as a Category I Non-friable Asbestos Containing Material.

**Sample Number:** MB-10

**Material Description:** Transite Panel

**Location of Material:** Administration Building Fume Hood

**Quantity of Material:** Approximately 15 Square Feet

**Type and % Asbestos:** 20% Chrysotile

**NESHAP Classification:** Category II Non-Friable Asbestos Containing Material

**Overall Condition:** The material was intact and in good condition.

**Disturbance Potential:** Slight, because the material itself is very resilient.

**Recommended Response:** This material should be maintained in good condition and removed prior to demolition, renovation, or any other activity which would disturb the material by an asbestos abatement contractor that is licensed by the State of California. Do not sand, saw, or abrade the material.

<b>Sample Number:</b>	MB-17, MB-28
<b>Sample Description:</b>	Tar
<b>Location of Material:</b>	All Buildings Roof Penetrations and Patches
<b>Quantity of Material:</b>	Approximately 30 Square Feet
<b>Type and % Asbestos:</b>	5% Chrysotile
<b>NESHAP Classification:</b>	Category I Non-Friable Asbestos Containing Material
<b>Overall Condition:</b>	The material was intact and in good condition.
<b>Disturbance Potential:</b>	Slight, because the material itself is very resilient.
<b>Recommended Response:</b>	The material should be maintained in good condition and removed prior to demolition, renovation, or any other activity which would disturb the material by an asbestos abatement contractor that is licensed by the State of California. Do not sand, saw, or abrade the material.
<b>Inspectors Note:</b>	In several areas the tar tested negative for asbestos, however the two positive sample results require us to treat all the tar located around the roof penetrations and patches as asbestos containing material until additional sampling proves otherwise.

## **CONCLUSIONS AND RECOMMENDATIONS**

The asbestos containing materials identified in this report are intact and in good condition. Intact and undisturbed asbestos containing building materials do not pose a health risk to the building occupants. Disturbing the material improperly however, could expose the building occupants to airborne asbestos fibers. West Coast Safety Consultants recommends all the asbestos containing materials identified in this report be maintained in their current condition and be removed prior to demolition, renovation or any activity which could disturb those materials by an asbestos abatement contractor licensed by the State of California. If additional suspect materials are discovered during demolition or renovation activities, the material should be assumed to contain asbestos until sampling proves otherwise.

Estimated quantities of asbestos containing material identified in this report are intended as estimates only. Prior to removal of asbestos containing materials, West Coast Safety Consultants recommends the contractor make a thorough site investigation to independently ascertain the actual quantities prior to submitting a price quote.

These conclusions and recommendations are based on the requirements set forth in 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), and Title 8, Chapter 4, Paragraph 1529, the Asbestos Standard of the California Occupational Safety and Health Administration.

## **CLOSURE**

The findings and conclusions rendered in this report are opinions based on the scope of work authorized by the client and laboratory analysis of building material samples collected during this inspection. This report does not reflect variations which may exist between sampling points. These variations can not be anticipated, nor could they be entirely accounted for, in spite of exhaustive additional testing. Our work has been performed in accordance with generally accepted practices in the field of asbestos consultation. No other warranty, either expressed or implied is made.

Although every effort is made to identify all the asbestos containing materials in a building, it is possible for asbestos containing materials which are located under sub-floors, behind walls or otherwise hidden from view to go undetected until demolition or renovation activities uncover the material. If additional suspect materials are discovered, West Coast Safety Consultants will collect samples and provide a report for no additional cost other than the laboratory fee for sample analysis.

The County Air Pollution Control District requires additional sample analysis to verify sample results which are less than 1% asbestos. If additional analysis is not conducted, the material should be assumed to contain greater than 1% asbestos. Please notify West Coast Safety Consultants with-in three weeks of receiving this report if you require additional sample analysis. An additional laboratory fee of \$120 will be charged for each sample analyzed by the Point Count Method.

Enclosed with this report are copies of my credentials and a laboratory report from Forensic Analytical Services. We appreciate this opportunity to be of service. Should you have any questions or comments regarding this report, please contact this office at your convenience.

West Coast Safety Consultants,

A handwritten signature in black ink, appearing to read "M. Mc Guire". The signature is stylized and cursive.

Michael Mc Guire, CSP  
Certified Asbestos Consultant (#92-0534)

## **ASBESTOS SAMPLE RESULT SUMMARY**

<b><u>Sample #</u></b>	<b><u>Material</u></b>	<b><u>Location</u></b>	<b><u>Asbestos Content</u></b>
MB-01	Floor Tile	Administration Building	Trace (<1%) Chrysotile
MB-02	Baseboard Mastic	Administration Building	None Detected
MB-03	Plaster	Administration Building Wall	None Detected
MB-04	Plaster	Administration Building Wall	None Detected
MB-05	Plaster	Administration Building Wall	None Detected
MB-06	Drywall/Joint Compound	Administration Building Attic	None Detected
MB-07	Drywall/Joint Compound	Administration Building Attic	None Detected
MB-08	Drywall/Joint Compound	Administration Building Attic	None Detected
MB-09	Drop-in Ceiling Panel	Administration Building	None Detected
MB-10	Transite Panel	Admin. Building Fume Hood	20% Chrysotile
MB-11	Tar and Felt	Administration Building Roof	None Detected
MB-12	Rolled Shingle	Administration Building Roof	None Detected
MB-13	Tar	Administration Building Roof	None Detected
MB-14	Tar	Administration Building Roof	None Detected
MB-15	Putty	Admin. Bldg. Roof Parapet	None Detected
MB-16	Tar and Felt	Interstage Building Roof	None Detected
MB-17	Tar	Interstage Bldg. Roof Penetration	5% Chrysotile
MB-18	Pipe Gasket	Interstage Building Exterior	None Detected
MB-19	Pipe Gasket	Chlorine Disinfectant Area	None Detected
MB-20	Tar and Felt	Boiler Building Roof	None Detected
MB-21	Rolled Shingle	Boiler Building Roof	None Detected
MB-22	Tar	Boiler Building Roof Penetration	None Detected
MB-23	Drywall/Joint Compound	Boiler Building Restroom	None Detected
MB-24	Pipe Gasket	Digester/Sludge Area	None Detected

<b><u>Sample #</u></b>	<b><u>Material</u></b>	<b><u>Location</u></b>	<b><u>Asbestos Content</u></b>
MB-25	Pipe Gasket	Digester/Sludge Area	None Detected
MB-26	Tar and Felt	Headworks Building Roof	None Detected
MB-27	Tar and Felt	Old Chlorine Building Roof	None Detected
MB-28	Tar	Old Chlorine Bldg. Roof Penet.	5% Chrysotile
MB-29	Stucco	Administration Building Exterior	None Detected
MB-30	Stucco	Administration Building Exterior	None Detected
MB-31	Stucco	Administration Building Exterior	None Detected
MB-32	Stucco	Boiler Building Exterior	None Detected
MB-33	Stucco	Boiler Building Exterior	None Detected
MB-34	Stucco	Boiler Building Exterior	None Detected



Client Name & Address: # 5318 West Coast Safety Consultants  
4581 Wavertree,  
San Luis Obispo, CA 93405

P.O. #: \_\_\_\_\_ Date: 8/28/10

Turn Around Time: \_\_\_\_\_ hr/ 12hr / 24hr / 48 hr / ext: \_\_\_\_\_

Due Date: / / Due Time: : am/pm

PLM:  Standard /  Point Count  PCM: NIOSH 7400

Contact: Michael McGuire  TEM Air:  AHERA /  Yamate2 /  NIOSH 7402

Phone #: 805/544-5303 ext.  TEM Bulk:  Quantitative /  Qualitative /  Chatfield

Fax #: 805/544-4623  TEM Water:  Potable /  Non-Potable /  Wt %

Site: 160 ATASCADERO RD., MORROBAY  TEM Microvac

Job: CITY OF MB  Special Project: \_\_\_\_\_

Metals Analysis: Method \_\_\_\_\_

Matrix: \_\_\_\_\_

Analytes: \_\_\_\_\_

Comments:

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-01	8-28-10	ADMINISTRATION / FLOOR TILE	A P C				
MB-02		ADMINISTRATION BASE BOARD MASTIC	A P C				
MB-03		ADMINISTRATION WALL PLASTER	A P C				
MB-04		// //	A P C				
MB-05		// //	A P C				
MB-06		// DRYWALL JOINT COMPOUND	A P C				
MB-07		// //	A P C				
MB-08		// //	A P C				
MB-09		ADMINISTRATION / DROP-IN CEILING PANEL	A P C				
MB-10		ADMINISTRATION / TRANSITE FUME HOOD PANEL	A P C				

Sampled by: M. McGuire Date: 8/28/10 Time: 8:00 AM

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: M. McGuire	Relinquished by:	Relinquished by:
Date / Time: 8-28-10 7:00 PM	Date / Time:	Date / Time:
Received by: Betty Feels	Received by:	Received by:
Date / Time: 8/31/10 10:30 am	Date / Time:	Date / Time:
Condition Acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No



# Forensic Analytical

# Analysis Request Form

Client Name & Address:		P.O. #:	Date: / /
# 5318	West Coast Safety Consultants	Turn Around Time: _____ hr/ 12hr / 24hr / 48 hr / ext: _____	
4581 Wavertree,		Due Date: / /	Due Time: _____ : _____ am/pm
San Luis Obispo, CA 93405		<input type="checkbox"/> PLM: <input type="checkbox"/> Standard / <input type="checkbox"/> Point Count <input type="checkbox"/> PCM: NIOSH 7400	
Contact:	Michael McGuire	<input type="checkbox"/> TEM Air: <input type="checkbox"/> AHERA / <input type="checkbox"/> Yamate2 / <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> TEM Bulk: <input type="checkbox"/> Quantitative / <input type="checkbox"/> Qualitative / <input type="checkbox"/> Chatfield <input type="checkbox"/> TEM Water: <input type="checkbox"/> Potable / <input type="checkbox"/> Non-Potable / <input type="checkbox"/> Wt % <input type="checkbox"/> TEM Microvac	
Phone #:	805/544-5303 ext.	<input type="checkbox"/> Special Project:	
Fax #:	805/544-4623	<input type="checkbox"/> Metals Analysis: Method _____	
Site:		Matrix: _____	
Job:		Analytes: _____	

### Comments:

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-11	8-28-10	ADMINISTRATION / TAR & FELT ROOF	A P C				
MB-12		" / ROLLED SHINGLE	A P C				
MB-13		" / TAR	A P C				
MB-14		" / "	A P C				
MB-15		" / PUTTY	A P C				
MB-16		INTERSTAGE / TAR & FELT ROOF	A P C				
MB-17		" / TAR	A P C				
MB-18		INTERSTAGE / GASKET EXT. PIPE	A P C				
MB-19		CHLORINE / " DISINFECTANT	A P C				
MB-20		BOILER BLDG / TAR & FELT ROOF	A P C				

Sampled by: \_\_\_\_\_ Date: / / Time: \_\_\_\_\_

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: <i>M.M.G.</i>	Relinquished by:	Relinquished by:
Date / Time: 8-28-10 @ 7:00 PM	Date / Time:	Date / Time:
Received by: <i>Betty Fedx</i>	Received by:	Received by:
Date / Time: 8/31/10 1:30	Date / Time:	Date / Time:
Condition Acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No



Client Name & Address:		P.O. #:	Date: / /
# 5318 West Coast Safety Consultants		Turn Around Time: _____ hr/ 12hr / 24hr / 48 hr / ext: _____	
4581 Wavertree,		Due Date: / / Due Time: _____ : _____ am/pm	
San Luis Obispo, CA 93405		<input type="checkbox"/> PLM: <input type="checkbox"/> Standard / <input type="checkbox"/> Point Count <input type="checkbox"/> PCM: NIOSH 7400	
Contact: Michael McGuire	<input type="checkbox"/> TEM Air: <input type="checkbox"/> AHERA / <input type="checkbox"/> Yamate2 / <input type="checkbox"/> NIOSH 7402		
Phone #: 805/544-5303 ext.	<input type="checkbox"/> TEM Bulk: <input type="checkbox"/> Quantitative / <input type="checkbox"/> Qualitative / <input type="checkbox"/> Chatfield		
Fax #: 805/544-4623	<input type="checkbox"/> TEM Water: <input type="checkbox"/> Potable / <input type="checkbox"/> Non-Potable / <input type="checkbox"/> Wt %		
Site:	<input type="checkbox"/> TEM Microvac		
Job:	<input type="checkbox"/> Special Project:		
		<input type="checkbox"/> Metals Analysis: Method _____	
		Matrix: _____	
		Analytes: _____	

Comments:

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-21	8-28-10	BOILER BLDG. / ROLLED ROOF SHINGLE	A P C				
MB-22		TAR	A P C				
MB-23		BOILER BLDG. / DRYWALL REST ROOM JOINT COMPOUND	A P C				
MB-24		DIGESTER / PIPE SLUDGE GASKET	A P C				
MB-25			A P C				
MB-26		HEADWORKS / TAR ROOF FELT	A P C				
MB-27		OLD CHLORINE BLDG. ROOF	A P C				
MB-28		TAR	A P C				
MB-29		ADMINISTRATION BLDG. / STUCCO	A P C				
MB-30			A P C				

Sampled by: \_\_\_\_\_ Date: / / Time: :

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: <i>M. McGuire</i>	Relinquished by:	Relinquished by:
Date / Time: 8-28-10 @ 7:00 PM	Date / Time:	Date / Time:
Received by: <i>Betty Feds</i>	Received by:	Received by:
Date / Time: 8/31/10 1030	Date / Time:	Date / Time:
Condition Acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No



Client Name & Address:		P.O. #:	Date: / /
# 5313 West Coast Safety Consultants		Turn Around Time: _____ hr/ 12hr / 24hr / 48 hr / ext: _____	
4581 Wavertree,		Due Date: / / Due Time: _____ : _____ am/pm	
San Luis Obispo, CA 93405		<input type="checkbox"/> PLM: <input type="checkbox"/> Standard / <input type="checkbox"/> Point Count <input type="checkbox"/> PCM: NIOSH 7400	
Contact: Michael McGuire	<input type="checkbox"/> TEM Air: <input type="checkbox"/> AHERA / <input type="checkbox"/> Yamate2 / <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> TEM Bulk: <input type="checkbox"/> Quantitative / <input type="checkbox"/> Qualitative / <input type="checkbox"/> Chatfield <input type="checkbox"/> TEM Water: <input type="checkbox"/> Potable / <input type="checkbox"/> Non-Potable / <input type="checkbox"/> Wt % <input type="checkbox"/> TEM Microvac		
Phone #: 805/544-5303 ext.	<input type="checkbox"/> Special Project:		
Fax #: 805/544-4623	<input type="checkbox"/> Metals Analysis: Method _____		
Site:	Matrix: _____		
Job:	Analytes: _____		

Comments:

Sample ID	Date/Time	Sample Location/Description	FOR AIR SAMPLES ONLY				Sample Area or Air Volume
			Type	Time On/Off	Avg. LPM	Total Time	
MB-31	8-28-10	ADMINISTRATION BLDG. / STUCCO	A P C				
MB-32		BOILER BLDG. / STUCCO	A P C				
MB-33			A P C				
MB-34			A P C				
			A P C				
			A P C				
			A P C				
			A P C				
			A P C				

Sampled by: \_\_\_\_\_ Date: / / Time: :

Shipped via:  Fed Ex  Airborne  UPS  US Mail  Courier  Drop Off  Other:

Relinquished by: <i>MMZ</i>	Relinquished by:	Relinquished by:
Date / Time: 8-28-10 08:00 PM	Date / Time:	Date / Time:
Received by: <i>Betty Fedx</i>	Received by:	Received by:
Date / Time: 8/31/10 1030 am	Date / Time:	Date / Time:
Condition Acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No

# Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

West Coast Safety Consultants  
Michael McGuire

4581 Wavertree  
San Luis Obispo, CA 93405

Client ID: 5318  
Report Number: B139347  
Date Received: 08/31/10  
Date Analyzed: 09/01/10  
Date Printed: 09/01/10  
First Reported: 09/01/10

Job ID/Site: 160 Atascadero Rd., Morro Bay, City of MB

FALI Job ID: 5318  
Total Samples Submitted: 34  
Total Samples Analyzed: 34

Date(s) Collected: 08/28/2010

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
<b>MB1</b> Layer: Grey Tile Layer: Yellow Mastic	11023345	Chrysotile	Trace				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
<b>MB2</b> Layer: Brown Mastic	11023346		ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB3</b> Layer: Grey Plaster Layer: White Plaster Layer: Paint	11023347		ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB4</b> Layer: Grey Plaster Layer: Paint	11023348		ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB5</b> Layer: Grey Plaster Layer: Paint	11023349		ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB6</b> Layer: White Drywall Layer: Off-White Joint Compound Layer: White Fibrous Material Layer: Off-White Joint Compound	11023350		ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)							

Report Number: B139347

Date Printed: 09/01/10

Client Name: West Coast Safety Consultants

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
<b>MB7</b>	11023351						
Layer: White Drywall			ND				
Layer: Off-White Joint Compound			ND				
Layer: White Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (10 %)						
<b>MB8</b>	11023352						
Layer: White Drywall			ND				
Layer: Off-White Joint Compound			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (10 %)						
<b>MB9</b>	11023353						
Layer: Grey Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %)	Fibrous Glass (45 %)						
<b>MB10</b>	11023354						
Layer: Grey Semi-Fibrous Material		Chrysotile	20 %				
Total Composite Values of Fibrous Components:		Asbestos (20%)					
Cellulose (Trace)							
<b>MB11</b>	11023355						
Layer: Stones			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Fibrous Glass (45 %)						
Comment: Bulk complex sample.							
<b>MB12</b>	11023356						
Layer: Stones			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Fibrous Glass (45 %)							
<b>MB13</b>	11023357						
Layer: Black Semi-Fibrous Tar			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (15 %)							

Client Name: West Coast Safety Consultants

Report Number: B139347

Date Printed: 09/01/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
<b>MB14</b>	11023358						
Layer: Black Semi-Fibrous Tar			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (15 %)							
<b>MB15</b>	11023359						
Layer: Grey Non-Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB16</b>	11023360						
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Fibrous Glass (45 %)							
Comment: Bulk complex sample.							
<b>MB17</b>	11023361						
Layer: Black Semi-Fibrous Tar		Chrysotile	5 %				
Total Composite Values of Fibrous Components:		Asbestos (5%)					
Cellulose (Trace)							
<b>MB18</b>	11023362						
Layer: Black Semi-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Synthetic (7 %)							
<b>MB19</b>	11023363						
Layer: Black Semi-Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Synthetic (7 %)							
<b>MB20</b>	11023364						
Layer: Stones			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Fibrous Glass (45 %)							
Comment: Bulk complex sample.							

Client Name: West Coast Safety Consultants

Report Number: B139347

Date Printed: 09/01/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
<b>MB21</b>	11023365						
Layer: Stones			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Fibrous Glass (45 %)							
<b>MB22</b>	11023366						
Layer: Black Semi-Fibrous Tar			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (15 %)							
<b>MB23</b>	11023367						
Layer: White Drywall			ND				
Layer: Off-White Joint Compound			ND				
Layer: White Fibrous Material			ND				
Layer: Off-White Joint Compound			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)							
<b>MB24</b>	11023368						
Layer: Black Semi-Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Synthetic (7 %)							
<b>MB25</b>	11023369						
Layer: Black Semi-Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Synthetic (7 %)							
<b>MB26</b>	11023370						
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Fibrous Glass (45 %)							
Comment: Bulk complex sample.							

Client Name: West Coast Safety Consultants

Report Number: B139347

Date Printed: 09/01/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
<b>MB27</b>	11023371						
Layer: Stones			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Fibrous Glass (45 %)							
Comment: Bulk complex sample.							
<b>MB28</b>	11023372						
Layer: Black Semi-Fibrous Tar		Chrysotile	5 %				
Total Composite Values of Fibrous Components:		Asbestos (5%)					
Cellulose (Trace)							
<b>MB29</b>	11023373						
Layer: Grey Cementitious Material			ND				
Layer: Beige Cementitious Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB30</b>	11023374						
Layer: Grey Cementitious Material			ND				
Layer: Beige Cementitious Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB31</b>	11023375						
Layer: Grey Cementitious Material			ND				
Layer: Beige Cementitious Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB32</b>	11023376						
Layer: Grey Cementitious Material			ND				
Layer: Beige Cementitious Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
<b>MB33</b>	11023377						
Layer: Grey Cementitious Material			ND				
Layer: Beige Cementitious Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Report Number: B139347

Date Printed: 09/01/10

Client Name: West Coast Safety Consultants

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
<b>MB34</b>	11023378						
Layer: Grey Cementitious Material			ND				
Layer: Beige Cementitious Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							



James Flores, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

# Appendix M: Anticipated Environmental Mitigation Measures



## Anticipated Mitigation Measures Morro Bay WRF Onsite Improvements

All anticipated mitigation measures and plans are the responsibility of the DB unless noted specifically otherwise. The City or consultants retained by the City will perform required monitoring and surveys, or as identified below.

<b>Geologic Resources</b>
Prior to the approval of building plans for each proposed facility, the design of each facility shall be based on a facility-specific geotechnical report prepared by a California registered geotechnical engineer and professional geologist. The geotechnical report shall provide seismic data for use with at least the minimum requirements of the California Building Code.
Prior to approval of the improvement plans for the proposed facilities, a geotechnical report that addresses liquefaction hazards shall be prepared by the DB and approved by the City of Morro Bay. The geotechnical report shall state the recommended actions for the collection system and treatment plant site so that potential impacts from seismically-induced liquefaction would be reduced to less than significant.
Prior to approval of improvement plans, an Emergency Response Plan (ERP) shall be prepared. The ERP shall recognize the potential for liquefaction, seismic hazards and ground lurching to impact proposed facilities, and specific high hazard areas shall be inspected for damage following an earthquake. "Soft Fixes" shall be incorporated in the ERP. Soft Fixes typically consist of having a plan in-place to address the hazards, such as can be achieved by storing supplies and equipment for repair.
Prior to the approval of grading plans, erosion control measures shall be incorporated into the grading plans to minimize the potential for erosion or loss of top soil during grading.
Prior to the approval of grading plans, vegetation/landscaping shall be provided on the graded cut and fill slopes to reduce the long-term potential for soil erosion or loss of topsoil.
Prior to the approval of grading plans for each facility, the plans shall provide for the control of surface water away from slopes.
Prior to approval of the improvement plans for the proposed facilities, a geotechnical report that addresses the potential for lateral spreading, ground subsidence, and ground lurching and provides measures to reduce potential impacts to less than significant shall be prepared and approved.
Prior to approval of improvement and building plans for the proposed facilities, a design-level geotechnical report shall be prepared that addresses and reduces potential expansive soil impacts to less than significant. The expansive soil data shall be used with the requirements of the California Building Code.
<b>Biological Resources</b>
Impacts to Trees. It is anticipated at this time that all trees could be avoided by the project, and those within 25 feet of the limits of disturbance will have protective measures put in place to ensure they remain uninjured during the course of construction. An attempt will be made to protect the minimum distance of 1.5 times the dripline (i.e., the distance from the trunk to the outermost limits of leaves and branches). During development, orange construction fencing or sufficient staking to identify the protection area will surround each tree or clusters of trees. Protection fencing and staking areas will also be shown on all construction plans.
If grading or trenching must encroach within the dripline of protected trees, the activity will attempt to avoid soil compaction and damage to the critical root zone as much as possible. Tree protection and compensatory mitigation for impacted trees will follow current City policies that will be outlined in the arborist report.
Rare Plants. The facility site contains two occurrences of the San Luis Obispo owl's clover, a CRPR List 1B species, that are outside the proposed development footprint. Native bunchgrass grasslands observed on portions of the facility site are also outside the development footprint, and would not be impacted by the proposed project. The

Cambria morning glory is present in annual grasslands. If these would be impacted by the project, a Rare Plant Habitat Mitigation Program should be developed and implemented. To fully mitigate impacts to special status plants that may occur from project construction, the following mitigation is required:

1. If a special status plant population(s) is located in the construction area and project redesign is not feasible to avoid the occurrence, a rare plant mitigation plan should be developed to ensure a no-net-loss of special status plant species and their habitat. The rare plant mitigation plan should be developed by a qualified botanist/restoration ecologist in consultation with the City, CDFW and USFWS, as appropriate. The special-status plant species mitigation program should at a minimum include the following:
  - The overall goal and measurable objectives of a no-net loss of special status species in the mitigation and monitoring plan;
  - Specific areas for re-vegetation and their size. Potential sites for mitigation would be any suitable site in close proximity to the impact area;
  - Specific habitat management concepts to be used during the establishment period (i.e., annual population census surveys and habitat assessments for the period immediately following construction; establishment of monitoring reference sites; a seasonally-timed weed abatement program; and seasonally-timed seed collection, propagation, and reintroduction of special-status plant species into specified receiver sites);
  - Success criteria based on the goals and measurable objectives to ensure that a viable population(s) is established on the project site; and
  - Reporting requirements to ensure consistent data collection and reporting methods used by monitoring personnel.
2. Prior to construction, all rare plant occurrences within or adjacent to impact areas will be flagged for avoidance. If development cannot avoid the rare plants, rare plants will be salvaged from the disturbance area where feasible, and relocated to appropriate habitat outside the development footprint. Salvage and relocation activities will include the collection of seed and/or propagules prior to grading activities. Seed will be hand broadcasted into areas of suitable habitat outside the development area, or incorporated into the native grassland erosion control seed mix.
3. Monitoring will occur annually for five years to ensure successful establishment of all re-introduced or salvaged plants and that no-net-loss of the species occurs. In the case of annual plants it can be difficult to determine if there has been a net loss or gain of a viable population in a five-year period. Therefore, reference sites will be used to the extent possible to extrapolate trends in a species' population dynamics. An adaptive management program will also be included to address both foreseen and unforeseen circumstances relating to the preservation and mitigation programs. The program will also include remedial measures to address negative impacts to the special- status plant species and their habitats (i.e., removal of weeds, additional seeding/planting efforts) if the species or its habitat is suffering a net loss at the time of the follow up surveys.
4. All grassland areas disturbed by construction that are outside the WRF facility will have an approved seed mix applied through either direct hand seeding or hydroseeding methods.

Wetland/Riparian Habitat Impacts. The following mitigation measures should be implemented prior to and during construction. The DB may be able to avoid some or all of these permits by siting facilities outside impact areas:

1. During the project planning phase, the City will initiate consultation with regulatory agencies to determine which regulatory permits will be necessary. The type of permits and compensatory mitigation required will depend on the proposed project impacts associated with the chosen pipeline alignment and proposed construction methods, and may likely include a Section 404 Permit from USACE, a Section 401 Water Quality Certification from RWQCB, and a Section 1602 Streambed Alteration Agreement from CDFW. The City, or consultants retained by the City, will complete applications for these specific permits if required.

2. Once the project development footprint and construction methods have been finalized, the drainage impact areas can be calculated and impacts to federal and state jurisdictional areas can be determined. To compensate for impacts to riparian and wetland habitat and non-wetland drainage features, a Habitat Mitigation and Monitoring Plan (HMMP) should be prepared. The HMMP should be consistent with federal and state regulatory requirements and local City policies. The HMMP should be submitted with permit applications for agency approval. The City would then be required to implement the HMMP during construction and immediately following project completion for an estimated period of five years.
3. Prior to start of construction activities, the contractor in coordination with the City should retain a qualified biological monitor to ensure compliance with all permit requirements and avoidance and minimization measures (i.e.: preconstruction surveys, worker environmental training, and construction monitoring) during work within and adjacent to drainage features.
4. Prior to start of construction, the project boundaries adjacent to drainages should be clearly flagged or fenced so that contractors are aware of the limits of allowable site access and disturbance. Areas to be preserved should be clearly flagged as off-limits to avoid unnecessary damage and potential erosion.
6. Prior to issuance of construction permits, an Erosion Control Plan incorporating up to date Best Management Practices should be prepared by the project engineer to minimize impacts to aquatic habitats. The plan should address installation and maintenance of both temporary and permanent measures to control erosion and dust, contain spills, protect stockpiles, and generally maintain good housekeeping practices within the worksite. All project plans should show that erosion, sediment, and dust control measures must be installed prior to start of any ground disturbing work. All bare or disturbed soil areas that are outside the developed facility and roadway areas will be seeded with an approved native erosion control seed mix.
7. All applicable plans should clearly show project stockpile and materials staging areas. These areas should be at least 50 feet from drainage features, active storm drain inlets, and must conform to BMPs applicable for storm drain protection.
8. Prior to start of work, the contractor should prepare and implement a Spill Prevention Plan to ensure prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. All project-related hazardous materials spills within the project site should be cleaned up immediately. Spill prevention and cleanup materials should be on-site at all times during the course of the project.
9. All refueling, maintenance, and washing of equipment and vehicles should occur on impervious areas in a location where a spill would not travel onto bare ground or to a storm drain inlet. This fueling/staging area will conform to BMPs applicable to attaining zero discharge of stormwater runoff. At a minimum, all equipment and vehicles must be checked and maintained on a daily basis to ensure proper operation and avoid potential leaks or spills. Washing of equipment should occur only in a location where polluted water and materials can be contained for subsequent removal from the site.
10. A designated concrete washout location should be established onsite, in an area at least 50 feet from any drainage or storm drain inlet. The washout should be maintained and inspected weekly, and will be covered prior to and during any rain event. Concrete debris should be removed whenever the washout container reaches the 1/2 full mark.
11. BMP's for dust abatement shall be a component of the project's construction documents. Dust control requirements should be carefully implemented to prevent

water used for dust abatement from transporting pollutants to storm drains leading to the creek channel.

12. During project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

Nesting Birds. Project activities, including equipment use during demolition, initial vegetation removal and construction activities, and associated noise, vibration, and dust, could impact nesting migratory birds and/or special-status bird species in riparian willow habitat, street trees, and grassland habitats within the study area.

*Recommended Mitigation.* The following mitigation measures are recommended to avoid or minimize impacts to nesting bird species, including special status species and species protected by the Migratory Bird Treaty Act.

1. Any removal of trees and disturbance of annual grassland habitat should be limited to the time period between September 1 and February 14 if feasible. If tree removal and grassland impacts cannot be conducted during this time period, a qualified biologist should conduct pre-construction surveys for active bird nests within the limits of the project.
2. If active nest sites of bird species protected under the Migratory Bird Treaty Act and/or California Fish and Game Code Section 3503 are observed within or adjacent to the study area, then the project should be modified and/or delayed as necessary to avoid direct take of the identified nests, eggs, and/or young. Potential project modifications may include establishing appropriate “no activity” buffers around the nest site. Construction activities should not occur in the buffer until the project biologist has determined that the nesting activity has ceased.
3. If active nest sites of raptors and/or bird species of special concern are observed within the vicinity of noise or vibration producing project activities, an appropriate buffer around the nest site (250 to 500 feet for raptors depending on location) should be implemented. Construction activities in the buffer zone should be prohibited until the young have fledged the nest and achieved independence.
4. Active nests should be documented and monitored by the project biologist, and a letter report should be submitted to the USFWS and CDFW, documenting project compliance with the MBTA and applicable project mitigation measures.

American Badger. The American badger was determined to have potential to occur on the facility site, due to presence of grassland habitats, water, and a prey base of California ground squirrels and pocket gophers in the general region. A pre-construction survey for active badger dens should be conducted within the construction impact footprint and surrounding accessible areas of the study area at least two weeks prior to any ground disturbing activities. The survey should be conducted by a qualified biologist. In order to avoid potential direct impacts to adults and nursing young, no grading should occur within 50 feet of an active badger den as determined by the project biologist. Construction activities between July 1 and February 28 should comply with the following measures to avoid direct take of adult and weaned juvenile badgers through the forced abandonment of dens:

1. A qualified biologist should conduct a focused survey at least two (2) weeks prior to the start of construction;
2. The survey should cover the entire area proposed for development;
3. If a potential den is located that is too long to see the end, a fiber optic scope (or other acceptable method such as using tracking medium for a three night period) should be used to determine if the den is being actively used by a badger;

4. Inactive dens should be excavated by hand with a shovel or using a small excavator to prevent badgers from re-using them during construction.
5. Badgers should be discouraged from using currently active dens prior to the grading of the site by partially blocking the entrance of the den with sticks, debris and soil for three to five days. Access to the den should be incrementally blocked to a greater degree over this period. This should cause the badger to abandon the den and move elsewhere. After badgers have stopped using any den(s) within the project boundary, the den(s) should be hand-excavated with a shovel or carefully excavated with the use of an excavator to prevent re-use.
6. The qualified biologist should be present during the initial clearing and grading activity. If additional badger dens are found, all work should cease until the biologist can complete measures described above for inactive and active dens. Once the badger dens have been excavated, work on the site may resume.

**Cultural and Paleontological Resources**

Complete Area of Potential Effect (PAE) for potential cultural resources within the study area and conduct Phase 1 review within that area. Implement the recommendations of that Phase 1 review as appropriate. The prescriptive mitigation will be fully established through the EIR being prepared for the project.

If previously unidentified cultural materials are unearthed during construction, the disposition of such a find must follow state law. As part of this, work shall be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits, and for associated access roads and the pipeline.

Prepare a Phase 2 Work Plan for resource recovery, if needed to address the recommendations of any Phase I activities, and implement it as needed.

If human remains are encountered within the project area, the City shall be responsible for complying with provisions of Public Resources Code Sections 5097.98 and 5097.99, and 7050.5 of the California Health and Safety Code, as amended by Assembly Bill 2641, and coordinate such activities with the County, the entity responsible for permitting of the facility. Restrictions or procedures for excavation, treatment, or handling of human remains shall be established in consultation with the individuals designated by the Native American Heritage Commission as the Most Likely Descendants.

Although unlikely, should any vertebrate fossils or potentially significant finds (e.g., numerous well-preserved invertebrate or plant fossils) be encountered by anyone working on the site, all activities in the immediate vicinity of the find are to cease until a qualified paleontologist evaluates the find for its scientific value. If deemed significant, the paleontological resource(s) shall be salvaged and deposited in an accredited and permanent scientific institution where they will be properly curated and preserved for the benefit of current and future generations.

**Hazards and Hazardous Materials**

Prior to any onsite construction activities at the proposed treatment plant site, soils shall be sampled and analyzed by a licensed engineer or geologist approved by the County of San Luis Obispo Health Department to determine the level of residue for pesticides, herbicides, chemicals, and associated metals. If residues are found to be within acceptable amounts per the San Luis Obispo County Health Department (SLOCHD) and Environmental Protection Agency/Department of Toxic Substance Control (DTSC) standards then grading and construction may begin. If the residue is found to be greater than the SLOCHD and DTSC standards, all contaminated soils exceeding the acceptable limits shall be remediated and/or properly disposed of per SLOCHD and DTSC requirements. An appropriate verification closure letter from SLOCHD and DTSC shall be obtained and submitted to the County of San Luis Obispo Planning Department. Depending on the extent of contaminated soils, a verification closure letter from the California Regional Water Quality Control Board may also need to be submitted to the County of San Luis Obispo Planning Department. Site remediation can occur by the use of on-site transportable thermal treatment units or bio-remediation. The soil can also be excavated and shipped off-site to fixed incineration or bioremediation facilities.

Prior to operation of the wastewater project, a Hazardous Materials Management Plan shall be developed and submitted to the County of San Luis Obispo Environmental Health Services Division for approval. The plan shall identify hazardous materials utilized at the proposed wastewater facilities and their characteristics; storage, handling, training procedures, and spill contingency procedures. Additionally, the Hazardous Materials Management Plan shall identify procedures in the event of accidents such as

the release of raw wastewater or secondary treated water into watercourses such as the adjacent drainage. These procedures shall include immediate response personnel to limit public access to spill areas, potentially shutting down pump stations, creating berms, use of vacuum trucks, and use of water booms to contain spills within open water areas.

Furthermore, the Plan shall address response and containment of fuel at pump stations sites, when used.

#### **Traffic and Circulation**

Prior to construction, a traffic management plan shall be prepared for review and approval by the City of Morro Bay. The Plan will address construction traffic as needed, including for the WRF and pipelines. With respect to the WRF, the plan must address site access. For the pipelines, the plan must address potential temporary road closures associated with pipelines that may be laid within road rights of way.

The plan shall be based on the type of roadway, traffic conditions, duration of construction, physical constraints, nearness of the work zone to traffic and other facilities (bicycle, pedestrian, driveway access, etc.). The traffic management plan shall include:

- a) Advertisement. An advertisement campaign informing the public of the proposed construction activities should be developed. Advertisements should occur prior to beginning work and periodically during the course of project construction. Advertisements to be prepared by DB and reviewed/distributed by City.
- b) Property Access. Access to parcels along the construction area shall be maintained to the greatest extent feasible. Affected property owners shall receive advance notice of work adjacent to their property access and when driveways would be potentially closed.
- c) Schools. Any construction adjacent to schools shall ensure that access is maintained for vehicles, pedestrians, and bicyclists, particularly at the beginning and end of the school day.
- d) Buses, Bicycles and Pedestrians. The work zone shall provide for passage by buses, bicyclists and pedestrians.
- e) Intersections. Traffic control (i.e. use of flag men) shall be used at intersections that are determined to be unacceptably congested due to construction traffic.

#### **Air Quality**

Prior to issuance of grading permits, the contractor in coordination with the City shall submit a Construction Activities Management Plan for the review and approval of the SLOAPCD. This plan shall include but not be limited to the following Best Available Control Technologies for construction equipment:

- a. Minimize the number of large pieces of construction equipment operating during any given period.
- b. Schedule construction related truck/equipment trips during non-peak hours to reduce peak-hour emissions.
- c. Properly maintain and tune all construction equipment according to manufacturer's specifications.
- d. Fuel all off-road and portable diesel powered equipment including but not limited to: bulldozers, graders, cranes, loaders, scrapers, backhoes, generators, compressors, auxiliary power units, with CARB motor vehicle diesel fuel.
- e. Use 2007 or newer heavy duty off road vehicles to the extent feasible.
- f. Use Caterpillar pre-chamber diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of NOX.
- g. Electrify equipment where possible.
- h. Use Compressed Natural Gas (CNG), liquefied natural gas (LNG), biodiesel, or propane for on-site mobile equipment instead of diesel- powered equipment.

Prior to initiating grading activities, the contractor in coordination with the City shall:

- a. Include the following specifications on all project plans: One catalyzed diesel particulate filter (CDPF) shall be used on the piece of equipment estimated to generate the greatest emissions. If a CDPF is unsuitable for the potential equipment to be controlled, five diesel oxidation catalysts (DOC) shall be used.
- b. Identify equipment to be operated during construction as early as possible in order to place the order for the appropriate filter and avoid any project delays. This is necessary so that contractors bidding on the project can include the purchase, proper installation, and maintenance costs in their bids.

<p>c. Contact the SLOAPCD Compliance Division to initiate implementation of this mitigation measure at least two months prior to start of construction.</p>
<p>Prior to initiating grading activities, if it is determined that portable engines and portable equipment would be utilized, the contractor in coordination with the City shall contact the SLOAPCD and obtain a permit to operate portable engines or portable equipment, and shall be registered in the statewide portable equipment registration program. The SLOAPCD Compliance Division shall be contacted in order to determine the requirements of this mitigation measure.</p>
<p>Project contract documents will include the following dust control measures:</p> <ol style="list-style-type: none"> <li>a. Reduce the amount of the disturbed area where possible,</li> <li>b. Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency will be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible.</li> <li>c. All dirt stockpile areas will be sprayed daily as needed.</li> <li>d. Permanent dust control measures identified in the revegetation and landscape plans will be implemented as soon as possible following completion of any soil disturbing activities.</li> <li>e. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading will be sown with a fast germinating native grass seed and watered until vegetation is established.</li> <li>f. All disturbed soil areas not subject to revegetation will be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the APCD.</li> <li>g. All roadways, driveways, sidewalks, etc. to be paved will be completed as soon as possible. In addition, building pads will be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>h. Vehicle speed for all construction vehicles will not exceed 15 mph on any unpaved surface at the construction site.</li> <li>i. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or will maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with CVC Section 23114.</li> <li>j. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.</li> <li>k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.</li> <li>l. If visible emissions of fugitive dust persist beyond a distance of 200 feet from the boundary of the construction site, all feasible measures shall be implemented to eliminate potential nuisance conditions at off-site receptors (e.g., increase frequency of watering or dust suppression, install temporary wind breaks where appropriate, suspend excavation and grading activity when winds exceed 25 mph).</li> <li>m. The contractor will designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties will include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons will be provided to the SLOAPCD prior to the start of construction.</li> </ol>
<p><b>Noise</b></p>
<p>The City shall require construction contractors to adhere to the following noise attenuation requirements:</p> <ul style="list-style-type: none"> <li>• Construction activities shall be consistent with the City’s Noise Ordinance, which restricts activities from 7 AM to 10 PM, or as prescribed through the EIR, whichever approach is more restrictive.</li> <li>• All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.</li> <li>• Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the nearest residence, unless safety or technical factors take precedence.</li> </ul>

<ul style="list-style-type: none"> <li>• Stationary combustion equipment such as pumps or generators operating within 100 feet of any residence shall be shielded with a noise protection barrier.</li> </ul>
<p><b>Visual Resources</b></p>
<p>For all aspects of the project, construction staging areas shall be located away from sensitive viewing areas to the extent feasible. Before construction activities begin, an area of construction equipment storage away from direct views of sensitive viewing corridors (e.g. residences and major roads in the project area) shall be designated.</p>
<p>A final landscaping plan shall be prepared for the entire project site and approved prior to building permit issuance. Said landscaping plan shall emphasize native plant materials and shall include sufficient planting to screen views of the project from nearby roads and residential developments. The landscaping plan shall be to visually integrate the project into the rural landscape, while preserving and enhancing existing views.</p>
<p>Any buildings shall be designed in such a manner so they are architecturally compatible with other buildings in the vicinity.</p>
<p>A final lighting plan shall be prepared for the treatment and disposal facilities. The lighting plan shall meet City and County design standards. This shall include proper shielding, proper orientation, and applicable height standards. All lighting fixtures shall be shielded so that neither the lamp nor the related reflector interior surface is visible from adjacent properties. Light hoods shall be dark-colored.</p>
<p>Any building associated with treatment and disposal facilities shall be designed to conform to an agricultural landscape.</p>

Appendix N:  
Past Geotechnical Reports on  
Areas Near Access Road



May 18, 2007

Tim Woodle  
Steven D. Pults, AIA, and Associates  
3450 Broad Street, Suite 106  
San Luis Obispo, CA 93401

RECEIVED

MAY 31 2007

City of Morro Bay  
Public Services Department

**Subject: Geologic Report on Conceptual Proposed Employee Housing Project, Sea Shell  
Community Retirement Facility, Morro Bay, Assessor's Parcel Number 068-041-006**

Dear Mr. Woodle:

Per your request and in accordance with our proposal of January 30, 2007, Cleath & Associates has reviewed your concept drawings for the proposed employee housing at the Sea Shell Community Retirement Facility and the site geology to identify geologic hazards that could be significant in the design and construction of these structures. The outline of this report follows the checklist prepared for engineering geology and seismology reports by the California Geologic Survey (publication Note 48).

## **PROJECT LOCATION**

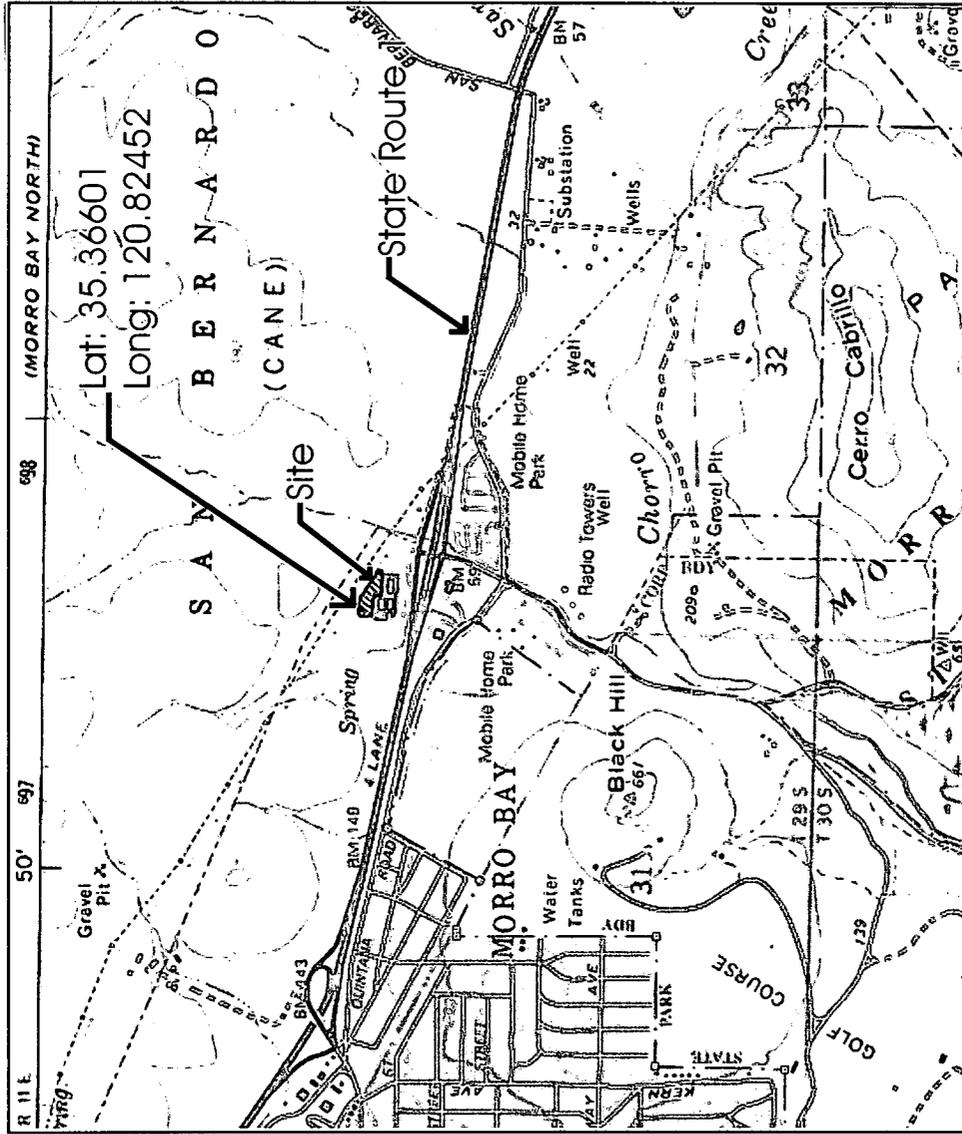
### **Location**

The proposed project is located behind the existing retirement home. The Sea Shell Community Retirement Facility is located at 1405 Teresa Drive near the end of South Bay Boulevard immediately adjacent to the north bound on-ramp to State Route 1. The site has the following coordinates: latitude 35.36601, Longitude: -120.82452 (Figure 1). The site lies within the city limits of the City of Morro Bay.

### **Project Description**

The proposed employee housing is comprised of 15 units situated on the slope behind the retirement facility and will be placed up-hill from the driveway and block retaining wall. Up-hill from the proposed housing there are high tension lines crossing the property. Existing grade rises from about 80 feet along the driveway to about 120 feet along the northern property boundary. The existing slope in the vicinity of units 1-8 is about 2:1 (H:V) and is 1:1 (H:V) in the vicinity of Units 9-15.

The project includes one and two story buildings that are single residences and duplexes that are planned to be constructed as slab-on-grade. Access would be by stairs and walkways to the existing driveway. Earthwork as determined for the existing plan will involve an estimated cut of 287 cubic yards and fill of



Base Map:  
 US Geological Survey 7.5"  
 Morro Bay South  
 Scale 1"=1000'

Figure 1  
 Location Map  
 Seashell Community Retirement Home  
 Morro Bay

98 cubic yards. The lower eastern building area will have the structures benched into the existing slope with retaining walls serving as stem walls for the structures. The layout of the housing is shown on Figure 2.

## **ENGINEERING GEOLOGY**

### **Regional Geology**

The published regional geologic map for this area is the USGS Miscellaneous Field Studies Map MF 511, "Geologic Map of Morro Bay South and Port San Luis Quadrangles, San Luis Obispo County, California, 1973, by Clarence A. Hall (Figure 3). This map shows that the property is underlain by Franciscan melange and serpentinite.

### **Site Geology**

Cleath & Associates has mapped the geology of the property. A thin veneer of soil covers the bedrock geologic units underlying the project site, except where the slope has been cut back, where the bedrock units are exposed. The bedrock geology is clearly exposed in the cut behind the existing retaining wall. The geologic units exposed include primarily serpentinitic rock with a section of ultramafic and calc-silicate rocks located adjacent to Building Units 13 and 14. In the extreme eastern end of the proposed development area, there is an area of blueschist and chert beds but these rock types are east of the proposed building site and outside of the building envelopes. All of these rocks have been highly sheared and are weathered. The ultramafic/calc-silicate rock, however, are more heavily sheared. Figure 4, the Site Geologic Map, identifies the extent of the geologic units and the observed structural geologic features such as faults and major fractures and also the cross section lines..

### **Subsurface Geology**

Cleath & Associates has reviewed the six boring logs in the GSI Geotechnical Investigation report (dated February 16, 2007) that are located as shown on Figure 4. The borings encountered up to five feet of sandy clay on top of severely weathered bedrock. The bedrock was described in soils terminology and referred to as "severely weathered bedrock". The color description may be an indication of rock type, however. The gray to greenish gray colors in Borings 1 & 2 are typical of serpentinite and the yellowish brown color in Borings 3-6 is typical of the ultramafic/calc-silicate rock, but may be decomposed serpentinite or cherts. These rocks are tectonically emplaced and therefore cannot be correlated from one location to another without continuous trenching. The best existing definition of the relationships between these major rock units are in the cut hillside face adjacent to proposed Units 10-15. Further definition of underlying rock at each unit can be accomplished during grading and excavations for footings.

The first part of the report deals with the general situation of the country and the position of the various groups of the population. It is followed by a detailed description of the economic and social conditions in the different regions.

General Situation of the Country

The country is a large, fertile plain, with a population of about 10 million. The climate is temperate, with a long growing season. The main crops are wheat, corn, and soybeans. The country is a member of the United Nations and the Organization of American States.

Population

The population is distributed unevenly, with the highest density in the eastern part of the country. The majority of the population is of European descent. The country has a high literacy rate and a high life expectancy. The main cities are located in the eastern part of the country.

Economy

The country has a mixed economy, with a strong agricultural sector. The main exports are wheat, corn, and soybeans. The country has a high level of industrialization, with a strong manufacturing sector. The country has a high level of economic growth and a high standard of living.

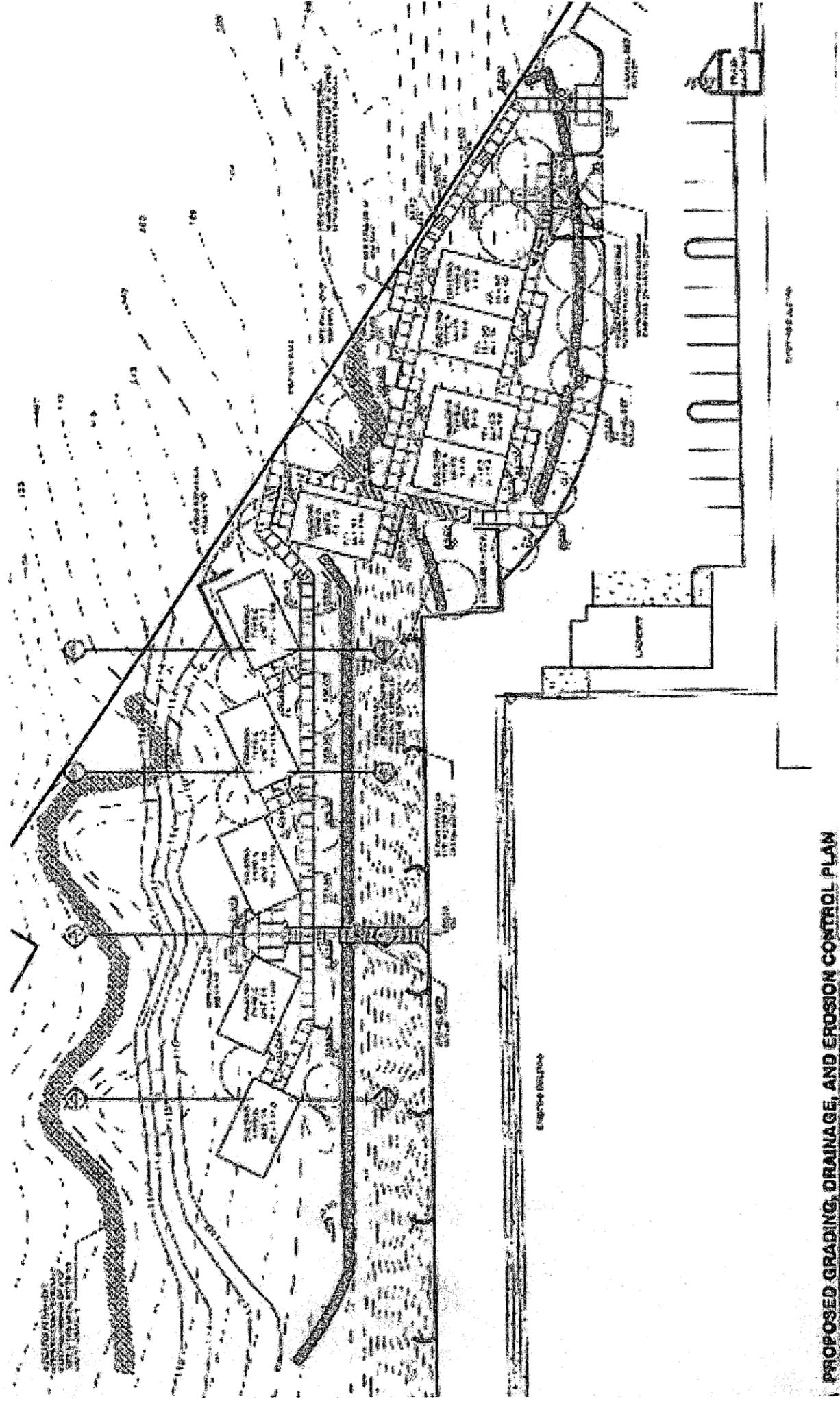
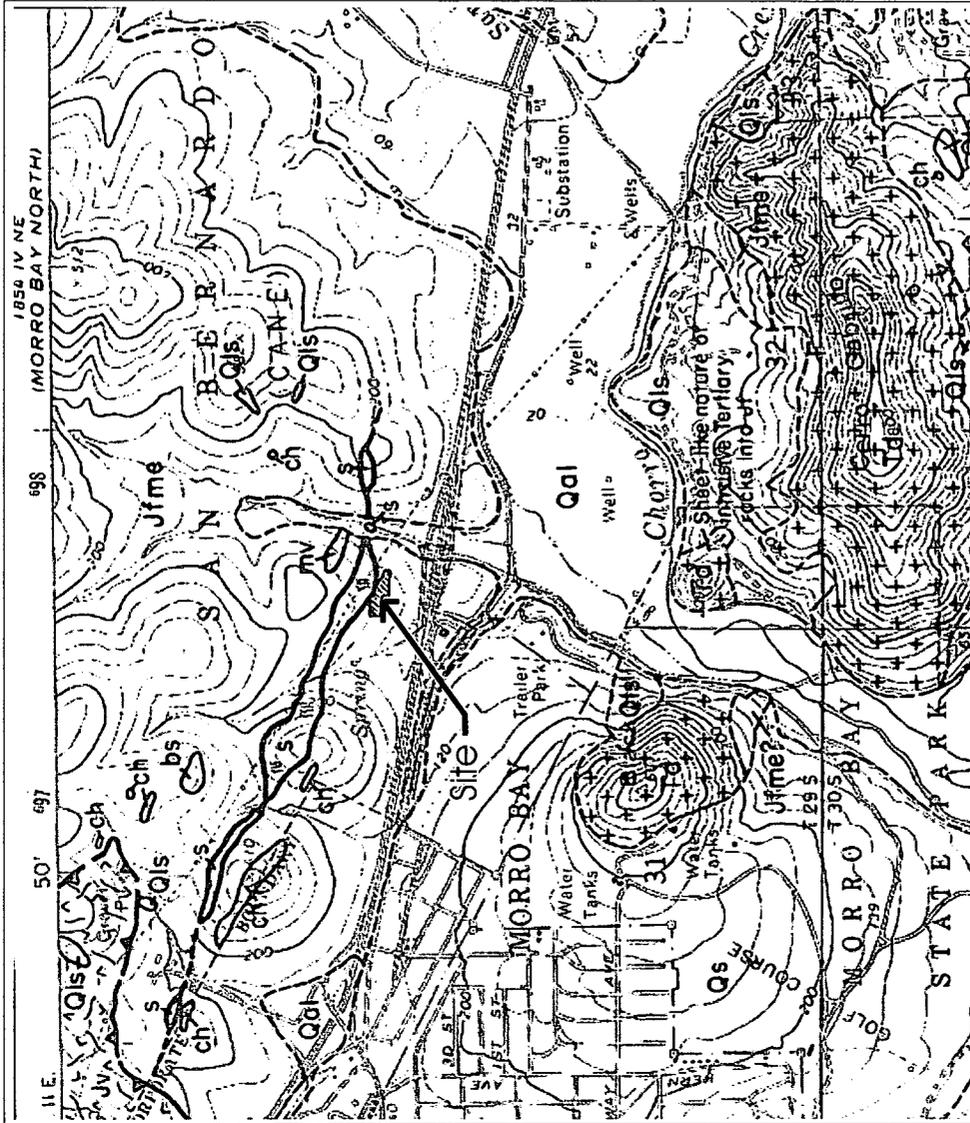


Figure 2  
 Site Map  
 Employee Housing  
 Seashell Community Retirement Home  
 Morro Bay





EXPLANATION

Quaternary  
 Qal Alluvial Deposits  
 Qs Sand Dune Deposits  
 Qls Landshate Deposits

Tertiary  
 Td Dacite

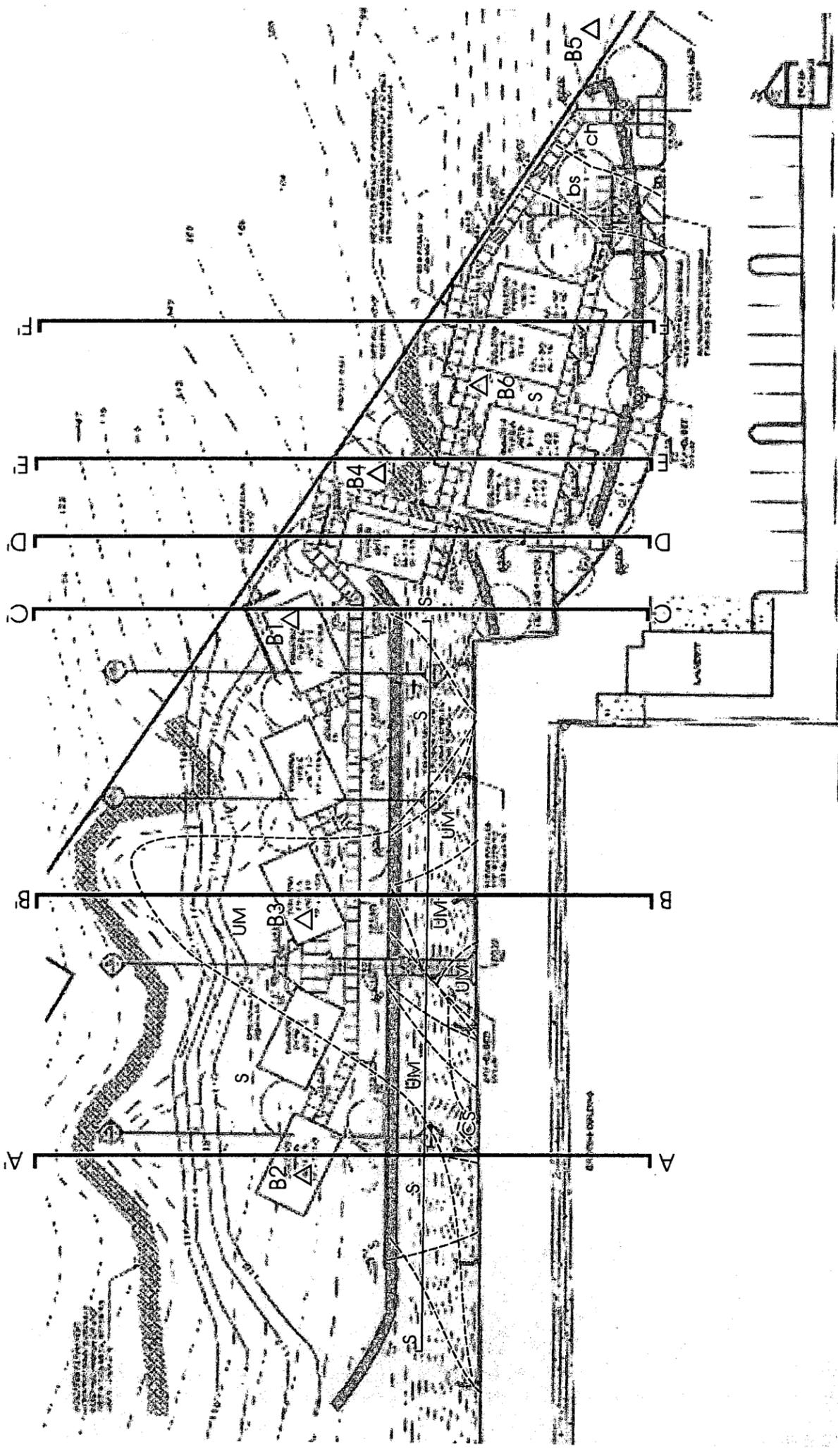
Mesozoic  
 Jv Diabase and Basalt  
 Jfme Rock melange: largely graywacke and claystone; with blue schist (bs), metavolcanic rock (mv), chert (ch), and serpentinite (s).

Map Geology:  
 Hall CA-1973  
 Geological Map of the Morro Bay South and Port San  
 Luis Quadrants  
 Miscellaneous Field Statistics Map 511  
 Scale 1" = 1000'

Figure 3  
 Regional Geologic Map  
 Employee Housing Project  
 Seashell Community Retirement Home  
 Morro Bay



Figure 4  
 Site Geology  
 Employee Housing  
 Seashell Community Retirement Home  
 Morro Bay



**EXPLANATION**

S	Serpentinite
UM	Ultramafic
CS	Calc-Silicate
bs	Blue-Schist
ch	Chert
---	Fault
B3 Δ	Borehole
— —	Cross Section Line

PROPOSED GRADING, DRAINAGE, AND EROSION CONTROL PLAN



### **Geologic Cross Sections**

Seven cross sections have been drawn through the project area approximately perpendicular to the slope (Figure 5, Figure 6, Figure 7). Bedrock definition at each cross section is not possible at this time without trenching. The general character of the rock is noted, however. A photographic exhibit of the geologic section along the cut bank (Figure 8) provides a good visual illustration of the relationship of the two main rock types underlying the project site.

### **Active Faulting and Coseismic Deformation Across Site**

No known active vault or coseismic deformation is identified in published maps. No active faulting or coseismic deformation was noted during our geologic mapping of the site. No Alquist-Priolo fault zones underlie the site.

### **Geologic Hazard Zones**

The project site is not within an area of landslides or potential liquefaction based on County Safety Element maps. Figure 9 shows that the site is not in a County Designated "Geologic Study Area".

### **Landslides**

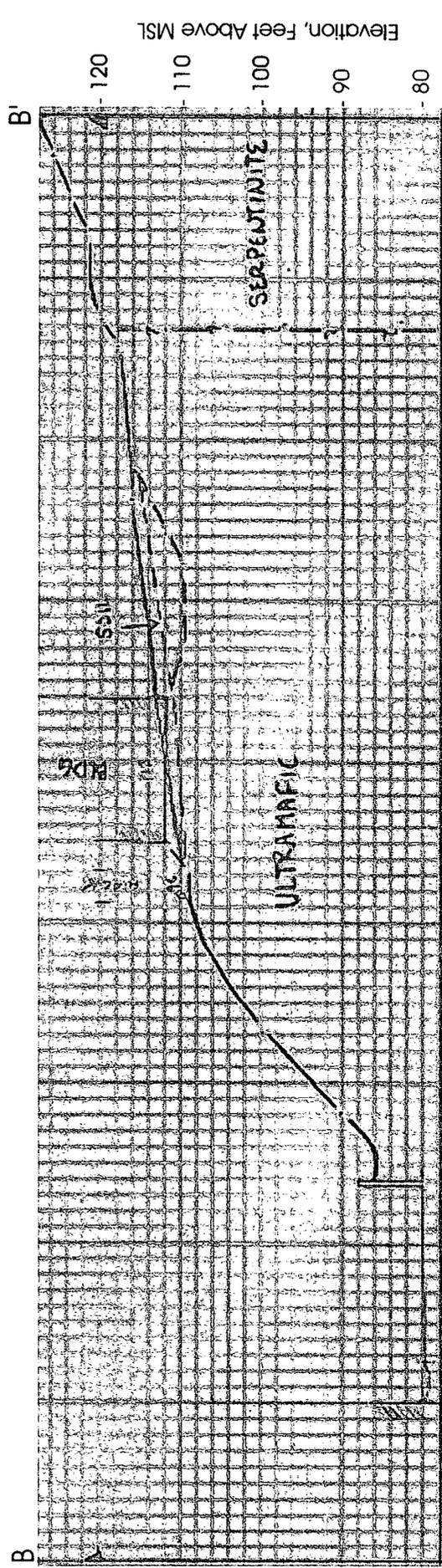
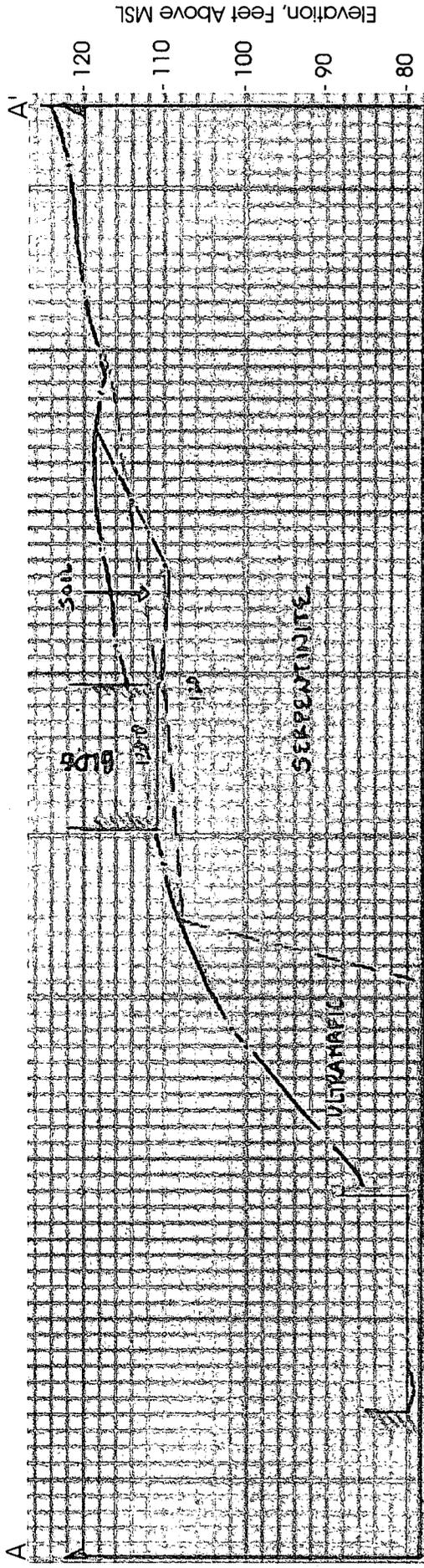
No known landslides are in the project area, nor are any up-hill or down-hill from the project area. The potential for slope failure is low based on the type of rock (massive serpentinite and ultramafic rock) and shallow soils underlying the project area. Ground water was not encountered to a depth of several feet below the finished floor level and no seeps were observed in the cut bank. Therefore, no slumps, rotational slides, rock falls, or debris flows are likely. Some rock fragments will erode out of the cut slopes, where exposed, but these are primarily a maintenance nuisance.

### **Slope Stability**

The relationship of the siting of the buildings to the slope is important to note, in light of the stability of the rock. The serpentinitic rock is firm and is stable at a 1:1 horizontal to vertical slope. The ultramafic/calc-silicate rock is not as firm and is more likely to be stable at a 1.5:1 (H:V). The structures located above the cut slope (Units 12-14) that are underlain by the ultramafics should be located so as to maintain a 1.5:1 (H:V). This would require that they be setback further from the existing slope than are shown on the existing conceptual plans.

### **Geotechnical Testing of Representative Samples**

GSI Soils has performed geotechnical testing of the soils and rock that are summarized in their February 16, 2007 report. The ring sample collected at three feet depth in Boring 1 had an initial dry density of 108.3 pounds per cubic foot, an initial moisture content of 13.3 percent. The peak shear angle was 41 degrees and the cohesion value was 380 pounds per square foot. The shear strength plot is shown in Appendix B of their report.



See Figure 4 for Section Locations  
 Building Locations are Preliminary and Subject to Modification  
 Scale 1"=20'

Figure 5  
 Geologic Cross Section  
 Employee Housing Project  
 Seashell Community Retirement Home  
 Morro Bay

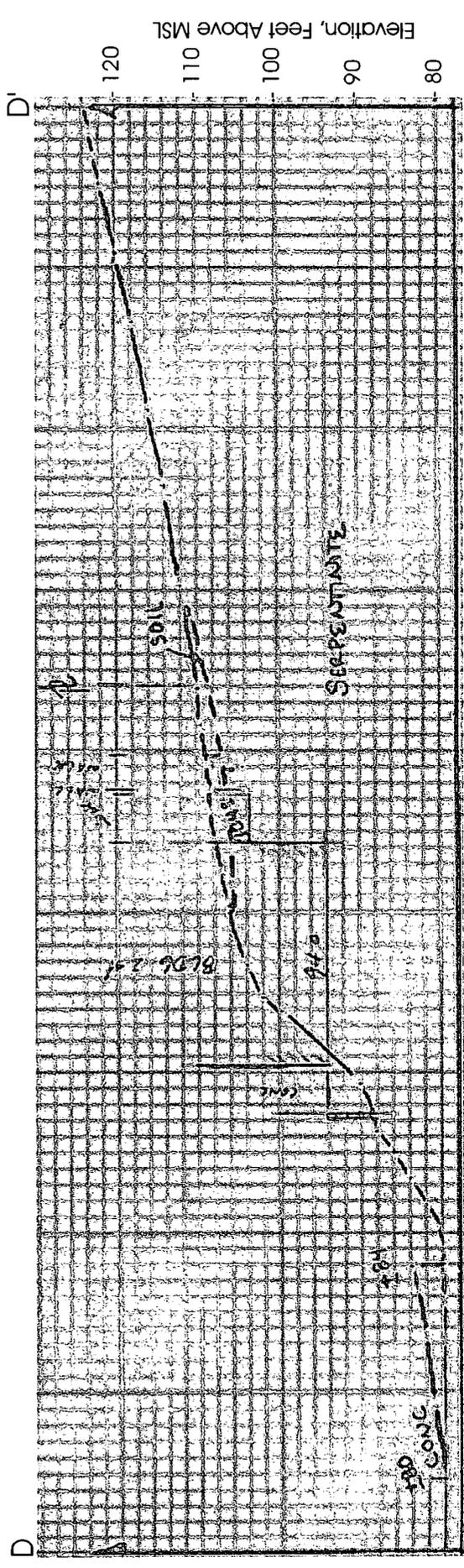
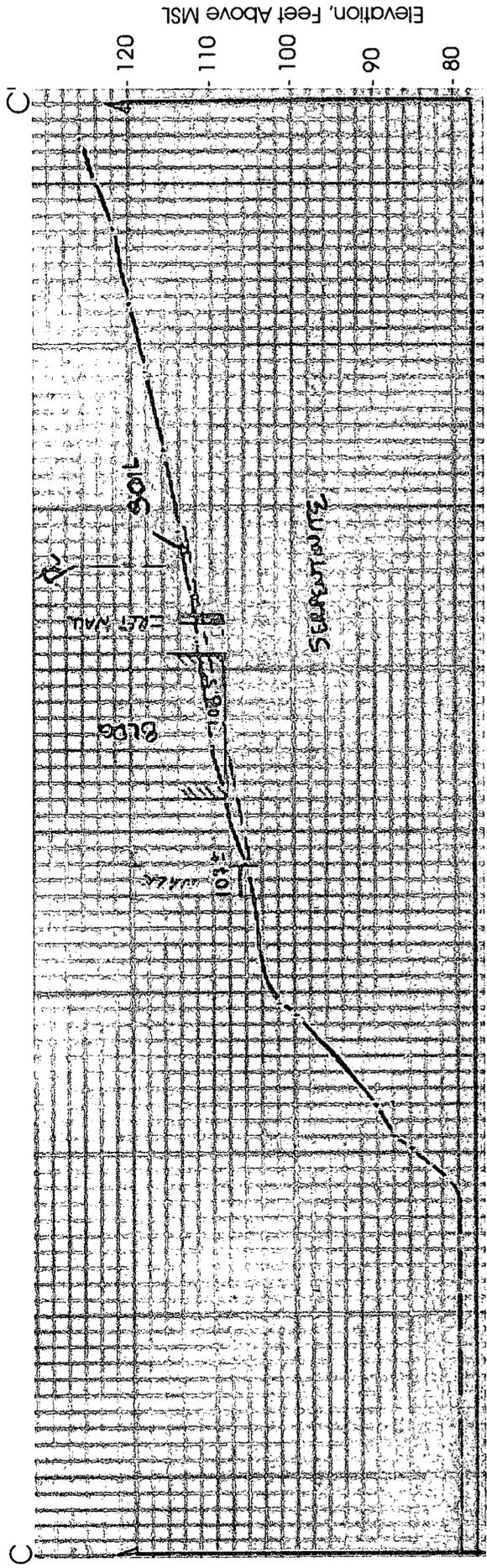
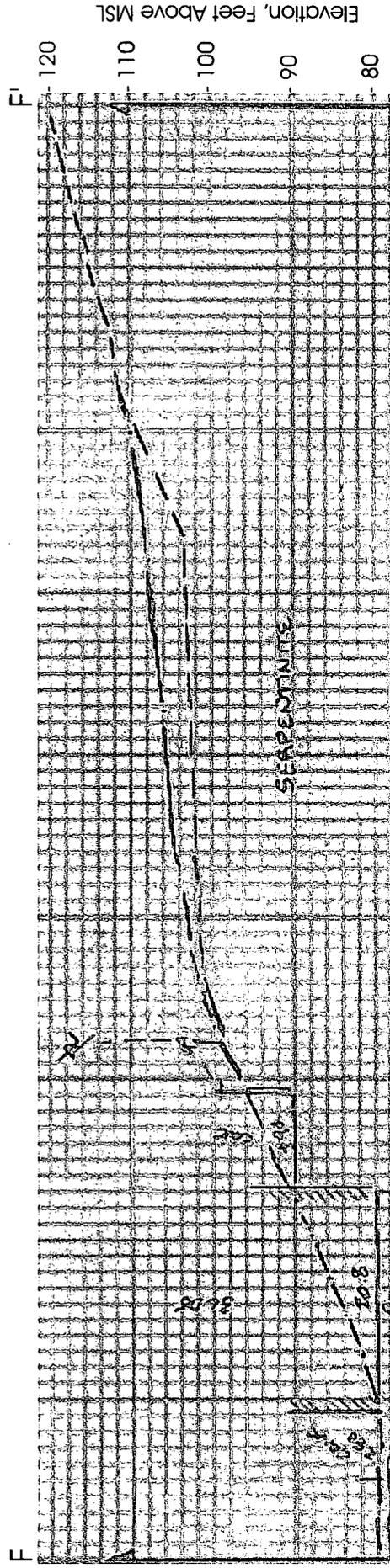
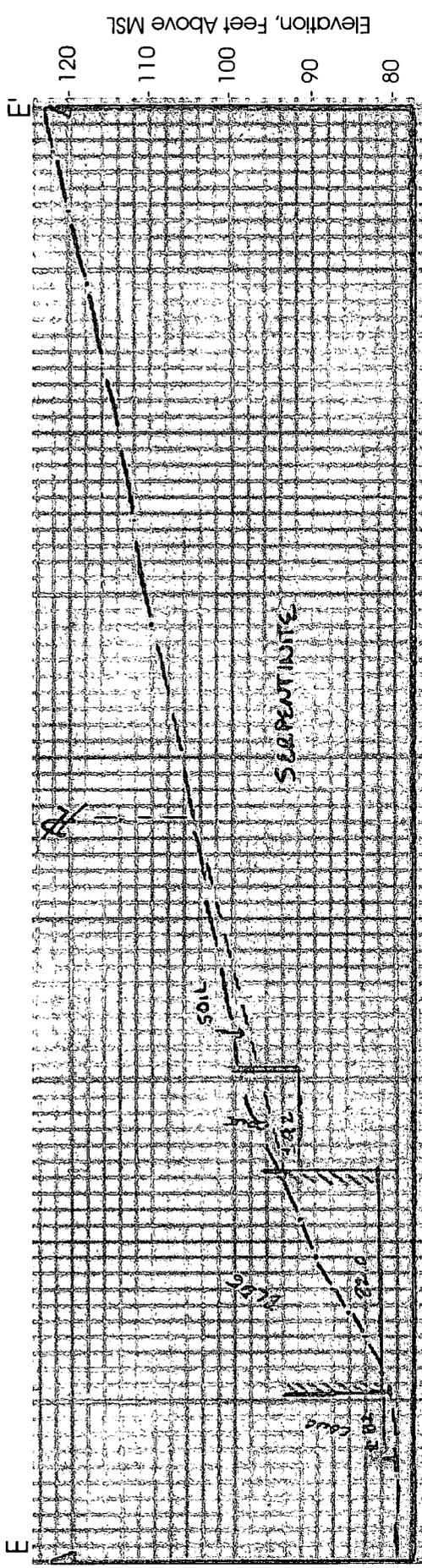


Figure 6  
 Geologic Cross Section  
 Employee Housing Project  
 Seashell Community Retirement Home  
 Morro Bay

See Figure 4 for Section Locations  
 Building Locations are Preliminary and Subject to Modification  
 Scale 1"=20'



See Figure 4 for Section Locations  
 Building Locations are Preliminary and Subject to Modification  
 Scale 1"=20'

Figure 7  
 Geologic Cross Section  
 Employee Housing Project  
 Seashell Community Retirement Home  
 Morro Bay

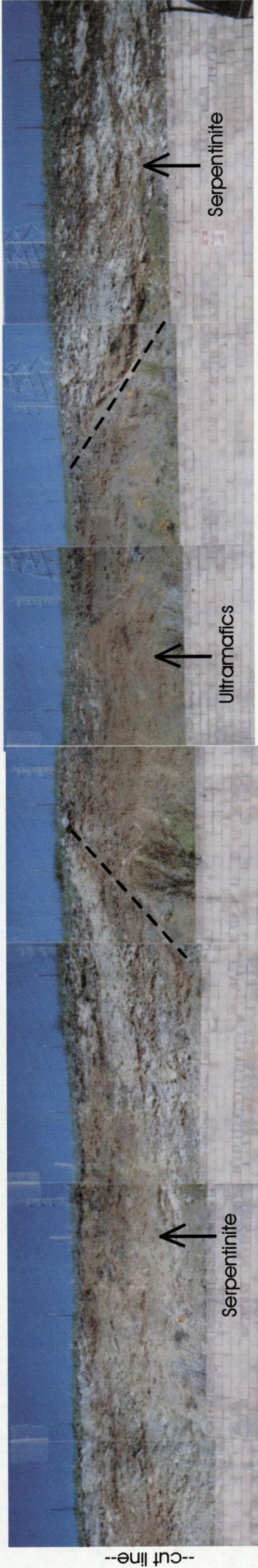
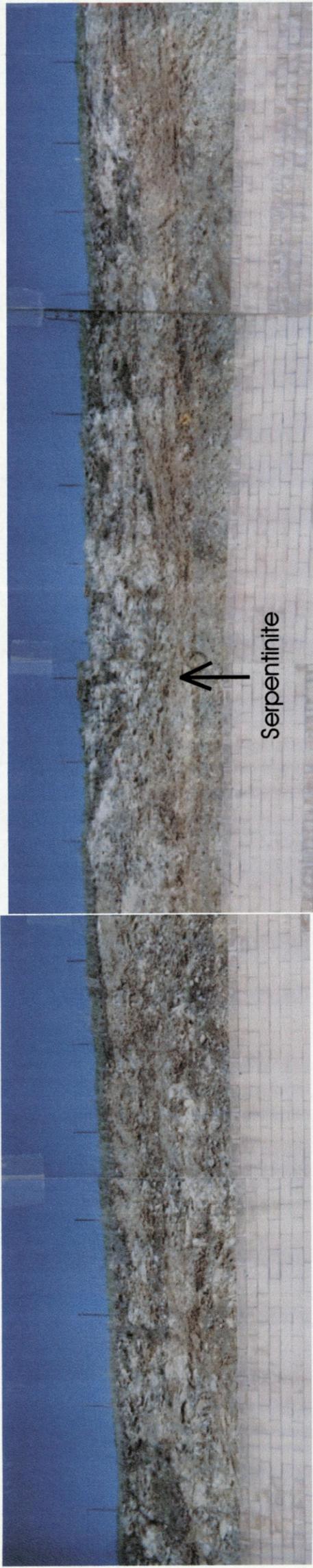
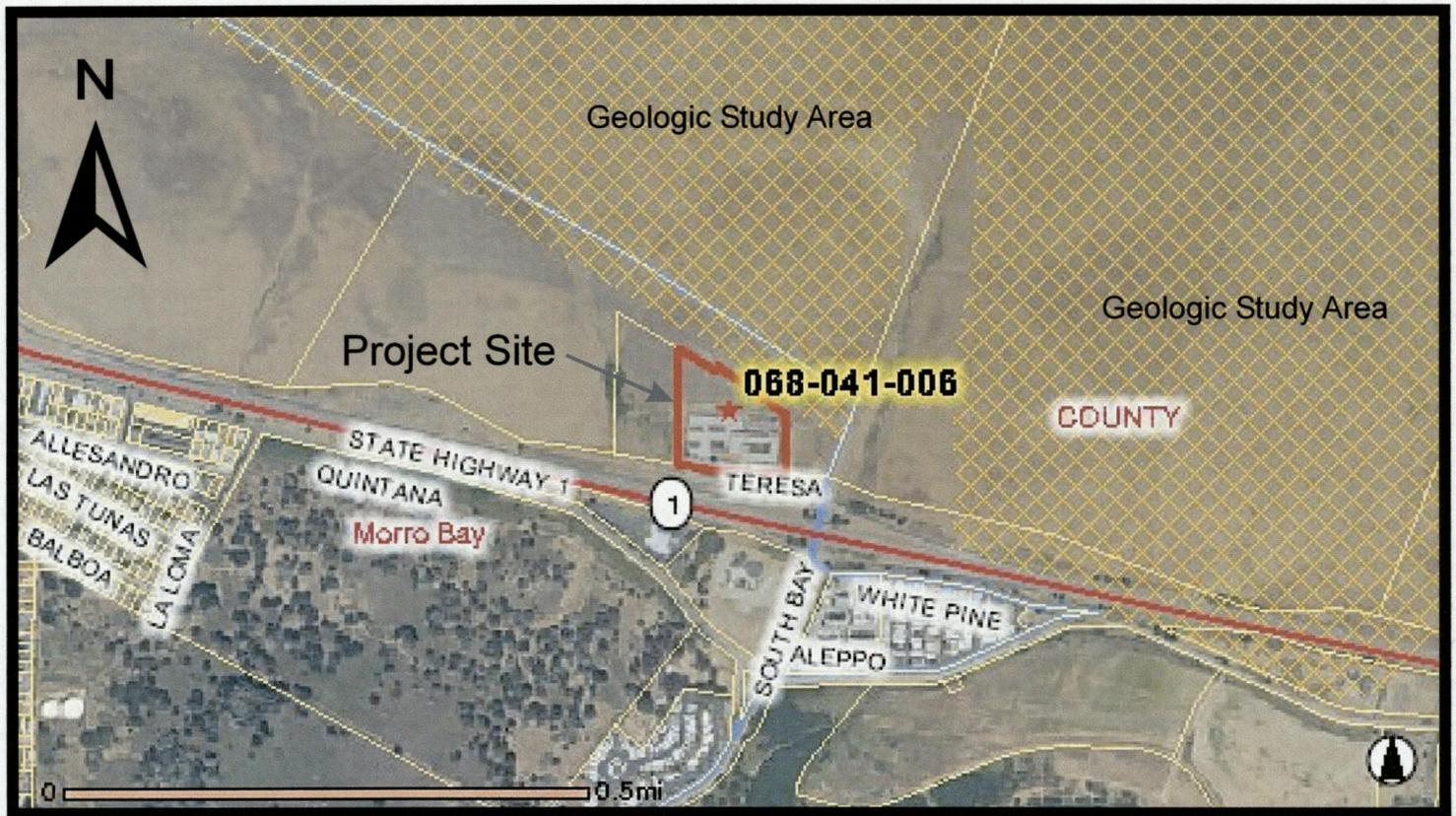


Figure 8  
 Photographic Section  
 Cut Slope Behind Retirement Home  
 Seashell Community  
 Morro Bay

See Figure 4 for Section Line





Base map: San Luis Obispo County Department of Planning and Building  
Interactive GIS Mapping

Note: The property is not in a Geologic Study Area  
as determined by the San Luis Obispo County Geologist

Figure 9

Geologic Study Areas  
Sea Shell Staff Housing

Cleath & Associates

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0893-3200/97/\$12.00 DOI: 10.1037/0893-3200.12.4.511

The authors thank the following individuals for their assistance in the preparation of this manuscript: [illegible names]

Figure 2

George B. Smith  
and  
John M. Brainerd

Child & Adolescent

### **Expansive Soils**

The expansion index of the top soil ranges from 98 to 120 and of the bedrock is less than 20. As recommended in the geotechnical report, foundations should be placed into bedrock and the soils should be over-excavated below the slab and replaced with non-expansive soils or select material.

### **Geochemistry of Geologic Subgrade-Soluble Sulfates and Corrosive Soils**

Based on the rock types underlying the project area, no soluble sulfates are present. Soils underlying the buildings will be over-excavated and therefore corrosive soils are not a factor in this project.

### **Flooding and Severe Erosion**

The buildings are located up on a hill-side with limited watershed above the building areas and therefore major flooding should not be a problem. The shallow depth to bedrock that is resistant to erosion precludes severe erosion. This is exhibited in the existing cut slope. Drainage around the proposed residential units and down-slope should be controlled to avoid localized flooding at the driveway below the units.

### **Ground Water**

No ground water was encountered in the hand auger and drilled borings to their total depths. These borings were drilled to several feet below the finished floor elevations of the adjacent proposed housing units. No ground water was observed on the surface at the project site. These borings were drilled during a particularly dry winter, however. Some seeps may issue out of the shallow fractured rock during and following a wetter rainy season.

## **SEISMOLOGY AND CALCULATIONS OF EARTHQUAKE GROUND-MOTION**

### **Evaluation of Historic Seismicity**

Significant past earthquake epicenters are shown on Figure 10. Distances to known faults showing the maximum magnitude using the moment magnitude scale, are shown in Table 1.

### **Characterize and classify the geologic subgrade.**

The geologic subgrade was evaluated through subsurface exploration and surface mapping, and classified based on Table 16-J of the ICBO, 1997. The soil profile type C (very dense soil and soft rock) was determined for the site.

### **Probabilistic evaluation of earthquake ground motion.**

A probabilistic Seismic Hazard Analysis (PSHA) was conducted using the U.S. Geological Survey software "Seismic Design Parameters" to determine the design-basis earthquake (DBE) parameters.

### **Peak ground acceleration for DBE levels of ground motion.**

Section 1629.1 of the 1997 Uniform Building Code (ICBO, 1997) requires that the "design-basis ground motion" be provided in a geologic report. This is defined by the ICBO, 1997, as the ground motion with a 10% probability of exceedance in 50 years. Peak ground accelerations for the DBE represented by a

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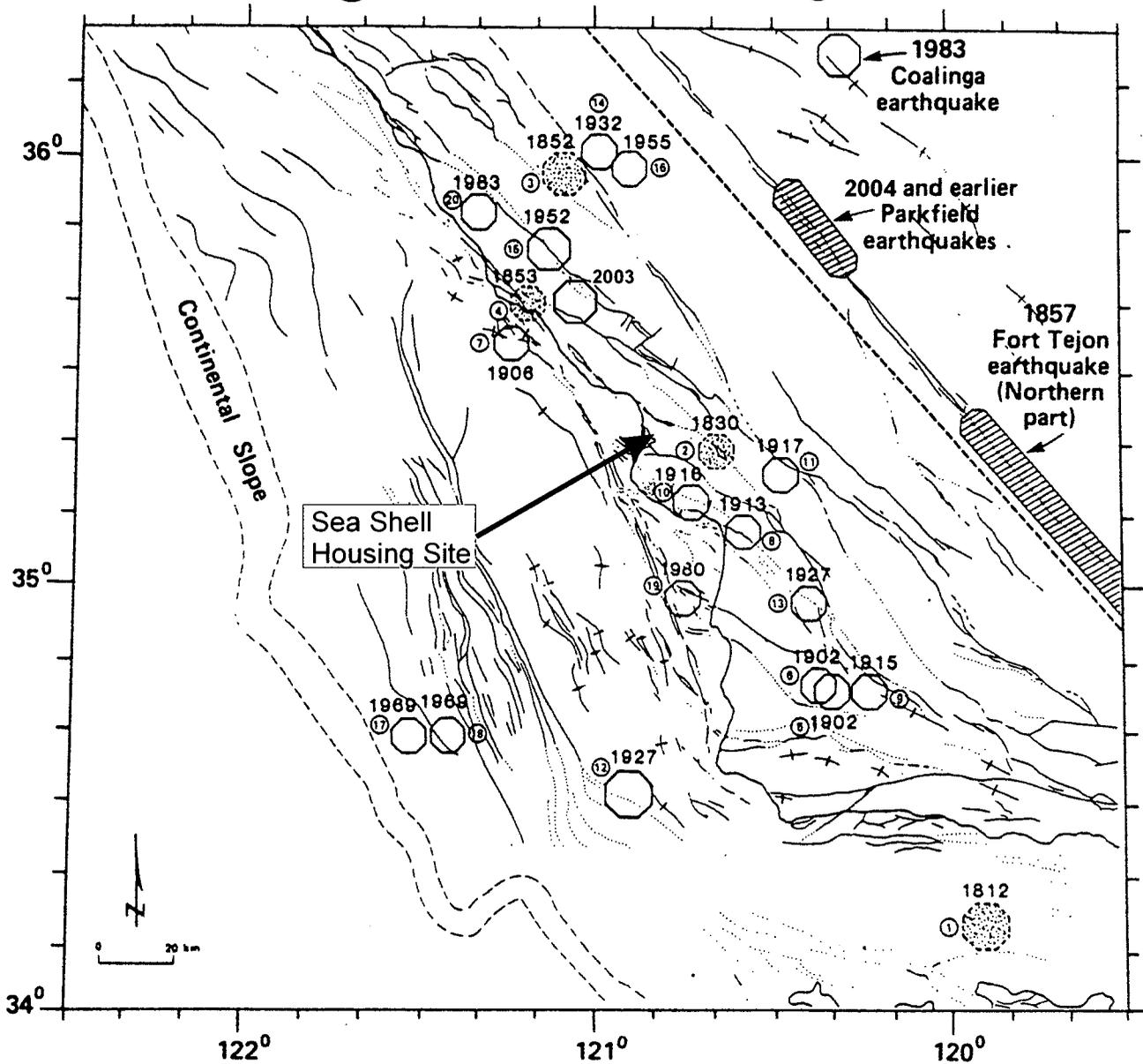
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**EXPLANATION**

Earthquake epicenter:

1812 → Year of event  
 ○ ⊙ Event number



Event location that is poorly constrained



Event location that is within 20 kilometers and generally within 10 kilometers



Historic earthquakes with fault rupture along San Andreas fault zone

Magnitude



5.0 - 5.9  
 6.0 - 6.9  
 7.0 - 7.9

Base Map: Diablo Canyon Power Plant  
 Long Term Seismic Program - Final Report  
 Pacific Gas & Electric, July 1988

Scale: 1 inch = 20 kilometers

**Figure 10**  
**Earthquake Epicenter Map**  
**Sea Shell Staff Housing**

Cleath & Associates

response spectra were determined and are included in Appendix A (Seismic Parameters). The design basis ground motion for the site is 0.29 gravity (g). A spectral acceleration table is included in Appendix A

**Near-source coefficients and distance to nearest active fault.**

The near-source velocity factor (Nv) and the near-source acceleration factor (Na) were determined for the site using Tables 16-S and 16-T from the ICBO, 1997 (Appendix A). Using a distance of 7.2 kilometers from the site to the Los Osos fault (Type B fault), Nv is equal to 1.1, and Na is equal to 1.0. Table 16-Q of the ICBO, 1997 was used to determine the seismic coefficient Ca. Based on the Type C Soil Profile, the Na of 1.0, and the fact that the site is located within Seismic Zone 4, Ca is equal to 0.40. Table 16-R of the ICBO, 1997 was used to determine the seismic coefficient Cv. Based on the Type C Soil Profile, the Nv of 1.1, and the fact that the site is located within Seismic Zone 4, Cv is equal to 0.62.

**Seismic Zone 3 or 4**

The project site is located in Seismic Zone 4.

**LIQUEFACTION ANALYSIS**

This analysis is not applicable to this site due to the type of rock (massive serpentinite and ultramafic rock).

**EXCEPTIONAL GEOLOGIC HAZARDS AND COMPLICATED SITE CONDITIONS**

**Not Present at Site**

The following geologic hazards and complicated site conditions are not present at the site:

- Phase 1 & II Environmental Site Assessment Work
- Hazardous Materials (the project site has not been used to store or transmit hazardous materials)
- Ground-Water Quality (the property is served by the City of Morro Bay)
- On-Site Septic Systems (wastewater collected by the City of Morro Bay)
- Non-Tectonic Faulting and Hydrocollapse of Alluvial Fan Soils (alluvial fan soils not present)
- Regional Subsidence (the geologic units underlying the site are dense and not likely to subside)
- Volcanic Eruption (no active volcanoes are in San Luis Obispo County)
- Tsunami or Seiche (the site is above the tsunami flooding level)
- Radon-222 Gas (geologic materials with documented radon not present at site)
- Paleontologic Resources (none present at the site)

**Naturally Occurring Asbestos**

The serpentinite and ultramafic rock types contain asbestiform minerals. During construction, disturbed soils and rock can be expected to create dust that should be suppressed during construction activities. A dust control plan should be considered for this project. Permitting from the Air Pollution Control Board

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or additional geologic investigations may be required to establish an exemption to this permitting requirement.

### **GRADING PLAN REVIEW AND FOUNDATION-PLAN REVIEW**

A certified engineering geologist should review the grading plan and foundation plan, when developed to determine if the plans conform to the recommendations provided herein. A certified engineering geologist should be present to witness the excavations for cut slopes, footings and retaining walls to determine whether the rock exposed is consistent with the rock types mapped and drilled during this investigation and the geotechnical exploration or it is different and requires additional evaluation. Sub-drainage plans should be reviewed to determine conformance with the recommendations presented in this engineering geologic report.

### **REPORT DOCUMENTATION**

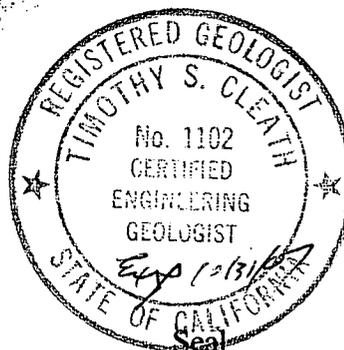
#### **Geology, Seismology, and Geotechnical References**

The references used in this report are listed in the attached "List of References".

#### **Certified Engineering Geologist's Signature**



Timothy Stephen Cleath  
Certified Engineering Geologist #1102  
Certification Expires October 31, 2007





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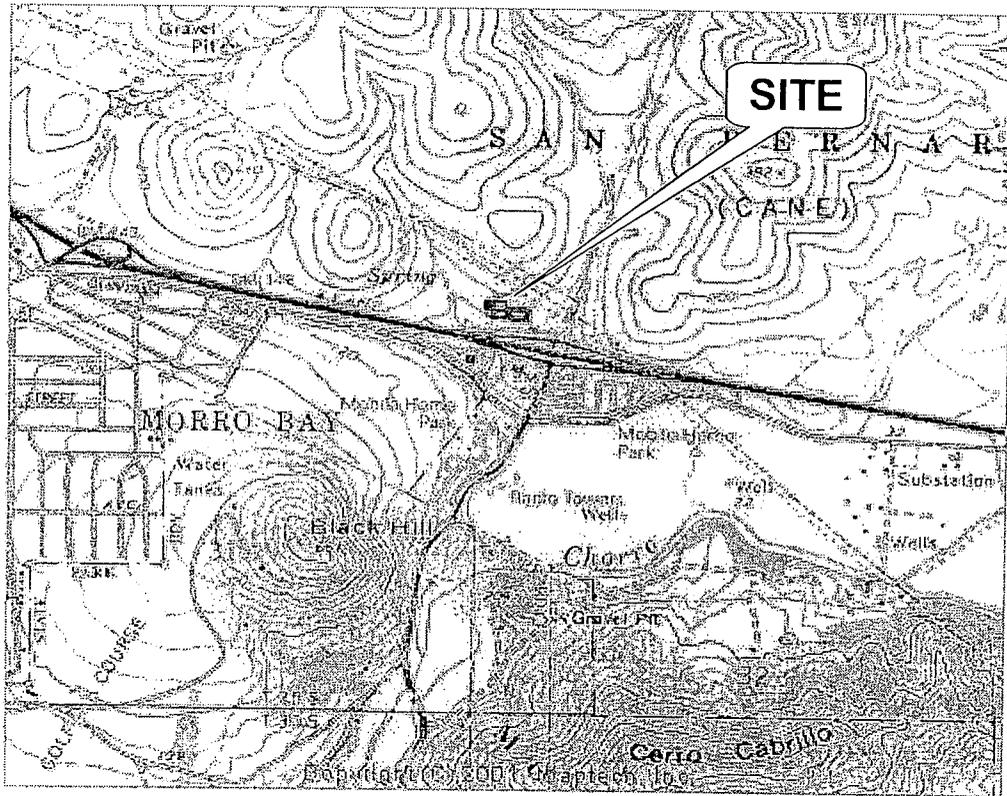
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GEOTECHNICAL INVESTIGATION  
SEA SHELL STAFF HOUSING  
1405 TERESA DRIVE  
MORRO BAY, CALIFORNIA

February 16, 2007  
PROJECT 7-4309



PREPARED BY:

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- Site Location Map
- Site Plan
- Drainage Recommendations
- Hillside Lots
- UBC Seismic Coefficients

### APPENDIX A

- Soil Classification Chart
- Logs of Exploratory Borings

### APPENDIX B

- Moisture-Density Tests
- Direct Shear Test
- R Value Test
- Expansion Index Test
- Atterberg Limits

**GEOTECHNICAL INVESTIGATION  
SEA SHELL STAFF HOUSING  
1405 TERESA DRIVE  
MORRO BAY, CALIFORNIA**

**PROJECT 7-4309**

**1.0 INTRODUCTION**

This report presents the results of our geotechnical investigation for the proposed residences to be located at 1405 Teresa Drive in Morro Bay, California. A site location map is presented in Figure 1.

The property is bounded by Teresa Drive to the south, residential lots to the west and open space to the north and east. The proposed residences will be located to the north of the existing structure. In general, the terrain in this area slopes to the south with an average elevation of approximately 100 feet above mean sea level. Units 11 through 14 on the west side of the site are located adjacent to an existing twenty-five (25) foot high, approximately 1:1 (horizontal:vertical) cut slope. Units 1 through 10 on the east side of the site and are located on sloping terrain with gradients of approximately 2:1 to 4:1 (horizontal:vertical). At the time of our field exploration the building areas were covered with grasses, weeds and some trees.

It is our understanding that eight (8) residential structures composing 16 units will be constructed at the site. These buildings will be one and two story wood-framed structures with concrete slab-on-grade floors. Due to the sloping terrain some structures will incorporate concrete retaining walls. Footing loads for the structures are presently unavailable. For the purpose of this report, maximum loads on the order of 15 kips (columns) and 1.5 kip per lineal foot (continuous) have been estimated.

The project description is based on a site reconnaissance performed by a GSI Soils Inc., engineer and information provided by Pults and Associates and Cathy Novak Consulting. The plan provided forms the basis for the "Site Plan", Figure 2.

In the event that there is change in the nature, design or location of improvements, or if the assumed loads are not consistent with actual design loads, the conclusions and recommendations contained in this report should be reviewed and modified, if required.

Evaluations of the soils for hydrocarbons or other chemical properties are beyond the scope of the investigation.

## **2.0 PURPOSE AND SCOPE**

The purpose of this study was to explore and evaluate the surface and subsurface soil conditions at the site and to develop geotechnical information and design criteria for the proposed construction. The scope of this study included the following items.

1. A review of available soils information for this area of Morro Bay.
2. A field study consisting of a site reconnaissance and an exploratory boring program to formulate a description of the subsurface conditions.
3. A laboratory testing program performed on representative soil samples collected during our field study.
4. Engineering analysis of the data gathered during our field study, laboratory testing, and literature review. Development of recommendations for site preparation and grading, and geotechnical design criteria for foundations, retaining walls, and underground facilities.
5. Preparation of this report summarizing our findings, conclusions, and recommendations regarding the geotechnical aspects of the project site.

## **3.0 SUBSURFACE SOIL CONDITIONS**

The near surface soils encountered in our exploratory borings generally consisted of sandy clays to a depth of 1 to 5 feet. These clays were encountered in a moist state and in a soft condition in the upper one to two feet and becoming stiff to very stiff below this depth. Severely weathered clayey sandstone materials were encountered below the surface clay soils to a depth of 12 feet. These materials were found in a moist state and in a dense to very dense condition. Laboratory testing indicates that the surface sandy clays are highly expansive while the underlying bedrock has very low expansivity.

No free ground water was during our field exploration. However, very moist to saturated conditions can occur during wet winter months in the near surface soils. A more detailed description of the soils encountered is presented graphically on the "Exploratory Boring Logs", B-1 through B-6, Appendix A. An explanation of the symbols and descriptions used on these logs are presented on the "Soil Classification Chart".

The soil profile described above is generalized; therefore, the reader is advised to consult the boring logs (Appendix A) for soil conditions at specific locations. Care should be exercised in interpolating or extrapolating subsurface conditions between or beyond borings. On the boring logs we have indicated the soil type, moisture content, grain size, dry density, and the applicable United Soil Classification System Symbol.

The locations of our exploratory borings, shown on Site Plan, Figure 2, were approximately determined from features at the site. Hence, accuracy can be implied only to the degree that this method warrants. Surface elevations at boring locations were not determined.

#### 4.0 UBC SEISMIC COEFFICIENTS

A summary of the seismic factors applicable to this site is provided in Figure 5. The soil profile type would be considered an  $S_c$ , the seismic source is a Type B, and the near source factors  $N_a$  and  $N_v$  are 1.0 and 1.12 respectively. The seismic coefficients  $C_a$  and  $C_v$  would be  $0.40 N_a$  and  $0.56 N_v$  respectively.

#### 5.0 CONCLUSIONS AND RECOMMENDATIONS

1. The site is suitable for the proposed development provided the recommendations presented in this report are incorporated into the project plans and specifications.
2. All grading and foundation plans should be reviewed by GSI Soils Inc., hereinafter described as the Geotechnical Engineer, prior to contract bidding. This review should be performed to determine whether the recommendations contained within this report are incorporated into the project plans and specifications.

3. The Geotechnical Engineer should be notified at least two (2) working days before site clearing or grading operations commence, and should be present to observe the stripping of deleterious material and provide consultation to the Grading Contractor in the field.
4. Field observation and testing during the grading operations should be provided by the Geotechnical Engineer so that a decision can be formed regarding the adequacy of the site preparation, the acceptability of fill materials, and the extent to which the earthwork construction and the degree of compaction comply with the project geotechnical specifications. Any work related to grading performed without the full knowledge of, and under direct observation of the Geotechnical Engineer, may render the recommendations of this report invalid.

#### **5.1 Clearing and Stripping**

1. All surface and subsurface deleterious materials should be removed from the proposed addition area and disposed of off-site. This includes, but is not limited to any buried utility lines, loose fills, septic systems, debris, building materials, and any other surface and subsurface structures within proposed building areas. Voids left from site clearing, should be cleaned and backfilled as recommended for structural fill.
2. Once the site has been cleared, the exposed ground surface should be stripped to remove surface vegetation and organic soil. The surface may be disced, rather than stripped, if the organic content of the soil is not more than three percent by weight. If stripping is required, depths should be determined by a member of our staff in the field at the time of stripping. Strippings may be either disposed of off-site or stockpiled for future use in landscape areas if approved by the landscape architect.

#### **5.2 Preparation of Building Pads**

1. It is recommended that all footings extend a minimum of 12 inches into the weathered bedrock materials with slab-on-grade areas supported on 36 inches of suitable native or imported non-expansive materials. However, where suitable

bedrock materials (non-expansive) are exposed at pad grade further removals would not be required.

2. For slab-on-grade areas and where fill is to be placed, the native soils should be overexcavated to a depth of 36 inches below existing grades or finished pad grade, whichever is greater. The exposed surface should then be scarified to a depth of 12 inches, wetted to above optimum moisture, and compacted to at least ninety (90) percent of maximum dry density. The removed material can then be replaced and compacted (90%). However, the slab-on-grade areas should be capped with 36 inches of native non-expansive soils or a select material such as decomposed granite or equivalent. These soils should be similarly compacted to ninety (90) percent. The lateral limits of overexcavation and scarification should be at least 5 feet beyond the perimeter building and footing lines.
3. Where building pads are located entirely into suitable non-expansive or very low expansive bedrock materials further excavation may not be required. The exposed surface should be evaluated and approved by the geotechnical engineer. At a minimum the surface should be scarified to a depth of 12 inches and compacted to 90 percent.
4. In order to help minimize potential settlement problems associated with structures supported on a non-uniform thickness of compacted fill, the soils engineer should be consulted for specific site recommendations during grading.
5. Cut and fill slopes in native materials should not exceed 3:1 (horizontal: vertical) and should be properly compacted to 90 percent. The slopes should also be properly protected against erosion. Fill slopes should be overfilled and trimmed back to competent material. If steeper slopes are planned they should be evaluated in the field during grading. Our observations indicate the existing cut slope at the site is stable. The project geologist should evaluate this slope and any further bedrock cuts for overall and surficial stability.

6. The above grading is based on the strength characteristics of the materials under conditions of normal moisture that would result from rain water and do not take into consideration the additional activating forces applied by seepage from springs or subsurface water. Areas of observed seepage should be provided with subsurface drains to release the hydrostatic pressures.
7. All final grades should be provided with a positive drainage gradient away from foundations. Final grades should provide for rapid removal of surface water runoff. Ponding of water should not be allowed on building pads or adjacent to foundations.

### **5.3 Preparation of Paved Areas**

1. The upper 12 inches in driveway and paved areas should be replaced with crushed gravel or Class II Base. Pavement and driveway subgrades should be scarified to a depth of 12 inches below existing grade or finished subgrade prior to placing gravel or base. The soil should then be wetted to slightly above optimum moisture content and compacted to a minimum of 90 percent of maximum dry density.
2. The upper 6 inches of subgrade beneath all paved areas should be compacted to at least 95 percent relative compaction. Subgrade soils should not be allowed to dry out or have excessive construction traffic between the time of water conditioning and compaction, and the time of placement of the pavement structural section.

### **5.4 Structural Fill**

1. On-site processed sandstone (clayey sand materials) free of organic and deleterious material are suitable for use in structural areas. Structural fill should not contain rocks larger than 4 inches in greatest dimension, and should have no more than 15 percent larger than 2.5 inches in greatest dimension.
2. Import (decomposed granite or equivalent) should be free of organic and other deleterious material and should have a very low expansion potential with a

plasticity index of 10 or less. Before delivery to the site, a sample of the proposed import should be tested in our laboratory to determine its suitability for use as structural fill.

3. Structural fill using on-site inorganic soil or approved import should be placed in layers, each not exceeding eight inches in thickness before compaction. On-site inorganic or imported soil should be conditioned with water, or allowed to dry, to produce a soil water content at approximately optimum value, and should be compacted to at least 90 percent relative compaction based on ASTM D1557-91.

#### **5.5 Foundations**

1. Conventional continuous footings and spread footings may be used for support of the proposed structures. Spread footings should be connected to the perimeter footings with grade beams.
2. Due to the existing cut slope and the relatively steep terrain a minimum setback distance of 10 feet should be maintained between the outer edge of footings and the competent face of adjacent slopes.
3. Perimeter footings should be at least 15 inches wide with a minimum embedment of 12 inches into bedrock with a minimum overall depth of 30 inches below lowest adjacent grade. The footing bottoms should be observed and approved by the geotechnical engineer prior to placing steel and concrete. Where footing depths exceed 30 inches slurry (3 sack cement/sand) could be used between the bottom of the excavations and the underside of the footings. Spread footings should be a minimum of 2 feet square, similarly embedded a minimum of 12 inches into bedrock and tied to the perimeter footings with grade beams spaced at a maximum of 20 feet on center. The reinforcement for the footings and grade beams should be designed by the structural engineer, however, a minimum of two (2) No. 5 rebar should be provided top and bottom for continuous footings with dowels (#3 @ 18" on-center) to tie the perimeter footings and grade beams to slab areas.

3. An allowable dead plus live load bearing pressure of 3000 psf may be used for design. Total settlements of less than 1-inch are anticipated with differential settlements being 50 percent of this value.
4. The above allowable pressures are for support of dead plus live loads and may be increased by one-third for short-term wind and seismic loads.
5. Lateral forces on structures may be resisted by passive pressure acting against the sides of shallow footings and/or friction between the soil and the bottom of the footing. For resistance to lateral loads, a friction factor of 0.35 may be utilized for sliding resistance at the base of the spread footings in undisturbed native materials or engineered fill. A passive resistance of 350 pcf equivalent fluid weight may be used against the side of shallow footings.

#### 5.6 **Slab-On-Grade Construction**

1. Concrete slabs-on-grade and flatwork should not be placed directly on unprepared loose fill materials. Preparation of subgrade to receive concrete slabs-on-grade and flatwork should be processed as discussed in the preceding sections of this report.
2. Where concrete slabs-on-grade are to be constructed, the slabs should be underlain by a minimum of 6 inches of clean free-draining material such as clean gravel or permeable aggregate complying with Caltrans Standard Specifications 68, Class I, Type A or Type B; to service as a cushion and a capillary break. Clean gravel should have less than 3% passing the No. 200 sieve. A 15-mil Polyethylene-type membrane should be placed between the capillary break and the slab to provide an effective vapor barrier, and to minimize moisture condensation under the floor covering. All seams through the vapor barrier should be overlapped and sealed. Where pipes extend through the vapor barrier, the barrier should be sealed to the pipes. Tears or punctures in the moisture barrier should be completely repaired. It is suggested that a 2-inch thick sand layer be placed on top of the membrane to assist in the curing of the concrete. The sand should be lightly moistened prior to placing concrete.

3. Concrete slabs-on-grade should be a minimum of 4 inches thick and should be reinforced with No. 3 reinforcing bars placed at 18 inches on-center both ways at or slightly above the center of the structural section. Reinforcing bars should have a minimum clear cover of 1.5 inches, and hot bars should be cooled prior to placing concrete. The aforementioned reinforcement may be used for anticipated uniform floor loads not exceeding 100 psf. If floor loads greater than 100 psf are anticipated the slab should be evaluated by a structural engineer.
4. All slabs should be poured at a maximum slump of less than 5 inches. Excessive water content is the major cause of concrete cracking. For design of concrete floors, a modulus of subgrade reaction of  $k = 100$  psi per inch would be applicable to on-site engineered fill soils.

**5.7 Site Retaining Walls**

1. Retaining walls should be designed to resist lateral pressures from adjacent soils and surcharge loads applied behind the walls.

Lateral Pressure and Condition (Compacted Fill)		Equivalent Fluid Pressure, pcf	
		Unrestrained Wall	Rigidly Supported Wall
Active Case, Drained	Level-native soils	60	--
	Level-granular backfill	30	--
At-Rest Case, Drained	Level-native soils	--	80
	Level-sand backfill		50
Passive Case, Drained	Level 2:1 Sloping Down	300	--
		150	

For sloping backfill add 1 pcf for every 2 deg. (Active case) and 1.5 pcf for every 2 deg. (At-rest case)

2. Isolated retaining wall foundations should extend a minimum of 12 inches into bedrock with a minimum overall depth of 30 inches below lowest adjacent grade. An allowable toe pressure of 3,000 psf is recommended in competent bedrock approved by the geotechnical engineer. A coefficient of friction of 0.35 may be used between subgrade materials and concrete footings.

3. In addition to the lateral soil pressure given above, retaining walls should be designed to support any design live load, such as from vehicle and construction surcharges, etc., to be supported by the wall backfill. If construction vehicles are required to operate within 10 feet of a wall, supplemental pressures will be induced and should be taken into account through design.
4. The above-recommended pressures are based on the assumption that sufficient subsurface drainage will be provided behind the walls to prevent the build-up of hydrostatic pressure. To achieve this we recommend that a filter material be placed behind all proposed walls. The blanket of filter material should be a minimum of 12 inches thick and should extend from the bottom of the wall to within 12 inches of the ground surface. The top 12 inches should consist of water conditioned, compacted native soil. A 4-inch diameter drain pipe should be installed near the bottom of the filter blanket with perforations facing down. The drain pipe should be underlain by at least 4 inches of filter type material. Adequate gradients should be provided to discharge water that collects behind the retaining wall to an adequately controlled discharge system with suitably projected outlets. The filter material should conform to Class I, Type B permeable material as specified in Section 68 of the California Department of Transportation Standard Specifications, current edition. A typical 1" x #4 concrete coarse aggregate mix approximates this specification.
5. For hydrostatic loading conditions (i.e. no free drainage behind walls), an additional loading of 45 pcf equivalent fluid weight should be added to the above soil pressures. If it is necessary to design retaining structures for submerged conditions, allowed bearing and passive pressures should be reduced by 50 percent. In addition, soil friction beneath the base of the foundations should be neglected.
6. Precautions should be taken to ensure that heavy compaction equipment is not used immediately adjacent to walls, so as to prevent undue pressure against, and movement of, the walls.

7. The use of rubber water-stops between the footing and wall and an impermeable barrier such as Paraseal (or equivalent) should be considered for any basement construction, and for building walls which retain earth.

**5.8 Pavement Design**

1. The following table provides recommended pavement sections based on an estimated R-Value of 8 for the near surface sandy clay soils encountered at the site.

RECOMMENDED MINIMUM ASPHALT CONCRETE PAVEMENT SECTIONS DESIGN THICKNESS		
T.I.	A.C.-in.	A.B.-in.
4.5	2.5	9.0
5.0	2.5	10.5
5.5	3.0	11.0
6.0	3.0	14.0
6.5	3.5	14.5
7.0	3.5	16.0
8.0	4.5	17.5
8.5	5.0	18.5
9.0	5.5	19.0
T.I. = Traffic Index A.C. = Asphaltic Concrete - must meet specifications for Caltrans Type B Asphalt Concrete A.B. = Aggregate Base - must meet specifications for Caltrans Class II Aggregate Base (R-Value = minimum 78)		

2. All asphalt pavement construction and materials used should conform with Sections 26 and 39 of the latest edition of the Standard Specifications, State of California, Department of Transportation. Aggregate bases and sub-bases should also be compacted to a minimum relative compaction of 95 percent based on ASTM D1557-91.

3. R-value samples should be obtained and tested at the completion of rough grading and the pavement sections confirmed or revised. All asphaltic concrete pavement sections and all sections should be crowned for good drainage.

**5.9 Underground Facilities Construction**

1. The attention of contractors, particularly the underground contractors, should be drawn to the State of California Construction Safety Orders for "Excavations, Trenches, Earthwork". Trenches or excavations greater than 5 feet in depth should be shored or sloped back in accordance with OSHA Regulations prior to entry.
2. For purposes of this section of the report, bedding is defined as material placed in a trench up to 1 foot above a utility pipe and backfill is all material placed in the trench above the bedding. Unless concrete bedding is required around utility pipes, free-draining sand should be used as bedding. Sand proposed for use as bedding should be tested in our laboratory to verify its suitability and to measure its compaction characteristics. Sand bedding should be compacted by mechanical means to achieve at least 90 percent relative compaction based on ASTM Test D1557-91.
3. On-site inorganic soil, or approved import, may be used as utility trench backfill. Proper compaction of trench backfill will be necessary under and adjacent to structural fill, building foundations, concrete slabs and vehicle pavements. In these areas, backfill should be conditioned with water (or allowed to dry), to produce a soil water content of about 2 to 3 percent above the optimum value and placed in horizontal layers each not exceeding 8 inches in thickness before compaction. Each layer should be compacted to at least 90 percent relative compaction based on ASTM Test D1557-91. The top lift of trench backfill under vehicle pavements should be compacted to the requirements given in report section 5.3 for vehicle pavement subgrades. Trench walls must be kept moist prior to and during backfill placement.

**5.10 Surface and Subsurface Drainage**

1. Concentrated surface water runoff within or immediately adjacent to the site should be conveyed in pipes or in lined channels to discharge areas that are relatively level or that are adequately protected against erosion.
2. Water from roof downspouts should be conveyed in pipes that discharge in areas a safe distance away from structures. Surface drainage gradients should be planned to prevent ponding and promote drainage of surface water away from building foundations, edges of pavements and sidewalks. For soil areas we recommend that a minimum of two (2) percent gradient be maintained with an increase to four (4) percent for the first five (5) feet adjacent to the footings.
3. Careful attention should be paid to erosion protection of soil surfaces adjacent to the edges of roads, curbs and sidewalks, and in other areas where "hard" edges of structures may cause concentrated flow of surface water runoff. Erosion resistant matting such as Miramat, or other similar products, may be considered for lining drainage channels.

**5.11 Temporary Excavations and Slopes**

1. Conventional earth moving equipment should be adequate to excavate the soils at the site.
2. We recommend that temporary trench walls exceeding five (5) feet in depth be sloped at an inclination of 1:1 (horizontal:vertical). However, during the rainy season, or where soft or loose sediments, or perched water conditions are found, flatter slopes (1½:1 to 2:1) may be required.
3. It should be noted that it is the *Contractor's* responsibility to maintain safe cut slopes based on actual field conditions and according to OSHA requirements. Temporary Slopes at gradients of 1:1 should not be open for more than 2 to 3 days. In some geologic units, perched water may be present locally in the slope face. The stability of the slopes may be compromised somewhat where these conditions exist due to softening or piping of the saturated materials.

4. Where the excavation bottom is locally wet, soft and yielding, it is recommended that the bottom be stabilized prior to placement of fill. Methods such as the use of pit-run gravels and cobbles on the excavated bottom covered with a geotextile fabric such as Mirafi 600x or placement of a Class II base material over a similar fabric could be used. The *Contractor* should be responsible for design and implementation of stabilization techniques.
5. Where the temporary trench slopes are inclined as described above, no shoring is required. However, where adjacent features may influence establishment of appropriate slopes, the *Contractor* may elect to use shoring. In no case should personnel enter trenches with vertical sidewalls greater than 5 feet deep without proper shoring. Design and installation of the shoring should be the responsibility of the *Contractor* and should be performed according to OSHA requirements.
6. Shoring should be designed to resist the lateral earth pressures provided, assuming no hydrostatic loads. If ground water is encountered the shoring should be designed for the required hydrostatic pressures.

#### 5.12 Site Slope Stability

1. As indicated previously the existing and proposed site slopes should be evaluated by the project geologist.
2. On the west side of the site, steeper slopes (approximately 1:1) were cut for the construction of the existing structure. An existing retaining wall approximately 5 feet high is located at the toe of this slope. Severely weathered bedrock materials are exposed across the entire slope. Visual observation did not reveal any obvious sign of instability.
3. The following minimum drainage and slope recommendations are also provided.
  - a. Where possible compacted materials utilized in the construction of the fill slopes should comprise at least 20 percent fine grained (passing #200

sieve) soils in a zone equal to 2 the slope height.

- b. Future cut slopes should be observed by the project geologist and a representative of the geotechnical engineer during grading and evaluated for stability.
- c. Hydroseeding or planting a surface cover of protective vegetation on all slope surfaces. In addition, an erosion control blanket (Greenfix CF072RR or equivalent) should be placed over the slopes to protect the vegetation while it becomes established.
- d. Water should not be allowed to run freely over the sides of the slopes. A lined V-ditch should be constructed above all cut and fill slopes.

#### 6.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

- 1. It should be noted that it is the responsibility of the owner or his/her representative to notify **GSI Soils Inc.** a minimum of 48 hours before any stripping, grading, or foundation excavations can commence at this site.
- 2. The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed during our study. Should any variations or undesirable conditions be encountered during grading of the site, **GSI Soils Inc.** will provide supplemental recommendations as dictated by the field conditions.
- 3. This report is issued with the understanding that it is the responsibility of the owner or his/her representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project, and incorporated into the project plans and specifications. The owner or his/her representative is responsible for ensuring that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they be due to natural processes or to the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may find this report to be invalid, wholly or partially. Therefore, this report should not be relied upon after a period of three (3) years without our review nor is it applicable for any properties other than those studied.
  
5. Validity of the recommendations contained in this report is also dependent upon the prescribed testing and observation program during the site preparation and construction phases. Our firm assumes no responsibility for construction compliance with these design concepts and recommendations unless we have been retained to perform continuous on-site testing and review during all phases of site preparation, grading, and foundation/slab construction.

Thank you for the opportunity to have been of service in preparing this report. If you have any questions or require additional assistance, please feel free to contact the undersigned at (805) 543-5493.

Sincerely,

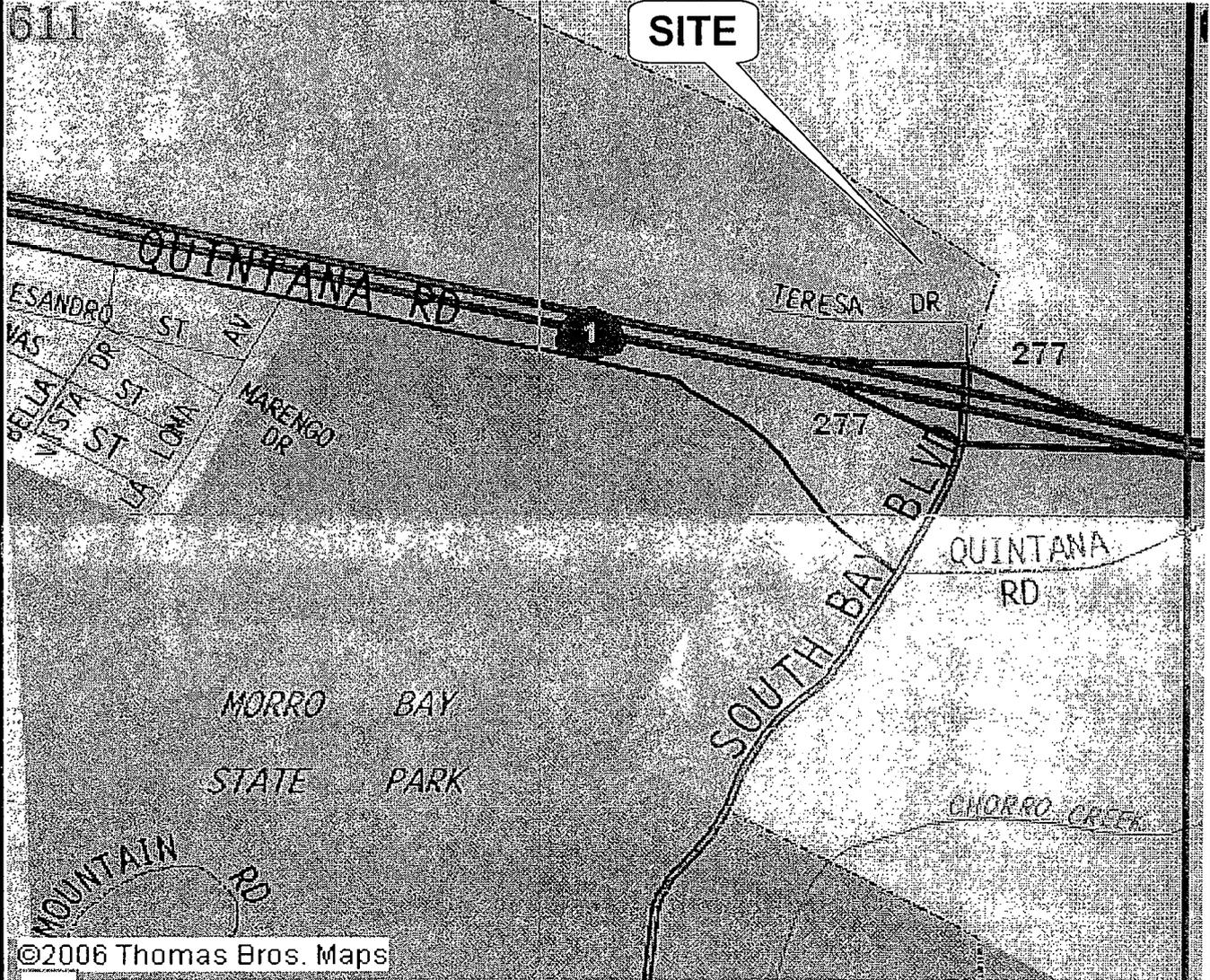
**GSI SOILS INC.**



Ronald J. Church  
Senior Engineer  
GE #2184



FIGURES



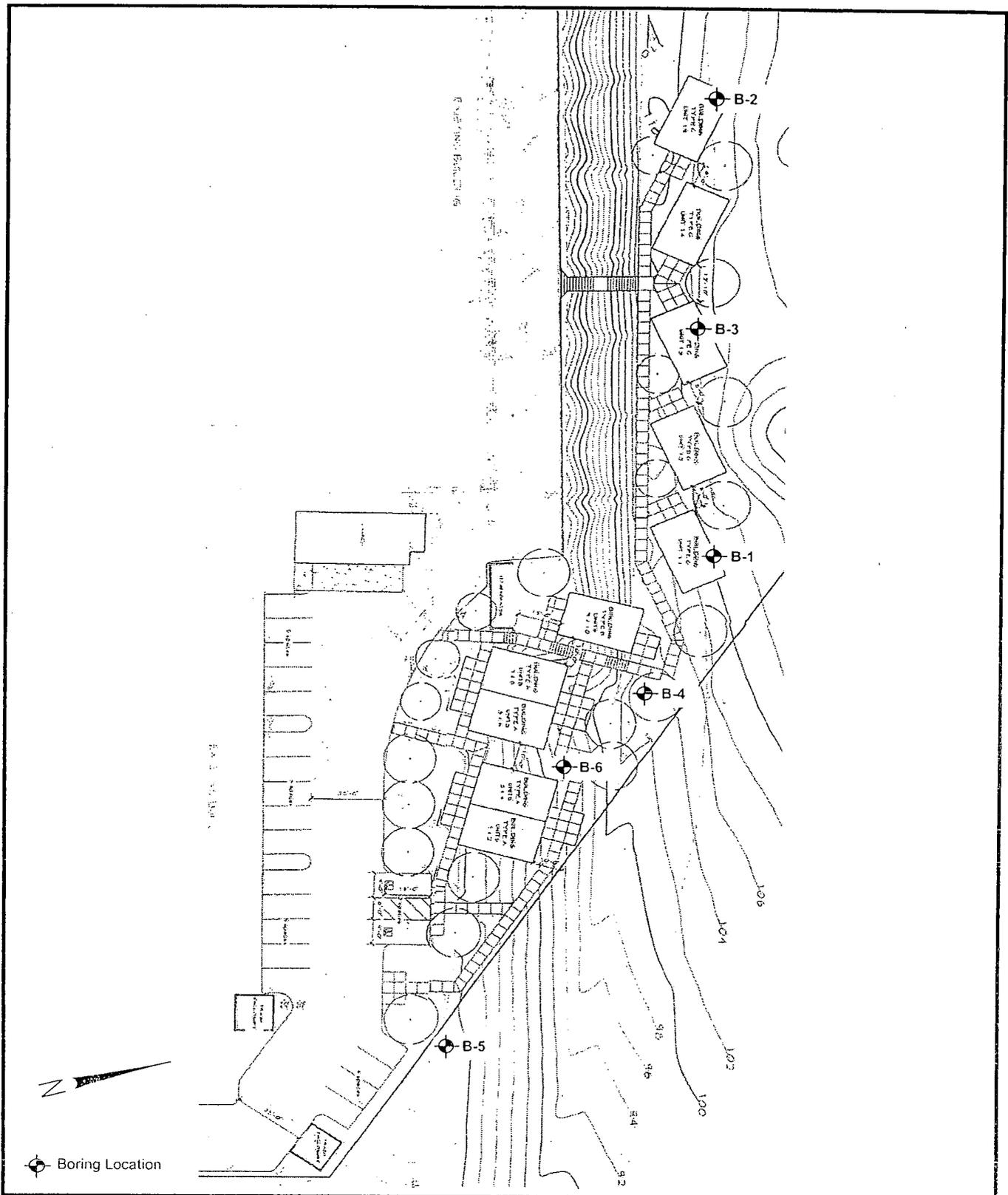
**SITE MAP**  
**SEA SHELL STAFF HOUSING**  
 1405 TERESA DRIVE  
 MORRO BAY, CALIFORNIA

Project No.

Figure No.

7-4309

1



**SITE PLAN**  
**SEA SHELL STAFF HOUSING**  
**1405 TERESA DRIVE**  
**MORRO BAY, CALIFORNIA**

Project No.	Figure No.
7-4309	2

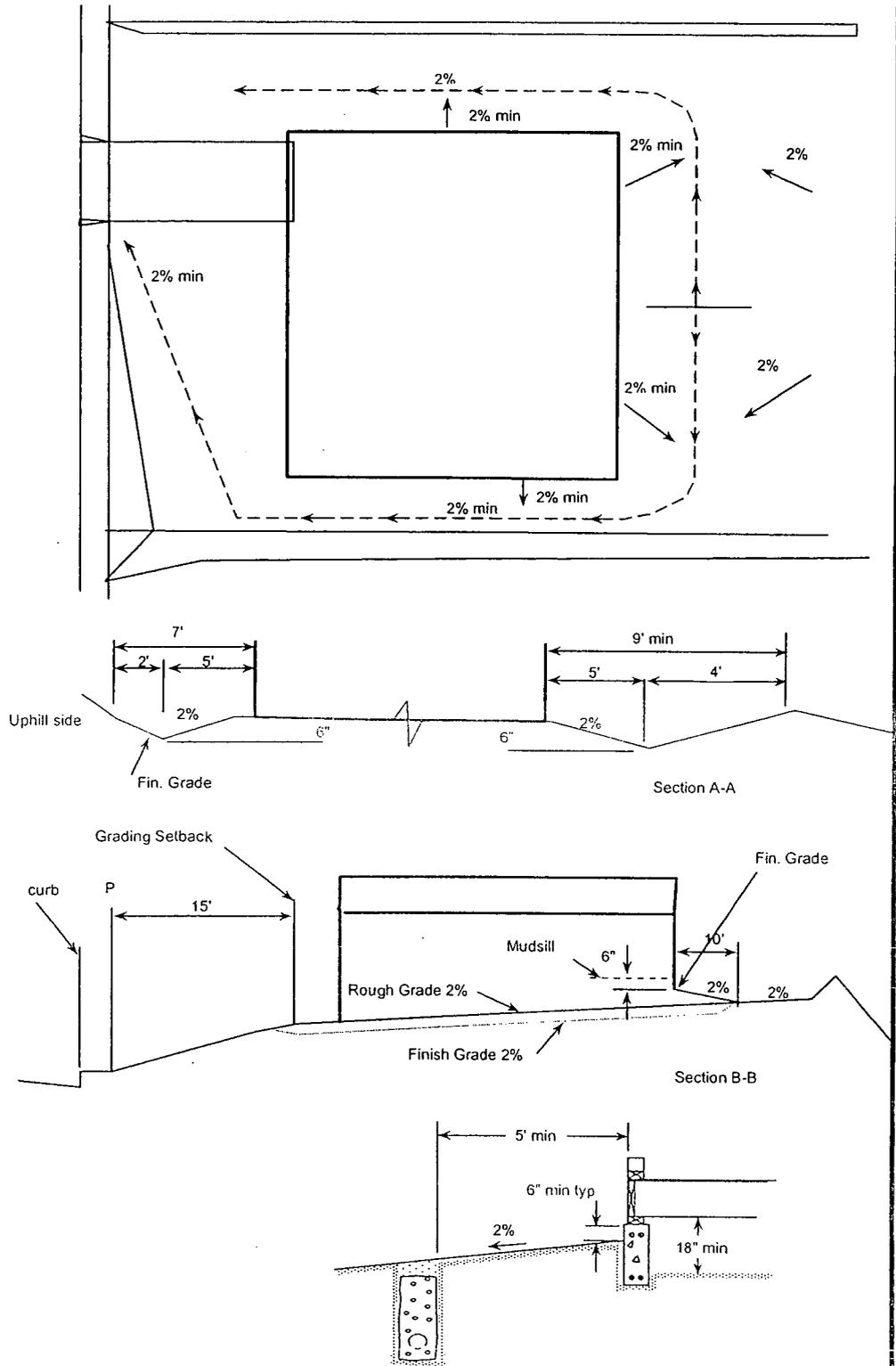
**NOTES**

Positive surface drainage shall be established away from the foundation system of the proposed structure at a 2% slope (min) for a minimum distance of 5' away from the structure and should be maintained throughout the life of the structure.

Drainage and surface water management should include the use of gutters and downspouts on the roof of the structure. Downspouts should be captured in a sealed pipe and diverted at least 10 horizontal feet away from the adjacent foundation system.

All drainage should be collected and directed away from the structures and away from slopes as shown in the figures. Drainage should be directed to proper non-erosive outfall facilities

(optional) Subterranean drains placed adjacent to the footings should be set at an elevation lower than the interior crawl space grade or the pad subgrade but not deeper than the bottom of the footing (see figure). Drain Pipes should be rigid perforated PVC with perforations down (5 to 7 o'clock). The pipes should be set 4" to 6" above the base of the trench and be completely surrounded by 1" gravel. The gravel should be wrapped with filter fabric (Mirafi 140n or equiv.). These drains should not be connected to surface sources such as yard drains or roof downspouts.



**GENERAL SURFACE DRAINAGE RECOMMENDATIONS**

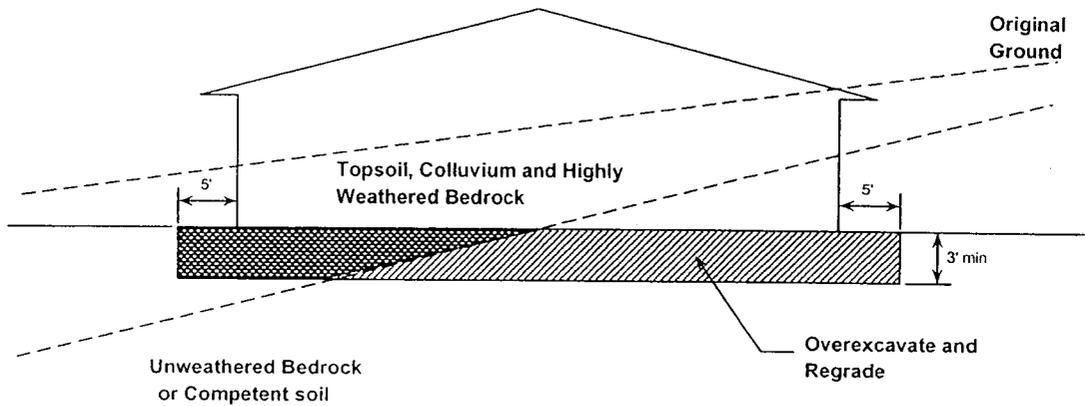
**Project No. Figure No.**

7-4309

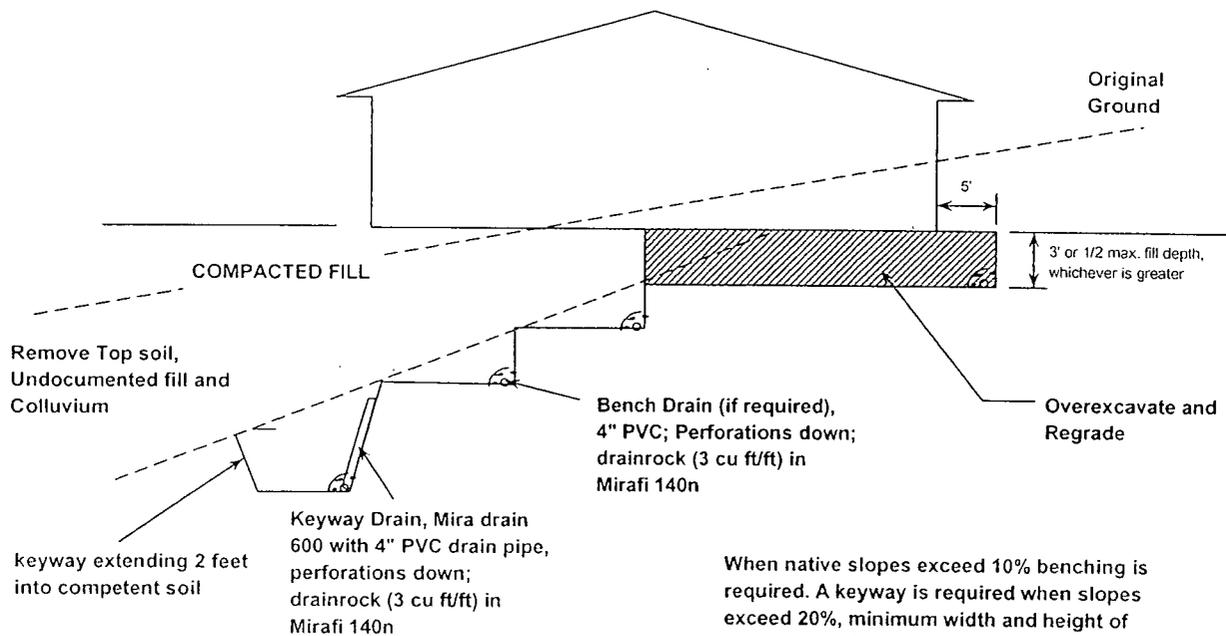
3

# GENERAL GRADING RECOMMENDATIONS

## CUT LOT



## CUT/FILL LOT TRANSITION



When native slopes exceed 10% benching is required. A keyway is required when slopes exceed 20%, minimum width and height of keyways and benches is 10 feet & 4 feet respectively.



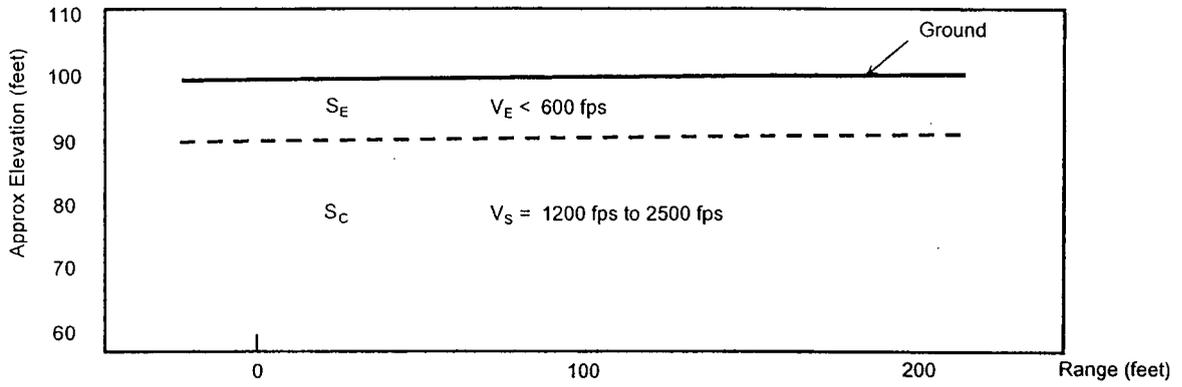
HILLSIDE LOTS

Project No.

Figure No.

7-4309

4



**Soil Profile Type**

S<sub>E</sub>

S<sub>D</sub>

S<sub>C</sub>

S<sub>B</sub>

S<sub>A</sub>

**Seismic Source Type**

Seismic Type A

Seismic Type B

Seismic Type C

**Closest Distance to Active Fault**

< 2 km

5 km

7 km

< 15 km

**Seismic Coefficient**

C<sub>a</sub> (Seismic Coefficient) = 0.40 N<sub>a</sub>

N<sub>a</sub> (Near-Source Factor) = 1.0

C<sub>v</sub> (Seismic Coefficient) = 0.56 N<sub>v</sub>

N<sub>v</sub> (Near-Source Factor) = 1.12

<u>Soil Profile Type</u>	<u>Shear Wave Velocity, V<sub>s</sub> (fps)</u>
S <sub>A</sub> = Hard Rock	> 5,000
S <sub>B</sub> = Rock	2,500 to 5,000
S <sub>C</sub> = Very Dense Soil and Soft Rock	1,200 to 2,500
S <sub>D</sub> = Stiff Soil Profile	600 to 1,200
S <sub>E</sub> = Soft Soil Profile	< 600

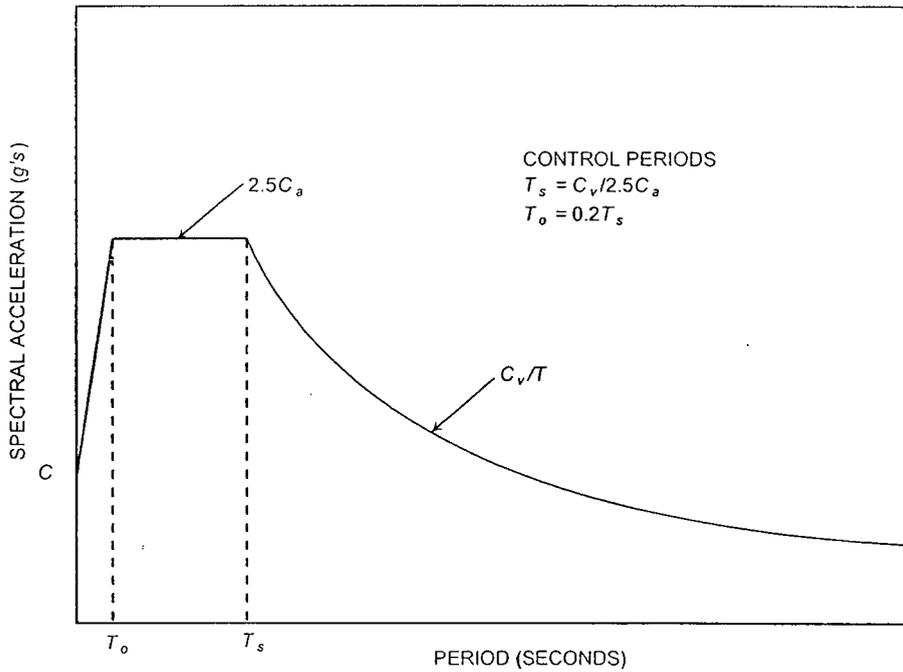


FIGURE 16.3 - DESIGN RESPONSE SPECTRA



UBC SEISMIC FACTORS AND COEFFICIENTS, CHAPTER 16

Project No. Figure No.

7-4309

5

**APPENDIX A**

Field Investigation  
Key to Boring Logs  
Boring Logs

February 16, 2007

Project 7-4309

## FIELD INVESTIGATION

### Test Hole Drilling

The field investigation was conducted on January 24, 2007. Six (6) exploratory borings were drilled at the approximate locations indicated on the Site Plan, Figure 2. The locations of these borings were approximated in the field.

Undisturbed and bulk samples were obtained at various depths during test hole drilling. The undisturbed samples were obtained by driving a 2.4-inch inside diameter sampler into soils. Bulk samples were also obtained during drilling.

### Logs of Boring

A continuous log of soils, as encountered in the borings was recorded at the time of the field investigation, by a Staff Engineer. The Exploration Boring Logs are attached.

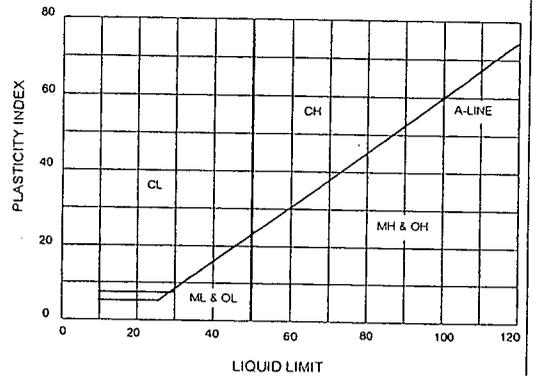
Locations and depth of sampling, in-situ soil dry densities and moisture contents are tabulated in the Boring Logs.

## UNIFIED SOIL CLASSIFICATION SYSTEMS

MAJOR DIVISION		SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS Over 50% > #200 sieve	GRAVELS Over 50% > #4 sieve	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
	SANDS Over 50% < #4 sieve	CLEAN SANDS WITH LITTLE OR NO FINES	GC CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
			SW WELL GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SP POORLY GRADED SANDS, GRAVELLY SANDS
FINE GRAINED SOILS Over 50% < #200 sieve	SILTS AND CLAYS Liquid limit < 50		SM SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
			ML INORGANIC SILTS, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	SILTS AND CLAYS Liquid limit > 50		CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, LEAN CLAYS
			OL ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
			MH INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
			PI PEAT AND OTHER HIGHLY ORGANIC SOILS
HIGHLY ORGANIC CLAYS			

### PLASTICITY CHART

USED FOR CLASSIFICATION OF FINE GRAINED SOILS



### SOIL GRAIN SIZE

U.S. STANDARD SIEVE								
6"	3"	3/4"	4	10	40	200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		
150	75	19	4.75	2.0	0.425	0.075	0.002	
SOIL GRAIN SIZE IN MILLIMETERS								

### SAMPLE DRIVING RECORD

BLOWS PER FOOT	DESCRIPTION
25	25 BLOWS DROVE SAMPLER 12 INCHES, AFTER INITIAL 6 INCHES OF SEATING
50/7"	50 BLOWS DROVE SAMPLER 7 INCHES, AFTER INITIAL 6 INCHES OF SEATING
Ref/3"	50 BLOWS DROVE SAMPLER 3 INCHES DURING OR AFTER INITIAL 6 INCHES OF SEATING

NOTE: TO AVOID DAMAGE TO SAMPLING TOOLS, DRIVING IS LIMITED TO 50 BLOWS PER 6 INCHES DURING OR AFTER SEATING INTERVAL

### KEY TO TEST DATA

<b>B</b>	Bag Sample	CONS	Consolidation (ASTM D2435)
	Drive, No Sample Collected	DS	Cons. Drained Direct Shear (ASTM D3080)
	2 1/2" O.D. Mod. California Sampler, Not Tested	PP	Pocket Penetrometer
	2 1/2" O.D. Mod. California Sampler, Tested	GSD	Grain Size Distribution (ASTM D422)
	Standard Penetration Test	CP	Compaction Test (ASTM D1557)
	Sample Attempted with No Recovery	EI	Expansion Index (ASTM D4829)
	Water Level at Time of Drilling	LL	Liquid Limit (in percent)
	Water Level after Drilling	PI	Plasticity Index

#### RELATIVE DENSITY

SANDS, GRAVELS, AND NON PLASTIC SILTS	BLOWS/FOOT
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

#### RELATIVE DENSITY

CLAYS AND PLASTIC SILTS	STRENGTH	BLOWS/FOOT
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32



PROJECT NO.: 7-4309

DATE DRILLED: 1/24/2007

**SOIL CLASSIFICATION CHART  
AND BORING LOG LEGEND**

**SEA SHELL STAFF HOUSING  
MORRO BAY, CALIFORNIA**

FIGURE NO.

**A-1**

LOGGED BY: **BH** DRILL RIG: **Simco 2400** BORING NO.: **B-1**

ELEVATION: **100'** BORING DIAMETER (INCH): **4** DATE DRILLED: **24 January 2007**

GROUNDWATER DEPTH (FT):

ELEVATION (FT)	DEPTH (FT)	GRAPHIC LOG	GEOTECHNICAL DESCRIPTION	SOIL TYPE	SAMPLE	CONV. SPT BLOW COUNT	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLAST. INDEX	UNC. COMP. STRENGTH (PSF)	COMMENTS AND ADDITIONAL TESTS
99	1		Sandy Clay: dark brown, moist, fine to coarse grained, trace gravel and silt, soft	CL								
98	2		Clayey Sand: gray, moist, fine to coarse grained, trace gravel, very dense (severely weathered bedrock)	SC	B							
97	3					▲	50/4"	13.3	108.3			EI = 6
96	4											
95	5						50/2"	13.9				
94	6											
93	7											
92	8					B		11.6				
91	9											
90	10					■	50/2"	8.4				
89	11											
88	12			Boring terminated at 12 feet								
87	13											
86	14											
85	15											
84	16											
83	17											
82	18											
81	19											
80	20											

EXPLORATORY BORING LOGS



SEA SHELL STAFF HOUSING  
1405 TERESA DRIVE

PROJECT NO.  
7-4309

DATE  
February-07

FIGURE NO.  
A-2



LOGGED BY: **BH** DRILL RIG: **Simco 2400** BORING NO.: **B-3**

ELEVATION: **100'** BORING DIAMETER (INCH): **4** DATE DRILLED: **24 January 2007**

GROUNDWATER DEPTH (FT):

ELEVATION (FT)	DEPTH (FT)	GRAPHIC LOG	GEOTECHNICAL DESCRIPTION	SOIL TYPE	SAMPLE	CONV. SPT BLOW COUNT	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASIT. INDEX	UNC. COMP. STRENGTH (PSF)	COMMENTS AND ADDITIONAL TESTS
99	1		Sandy Clay: dark brown, moist, fine to coarse grained, trace gravel and silt, soft	CL								
98	2		Clayey Sand: yellow brown, moist, fine to coarse grained, trace gravel, very dense (severely weathered bedrock)	SC	B							
97	3											
96	4											
95	5					A	50/3"	17.4				
94	6											
93	7											
92	8					B						
91	9											
90	10					A	50/2"	20.7				
89	11			Boring terminated at 11 feet								
88	12											
87	13											
86	14											
85	15											
84	16											
83	17											
82	18											
81	19											
80	20											

EXPLORATORY BORING LOGS



**SEA SHELL STAFF HOUSING**  
**1405 TERESA DRIVE**

PROJECT NO. <b>7-4309</b>	DATE February-07	FIGURE NO. <b>A-4</b>
------------------------------	---------------------	--------------------------

LOGGED BY: **BH** DRILL RIG: **Simco 2400** BORING NO.: **B-4**

ELEVATION: **100'** BORING DIAMETER (INCH): **4** DATE DRILLED: **24 January 2007**

GROUNDWATER DEPTH (FT):

ELEVATION (FT)	DEPTH (FT)	GRAPHIC LOG	GEOTECHNICAL DESCRIPTION	SOIL TYPE	SAMPLE	CONV. SPT BLOW COUNT	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASIT. INDEX	UNC. COMP. STRENGTH (PSF)	COMMENTS AND ADDITIONAL TESTS
99	1		Sandy Clay: dark brown, moist, fine to coarse grained, trace gravel and silt, soft	CH								
98	2				B		20.1					EI = 98
97	3			gray/olive green								
96	4			Sandy Clay: yellow brown, moist, fine to coarse grained, trace gravel, hard dense (severely weathered bedrock)	CL-SC							
95	5						52	21.7				
94	6											
93	7											
92	8					B						
91	9											
90	10						50/3"	24.8				
89	11			Boring terminated at 11 feet								
88	12											
87	13											
86	14											
85	15											
84	16											
83	17											
82	18											
81	19											
80	20											

**EXPLORATORY BORING LOGS**



**SEA SHELL STAFF HOUSING  
1405 TERESA DRIVE**

PROJECT NO.  
**7-4309**

DATE  
February-07

FIGURE NO.  
**A-5**

LOGGED BY: **BH** DRILL RIG: **Hand Auger** BORING NO.: **B-5**

ELEVATION: **100'** BORING DIAMETER (INCH): **3** DATE DRILLED: **24 January 2007**

GROUNDWATER DEPTH (FT):

ELEVATION (FT)	DEPTH (FT)	GRAPHIC LOG	GEOTECHNICAL DESCRIPTION	SOIL TYPE	SAMPLE	CONV. SPT BLOW COUNT	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASIT. INDEX	UNC. COMP. STRENGTH (PSF)	COMMENTS AND ADDITIONAL TESTS
99	1		Sandy Clay: brown, moist, fine to coarse grained, trace gravel and silt, soft	CL	B		8.0					
98	2											
97	3		Clayey Sand: yellow brown, moist, fine to coarse grained, trace gravel, very dense (severely weathered bedrock)	SC	II	64	17.7					
96	4											
95	5											
94	6	Boring terminated at 5 feet										
93	7											
92	8											
91	9											
90	10											
89	11											
88	12											
87	13											
86	14											
85	15											
84	16											
83	17											
82	18											
81	19											
80	20											

**EXPLORATORY BORING LOGS**

	<b>SEA SHELL STAFF HOUSING</b> <b>1405 TERESA DRIVE</b>		
	PROJECT NO. <b>7-4309</b>	DATE <b>February-07</b>	FIGURE NO. <b>A-6</b>



## **APPENDIX B**

Laboratory Testing  
Moisture-Density Tests  
Direct Shear Test  
R Value Test  
Expansion Index  
Atterberg Limits

## LABORATORY TESTING

### Moisture-Density Tests

The field moisture content, as a percentage of the dry weight of the soil, was determined by weighing samples before and after oven drying. Dry densities, in pounds per cubic foot, were also determined for the undisturbed samples. Results of these determinations are shown in the Exploration Boring Logs.

### Direct Shear Test

Direct shear tests were performed on undisturbed samples, to determine strength characteristics of the soil. The test specimens were soaked prior to testing. Results of the shear strength tests are attached.

### Resistance (R) Value Test

An R-Value test was estimated based on sieve analysis and plasticity on a bulk sample obtained from boring B-1. The results of the tests indicates that the clay soils have an R-Value of 8.

### Expansion Index Tests

Expansion indices (EI) of 98 to 120 were obtained for the near surface sandy clay soils. The clayey sandstones had EI's of 6 to 14. The test procedures were performed in accordance with Uniform Building Code Standard 29-2.

### Atterberg Limits

The liquid limit, plastic limit and plasticity index was determined for selected samples in accordance with ASTM D4318. The results are presented on the boring logs.





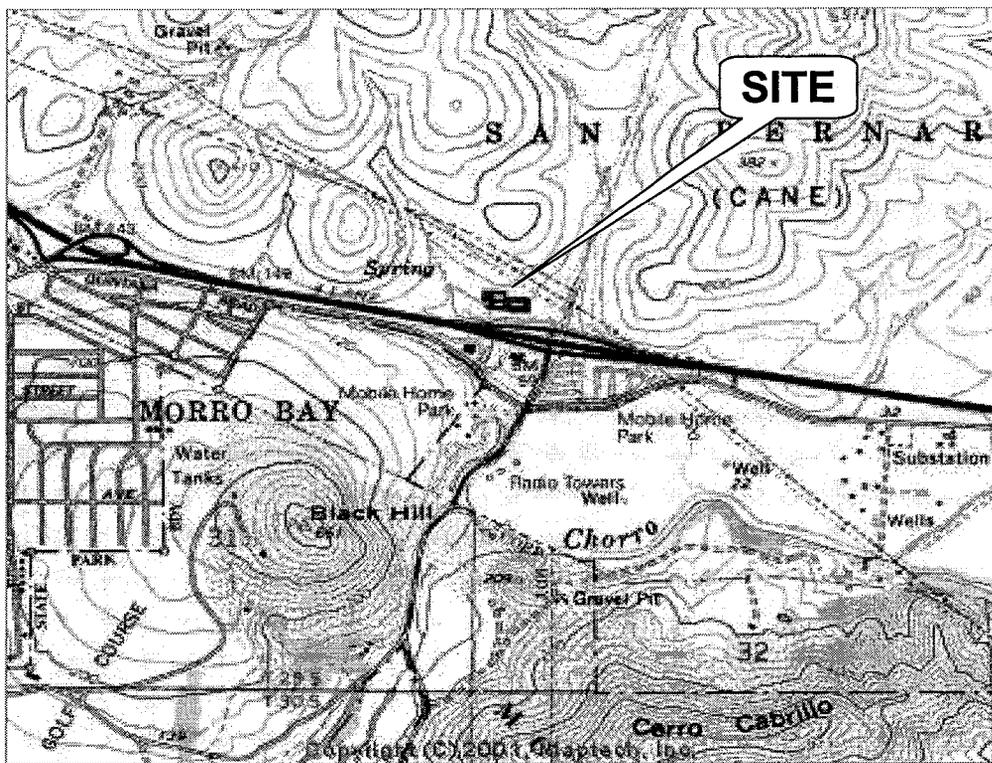
UPDATED GEOTECHNICAL INVESTIGATION  
SEA SHELL STAFF HOUSING  
1405 TERESA DRIVE  
MORRO BAY, CALIFORNIA

September 25, 2008  
PROJECT 7-4309

RECEIVED

DEC 24 2008

City of Morro Bay  
Public Services Department



PREPARED BY:

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**UPDATED GEOTECHNICAL INVESTIGATION  
SEA SHELL STAFF HOUSING  
1405 TERESA DRIVE  
MORRO BAY, CALIFORNIA**

**PROJECT 7-4309**

**1.0 INTRODUCTION**

This report presents the results of our updated geotechnical investigation for the proposed residences to be located at 1405 Teresa Drive in Morro Bay, California. Previously eight (8) structures were planned with five (5) of these being located above the cut slope on the north side of the property. The new site plan provided indicates that the five (5) structures adjacent to the cut slope will be eliminated with six (6) new housing structures being constructed north and east of the existing building. A site location map is presented in Figure 1 with a revised site plan in Figure 2. Previously a geotechnical investigation was performed for this site on February 16, 2007. This report includes recently adopted seismic considerations of the 2007 California Building Code (CBC).

The property is bounded by Teresa Drive to the south, residential lots to the west and open space to the north and east. In general, the terrain in this area slopes to the south with an average elevation of approximately 100 feet above mean sea level. The proposed structures will be located on a steeply sloping area of the site with gradients of approximately 2:1 to 4:1 (horizontal:vertical). At the time of our field exploration the building areas were covered with grasses, weeds and some trees.

As indicated above six (6) residential structures will be constructed at the site. These buildings will be one and two story wood-framed structures with concrete slab-on-grade floors. Due to the sloping terrain some structures will incorporate concrete retaining walls. Footing loads for the structures are presently unavailable. For the purpose of this report, maximum loads on the order of 15 kips (columns) and 1.5 kip per lineal foot (continuous) have been estimated.

The project description is based on a site reconnaissance performed by a GSI Soils Inc., engineer and information provided by Pults and Associates and Cathy Novak Consulting. The plan provided forms the basis for the "Site Plan", Figure 2.

In the event that there is change in the nature, design or location of improvements, or if the assumed loads are not consistent with actual design loads, the conclusions and recommendations contained in this report should be reviewed and modified, if required. Evaluations of the soils for hydrocarbons or other chemical properties are beyond the scope of the investigation.

## **2.0 PURPOSE AND SCOPE**

The purpose of this study was to review the surface and subsurface soil conditions at the site and to provide updated geotechnical information and design criteria for the proposed project. The scope of this work and our original study included the following items.

1. A review of available soils information for this area of Morro Bay.
2. A field study consisting of a site reconnaissance and an exploratory boring program to formulate a description of the subsurface conditions.
3. A laboratory testing program performed on representative soil samples collected during our field study.
4. Engineering analysis of the data gathered during our field study, laboratory testing, and literature review. Development of recommendations for site preparation and grading, and geotechnical design criteria for foundations, retaining walls, and underground facilities.
5. Preparation of this report summarizing our findings, conclusions, and recommendations regarding the geotechnical aspects of the project site.

## **3.0 SUBSURFACE SOIL CONDITIONS**

The near surface soils encountered in our exploratory borings generally consisted of sandy clays to a depth of 1 to 5 feet. These clays were encountered in a moist state and in a soft condition in the upper one to two feet and becoming stiff to very stiff below this depth. Severely weathered clayey sandstone materials were encountered below the surface clay soils to a depth of 12 feet. These materials were found in a moist state and in a dense to very dense condition.

Laboratory testing indicates that the surface sandy clays are highly expansive while the underlying bedrock has very low expansivity.

No free ground water was during our field exploration. However, very moist to saturated conditions can occur during wet winter months in the near surface soils. A more detailed description of the soils encountered is presented graphically on the "Exploratory Boring Logs", B-1 through B-4, Appendix A. An explanation of the symbols and descriptions used on these logs are presented on the "Soil Classification Chart".

The soil profile described above is generalized; therefore, the reader is advised to consult the boring logs (Appendix A) for soil conditions at specific locations. Care should be exercised in interpolating or extrapolating subsurface conditions between or beyond borings. On the boring logs we have indicated the soil type, moisture content, grain size, dry density, and the applicable United Soil Classification System Symbol.

The locations of our exploratory borings, shown on Site Plan, Figure 2, were approximately determined from features at the site. Hence, accuracy can be implied only to the degree that this method warrants. Surface elevations at boring locations were not determined.

#### 4.0 **SEISMIC CONSIDERATIONS**

##### 4.1 **CBC Seismic Coefficients**

In accordance with the 2007 CBC the project site was positioned on the 2002 USGS Seismic Hazard Maps for a 2% probability of exceedance in 50 years to determine the maximum considered earthquake spectral response accelerations in accordance with the 2007 CBC. The design acceleration coefficients for short periods ( $S_{DS}$ ) and at 1-second ( $S_{D1}$ ) were found to be 0.823g and 0.419g respectively. A site class C should be used of design of the structures.

##### 4.2 **Liquefaction Analysis**

Liquefaction is described as the sudden loss of soil shear strength due to a rapid increase of pore water pressures caused by cyclic loading from a seismic event. In simple terms it means that the soil acts more like a fluid than a solid in a liquefiable event. In order for liquefaction to occur, the following are generally

needed; granular soils (sand, silty sand and sandy silt), groundwater and low density (very loose to medium dense) conditions. A detailed liquefaction study was not part of our scope for this project, however an opinion can be provided based on the borings performed at the site. The results of our borings indicate that severely weathered bedrock materials exist below a depth of 3 to 5 feet. Based on this information the potential for liquefaction at the site would be negligible. However, this is a preliminary assessment and a detailed liquefaction study would be required to fully investigate the potential for liquefaction.

**5.0 CONCLUSIONS AND RECOMMENDATIONS**

1. The site is suitable for the proposed staff housing provided the recommendations presented in this report are incorporated into the project plans and specifications.
2. All grading and foundation plans should be reviewed by GSI Soils Inc., hereinafter described as the Geotechnical Engineer, prior to contract bidding. This review should be performed to determine whether the recommendations contained within this report are incorporated into the project plans and specifications.
3. The Geotechnical Engineer should be notified at least two (2) working days before site clearing or grading operations commence, and should be present to observe the stripping of deleterious material and provide consultation to the Grading Contractor in the field.
4. Field observation and testing during the grading operations should be provided by the Geotechnical Engineer so that a decision can be formed regarding the adequacy of the site preparation, the acceptability of fill materials, and the extent to which the earthwork construction and the degree of compaction comply with the project geotechnical specifications. Any work related to grading performed without the full knowledge of, and under direct observation of the Geotechnical Engineer, may render the recommendations of this report invalid.

**5.1 Clearing and Stripping**

1. All surface and subsurface deleterious materials should be removed from the proposed addition area and disposed of off-site. This includes, but is not limited to any buried utility lines, loose fills, septic systems, debris, building materials, and any other surface and subsurface structures within proposed building areas. Voids left from site clearing, should be cleaned and backfilled as recommended for structural fill.
  
2. Once the site has been cleared, the exposed ground surface should be stripped to remove surface vegetation and organic soil. The surface may be disced, rather than stripped, if the organic content of the soil is not more than three percent by weight. If stripping is required, depths should be determined by a member of our staff in the field at the time of stripping. Strippings may be either disposed of off-site or stockpiled for future use in landscape areas if approved by the landscape architect.

**5.2 Preparation of Building Pads**

1. It is recommended that all footings extend a minimum of 12 inches into the weathered bedrock materials with slab-on-grade areas supported on 36 inches of suitable native or imported non-expansive materials. However, where suitable bedrock materials (non-expansive) are exposed at pad grade further removals would not be required.
  
2. For slab-on-grade areas and where fill is to be placed, the native soils should be overexcavated to a depth of 36 inches below existing grades or finished pad grade, whichever is greater. The exposed surface should then be scarified to a depth of 12 inches, wetted to above optimum moisture, and compacted to at least ninety (90) percent of maximum dry density. The removed material can then be replaced and compacted (90%). However, the slab-on-grade areas should be capped with 36 inches of native non-expansive soils or a select material such as decomposed granite or equivalent. These soils should be similarly compacted to ninety (90) percent. The lateral limits of overexcavation

and scarification should be at least 5 feet beyond the perimeter building and footing lines.

3. Where building pads are located entirely into suitable non-expansive or very low expansive bedrock materials further excavation may not be required. The exposed surface should be evaluated and approved by the geotechnical engineer. At a minimum the surface should be scarified to a depth of 12 inches and compacted to 90 percent.
4. In order to help minimize potential settlement problems associated with structures supported on a non-uniform thickness of compacted fill, the soils engineer should be consulted for specific site recommendations during grading.
5. Cut and fill slopes in native materials should not exceed 3:1 (horizontal: vertical) and should be properly compacted to 90 percent. The slopes should also be properly protected against erosion. Fill slopes should be overfilled and trimmed back to competent material. If steeper slopes are planned they should be evaluated in the field during grading. Our observations indicate the existing cut slope at the site is stable. The project geologist should evaluate this slope and any further bedrock cuts for overall and surficial stability.
6. The above grading is based on the strength characteristics of the materials under conditions of normal moisture that would result from rain water and do not take into consideration the additional activating forces applied by seepage from springs or subsurface water. Areas of observed seepage should be provided with subsurface drains to release the hydrostatic pressures.
7. All final grades should be provided with a positive drainage gradient away from foundations. Final grades should provide for rapid removal of surface water runoff. Ponding of water should not be allowed on building pads or adjacent to foundations.

**5.3 Preparation of Paved Areas**

1. The upper 12 inches in driveway and paved areas should be replaced with crushed gravel or Class II Base. Pavement and driveway subgrades should be scarified to a depth of 12 inches below existing grade or finished subgrade prior to placing gravel or base. The soil should then be wetted to slightly above optimum moisture content and compacted to a minimum of 90 percent of maximum dry density.
2. The upper 6 inches of subgrade beneath all paved areas should be compacted to at least 95 percent relative compaction. Subgrade soils should not be allowed to dry out or have excessive construction traffic between the time of water conditioning and compaction, and the time of placement of the pavement structural section.

**5.4 Structural Fill**

1. On-site processed sandstone (clayey sand materials) free of organic and deleterious material are suitable for use in structural areas. Structural fill should not contain rocks larger than 4 inches in greatest dimension, and should have no more than 15 percent larger than 2.5 inches in greatest dimension.
2. Import (decomposed granite or equivalent) should be free of organic and other deleterious material and should have a very low expansion potential with a plasticity index of 10 or less. Before delivery to the site, a sample of the proposed import should be tested in our laboratory to determine its suitability for use as structural fill.
3. Structural fill using on-site inorganic soil or approved import should be placed in layers, each not exceeding eight inches in thickness before compaction. On-site inorganic or imported soil should be conditioned with water, or allowed to dry, to produce a soil water content at approximately optimum value, and should be compacted to at least 90 percent relative compaction based on ASTM D1557-91.

**5.5 Foundations**

1. Conventional continuous footings and spread footings may be used for support of the proposed structures. Spread footings should be connected to the perimeter footings with grade beams.
2. Perimeter footings should be at least 15 inches wide with a minimum embedment of 12 inches into bedrock with a minimum overall depth of 30 inches below lowest adjacent grade. In addition, a minimum setback distance of 10 feet should be maintained between the outer edge of footings and the competent face of adjacent slopes. The footing bottoms should be observed and approved by the geotechnical engineer prior to placing steel and concrete. Where footing depths exceed 30 inches slurry (3 sack cement/sand) could be used between the bottom of the excavations and the underside of the footings. Spread footings should be a minimum of 2 feet square, similarly embedded a minimum of 12 inches into bedrock and tied to the perimeter footings with grade beams spaced at a maximum of 20 feet on center. The reinforcement for the footings and grade beams should be designed by the structural engineer, however, a minimum of two (2) No. 5 rebar should be provided top and bottom for continuous footings with dowels (#3 @ 18" on-center) to tie the perimeter footings and grade beams to slab areas.
3. An allowable dead plus live load bearing pressure of 3000 psf may be used for design. Total settlements of less than 1-inch are anticipated with differential settlements being 50 percent of this value.
4. The above allowable pressures are for support of dead plus live loads and may be increased by one-third for short-term wind and seismic loads.
5. Lateral forces on structures may be resisted by passive pressure acting against the sides of shallow footings and/or friction between the soil and the bottom of the footing. For resistance to lateral loads, a friction factor of 0.35 may be utilized for sliding resistance at the base of the spread footings in undisturbed

native materials or engineered fill. A passive resistance of 350 pcf equivalent fluid weight may be used against the side of shallow footings.

**5.6 Slab-On-Grade Construction**

1. Concrete slabs-on-grade and flatwork should not be placed directly on unprepared loose fill materials. Preparation of subgrade to receive concrete slabs-on-grade and flatwork should be processed as discussed in the preceding sections of this report.
  
2. Where concrete slabs-on-grade are to be constructed, the slabs should be underlain by a minimum of 6 inches of clean free-draining material such as clean gravel or permeable aggregate complying with Caltrans Standard Specifications 68, Class I, Type A or Type B, to service as a cushion and a capillary break. Clean gravel should have less than 3% passing the No. 200 sieve. A 15-mil Polyethylene-type membrane should be placed between the capillary break and the slab to provide an effective vapor barrier, and to minimize moisture condensation under the floor covering. All seams through the vapor barrier should be overlapped and sealed. Where pipes extend through the vapor barrier, the barrier should be sealed to the pipes. Tears or punctures in the moisture barrier should be completely repaired. It is suggested that a 2-inch thick sand layer be placed on top of the membrane to assist in the curing of the concrete. The sand should be lightly moistened prior to placing concrete.
  
3. Concrete slabs-on-grade should be a minimum of 4 inches thick and should be reinforced with No. 3 reinforcing bars placed at 18 inches on-center both ways at or slightly above the center of the structural section. Reinforcing bars should have a minimum clear cover of 1.5 inches, and hot bars should be cooled prior to placing concrete. The aforementioned reinforcement may be used for anticipated uniform floor loads not exceeding 100 psf. If floor loads greater than 100 psf are anticipated the slab should be evaluated by a structural engineer.
  
4. All slabs should be poured at a maximum slump of less than 5 inches. Excessive water content is the major cause of concrete cracking. For design of concrete

floors, a modulus of subgrade reaction of  $k = 100$  psi per inch would be applicable to on-site engineered fill soils.

**5.7 Site Retaining Walls**

- Retaining walls should be designed to resist lateral pressures from adjacent soils and surcharge loads applied behind the walls.

Lateral Pressure and Condition (Compacted Fill)		Equivalent Fluid Pressure, pcf	
		Unrestrained Wall	Rigidly Supported Wall
Active Case, Drained	Level-native soils	60	--
	Level-granular backfill	30	--
At-Rest Case, Drained	Level-native soils	--	80
	Level-sand backfill		50
Passive Case, Drained	Level 2:1 Sloping Down	300	--
		150	
For sloping backfill add 1 pcf for every 2 deg. (Active case) and 1.5 pcf for every 2 deg. (At-rest case)			

- Isolated retaining wall foundations should extend a minimum of 12 inches into bedrock with a minimum overall depth of 30 inches below lowest adjacent grade. An allowable toe pressure of 3,000 psf is recommended in competent bedrock approved by the geotechnical engineer. A coefficient of friction of 0.35 may be used between subgrade materials and concrete footings.
- A seismic horizontal surcharge of  $10H^2$  (pounds per linear foot of wall) may be assumed to act on retaining walls. The surcharge will act at a height of  $0.6H$  above the wall base (where  $H$  is the height of the wall in feet). This surcharge force shall be added to an active design equivalent fluid pressure of 55 pounds per square foot of depth for the seismic condition.
- In addition to the lateral soil pressure given above, retaining walls should be designed to support any design live load, such as from vehicle and construction surcharges, etc., to be supported by the wall backfill. If construction vehicles are

required to operate within 10 feet of a wall, supplemental pressures will be induced and should be taken into account through design.

5. The above-recommended pressures are based on the assumption that sufficient subsurface drainage will be provided behind the walls to prevent the build-up of hydrostatic pressure. To achieve this we recommend that a filter material be placed behind all proposed walls. The blanket of filter material should be a minimum of 12 inches thick and should extend from the bottom of the wall to within 12 inches of the ground surface. The top 12 inches should consist of water conditioned, compacted native soil. A 4-inch diameter drain pipe should be installed near the bottom of the filter blanket with perforations facing down. The drain pipe should be underlain by at least 4 inches of filter type material. Adequate gradients should be provided to discharge water that collects behind the retaining wall to an adequately controlled discharge system with suitably projected outlets. The filter material should conform to Class I, Type B permeable material as specified in Section 68 of the California Department of Transportation Standard Specifications, current edition. A typical 1" x #4 concrete coarse aggregate mix approximates this specification.
6. For hydrostatic loading conditions (i.e. no free drainage behind walls), an additional loading of 45 pcf equivalent fluid weight should be added to the above soil pressures. If it is necessary to design retaining structures for submerged conditions, allowed bearing and passive pressures should be reduced by 50 percent. In addition, soil friction beneath the base of the foundations should be neglected.
7. Precautions should be taken to ensure that heavy compaction equipment is not used immediately adjacent to walls, so as to prevent undue pressure against, and movement of, the walls.
8. The use of rubber water-stops between the footing and wall and an impermeable barrier such as Paraseal (or equivalent) should be considered for any basement construction, and for building walls which retain earth.

**5.8 Pavement Design**

1. The following table provides recommended pavement sections based on an estimated R-Value of 8 for the near surface sandy clay soils encountered at the site.

RECOMMENDED MINIMUM ASPHALT CONCRETE PAVEMENT SECTIONS DESIGN THICKNESS		
T.I.	A.C.-In.	A.B.-In.
4.5	2.5	9.0
5.0	2.5	10.5
5.5	3.0	11.0
6.0	3.0	14.0
6.5	3.5	14.5
7.0	3.5	16.0
8.0	4.5	17.5
8.5	5.0	18.5
9.0	5.5	19.0
T.I. = Traffic Index A.C. = Asphaltic Concrete - must meet specifications for Caltrans Type B Asphalt Concrete A.B. = Aggregate Base - must meet specifications for Caltrans Class II Aggregate Base (R-Value = minimum 78)		

2. All asphalt pavement construction and materials used should conform with Sections 26 and 39 of the latest edition of the Standard Specifications, State of California, Department of Transportation. Aggregate bases and sub-bases should also be compacted to a minimum relative compaction of 95 percent based on ASTM D1557-91.
3. R-value samples should be obtained and tested at the completion of rough grading and the pavement sections confirmed or revised. All asphaltic concrete pavement sections and all sections should be crowned for good drainage.

**5.9 Underground Facilities Construction**

1. The attention of contractors, particularly the underground contractors, should be drawn to the State of California Construction Safety Orders for "Excavations, Trenches, Earthwork". Trenches or excavations greater than 5 feet in depth should be shored or sloped back in accordance with OSHA Regulations prior to entry.
  
2. For purposes of this section of the report, bedding is defined as material placed in a trench up to 1 foot above a utility pipe and backfill is all material placed in the trench above the bedding. Unless concrete bedding is required around utility pipes, free-draining sand should be used as bedding. Sand proposed for use as bedding should be tested in our laboratory to verify its suitability and to measure its compaction characteristics. Sand bedding should be compacted by mechanical means to achieve at least 90 percent relative compaction based on ASTM Test D1557-91.
  
3. On-site inorganic soil, or approved import, may be used as utility trench backfill. Proper compaction of trench backfill will be necessary under and adjacent to structural fill, building foundations, concrete slabs and vehicle pavements. In these areas, backfill should be conditioned with water (or allowed to dry), to produce a soil water content of about 2 to 3 percent above the optimum value and placed in horizontal layers each not exceeding 8 inches in thickness before compaction. Each layer should be compacted to at least 90 percent relative compaction based on ASTM Test D1557-91. The top lift of trench backfill under vehicle pavements should be compacted to the requirements given in report section 5.3 for vehicle pavement subgrades. Trench walls must be kept moist prior to and during backfill placement.

**5.10 Surface and Subsurface Drainage**

1. Concentrated surface water runoff within or immediately adjacent to the site should be conveyed in pipes or in lined channels to discharge areas that are relatively level or that are adequately protected against erosion.

2. Water from roof downspouts should be conveyed in pipes that discharge in areas a safe distance away from structures. Surface drainage gradients should be planned to prevent ponding and promote drainage of surface water away from building foundations, edges of pavements and sidewalks. For soil areas we recommend that a minimum of five (5) percent gradient be maintained adjacent to the footings.
3. Careful attention should be paid to erosion protection of soil surfaces adjacent to the edges of roads, curbs and sidewalks, and in other areas where "hard" edges of structures may cause concentrated flow of surface water runoff. Erosion resistant matting such as Miramat, or other similar products, may be considered for lining drainage channels.

**5.11 Temporary Excavations and Slopes**

1. Conventional earth moving equipment should be adequate to excavate the soils at the site.
2. We recommend that temporary trench walls exceeding five (5) feet in depth be sloped at an inclination of 1:1 (horizontal:vertical). However, during the rainy season, or where soft or loose sediments, or perched water conditions are found, flatter slopes (1½:1 to 2:1) may be required.
3. It should be noted that it is the *Contractor's* responsibility to maintain safe cut slopes based on actual field conditions and according to OSHA requirements. Temporary Slopes at gradients of 1:1 should not be open for more than 2 to 3 days. In some geologic units, perched water may be present locally in the slope face. The stability of the slopes may be compromised somewhat where these conditions exist due to softening or piping of the saturated materials.
4. Where the excavation bottom is locally wet, soft and yielding, it is recommended that the bottom be stabilized prior to placement of fill. Methods such as the use of pit-run gravels and cobbles on the excavated bottom covered with a geotextile fabric such as Mirafi 600x or placement of a Class II base material over a similar

fabric could be used. The *Contractor* should be responsible for design and implementation of stabilization techniques.

5. Where the temporary trench slopes are inclined as described above, no shoring is required. However, where adjacent features may influence establishment of appropriate slopes, the *Contractor* may elect to use shoring. In no case should personnel enter trenches with vertical sidewalls greater than 5 feet deep without proper shoring. Design and installation of the shoring should be the responsibility of the *Contractor* and should be performed according to OSHA requirements.
6. Shoring should be designed to resist the lateral earth pressures provided, assuming no hydrostatic loads. If ground water is encountered the shoring should be designed for the required hydrostatic pressures.

**5.12 Slope Stability**

1. As indicated previously the existing and proposed site slopes should be evaluated by the project geologist.
2. On the west side of the site, steeper slopes (approximately 1:1) were cut for the construction of the existing structure. An existing retaining wall approximately 5 feet high is located at the toe of this slope. Severely weathered bedrock materials are exposed across the entire slope. Visual observation did not reveal any obvious sign of instability.
3. The following minimum drainage and slope recommendations are also provided.
  - a. Where possible compacted materials utilized in the construction of the fill slopes should comprise at least 20 percent fine grained (passing #200 sieve) soils in a zone equal to 2 the slope height.
  - b. Future cut slopes should be observed by the project geologist and a representative of the geotechnical engineer during grading and evaluated

for stability.

- c. Hydroseeding or planting a surface cover of protective vegetation on all slope surfaces. In addition, an erosion control blanket (Greenfix CF072RR or equivalent) should be placed over the slopes to protect the vegetation while it becomes established.
- d. Water should not be allowed to run freely over the sides of the slopes. A lined V-ditch should be constructed above all cut and fill slopes.

6.0 **LIMITATIONS AND UNIFORMITY OF CONDITIONS**

- 1. It should be noted that it is the responsibility of the owner or his/her representative to notify **GSI Soils Inc.** a minimum of 48 hours before any stripping, grading, or foundation excavations can commence at this site.
- 2. The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed during our study. Should any variations or undesirable conditions be encountered during grading of the site, **GSI Soils Inc.** will provide supplemental recommendations as dictated by the field conditions.
- 3. This report is issued with the understanding that it is the responsibility of the owner or his/her representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project, and incorporated into the project plans and specifications. The owner or his/her representative is responsible for ensuring that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.
- 4. As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they be due to natural processes or to the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in

September 25, 2008

Project 7-4309

changes in applicable standards. Changes outside of our control may find this report to be invalid, wholly or partially. Therefore, this report should not be relied upon after a period of three (3) years without our review nor is it applicable for any properties other than those studied.

5. Validity of the recommendations contained in this report is also dependent upon the prescribed testing and observation program during the site preparation and construction phases. Our firm assumes no responsibility for construction compliance with these design concepts and recommendations unless we have been retained to perform continuous on-site testing and review during all phases of site preparation, grading, and foundation/slab construction.

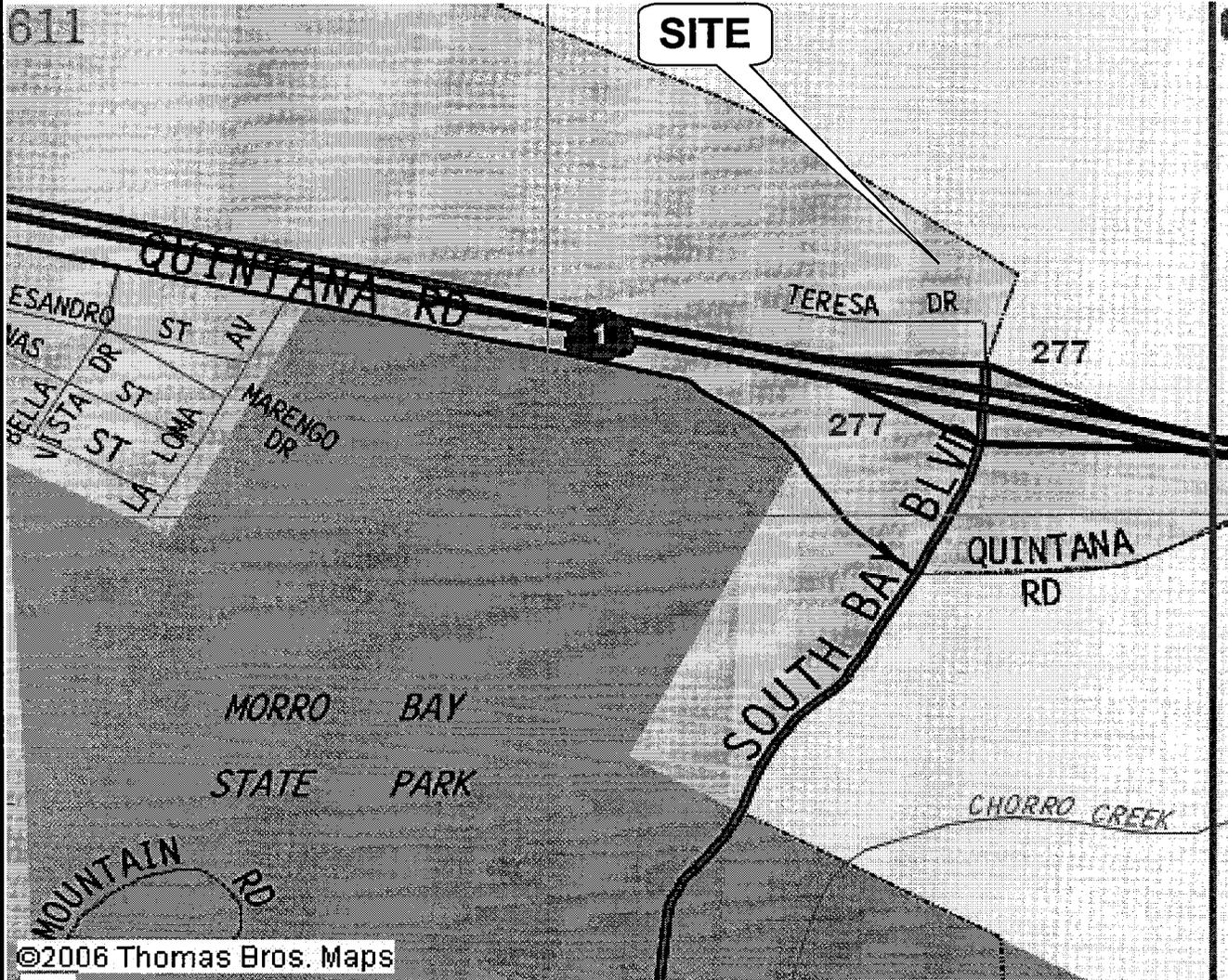
Thank you for the opportunity to have been of service in preparing this report. If you have any questions or require additional assistance, please feel free to contact the undersigned at (805) 543-5493.

Sincerely,  
**GSI SOILS INC.**

  
Ronald J. Church  
Senior Engineer  
GE #2184



**FIGURES**



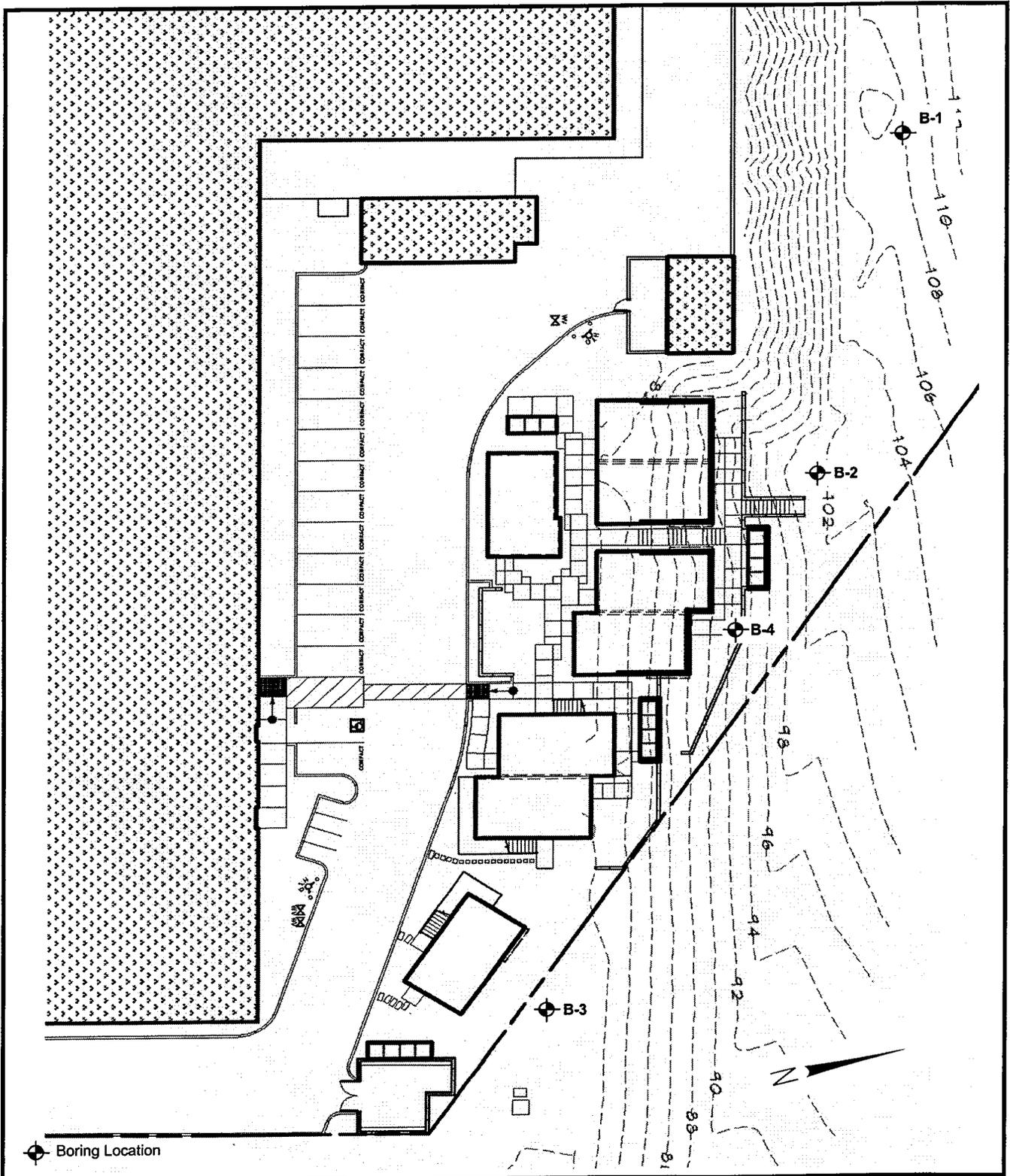
**SITE MAP**  
**SEA SHELL STAFF HOUSING**  
 1405 TERESA DRIVE  
 MORRO BAY, CALIFORNIA

**Project No.**

**Figure No.**

7-4309

1



⊕ Boring Location

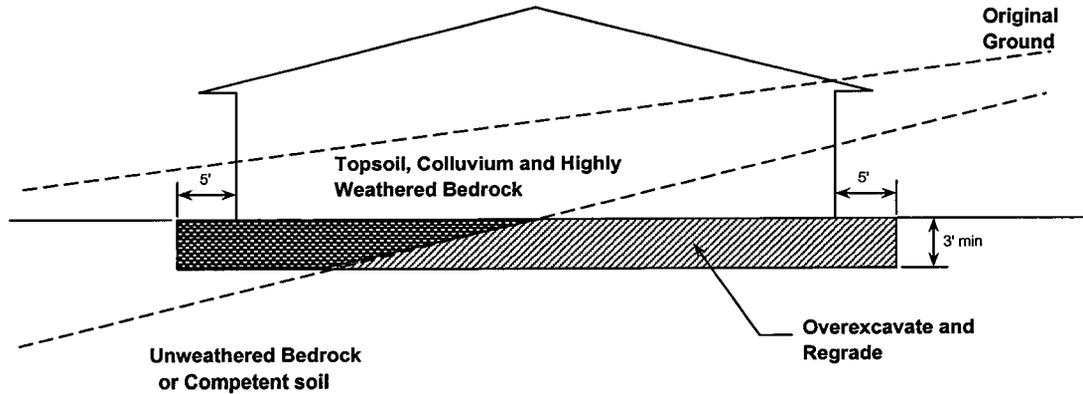


**SITE PLAN**  
**SEA SHELL STAFF HOUSING**  
 1405 TERESA DRIVE  
 MORRO BAY, CALIFORNIA

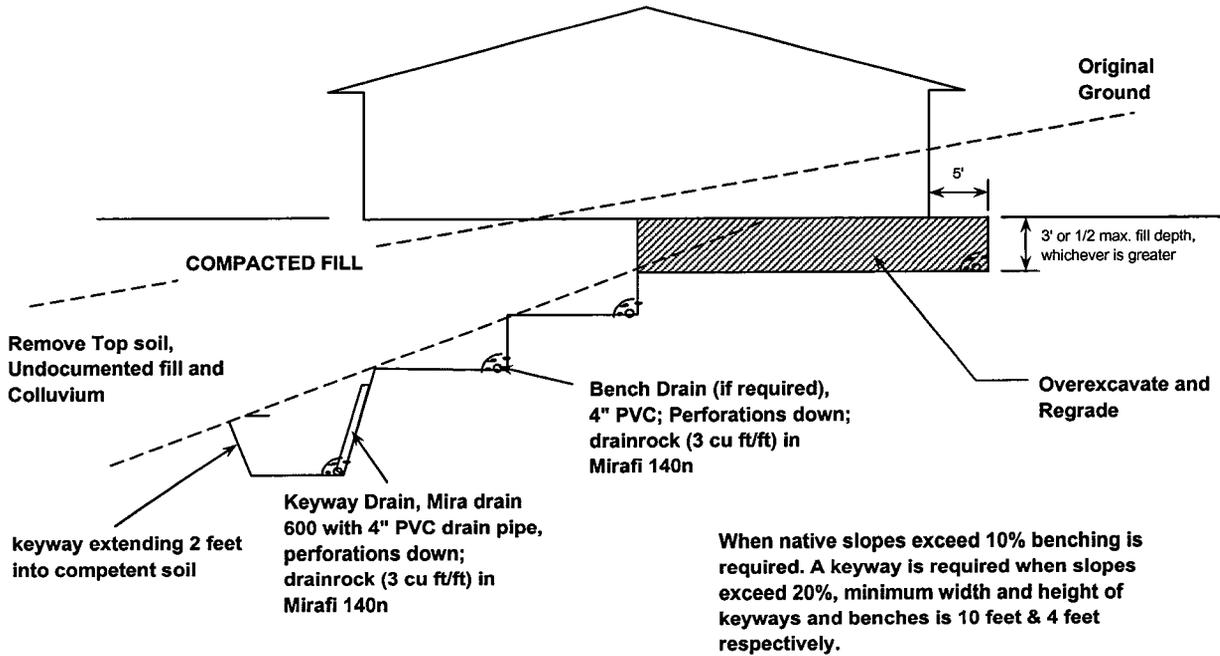
Project No.	Figure No.
7-4309	2

# GENERAL GRADING RECOMMENDATIONS

## CUT LOT



## CUT/FILL LOT TRANSITION



HILLSIDE LOTS

Project No.

Figure No.

7-4309

3

**APPENDIX A**

**Field Investigation  
Key to Boring Logs  
Boring Logs**

September 25, 2008

Project 7-4309

## FIELD INVESTIGATION

### Test Hole Drilling

The field investigation was conducted on January 24, 2007. Four (4) exploratory borings were drilled at the approximate locations indicated on the Site Plan, Figure 2. The locations of these borings were approximated in the field.

Undisturbed and bulk samples were obtained at various depths during test hole drilling. The undisturbed samples were obtained by driving a 2.4-inch inside diameter sampler into soils. Bulk samples were also obtained during drilling.

### Logs of Boring

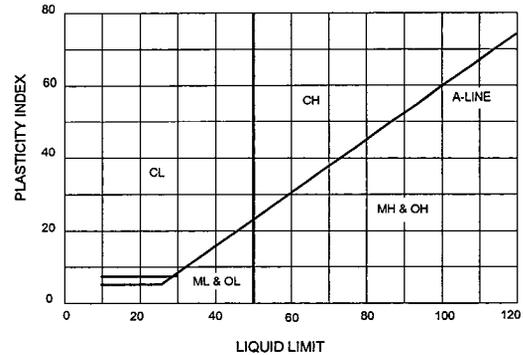
A continuous log of soils, as encountered in the borings was recorded at the time of the field investigation, by a Staff Engineer. The Exploration Boring Logs are attached.

Locations and depth of sampling, in-situ soil dry densities and moisture contents are tabulated in the Boring Logs.

## UNIFIED SOIL CLASSIFICATION SYSTEMS

MAJOR DIVISION	SYMBOLS	TYPICAL NAMES		
COARSE GRAINED SOILS Over 50% > #200 sieve	GRAVELS Over 50% > #4 sieve	CLEAN GRAVELS WITH LITTLE OR NO FINES GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES	
		GRAVELS WITH OVER 12% FINES GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES	
	SANDS Over 50% < #4 sieve	CLEAN SANDS WITH LITTLE OR NO FINES SW	WELL GRADED SANDS, GRAVELLY SANDS	
		SANDS WITH OVER 12% FINES SP	POORLY GRADED SANDS, GRAVELLY SANDS	
	FINE GRAINED SOILS Over 50% < #200 sieve	SILTS AND CLAYS Liquid limit < 50	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES GM	
			CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES GC	
SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES SM				
CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES SC				
SILTS AND CLAYS Liquid limit > 50		INORGANIC SILTS, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY ML		
		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, LEAN CLAYS CL		
		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY OL		
		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS MH		
		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS CH		
		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS OH		
HIGHLY ORGANIC CLAYS Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS			

**PLASTICITY CHART**  
USED FOR CLASSIFICATION OF FINE GRAINED SOILS



### SOIL GRAIN SIZE

BOULDERS		COBBLES		GRAVEL		SAND			SILT	CLAY
				COARSE	FINE	COARSE	MEDIUM	FINE		
6"		3"		3/4"	4	10	40	200		
150		75		19	4.75	2.0	0.425	0.075	0.002	
SOIL GRAIN SIZE IN MILLIMETERS										

### SAMPLE DRIVING RECORD

BLOWS PER FOOT	DESCRIPTION
25	25 BLOWS DROVE SAMPLER 12 INCHES, AFTER INITIAL 6 INCHES OF SEATING
50/7"	50 BLOWS DROVE SAMPLER 7 INCHES, AFTER INITIAL 6 INCHES OF SEATING
Ref/3"	50 BLOWS DROVE SAMPLER 3 INCHES DURING OR AFTER INITIAL 6 INCHES OF SEATING

NOTE: TO AVOID DAMAGE TO SAMPLING TOOLS, DRIVING IS LIMITED TO 50 BLOWS PER 6 INCHES DURING OR AFTER SEATING INTERVAL

### KEY TO TEST DATA

<b>B</b>	Bag Sample	CONS	Consolidation (ASTM D2435)
	Drive, No Sample Collected	DS	Cons. Drained Direct Shear (ASTM D3080)
	2 1/2" O.D. Mod. California Sampler, Not Tested	PP	Pocket Penetrometer
	2 1/2" O.D. Mod. California Sampler, Tested	GSD	Grain Size Distribution (ASTM D422)
	Standard Penetration Test	CP	Compaction Test (ASTM D1557)
	Sample Attempted with No Recovery	EI	Expansion Index (ASTM D4829)
	Water Level at Time of Drilling	LL	Liquid Limit (in percent)
	Water Level after Drilling	PI	Plasticity Index

#### RELATIVE DENSITY

SANDS, GRAVELS, AND NON PLASTIC SILTS	BLOWS/FOOT
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

#### RELATIVE DENSITY

CLAYS AND PLASTIC SILTS	STRENGTH	BLOWS/FOOT
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32



PROJECT NO.: 7-4309

DATE DRILLED: 1/24/2007

**SOIL CLASSIFICATION CHART  
AND BORING LOG LEGEND**

**SEA SHELL STAFF HOUSING  
MORRO BAY, CALIFORNIA**

FIGURE NO.

**A-1**

LOGGED BY: **BH** DRILL RIG: **Simco 2400** BORING NO.: **B-1**

ELEVATION: **100'** BORING DIAMETER (INCH): **4** DATE DRILLED: **24 January 2007**

GROUNDWATER DEPTH (FT):

ELEVATION (FT)	DEPTH (FT)	GRAPHIC LOG	GEOTECHNICAL DESCRIPTION	SOIL TYPE	SAMPLE	CONV. SPT BLOW COUNT	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASIT. INDEX	UNC. COMP. STRENGTH (PSF)	COMMENTS AND ADDITIONAL TESTS	
99	1		Sandy Clay: dark brown, moist, fine to coarse grained, trace gravel and silt, soft	CL									
98	2		Clayey Sand: gray, moist, fine to coarse grained, trace gravel, very dense (severely weathered bedrock)	SC	B								
97	3					▲	50/4"	13.3	108.3				EI = 6
96	4												
95	5						50/2"	13.9					
94	6												
93	7												
92	8					B		11.6					
91	9												
90	10						50/2"	8.4					
89	11												
88	12			Boring terminated at 12 feet									
87	13												
86	14												
85	15												
84	16												
83	17												
82	18												
81	19												
80	20												

**EXPLORATORY BORING LOGS**



**SEA SHELL STAFF HOUSING  
1405 TERESA DRIVE**

PROJECT NO.  
**7-4309**

DATE  
**September-08**

FIGURE NO.  
**A-2**

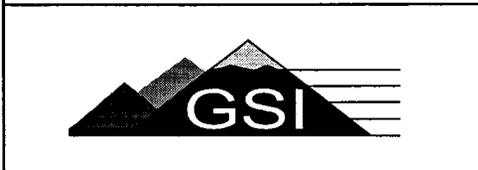
LOGGED BY: **BH** DRILL RIG: **Simco 2400** BORING NO.: **B-2**

ELEVATION: **100'** BORING DIAMETER (INCH): **4** DATE DRILLED: **24 January 2007**

GROUNDWATER DEPTH (FT):

ELEVATION (FT)	DEPTH (FT)	GRAPHIC LOG	GEOTECHNICAL DESCRIPTION	SOIL TYPE	SAMPLE	CONV. SPT BLOW COUNT	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASIT. INDEX	UNC. COMP. STRENGTH (PSF)	COMMENTS AND ADDITIONAL TESTS
99	1		Sandy Clay: dark brown, moist, fine to coarse grained, trace gravel and silt, soft	CH								
98	2				B		20.1					Ei = 98
97	3			gray/olive green								
96	4			Sandy Clay: yellow brown, moist, fine to coarse grained, trace gravel, hard dense (severely weathered bedrock)	CL-SC							
95	5						52	21.7				
94	6											
93	7											
92	8					B						
91	9											
90	10						50/3"	24.8				
89	11			Boring terminated at 11 feet								
88	12											
87	13											
86	14											
85	15											
84	16											
83	17											
82	18											
81	19											
80	20											

**EXPLORATORY BORING LOGS**



<b>SEA SHELL STAFF HOUSING 1405 TERESA DRIVE</b>		
PROJECT NO. <b>7-4309</b>	DATE <b>September-08</b>	FIGURE NO. <b>A-3</b>



LOGGED BY: **BH** DRILL RIG: **Hand Auger** BORING NO.: **B-4**

ELEVATION: **100'** BORING DIAMETER (INCH): **3** DATE DRILLED: **24 January 2007**

GROUNDWATER DEPTH (FT):

ELEVATION (FT)	DEPTH (FT)	GRAPHIC LOG	GEOTECHNICAL DESCRIPTION	SOIL TYPE	SAMPLE	CONV. SPT BLOW COUNT	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASIT. INDEX	UNC. COMP. STRENGTH (PSF)	COMMENTS AND ADDITIONAL TESTS
99	1		Sandy Clay: brown, moist, fine to coarse grained, trace gravel and silt, soft	CL								
98	2				B		9.5					
97	3											
96	4			Clayey Sand: yellow brown, moist, fine to coarse grained, trace gravel, very dense (severely weathered bedrock)	SC	B						
95	5						57	19.4				EI = 14
94	6											
93	7											
92	8											
91	9						50/3"	21.6				
90	10			Boring terminated at 10 feet								
89	11											
88	12											
87	13											
86	14											
85	15											
84	16											
83	17											
82	18											
81	19											
80	20											

**EXPLORATORY BORING LOGS**

	<b>SEA SHELL STAFF HOUSING</b> <b>1405 TERESA DRIVE</b>		
	PROJECT NO. <b>7-4309</b>	DATE <b>September-08</b>	FIGURE NO. <b>A-5</b>

**APPENDIX B**

Laboratory Testing  
Moisture-Density Tests  
Direct Shear Test  
R Value Test  
Expansion Index  
Atterberg Limits

## LABORATORY TESTING

### **Moisture-Density Tests**

The field moisture content, as a percentage of the dry weight of the soil, was determined by weighing samples before and after oven drying. Dry densities, in pounds per cubic foot, were also determined for the undisturbed samples. Results of these determinations are shown in the Exploration Boring Logs.

### **Direct Shear Test**

Direct shear tests were performed on undisturbed samples, to determine strength characteristics of the soil. The test specimens were soaked prior to testing. Results of the shear strength tests are attached.

### **Resistance (R) Value Test**

An R-Value test was estimated based on sieve analysis and plasticity on a bulk sample obtained from boring B-1. The results of the tests indicates that the clay soils have an R-Value of 8.

### **Expansion Index Tests**

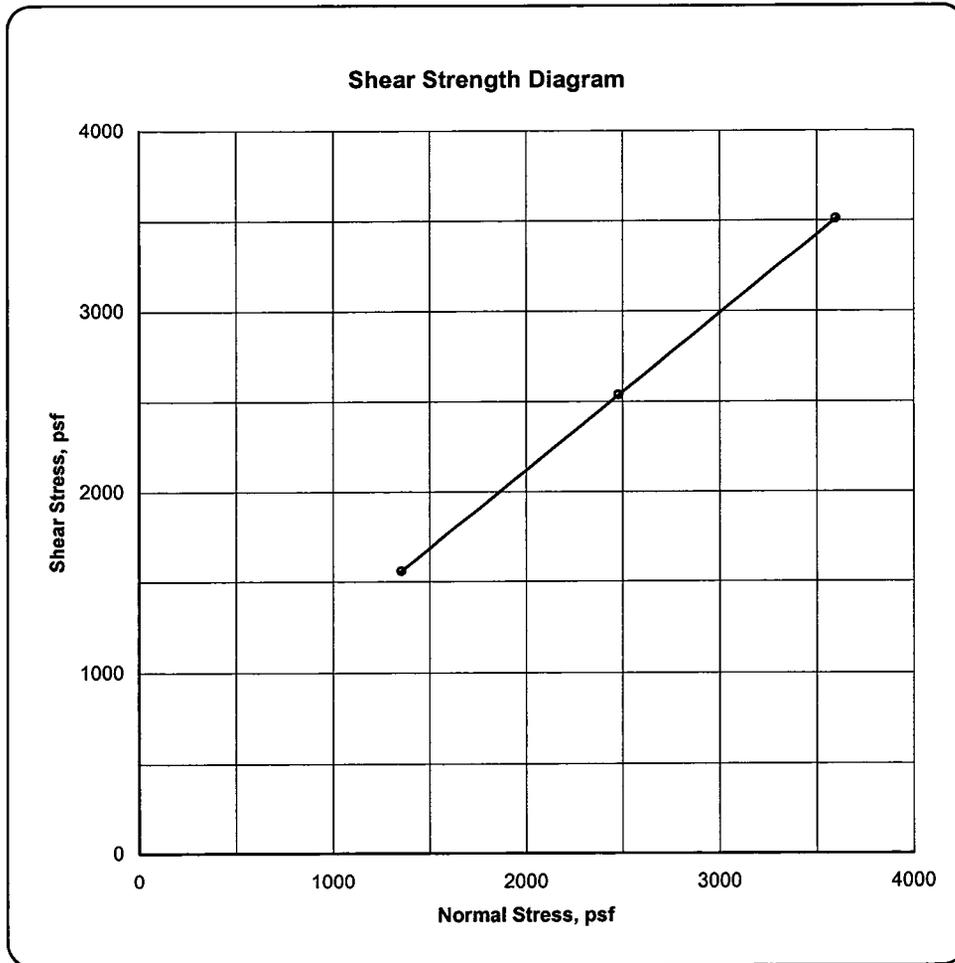
Expansion indices (EI) of 98 to 120 were obtained for the near surface sandy clay soils. The clayey sandstones had EI's of 6 to 14. The test procedures were performed in accordance with Uniform Building Code Standard 29-2.

### **Atterberg Limits**

The liquid limit, plastic limit and plasticity index was determined for selected samples in accordance with ASTM D4318. The results are presented on the boring logs.

# DIRECT SHEAR TEST

ASTM D3080-90 (Modified for unconsolidated-undrained conditions)



Project: SEA SHELL STAFF HOUSING

Project No. 7-4309

Sample Location: B-1 @ 3 feet

Initial Dry Density (pcf) 108.3

Soil Description: **Clayey Sand**

Initial Moisture (%) 13.3

Sample Type: ○ Remolded

**Peak Shear Angle 41**

● Ring

**Cohesion (psf) 380**





**City of Morro Bay  
Request for Proposals  
for**

**DESIGN-BUILD SERVICES of the  
WATER RECLAMATION FACILITY (WRF)  
ONSITE IMPROVEMENTS**

**Attachment B:  
Proposed Design-Build Agreement**

**January 2018**

**Rob Livick, PE/PLS  
Public Works Director/City Engineer  
955 Shasta Avenue  
Morro Bay, California 93442**



# **Design-Build Agreement**

City of Morro Bay,  
California

Water Reclamation Facility Design-Build Project  
\_\_\_\_\_, 2018

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- EXHIBIT E PROJECT SCHEDULE AND PROJECT MANAGEMENT SUBMITTALS

# DRAFT DOCUMENT - NOT A PUBLIC RECORD

## CITY OF MORRO BAY WATER RECLAMATION FACILITY DESIGN-BUILD PROJECT DESIGN / BUILD AGREEMENT

THIS DESIGN/BUILD AGREEMENT is entered into on \_\_\_\_\_, 2018, between the CITY OF MORRO BAY, a general law city and municipal law corporation (City), and **[INSERT DESIGN-BUILDER NAME]**, located at **[address]** **[a \_\_\_\_\_]** (Design/Build Entity).

### RECITALS

- A. The City intends to contract with the Design/Build Entity to design and construct a new Water Reclamation Facility (WRF).
- B. Pursuant to Public Contract Code section 22160 *et seq.* the City is expressly authorized to design and construct the facility on a Design/Build delivery basis.
- C. The City issued a Request for Qualification on October 27, 2017. Statements of Qualifications were due to the City on December 7, 2017.
- D. The City pre-qualified four Design/Build teams, which were notified on \_\_\_\_\_, 2018 of their prequalification.
- E. The City issued a Request for Proposal to the pre-qualified teams on \_\_\_\_\_, 2018, (RFP) with instructions to submit their proposals to the City by \_\_\_\_\_, 2018.
- F. The City issued Addenda to the RFP as listed below:.

**[TBD]**

Those Addenda are made part of this agreement as listed in Exhibit B of this Design/Build Contract Agreement.

- G. Final selection interviews were held on **[TBD]**.
- H. Notification of final selection was made on **[TBD]**.
- I. The Design/Build Entity is **[INSERT DESIGN-BUILDER NAME]** The Design/Build Entity has entered into a design contract with **[INSERT ENGINEER NAME]** pursuant to which the Engineer of Record agreed to perform certain design services required by this Agreement.
- J. The documents included in the RFP, and the Design/Build Entity's Proposal dated TBD\_ incorporated in this Agreement, and designated as the Contract Documents, are provided by the City to establish the scope, level of quality and design intent, and the reporting procedures for the development and construction of the entire project.

The Design/Build Entity shall not provide any exceptions to the Cost Plus with Guaranteed Not To Exceed Amount, the Project Milestone Schedule,

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the program statement, the Performance Requirements, or any other requirement described in the Request for Proposal or contract requirements. Despite incorporating the Design/Build Entity's Statement of Qualifications and Proposal as part of this Design/Build Agreement, the City does not accept any provision of the Proposal that is not in conformance with the criteria of the Request for Proposal.

- K. It is the intent of this Design/Build Agreement that the Design/Build Entity assumes full responsibility for administering, managing, quality control, designing, constructing and commissioning the Project..
- L. The City and Design/Build Entity wish to memorialize the intent of the parties and the terms upon which Design/Build Entity will undertake the Project.

NOW THEREFORE, THE PARTIES AGREE AS FOLLOWS:

### ARTICLE 1 – DEFINITIONS

- 1.0 Definitions. The definitions below shall have the same meaning throughout all of the Contract Documents.
- 1.1 Act of God: An Act of God shall include only the occurrences or conditions defined in Public Contract Code Section 7105.
- 1.2 Agreement (Design/Build Agreement): this Design/Build Agreement and all subsequent amendments and modifications to it. Where the term “Agreement,” or “Contract,” is used in the documents, those terms shall refer to this Design/Build Agreement.”
- 1.3 Applicable Laws: all laws, codes, ordinances, rules and regulations of governmental authorities affecting the Site and the Work.
- 1.4 Engineer or Designer of Record: **[INSERT ENGINEER NAME]** licensed in the State of California and employed or contracted by the Design/Build Entity to design and prepare construction documents for the project and to provide construction phase services during the Project.
- 1.5 Authorized Representatives: see Article 4, Paragraph 4.1, the City’s Representative.
- 1.6 Beneficial Occupancy: City’s occupancy or use of any completed or partially completed portion of the Work. See Article 6, Subparagraph 6.11.3, Beneficial Occupancy.
- 1.7 CEQA: the California Environmental Quality Act, (Public Resources Code section 21000 *et seq.*) and the State CEQA Guidelines 14 CCR 15000 *et seq.*)
- 1.8 Certificate of Compliance: a certificate issued by the City stating the installation of all life safety materials and equipment is in compliance with

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building and life safety codes. Such equipment includes, but is not limited to: Fire Alarm and Fire Sprinklers, rated construction assemblies, fire exits, paths of egress, etc.

- 1.9 Certificate of Final Completion: a certificate prepared by the Design/Build Entity and forwarded to the City stating that the Design/Build Entity believes in good faith that the Project is complete, including all punch list items, close-out activities and commissioning, and that the Design/Build Entity is entitled to Subparagraph 6.11.7, Final Payment, in accordance with the provisions of Subparagraph 6.11.5, Final Completion.
- 1.10 Change Order: a change to the Design/Build Agreement and/or Contract Documents signed by the Design/Build Entity and the City authorizing a change in the Work, which may also adjust the Guaranteed Not To Exceed Amount and/or the Contract Time, Paragraph 7.1. The Cost Plus with Guaranteed Not To Exceed Amount and Contract Time may be changed only by Change Order.
- 1.11 Change Proposal: a proposal for a Change Order, submitted to the Design/Build Entity by the City, or submitted to the City by the Design/Build Entity on the Design/Build Entity's own initiative.
- 1.12 City of Morro Bay: the City.
- 1.13 Commissioning: a quality process for achieving, validating and documenting that the new facilities and its systems are planned, designed, installed, tested and capable of being operable and maintained to perform in conformity with the Design Requirements.
- 1.14 Construction Documents: the drawings and specifications prepared and sealed by the Architect of Record on behalf of the Design/Build Entity for construction of the Project.
- 1.15 Construction Manager: the individual appointed by the City to serve as a point of contact in coordinating the City's interests.
- 1.16 Contract Documents: those documents set forth in Exhibit B, Contract Documents, all of which, together with this Design/Build Agreement, form the entire agreement between the City and the Design/Build Entity. Any amendments and modifications to the Contract Documents and/or the Design/Build Request for Proposal package must be approved by the City prior to incorporation into this Design/Build Agreement.
- 1.17 Contract Time: see Paragraph 7.1, Contract Time.
- 1.18 Cost Plus: no more than \_\_\_ percent (\_\_\_%) over the Design/Build Entity's actual costs paid by the Design./Build Entity (i) for its direct labor costs and (ii) to procure each type of labor, materials, tools, equipment, and services provided through its subcontractors of any level and material providers, when (i) or (ii) are required to be performed by or on behalf of the Design/Build Entity pursuant to the provisions of the Contract Documents, as more fully described in Article 3, Design/Build Entity's Duties and Responsibilities.

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- 1.19 Cost Plus with Guaranteed Not To Exceed Amount: is the maximum contract amount established by Section 3.2.1 of this Agreement as total compensation to the Design/Build Entity for the design and construction of the Project.
- 1.20 Day(s): calendar day or days, unless otherwise specifically designated as a business day. If a day requiring notice or action falls on a weekend or national or state holiday, then the next non-weekend or non-holiday shall be applicable. (Business day(s) are days other than weekend days or national or California holidays.)
- 1.21 Design/Build Entity: **[INSERT DESIGN-BUILDER NAME]**, a California corporation (License No. \_\_\_\_\_ – Classification A) able to provide appropriately licensed construction contracting, and professional architectural and engineering services required hereunder.
- 1.22 Final Completion: the point at which the Work has been completed in accordance with the terms and conditions of the Contract Documents.
- 1.23 Final Certificate of Occupancy: a formal document issued by the City's Building Official granting unconditional approval to occupy all the habitable structures of the Project.
- 1.24 Float: the amount of time difference between the Design/Build Entity's scheduled critical path method (CPM) early completion date and the Final Completion date as shown in the Project Milestone Schedule, **Exhibit A**.
- 1.25 Indemnified Parties: the City and its officers, officials, employees, attorneys, consultants, agents, subcontractors, successors and assigns.
- 1.26 Liquidated Damages: the damages limited to failure to complete the Project on time and payable by the Design/Build Entity to the City in the event the Design/Build Entity does not achieve the Certificates of Final Completion for the Project as required in the Project Milestone Schedule (Exhibit A), or as adjusted by contract change order, as more fully described in Paragraph 7.7, Liquidated Damages.
- 1.27 Notice to Proceed: the notice given by the City to the Design/Build Entity stating that the Design/Build Entity is authorized to begin the design and/or the construction of the Project.
- 1.28 Performance Requirements: the Performance Criteria, Performance Criteria Report, Project Requirements within the RFP, Specifications, and Drawings included in the Request for Proposals and incorporated by reference into this Agreement.
- 1.29 Substantial Completion: a point in time when the work is sufficiently complete in accordance with the Construction Documents so that it can be used for its intended purpose, as evidenced by (i) the issuance of one of more Temporary Certificates or a Final Certificate of Occupancy, for all habitable

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structures of the Project and (ii) successful submission of all necessary documentation required for the NPDES permit (including UV validation testing results).

- 1.30 Temporary Certificate of Occupancy: a formal document (i) issued by the City's Building Official granting conditional approval to occupy one or more of the habitable structures of the Project and (ii) but subject to corrections, which must all be satisfactorily completed by the Design/Build Entity, as reasonably acceptable to the City's Building Official, prior to the issuance of the Final Certificate of Occupancy.
- 1.31 Work: all labor, materials, tools, equipment, and services required to be performed or provided by the Design/Build Entity pursuant to the provisions of the Contract Documents, as more fully described in Article 3, Design/Build Entity's Duties and Responsibilities.

### **ARTICLE 2 – GENERAL PROVISIONS**

- 2.1 Scope of Work.
  - 2.1.1 The Design/Build Entity shall be responsible for the performance of all design and construction services, and provide all materials, labor, tools, and equipment necessary to complete the work described in and reasonably inferable from the Contract Documents.
- 2.2 Execution, Correlation and Intent:
  - 2.2.1 This Agreement will not be binding on the City until executed by the City's legal representative.
  - 2.2.2 Execution of this Agreement by Design/Build Entity is a representation the Design/Build Entity understands and accepts the methodology under which the work is to be performed and has correlated personal observations with requirements of the Contract Documents.
  - 2.2.3 The intent of the Contract Documents is to include all necessary criteria to establish the scope and quality for completion of the work by Design/Build Entity. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. Performance by the Design/Build Entity shall be required to the extent consistent with and reasonably inferable from the Contract Documents.
  - 2.2.4 Organization of the Contract Documents and arrangement of the drawings is not intended to control or guide the division or extent of work.
  - 2.2.5 Unless otherwise stated in the Contract Documents, words and phrases shall be interpreted consistent with construction and design industry standards.

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- 2.2.6 Work shall be accomplished in a workmanship-like manner by workers, laborers, or mechanics especially skilled in the class of work required. Any persons the City may deem incompetent or disorderly shall be promptly removed from the Project by the Design/Build Entity upon written notice from the City, and shall not be reemployed for the duration of the project.
- 2.2.7 As a minimum, work shall be in compliance with applicable laws, codes and ordinances. Higher levels of performance, material, and or function, may be required or reasonably inferred from the Contract Documents.
- 2.3 Use of the City's Contract Documents.
  - 2.3.1 The Contract Documents issued by the City are for use solely with respect to this Project. They are not to be used on other projects, or for additions to this Project without the specific written consent of the City. The Design/Build Entity is granted limited license to use and reproduce applicable portions of the Contract Documents for use in the execution of the Work. Design/Build Entity shall not release any information to the public in connection with services performed under this Agreement without advance written permission of the City.
- 2.4 Conflicts in the Contract Documents.
  - 2.4.1 The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict. In the event of conflict in the Contract Documents, the precedence shall be as follows:
    - .1 Addenda shall govern over other sections of the Contract Documents to the extent specifically noted; subsequent Addenda shall govern over prior Addenda only to the extent specified.
    - .2 This Agreement shall govern over other Contract Documents except for specific modifications stated in amendments to this Agreement and Addenda.
    - .3 In case of conflict between the drawings and the written design guidelines and the specifications, the Design/Build Entity shall obtain written clarification from the City as to the governing document. Such request for Clarification shall be submitted via a formal Request For Clarification (RFC) letter.
    - .4 In the case of conflict within the Performance Requirements, the following shall govern:
      - .1 Schedules, when identified as such, shall govern over all other portions of the drawings.
      - .2 Specific notes shall govern over all other notes and all other portions of the drawings, except schedules described in the

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preceding sub clause.

- .3 Larger scale drawings shall govern over smaller scale drawings.
- .4 Figured or numerical dimensions shall govern over dimensions obtained by scaling.
- .5 In the case of other conflict within the Performance Requirements, the Design/Build Entity shall obtain written clarification from the City as to the governing document.

2.4.2 The City and Design/Build Entity acknowledge that the Contract Documents may differ in some respects from other documents included in the Design/Build Entity's Technical Proposal upon which Design/Build Entity based its proposal. The City and Design/Build Entity agree that the documents that provide the higher quality supersede any inconsistent versions of these documents.

## 2.5 Clarifications and Additional Instructions.

2.5.1 Conflicts, omissions, errors, interpretation or clarification, insufficiency of detail or explanation in the Contract Documents relative to the timely or material execution of the work shall be immediately brought to the attention of the City in writing and request interpretation, clarification, or furnishing of additional detailed instructions. Such questions shall be resolved and instructions to the Design/Build Entity issued within a reasonable time by the City, whose decision shall be final and conclusive. Should the Design/Build Entity proceed with the work before receipt of instructions from the City, the Design/Build Entity shall make adjustments to conform to the City's instructions. Design/Build Entity shall be solely responsible for any resultant damage, defect or added cost.

2.5.2 The City may furnish additional detailed written instructions to explain the work more fully, and such instructions shall be a part of the Contract Documents requirements. Should additional detailed instructions, in the opinion of the Design/Build Entity, constitute work in excess of the scope of the Work, the Design/Build Entity shall submit written notice to the City within 10 calendar days following receipt of such instructions, and in any event prior to commencement of the work on it. The City will then consider the notice; and, if in the City's judgment it is justified, the City's instructions will be revised for the extra work authorized.

## ARTICLE 3 – DESIGN/BUILD ENTITY'S DUTIES AND RESPONSIBILITIES

### 3.1 Performance of Work.

3.1.1 Design/Build Entity shall be responsible for achieving the Occupancy and Final Completion Milestones dates in the Project Milestone Schedule as shown in **Exhibit A**. The schedule may be

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modified from time to time pursuant to the provisions of the Contract Documents.

## 3.2 Design/Build Entity's Responsibilities:

3.2.1 Design/Build Entity further agrees to design and construct the Project in sole consideration for the City's payment of the Cost Plus with Guaranteed Not To Exceed Amount of \_\_\_\_\_ **Million Dollars (\$ \_\_\_\_,000,000)**. In the event any or all costs incurred by the Design/Build Entity in the performance of all work required to satisfactorily complete the Project, as required by the Contract Documents, exceed the Guaranteed Not To Exceed Amount, such costs shall be the sole responsibility of the Design/Build Entity and not subject to compensation or reimbursement by the City. The duties and responsibilities include, but are not limited to, the following tasks:

### 3.2.2 General Responsibilities

Utilize the City's Management Information System (MIS), Procore, to manage the project, and provide information to the City's Project Management Team.

The Management Information System (MIS), shall facilitate documentation and exchange of project information including, but not limited to, Request for Clarifications (RFC's), Substitutions, Deviations from Design Requirements, Change Orders, Progress Payments, Submittals, Schedule(s), Drawings, etc. Design/Build Entity shall meet with the City's Project Management Team to determine specific requirements for the implementation of the MIS.

Pursuant to CEQA, an final environmental impact report has been certified, as **has/will be** a final environmental impact statement or other document analyzing environmental impacts per the National Environmental Policy Act. The Design/Build Entity shall comply with all the mitigation measures required by those documents.

The Design/Build Entity is required to deliver to the City any and all design materials. Those materials include, but are not limited to: calculations, preliminary drawings, construction drawings, shop drawings, samples, electronic media data, tenant improvement documents, sketches, illustrations, specifications, descriptions, models, and other information developed, prepared, furnished, or delivered in the prosecution of the design work.

3.2.3 Design Phase Responsibilities -The Design Phase includes the preparation of the design and construction Documents for the project including, but not limited, to all necessary architectural design, specialty consultant services, civil engineering, structural engineering, mechanical engineering, plumbing , and electrical engineering and whatever else may be necessary to ensure a full

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and complete process that meets, at a minimum, the Performance Requirements. These responsibilities shall also include all relevant plan submittals and permitting activities, for permits and approvals required for construction activities related to the Project.

## .1 Systems Confirmation Phase

- .a Following receipt of a Notice to Proceed, the Design/Build Entity shall meet weekly with City and provide such information as necessary to inform the City of the project design status, and obtain City input and approval regarding design issues. The Design/Build Entity shall be responsible for scheduling and coordinating the participation in these meetings. The Design/Build Entity shall proceed to develop System Confirmation documents. These documents shall depict the type and quality of materials, equipment, design, layout and general coordination of each major building system (i.e.: structural, exterior closure, mechanical, plumbing, electrical, etc.) in sufficient detail to confirm compliance with the Performance Requirements. The System Confirmation documents are considered to be part of and submitted with the schematic design, design development 60%, and construction document submittals. For further details on submittal requirements refer to Exhibit E- Project Schedule and Project Management Submittals.
- .b Conduct value engineering analysis on selected building components to determine best value based on initial cost, life expectancy, cost of operation and maintenance. The value engineering analysis shall be performed concurrent with the System Confirmation effort.
- .c Prepare and update detailed estimates of the cost of construction at the 30%, 60% and 90% design phases to substantiate that the project will not exceed the contracted Guaranteed Not To Exceed Amount.
- .d Monthly prepare and update the detailed construction schedule to confirm project delivery within the stipulated milestones, as defined in the Contract Documents.
- .e Provide services to develop a final space program and prepare plan layouts to reflect the requirements of all department users.
- .f Participate in the Systems Confirmation Conference with the City and its consultants within 30 calendar days after the Notice of Award, prior to the development of the Construction Documents. The Design/Build Entity shall be responsible for scheduling and coordinating the participation in these meetings. The Systems Confirmation Conference is intended to obtain City approval for design approach, equipment

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selection, and system/building layout prior to detailed design. The deliverables are defined in the appropriate sections of the Contract Documents.

## .2 Construction Documents Phase

- .a Prepare Construction Documents for the entire Project in full compliance with all applicable building codes, ordinances, and other regulatory authorities. The Construction Documents shall at a minimum comply with all applicable California State Building Codes, to include but not be limited to, Title 8 (Industrial Relations), Title 17 (Public Health), and Title 24 (Building Standards). Construction Documents will also need to show Best Management Practices for storm water pollution prevention during and after construction of project. The completed contract documents are to be delivered to City and shall consist of the following:

Drawings – Provide one reproducible original, and 10 printed full-size copies and 10 half-size copies of all approved construction document drawings. Provide one copy of all approved construction document drawings on compact disks (CD) using:

Computer-Aided Design (CAD) software, using the latest version of AutoCAD.

Specifications – Where articles, materials, and equipment are identified by brand names, at least two names shall be used, and such names shall be followed by the words “or equal”. Specifications shall not contain restrictions that will limit competitive bids. Exceptions shall only be as permitted by Public Contract Code Section 3400.

Provide original and 10 printed copies of approved specifications, bound and organized. Provide approved specifications on compact disks for all sections for all work applicable to the Project; in a format complying with the current edition of the Construction Specifications Institute’s “Master Format”; as directed by the City and in accordance with the following:

- 1) Electronic computer software in Microsoft Word, latest version for Windows.
- 2) All disks provided shall be clearly labeled to indicate files contained and date produced.

- .b Upon receipt of the Notice to Proceed, the Design/Build Entity shall instruct the Engineer of Record to commence with design and preparation of the construction documents. The construction documents shall provide information customarily

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necessary in documents for projects of similar size, complexity, and quality.

The construction documents shall include all information required by the building trades to complete the construction of the Project, other than such details customarily developed by others during construction. The Design/Build Entity shall be responsible to design, prepare construction documents and coordinate all disciplines for the entire project including, but not limited to: all structural elements, building enclosure, roofing, waterproofing, site work, structures, parking areas, utilities, and all building systems.

Responsibilities also include the design, preparation of construction documents and all coordination necessary for accommodation of interior space construction, fixtures and equipment coordination, finishes, infrastructure, and equipment, all to be provided and installed by the Design/Build Entity. Refer to paragraph 3.2.4, Construction Phase Responsibilities, for further fixtures and equipment requirements. The project's design shall meet or exceed the design and performance criteria stipulated in the Design Requirements.

- .c The City's review of the construction documents shall be conducted in accordance with the approved Design/Build Entity's Baseline Schedule with procedures set forth in Article 7, Schedule. Such review shall not relieve the Design/Build Entity from its responsibilities under this Agreement. Such review shall not be deemed an approval or waiver by the City of any deviation from, or of the Design/Build Entity's failure to comply with, any provision or requirement of the Contract Documents, unless such deviation or failure has been identified as such in writing in the document submitted by the Design/Build Entity and approved by the City.
- .d However, it is acknowledged by the parties hereto that inherent in a Design/Build concept, the production and review of construction documents may be a continuing process with portions thereof completed at different times. However, during Project start-up the Design/Build Entity will determine the number of design packages with the City and stipulate the number in the Design/Build Entity's Project Management Plan. The Design/Build Entity's Baseline Schedule shall indicate the times for the City to review the completion of each such portion of the construction documents and a reasonable time for review of same. The minimum review time for major milestone submittals shall not be less than 10 working days.
- .e The Design/Build Entity shall submit completed packages of the construction documents, in the quantities required by the City Community Development Department and other

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applicable authorities having jurisdiction, at the times indicated on the Design/Build Entity's Baseline Schedule. Review meetings between the Design/Build Entity and the City to review the construction document packages, shall be scheduled and held so as not to delay the Work. After reviewing the construction documents package for conformance to the Contract Documents and applicable codes, in his/her governmental capacity, the City's Building Official will issue a Building Permit to the Design/Build Entity. The issuance of the Building Permit or Notice to Proceed does not relieve the Design/Build Entity of satisfactorily and timely complying with all provisions of the Contract Document.

- .f The construction documents for hazardous and/or toxic abatement efforts and demolition activities shall be of sufficient clarity and detail and shall be submitted to the City and other applicable authorities having jurisdiction for review.

### .3 Ownership of Design Materials

- .a All materials and documents developed in the performance of this Agreement are the property of the City. The City shall have unlimited rights, for the benefit of the City, in all drawings, designs, specifications, notes, and other work developed in the performance of this Agreement, including the right to use same on any other City work at no additional cost to the City.

Design/Build Entity agrees to and does hereby grant to the City a royalty-free license to all such data that Design/Build Entity may cover by copyright and to all designs as to which Design/Build Entity may assert any rights or establish any claim under the patent or copyright laws. The Design/Build Entity for a period of three years after completion of the Project agrees to furnish and to provide access to the originals or copies of all such materials upon the request of the City.

The City agrees to make no demand on Design/Build Entity and indemnifies the Design/Build Entity of any damages for responsibility for the City's use of such materials for any other City work that is not the subject of an agreement between the City and Design/Build Entity for such use.

- .b The Design/Build Entity shall perform the work required under this Agreement with Computer-Aided Design (CAD) software, using the latest version of AutoCAD, and shall deliver to the City the compact disks containing the electronic files of all approved construction document drawings and as constructed Record Drawings.
- .c The City does not assume any obligation to employ the

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Design/Build Entity's services or pay Design/Build Entity royalties of any type as to future programs that may result from the work performed under this Agreement.

## .4 Design Material Errors

The Design/Build Entity shall be solely responsible for all design errors, including, but not limited to: errors, inconsistencies or omissions in the construction documents, and errors, omissions and inconsistencies that do not conform to the minimum standards of the Contract Requirements and the Performance Requirements. The Design/Build Entity shall take field measurements and verify field conditions and shall carefully compare such field conditions and other information known to the Design/Build Entity from the Contract Requirements and the Performance Requirements before commencing activities.

## 3.2.4 Construction Phase Responsibilities

The Design/Build Entity shall provide all supervision, labor, materials, equipment, temporary utility services and facilities necessary to design and construct the entire fully-functional Project, as required by the Contract Documents, including, but not limited to:

- .1 Prepare an existing conditions survey of the all surrounding and adjacent properties, including streets and observable and recorded utilities, prior to the start of construction. The survey shall professionally document existing conditions of surrounding and adjacent properties using a professional video/filming service hired by the Design/Build Entity and approved by the City prior to the start of work. Videotape shall be on DVD and contain detailed audio documentary describing property, location and existing conditions in areas of view. Design/Build Entity will endeavor to gain access to non-City owned properties. Submit three copies of the videotapes to the City 10 days prior to the start of construction.
- .2 Competitively bid all work not performed by the Design/Build Entity or the Designated Subcontractors.
  - .a Provide public notice of the availability of work to be subcontracted in accordance with Section 22160 *et seq.* of the Public Contract Code.
  - .b The contents of the notice shall state the time and place for receiving and opening of sealed bids and general description of the work in accordance with Section 22160 *et seq.* of the Public Contract Code.
  - .c As authorized by the City, establish reasonable pre-qualification criteria and standards. See Public Contract Code Section 22160 *et seq.*

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- .d Provided that the subcontracted work be awarded to the lowest responsible bidder, subject to Design/Build Entity's right in its sole discretion, to reject all bids and re-bid any subcontract bid package in the event that all bids exceed Design/Build Entity's budget for subcontract bid package.
- .3 If a discovery is made of items of archaeological interest on site during excavation activities, the Design/Build Entity shall immediately cease excavation in the area of discovery and shall not continue until ordered by the Construction Manager. Design/Build Entity shall cooperate with and provide access to the City's Archaeologist and other monitoring services
- .4 Except as otherwise specifically approved by the City, prepare and submit construction progress photographs monthly from groundbreaking through project completion, within three calendar days of the date of the Design/Build Entity's application for progress payment. To the extent practicable, make photographs at approximately the same time of day through progress of the work. When inclement weather is anticipated, consult with the City and determine acceptable alternative arrangements.

Identify each location by word description, by marked drawing, or by such other means as acceptable to the City, to enable future photographs to be taken from the same position. When so directed by the City, because of the stage of construction, change one or more of the locations to new locations inside or outside the buildings. Make each photograph clear, in focus, with high resolution and sharpness, and with minimum distortion.

The Design/Build Entity shall retain the digital copies for at least four years following Date of Substantial Completion, and to provide prints to the City during that period at the prevailing commercial rates for such prints. Do not permit prints to be issued for any other purpose without specific written approval from the City.

### 3.3 Standards of Performance.

The Work on the project shall be performed in accordance with the professional standards and quality of care applicable to projects, buildings or work of similar size, complexity, quality and scope constructed within a California urban environment.

- 3.3.1 The Design/Build Entity shall assign **[INSERT NAME]**, Project Manager, as previously approved by the City. The Project Manager shall remain on the project through Final Completion. The Design/Build Entity shall make assignments of consultants and subcontractors as detailed in the Proposal.

The Design/Build Entity may make additions or substitutions to personnel and responsibilities provided they are suitably qualified and are approved by the City in writing. In the event that personnel

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assigned by the Design/Build Entity fail to meet the professional standards required or are persistently uncooperative, in the sole discretion of the City, the City may request substitution of such personnel. Once notice of such request has been received, the Design/Build Entity shall have 20 business days to substitute such other personnel as approved by the City.

3.3.2 The Design/Build Entity shall employ a competent, on-site project team including, but not limited to, Project Manager, superintendent, and necessary assistants who shall be in attendance at the Project Site at all times during the construction of the project. The Project Manager shall represent the Design/Build Entity and communications given to and by the Project Manager shall be as binding as if given directly to and by the Design/Build Entity. The Design/Build Entity shall confirm all communications in writing and provide a matrix of signature authority limitations for its team.

3.3.3 At any other time when the Project Manager is absent from the Project Site because no work is being performed, the Project Manager shall nevertheless keep the City advised of the Project Manager's whereabouts so that the Project Manager may readily be reached and available for consultation at the Project Site at any time.

### 3.4 Applicable Laws and Codes.

The Design/Build Entity shall comply with all applicable laws, codes, regulations, City Resolutions and City ordinances and shall give notices as applicable. Design/Build Entity shall prepare and file all documents required to obtain the necessary approvals of governmental authorities having jurisdiction over the work and shall secure and pay as part of the Guaranteed Not To Exceed Amount, for plan check and permits fees, licenses and inspections required.

3.4.1 The Design/Build Entity shall comply with the current adopted edition of the California Building Code ("CBC"), including any updates following the date the Design/Build Entity submits the project for plan check. Whenever the Contract Documents require higher standards than the minimum required by applicable laws, the Contract Documents shall take priority.

3.4.2 Design/Build Entity shall submit for review to the City and to other authorities having jurisdiction required calculations and other materials demonstrating the energy use of proposed systems and sustainability.

### 3.5 Permits, Fees and Notices.

3.5.1 Unless otherwise provided in the Contract Documents, the Design/Build Entity shall be responsible for obtaining the required permits, governmental fees, licenses, inspections, approvals, notices and actions necessary to complete the Work and to prepare all documents customarily required for regulatory agency approvals. City

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shall be responsible for the cost of the building permit and such cost shall not be included in the Guaranteed Not To Exceed Amount. Design/Build Entity shall provide a minimum of 10 working days' notice to City to cut checks for the building permit.

- 3.5.2 Design/Build Entity shall promptly, notify the City, in writing, of variances observed between the Contract Documents and applicable laws. The Design/Build Entity shall bear responsibility for any attributable costs for work performed, without prior notice to the City, known to be contrary to applicable laws.
  - 3.5.3 The Design/Build Entity may be subject to City, or state laws, rules, or regulations pertaining to building permits or regulating the design or construction of buildings upon City property, and shall be solely responsible for meeting these requirements.
  - 3.5.4 The Design/Build Entity shall pay any site de-watering fees and will cooperate with the City in any reasonable measure to limit the quantity of de-watering.
  - 3.5.5 The City shall pay all utility assessments and connection fees levied by the City, or other utility service provider.
- 3.6 Use of Project Site.
- 3.6.1 The Design/Build Entity shall confine operations at the Project Site to areas permitted by law, ordinances, permits, and the Contract Documents.
  - 3.6.2 The Design/Build Entity shall perform no operations of any nature on or beyond the limits of Work or premises, except as such operations are authorized in the Contract Documents, or authorized by the City.
  - 3.6.3 The Design/Build Entity shall provide and maintain a temporary construction fence and suitable temporary barriers as required preventing public entry; protecting the work and existing facilities, persons, and trees and plants from damage or injury from construction operations. Temporary barriers shall be maintained in a structurally sound condition and neat appearance.
  - 3.6.4 If regulatory requirements necessitate construction of temporary barriers, barricades, or pedestrian walkways not indicated or specified in the Construction Documents, then the Design/Build Entity shall construct or provide same, as required. at no increase in the Guaranteed Not To Exceed Amount. The Design/Build Entity shall also paint, at no increase in the Guaranteed Not to Exceed Amount, such items in a color selected by the City's Representative.
- 3.7 Cutting and Patching

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- 3.7.1 The Design/Build Entity shall be responsible for cutting, fitting or patching required to complete the Work.
- 3.7.2 The Design/Build Entity shall not damage nor endanger the Work by cutting, patching or otherwise altering the construction, and shall not cut nor otherwise alter the construction without prior written consent of the City.
- 3.8 Cleaning
- 3.8.1 The Design/Build Entity shall keep the Project Site and surrounding areas free from waste materials and/or rubbish caused by operations under the Agreement and at other times when directed by the City. At all times while finish work is being accomplished, floors shall be kept clean, free of dust, construction debris and trash. Prior to issuance of the Certificate of Final Completion, the Design/Build Entity shall remove from the Project Site the Design/Build Entity's tools, construction equipment, machinery, and any waste materials not previously disposed of, leaving the Project site thoroughly clean, and ready for the City's final inspection.
- 3.8.2 If the Design/Build Entity fails to clean up as provided in the Contract Documents, the City may do so and the cost thereof charged to the Design/Build Entity.
- 3.9 Site Availability.
- 3.9.1 The City shall turn over the Site to the Design/Build Entity as described in the Notice to Proceed and as further described in EXHIBIT A – PROJECT MILESTONE SCHEDULE, at which time the Design/Build Entity shall be obligated to take control and responsibility. The Design/Build Entity shall provide the City, Construction Manager and other City consultants with continuous access to the Site.
- 3.9.2 The Design/Build Entity shall occupy the least amount of parking spaces at all times for use by the public during regular operating hours of the facilities at the site. Temporary parking facilities shall meet all applicable regulatory requirements applicable to design and construction. Design/Build Entity shall be responsible for all permits, design, and construction required including, but not limited to lighting, access, signage, handicap accessibility, and maintenance.
- 3.10 Site Conditions.
- 3.10.1 The Design/Build Entity represents it has taken the necessary steps to ascertain the nature, location and extent of the Work, and it has investigated and satisfied itself as to the general and local conditions which are applicable to the Work, such as:
- (a) conditions bearing on transportation, disposal, handling and storage of materials;

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- (b) the availability of labor, water, power and roads;
- (c) normal weather conditions;
- (d) physical conditions at the Site;
- (e) the conditions of the ground;
- (f) the character of equipment and facilities needed prior to and during the performance of the Work.

3.10.2 To the extent the Design/Build Entity encounters subsurface conditions or hazardous materials, which differ materially from that actually known by the Design/Build Entity, or from those ordinarily known to exist or could have been reasonably discovered within the time permitted during the Request for Proposals, or generally recognized as inherent in the area, then notice by the Design/Build Entity shall be immediately given to the City, before conditions are disturbed, and in no event later than two business days after the first observance of the conditions. If such conditions could not have been reasonably identified by Design/Build Entity's site investigations and available existing data, and the Design/Build Entity incurs significant additional costs or delays as a result of such concealed conditions, then such conditions may be the subject of a Change Proposal.

If any existing utilities or services are disturbed, disconnected or damaged during construction, then the Design/Build Entity shall be responsible, at no additional cost or time to the City, for all expenses and consequential damages of whatever nature arising from such disturbance or the replacement or repair thereof and shall repair such items as required to maintain continuing service, including emergency repairs.

3.10.3 The Design/Build Entity is responsible for foreseeable site conditions and toxic materials to the extent described in the Contract Documents or could be reasonably inferred by the Design/Build Entity based on its and its representative's experience and expertise on similar projects in urban areas.

### 3.11 Hazardous Materials.

Any hazardous materials that are encountered beyond those described in the Contract Documents or Proposal Requirements, or which reasonably could not have been discovered within the time permitted or the Design/Build Entity to prepare its Proposal, may properly be the subject of a Change Proposal. The City agrees the Design/Build Entity cannot be considered a hazardous materials generator of any such materials in existence on the Site at the time it is given possession of the Site.

3.11.1 "Hazardous materials" means any substance, the presence of which requires investigation or remediation under any federal, state or local law, statute, regulation, ordinance, order, action, policy or common law; which is or becomes defined as a "hazardous waste," "hazardous substance," pollutant or contaminant under any federal, state or local law, statute, regulation, rule or ordinance or

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amendments thereto, including, without limitations, the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601 *et seq.* ("CERCLA"), as amended, or the Resource, Conservation and Recovery Act, as amended, 42 U.S.C. Section 6901 *et seq.* ("RCRA"); which is petroleum, including crude oil or any fraction thereof not otherwise designated as a "hazardous substance" under CERCLA, including without limitation gasoline, diesel fuel or other petroleum hydrocarbons; which is toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic, or otherwise hazardous and is or becomes regulated by any regulatory agency or instrumentality or the City; the presence of which on the Site causes or threatens to cause a nuisance upon the Site or to the adjacent properties or poses or threatens to pose a hazard to the health or safety of persons on or about the Site; the presence of which on adjacent properties could constitute a trespass by the Design/Build Entity or the City; or as defined in the California Health and Safety Code.

3.11.2 "Environmental Requirements" means all applicable laws, statutes, regulations, rules, ordinances, codes, licenses, permits, orders and similar items of all governmental agencies or other instrumentality's of the State of California and United States and all applicable judicial, administrative and regulatory decrees, judgments and orders relating to the protection of human health or the environment, including, without limitation: all requirements, including but not limited to, those pertaining to reporting, licensing, permitting, investigation and remediation of emissions, discharges, releases or threatened releases of hazardous materials into the air, surface water, ground water or land, or relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of hazardous materials; and all requirements pertaining to the protection of the health and safety of employees or the public.

3.11.3 The indemnification provision of the Agreement, Paragraph 12.2, Indemnification, is applicable to this paragraph in its entirety.

3.12 Shop Drawings, Product Data, Samples, Materials, and Equipment.

3.12.1 Shop drawings means drawings, submitted to Design/Build Entity by, subcontractors, manufacturers, supplier or distributors showing in detail the proposed fabrication and assembly of building elements and the installation (i.e., form, fit, and attachment details) of materials or equipment.

3.12.2 Design/Build Entity shall coordinate all submittals and review them for accuracy, completeness, and compliance with the requirements of the Contract Documents and the Design/Build Entity's construction documents, and shall indicate its approval thereon as evidence of such coordination and review.

3.12.3 Materials and equipment incorporated in the Work shall match the

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approved samples within tolerances appropriate to the items, and as may be described in the Design Requirements.

3.12.4 Prior to placement of material orders or start of component fabrication, the Design/Build Entity shall submit to the City all shop drawings approved by the Architect of Record and samples of submittals that relate to finish materials and products.

3.12.5 Wherever the name or brand of manufacturer or an article is listed in the Contract Documents, it is to be used in the Work as the standard. Any variation in quality must be approved by the City.

### **3.13 [Intentionally left blank]**

### **3.14 Site Conditions.**

3.14.1 The Design/Build Entity is responsible for assessing the site conditions prior to start of design work. Preliminary findings that will impact the design work must be notified to the City immediately. Design/Build Entity shall be responsible to verify the accuracy of the information provided and, at its cost, obtain any additional measurements, and verifications.

3.14.2 The Design/Build Entity shall verify the location and depth (elevation) of all existing utilities and services before performing any excavation Work.

3.14.3 The Design/Build Entity shall obtain, and pay for, the services of geotechnical engineers licensed in the State of California and other consultants to provide services deemed necessary by the Design/Build Entity. Such services may include reports, test borings, test pits, soil bearing values, percolation tests, air and water pollution tests, ground corrosion and resistivity tests, and other necessary operations for determining subsoil, air and water conditions, with reports and appropriate professional interpretations and recommendations thereof.

### **3.15 Meetings and Reports.**

3.15.1 Prior to commencement of the work, the Design/Build Entity shall attend a Project Kick-off meeting, at a time and a place selected by the City's Representative, to discuss procedures to be followed during the course of the work. Design/Build Entity shall follow the procedures as set forth by the City's Representative and as provided in the Design/Build Entity's procedure manual to be supplied at the Kick-off conference. The purpose of the meeting will be to introduce the City's key personnel and to review the contract provisions and any other items pertaining to the project.

3.15.2 Once a week, or at such interval as mutually agreed by the parties, the City's Representative will meet with the Design/Build Entity to review the overall project progress, the status of the design and/or

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construction, and to discuss any problems that may arise. The Design/Build Entity and the Architect of Record shall attend all progress meetings. Subconsultants, Subcontractors and Vendor Representatives shall attend the progress meetings as appropriate to the particular stage of the work. The Design Build Entity shall prepare and submit written reports to be presented at these weekly meetings of the progress and quality of Work.

3.15.3 Each month the Design/Build Entity shall attend a payment meeting with the City's Representative to agree on the percentage of the work completed during the current month and establishes an amount to be requested in the Application for Payment.

3.15.4 The Design/Build Entity shall prepare and submit to the City, during design completion, the construction document phase, and the construction phase, monthly reports on the Work accomplished during the prior monthly period. Such reports shall be prepared in a manner and in a format approved by the City. One electronic and four bound copies of the Reports shall be furnished at the time of submission of each monthly application for payment. The monthly report shall also set forth the Design/Build Entity's projected progress for the forthcoming month.

3.15.5 Thirty days prior to the estimated final completion, the Design/Build Entity shall hold a meeting to review maintenance manuals, guarantees, close-out submittals, bonds, and service contracts for materials and equipment. Implement repair and replacement of defective items, and extend service and maintenance contracts as desired by the City.

3.16 Other Reports.

3.16.1 The Design/Build Entity will cooperate with the City, and as may be requested, assist in preparing periodic project reports required by the City Council, the City's Project Management team, or other City agencies as required.

3.17 Notices of Labor Disputes.

3.17.1 If Design/Build Entity has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of the Work, then Design/Build Entity shall immediately give notice including all relevant information to the City. Design/Build Entity shall refer to the Project Labor Agreement for additional requirements.

3.17.2 Design/Build Entity agrees to insert the substance of this Article including this Clause in any subcontract to which a labor dispute may delay the timely performance of the Work, except that each subcontract shall provide that in the event its timely performance is delayed or threatened by delay, by any actual, or potential labor dispute, the subcontractor shall immediately notify the next higher tier subcontractor or Design/Build Entity, as the case may be, of all

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relevant information concerning the dispute.

### **3.18 Guarantee.**

3.18.1 The Design/Build Entity unconditionally guarantees the Work will be completed in accordance with the requirements of the Contract Documents, and will remain free of defects in workmanship and materials for a period of one year from the date of Final Completion, unless a longer guarantee period is specifically called for in the Contract Documents. For equipment or building components started in operation prior to Final Completion, the Design/Build Entity shall, at no additional cost to the City, provide extended guarantees such that the guarantee period will be in force for the full year after Final Completion.

The Design/Build Entity shall repair or replace any and all work, together with any adjacent work that may have been damaged or displaced, which was not in accordance with the requirements of the Contract Documents, or that may be defective in its workmanship or material within the guarantee period specified in the Contract Documents, without any expense whatsoever to the City; ordinary wear and tear and abuse excepted.

3.18.2 The Design/Build Entity further agrees, within seven days after being notified in writing by the City, of any work not in accordance with the requirements of the Contract Documents or any defects in the Work, that the Design/Build Entity shall commence and execute, with due diligence, all work necessary to fulfill the terms of the guarantee. If the City finds that the Design/Build Entity fails to perform any of the work under the guarantee, then the City will proceed to have the work completed at the Design/Build Entity's expense and the Design/Build Entity will pay costs of the work upon demand. The City will be entitled to all costs, including reasonable attorney's fees necessarily incurred upon the Design/Build Entity's refusal to pay the above costs.

3.18.3 Notwithstanding the foregoing subparagraph, in the event of an emergency constituting an immediate hazard to health or safety of City employees, property, or licensees, the City may undertake, at the Design/Build Entity's expense and without prior notice, all work necessary to correct such hazardous condition(s) when it is caused by work of the Design/Build Entity not being in accordance with the requirements of the Contract Documents.

### **3.19 Warranty.**

3.19.1 The Design/Build Entity warrants to the City that any and all materials, equipment and furnishings incorporated in the Work will be of good quality and new unless otherwise required or permitted by the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The foregoing warranty excludes improper operation, or normal wear and tear under normal

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usage under the control of the City. Such warranty shall exclude warranties relating to design, warranty of fitness, and any other express or implied warranties other than as set forth herein or in the Contract Documents; provided, however, that the foregoing shall not impair the rights of the City to maintain an action for breach of contract against the Design/Build Entity.

### **3.20 Patents, Trademarks, and Copyrights.**

3.20.1 The Design/Build Entity shall pay, as part of the Guaranteed Not To Exceed Amount, all applicable royalties and license fees on any and all matters arising in connection with the Work. The Design/Build Entity shall defend all suits or claims for infringement of patent, trademark, and copyrights against the indemnified parties, and shall indemnify, defend, and hold harmless the indemnified parties from any claims, causes of action, losses, or costs related to any and all matters arising in connection with Work on the Project (such costs to be paid as part of the Guaranteed Not To Exceed Amount), except with respect to any particular design process or the product of a particular manufacturer or manufacturers specified and required by the City, other than pursuant to the recommendation or suggestion of the Design/Build Entity; provided, however, if the Design/Build Entity has reason to believe that the design, process, or product so specified is an infringement of a patent, the Design/Build Entity shall be responsible for any loss resulting unless the Design/Build Entity has provided the City with prompt written notice of the Design/Build Entity's belief, and the City has nevertheless elected to go forward with such design, process, or product so specified.

### **3.21 Taxes and Business License.**

3.21.1 The Design/Build Entity shall pay all applicable taxes for the Work, or portions thereof provided by the Design/Build Entity, which were legally enacted as of 30 days prior to the submission of the Design/Build Entity's Request for Proposal, whether or not yet effective or merely scheduled to go into effect. Any federal, state, or local taxes payable on any materials, labor or any other thing to be furnished by Design/Build Entity under the Contract Documents and in effect 30 days prior to the submission of the Design/Build Entity's Request for Proposal shall be included in the Guaranteed Not To Exceed Amount and paid by Design/Build Entity. Design/Build Entity must procure a City Business Tax Certificate before or during the construction of work.

### **3.22 Tests and Inspections.**

3.22.1 The Design/Build Entity shall be responsible for designating a Quality Assurance Manager assigned to the Project. The Quality Assurance Manager shall be subject to approval by the City. The Design/Build Entity shall provide the City with the detailed qualifications of the Quality Assurance Manager, including but not limited to, a description of previous relevant project experience, and all training, licensing and

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certifications.

The Design/Build Entity shall be responsible for requesting and scheduling all tests and inspections necessary to ensure the quality of the Work are in accordance with the terms of the Contract Documents. The Design/Build Entity shall at all-time permit the City and its agents, inspectors, officers, and employees to visit the Project Site and inspect the Work and such other locations where work is in preparation. This obligation shall include maintaining proper facilities and safe access for such inspection. When the Contract Documents require a portion of the work to be tested, such portion of work shall not be covered up until inspected and approved. The Design/Build Entity shall be solely responsible for notifying the City where and when the work is ready for inspection and testing. The City shall provide inspectors to review and verify compliance of the Design/Build Entity's quality control and assurance teams with the contract documents.

If any work is covered without the required testing or witnessed by the City, then such work shall be uncovered at the Design/Build Entity's expense. Whenever the Design/Build Entity intends to perform work on Saturday, Sunday, or a legal holiday, the Design/Build Entity shall give written notice to the City of such intention at least 48 hours prior to performing the work, so that the City may make necessary arrangements.

- 3.22.2 If the City determines portions of the Work require additional testing or inspection that is not included in the Contract Documents, then the City will instruct the Design/Build Entity, in writing, to make arrangements for additional testing or inspection by an entity acceptable to the City, and the Design/Build Entity shall give 48 hours written notice to the City of where and when tests and inspections will be conducted so that the City may observe the procedures. The City will bear the costs except as provided in Subparagraph 3.22.1.
- 3.22.3 If procedures for testing, inspection or approval under Subparagraphs 3.22.1, 3.22.2 and 3.22.3 reveal failure of a portion(s) of the work to comply with the Contract Documents, the Design/Build Entity shall bear all costs and time made necessary by such failure(s) including those of repeated procedures and compensation for the City's services and expenses. The Design/Build Entity shall notify the City in writing within 24 hours of any test conducted by the independent testing agency reveals work failing to comply with the contract documents.
- 3.22.4 Required certificates of testing and inspection shall, unless otherwise required by the Contract Documents, be secured by the Design/Build Entity and delivered to the City within seven days after each test.
- 3.22.5 Provide qualified on-site personnel to review and record daily construction activities, including subcontract activities, to determine adequacy of work and compliance with the approved plans and

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specifications. Provide written daily reports in a daily report format approved by the City, including, but not limited to: project title, date of work, contract day, weather and conditions (temperature, wind, humidity, etc.), a description of the work in progress by corresponding schedule activity number(s), name of each subcontractor on site and work being performed, location of each trade on the project site, total daily man count per trade (including the Design/Build Entity's work force), material deliveries and quantities, equipment deliveries, potential delays and delays encountered, orders of instruction, unsatisfactory work, tests performed, safety concerns, visitors, and any other issues to document work performed and areas of concern. Daily reports shall be signed by the Design/Build Entity's Quality Assurance Manager and Project Manager and submitted to the City's Construction Manager through the City's Procure system no later than the 12:00 p.m. following the day work was performed. The Design/Build Entity shall separately provide written reports to the City's Construction Project of any noted deficiencies in the installed work and corrective measures taken, and test reports of work being installed.

### **3.23 Air Pollution.**

3.23.1 The Design/Build Entity and each subcontractor shall comply with all State, City and or local air pollution control rules, regulations, ordinances, and statutes that apply to any work performed under the Agreement. If there is a conflict between the State, City and local air pollution control rules, regulations, ordinances and statutes, the most stringent shall govern.

### **3.24 Certification by Design/Build Entity of Recycled Content.**

3.24.1 The Design/Build Entity shall certify in writing, under penalty of perjury, to the City awarding an agreement under this part, the minimum, if not exact, percentage of recycled content, both post-consumer material and secondary material, as defined in Public Contract Code Sections 12161 and 12200-12226, in materials, goods, or supplies offered or products used in the performance of the Agreement, regardless of whether the product meets the required recycled percentage as defined in Sections 12161 and 12200-12226. The Design/Build Entity may certify that the product contains zero recycled content. This information shall be provided for all materials with recycled content noted in the Contract Documents. See also Management Plan Information and Requirements, and Waste Management Plan.

### **3.25 Unfair Business Practices.**

The Design/Build Entity agrees, and will require all of the Design/Build Entity's contractors and subcontractors and suppliers to agree, to assign to the awarding body all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 U.S.C. Section 15), or under the Cartwright Act (commencing with Section 16700 of the Business

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and Professions Code), arising from the purchase of goods, services or materials, pursuant to the Contract Documents or any subcontract there under. An assignment made by the Design/Build Entity, and all additional assignments made by subcontractors and suppliers, shall be deemed to have been made and will become effective at the time the City tenders Final Payment to the Design/Build Entity, without further acknowledgment of the parties.

## ARTICLE 4 – CITY’S DUTIES AND RESPONSIBILITIES

### 4.1 City’s Representative.

- 4.1.1 The City shall designate, from time to time, one or more representatives authorized to act on the City’s behalf with respect to the Project, together with the scope of his/her respective authority. Functions for which this Design/Build Agreement provides to be performed by the City may be delegated by the City only by written notice to the Design/Build Entity from the City.

The Design/Build Entity shall not be entitled to rely on directions (nor shall it be required to follow the directions) from anyone outside the scope of that person’s authority as set forth in written authorization pursuant to this Design/Build Agreement. Directions and decisions made by Authorized Representatives of the City shall be binding on the City.

### 4.2 Communication with the Design/Build Entity.

- 4.2.1 During the term of this Design/Build Agreement, the City shall communicate with the Design/Build Entity, subcontractors, suppliers, and others performing any part of the Work only through the Design/Build Entity’s Authorized Representatives, as may be amended, subject to any approvals required by the City as described in the Contract Documents.

### 4.3 City’s Consent.

- 4.3.1 Whenever the City’s consent, review, satisfaction, or determination shall be required or permitted under the Contract Documents with respect to the Design/Build Entity’s performance of the Work, and this Design/Build Agreement does not expressly state that the City may act in its sole discretion, such consent, review, satisfaction or determination shall not be unreasonably withheld.

The City shall cooperate fully with the Design/Build Entity and shall furnish decisions, information, and/or reviews required by this Design/Build Agreement in a timely manner so as not to delay the Work, provided that the City shall have no less time for review than set forth in the Project Baseline Schedule as developed by the Design/Build Entity and accepted by the City.

### 4.4 City Review of Design Materials.

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- 4.4.1 The Design/Build Entity shall be entitled to proceed with all or a part of the construction phase of the Project upon the City's review and approval of the design and construction documents, and any subsequent submittals or shop drawings for conformance with the Design Requirements, and other Contract Documents. If the City modifies or otherwise changes in a material way the Scope of Work called for in the construction documents, subsequent submittals or shop drawings, after such review for conformity, the Design/Build Entity shall be entitled to a Change Order in accordance with Article 8, Changes in the Work, of the Agreement. In no event shall a Change Order be issued to the extent such modification is due to the fault or neglect of the Design/Build Entity, or in the event the original submittals were not accompanied by annotations showing nonconformance with the Contract Documents, if any.

### **ARTICLE 5 – SUBCONTRACTING AND LABOR**

#### 5.1 Subletting and Subcontracting.

- 5.1.1 The Design/Build Entity shall adhere to the rules governing subcontracting as set forth in the Subletting and Subcontracting Fair Practices Act, commencing with Public Contract Code, Section 4100. Subcontractor substitutions shall be in accordance with the Act and any violations may subject the Design/Build Entity to penalties and disciplinary action as provided by the Subletting and Subcontracting Fair Practices Act.
- 5.1.2 The Design/Build Entity shall be responsible for all work performed under this Agreement. All persons engaged in the Project will be considered employees of the Design/Build Entity. The Design/Build Entity shall give personal attention to fulfillment of the Agreement and shall keep the Work under the Design/Build Entity's control. When any subcontractor fails to execute a portion of the work in a manner satisfactory to the City, the Design/Build Entity shall remove such subcontractor immediately upon written request notice from the City, and the subcontractor shall not again be employed on the Project. Although Specification Sections, Part 4 of the Contract Documents, may be arranged according to various trades or general grouping of work, the Design/Build Entity is not obligated to sublet work in such manner. The City will not entertain requests to arbitrate disputes among subcontractors or between the Design/Build Entity and subcontractor(s) concerning responsibility for performing any part of the Work.
- 5.1.3 The City may not permit a subcontractor who is ineligible to bid or work on, or be awarded, a public works project pursuant to Sections 1777.1 or 1777.7 of the Labor Code.

Any contract on a public works project entered into between a Design/Build Entity and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract, and any public money that may have been paid to a debarred

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subcontractor by the Design/Build Entity on the project shall be returned to the awarding body by the Design/Build Entity. The Design/Build Entity shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project.

### 5.2 Subcontracting Relations.

The Design/Build Entity shall, by subcontractor agreement, require each subcontractor, to the extent of the work to be performed by the subcontractor, to be bound to the Design/Build Entity by terms of the Contract Documents, and to assume toward the Design/Build Entity all the obligations and responsibilities which the Design/Build Entity, by the Contract Documents, assumes toward the City. Each subcontractor agreement shall preserve and protect the rights of the City under the Contract Documents with respect to the work to be performed by the subcontractor.

The subcontractor shall be allowed, unless specifically provided otherwise in the subcontractor agreement, the benefits of all rights, remedies and redress against the Design/Build Entity that the Design/Build Entity, by the Contract Documents, has against the City. The Design/Build Entity shall require each subcontractor to enter into similar agreements with sub-subcontractors. The Design/Build Entity shall make available to each proposed subcontractor, prior to the execution of the subcontractor agreement, copies of those portions of the Contract Documents to which the subcontractor will be bound. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed sub-subcontractors.

### 5.3 Subcontractor Progress Payments.

Within 10 days of receipt of each progress payment, the Design/Build Entity shall make payment to subcontractors in accordance with Public Contract Code Section 10262.

### 5.4 Contract Assignments.

Performance of the Contract Documents may not be assigned except upon written consent of the City. Consent will not be given to an assignment that would relieve the Design/Build Entity or the Design/Build Entity's surety of their responsibilities under the Contract Documents.

### 5.5 [Intentionally left blank]

### 5.6 [Intentionally left blank]

### 5.7 Statement Of Compliance.

The Design/Build Entity's execution of this Agreement shall constitute a certification under penalty of perjury under the laws of the State of California that the Design/Build Entity will, unless exempted, comply with the nondiscrimination program requirements of Government Code section 12990

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and 2 CCR, section 8103.

### 5.8 Drug-Free Workplace Certification.

By signing this Agreement, the Design/Build Entity certifies under penalty of perjury under the laws of the State of California that the Design/Build Entity will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code section 8350 et seq.).

### 5.9 Nondiscrimination.

5.9.1 Equal Employment Opportunity. Design/Build Entity agrees for the duration of this Contract it will not discriminate against any employee or applicant for employment because of age, ancestry, color, gender, marital status, medical condition, national origin, physical or mental disability, race, religion, sexual orientation or other protected status. The Design/Build Entity will take affirmative action to insure employees are treated during employment or training without regard to their race, color, religion, sex, national origin, age, political affiliation, marital status, or disability. The Design/Build Entity agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of the Nondiscrimination Clause.

- a. The Design/Build Entity will in all solicitations or advertisements for employees placed by or on behalf of the Design/Build Entity, state that all qualified applicants will receive consideration for employment without regard to age, ancestry, color, gender, marital status, medical condition, national origin, physical or mental disability, race, religion or sexual orientation.
- b. The Design/Build Entity will send to each labor union or other representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the workers' representative of the Design/Build Entity commitments under this Agreement. The Design/Build Entity agrees that it will comply with the provisions of Titles VI and VII of the Civil Rights Act, Revenue Sharing Act Title 31, U.S. Code Section 2716 and California Government Code Section 12990.
- c. The Design/Build Entity agrees it will assist and cooperate with the City, the State of California and the United States Government in obtaining compliance with the Equal Opportunity Clause, rules, regulations and relevant orders of the State of California and United States Government issued pursuant to the above-referenced Acts.
- d. In the event of the Design/Build Entity's non-compliance with the Nondiscrimination Clause or with any of the said rules, regulations or orders, this Contract may be canceled, terminated, or suspended in whole or in part by the City.

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- 5.9.2 Disabled Non-Discrimination. This project is subject to Section 504 of the Rehabilitation Act of 1973 as amended, (29 U.S.C. 794), the Americans with Disabilities Act of 1990 and all requirements imposed by the guidelines and interpretations issued in furtherance of the ADA. In this regard, the City, its Design/Build Entity's and subcontractors will take all reasonable steps to ensure that disabled individuals have the maximum opportunity for the same level of aid, benefit or service as any other individual.
- 5.9.3 Fair Employment and Housing Act Addendum. In the performance of this Agreement, the Design/Build Entity will not discriminate against any employee or applicant for employment because of age, ancestry, color, gender, marital status, medical condition, national origin, physical or mental disability, race, religion or sexual orientation. The Design/Build Entity will take affirmative action to ensure that applicants are employed and that employees are treated during employment, without regard to their age, ancestry, color, gender, marital status, medical condition, national origin, physical or mental disability, race, religion or sexual orientation. Such action shall include, but not be limited to, the following: employment, upgrading, promotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation and selection for training, including apprenticeship. The Design/Build Entity shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the State or local agency setting forth the provisions of this Fair Employment and Housing Section.
- a. The Design/Build Entity will permit access to his records of employment, employment advertisements, application forms and other pertinent data and records by the California Fair Employment and Housing Commission, or any other agency of the State of California designated by the awarding authority, for the purposes of investigation to ascertain compliance with the Fair Employment and Housing section of this Contract.
  - b. The State, County, or City may determine a willful violation of the Fair Employment and Housing provision to have occurred upon receipt of a final judgment having that effect from a court in an action to which Design/Build Entity was a party, or upon receipt of a written notice from the Fair Employment and Housing Commission that it has investigated and determined that the Design/Build Entity has violated the Fair Employment and Housing Act and has issued an order or obtained an injunction under Government Code Sections 12900, *et seq.*
  - c. For willful violation of this Fair Employment and Housing provision, the City may terminate this Contract either in whole or in part and any loss or damage sustained by the City in securing replacement goods or services shall be borne and paid for by the Design/Build Entity and by his surety under the Performance Bond, and/or the City may deduct from any moneys due or that may become due to the

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Design/Build Entity to compensate the City, the difference between the price named in the Agreement and the actual cost to the City.

## 5.10 Wages and Records.

### 5.10.1 Wage Rates

- a. Pursuant to Section 1770 and 1773 *et seq.* of the Labor Code of the State of California, the Director of Industrial Relations (DIR) has ascertained the general prevailing rate of per diem wages and the rates for overtime and holiday work in the locality in which the work is to be performed for each craft, classification, or type of workman needed to execute the Agreement, copies of which are on file and available upon request from the California Department of Industrial Relations.
- b. The Design/Build Entity and any subcontractor under him, must not pay less than prevailing wage rates to all laborers, workmen and mechanics employed in the execution of the Contract. Such wages shall be in accordance with the higher of those required by the DIR or Davis Bacon rules and regulations. It is further expressly stipulated that the Design/Build Entity shall, as a penalty to City, forfeit twenty-five dollars (\$25.00) for each calendar day, or portion thereof, for each laborer, workman, or mechanic paid less than the stipulated prevailing rates for any work done under this Agreement by him or by any subcontractor under him and Design/Build Entity agrees to comply with all provisions of Section 1770 *et seq.* of the Labor Code.
- c. In case it becomes necessary for the Design/Build Entity or any subcontractor to employ on the Project under this Agreement any person in a trade or occupation (except executives, supervisory, administrative, clerical, or other non-manual workers as such) for which no minimum wage rate is specified, the Design/Build Entity shall immediately notify the City who will promptly determine the prevailing rate for such additional trade or occupation and shall furnish the Design/Build Entity with the minimum rate. The minimum rate furnished shall be applicable as a minimum for such trade or occupation from the time of the initial employment of the person affected and during the continuance of such employment.
- d. Pursuant to Sections 1770 and 1773 of the Labor Code, the general prevailing rate of per diem wages applicable to the work to be done for straight time, overtime, Saturday, Sunday and holiday work are set forth by the Director of the California Department of Industrial Relations and are a part of the Agreement. The Design/Build Entity is required to post a copy of these prevailing wages rates on the job site.
- e. The City will not recognize any claim for additional compensation because of the payment by the Design/Build Entity of any wage rate in excess of the prevailing wage rate set forth as provided herein. The possibility of wage increases is one of the elements to be

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considered by the Design/Build Entity in submitting its Design/Build Proposal and will not under any circumstances be considered as the basis of a claim against the City on the Contract.

### 5.10.2 Wage Records

- a. The Design/Build Entity and each subcontractor shall keep or cause to be kept an accurate record (certified payroll) showing the names and occupations of all laborers, workers and mechanics employed by him in connection with the execution of this Contract or any subcontract thereunder and showing also the actual per diem wages paid to each of said workers, which records shall be provided to the City and to the California Department of Industrial Relations upon its request. Copies provided will include one, which has the name and social security numbers marked out.
- b. The Design/Build Entity shall meet the requirements of Section 7-1.01A(3). "Payroll Records," of the State of California Standard Specifications. The Design/Build Entity shall be responsible for compliance by his subcontractors.
- c. Certified Payroll records shall be submitted with each Monthly Progress Payment request showing records within 10 days after the billing period. The Design/Build Entity shall provide all information reasonably required by Labor Trade organizations.

## **ARTICLE 6 – PAYMENTS AND COMPLETION**

### 6.1 Cost Plus with Guaranteed Not To Exceed Amount.

In consideration of Design/Build Entity's obligations under the Contract Documents, Design/Build Entity will be paid the Cost Plus with Guaranteed Not To Exceed Amount, in accordance with the payment procedures set forth herein. Except as otherwise provided in the Contract Documents, the Cost Plus with Guaranteed Not To Exceed Amount will fully compensate Design/Build Entity for all of the services required under the Contract Documents, including the scope of services described in this Agreement.

### 6.2 Schedule of Values.

6.2.1 Within 30 days after the Effective Date and prior to the first Application for Payment, the Design/Build Entity shall submit to the City a Schedule of Values to complete the Project, supported by such data to substantiate the accuracy as the City may require. The Schedule of Values, unless objected to by the City within 15 days after receipt, shall be used as a basis for progress payments.

6.2.2 This Schedule of Values may be adjusted from time-to-time as the subcontracting plan is finalized.

### 6.3 Application for Payment.

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The Design/Build Entity shall deliver to the City on the last business day of each month, or as otherwise agreed by both parties, an Application for Payment, in the format approved by the City, covering that portion of the Cost Plus with Guaranteed Not To Exceed Amount allocated to the Work completed during each month and in accordance with the Schedule of Values. Invoices shall include the contract number, the project number, the amendment number, Design/Build Entity's Federal Employer Identification Number (FEIN); and shall be submitted to the City, attention of the Project Director in care of the City's Construction Manager.

Application for payment shall not be submitted more frequently than once monthly. The application for payment shall be signed by an officer or designee of the Design/Build Entity's firm. Provided the Application for Payment is received and approved by the City, the City shall make payment to the Design/Build Entity not later than 30 days after receipt by the City of the approved payment application. With each Application for Payment, the Design/Build Entity shall submit such evidence as may be necessary to demonstrate costs incurred or estimated to be incurred in accordance with the Schedule of Values during such month and the percentage of completion of each category of Work and the applicable Cost Plus amounts.

### **WAIVER AND RELEASE FORMS**

Consistent with the provisions of California Civil Code sections 8122 and 8124, the Design/Build Entity and its subcontractors shall promptly furnish the City with a release of all claims against the City arising by virtue of the Contract Documents related to amounts to be paid or which have been paid. This section shall survive expiration or termination of the Contract. The Design/Build Entity shall include these requirements in all subcontracts for this project. The Design/Build Entity and subcontractors from the operation of the release may specifically exclude disputed contract claims in stated amounts.

Neither the City nor the Design/Build Entity by any term of this Contract, or otherwise, shall waive, affect, or impair the claims and liens of other persons whether with or without notice except by their written consent, and any term of the Contract to that effect shall be null and void. Any written consent given by any claimant pursuant to this section shall be null, void, and unenforceable unless and until the claimant executes and delivers a waiver and release. Such a waiver and release shall be binding and effective to release the City, construction lender, and surety on a payment bond from claims and liens only if the waiver and release follows substantially one of the forms set forth in California Civil Code section 8132 and this section and is signed by the claimant or his/her authorized agent, and, in the case of a conditional release, there is evidence of payment to the claimant. Evidence of payment may be by the claimant's endorsement on a single or joint payee check that has been paid by the bank upon which it was drawn or by written acknowledgment of payment given by the claimant.

No oral or written statement purporting to waive, release, impair or otherwise adversely affect a claim is enforceable or creates any estoppel or impairment of a claim unless:

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- (1) It is pursuant to a waiver and release prescribed herein, or
- (2) The claimant had actually received payment in full for the claim.

This section does not affect the enforceability of either an accord and satisfaction regarding a bona fide dispute or any agreement made in settlement of an action pending in any court provided the accord and satisfaction or agreement and settlement make specific reference to the stop notice or bond claims.

The waiver and release given by any claimant hereunder shall be null, void, and unenforceable unless it follows substantially the forms as presented in California Civil Code section 8122.

## 6.4 Progress Payments.

The City shall pay the Design/Build Entity the progress payments through the period covered by the Application for Payment, less five percent retention. Upon receipt of an Application for Payment from the Design/Build Entity, the City will promptly review the same to determine if it is a proper Application for Payment based on the approved Schedule of Values. Any Application for Payment determined by the City not to be suitable for payment shall be modified and processed per the City's assessment. The reason(s) the Application for Payment was deemed unsuitable shall be stated in writing.

## 6.5 Withholding of Payment.

6.5.1 Notwithstanding the provisions of Subparagraph 6.11.6, Final Payment, the City may withhold payment on account of an Application for Payment to the extent necessary to protect the City from loss because of:

- .1 Defective Work not remedied;
- .2 Third-party claims filed or reasonable evidence indicating probable filing of such claims;
- .3 Failure of the Design/Build Entity to make payments of undisputed amounts to Design/Build team consultants or subcontractors for labor, materials, or equipment;
- .4 Damage to the City caused by the fault or neglect of the Design/Build Entity to the extent not covered by insurance; or
- .5 Reasonable evidence that the Work will not be substantially completed within the Contract Time due to delay not considered a Compensable Event, and that the unpaid balance of the Cost Plus with Guaranteed Not To Exceed Amount would not be adequate to cover liquidated damages for the anticipated inexcusable delay.

6.5.2 When the above reasons for withholding payment are removed,

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payment less retention shall be made for amounts previously withheld. Prior to any withholding pursuant to this paragraph, the City shall meet with the Design/Build Entity to discuss potential withholding, and shall attempt in good faith to resolve such issue without the need for withholding. Amounts withheld shall bear interest at whatever rate is paid to the City from time to time for funds it may have on deposit, from the date the funds would otherwise have been due until paid, if at all. In lieu of withholding the Design/Build Entity may deposit securities equivalent to the amount withheld in accordance with the procedures outlined in Article 6.10.1.1

### **6.6 Payment for Stored Materials.**

Unless otherwise provided in the Contract Documents, payment will be made on account for materials or equipment not incorporated in the Work but delivered and suitably stored at the Site and/or if approved in advance by the City, payments may be made for materials or equipment stored at some other location agreed upon in writing. Payments made for materials or equipment stored on or off-site shall be conditioned upon submission by the Design/Build Entity of bills of sale or such other procedures satisfactory to the City to establish City's title to such materials or equipment or otherwise protect the City's interest, including applicable insurance and transportation to the Site for those materials and equipment stored off-site.

### **6.7 Payments as Trust Funds.**

Any and all funds payable to the Design/Build Entity are hereby declared to constitute trust funds in the hands of the Design/Build Entity to be applied first to payment of claims of subcontractors, sub-subcontractors, architects, engineers, surveyors, laborers, material men or employees arising out of the described Work, to obligations for utilities furnished, tax imposed or such to the payment of premiums on security or other bonds, and to payment of insurance premiums relating to the Project and to payments and contributions to union pension plans and trust funds before application to any other purpose.

### **6.8 Payment Not a Waiver.**

6.8.1 No payment hereunder, including Final Payment to Design/Build Entity, nor City's use or Beneficial Occupancy of the Work, shall release Design/Build Entity with respect to design, construction, workmanship, materials, equipment or machinery incorporated in the Work which are found to be defective, unsound or improper.

6.8.2 No payment made under the Design/Build Agreement, shall be evidence of performance thereof, either wholly or in part, nor shall it be construed to be acceptance of defective work or improper material, or an approval of any items in any application for payment.

### **6.9 Waiver of Lien and Payment Bond Rights.**

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The Design/Build Entity shall attach to each application for payment, a waiver of all lien and payment bond rights, with respect to all amounts requisitioned up to and including the then current requisition from the Design/Build Entity, which waiver of lien and payment bond rights covers all amounts requisitioned from the Design/Build Entity's subcontractors and all tiers and suppliers. Upon request, Design/Build Entity shall make available copies of similar waivers from its subcontractors of all tiers and suppliers.

### 6.10 Retentions.

The City will retain five percent of such estimated value of all Work completed (including design and other professional services) and a like percentage within limits established by law, of the value of materials so estimated to have been furnished, delivered and unused, as aforesaid, as part of security for fulfillment of the Contract Documents by the Design/Build Entity. At any time after 95% of the Work has been completed, the City may reduce funds withheld to an amount not less than one hundred 125% of the estimated value of the Work yet to be completed, as determined solely by the City. The completion of the design work will be evaluated separate from the construction effort, and redirection of retainage will be evaluated accordingly. The City will pay monthly to the Design/Build Entity while executing the Work the balance not retained after deducting all previous payments and all sums to be retained under provisions of the Contract Documents.

Investment Options:

- 6.10.1 At the request and expense of the Design/Build Entity, and in accordance with Public Contract Code Section 10263, securities equivalent to the amount withheld shall be deposited with the City Treasurer or, a state or federally chartered bank in California, as the escrow agent, who shall then pay the moneys to the Design/Build Entity. Upon satisfactory completion of the Agreement, the securities shall be returned to the Design/Build Entity.
- 6.10.2 Alternatively, the Design/Build Entity may request and the City will make payment of the retention earned directly to the escrow agent. The Design/Build Entity may direct the investment of the payments into securities and the Design/Build Entity shall receive the interest earned on the investments upon the same terms provided for securities deposited by the Design/Build Entity. Upon satisfactory completion of the Work, the Design/Build Entity shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the City, pursuant to the terms of Final Payment.
- 6.10.3 Securities eligible for investment shall include those listed in Government Code Section 16430; bank or savings and loan certificates of deposit; interest-bearing demand deposit accounts; standby letters of credit; or any other securities mutually agreed to by the Design/Build Entity and the City.

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- 6.10.4 The Design/Build Entity shall be beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.
- 6.10.5 The escrow agreement shall be substantially similar to the form "Escrow Agreement for Security Deposits in Lieu of Retention" found in Public Contract Code Section 10263.
- 6.11 Payment and Completion.
- 6.11.1 The City reserves the right to occupy all or any part of the Project prior to completion of the Work, upon written notice. In this event, the Design/Build Entity shall be relieved of responsibility to the City for injury or damage that results from occupancy and use by the City. If, by reason of the City's occupancy, the premium for the Design/Build Entity's bodily injury and property damage insurance is increased, the City will reimburse the Design/Build Entity for the additional amount necessarily incurred allocable to the area and the period of City's occupancy up to the date of Final Completion.
- 6.11.2 The City's occupancy does not constitute acceptance by the City of the Work, or any portion of the Work, nor will it relieve the Design/Build Entity of responsibility for correcting defective Work or materials found at any time before Final Completion, as set forth in Paragraph 3.18, Guarantee, or during the guarantee period after the City's acceptance, as set forth in Subparagraph 6.11.6, Final Payment. However, when the Project includes separate buildings, and one or more of the buildings is entirely occupied by the City, then upon written request by the Design/Build Entity and by written consent from the City, the guarantee period will commence to run for a building or buildings from the date of the City's Beneficial Occupancy of a building or buildings.
- 6.11.3 Beneficial Occupancy. The City may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Design/Build Entity, provided such occupancy or use is consented to by the insurer of the Project and the City, Notice of Substantial Completion, and a Temporary Certificate of Occupancy is obtained.

Such partial occupancy or use may commence whether or not the portion is complete, provided the City and the Design/Build Entity have accepted in writing the responsibilities assigned to each of them for payment, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. Immediately prior to such occupancy, the City and the Design/Build Entity shall jointly inspect the area to be occupied in order to determine and record the condition of the Work. Unless otherwise agreed, partial occupancy or use of a portion of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

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- 6.11.4 Substantial Completion: When the Work, or designated portion thereof, is sufficiently complete in accordance with the construction documents so that it can be used for its intended purpose, the Design/Build Entity and the City shall collaboratively prepare a single comprehensive punch list. The Design/Build Entity shall then proceed promptly to complete and correct the punch list items. Failure to include an item on the punch list does not alter the responsibility of the Design/Build Entity to complete all work in accordance with the Contract Documents.
- 6.11.5 Final Completion: Upon completion of the punch list the City will make an inspection to determine whether the work has been completed. The Certificate of Final Completion shall be issued when all work is complete, and the Council has formally accepted the project.
- 6.11.6 Waiver of Claims. Acceptance of Final Payment by the Design/Build Entity shall constitute a waiver of affirmative claims by the Design/Build Entity, except those previously made in writing and identified as unsettled at the time of Final Payment.
- 6.11.7 Final Payment. Upon execution of the Certificate of Final Completion, providing no stop notices have been filed which have not been discharged or bonded, all amounts unpaid under the Design/Build Agreement will be paid to Design/Build Entity. The City may withhold any reasonable sums payable to Design/Build Entity for the value of any Work, which the City may have found defective and ordered to be replaced. Final Payment for withholdings will be made when the Work is completed and/or defective Work replaced.
- City shall pay the remaining amount of the Cost Plus with Guaranteed Not To Exceed Amount due to the Design/Build Entity, after:
- .1 Acceptance and Close-out of the Work.
  - .2 Resolution of all stop notices.
  - .3 Execution by the Design/Build Entity of a release of all claims against the City arising by virtue of the Design/Build Agreement.
  - .4 Any other requirements spelled out in the Design/Build Agreement.
- 6.11.8 The Design/Build Entity is required to pay subcontractors from whom a retention has been withheld within seven days of receipt from the City of retention proceeds.
- 6.11.9 The making of Final Payment by the City shall constitute a waiver of claims by the City, except those arising from (a) liens, claims, security interests and encumbrances arising out of the Work after Final Payment, or identified in writing as unsettled at the time of Final

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Payment; (b) latent defects arising after Final Payment; (c) the terms of warranties required by the Contract Documents; or (d) indemnities which shall survive completion of the Design/Build Agreement.

### 6.12 Interest.

Payments due and unpaid under this Agreement shall bear interest pursuant to Public Contract Code Section 10261.5 (relating to progress payments) and Section 7107 (relating to retentions).

### 6.13 Shared Cost Savings

Any potential modifications to the project work identified by the Design-Build Entity after the execution of this document shall be submitted for approval by the City's authorized representative. If approved and validated, then any actual cost savings realized by the City may be will be shared with the Design/Build Entity. The amount to be shared with the Design-Build Entity shall be 50% of the final realized cost savings based on those modifications and on any deletions to the Project made by the City..

### 6.14 Allowance for Environmental Requirements

6.14.1 The Cost Plus with Guaranteed Not To Exceed Amount described in section 3.2.1 includes \_\_\_\_\_ Dollars (\$\_\_\_\_\_) for the execution of requirements neither specified nor anticipated in the Anticipated Environmental Impact Report Mitigation Measures (EIRMM). That amount will be utilized by the Design/Build Entity on a time and materials basis for EIRMM work resulting directly from requirements not specified in the EIRMM that could arise during the EIR process and that will add cost to the project. This allowance item is only to be utilized for unanticipated work associated with the EIRMM.

6.14.2 The Design-Build Entity and the City have worked together to review the Allowance Item and Values based on available EIRMM information to determine the Allowance Values constitute reasonable estimates for the unanticipated EIRMM work. The Design-Build Entity and City will continue working closely together during the preparation of the design to develop Construction Documents consistent with these EIRMM Allowance Values. Nothing herein is intended in any way to constitute a guarantee by Design-Build Entity the EIRMM Allowance Item in question can be performed for the Allowance Value.

6.14.3 No work shall be performed on any EIRMM Allowance Item without Design/Build Entity first obtaining in writing advanced authorization to proceed from the City. The City agrees if the Design/Build Entity is not provided written authorization to proceed on an EIRMM Allowance Item by the date set forth in the Project schedule, due to no fault of Design/Build Entity, Design-Builder Entity may be entitled to an adjustment of the Contract Time(s) and the Cost Plus with Guaranteed Not To Exceed Amount.

6.14.4 The Allowance Value for an EIRMM Allowance Item includes the direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the applicable Allowance Item. All other costs, including

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design fees, the Design/Build Entity's overall project management and general conditions costs, overhead and fee, are deemed to be included in the original Contract Price, and are not subject to adjustment, regardless of the actual amount of the EIRMM Allowance Item.

### **6.15 [Intentionally left blank]**

### **6.16 Compensable Cost Escalation**

6.15.1 After the award of this Design-Build Agreement, the Notice to Proceed (NTP) for construction is anticipated to be delayed for up to eight months. The Design-Build Entity will not be compensated for increases in pricing within that delay unless the Engineering News-Record (ENR) Construction Cost Index (CCI) exceeds 3.0% annual average for eight months. If the NTP for construction is not issued within eight months, then the Cost Plus with Guaranteed Not To Exceed Amount will be increased by the amount as documented by the Engineering News-Record Construction Cost Index. Any increase, if any at all,, in the amount of the Cost Plus with Guaranteed Not To Exceed Amount that would be adjusted because of the delayed issuance of the NTP is to be equal to the increase in the ENR CCI in excess of 3.0% annual average over the first eight months and equal to the increase in the ENR for any additional delay in the issuance of the NTP.

## **ARTICLE 7 – SCHEDULE**

### **7.1 Contract Time.**

The "Contract Time" – is the period from receipt by Design/Build Entity of written authorization to begin the Project in the form of a Notice to Proceed from the City, until the scheduled date of Final Completion of the Work. The Design/Build Entity agrees to design, construct and manage the Work in accordance with the Project Milestone Schedule and approved Baseline Schedule.

### **7.2 Completion.**

By executing this Design/Build Agreement, the Design/Build Entity confirms that the Contract Time and Milestones, as stated in the Project Milestone Schedule (Exhibit A) of the Contract Documents, are of the essence of this Design/Build Agreement. The Design/Build Entity confirms that the Contract Time and Milestones allow a reasonable period of time for achieving the Temporary and Final Certificates of Occupancy and Certificate(s) of Final Completion of the Work for the Project.

### **7.3 Schedules.**

7.3.1 The Design/Build Entity shall be responsible for the development and

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maintenance of the Preliminary Baseline Schedule, the Baseline Schedule, the Progress Schedule and the Short-Term Schedule as described below. The Design/Build Entity shall submit, as indicated below, each schedule for the execution of the Work for the City's review and response. The City's review of and response to the schedule submissions shall not be construed as relieving the Design/Build Entity of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work. Each schedule shall provide an interrelated means for defining activities involved in the planning, design, construction, and completion of the Project, their sequences and elapsed completion time from the date of the Notice to Proceed.

Each schedule shall utilize CPM (Critical Path Method) and shall be submitted in diagram and listed form. The computerized schedules shall permit the Design/Build Entity to obtain several print sorts that aid in identifying various activities and requirements. Of particular importance would be critical activities that require information or reviews by City, City agencies, or the Construction Manager. The Design/Build Entity shall utilize Primavera (P3) or Microsoft Project software (latest version).

The Design/Build Entity shall make its Authorized Schedule Representative available throughout the contract time and authorize that person to make scheduling commitments binding on the Design/Build Entity, as required to fulfill the scheduling requirements. The Design/Build Entity has submitted a preliminary schedule of the work (the "Proposal Schedule") in bar chart form with its proposal, incorporating all critical path milestones identified by the City or known milestones and critical activities by the Design/Build Entity, as well as the date for contract completion.

Design/Build Entity's representation that it could comply with the contract milestones, as demonstrated by its Proposal Schedule was an element of consideration in the City's award of the contract. Design/Build Entity's Proposal Schedule, as submitted with its proposal and as modified during negotiations and accepted by the City, will be utilized as an interim contract schedule for all purposes until the Design/Build Entity's submittal of an acceptable Preliminary Baseline Schedule.

7.3.2 Design/Build Entity's Preliminary Baseline Schedule. Within 14 calendar days after the Notice to Proceed, the Design/Build Entity shall submit a Preliminary Baseline Schedule to the Construction Manager. This schedule shall show, but is not limited to, the general plan for the work to be completed in the first 90 calendar days after the Effective Date, as defined below. The Preliminary Baseline Schedule shall contain, but not be limited to:

- .1 dates established in the City's Project Milestone Schedule;
- .2 dates to acquire, set up and occupy a field office if required;

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- .3 dates of all mobilization activities on site, including notices and permits;
- .4 dates detailing the planned design schedule, including submittals and reviews;
- .5 anticipated dates for the start and completion of each stage of the design and construction process; and
- .6 established milestone dates representing important events in the first 90 days and 'major milestones' representing the completion of a group of activities in the first year.

The Preliminary Baseline Schedule shall be in the form of a CPM schedule. Design/Build Entity will provide all data files electronically on compact disc. The City and Construction Manager will review the Design/Build Entity's Preliminary Baseline Schedule for conformance with the Milestone Schedule and interrelationships with other activities requiring coordination that may be outside the scope of this agreement. Upon completion of the review, the City may make recommendations to the Design/Build Entity as to adjustments to the Preliminary Baseline Schedule. These recommendations, if accepted by both the City and Design/Build Entity, will be incorporated into the development of the Design/Build Entity's Baseline Schedule.

7.3.3 Design/Build Baseline Schedule. Within 60 calendar days after the Notice to Proceed, the Design/Build Entity, after an initial meeting with the City, shall prepare a proposed Baseline Schedule for the Project. Recognizing that planning activities and design activities need time control to no less degree than construction activities, this schedule shall include, but not be limited to:

- .1 A CPM format that incorporates all activities with descriptions, sequence, logic relationships, duration estimates, resource-loading, cost loading and other information required for all design, pre-construction and construction activities. Each activity shall have a minimum of one predecessor and one successor, with the exception of the first and last activities. The first activity will be denoted as "Notice To Proceed" and the last activity will be denoted as "Final Completion". Both activities shall be contract milestones.
- .2 The CPM format shall include all Contract Milestones defined in this Agreement and/or by the Design/Build Entity's proposed preliminary schedule, as well as all engineering, fabrication and delivery dates required to support the milestones.
- .3 Activities indicating the start and finish dates for project design, engineering, preparation of design development and construction documents, government agency plan check and City document review.

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- .4 Activities to be integrated and shown in the CPM network shall include all milestones representing the Design/Build Entity's submittal dates and activities representing the City's review period of each submittal (which review period shall in no case be scheduled for less than 10 working days); Design/Build Entity's procurement of materials and equipment; submittals; manufacture and/or fabrication, testing and delivery to the job-site of special material and major equipment; equipment installation and preliminary, final and performance testing of equipment or systems.
- .5 Activities showing the start and finish dates for all temporary protection.
- .6 Activities showing start and finish dates of owner-furnished items and interface requirement dates with other contractors; regulatory agency approvals; and permits required for the performance of the work.
- .7 Activities showing start and finish of space planning (as appropriate), furniture, fixtures and equipment, moving activities, and occupancy.
- .8 Close-out activities.
- .9 The schedule shall consider all foreseeable factors or risks affecting, or which may affect the performance of the work, including historical and predicted weather conditions, applicable laws, regulations or collective bargaining agreements pertaining to labor, transportation, traffic, air quality, noise and any other applicable regulatory requirements.
- .10 The Design/Build Entity shall not use any "float suppression" techniques such as preferential sequencing or logic, special lead/lag constraints or unjustifiably overestimating activity durations in preparing its schedule.
- .11 The Design/Build Entity's Authorized Schedule Representative shall formally present the detailed time-scaled CPM network for the duration of the contract time, demonstrating compliance with contract milestones and other requirements to the City clearly showing the critical path(s) of the project (activities with 10 days of float or less) through completion.
- .12 Time units for all schedules shall be in calendar days, and no construction activity scheduled to commence within sixty days of the Data Date shall have a duration greater than fifteen calendar days. Activities scheduled to start more than 60 days of the data date shall have durations no greater than thirty days.

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- 7.3.4 The proposed Baseline Schedule shall be submitted and reviewed by the City's Construction Manager. Changes to the Baseline Schedule shall be reviewed with the City's Construction Manager prior to implementation. The City, at its sole discretion, may allow or require the Design/Build Entity to more fully detail portions of the Baseline Schedule at a later date.

The City's Construction Manager shall notify the Design/Build Entity of acceptance or of any necessary changes to the CPM network within 10 working days from the formal presentation, after which the Design/Build Entity shall make the required changes and resubmit it for acceptance within five working days certifying in writing that all information contained in it complies with the contract requirements. Upon notification by the City of acceptance of the CPM network, the Design/Build Entity shall prepare computer plots and printouts (8 1/2" x 11"), and complete its submission of the Baseline Schedule, which shall include:

- .1 Bar Charts for Contract Milestones; Summary Level (sorted by craft/trade or project area); and Detail (sorted by Early Dates).
- .2 Reports for: Float (sorted low to high).
- .3 Provide all data files electronically on compact disc.

Once accepted by the City, this schedule shall become the Baseline Schedule for the Project from which all future Progress Schedules will be generated.

- 7.3.5 Design/Build Entity Progress Schedule. Each month, in conjunction with the application for payment process, the Design/Build Entity and City's Construction Manager will conduct monthly reviews to determine: "planned" versus "actual" progress to date; compliance with contract submittal requirements, contract milestones and accepted contract schedule; and determination of any changes to the work plan or implementation which must be made by the Design/Build Entity to comply with the contract schedule. The monthly schedule review shall include, at a minimum:

- .1 Monthly update/status of electronic database shall include recording of all Actual Start Dates and Actual Finish Dates and status of activities in progress.
- .2 Reviews of revisions added or deleted work and how those activities are being integrated into the Design/Build Entity's work plan.
- .3 Review of all impacts to the work during the preceding month and to date, Design/Build Entity evaluation of those impacts and any recovery plans or remedial actions required to comply with the contract schedule.

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Following the review of the above and all other information relevant to the progress of the work, the Design/Build Entity shall adjust its work plan as required to insure compliance with the contract schedule. The requirement for additional work force allocations, additional shifts, overtime, etc., will not entitle Design/Build Entity to additional compensation except to the extent expressly provided for by this Agreement or change order. The contract schedule shall be updated and submitted monthly for the City's Construction Manager's review concurrent with each payment application submitted by the Design/Build Entity. The schedule update shall incorporate actual status to date and shall include the following:

- .1 Computer plotted time-scaled CPM network, in color;
- .2 Bar Charts, generated separately using the format template provide by the City for:
  - (1) Contract Milestones only (Baseline vs. forecast);
  - (2) Summary Level (sorted by craft/trade or project area);
  - (3) Detail (sorted by Early Dates);
- .3 Reports, generated separately using the format template provided by the City for Float (sorted low to high); and
- .4 Provide all data files electronically by Compact Disc.

7.3.5 Design/Build Entity Short-Term Schedule. The Short-Term Schedule shall address activities over an eight-week period. This schedule shall be maintained on a weekly basis and used as a means of compensating for negative effects of as many variables as possible. It shall be directly derived and electronically tied to the Master Schedule to enable rapid impacts of short-term schedule changes on the overall project time line.

The Short-Term Schedule is a dynamic schedule whose activities can vary in both duration and precedence, but only between two sequential milestones as described in the accepted Baseline Schedule. Upon the City's acceptance of the Baseline Schedule, the Design/Build Entity shall begin providing an updated Short-Term Schedule for all participants at each regular progress meeting. The interval format shall be a seven-week projection that shall include one week prior, the week submitted, and six weeks thereafter.

7.3.7 Schedule Revisions. The implementation of revised schedule logic or activity duration estimates for updating the contract schedule or other interim schedule whether furnished by the Design/Build Entity or the City do not constitute an extension of contract time, relaxation of contract milestones or basis for a change to the contract sum. Such revisions are for the purpose of maintaining the accuracy of the contract schedule's representation of the work to be accomplished and to present best duration estimates for work yet to be performed. In updating the contract schedule, the Design/Build Entity shall make

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no modifications to Activity ID numbers in the accepted contract schedule calculation rules/criteria, or the Activity Coding Structure provided by the City's Construction Manager without the explicit written permission of the City, which permission the City may withhold at its sole discretion.

- 7.3.8 City's Project Master Schedule. The purpose of the Master Schedule is to combine, coordinate, and track schedules produced by the Design/Build Entity and other Project team members throughout the course of the Project. The Master Schedule will also include milestone dates and the Design/Build Entity's Baseline Schedule, and shall be utilized by the City and the Design/Build Entity to identify any coordination issues and/or conflicts with other Project team members under separate contract. The Construction Manager shall be responsible for maintaining, updating and distributing the Master Schedule. The Master Milestone Schedule is shown in Exhibit A.

### 7.4 Float time.

All float time contained in the Work shall be shared between the City and Design/Build Entity. Under no circumstances shall Design/Build Entity be entitled to maintain a claim against the City for Design/Build Entity's failure to achieve Final Completion on a date earlier than that set forth on said Project Milestone Schedule as the same may be adjusted by approved Change Orders.

### 7.5 Compensable Event.

- 7.5.1 Notwithstanding anything in this Design/Build Agreement to the contrary, in the event of a "Compensable Event," as hereinafter defined, Design/Build Entity shall notify the City in writing within 14 days, setting forth all of the facts and circumstances relating to the Compensable Event, the expected financial impact on the Cost Plus with Guaranteed Not To Exceed Amount, and any delays to the Contract Time. In the event the City agrees it is a Compensable Event, the City shall have the option of either:

- (a) adjusting the Contract Time by the delay occasioned by the Compensable Event, if any, and increasing the Cost Plus with Guaranteed Not To Exceed Amount by the financial impact of the Compensable Event, if any, or
- (b) reducing the scope of the Project so the Cost Plus with Guaranteed Not To Exceed Amount and/or Contract Time will not be exceeded. Design/Build Entity shall cooperate with the City, and provide information at no additional cost to the City, at the City's request to identify appropriate program modifications to achieve the desired effect.

"Compensable Event" shall mean any one of the following:

- .1 material acts or omissions of the City's agents or contractors

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(other than Design/Build Entity, the Architect of Record and/or any of either or both of their members, subcontractors, employees, consultants or representatives), which are inconsistent with the terms of the Contract Documents and result in any delay or cost increase to the Project that results in an extension of the Contract Time;

- .2 a change in any applicable laws, ordinances, rules, codes, regulation, and lawful orders of governmental authorities relating to the Project after the date of execution of this Agreement by the Design/Build Entity, which results in a delay or cost increase;
- .3 Acts of God events, as defined in Article 1;
- .4 labor disputes, strikes, lockouts, work slow-downs or work stoppages not resulting from Design/Build Entity's failure to comply with any applicable labor agreement or failure to timely order necessary materials or equipment.

### 7.6 Costs of Compensable Event.

The increased costs occasioned by a Compensable Event shall be limited solely to the direct costs of Design/Build Entity and shall not include any consequential damages or lost profits. To the extent a Compensable Event increases the time of performance of either the design or construction, an extension to the Contract Time shall be granted. Notwithstanding the forgoing, if the Compensable Event is of the type described by clauses .3 or .4, immediately above, Design/Build Entity shall not be entitled to recovery of any costs for the first 30 days of delay (in the aggregate), and shall be entitled to file a claim for recovery of costs thereafter, which claim shall be limited to general conditions overhead costs only.

### 7.7 Liquidated Damages.

The City and Design/Build Entity agree the City will suffer economic damage should the Design/Build Entity fail to complete the Project in the time required as shown in Exhibit A. The City has determined the estimated cost of such damages is **\_\_\_\_\_ Thousand Dollars (\$\_\_\_\_\_)** per day, or portion thereof, of a delay in achieving Beneficial Occupancy and a total of **\_\_\_\_\_ Thousand Dollars (\$\_\_\_\_\_)** per day, or portion thereof, of delay in achieving Final Completion for the Project, by the date indicated in the Milestone Schedule shown in Exhibit A. Design/Build Entity agrees that is a reasonable estimate of such costs.

The City and Design/Build Entity agree such amount shall be treated as Liquidated Damages pursuant to Government Code Section 53069.85, Civil Code Section 1671 and Public Contracts Code Section 10226, and Design/Build Entity shall accordingly pay the City the sum of **\_\_\_\_\_ Thousand Dollars (\$\_\_\_\_\_)** per day, or portion thereof, of a delay in achieving Beneficial Occupancy and a total of **\_\_\_\_\_ Thousand Dollars (\$\_\_\_\_\_)** for each day, or portion thereof, by which the Certificate of Final

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Completion is delayed beyond the Contract Time set forth in the Project Milestone Schedule, whether the City's actual damages for such occupancy delays are more or less than the liquidated sum.

However, if the City has taken Beneficial Occupancy of any portion of the Project, the liquidated damages sum for the Certificate of Final Completion shall be reduced proportionately. For example, if the City takes 10% Beneficial Occupancy of the Project, then the amount of the Liquidated Damages shall be reduced by 10%. This paragraph shall not limit the City's right to seek and obtain additional legal remedies or damages that result from breaches of the Contract Documents by the Design/Build Entity which do not stem from delay in occupancy. Those additional damages include, but are not limited to, such things as breach of contract or breach of warranties either express or implied.

7.7.1 Design-Build Entity acknowledges and agrees the foregoing damages have been set based on an evaluation by City of damages that it will incur in the event of late completion. Design-Build Entity and City agree the amount of such damages is impossible to ascertain as of the date of execution hereof, and the parties have agreed to such Liquidated Damages to fix Design-Build Entity's costs and to avoid later disputes over which items are properly chargeable to Design-Build Entity. It is understood and agreed by Design-Build Entity that any Liquidated Damages payable pursuant to his Agreement are not a penalty and that such amounts are not manifestly unreasonable under the circumstances existing as of the date of execution of this Agreement.

7.7.2 It is further mutually agreed City shall have the right to deduct Liquidated Damages against progress payments or retainage and that the City will issue a unilateral deductive change order and will reduce the Contract Price accordingly. In the event the remaining unpaid Contract Price is insufficient to cover the full amount of Liquidated Damages, Design-Build Entity shall pay the difference to City.

### **ARTICLE 8 – CHANGES IN THE WORK**

8.1 General.

8.1.1 The City may order changes, including but not limited to, revisions to the Construction Documents, performance of extra work, and the elimination of work. Orders for such changes will be in writing. Changes shall not affect the obligations of the sureties on the contract bonds nor require their consent. The Design/Build Entity shall notify the City for their evaluation whenever it appears a change is necessary. Contract Time and Cost Plus with Guaranteed Not To Exceed Amount will be adjusted by written Change Order for changes materially increasing or decreasing the time for performance or cost.

8.1.2 The Design/Build Entity, when ordered by the City, shall proceed with changes before agreement is reached on adjustment in compensation or time for performance, and shall furnish to the City

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records as specified in this Agreement.

- 8.1.3 If the Design/Build Entity fails to provide such records, then the City's records will be used for the purpose of adjustment in Contract Time and Cost Plus with Guaranteed Not To Exceed Amount.

## 8.2 Change Order.

- 8.2.1 Methods used in determining the value of a Change Order shall be based on one of the following methods:

1. By mutual acceptance of a lump sum increase or decrease in costs. Upon the City's written request, the Design/Build Entity shall furnish a detailed estimate of increase or decrease in costs, together with cost breakdowns of labor, materials and equipment and other support data within the time specified in such request. Cost breakdowns shall include, but are not limited to: hourly labor rates and hours; materials quantities and unit costs; and equipment hourly rates and hours, as an example. The Design/Build Entity shall be responsible for any additional costs caused by the Design/Build Entity's failure to provide the estimate within the time specified.
2. By the City, on the basis of the City's estimate of increase or decrease in the costs.
3. By the City, whether or not negotiations are initiated as provided in this Agreement.
4. By actual and necessary costs, as determined by the City, on the basis of records. Beginning with the first day and at the end of each day, the Design/Build Entity shall furnish to the City detailed hourly records for labor, construction equipment, and services; and itemized records of materials and equipment used that day in performance of the changes. Such records shall be in a format approved by the City. Such records shall be signed by the Design/Build Entity and verified by the City.
5. By Unit Prices stated in the Contract Documents, or subsequently agreed upon.
6. By a manner agreed upon by the City and the Design/Build Entity.

- 8.2.2 Allowable Costs. If an increase or decrease cannot be agreed to as set forth in Clauses 8.2.1.1 through 8.2.1.6, above, then the method for determining the value of the Change Order shall be computed in the following manner:

1. Mark-Ups for Added Work.
  - .a For work performed by the Design/Build Entity in the amount equal to the direct cost (as defined herein) for the work plus the fee percentage of the direct costs for overhead and profit,

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to be no higher than \_\_\_ percent..

- .b For work performed by Subcontractor in the amount equal to the direct cost (as defined herein) for the work plus the fee percentage of the direct costs for overhead and profit, to be no higher than \_\_\_ percent.
- .c For work performed by a Sub-subcontractor (any tier), in the amount equal to the direct cost (as defined herein) for the work plus the fee percentage of the direct costs for overhead and profit, to be no higher than \_\_\_ percent .
- .d For deleted work the cost savings to the Project shall be shared pursuant to section 6.13

## 8.2.3 Direct Costs:

### .1 Labor

Cost for labor shall include any employer payments to or on behalf of the workmen for health, welfare, pension, vacation and similar purposes. Labor rates will not be recognized when in excess of those prevailing in the locality and time the work is being performed. The costs for all supervision including Project Manager, General Superintendents and Foremen will be included in the markups established by the Contract. The only exception to this will be working foremen who perform actual manual labor. No labor charges will be accepted for engineering or proposal preparation.

These costs will be included in the markups established by the Contract. A breakdown of the payroll rates for each trade will be provided for all Change Orders 15 days after Notice to Proceed including the base rate, benefits, payroll taxes and insurance. Overtime and premium time pricing will only be allowed for labor which, based on mutual agreement, shall be performed after normal working hours. Unless otherwise agreed to by both parties, mechanical and electrical changes will be negotiated using productivity factors no greater than those listed in the following manuals:

- a. Electrical: NECA Column 1 (Normal), Current Edition.
- b. Plumbing and Piping: MCAA Discounted 30%.
- c. HVAC: National Mechanical Estimator by Ottaviano, Current Edition.

### .2 Material

The City shall pay only the actual cost to the Design/Build Entity for the materials directly required for the performance of the changed work. Such cost of materials may include the cost of transportation and no delivery charges will be allowed unless the delivery is specifically for the changed work. If a trade discount by an actual supplier is available to the Design/Build Entity, it shall be credited to

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the City. If the materials are obtained from a supplier or source owned wholly by or in part by the Design/Build Entity, payment thereof will not exceed the current wholesale price for the materials. The term "trade discount" includes the concept of cash discounting.

If in the opinion of the City, the cost of the materials is excessive or if the Design/Build Entity fails to furnish satisfactory evidence of a cost to him other from the actual supplier, then, in either case, the cost of the materials shall be deemed to be the lowest current wholesale price at which similar materials are available in the quantities required. The City reserves the right to furnish such materials, as it deems advisable and the Design/Build Entity shall have no claims for cost or profits on materials furnished by the City.

### **3. Construction Equipment**

The City shall pay only the actual cost to the Design/Build Entity for the use of equipment directly required in the performance of the changed work. In computing the hourly rental of equipment, any time less than 30 minutes shall be considered one-half hour. No payment will be made for time while equipment is inoperative due to breakdown or for non-workdays. In addition, the rental time shall not include the time required to move the equipment to the work for rental of such equipment and to return it to the source.

No mobilization or demobilization will be allowed for equipment already on site. If such equipment is not moved by its own power, then loading and transportation costs will be paid in lieu of rental time thereof. However, neither moving time nor loading and transportation costs will be paid if the equipment is used on the Project in any other way than upon the changed work. Individual pieces of equipment having a replacement value of \$1,000 or less shall be considered to be small tools or small equipment and no payment will be made therefore.

The rental rate for equipment will not exceed that as recommended by the lower of the rental rates established by distributors or equipment rental agencies or as contained in the Association of Equipment Distributors (AED) book in the locality for performance of the changes. For equipment owned, furnished, or rented by the Design/Build Entity no cost thereof shall be recognized in excess of the rental rates established by distributors or equipment rental agencies and/or the AED or any tier book in the locality for performance of the changes. The amount to be paid to the Design/Build Entity for the use of equipment as set forth above shall constitute full compensation to the Design/Build Entity for the cost of fuel, power, oil, lubricants, supplies, small tools, small equipment, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, labor (except for equipment operators) and any and all costs to the Design/Build Entity incidental to the use of the equipment.

### **8.3 Acceptance of Change Orders.**

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The Design/Build Entity's written acceptance of a Change Order shall constitute final and binding agreement to the provisions of it and a waiver of all claims in connection with it, whether direct, indirect, or consequential in nature.

### 8.4 Effect on Sureties.

All alterations, extensions of time, extra and additional work, and other changes authorized by the Contract Documents may be made without securing consent of surety(s).

### 8.5 Covering and Uncovering of Work.

8.5.1 When inspections are required by the Contract Documents the Design/Build Entity shall notify the City two working days prior to covering any work.

8.5.2 If a portion of the Work is covered prior to the City's review, it shall, if requested in writing by the City, be uncovered for the City's observation and replaced at the Design/Build Entity's expense without change in the Contract Time.

### 8.6 Correction of Work.

8.6.1 The Design/Build Entity shall promptly correct work rejected by the City or failing to conform to the requirements of the Contract Documents, whether or not fabricated, installed, or completed. The Design/Build Entity shall bear the costs of correcting such rejected work, including additional testing and inspections required and compensation for the City's services and expenses made necessary thereby.

8.6.2 Notwithstanding Paragraph 3.18, Guarantee, in the event of an emergency constituting an immediate hazard to the health or safety of City employees, property, or licensees, the City may undertake, at the Design/Build Entity's expense and without prior notice, all work necessary to correct such hazardous condition(s) when it was caused by work of the Design/Build Entity not being in accordance with requirements of the Contract Documents.

8.6.3 The Design/Build Entity shall remove from the Project site portions of the Work that are not in accordance with the requirements of the Contract Documents, and are neither corrected by the Design/Build Entity nor accepted by the City.

8.6.4 If the Design/Build Entity fails to correct nonconforming work, as per Paragraph 3.18, Guarantee, the City may correct the nonconforming work in accordance with Paragraph 9.3, The City Remedies. If the Design/Build Entity does not proceed with correction of such nonconforming work, within such time fixed by written notice from the City, the City may remove and store the salvable materials articles

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and/or equipment at the Design/Build Entity's expense.

If the Design/Build Entity does not pay all costs of such removal and storage within 14 days after written notice, the City may, upon 14-additional-days' written notice, sell such materials articles and/or equipment at an auction or private sale, and shall account for the proceeds, after deducting costs and damages that would have been borne by the Design/Build Entity, including compensation for the City's services and expenses made necessary by it. If the proceeds of a sale do not cover all costs that the Design/Build Entity would have borne, the Cost Plus with Guaranteed Not To Exceed Amount shall be reduced by the deficiency. If payments then or thereafter due the Design/Build Entity are not sufficient to cover such amount, the Design/Build Entity shall pay the difference to the City.

8.6.5 The Design/Build Entity shall bear the cost of correcting destroyed or damaged work executed by the City or separate contractors, whether fully completed or partially completed, which is caused by the Design/Build Entity's correction or removal of Work that is not in accordance with requirements of the Contract Documents.

8.6.6 Nothing contained in this Paragraph 8.6, Correction of Work, shall be construed to establish a period of limitation with respect to other obligations that the Design/Build Entity might have in the Contract Documents. Establishment of the time period of one year, as described in Paragraph 3.18, Guarantee, relates only to the specific obligation of the Design/Build Entity to correct the Work, and has no relationship to the time within which the obligation to comply with requirements of the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Design/Build Entity's liability with respect to the Design/Build Entity's obligations other than specifically to correct the Work.

8.7 Acceptance of Nonconforming Work.

If the City prefers to accept any or all of the Work that is not in accordance with requirements of the Contract Documents, the City may do so instead of requiring its correction and/or removal, in which case the Cost Plus with Guaranteed Not To Exceed Amount will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not Final Payment to the Design/Build Entity has been made.

### **ARTICLE 9 – EVENTS OF DEFAULT AND TERMINATION**

9.1 City Events of Default.

9.1.1 The following shall be considered the City Events of Default:

.1 If the Work is stopped for a period of 180 consecutive days through no fault of the Design/Build Entity for any of the following reasons:

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- a. The issuance of an order of a court or other public authority having jurisdiction;
- b. An act of government, such as a declaration of national emergency, making material unavailable;
- c. Non-payment by the City for approved design and approved work-inplace after 60 days of a properly submitted and approved invoice.

### 9.2 Design/Build Entity Events of Default.

9.2.1 The following shall be considered Design/Build Entity Events of Default:

- .1 If Design/Build Entity fails or neglects to carry out the Work in accordance with the provisions of the Contract Documents and fails, after seven-days' written notice from the City, to commence a cure to correct such failure or neglect and/or thereafter diligently pursue such cure to completion; or
- .2 If Design/Build Entity materially breaches this Agreement after written notice from the City and fails, after seven-days' notice from the City, to commence a cure to correct such breach and/or diligently pursue such cure to completion; or
- .3 If a custodian, trustee or receiver is appointed for Design/Build Entity, or if Design/Build Entity becomes insolvent or bankrupt, is generally not paying its debts as they become due, or makes an assignment for the benefit of creditors, or if Design/Build Entity causes or suffers an order for relief to be entered with respect to it under applicable Federal bankruptcy law or applies for or consents to the appointment of a custodian, trustee or receiver for Design/Build Entity, or bankruptcy, reorganization, arrangement or insolvency proceedings, or other proceedings for relief under any bankruptcy or similar law or laws for the relief of debtors, are instituted by or against the Design/Build Entity, and in any of the foregoing cases such action is not discharged or terminated within 60 days of its institution; or
- .4 If the Design/Build Entity changes its corporate identity in a manner different from that described in this Agreement due to merger, takeover, offer, sale or exchange of interest therein, dissolution, whether by operation of law or otherwise, and the change in interest is not approved in advance in writing by the City. In the event such a change does not have the effect of diminishing or impairing the Design/Build Entity's ability to perform the Work or its financial capabilities, such approval shall not be unreasonably withheld. The City shall have at least 30-days' notice of such a change.

### 9.3 City Remedies.

9.3.1 Without prejudice to any other rights or remedies of the City, the following remedies shall be available to the City in the case of a Design/Build Entity event of default:

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- .1 The City shall have the right to terminate this Agreement upon an additional seven-days' written notice to Design/Build Entity; provided that Design/Build Entity has not commenced a cure within such seven- day period.
- .2 The City may take possession of the Project site and of all materials, equipment, tools and construction equipment on site owned by Design/Build Entity.
- .3 The City may accept assignment of the construction subcontract and/or design subcontract.
- .4 The City may finish the Work by whatever reasonable method the City may deem expedient.
- .5 The City may seek such remedies as may be available under existing law.

### 9.4 Termination.

When the City terminates this Design/Build Agreement as provided above, Design/Build Entity shall not be entitled to receive further payment until the Work is finished. If the unpaid balance of the Cost Plus with Guaranteed Not To Exceed Amount exceeds costs incurred by the City in finishing the Work, then such excess shall be paid to Design/Build Entity. However, if such costs exceed the unpaid balance of the Cost Plus with Guaranteed Not To Exceed Amount, then Design/Build Entity shall pay the difference to the City.

### 9.5 Design/Build Entity Remedies.

The following remedy shall be available to Design/Build Entity in the case of the City event of default: Design/Build Entity may, upon seven-days' additional written notice to the City, terminate this Agreement and recover from the City payment for Work performed and for proven loss with respect to materials, equipment tools, construction equipment and services rendered, including reasonable overhead and profit.

### 9.6 Multiple Remedies.

Except as otherwise provided in this Design/Build Agreement, no remedy under the terms of this Design/Build Agreement is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to any other remedies, existing now or hereafter, at law, in equity or by statute. No delay or omission to exercise any right or power accruing shall impair any such right or power nor shall it be construed to be a waiver of any event of default or acquiescence to it, and every such right and power may be exercised from time to time as often may be deemed expedient.

### 9.7 Termination for Convenience.

The City may terminate this Design/Build Agreement at any time for

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convenience if the City determines such termination is in the best interests of the City upon 60-days' advance written notice. In the event the City terminates this Agreement for convenience and subsequently rebids or otherwise completes the Project, then Design/Build Entity shall be entitled to recover lost profits in addition to other costs recoverable under this Agreement, so long as it shall provide a title insurance policy in an amount acceptable to the City together with such endorsements as may be requested by the City.

Such Title Insurance policies and endorsements shall be at the sole cost and expense of the Design/Build Entity and shall insure the Project is free of all liens and encumbrances. Any liens or charges encumbering the Project, or which are claimed to encumber the Project, other than those placed by or agreed upon by the City, shall be offset against whatever amount is determined to be owed to the Design/Build Entity.

### 9.8 Termination Payment.

In the event the City terminates this Design/Build Agreement for convenience as set forth above, the City shall pay to the Design/Build Entity all funds due the Design/Build Entity for work satisfactorily performed up to the date of termination, plus all demobilization and close-out costs, including, but not limited to, any penalties payable to subcontractors for early termination, plus reasonable overhead and profit. All funds due pursuant to this Section, including unpaid retainage, shall be released within 30 days after termination of the Design/Build Agreement for convenience, subject to the provisions of Paragraph 9.7, Termination for Convenience.

### 9.9 Property Rights.

In the event of termination, all studies, reports, special forms, schedules, designs and any other written information pertaining to the Project shall become the City's property as provided in this Agreement.

### 9.10 Suspension of Work.

9.10.1 City may order Design/Build Entity, in writing, to suspend, delay, or interrupt all or any part of the Work for the period of time that the City determines appropriate for the convenience of the City.

9.10.2 If the performance of all or any part of the Work is for any period of time, suspended, delayed, or interrupted (a) by an act of the City in the administration of the Design/Build Agreement, or (b) by the City's failure to act within the time specified in the Design/Build Agreement (or within a reasonable time if not specified), or (c) for other reasons which Design/Build Entity is entitled to claim delay under the Agreement, Design/Build Entity shall provide notice according to the Agreement.

9.10.3 Design/Build Entity shall be entitled to an increase in the Cost Plus with Guaranteed Not To Exceed Amount and the Contract Time to the extent the cost of performance of the Design/Build Agreement or

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the time therefore is increased as a result of suspension, delay, or interruption by the City or as otherwise provided in the Contract Documents. However, no adjustments shall be made under this Article for any suspension, delay, or interruption to the extent that Design/Build Entity's performance would have been so suspended, delayed, or interrupted by any other cause for which Design/Build Entity would not be entitled to an increase in the Cost Plus with Guaranteed Not To Exceed Amount or in the Contract Time.

## 9.11 Non-Compliance with Design/Build Agreement Requirements

In the event the Design/Build Entity, after receiving written notice from the City of non-compliance with any requirement of the Design/Build Agreement, fails to initiate promptly such action as may be appropriate to comply with the specified requirement within a reasonable period of time, the City shall have the right to order Design/Build Entity to stop all Work in the area affected until Design/Build Entity has complied with or has initiated such action as may be appropriate to comply within a reasonable period of time. Design/Build Entity will not be entitled to any extension of Contract Time or Stipulated Sum for any costs incurred as a result of being ordered to stop Work for such cause.

## ARTICLE 10 – DISPUTES AND CLAIMS

### 10.1 Dispute and Claim Procedures.

10.1.1 When the Design/Build Entity and the City fail to agree whether or not any work is within the scope of Contract Documents, the Design/Build Entity shall immediately perform such work upon receipt of a written notice to do so by the City. Within 14 days after receipt of such notice, the Design/Build Entity may submit a written protest to the City, specifying in detail in what particular Contract Documents were exceeded, and approximate change in cost resulting so that the City will have notice of a potential claim.

Failure to submit a protest within the specified period shall constitute a waiver of any and all rights to an adjustment in Cost Plus with Guaranteed Not To Exceed Amount and Contract Time due to such work, and the Design/Build Entity thereafter shall not be entitled to adjustment of the Cost Plus with Guaranteed Not To Exceed Amount or Contract Time. For any such work that is found to exceed Contract Documents, there shall be an adjustment in Cost Plus with Guaranteed Not To Exceed Amount and Contract Time on same basis as any other change in the Work.

- .1 The Design/Build Entity shall provide supporting data and shall provide and maintain records of costs attributable to disputes in similar manner as for Change Orders in Article 8, Changes in the Work.
- .2 The City and the Design/Build Entity will make every reasonable effort to resolve the dispute prior to proceeding to the next step.

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- .3 Either the City or the Design/Build Entity may call a special meeting for the purpose of resolving the dispute. Such a meeting will be held within seven days after written request of it.
- .4 If the dispute as to the Contract Documents has not been resolved, the Design/Build Entity shall, within 14 days after the special meeting, take one or more of the following actions:
- .a submit additional supporting data requested by the City;
  - .b modify the initial dispute;
  - .c notify the City that the initial dispute stands as is; or
  - .d withdraw the dispute. Once withdrawn, the dispute cannot be reopened by the Design/Build Entity.
- .5 If the dispute has not been resolved within seven days after the Design/Build Entity's action in response to Clause 10.1.1.4, another meeting may be scheduled, at the City's option, with senior management personnel of the City and the Design/Build Entity. The purpose of this meeting is to resolve the dispute prior to proceeding to the action under Subparagraph 10.1.2, Dispute and Claim Procedures.
- .6 Any dispute not resolved by the above meetings shall be settled by mediation conducted by a third-party neutral from Judicial Arbitration and Mediation Services ("JAMS") jointly appointed by the parties. Said mediation shall occur in San Luis Obispo County, with the costs split between all parties participating in the mediation.
- 10.1.2 If a dispute has not been resolved at the time of the City's proposed Final Payment, then the Design/Build Entity shall submit within 30 days a claim along with detailed documentation required by Subparagraph 10.1.1, Dispute and Claim Procedures, for the City's consideration. The City will render a written decision to the Design/Build Entity relative to the claim. The City's written decision shall be final and binding on the party(ies). The City may withhold from the Final Payment an amount not to exceed 150% of the disputed amount. If there appears to be a possibility of a Design/Build Entity's default, then the City may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

Any claim not resolved by the foregoing section will be subject to resolution pursuant to procedures set forth in Public Contract Code Section 20104, regardless of whether such claims exceed \$375,000. Said procedures are incorporated as though fully set forth in this Agreement.

- 10.1.3 Maintenance of Existence. Design/Build Entity covenants that it

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will remain in existence during the term of the Design/Build Agreement and for a period of time five years after Final Completion of the Project (the "Corporate Maintenance Period"). The purpose for which Design/Build Entity shall remain in existence during the Corporate Maintenance Period is to assure the City that Design/Build Entity will be able, during the Corporate Maintenance Period, to address and/or pay claims by the City against the Design/Build Entity if the City deems the Design/Build Entity to be insufficiently capitalized to be able, on its own to carry out its obligations hereunder (financial or otherwise). In the event a guarantee of the Design/Build Entity is required by the City, from the date of this Design/Build Agreement and during the remainder of the Corporate Maintenance Period, then the guarantee shall be in the form of Exhibit C, Design/Build Entity's Guarantee, attached hereto.

### 10.2 Public Contracts Code section 9204

10.2.1 Notwithstanding the foregoing, attention is directed to the summary of Section 9204 of the Public Contract Code (PCC) regarding the claims resolution process for all public works projects. Any dispute or claim against the City under a public works project shall be processed in accordance with PCC section 9204 and any other applicable law. Any of the foregoing that is inconsistent with PCC section 9204 or applicable law shall not apply..

### **SUMMARY OF PCC SECTION 9204**

Any dispute or claim regarding the project shall be resolved in accordance with PCC section 9204, which is summarized herein, and other applicable law. "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following: (i) a time extension, including, without limitation, for relief from damages or penalties for delay assessed by the City under a contract for a public works project; (ii) payment by the City of money or damages arising from work done by, or on behalf of, the Design/Build Entity pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled; or (iii) payment of an amount that is disputed by the City.

Upon receipt of a claim, the City shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, the City and the Design/Build Entity may,

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by mutual agreement, extend the time period provided in Section 9204. The claimant shall furnish reasonable documentation to support the claim. If the City needs approval from the City Council to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the City Council does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, then the City shall have up to three days following the next duly publicly noticed meeting of the City Council after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the City issues its written statement.

If the claimant disputes the City's written response, or if the City fails to respond to a claim issued pursuant to PCC section 9204 within the time prescribed, then the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the City shall schedule a meet and confer conference within 30 days for settlement of the dispute.

Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, then the City shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the City issues its written statement.

Any disputed portion of the claim, as identified by the Design/Build Entity in writing, shall be submitted to nonbinding mediation, with the City and the claimant sharing the associated costs equally. The City and claimant shall mutually agree to a mediator within 10 business days after the disputed portion

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of the claim has been identified in writing. If the parties cannot agree upon a mediator, then each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, then the parts of the claim remaining in dispute shall be subject to applicable law. Mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in Section 9204 of the Public Contract Code. Unless otherwise agreed to by the City and the Design/Build Entity in writing, the mediation conducted pursuant to PCC section 9204 shall excuse any further obligation under PCC section 20104.4 to mediate after litigation has been commenced.

PCC section 9204 does not preclude the City from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under PCC section 9204 does not resolve the parties' dispute.

Failure by the City to respond to a claim from the Design/Build Entity within the time periods described herein or to otherwise meet the time requirements of PCC section 9204 shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the City's failure to have responded to a claim, or its failure to otherwise meet the time requirements of PCC section 9204, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

Amounts not paid in a timely manner as required by PCC section 9204 shall bear interest at seven percent per annum.

If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against the City because privity of contract does not exist, then the

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Design/Build Entity may present to the City a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, the Design/Build Entity present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting the claim be presented to the City shall furnish reasonable documentation to support the claim. Within 45 days of receipt of that written request, the Design/Build Entity shall notify the subcontractor in writing as to whether the Design/Build Entity presented the claim to the City and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

A waiver of the rights granted by PCC section 9204 is void and contrary to public policy; provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) the City may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of PCC section 9204, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in PCC section 9204.

### **ARTICLE 11 – PROTECTION OF PERSONS AND PROPERTY**

#### **11.1 Safety of Persons and Property.**

11.1.1 The Design/Build Entity shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work. The City shall have no responsibility for initiating, maintaining and supervising safety of persons and property.

11.1.2 The Design/Build Entity shall take precautions for safety and provide protection to prevent damage, injury or loss to:

- .1 Employees working under the Agreement and other persons who may be affected by it;
- .2 The Work and materials and equipment to be incorporated in it, whether in storage on or off the Project site, under care, custody or control of the Design/Build Entity or the

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Design/Build Entity's subcontractors or sub-subcontractors;  
and

- .3 Other property at the Project site, or adjacent to it, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement during the course of construction.

11.1.3 The Design/Build Entity shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on the safety of persons or property, or their protection from damage, injury or loss.

11.1.4 The Design/Build Entity shall erect and maintain, as required by existing conditions and performance of the Contract Documents, safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying the City, other owners (other than the City) and users of adjacent sites and utilities.

11.1.5 The Design/Build Entity shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of public authorities regarding the storage and/or use of explosives or other hazardous materials or equipment necessary for execution of Work. The Design/Build Entity shall employ properly qualified personnel for supervision of same.

11.1.6 The Design/Build Entity shall remedy damage and loss to property referred to in Clauses 11.1.2.2 and 11.1.2.3 caused in whole or in part by the Design/Build Entity, a subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Design/Build Entity is responsible under Clauses 11.1.2.2 and 11.1.2.3. The foregoing obligations of the Design/Build Entity are in addition to the Design/Build Entity's obligations under Paragraph 12.3, Indemnification.

11.1.7 The Design/Build Entity shall not permit any part of the Work or Project site to be loaded so as to endanger its safety.

11.1.8 When conditions of the Work, in the judgment of the City, present unreasonable risk of injury or death to persons or property damage, the City, may direct the Design/Build Entity, at the Design/Build Entity's sole expense, to close down the Work and not commence work again until all dangerous conditions are eliminated.

11.1.9 The Design/Build Entity, at the Design/Build Entity's own cost, shall rebuild, repair, restore and make good any and all damages to any portion of the Work affected by such causes before its acceptance.

## 11.2 Emergencies.

In an emergency affecting safety of persons or property, the Design/Build

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Entity shall act, at the Design/Build Entity's sole discretion, to prevent any threatened damage, injury or loss. Additional compensation or extension of Contract Time claimed by the Design/Build Entity because of an emergency will be reviewed as provided in Article 8, Changes in the Work.

## ARTICLE 12 – INSURANCE, BONDS, AND INDEMNIFICATION

### 12.1 Insurance.

12.1.1 Design/Build Entity shall not commence work under this Contract until all insurance has been obtained that is required under this section and such insurance has been verified by the City, nor shall Design/Build Entity allow any Subcontractor to commence work on its Contract until all similar insurance required of the Subcontractor has been so obtained and approved. Design/Build Entity shall furnish the City with three copies of each required certificate of insurance, as provided below. Design/Build Entity shall have the following insurance coverage:

a. Workers' Compensation Insurance and Employer's Liability Insurance.

Design/Build Entity shall maintain during the life of the Contract Workers' Compensation Insurance and Employer's Liability Insurance for all of its employees employed on the project as described herein. Said insurance shall comply with the following:

- i. Workers' Compensation Insurance in compliance with the laws of the State of California and any applicable federal statutes.
- ii. Employers liability insurance of not less than One Million Dollars (\$1,000,000) each accident and One Million Dollars (\$1,000,000) each employee.

In signing the Contract, Design/Build Entity shall make the following certification, required by Section 1861 of the Labor Law: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

b. Automobile and General Liability. Design/Build Entity shall have throughout the term of this contract policies of liability insurance covering automobile and general liability as follows:

- i. Owned/non-owned and hired automobile liability insurance with primary limits for bodily injury and property damage liability of not less than One Million Dollars (\$1,000,000) per accident. Umbrella and/or excess liability limits of not less than Two Million Dollars (\$2,000,000) per accident.

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- ii. Commercial general liability and/or umbrella excess liability insurance providing coverage on an occurrence basis and with limits of not less than Five Million Dollars (\$5,000,000) each occurrence and annual aggregate for bodily injury and property damage liability combined including:
  - 1) Premises and operations liability coverage;
  - 2) Owner's and contractor's protective liability coverage;
  - 3) Broad form property damage liability coverage including completed operations;
  - 4) Blanket contractual liability coverage;
  - 5) Deletion of any limitations relating to liability arising out of explosion, collapse or underground hazards;
  - 6) Personal and advertising injury liability coverage;
  - 7) For excavation and foundations, deletion of any limitation on coverage for bodily injury or property damage arising out of subsidence of soil or earth movement; and
  - 8) For demolition and/or hazardous materials removal, deletion of any limitation regarding asbestos and/or lead risk exposure.
  - 9) An endorsement specifying that policy aggregate limits apply separately to the project covered by this contract;
  - 10) Errors & Omissions
  - 11) Products and Completed Operations including five year extension endorsement
  - 12) Occurrence Definition to include "Assault and battery committed by, at the direction of or on behalf of any insured for the purpose of protecting the person or property of any insured or of others shall be deemed to be an occurrence."
  - 13) Extended Personal Injury definition to include alienation of affections, discrimination, or humiliation.
  - 14) Bodily Injury Definition to include mental anguish, shock, mental injury, humiliation, sickness, or disease sustained by a person, including death

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resulting from any of these at any time.

- 15) Exclusion Property Damage to the Insured's Work to read: "Property damage" to that particular part of "your work" that is defective or actively malfunctions. This exclusion applies only to the "products-completed operation" hazard. It does not apply if the damaged work or the work out of which the damage arises was performed on Design/Build Entity's behalf by a subcontractor.
- 16) Contractual Liability – Municipal Work: The phrase "any other contract or agreement pertaining to your business," as included in the definition of an insured contract, includes an indemnification of a municipality required by ordinance and in connection with work performed for the municipality.
- 17) Professional Liability Insurance. Upon execution of this contract, Design/Build Entity shall obtain professional liability insurance with limits of at least Five Million Dollars (\$5,000,000) per claim and aggregate which shall cover claims resulting from professional errors and omissions of Design/Build Entity and any of its consultants in connection with the work provided such claims arise during the period commencing upon the preparation of the construction documents and ending five years following Final completion. Such insurance shall be in form reasonably acceptable to the City's Risk Manager.
- 18) Builders' Risk Insurance/Installation Floater. Design/Build Entity shall have until contract completion "all risk" builders' risk property insurance, jointly in the names of the City and the Design/Build Entity, payable as their respective interest may appear, such insurance all times to be of sufficient amount to cover fully all loss or damage to the work under this Contract, at 100% replacement cost. Design/Build Entity's responsibility for earthquake coverage shall be in accordance with Public Contract Code Section 7105. Such insurance shall be in a form acceptable to the City's Risk Manager and shall include coverage for machinery during testing.
- 19) Subcontractor Insurance. Design/Build Entity shall cause all subcontractors engaged to perform work required of Design/Build Entity pursuant to this Contract to have Workers' Compensation, Commercial General Liability/Umbrella and/or Excess Liability, and Automobile Insurance in a form and amount deemed appropriate by the Design/Build Entity for work performed under this Contract.

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- 20) **DESIGN/BUILD ENTITY POLLUTION LEGAL LIABILITY** (CPL) (and/or other applicable policies as determined by the City's Risk Manager or his/her designee, e.g. Asbestos Legal Liability) *unless waived in writing by the CITY'S Risk Manager or his/her designee* shall be written on either an occurrence form, or a claims-made form, and is required for all environmental and water remediation work and for all work transporting fuel. CPL is also required for demolition, renovation, HVAC, plumbing and electrical work (including, without limitation, lighting) on any structure built prior to the year 1990 with limits of liability of not less than the following:
- (i) \$1,000,000 per occurrence or claim; and,
  - (ii) \$2,000,000 general aggregate per annual policy period.

In the event this Agreement involves any lead based, mold or asbestos environmental hazard, either the CAL policy or other appropriate insurance policy shall be endorsed to include *Transportation Pollution Liability insurance* covering materials to be transported by the Design/Build Entity pursuant to the Agreement.

### 12.2 Indemnification.

12.2.1 The Design/Build Entity will indemnify, defend and hold harmless the City and its respective officers, elective and appointive Board, employees and consultants (including the Project Manager and Architect of Record) against all loss, expense (including, but not limited to, attorneys' fees and court costs), damage, injury, liability, causes of action or claims of any kind or character (collectively "claims" and individually a "claim"), provided that such claim or claims is/are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself for claims not covered by insurance which is required under this Agreement) including loss of use resulting there from (except loss of use attributable to a claim otherwise insured as provided under this Agreement), in any way arising out of this Agreement or the Work, including but not limited to the acts or omissions of the Design/Build Entity, its partners, officers, directors, employees, agents, licensees, invitees, consultants, vendors, or subcontractors of any tier (collectively the "Design/Build Entity"). Such indemnification shall include, but not be limited to any claim arising from or caused by:

- (i) any defect in the construction documents, or the design or construction of or materials used in the Work or in any machine, equipment, appliance, or other item of personal property installed or located therein;

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- (ii) any defect in the preparation of soils or in the design and accomplishment of grading;
- (iii) any violation or alleged violation by any member of the Design/Build Entity of any law existing as of the date of this Agreement or hereafter enacted (provided that with respect to laws enacted after the date of the Design/Build Agreement, the Design/Build Entity may be entitled to an adjustment in the Contract Sum and/or Contract Time as provided in the Design/Build Agreement);
- (iv) any negligent acts or omissions or other tortious conduct of the Design/Build Entity or any member of the Design/Build Entity;
- (v) any accident on the job site or other casualty thereon;
- (vi) any other cause whatsoever in connection with the Design/Build Entity's use of or activities on the job site or the Design/Build Entity's performance under this Agreement; and/or
- (vii) the inaccuracy or incorrectness of any representation or warranty of the Design/Build Entity to the City under this Agreement. Notwithstanding the foregoing, the obligations of the Design/Build Entity in this paragraph are intended to apply only to third party claims arising out of the Agreement or the Work, and not to property damage to the City, which damage is treated elsewhere in this Agreement.

- .1 Subject to Paragraph 3.20, the Design/Build Entity will indemnify, defend and hold harmless the City and its respective officers, elective and appointive Board, employees and consultants (including the Project Manager and Architect of Record) from all claims by reason of, or in the course of the performance of, said Work, by reason of any infringement or alleged infringement of the patent rights, copyrights, and/or trademarks of any person or persons, firm, or corporation in consequence of the use in, on or about said Work, of any article or material supplied or installed under this Agreement (except to the extent such article or material was directed to be supplied or installed by the City).

Neither the City and its respective officers, elective and appointive Board, employees and consultants (including the Project Manager and Architect of Record) shall be liable for any loss or damage that may happen to the Work, or any part of it; nor to any of the materials or other items used or employed in performing the Work; nor for injury to any person or persons, either workers or the public, for damage to property from any cause which might have been prevented by the Design/Build Entity, or the Design/Build Entity's employees or agents, against all of which injuries or damages the

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Design/Build Entity must properly guard.

The Design/Build Entity shall indemnify, defend and hold harmless the City and its respective officers, elective and appointive Board, employees and consultants (including the Project Manager and Architect of Record), from all suits, actions or claims brought for, or on account of injuries or damages received or sustained by any person or persons, by or from the Design/Build Entity, the Design/Build Entity's employees or agents, in construction of the Work, or by or in consequence of the Design/Build Entity's failure to properly guard the same, or by or as a result of any act or omission of the Design/Build Entity, the Design/Build Entity's employees or agents.

In addition to any remedy authorized by law, moneys due the Design/Build Entity under the Design/Build Agreement, as considered necessary by the City, may be retained until disposition has been made of such suits, actions, or claims for damages; however, this provision shall not be construed as precluding the City from enforcing any right of offset the City may have to any such moneys. These obligations shall apply to any claim or action asserted by a private party or by a governmental agency, including, but not limited to, any claim or action for multiple or punitive damages; and these obligations are intended to apply with respect to claims arising during the term of this Agreement or following any expiration or other termination of this Agreement, and shall survive the expiration or other termination of this Agreement.

- .2 The Design/Build Entity's obligations as described above shall apply regardless of fault or negligence (whether active or passive) on its part or on the part of the indemnified parties to the extent allowed by law; it being the intent of this Agreement that these obligations be interpreted in the broadest possible manner provided that, as to any indemnified party, said obligations shall not apply to injury, death, or damage to property to the extent arising from the negligence or the willful misconduct of said indemnified party or its officers, agents, servants, or independent contractors who are directly responsible to the indemnified party, or for defects of design furnished by such persons but provided further that the foregoing limitations shall not apply to the extent reimbursable through any insurance required by this Agreement.
- .3 These obligations of the Design/Build Entity shall not be construed to negate, abridge, or otherwise reduce any right of indemnity or any other rights to which the City would otherwise be entitled

12.2.2 The Design/Build Entity shall cause all subcontracts to include the indemnification and hold harmless requirements set forth in this Article, in a form satisfactory to the City.

## 12.3 No Personal Liability.

No officer, elective and appointive Board member, employee, or consultant of the City will be personally responsible for liabilities arising under this Design/Build Agreement.

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## 12.4 Performance Bond and Payment Bonds.

- 12.4.1 The Design/Build Entity shall furnish to the City, prior to the awarding of any contract, a surety bond in favor of the City in the amount of not less than 100% of the amount of Contract, to guarantee faithful performance of Contract and a payment bond, each in the form attached to the Design/Build Agreement. Bond shall guarantee repair or replacement of deficient, defective or faulty materials and workmanship for a period of one year following completion of the project unless otherwise required in the Contract Documents. The Bond shall be issued by an California admitted surety with a rating classification of "A XIII" or better according to Best's Rating Service.
- 12.4.2 The City acknowledges that any faithful performance and payments bonds provided by the Design/Build Entity shall not apply to errors or omissions in the furnishing of professional services in connection with architecture or engineering services provided by the Design/Build Entity or its consultants. The City waives and releases all claims against such sureties arising out of or relating to such professional errors and omissions; such release, however, does not apply to a failure to provide professional services where required under the Contract, and the performance bonds shall include the costs of such services. Professional Liability insurance shall be primary insurance in settling claims related to Errors and Omissions

## ARTICLE 13 – SEPARATE CONTRACTS

### 13.1 City's Right to Perform Construction and to Award Separate Contracts.

- 13.1.1 The City reserves the right to perform work or operations related to the Project with the City's own work force, and to award separate contracts in connection with other portions of the Work or other construction or operations on the Work.
- 13.1.2 When separate contracts are awarded for different portions of the Work or for other construction or operations on the Project site, the term "Contractor" in the Contract Documents in each case shall mean the contractor who executes each separate agreement.
- 13.1.3 The City will provide for coordination of the activities of the City's own work force and of each separate Contractor with the work of the Design/Build Entity, who shall cooperate with them. The Design/Build Entity shall participate with other separate Contractors and the City in reviewing and revising their Baseline Schedules when directed by the City. The resulting Baseline Schedules shall then constitute the schedules to be used by the Design/Build Entity, separate Contractors and the City.
- 13.1.4 The City reserves the right to perform other work in connection with the Project or adjacent to the Project site by separate contract or otherwise. The Design/Build Entity shall at all times conduct the Work so as to impose no hardship on the City or others engaged in the

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Work, nor to cause any unreasonable delay or hindrance to the Work.

## 13.2 Mutual Responsibility.

13.2.1 The Design/Build Entity shall afford the City and other Contractors the opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the contractors construction and operations with theirs as required by the Contract Documents.

13.2.2 If part of the Design/Build Entity's work relies on proper execution or results upon construction or operations by the City or a separate Contractors, then the Design/Build Entity shall, prior to proceeding with that portion of the work, report to the City apparent discrepancies or defects in other construction that would render it unsuitable for proper execution and results. Failure of the Design/Build Entity to report any discrepancies or defects shall constitute an acknowledgment that the City's or separate Contractors' complete or partially completed construction is fit and proper to receive the Design/Build Entity's work.

13.2.3 The Design/Build Entity shall promptly remedy damage wrongfully caused by the Design/Build Entity to any completed or partially completed construction or to any property of the City or separate Contractors.

13.2.4 The City and each separate Contractor shall have the same responsibilities for cutting and patching as are described in Paragraph 3.7, Cutting and Patching.

## ARTICLE 14 – MISCELLANEOUS

### 14.1 Governing Law

The parties have executed and delivered this contract in the City, County of San Luis Obispo, State of California. This Design/Build Agreement shall be governed by the laws of the State of California. The exclusive venue for any action or proceeding, in law or equity that may be brought in connection with this contract, is the Superior Court of the State of California in and for the County of San Luis Obispo, or the United States District Court, Central District, California.

### 14.2 Successors.

The City and the Design/Build Entity respectively bind themselves, their partners, shareholders, successors, assigns and legal representatives to the other party and to shareholders, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party shall assign the Design/Build Agreement as a whole without the written consent of the other party. If either party attempts to make such an assignment without such

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consent, that party shall nevertheless remain legally responsible for all of its obligations under the Design/Build Agreement and the Contract Documents.

## 14.3 Notice.

Written notices or other communications required or permitted hereunder shall be sufficiently given if delivered personally, by facsimile, by registered or certified first class U.S. mail, return receipt requested with postage pre-paid, or by commercial courier. Written notice shall be deemed to have been duly served in the date of delivery if delivered in person or by facsimile, on the first working day after deposit if delivery by overnight courier, or two working days after deposit of delivery by placing in the U.S. mail as provided herein. All notices shall be addressed to the appropriate Authorized Representative, as follows:

Design/Build Entity:

\_\_\_\_\_  
\_\_\_\_\_

City

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 14.4 Statutory Limitations.

Commencement of statutory limitation periods and statute of repose periods shall be as follows:

14.4.1 As to acts or failures to act occurring prior to Final Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Final Completion.

14.4.2 As to acts or failures to act occurring after the date of Final Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Design/Build Entity pursuant to any applicable warranty, the date of any correction of Work or failure to correct Work by the Design/Build Entity, or the date of actual commission of any other act or failure to perform any duty or obligation by the Design/Build Entity or the City, whichever occurs last.

14.4.3 The time period for the applicable Statute of Repose shall commence to run at Final Completion of the Work.

## 14.5 Modifications.

No modifications or Change Orders shall be valid unless in writing and

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signed by the City and the Design/Build Entity or their respective permitted successors and assigns. The Design/Build Entity and the City agree to make modifications to this Design/Build Agreement if requested by the City's lender(s), provided that such modifications do not adversely affect the costs and/or risks and/or time of performance of the Work.

### **14.6 Meaning of Words.**

Any and all headings used in this Design/Build Agreement are for convenience only and do not modify, define or limit the provisions of it. Words of any gender shall be deemed and construed to include correlative words of the other gender. Words importing the singular number shall include all supplements and/or amendments to any such exhibits or documents entered into in accordance with the terms of this Agreement. All references to any person or entity shall be deemed to include any person or entity succeeding to the rights, duties and obligations of such person or entity in accordance with the terms of this Design/Build Agreement. Where reference is made in this Design/Build Agreement to another Contract Document, the reference refers to that provision as amended or supplemented by the other provisions of the Contract Documents.

### **14.7 Severability.**

If any provision of this Design/Build Agreement is held to be inoperative or unenforceable as applied in any particular case because it conflicts with any other provision hereof or any constitution, statute, ordinance, rule of law or public policy, or for any other reason, then such holding shall not have the effect of rendering any other provision contained herein to be inoperative or unenforceable to any extent whatsoever. The invalidity of any one or more phrases, sentences, clauses or sections contained in this Design/Build Agreement shall not affect the remaining portions of this Design/Build Agreement or any part of it, and they shall otherwise remain in full force and effect.

### **14.8 Whole Agreement.**

This Design/Build Agreement and any and all exhibits, the Design/Build Entity's Proposal, which is incorporated by reference, and the Contract Documents shall constitute the entire agreement between the Parties, related to the subject matter hereof. No inducements, considerations, promises or other references shall be implied in this Design/Build Agreement that are not expressly addressed in this Agreement. By incorporating the Design/Build Entity's Proposal as part of this Design/Build Agreement, the City does not accept any provision of the Proposal that are not in conformance with the criteria of the Request for Proposal.

### **14.9 Record Retention and Audits.**

The Design/Build Entity agrees that the awarding department or their designated representative shall have the right to review and to copy any records and supporting documentation pertaining to the performance of this

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Agreement. The Design/Build Entity shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management under this Design/Build Agreement; the accounting and control systems shall be reasonably satisfactory to the City and shall be in accordance with generally accepted accounting standards.

Design/Build Entity shall retain all records, books, correspondence, instructions, drawings, receipts, subcontracts, vouchers, memoranda and other data relating to this Design/Build Agreement for a period of five years after Final Payment under this Agreement, or for such longer period as may be required by law. Design/Build Entity agrees to allow the City auditor(s) access to such records during normal business hours and to allow interviews of any employees who might reasonably have information related to such records, and not withhold relevant information. Further, Design/Build Entity agrees to include a similar right of the City to audit records and interview staff in any subcontract related to performance of this Agreement.

### 14.10 Deliverables.

The Design/Build Entity is responsible for delivery to the City certain drawings, schedules, reports, samples and other documents as described in the Contract Documents.

### 14.11 Waiver.

No waiver of any condition, requirement or right expressed in this Agreement shall result from any forbearance of the City to declare a default.

### 14.12 Brokerage or Contingent Fees.

Design/Build Entity warrants by execution of this Agreement, that no person or selling agency has been employed or retained to solicit or secure this Agreement upon understanding or agreement for a commission, percentage, brokerage or contingent fee, excepting bona fide employees or established commercial or selling agencies maintained by Design/Build Entity for the purpose of securing business. For breach or violation of this warranty, the City shall, in addition to other remedies provided by law, have the right to terminate this Agreement without liability, paying only for the work actually performed, or otherwise recover the full amount of such commission, brokerage or contingent fee.

### 14.13 Computer Software.

Design/Build Entity certifies it has appropriate systems and controls in place to ensure City funds will not be used in the performance of this Agreement for the acquisition, operation or maintenance of computer software in violation of copyright laws.

### 14.14 Independent Capacity.

Design/Build Entity, and agents and employees of Design/Build Entity, in the performance of the agreement, shall act in an independent capacity and

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not as officers or employees or agents of the City.

### 14.15 Air or Water Pollution Violations.

By signing this agreement, the Design/Build Entity swears, under penalty of perjury, that the Design/Build Entity is not: (1) in violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air pollution control district; (2) subject to a cease and desist order not subject to review issued pursuant to Section 13301 of the Water Code for violation of waste discharge requirements or discharge prohibitions; or (3) finally determined to be in violation of provisions of federal law relating to air or water pollution.

### 14.16 No Uncertainty Protection.

This Agreement is the product of negotiation and compromise on the part of both Parties and that the Parties agree that, notwithstanding Civil Code section 1654, any uncertainty in this Agreement shall not be construed against the drafter.

### 14.17 PWCR Number.

Deign/Build Entity, in the space provided on the signature page shall provide Deign/Build Entity's public works registration (PWCR) number for City to complete the PWC 100 Form.

### 14.18 Effective Date.

The effective date of this Agreement is the date it is signed on behalf of City provided it has also been signed on behalf of Design/Build Entity.

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**ARTICLE 15 – EXECUTION OF THE AGREEMENT**

\_\_\_\_\_, a \_\_\_\_\_

By: \_\_\_\_\_

\_\_\_\_\_  
Its \_\_\_\_\_

By: \_\_\_\_\_

\_\_\_\_\_  
Its \_\_\_\_\_

PWCR # \_\_\_\_\_

CITY OF MORRO BAY, a municipal corporation

By: \_\_\_\_\_

Jamie Irons, Mayor

Date: \_\_\_\_\_, 2018

APPROVED AS TO FORM:

\_\_\_\_\_  
Joseph W. Pannone,  
City Attorney

ATTEST:

\_\_\_\_\_  
Dana Swason,  
City Clerk

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## **EXHIBIT A – PROJECT MILESTONE SCHEDULE**

The Project Milestone Schedule below identifies the major events for the Project. The Design/Build Entity confirms that the Contract Time and Milestones allow a reasonable period of time for completing the work under the Project.

***List milestones (in list format; not a chart)***

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## **EXHIBIT B – CONTRACT DOCUMENTS**

The Contract Documents consist of the following, all of which, together with this Design/Build Agreement, form the entire agreement between the City and the Design/Build Entity.

Design/Build Entity Proposal [**dated INSERT**]  
Scope of Work

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## EXHIBIT C – DESIGN/BUILD ENTITY’S GUARANTY OF OBLIGATIONS

GUARANTY OF OBLIGATIONS OF DESIGN/BUILD ENTITY UNDER THE \_\_\_\_\_ DESIGN-BUILD PROJECT DESIGN/BUILD AGREEMENT

THIS GUARANTY (“Guaranty”) is made and entered into as of \_\_\_\_\_, 20\_\_\_\_, by \_\_\_\_\_ (“Guarantor”) to and for the benefit of the CITY OF \_\_\_\_\_ (“City”) with reference to the following facts:

- A. \_\_\_\_\_ (“Design/Build Entity”), is about to enter into a certain Design/Build Agreement (the “Agreement”) with the City, and a number of related Contract Documents (as that term is defined in the Agreement) where under the Design/Build Entity is to design and build a Water Reclamation Facility Design-Build Project in \_\_\_\_\_, CA.
- B. For a variety of reasons the Design/Build Entity is a newly formed entity whose sole shareholders are \_\_\_\_\_ (the “Contractor”) and \_\_\_\_\_ (the Architect). Because the City must be assured that the Design/Build Entity has the financial strength and expertise to carry out its obligations under this Agreement, it has required, as a condition of entering into the Agreement, that the Contractor execute this Guaranty where under the Contractor, as Guarantor hereunder, guarantees to the City that it will guaranty the performance of all obligations of the Design/Build Entity under the Agreement, whether physical or financial, all as more particularly herein stated.
- C. All terms used in this Guaranty which are not defined shall have the meanings assigned in the Agreement, the Contract Documents, the Construction meanings assigned in the Agreement, the Contract Documents, the construction documents, and any other documents referred to in the Agreement. For purposes of this Guaranty, the term “Collective Agreements” shall refer to the Agreement, the Contract Documents, the construction documents and any other documents referred to in the Agreement, in the aggregate.

NOW THEREFORE, for a valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Guarantor, for itself, its successors and assigns:

1. Unconditionally and absolutely guarantees the due and punctual performance of any and all obligations of the Design/Build Entity under the Collective Agreements, and each of them, in accordance with the terms thereof, whether such be obligations to act, or make payments of any nature whatsoever, whether now or hereafter due, as well as the due and punctual performance and observance by Design/Build Entity of all the other terms, covenants, and conditions of the Collective Agreements, and each of them (including, without limitation, the completion of the construction of the Project contemplated by it in accordance with the terms of it and including the payment of all funds required in excess of the City’s commitment to pay for the construction), together with all attorney fees, court costs, and other costs and expenses as shall be paid or incurred by the City in connection with the attempted enforcement of the Collective Agreements, or any of them, or portions thereof, or paid or incurred by the City in connection with the

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defense by the City of any action, suite, or claim by any third party with respect to any of same, or paid or incurred by the City in connection with the attempted enforcement of this Guaranty. All debts, duties, liabilities, and obligations above described and covered by this Guaranty or intended so to be, are collectively called the "Obligations."

2. Waives diligence, presentment, protest, notice of dishonor, demand for payment, extension of time of payment, notice of acceptance of this Guaranty, nonpayment at maturity, and indulgences and notices of every kind, and consents to any and all forbearances and extensions of the time of payment or performance by the Design/Build Entity under the Collective Agreements, or any of them, and to any and all changes in the terms, covenants and conditions made or granted and to any and all substitutions, exchanges, or releases of any collateral therefore; also waives any right to cause a marshaling of Design/Build Entity's assets or to cause the City to proceed against the Design/Build Entity before proceeding against the Guarantor; also waives any right to require the Department to apply upon any obligation of the Design/Build Entity under the Collective Agreements, or any of them, guaranteed any funds or other property at any time received by or paid to or in the possession of the City; it being the intention that the Guarantor shall remain liable until the terms, covenants, and conditions of the collective Agreements, and all of them, have been fully performed and observed by the Design/Build Entity, notwithstanding any act, omission, or thing that might otherwise operate as a legal or equitable discharge of Guarantor. In connection therewith, the Guarantor expressly waives any and all benefits, which might otherwise be available to the Guarantor under California Civil Code Sections 2810, 2819, 2825, 2845, 2849, 2850, 2899 and 3443.
3. Agrees that the liability of the Guarantor shall not in anywise be released, diminished, impaired, reduced, or affected by:
  - a. The taking or accepting by the City of any security or guaranty for the Design/Build Entity's performance of any or all of the Obligations;
  - b. Any release, withdrawal, surrender, exchange, substitution, subordination, or loss of any security or other guaranty at any time existing in connection with any or all of the Obligations; any partial release of the liability of any other guarantor or guarantors of any nature whatsoever, or under any other instrument had, or to be had, in connection with, or as security for, the Obligations, or the death, corporate dissolution, insolvency, bankruptcy, disability, or lack of City of the Design/Build Entity, the Guarantor, or any other guarantor or any party at any time liable for the payment of all or any part of the Obligations, whether now existing or hereafter occurring;
  - c. Any renewal, extension, modification, and/or rearrangement of the performance or payment of any or all of the Obligations, or the performance of any covenant contained in any instrument had, or to be had, in connection with, or as security for, the Obligations, either with or without notice to, or consent of, the Guarantor or any adjustment, indulgence, forbearance, or compromise that may be granted or given by the City to any party; or
  - d. Any neglect, delay, omission, failure, or refusal of the City to take or prosecute any action for the collection or performance of any of the Obligations or to

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foreclosure or take or prosecute any action in connection with any lien, right, or security existing or to exist in connection with, or as security of, any of the Obligations; or to take any action hereunder; it being the intention hereof that the Guarantor shall remain liable as principal until the full amount of the Obligations, together with interest, and any other sums due or to become due upon or in connection with any of the same, shall have been fully paid, performed, and observed by the Design/Build Entity.

4. Agrees that it shall have no right of subrogation whatsoever with respect to the aforesaid Obligations, or to any moneys due and unpaid thereon or any collateral security for the same (unless and until any third party, or the City, as the case may be, shall have received payment in full of all sums at any time due under the Collective Agreements, or any of them.) All sums, amounts, performances owing, or to be performed by Design/Build Entity to the Guarantor, as well as all rights, liens, claims, and securities existing and to exist in connection with it, or as security for it, are declared, recognized, and made subordinate to the Obligations and to all rights, titles, interest, and claims of any nature which the Department may have, or under the Collective Agreements, or any of them, of any nature whatsoever.
5. Agrees that this Guaranty may be enforced by the City without first resorting to or exhausting any particular security, Bond, or collateral for the Obligations, or without first having recourse to the assets or estate of the Design/Build Entity or of any other party liable for the performance of the Obligations, or any of them.
6. Further covenants, represents, and warrants that:
  - a. The Collective Agreements, and each of them, were duly authorized and, to the degree required were, executed by the Design/Build Entity and are legal, valid, and binding instruments, enforceable against Design/Build Entity in accordance with their respective terms.
  - b. Guarantor agrees that in the event this Guaranty is placed in the hands of attorneys for enforcement, the Guarantor will reimburse the City for all expenses incurred, including, but not limited to, attorney fees and court costs, as well as all fees incurred for expert witnesses, consultants, witnesses and the like, whether prior to trial, at trial, or on appeal.
7. Agrees that this Guaranty shall inure to the benefit of the City and its successors and assigns and shall be binding upon and enforceable against the Guarantor and its successors and assigns. The laws of the State of California shall be applicable to this Guaranty.
8. Agrees that if any term, covenant, or condition of this Guaranty, the Collective Agreements, or any of them, or the application to any person or circumstances shall, to any extent, be invalid or unenforceable, the remainder of this Guaranty, the Collective Agreements, and each of them, or the application of such term, covenant, or condition to persons or circumstance other than those as to which it is held invalid or unenforceable, shall not be affected thereby and each term, covenant, or condition of this Guaranty, the Collective Agreements, and each of them, shall be valid and be enforced to the fullest extent permitted by law.

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9. Agrees that in the event of any bankruptcy, reorganization, winding up, or similar proceeding with respect to the Design/Build Entity, no limitation of the Design/Build Entity's liability under the Collective Agreements, or any of them, that may now or hereafter be imposed by any federal, state, or other statute, law, regulation, or judicial or administrative determination applicable to such proceedings shall in any way limit the obligation of the Guarantor, which obligation is coextensive with the Design/Build Entity's liability as set forth in the Collective Agreements, and each of them, without regard to any such limitation. In the event any payment by the Design/Build Entity to the City is held to constitute a preference under the bankruptcy laws, or if for any other reason the Department is required to refund such payment or pay the amount thereof to any other party, such payment by the City to Design/Build Entity shall not constitute a release of the Guarantor from any liability hereunder, by the Guarantor agrees to pay such amount to the City upon demands.
10. Agrees that this Guaranty shall be continuing and of full force and effect until the Obligations under the Collective Agreements, and each of them, are fully paid or performed, as the case may be.
11. Agrees that any notice or demand to the Guarantor may be given and shall conclusively be deemed and considered to have been given and received upon the deposit thereof, in writing, in the U.S. mail, duly stamped and addressed to the Guarantor at the last known address of the Design/Build Entity; but actual notice, however given or received, shall always be effective. The last preceding sentence shall not be construed in any way to affect or impair any waiver of notice or demand provided or to require giving of notice or demand to or upon the Guarantor in any situation or for any reason.
12. In any action initiated by the City to enforce this Guaranty against the Guarantor, except as otherwise expressly agreed, the Guarantor shall be entitled to assert, and rely upon, as against the City any contractual defense(s) under the Collective Agreements and common law to which the Design/Build Entity would be entitled thereunder.

The Guarantor has executed this instrument, the day and year first above written,  
\_\_\_\_\_, California.

[Signatures]

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## EXHIBIT D – PAYMENT & PERFORMANCE BONDS

SEE FOLLOWING PAGES FOR PAYMENT & PERFORMANCE BONDS

### PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, \_\_\_\_\_ (hereinafter called the “Principal”) as Principal and , \_\_\_\_\_ a corporation organized and existing under the laws of the State of California (hereinafter called the Surety”), as Surety, are held and firmly bound to CITY OF MORRO BAY (hereinafter called the “City”), as Obligee, in the sum of \_\_\_\_\_ Million Dollars, for the payment of which sum well and truly be made, the said Principal and Surety bind themselves, and their respective heirs, subcontractors, contractors, successors and assigns, jointly and severally, thereby by these presents.

WHEREAS, (I) the Design/Build Entity has entered into a Design/Build Agreement (hereinafter called the “D-B Agreement”) with the City for the design and construction of the Morro Bay Water Reclamation Facility Design-Build Project (hereinafter called the “Project”); and

WHEREAS, the Principal has submitted a bid for the work on the Project.

NOW THEREFORE, THE CONDITION OF THE OBLIGATION IS SUCH, that if the Principal shall well and truly perform all of the undertakings, covenants, terms, conditions and agreements of the Contract Documents within the time provided therein and any extensions thereof that may be granted by the Authority, as applicable, and during the life of any guaranty or warranty required under the Contract Documents and shall also well and truly perform all of the undertakings, covenants, terms conditions and agreements of any and all duly authorized modifications of the Contract Documents that may be made, and shall indemnify and save harmless the obligee of and from any and all loss, damage, and expense, including costs and attorney’s fees, from which the said obligee may sustain by reason of failure to do so, then this obligation shall be null and void; otherwise it shall remain if full force and effect.

The said Surety agrees that no change, extension of time, alterations, additions, omissions or other modifications of the terms of the Contract Documents or in the work to be performed with respect to the Project, or in the specifications of plans, or by any change or modification of any terms or payment or extension of any time for any payment pertaining or relating to the Contract Documents, or by rescission or attempted rescission of the Contract Documents, or this Bond, or by any condition precedent or subsequent in this Bond attempting to limit the right of recovery of obligee otherwise entitled to recover under this Bond, or by any fraud practiced by any person other than the obligee seeking to recover on this Bond, shall in anywise affect its obligation on this Bond, and it does hereby waive notice of any such changes, extensions of time, alterations, additions, omissions or other modifications. The Surety agrees that to the extent that payment of sums pursuant to the Contract Documents undertaken by the Surety, and the payment obligation could be construed as an obligation under this Bond or the payment bond issued by the Surety contemporaneously with the issuance of the Bond, such payment shall be treated solely as the discharge of an obligation under the payment bond and shall not reduce or impact on the Surety’s obligations under this Bond.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction is to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that

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this Bond shall be construed as a statutory bond and not as a common law bond.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the names and corporate seals of the corporate parties being hereto affixed and those presents duly signed by their undersigned representatives, pursuant to authority of their governing bodies.

WITNESS:

PRINCIPAL (DESIGN/BUILD ENTITY)

\_\_\_\_\_

By: \_\_\_\_\_  
Name: Title: Address:

SURETY:

\_\_\_\_\_

By: \_\_\_\_\_  
Name: Title: Address:

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## PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the City (herein after called the "City") has awarded a Design/Build Agreement (hereinafter called the "D-B Agreement") to \_\_\_\_\_, the Design/Build Entity (hereinafter called the "Design/Build Entity") for the design and construction of the City Design-Build Project (hereinafter called the "Project"); and

WHEREAS, the Design/Build Entity is required to furnish a payment bond in connection the Contract Documents, to secure the payment of claims of Design/Build Entity laborers, mechanics, material men and other persons as provided by law.

NOW THEREFORE, we the undersigned Principal (Design/Build Entity) and Surety are held and firmly bound unto the Authority obligee in the sum of \_\_\_\_\_ Million Dollars (\$ \_\_\_\_\_ ) for which payment well and truly to be made we bind ourselves our heirs, executors and administrators, successors and assigns, jointly and severally firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal, or its heirs, executors, administrators, successors or assigns or subcontractors, shall fail to pay any of the persons named in California Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed by any such claimant, or any amounts required to be deducted, withheld and paid over the California Franchise Tax Board from the wages of employees of the Principal and/or its subcontractors pursuant to Section 18306 of the California Revenue and Taxation Code, with respect to such work and labor, then the surety or sureties will pay such amounts in an amount not to exceed the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, the surety will pay a reasonable attorney's fees to be fixed by the court.

This bond shall inure to the benefit of any of the persons named in California Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Notwithstanding the number of claimants on this bond or any underlying law to the contrary, the Sureties shall not be liable under this bond for an amount greater than the aggregate penal sum designated above.

The said Surety agrees that no change, extension of time, alterations, additions, omissions or other modifications of the terms of the Contract Documents, or in the work to be performed with respect to the Project, or in the specifications or plans, or by any change or modification of any terms of payment or extension of the time for any payment pertaining or relating to the Contract Documents, or by any recession or attempted recession of the Contract Documents, or this Bond, or by any conditions precedent or subsequent in this Bond attempting to limit the right of recover of claimants otherwise entitled to recover under this Bond, or any fraud practiced by any person other than the claimant seeking to recover on this Bond, shall in any way affect its obligations on this Bond, and it does waive notice of any such changes, extensions of time, alterations, additions, omissions or other modifications.

When this Bond had been furnished to comply with a statutory or other legal requirement in the location where the construction is to be performed, any provision in this Bond conflicting with

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said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall deemed incorporated in it. The intent is that this Bond shall be construed as a statutory bond and not a common law bond.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the names and corporate seals of the corporate parties being affixed and those presents duly signed by their undersigned representatives, pursuant to authority of their governing bodies.

WITNESS:

PRINCIPAL (DESIGN/BUILD ENTITY)

\_\_\_\_\_

By: \_\_\_\_\_  
Name: Title: Address:

SURETY:

\_\_\_\_\_

By: \_\_\_\_\_  
Name: Title: Address

**EXHIBIT E – PROJECT SCHEDULE AND PROJECT MANAGEMENT SUBMITTALS**

<b>Submittals Required</b>	<b>Due Date</b>
Functional Relationships	30 Days Prior to NTP
Health and Safety Plan (Including IIPP)	30 Days Prior to NTP
Data and Document Management Plan	30 Days Prior to NTP
Design QA/QC Plan	30 Days Prior to NTP
Design Management Plan	30 Days Prior to NTP
Environmental Management Plan	30 Days Prior to NTP
Construction QA/QC Plan	30 Days Prior to NTP
Design Builders Construction Management Plan	30 Days Prior to NTP
Preliminary Baseline Schedule	14 days after NTP
Baseline Schedule Costs and Resource loaded	60 days after NTP
Weekly Report and Short term schedule	Weekly throughout the Contract duration
Monthly Report, Baseline schedule update, Certified Payroll, Pay Application and California Civil Code 8122 waivers and release forms	Monthly
Schedule of Values	30 days after NTP
3-week Look-ahead Schedule	Weekly during active construction
UV Validation Testing Plan	6 months prior to testing
UV Validation Test Results	1 month after test
All Testing Plans and Submittals per Title 22 and DDW	As required by permitting agencies
Certified Payroll	Per DIR, state and federal funding standards
Subcontractor Advertisement/Bid Results	As required in Funding Agency Documents

<b>Schematic Design</b>	<b>30 Days prior to NTP for Design Development</b>
<b>Code Analysis:</b> Submittal shall consist of an outline of applicable provisions of building codes, Regional and State Water Quality Control Board, Fire Department, and other codes. The outline shall include a written report and diagrammatic drawings which delineate the design criteria.	
<b>Facility Layout:</b> Layout showing all processes, structures, building locations, outlines, and hydraulic profile of treatment processes	
<b>Architectural Design Themes</b> – Submit for City review and approval the architectural design themes for the WRF.	
<b>Schematic Design Report:</b> Report detailing the review and analysis of each building and process component or treatment processes. Based on the Design Criteria Report, RFP requirements, and submitted proposal, with description of proposed changes, improvements, and/or additional requirements. Provide equipment cut sheets for critical equipment, and include preliminary design details for each discipline. This report shall include design flow rates and loadings, energy consumptions, chemical uses, operational and maintenance costs. Design report shall also include updated cost estimates for entire project.	
<b>Reverse Osmosis Energy Recovery</b> – Submit a desktop analysis for the optimum use of energy recovery devices for the reverse osmosis system. Include a cost benefit analysis evaluation for independent 3 <sup>rd</sup> stage, energy recover devices, and pretreatment chemical addition alternatives	

<b>Reverse Osmosis Acid Addition</b> – Submit a cost-benefit analysis of increasing recovery with acid addition versus reduced recovery using scale inhibitor. City will determine preferred approach.
<b>Design Intent:</b> Updated design intent narrative based on the design intent narrative in the submitted Proposal.
<b>Civil Drawings:</b> Site Demolition Plan Site Plan showing locations of treatment facilities, buildings, structures, and access roadways and pedestrian pathways Site Access Road Plan showing road location Grading plans showing existing contours at 1-foot intervals and proposed grading concepts to a level sufficient to illustrate general site drainage and cut and fill areas. Utility Plans showing existing utilities, points-of-connections, and new site utilities
<b>Landscape Drawings:</b> Plans showing conceptual hardscape and planting areas and plant palettes
<b>Architectural Drawings:</b> Overall Facility Dimensions Structure dimensions Major interior and exterior elements Floorplan layout with room names and size Site Sections Basic Elevations
<b>Material Board:</b> - Show exterior finishing materials for architectural items
<b>Structural Drawings:</b> Conceptual structural framing and reinforcement plan
<b>Plumbing Drawings:</b> Plans showing primary risers, pump locations, and etc.
<b>HVAC Drawings:</b> Plans showing conceptual single line duct, single line pipe, equipment locations, equipment sizes
<b>Electrical Drawings:</b> Conceptual single-line diagrams and plans showing site conduit routing, MCC and equipment locations and sizes.
<b>Specification Outline:</b> Outline shall include a detailed description of all building and treatment components with an index showing all divisions and sections to be used including technical sections.

<b>Design Development 60%</b>	<b>30 Days prior to NTP for Construction</b>
<b>Code Analysis:</b> Updated analysis from schematic design	
<b>Facility Layout:</b> Updated layout from schematic design	
<b>Design Intent:</b> Updated and more detailed narrative building on the schematic design narrative	
<b>Civil Drawings:</b> Site Demolition Plan Site Plan showing dimensions of site features Site Access Road Plan showing road location and geometrics Grading plans showing general drainage, benchmarks, elevations for structures and exterior elements, and existing and proposed contours. Utility Plans updated with utilities showing plan and profiles along alignments and utility corridors, ductbanks, all equipment and structures Trench design and protection Miscellaneous Civil Details	
<b>Landscape Drawings:</b> Plans showing locations of plant types and trees	
<b>Material board:</b> Show all exterior, interior, coatings, color pallets, and glazing materials for architectural items	

<p><b>Architectural Drawings:</b>  Updated Floorplans with corridors, door swings, fire ratings, exits, fire doors, plumbing fixtures, built-in features, movable furniture, sections and elevations.  Architectural schedules for doors, glazing, finishes  Large scale drawings of all buildings, structures and process areas</p>
<p><b>Structural Drawings:</b> Structural plans showing structural elements (e.g. framing member sizes, reinforcement details, etc.) and details scaled per architectural drawings</p>
<p><b>Plumbing Drawings:</b> Show all piping (including alignments and sizes), fixtures and equipment requiring plumbing, waste lines, vents, air, gas, water, fire water system</p>
<p><b>HVAC Drawings:</b> Floor plans with equipment, main duct systems, air balances, large scale equipment room drawings and equipment schedules</p>
<p><b>Electrical Drawings:</b>  Updated plans from schematic design documents to include MCC layouts with loads, lighting layouts, preliminary arc flash and trip study, conduit schedule, conduit routing, equipment locations and sizes.  Typical light fixture cut sheets  Large scale electrical room drawings  Individual MCC detailed single lines</p>
<p><b>Controls:</b>  PLC and SCADA layouts and block diagrams  Equipment and instrument locations  Input/output points  P&amp;ID's</p>
<p><b>Specification:</b> Complete Technical Specifications per the updated outline. Specification must include construction guidelines, sequencing, construction materials, equipment specifications, submittal requirements, and test requirements.</p>

Construction Documents 90%	30 Days prior
<b>Code Analysis:</b> Updated analysis from Design Development	
<b>Facility Layout:</b> Updated layout from Design Development	
<b>Design Intent:</b> Finalized details for entire facility and buildings	
<p><b>Civil Drawings:</b></p> <p>Finalized plans from the Design Development Phase  Site Survey and Control Plan  Final Utilities Plan that:</p> <ul style="list-style-type: none"> <li>• Are coordinated with Architectural, Mechanical, Plumbing, Electrical, etc.;</li> <li>• Show manholes, valves, valve boxes, cleanouts, lift stations, process structures, etc.;</li> <li>• Include fully designed process piping horizontal and vertical locations and sizes; and</li> <li>• Show location, size, and elevations of all utilities.</li> </ul>	
<p><b>Landscape Drawings:</b>  Hardscape (paving, walls, walks, planters) plan, irrigation plan, planting plan, irrigation details, planting details</p>	
<b>Material Board:</b> Show all finalized exterior, interior, coatings, color pallets, and glazing materials for architectural items	
<p><b>Architectural Drawings:</b>  Reflected Ceiling plans, details</p>	

**Structural Drawings:**

Plans that indicate the location, type of member, size, and material of each structural element for foundations, floors, roofs, and any intermediate levels. List assumed safe bearing pressures on soils and ultimate strengths of concrete.

Schedules (beam, column, and slab)

Details of all connections, assemblies, expansion joints, and similar items

Structural framing systems for piping, nonstructural elements and fixed equipment

**Plumbing Drawings:**

Floor plans showing complete process and domestic plumbing systems with the following information:

- Location sizes, elevations of water, firewater, sewers, drains, waste, waste vents, and process piping with risers and connections to equipment, drains, and fixtures.
- Locations of meters, valves, cleanouts, etc.
- Fire-extinguishing equipment such as sprinklers and standpipes.
- Location and sizes of natural gas, compressed air, process air piping.
- Single line process diagram for all process piping
- Equipment Schedules

**HVAC Drawings:**

Mechanical floorplans showing complete HVAC systems including

- Air Conditioning systems including refrigerators, water and refrigerant piping, and duct work
- Odor Control and Exhaust ventilation systems showing duct sizes, duct locations, condensate, equipment connections and discharge locations
- Detailed floor plans and sections for all mechanical rooms and equipment
- Air balance schedule indicating the CFM of outside air, supply air, return air, odor control air, and exhaust for all air systems
- Elevations of mechanical equipment to ensure airflows and access to component parts
- Equipment mounting details
- Isometric diagrams of HVAC water systems
- Sequence of operations diagram
- Equipment Schedules

**Electrical Drawings:**

- Transformers and connections
- Feeder and conduit sizes
- Light fixtures, receptacles, switches, and power outlets
- Telephone outlets, conduits, terminal cabinets, and backboards
- Complete fire alarm system including inter connections to SCADA
- Equipment local control panels
- Emergency electrical power system including generator, transfer switches, fuel tanks, and all auxiliaries
- Electrical Details including all mounting details
- Equipment Schedules

**Instrumentation and Controls Drawings:**

- Instrumentation Remote I/O cabinet details
- Controls Details
- Equipment Schedules

<p><b>Technical Specifications:</b> Updated Specifications based on the specifications submitted as part of the Design Development work submittal.</p>
<p><b>Final Design Calculations</b> Developer shall clearly list all design criteria, assumptions, and references used for process, structural, mechanical, and electrical calculations. Calculations shall be arranged in a clear manner and shall include schematic diagrams and spreadsheets where necessary together with information sufficient to show compliance with applicable Law and the Contract Documents. Calculations shall be checked and stamped by Licensed Professional in applicable disciplines. Calculations shall be submitted for:</p> <ul style="list-style-type: none"> <li>• Structural shall include basis for structural design, unusual conditions, and diagrams</li> <li>• Mechanical shall include HVAC loads, equipment sizing and selection data, duct/pipe/pump sizing selection data and all seismic/structural calculations</li> <li>• Plumbing shall include piping/pump/equipment sizing and selection data, and seismic/structural calculations</li> <li>• Electrical shall include transformer loads and calculations, fault interrupt calculations, lighting calculations, equipment seismic/structural calculations</li> <li>• Process calculations shall be performed with the use of an acceptable wastewater treatment computer modeling software program (i.e., BioWin). All system inputs and outputs must be submitted.</li> </ul>

<b>Post Design Submittals</b>	
<b>Building Permit Drawing Set</b>	As required to meet the construction starting schedule date as defined by Design-Builder. Design-Builder is directed to anticipate and allow for sufficient review, revision and resubmission for building permit approvals.
<b>Misc. Permit Submittal Requirements</b>	All necessary documents necessary to complete design or construction of the project (i.e. Traffic Control, SWPPP)
Pre-Construction site condition record video	10 days prior to start of construction on the WRF
Equipment and Materials	Prior to release for production
Building Furnishings	Prior to release for production
Shop Drawings and Finish Materials	With sufficient time for City review and approval prior to order release
Daily Record of Construction activities	Following Business day 12:00 p.m.
Construction Photos	Monthly within 3 days of pay application
Existing WWTP Shutdown and Decommissioning Plan	Must be submitted 60 days prior to Decommissioning
As-Built Drawings	Prior to Final Completion and Payment
Structural Engineer Observation Certification	Prior to Certificate of Occupancy
Air Balance Report (Air Side Report)	Prior to Final Acceptance
Hazardous and/or Toxic Abatement and Demolition Plan	Prior to Demolition of existing WWTP
Operation and Maintenance Manuals	60 Days prior to Facility Testing
Traffic Control Plans	As required by Agencies

Training Plan	3 months prior to equipment testing
Facility Testing Plan	Minimum 3 months prior to Facility Testing
Facility Verification Plan	Minimum 3 months prior to Facility Testing
UV Validation Test results	30 Days after validation testing
Miscellaneous Certificates of testing and inspection	7 days after testing unless otherwise specified
Facility Test Reports	30 days after Testing
Certificate of Final Completion	After all work and punch list items are completed





**City of Morro Bay  
Request for Proposals  
for**

**DESIGN-BUILD SERVICES of the  
WATER RECLAMATION FACILITY (WRF)  
ONSITE IMPROVEMENTS**

**Attachment C:  
Price Proposal and Life-Cycle Cost Instructions**

**January 2018**

**Rob Livick, PE/PLS  
Public Works Director/City Engineer  
955 Shasta Avenue  
Morro Bay, California 93442**



Proposer's Name: \_\_\_\_\_

Price Proposal Form for  
Design-Build Services of the  
City of Morro Bay  
WATER RECLAMATION FACILITY (WRF) ONSITE IMPROVEMENTS

TO THE PUBLIC WORKS DIRECTOR

COST PROPOSAL

Having carefully examined the Request for Proposal, attachments and related documents the undersigned proposes and agrees to provide to the City of Morro Bay, in accordance with the Performance Criteria Report annexed hereto and made a part thereof, the following materials and labor not to exceed the following guaranteed maximum price at the rates attached hereto (attach all parts and labor rate list):

**BASE BID AMOUNT**

Item	Qty	Description	GMP Total Cost
1	Lump Sum	Design-Build of onsite improvements at the Water Reclamation Facility	\$
2	Lump Sum	Allowance for Unanticipated EIR Mitigation Measures*	\$1,000,000

\*This is an allowance for all unanticipated work associated with EIR Mitigation Measure implementation. It has been determined to be \$1,000,000.

TOTAL COST PLUS WITH GUARANTEED NOT TO EXCEED OF BASE AMOUNT:

\$ \_\_\_\_\_

**ADD ALTERNATE:**

Item	Qty	Description	GMP Total Cost
3	Lump Sum	Demolition of existing WWTP per Section 11 of "Attachment A" to the Request for Proposals	\$

TOTAL COST PLUS WITH GUARANTEED NOT TO EXCEED OF BASE PLUS ADD ALTERNATE AMOUNT:

\$ \_\_\_\_\_

The price proposals set forth herein shall include any and all applicable taxes. The City reserves the right to reject any and all proposals. The City may make a single award for either the base cost proposal with or without the add alternate. To be considered complete the cost proposal must include the tables on pages 1 through 4 of this of this document. Provide additional pages as required to submit a complete cost proposal.



Proposer's Name: \_\_\_\_\_

Cost Plus Proposal Table

DESCRIPTION OF ITEM	TOTAL COST
Design and Preconstruction Activities	
Project Management and City Coordination	
<b>TREATMENT PROCESS AREAS</b>	
Influent (Coarse) Screening	
Grit Removal	
Flow Equalization	
Fine Screens	
Membrane Bioreactor	
Aerobic Sludge Digester	
Sludge Dewatering	
Reverse Osmosis	
Ultraviolet Advanced Oxidation Process	
Chemical Storage and Feed Facilities	
Odor Control	
Effluent Pump Station	
Recycled Water Pump Station	
Recycled Water Storage Tank	
On-site Reclaimed Water system	
General Structural and Foundations	
General Mechanical	
Other (list)	
<b>Subtotal</b>	
<b>ARCHITECTURAL AND LANDSCAPING</b>	
Buildings, including Operations Building, Administration Building, all equipment, furnishings, finishes, and other non-process buildings	
General Mechanical/HVAC	
General Structural and Foundations	
Landscaping and Irrigation	
Decorative fences and gates	
Other	
<b>Subtotal</b>	
<b>GENERAL SITE AND CIVIL</b>	
Site Work including earthwork and grading	
Site access road	
Offsite water line connection and extension	
Fire protection	
Construction dust control, SWPPP development, and compliance	
Dewatering of excavations during construction	

Post-construction stormwater controls including detention facilities	
Miscellaneous yard piping	
Other (list)	
<b>Subtotal</b>	
<b>ELECTRICAL, INSTRUMENTATION, AND CONTROLS</b>	
Utility Electrical Service	
Data Service	
Planning and provisions for alternative solar power (by others)	
General Electrical including lighting and alarms	
Electrical System Studies	
Electrical Testing	
General instrumentation and controls including SCADA and Security	
Emergency Generator	
Other (list)	
<b>Subtotal</b>	
<b>STARTUP, TESTING, COMMISSIONING, AND DEMOBILIZATION</b>	
Startup	
Testing and commissioning	
Training	
Support during performance testing	
Demobilization	
<b>Subtotal</b>	
<b>GENERAL</b>	
Miscellaneous work items and other prices not included in the previous items as required to complete the Work (list)	
Unanticipated EIR Mitigation Measures	\$1,000,000
<b>FEE ( ___% of Cost)</b>	
<b>Base Guaranteed Maximum Price</b>	

<b>ADD ALTERNATIVE</b>	
Demolition of WWTP per Section 11 of "Attachment A" to the Request for Proposals	
<b>Base with add alternative Guaranteed Maximum Price</b>	

Proposer's Name: \_\_\_\_\_

Life-Cycle Cost Analysis

The Offeror shall provide a present worth life cycle cost for the proposed project. The purpose of the Life-Cycle Cost Analysis (LCCA) is to provide a standardized basis to compare overall costs of proposed project alternatives. The LCCA shall be based on a 30-year life assuming an average flow rate 0.97 MGD, electrical power costs of \$0.12/kwh, natural gas costs of \$0.10/therm, and an annual inflation rate of 2%. The LCCA shall include initial cost, energy costs, operation (not including operator time), maintenance (not including operator time), repair costs, replacement costs, and chemical costs. The LCCA shall include the replacement frequencies, replacement cost, and escalation cost for consumables (i.e. Membranes, odor control media...). The table below is intended to provide a template for the Offeror to develop the LCCA.

Equipment/ System	Initial Cost	Replacement	Energy Cost			Chemical Cost			Operation & Maintenance & Repair Cost	Total
			Type	Qty	Cost/ Qty	Type	Qty	Cost/ Qty		
Project 30-year Life-Cycle Total Present Value =										

The Offeror shall also prepare a detailed table of operator manhours required to perform all typical staff operations activities at the WRF, including a breakdown of maintenance, operation, and repair hours per activity for a typical week, month, year, and over the 30-year LCCA period. This should include routine activities as well as those that are less frequent (such as membrane clean-in-place cycles, reverse osmosis clean-in-place cycles, diffuser replacement, pump seal replacement, for example). Include frequency and costs for replacement items such as but not limited to MBR membranes, RO membranes, and fine bubble diffusers. Include any cost escalation factors used in calculations.

In addition to the life-cycle costs above the Offeror shall prepare a 5-year total energy cost, 5-year maintenance cost, and 5-year replacement cost for the entire project based on startup flows and loads for the WRF, assuming 1% annual flow and load increases.

Description	Manhours	Consumables/Energy	Totals
5-Year Energy Cost			
5-Year Maintenance Cost			
5-Year Replacement Cost			





**City of Morro Bay**  
**Request for Proposals**  
**for**  
**DESIGN-BUILD SERVICES of the**  
**WATER RECLAMATION FACILITY (WRF)**  
**ONSITE IMPROVEMENTS**

**Attachment D:**  
**Question Form**

**January 2018**

**Rob Livick, PE/PLS**  
**Public Works Director/City Engineer**  
**955 Shasta Avenue**  
**Morro Bay, California 93442**





DEPARTMENT OF PUBLIC WORKS

<p>Bid Questions For:</p> <p><b>City of Morro Bay Design-Build Services of Onsite Improvements at the Water Reclamation Facility</b></p> <p>Attention: <b>Rob Livick, PE/PLS</b></p> <p>EMAIL: <b>rlivick@morrobayca.gov</b></p>	<p>(FOR CITY OF MORRO BAY USE ONLY)</p> <p>QUESTION NO: _____</p> <p>DATE: _____ REVIEWED BY: _____</p> <p>RESPONSIBLE FOR RESPONSE:</p> <p><input type="radio"/> CITY STAFF</p> <p><input type="radio"/> CONSULTANT</p>
<p>From: _____</p> <p>Company: _____</p> <p>Contact Person: _____</p>	<p>Date: _____</p> <p>Phone No: _____</p> <p>EMAIL: _____</p>
<p>Question (One question per sheet): _____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>Answer: _____</p> <p>_____</p> <p>_____</p>	
<p>Response by: _____ Date: _____</p> <p>Included in Addendum No. _____ Date: _____</p>	





**City of Morro Bay  
Request for Proposals  
for**

**DESIGN-BUILD SERVICES of the  
WATER RECLAMATION FACILITY (WRF)  
ONSITE IMPROVEMENTS**

**Attachment E:  
Sample Proposal Forms**

**January 2018**

**Rob Livick, PE/PLS  
Public Works Director/City Engineer  
955 Shasta Avenue  
Morro Bay, California 93442**



PROPOSAL FORM 1

INFLUENT (COARSE) SCREENING  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Influent (Coarse) Screening System. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to manufacturers and models, screen size, dewatering/conveyance type system and layout, construction materials, number of units and capacities per unit, and control features.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for Influent (Coarse) Screening are provided in Section 2.2 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Influent (Coarse) Screening design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 2

GRIT REMOVAL  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Grit Removal systems. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to manufacturers and models, construction materials, number of units and capacities per unit, and control features. The DBE should provide information specific to its proposed design to provide the required minimum performance.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for Grit Removal are provided in Section 2.3 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Grit Removal design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 3

FLOW EQUALIZATION BASIN  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Flow Equalization Basin. Include system descriptions, operations descriptions, and specific information for the equipment proposed. The DBE should provide information specific to its proposed design to accommodate peak flow conditions, including a flow analysis with proposed design flows and configuration for the Flow Equalization Basin. The DBE should provide information regarding the materials of construction, pumps (including number, type, and capacities), mixing system type, equipment manufacturers, odor control provisions, and operational flexibility.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; and capacities. The design criteria for Flow Equalization Basin are provided in Section 2.4 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Flow Equalization Basin designs. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 4

FINE SCREENING  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Fine Screening systems. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to manufacturers and models, construction materials, screen size, number of units and capacities per unit, and control features.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for Fine Screening are provided in Section 2.5 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Fine Screening design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 5

MEMBRANE BIOREACTOR  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Membrane Bioreactor (MBR) system. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to system configuration, manufacturers and models for main pieces of equipment, construction materials, DDW approval for pathogen reduction, design flows, number of units and capacities per unit, design return and waste rates, water quality performance, ancillary equipment, and control features.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for the MBR are provided in Section 2.6 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed MBR design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

Proposed Alternative Treatment Concepts to the MBR system shall provide references for a minimum of three successful full-scale facilities operating in California.

System Description

Operations Description

PROPOSAL FORM 6

AEROBIC SLUDGE DIGESTER  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Aerobic Sludge Digester system. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to materials of construction, volume, aeration system manufacturers and models, and design flow. The DBE should provide information specific to its proposed design to accommodate potential future odor control.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for the Aerobic Sludge Digester are provided in Section 2.7 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Aerobic Sludge Digester design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 7

SLUDGE DEWATERING  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Sludge Dewatering system. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to equipment manufacturers and models, chemicals required including quantity per day/year; number of units and capacity per unit, operating schedule, solids loading rate, and equipment performance.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for the Sludge Dewatering are provided in Section 2.8 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Sludge Dewatering design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 8

REVERSE OSMOSIS  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Reverse Osmosis system. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to system configuration, manufacturers and models for main pieces of equipment, construction materials, design flows, number of skids and capacities per skid (including number of membrane elements per skid), design flux and recovery, frequency and type of cleaning operations including time required for cleaning, chemicals required for cleaning and operation, water quality performance, ancillary equipment, and control features.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for the Reverse Osmosis System are provided in Section 2.9 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Reverse Osmosis System design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 9

ULTRAVIOLET ADVANCED OXIDATION PROCESS  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Ultraviolet Advanced Oxidation Process (UVAOP) system. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to system configuration, manufacturers and models for main pieces of equipment, construction materials, design flows, number of units and capacities per unit, oxidant type and dosages, water quality performance, ancillary equipment, and control features.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for the UVAOP are provided in Section 2.10 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed UVAOP design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 10

CHEMICAL STORAGE AND FEED FACILITIES  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Chemical Storage and Feed Facilities. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to number, type, and materials for storage tank(s); storage area size; feed pump types, models, manufacturers, capacities, and appurtenances; piping materials; and alarms and controls.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; and capacities. The design criteria for Chemical Storage and Feed Facilities are provided in Section 2.11 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Chemical Storage and Feed Facilities design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 11

ODOR CONTROL SYSTEM  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Odor Control System. Include system descriptions, operations descriptions, and specific information for the equipment proposed. The DBE should provide information specific to its proposed design, including but not limited to odorous air treatment type, treatment performance, required chemicals, energy usage, odorous air collection systems and performance.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; manufacturers; and capacities. The design criteria for the Odor Control System are provided in Section 2.12 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Odor Control System design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 12

EFFLUENT PUMP STATION  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Effluent Pump Station. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to pump station capacity, configuration, number of pumps and redundancy, pump manufacturers and materials; and controls.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; and capacities. The design criteria for Effluent Pump Station are provided in Section 2.13 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Effluent Pump Station designs. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 13

RECYCLED WATER STORAGE TANK AND PUMP STATION  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the Recycled Water Storage Tank and Pump Station. Include system descriptions, operations descriptions, and specific information for the equipment proposed. The DBE should provide information specific to its proposed design, including but not limited to tank volume, materials of construction, and design standards; pump station capacity, configuration, number of pumps and redundancy, pump manufacturers, and materials; and controls.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; and capacities. The design criteria for Recycled Water Storage Tank and Pump Station are provided in Sections 2.14 and 2.15 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed Recycled Water Storage Tank and Pump Station designs. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description

PROPOSAL FORM 14

ON-SITE RECLAIMED WATER SYSTEM  
(DESIGN CRITERIA PER SECTION 2 OF THE PCR)

Provide a description of the On-Site Reclaimed Water System. Include system descriptions, operations descriptions, and specific information for the equipment proposed, including but not limited to pump station capacity, configuration, number of pumps and redundancy, pump manufacturers and materials; on-site reclaimed water distribution system design; location of hose bibs; storage design; and controls.

The Performance Criteria Report provides all pertinent design information including, but not limited to: design criteria; mechanical, electrical and I&C requirements; and capacities. The design criteria for On-Site Reclaimed Water System are provided in Section 2.16 of the PCR. The DBE shall review the PCR and provide a statement confirming the requirement of the PCR as being consistent with the design approach utilized for the development of its proposed On-Site Reclaimed Water System design. Should the DBE's proposed design utilize criteria which varies from that identified in the PCR, the Proposer shall describe the variation and provide justification herein.

System Description

Operations Description