



C o u n t y o f S a n L u i s O b i s p o

## GENERAL SERVICES AGENCY

Janette D. Pell, Director

Helen McCann, Department Administrator

### **REQUEST FOR PROPOSAL PS- #1084 Capacity Assessment of the State Water Project Coastal Branch**

April 23, 2010

The San Luis Obispo County Flood Control and Water Conservation District (District) is currently soliciting proposals for professional services to complete a comprehensive capacity assessment and report for the Coastal Branch of the State Water Project (SWP).

Each proposal shall specify each and every item as set forth in the attached specifications. Any and all exceptions must be clearly stated in the proposal. Failure to set forth any item in the specifications without taking exception, may be grounds for rejection. The District reserves the right to reject all proposals and to waive any informalities.

If your firm is interested and qualified, please submit four [4] copies of your proposal by 3:00 p.m. on May 19, 2010 to:

County of San Luis Obispo  
Debbie Belt, GSA - Purchasing  
1087 Santa Rosa Street  
San Luis Obispo, CA 93408

If you have any questions about the proposal process, please contact me. For technical questions and information contact the District Project Manager, Courtney Howard, at (805) 781-1016 or via email at [choward@co.slo.ca.us](mailto:choward@co.slo.ca.us).

DEBBIE BELT  
Buyer – GSA - Purchasing  
[dbelt@co.slo.ca.us](mailto:dbelt@co.slo.ca.us)

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**TO:            ALL PROSPECTIVE PROPOSERS**  
**SUBJECT:    LOCAL PROPOSERS PREFERENCE**

The County of San Luis Obispo has established a local vendor preference. All informal and formal Request for Proposals for contracts will be evaluated with a preference for local vendors. Note the following exceptions:

1.     Those contracts which State Law or, other law or regulation precludes this local preference.
2.     Public works construction projects.

A "local" vendor will be approved as such when, 1) It conducts business in an office with a physical location within the County of San Luis Obispo; 2) It holds a valid business license issued by the County or a city within the County; and 3) Business has been conducted in such a manner for not less than six (6) months prior to being able to receive the preference.

As of March 3, 1994 individual County Buyers evaluate RFP's (Request For Proposals) considering the local vendor preference described above. The burden of proof will lie with proposers relative to verification of "local" vendor preference. Should any questions arise, please contact a buyer at (805) 781-5200. All prospective proposers are encouraged to quote the lowest prices at which you can furnish the items or services listed in District proposals.

	YES	NO
Do you claim local vendor preference?		
Do you conduct business in an office with a physical location within the County of San Luis Obispo?		
Business Address: _____ _____		
Years at this Address: _____		
Does your business hold a valid business license issued by the County or a City within the County?		
Name of Local Agency which issued license: _____		

Business Name: \_\_\_\_\_

Authorized Individual: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Dated: \_\_\_\_\_

**PROPOSAL SUBMITTAL AND SELECTION**

1. All proposals, consisting of four (4) copies, must be received by mail, recognized carrier, or hand delivered no later than 3:00 p.m. on May 19, 2010. Late proposals will not be considered.
2. All correspondence should be directed to:

San Luis Obispo County  
General Services Agency  
1087 Santa Rosa Street  
San Luis Obispo, CA 93408  
ATTENTION: DEBBIE BELT  
Telephone: (805) 781-5903
3. Costs of preparation of proposals will be borne by the proposer.
4. It is preferred that all proposals be submitted on recycled paper, printed on two sides.
5. Selection of qualified proposers will be by an approved District procedure for awarding professional contracts.
6. This request does not constitute an offer of employment or to contract for services.
7. The District reserves the option to reject any or all proposals, wholly or in part, received by reason of this request.
8. The District reserves the option to retain all proposals, whether selected or rejected. Once submitted, the proposals and any supplemental documents become the property of the District.
9. All proposals shall remain firm for ninety, (90) days following closing date for receipt of proposals.
10. The District reserves the right to award the contract to the firm who presents the proposal which in the judgment of the District, best accomplishes the desired results, and shall include, but not be limited to a consideration of the professional service fee.
11. Selection will be made on the basis of the proposals as submitted. The Selection Committee may deem it necessary to interview applicants. The District retains the right to interview applicants as part of the selection process.
12. The proceedings of the Selection Committee are confidential. Members of the Selection Committee are not to be contacted by the proposers.

## **PROPOSAL FORMAT**

A qualifying proposal must address all of the following points:

1. Project Title
2. Applicant or Firm Name
3. Firm Qualifications – 50% of Total Score
  - a. Names and qualifications of personnel to be assigned to this project. Each firm will be evaluated on the experience and education of the key personnel that will be assigned to the Project. (20%)
  - b. Outline of recent projects completed that are directly related to this project. Consultant is required to demonstrate specific design and project expertise relating to hydraulic modeling, flow capacity analysis, reporting and the requirements of the Project Scope of Work. Knowledge of the State Water Project is also preferred. (20%)
  - c. Qualifications and purpose of subcontractors, or joint venture firm, if appropriate. (5%)
  - d. Client references from recent related projects, including name, address and phone number of individual to contact for referral. (5%)
4. Understanding of the Project – 25% of Total Score
  - a. Understanding of the objectives of the District and Central Coast Water Authority in conducting this work effort and what needs to be accomplished to meet those objectives. (20%)
  - b. Description of information to be provided by the District, Central Coast Water Authority, or other local or state agencies. Indication of additional research/information gathering required and participation/role of District, Central Coast Water Authority and other applicable agencies required. (5%)
5. Approach to the Project – 25% of Total Score
  - a. Describe how the project team will approach accomplishing all aspects of the Project Scope of Work. (10%)
  - b. Description of the organization and staffing to be used for the project. (10%)
  - c. Provide a task completion schedule, estimating the anticipated time frame necessary to complete the Capacity Assessment and Report once a Notice to Proceed is issued. (5%)

6. Fees and Insurance

- a. Propose total fixed fees to complete project as described under the Project Scope of Work. Provide a cost proposal containing estimated person-hours and respective billing rates plus other direct costs, structured similarly to the Project Scope of Work and task completion schedule so they may be integrated as exhibits to an agreement. Distinguish costs related to Reach 1 through 6 efforts and costs related to Chorro Valley and Lopez Pipeline efforts as practicable.
- b. The selected Consultant shall negotiate with the District to execute an Agreement for Engineering Consulting Services. The District's standard Agreement form is attached as Attachment A.
- c. The selected Consultant will be required to provide insurance coverage as shown in Sections 7 and 10 of the attached consultant agreement. This amount of insurance coverage shall be reflected in your estimated professional fee.
- d. The Consultant shall provide within five (5) days after the Notice of Award is issued an endorsement of their liability insurance naming the District, San Luis Obispo County, Central Coast Water Authority, California Department of Water Resources, California Men's Colony, City of Morro Bay, and each of their directors, officers, employees and authorized volunteers as additionally named insured. This shall be maintained in full force and effect for the duration of the contract and must be in an amount and format satisfactory to the District.
- e. The selected Consultant will need to indemnify the District, San Luis Obispo County, Central Coast Water Authority, California Department of Water Resources, California Men's Colony, City of Morro Bay and each of their directors, officers, employees and authorized volunteers as included in Section 8 and 10 of the attached consultant agreement.

7. Background

The San Luis Obispo County Flood Control and Water Conservation District (District), in coordination with the Central Coast Water Authority (CCWA), is soliciting RFPs for professional services to complete a comprehensive capacity assessment and report for Reaches 1 through 6 of the Coastal Branch of the State Water Project (SWP), and the District's Chorro Valley and Lopez Pipelines.

The Coastal Branch of the SWP serves two SWP Contractors: the Santa Barbara Flood Control and Water Conservation District (via CCWA, a Joint Powers Authority) and the District. Demands for water within the two agencies' service areas, and the reliability of the SWP itself, has reached a point where optimization of the capacity of Reaches 1 through 6 of the Coastal Branch, including the Chorro Valley Pipeline and Lopez Pipeline, has become necessary. First, however, the agencies must understand the capacity of the Coastal Branch.

As a consequence of materials sizing, and other hydraulic factors, it is believed that the capacity of the Coastal Branch may be different from its design capacity. CCWA previously led efforts to quantify the capacity of a majority of the Coastal Branch utilizing a pipeline modeling system with results that supported this belief. This assessment seeks to verify the previous modeling information through additional analysis and potentially development of additional information, and to evaluate the capacity of the Chorro Valley and Lopez pipelines as well.

### System Description

The State Water Project encompasses a complex of reservoirs, pumping plants, power plants, canals, and tunnels that are owned and operated by the Department of Water Resources (DWR). This system transports water from the Sacramento-San Joaquin Delta to serve water to contractors in the San Francisco Bay area, the San Joaquin Valley, and Southern California.

As part of the original construction of the State Water Project, DWR constructed Phase I of the Coastal Branch. This portion of the system branches off from the main California Aqueduct in the southwestern corner of Kings County near Interstate 5. The Coastal Branch Phase I is a 15-mile canal that ends near Devils Den in northwestern Kern County.

Phase II of the Coastal Branch pipeline was constructed by DWR between 1995 and 1997 and was designed to supply State Water to the Counties of San Luis Obispo and Santa Barbara. The Phase II Coastal Branch pipeline extends from the terminus of the Phase I Coastal Branch canal to the Tank 5 facility in northern Santa Barbara County. The pipeline's largest diameter is 57 inches between the Devils Den Pumping Plant and Tank 1 and its smallest diameter is 42 inches along the southerly-most 48 miles.

Phase II of the Coastal Branch initially conveys water from the Phase I Coastal Branch canal to the Polonio Pass Water Treatment Plant. This section of pipeline is known as Reach 1 and it includes three pumping plants that are each designed to produce a maximum flow rate of 134 cubic feet per second and a total dynamic head of 555 feet

The Polonio Pass Water Treatment Plant, which is owned and operated by CCWA, receives raw water from Reach 1. Following treatment, the water is discharged to Tank 1, which constitutes the end of Reach 1. From Tank 1, water is discharged to Reaches 2 through 6 of the pipeline to convey treated water to both San Luis Obispo and Santa Barbara Counties. Flow through Reaches 2 through 6 is accomplished by gravity flow only. This section of the pipeline is owned by DWR, however, CCWA operates and maintains it pursuant to an operations and maintenance contract with DWR.

The terminus of the Phase II Coastal Branch is at the Tank 5 facility in northern Santa Barbara County. However, CCWA owns and operates a pipeline to deliver water from Tank 5 to the Lake Cachuma. Water is conveyed through this pipeline by gravity flow to the Santa Ynez Valley. At that point, the water is pumped to Lake Cachuma by the Santa Ynez Pumping Plant, which is owned and operated by CCWA.

Attachments B through E provide summary information on Phase II Coastal Branch pipeline, including design flow capacity, pipe diameters, pipe segment lengths, hydraulic grades, pipeline elevations, etc.

The District owns and operates the pipelines to convey State Water to users within the District via two turn-outs in San Luis Obispo County – Chorro Valley and Lopez. Attachments F and G include maps of these pipelines.

8. Purpose of the Capacity Assessment and Report

The main purpose of the Capacity Assessment and Report is to provide CCWA and the District (the Agencies) with a common understanding of the capacity of the Coastal Branch, including the Chorro Valley and Lopez pipelines, based upon established operational criteria. It is also important to have a common understanding of any facility limitations and what would be required to improve flow capacity. This common understanding will facilitate negotiations regarding the use of any capacity in excess of the design capacity upon which current service contracts are based. This project will consolidate, peer-review, and update as needed, the capacity assessment-related efforts of the individual agencies, and develop new information in order to determine the capacity of the Coastal Branch.

9. Scope of Work

The District and CCWA requires engineering services to evaluate the flow capacity of Reach 1 and Reaches 2 through 6 of Phase II, including the Chorro Valley and Lopez Pipelines, of the Coastal Branch. Capacity analysis of the Treatment Plant is specifically excluded from the Project's Scope of Work. The selected Consultant will work with both the District and CCWA in a collaborative manner. The Project Scope of Work is described below.

Task 1.0: Gather and Assess Existing Information

1.1 Reaches 1 through 6

This includes flow data, existing analyses and reports, historical operations and improvements. Perform a peer review of existing analyses as needed to determine their validity in assessing the capacity of the Coastal Branch. Interview staff of Agencies as needed.

Be advised that CCWA operates Reaches 2 through 6 of the pipeline and utilizes a Supervisory Control and Data Acquisition System. All operating data is archived and will be made available for use for this project.

1.2 Chorro Valley and Lopez Pipelines

This includes flow data, existing analyses and reports, historical operations and improvements. Perform a peer review of existing analyses as needed to determine their validity in assessing the capacity of the Chorro Valley and Lopez Pipelines. Interview staff of Agencies as needed.

Be advised that the District operates the Chorro Valley and Lopez Pipelines. All operating data is archived and will be made available for use for this project.

#### Task 2.0: Establish Operational Criteria

##### 2.1 Reaches 1 through 6

Work with the District and CCWA, and any additional agencies necessary (i.e. DWR), to establish and document the operational criteria upon which the capacity assessment will be based. These criteria shall relate to peak and off-peak energy-rate pumping, seasonal water delivery peaking, stand-by equipment, time of operation, water treatment plant expansion, factors of safety, operational velocities and head losses, facility deterioration over time and other management considerations. It shall also be necessary to assess capacity under several scenarios using different sets of water delivery schedules.

##### 2.2 Chorro Valley and Lopez Pipelines

Work with the District and any additional agencies necessary to establish and document the operational criteria upon which the capacity assessment for the Chorro Valley Pipeline will be based. These criteria shall relate to peak and off-peak energy-rate pumping, seasonal water delivery peaking, stand-by equipment, time of operation, water treatment plant expansion, factors of safety, operational velocities and head losses, facility deterioration over time and other management considerations. It shall also be necessary to assess capacity under several scenarios using different sets of water delivery schedules.

The hydraulic assessment for the Lopez Pipeline is being conducted by others, and will be made available for review, evaluation and incorporation into this assessment.

#### Task 3.0: Hydraulic Assessment

##### 3.1 Reaches 1 through 6

Utilize applicable data and operational criteria to conduct a hydraulic assessment of each segment of the Coastal Branch, including flow capacities and any improvements necessary for restoring or improving flow capacity, in order to complete an overall Capacity Assessment and Report.

##### 3.2 Chorro Valley and Lopez Pipelines

Utilize applicable data and operational criteria to conduct a hydraulic assessment of the Chorro Valley Pipeline, by conducting flow tests as needed and including flow capacities and any improvements necessary for restoring or improving flow capacity, in order to complete an overall Capacity Assessment and Report.

The hydraulic assessment for the Lopez Pipeline is being conducted by others, and will be made available for review, evaluation and incorporation into this assessment.

#### Task 4.0      Meetings

Proposals shall include an estimate of the number of meetings anticipated to be required to complete the Scope of Work. Distinguish meetings related to Reaches 1 through 6 efforts and meetings related to Chorro Valley and Lopez Pipeline efforts as practicable. It is anticipated that there will be a number of coordination meetings associated with the project. These meetings shall include, but are not limited to, the following:

- 1) Progress Reports/Updates: Provide regular updates to the Agencies via meetings in person, conference calls and/or emails as necessary with associated agendas/minutes/action items.
- 2) Coordination with other agency consultants who have conducted capacity analyses on specific segments.
- 3) Present the Public Draft of the report to agencies within the District and members of CCWA that receive State Water.

#### Task 5.0      Report

Provide interim Technical Memorandums to ensure the approach to completing the Capacity Assessment is understood by the Agencies and consultant. Distinguish reporting related to Reaches 1 through 6 efforts and reporting related to Chorro Valley and Lopez Pipeline efforts as practicable. Provide an Administrative Draft for review by the Agencies prior to submitting a Public Review Draft. Obtain and address comments/recommendations from agencies within the District and members of CCWA that receive State Water in order to provide a Final Report.

#### 10.      Accomplishment Schedule

RFPs shall include a schedule and a discussion of the tasks/timeframes necessary to complete the project.

#### 11.      Agency-Furnished Information

Information provided by the Agencies during the course of the project may include, but not be limited to, the following:

- o Operational Data
- o Capacity Studies
- o Facility Plans
- o Models
- o As-Built Plans

**ATTACHMENTS**

- Attachment A:      Template Agreement for Engineering Consulting Services
- Attachment B:      Diagram of Coastal Branch
- Attachment C:      Hydraulic Grade Line Diagram for Reaches 1 through 6.
- Attachment D:      A Summary Table listing flow capacities along pipeline
- Attachment E:      A Flow Capacity Analysis Report, Prepared by Penfield and Smith,  
Prepared for CCWA, Dated June 2005
- Attachment F:      Chorro Valley Pipeline
- Attachment G:      Lopez Pipeline

## ATTACHMENT A

### AGREEMENT FOR ENGINEERING CONSULTING SERVICES (NON-FEDERAL FUNDING)

THIS AGREEMENT, entered into this \_\_\_ day of \_\_\_\_\_, 20\_\_\_, by and between the SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a political subdivision of the State of California, herein called "DISTRICT," and \_\_\_\_\_, a corporation whose address is \_\_\_\_\_ herein called 'ENGINEER.'

The DISTRICT department responsible for administering this AGREEMENT is the Department of Public Works, and all written communications hereunder with the DISTRICT shall be addressed to the Director of Public Works.

**WHEREAS**, the DISTRICT has need for special services and advice with respect to the work described herein; and

**WHEREAS**, ENGINEER warrants that it is specially trained, experienced, expert and competent to perform such special services;

**NOW, THEREFORE, IT IS AGREED** by the parties hereto as follows:

1.     **Scope of Work.** ENGINEER shall, at its own cost and expense, provide all the services, equipment and materials necessary to complete the work described in Exhibit A, which is attached hereto and incorporated herein by this reference. All work shall be performed to the highest professional standard.

2.     **Time for Completion of Work.** No work shall be commenced prior to ENGINEER'S receipt of the DISTRICT'S Notice to Proceed. All work shall be completed no later than \_\_\_\_\_, \_\_\_\_\_, 20\_\_\_, provided, however, that extensions of time may be granted in writing by the Director of Public Works of the District, which said extensions of time, if any, shall be granted only for reasons attributable to inclement weather, acts of God, or for other cause determined in the sole discretion of the Director of Public Works of the District to be good and sufficient cause for such extensions.

3.      **Payment for Services:**

a.      **Compensation.** DISTRICT shall pay to ENGINEER as compensation in full for all work required by this Agreement a sum not to exceed the total Agreement amount of \$\_\_\_\_\_. ENGINEER'S compensation shall be based on actual services performed and costs incurred at the rates set forth for each task in the ENGINEER'S Cost Proposal attached hereto as Exhibit B, and incorporated herein by this reference. Progress payments will be made as set forth below based on compensable services provided and allowable costs incurred pursuant to this Agreement.

b.      **Reports and Billing Invoices:** ENGINEER shall submit to the DISTRICT, on a monthly basis, a detailed statement of services performed and work accomplished during that preceding period, including the number of hours of work performed and the personnel involved. Billing invoices shall be based upon the ENGINEER'S cost proposal attached hereto as Exhibit B. For the purpose of timely processing of invoices, the ENGINEER'S invoices are not regarded as received until the monthly report is submitted. Any anticipated problems in performing any future work shall be noted in the monthly reports. The ENGINEER shall also promptly notify the DISTRICT of any perceived need for a change in the scope of work or services.

4.      **Accounting Records:**

a.      ENGINEER shall maintain accounting records in accordance with generally accepted accounting principles. ENGINEER shall obtain the services of a qualified bookkeeper or accountant to ensure that accounting records meet this requirement. ENGINEER shall maintain acceptable books of accounts which include, but are not limited to, a general ledger, cash receipts journal, cash disbursements journal, general journal and payroll journal.

b.      ENGINEER shall record costs in a cost accounting system which clearly identifies the source of all costs. Agreement costs shall not be co-mingled with other project costs, but shall be directly traceable to contract billings to the DISTRICT. The use of worksheets to produce billings shall be kept to a minimum. If worksheets are used to produce billings, all entries should be documented and clearly traceable to the ENGINEER'S cost accounting records.

c. All accounting records and supporting documentation shall be retained for a minimum of five (5) years or until any audit findings are resolved, whichever is later. ENGINEER shall safeguard the accounting records and supporting documentation.

d. ENGINEER shall make accounting records and supporting documentation available on demand to the DISTRICT and its designated auditor for inspection and audit. Disallowed costs shall be repaid to the DISTRICT. The DISTRICT may require having the ENGINEER'S accounting records audited, at ENGINEER'S expense, by an accountant licensed by the State of California. The audit shall be presented to the District Auditor-Controller within thirty (30) days after completion of the audit.

5. **Contingency Fund for Changes in Scope of Service.** No change in the character or extent of the work to be performed by ENGINEER shall be made except through a signed written amendment to this Agreement. The amendment shall set forth the proposed changes in work, adjustment of time, and adjustment of the sum to be paid by DISTRICT to ENGINEER, if any. A contingency fund of \_\_\_\_\_ is hereby created to address such changes to the scope of services and/or completion date. The DISTRICT'S Board of Supervisors hereby delegates to the Director of Public Works and Transportation the authority to sign amendments to this Agreement that make reasonable modifications to the time of performance or the scope of services, provided that all such amendments do not cumulatively exceed the contingency fund. Any other amendments must be approved by the Board. These additional funds are intended to provide the DISTRICT with flexibility to respond to unanticipated events or conditions, and the ENGINEER has no right to make any claim against these funds except as so expressly provided in a written amendment to this Agreement.

6. **Non-Assignment of Agreement.** Inasmuch as this Agreement is intended to secure the specialized services of the ENGINEER, ENGINEER may not assign, transfer, delegate or sublet any interest herein without the prior written consent of DISTRICT and any such assignment, transfer, delegation, or sublease without the DISTRICT's prior written consent shall be considered null and void. This includes revisions to the project team as described in the organization chart (See Exhibit C).

7. **Insurance.** ENGINEER, at its sole cost and expense, shall purchase and maintain the insurance policies set forth below on all of its operations under this Agreement. Such policies shall be maintained for the full term of this Agreement and the related warranty period (if applicable) and shall provide products/completed operations coverage for four (4)

years following completion of ENGINEER's work under this Agreement and acceptance by the District. Any failure to comply with reporting provisions(s) of the policies referred to above shall not affect coverage provided to the District, its officers, employees, volunteers and agents. For purposes of the insurance policies required hereunder, the term "District" shall include officers, employees, volunteers and agents of the DISTRICT, individually or collectively.

A.      **MINIMUM SCOPE AND LIMITS OF REQUIRED INSURANCE POLICIES**

The following policies shall be maintained with insurers authorized to do business in the State of California and shall be issued under forms of policies satisfactory to the District:

1.      **COMMERCIAL GENERAL LIABILITY INSURANCE POLICY ("CGL")**

Policy shall include coverage at least as broad as set forth in Insurance Services Office (herein "ISO") Commercial General Liability coverage. (Occurrence Form CG 0001) with policy limits not less than the following:

\$1,000,000 each occurrence (combined single limit);  
\$1,000,000 for personal injury liability;  
\$1,000,000 aggregate for products-completed operations; and  
\$1,000,000 general aggregate.

The general aggregate limits shall apply separately to ENGINEER's work under this Agreement.

2.      **BUSINESS AUTOMOBILE LIABILITY POLICY ("BAL")**

Policy shall include coverage at least as broad as set forth in Insurance Services Office Business Automobile Liability Coverage, Code 1 "Any Auto" (Form CA 0001). This policy shall include a minimum combined single limit of not less than One-million (\$1,000,000) dollars for each accident, for bodily injury and/or property damage. Such policy shall be applicable to vehicles used in pursuit of any of the activities associated with this Agreement. ENGINEER shall not provide a Comprehensive Automobile Liability policy which specifically lists scheduled vehicles without the express written consent of District.

3. **WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY INSURANCE POLICY ("WC / EL")**

This policy shall include at least the following coverages and policy limits:

1. Workers' Compensation insurance as required by the laws of the laws of the State of California; and
2. Employer's Liability Insurance Coverage B with coverage amount not less than one-million (\$1,000,000) dollars each accident / Bodily Injury (herein "BI"); one-million (\$1,000,000) dollars policy limit BI by disease; and, one-million (\$1,000,000) dollars each employee BI disease.

4. **PROFESSIONAL LIABILITY INSURANCE POLICY ("PL")**

This policy shall cover damages, liabilities, and costs incurred as a result of ENGINEER's professional errors and omissions or malpractice. This policy shall include a coverage limit of at least One-Million Dollars (\$1,000,000) per claim, including the annual aggregate for all claims (such coverage shall apply during the performance of the services under this Agreement and for two (2) years thereafter with respect to incidents which occur during the performance of this Agreement). ENGINEER shall notify the District if any annual aggregate is eroded by more than seventy-five percent (75%) in any given year.

B. **DEDUCTIBLES AND SELF-INSURANCE RETENTIONS**

Any deductibles and/or self-insured retentions which apply to any of the insurance policies referred to above shall be declared in writing by ENGINEER and approved by the District before work is begun pursuant to this Agreement. At the option of the District, ENGINEER shall either reduce or eliminate such deductibles or self-insured retentions as respect the District, its officers, employees, volunteers and agents, or shall provide a financial guarantee satisfactory to the District guaranteeing payment of losses and related investigations, claim administration, and/or defense expenses.

C. **ENDORSEMENTS**

All of the following clauses and endorsements, or similar provisions, are required to be made a part of insurance policies indicated in parentheses below:

1. A "Cross Liability", "Severability of Interest" or "Separation of Insureds" clause

(CGL & BAL);

2. The District, San Luis Obispo County, Central Coast Water Authority, California Department of Water Resources, California Men's Colony, City of Morro Bay and each of their officers, employees, volunteers and agents are hereby added as additional insureds with respect to all liabilities arising out of ENGINEER's performance of work under this Agreement (CGL & BAL);
3. If the insurance policy covers an "accident" basis, it must be changed to "occurrence" (CGL & BAL)
4. This policy shall be considered primary insurance with respect to any other valid and collectible insurance District may possess, including any self-insured retention District may have, and any other insurance District does possess shall be considered excess insurance only and shall not be called upon to contribute to this insurance (CGL, BAL, & PL);
5. No cancellation or non-renewal of this policy, or reduction of coverage afforded under the policy, shall be effective until written notice has been given at least thirty (30) days prior to the effective date of such reduction or cancellation to District at the address set forth below (CGL, BAL, WC /EL & PL);
6. ENGINEER and its insurers shall agree to waive all rights of subrogation against the District, its officers, employees, volunteers and agents for any loss arising under this Agreement (CGL); and
7. Deductibles and self-insured retentions must be declared (All Policies).

D. **ABSENCE OF INSURANCE COVERAGE**

District may direct ENGINEER to immediately cease all activities with respect to this Agreement if it determines that ENGINEER fails to carry, in full force and effect, all insurance policies with coverage's at or above the limits specified in this Agreement. Any delays or expense caused due to stopping of work and change of insurance shall be considered ENGINEER's delay and expense. At the District's discretion, under conditions of lapse, the District may purchase appropriate insurance and charge all costs related to such policy to ENGINEER.

E. **PROOF OF INSURANCE COVERAGE AND COVERAGE VERIFICATION**

Prior to commencement of work under this Agreement, and annually thereafter for the term of this Agreement, ENGINEER, or each of ENGINEER's insurance brokers or companies, shall provide District a current copy of a Certificate of Insurance, on an Accord or similar form, which includes complete policy coverage verification, as evidence of the stipulated coverage's. All of the insurance companies providing insurance for ENGINEER shall have, and provide evidence of, a Best Rating Service rate of A VI or above. The Certificate of Insurance and coverage verification and all other notices related to cancellation or non-renewal shall be mailed to:

*Courtney Howard*, Public Works Department  
Room 207, County Government Center  
San Luis Obispo CA 93408

**8. Indemnification:**

a. ENGINEER shall defend, indemnify and hold harmless the District, San Luis Obispo County, Central Coast Water Authority, California Department of Water Resources, California Men's Colony, City of Morro Bay, and each of their officers and employees from all claims, demands, damages, costs, expenses, judgments, attorney fees, liabilities or other losses (hereafter, collectively "claims") that may be asserted by any person or entity, and that arise out of , pertain to, or relate to the negligence, recklessness, or willful misconduct of the ENGINEER. The parties acknowledge that, in addition to whatever other acts or omissions may constitute negligence under applicable law, any act or omission of ENGINEER which constitutes a breach of any duty or obligation under, or pursuant to, this Agreement shall at a minimum constitute negligence, and may constitute recklessness or willful conduct if so warranted by the facts.

b. The preceding paragraph applies to any and all such claims, regardless of the nature of the claim or theory of recovery. For purposes of the paragraphs found in this section 8 of the AGREEMENT, 'ENGINEER' shall include the ENGINEER, and/or its agents, employees, sub-contractors, or other independent contractors hired, by, or directly responsible to, ENGINEER.

c. It is the intent of the parties to provide the DISTRICT, San Luis Obispo County, Central Coast Water Authority, California Department of Water Resources, California Men's

Colony, and the City of Morro Bay the fullest indemnification, defense, and “hold harmless” rights allowed under the law. If any word(s) contained herein are deemed by a court to be in contravention of applicable law, said word(s) shall be severed from this contract and the remaining language shall be given full force and effect. Nothing contained in the foregoing indemnity provisions shall be construed to require ENGINEER to indemnify DISTRICT, San Luis Obispo County, Central Coast Water Authority, California Department of Water Resources, California Men’s Colony, and the City of Morro Bay against any responsibility or liability in contravention of Civil Code 2782 or 2782.8.

**9.      ENGINEER’s Responsibility For Its Work.**

a.      ENGINEER has been hired by the DISTRICT because of ENGINEER’s specialized expertise in performing the work described in the attached Exhibit A. ENGINEER shall be solely responsible for such work. The DISTRICT’s review, approval and/or adoption of any designs, plans, specifications or any other work of the ENGINEER shall be in reliance on ENGINEER’s specialized expertise and shall not relieve the ENGINEER of its sole responsibility for its work. The DISTRICT is under no duty or obligation to review or verify the appropriateness, quality or accuracy of any designs, plans, specifications or any other work of the ENGINEER, including but not limited to, any methods, procedures, tests, calculations, drawings or other information used or created by ENGINEER in performing any work under this Agreement.

b.      All information which ENGINEER receives from DISTRICT should be independently verified by ENGINEER. ENGINEER should not rely upon such information unless it has independently verified its accuracy. The only exception to the foregoing arises when the DISTRICT has expressly stated in writing that certain information may be relied upon by the ENGINEER without the ENGINEER’s independent verification. In such event, the ENGINEER is still obliged to promptly notify the DISTRICT whenever the ENGINEER becomes aware of any information that is inconsistent with any information which the DISTRICT has stated may be relied upon by the ENGINEER.

**10.      Insurance and Indemnification as Material Provisions.** The parties expressly agree that the indemnification and insurance clauses in this Agreement are an integral part of the performance exchanged in this Agreement. The compensation stated in this Agreement

includes compensation for the risks transferred to ENGINEER by the indemnification and insurance clauses.

11. **ENGINEER'S Endorsement on Reports, etc.** ENGINEER shall endorse all reports, maps, plans, documents, materials and other data in accordance with applicable provisions of the laws of the State of California.

12. **Documents, Information and Materials Ownership.** All documents, information and materials of any and every type prepared by the ENGINEER pursuant to this Agreement shall be the property of the DISTRICT. Such documents shall include but not be limited to data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the ENGINEER in performing work under this Agreement, whether completed or in process. The ENGINEER shall assume no responsibility for the unintended use by others of any such documents, information, or materials on project(s) which are not related to the scope of services described under this Agreement.

13. **Termination of Agreement Without Cause.** DISTRICT may terminate this Agreement at any time by giving the ENGINEER 20 days written notice of such termination. Termination shall have no effect upon the rights and obligations of the parties arising out of any transaction occurring prior to the effective date of such termination. Other than payments for services satisfactorily rendered prior to the effective date of said termination, ENGINEER shall be entitled to no further compensation or payment of any type from the DISTRICT.

14. **Termination of Agreement for Cause.** If ENGINEER fails to perform ENGINEER'S duties to the satisfaction of the DISTRICT, or if ENGINEER fails to fulfill in a timely and professional manner ENGINEER'S obligations under this Agreement or if ENGINEER shall violate any of the terms or provisions of this Agreement or if ENGINEER, ENGINEER'S agents or employees fail to exercise good behavior either during or outside of working hours that is of such a nature as to bring discredit upon the DISTRICT, then DISTRICT shall have the right to terminate this Agreement effective immediately upon the DISTRICT giving written notice thereof to the ENGINEER. Termination shall have no effect upon the rights and obligations of the parties arising out of any transaction occurring prior to the effective date of such termination. ENGINEER shall be paid for all work satisfactorily completed prior to the effective date of such termination. If DISTRICT'S termination of the Agreement for cause is defective for any reason, including but not limited to DISTRICT'S reliance on erroneous facts concerning ENGINEER'S performance, or any defect in notice

thereof, this Agreement shall automatically terminate without cause on the twentieth day following the DISTRICT'S written notice of termination for cause to the ENGINEER, and the DISTRICT'S maximum liability shall not exceed the amount payable to ENGINEER under paragraph 13 above.

**15. Compliance with Laws:** ENGINEER shall comply with all Federal, State, and local laws and ordinances that are applicable to the performance of the work of this Agreement.

**16. Covenant Against Contingent Fees:** ENGINEER warrants that it has not employed or retained any company or person, other than a bona fide employee working for ENGINEER, to solicit or secure this Agreement, and that it has not paid or agreed to pay any company or person, other than a bona fide employee, any fee, commission, percent, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making this Agreement. For breach or violation of this warranty, DISTRICT shall have the right to annul this Agreement without liability, or, in its discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

**17. Nondiscrimination:** ENGINEER shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, which are herein incorporated by reference and made a part of this Agreement.

**18. Disputes & Claims:**

a. Notice of Potential Claim. The ENGINEER shall not be entitled to the payment of any additional compensation for any act, or failure to act, by the DISTRICT, or for the happening of any event, thing, occurrence, or other cause, unless ENGINEER has provided the DISTRICT with timely written Notice of Potential Claim as hereinafter specified. The written Notice of Potential Claim shall set forth the reasons for which the ENGINEER believes additional compensation will or may be due, the nature of the cost involved, and, insofar as possible, the amount of the potential claim. The said notice as above required must have been given to the DISTRICT prior to the time that the ENGINEER shall have performed the work giving rise to the potential claim for additional compensation, if based on an act or failure to act by the DISTRICT, or in all other cases within 15 days after the happening of the event, thing, occurrence, or other cause, giving rise to the potential claim. It is the intention of this paragraph that differences between the parties relating to this

Agreement be brought to the attention of the DISTRICT at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The ENGINEER hereby agrees that it shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing, or occurrence for which no written Notice of Potential Claim as herein required was filed with the DISTRICT Director of Public Works.

b.     Processing of Actual Claim. In addition to the above requirements for Notice of Potential Claim, a detailed, Notice of Actual Claim must be submitted in writing to the DISTRICT on or before the date of final payment under this Agreement. All such claims shall be governed by the procedures set forth in section 20104.2 and 20104.4 of the Public Contract Code, except that the word "claim" as used in said sections shall be construed as referring to any claim relating to this Agreement. The ENGINEER shall not be entitled to any additional compensation unless ENGINEER has (1) provided the DISTRICT with a timely written Notice of Actual Claim and (2) followed the procedures set forth in Public Contract Code section 20104.2 and 20104.4.

c.     Claim is No Excuse. Neither the filing of a Notice of Potential Claim or of a Notice of Actual Claim, nor the pendency of a dispute or claim, nor its consideration by the DISTRICT, shall excuse the ENGINEER from full and timely performance in accordance with the terms of this Agreement.

**19.    ENGINEER is an Independent Contractor.** It is expressly understood that in the performance of the services herein provided, ENGINEER shall be, and is, an independent contractor, and is not an agent or employee of DISTRICT. ENGINEER has and shall retain the right to exercise full control over the employment, direction, compensation, and discharge of all persons assisting ENGINEER in the performance of the services rendered hereunder. ENGINEER shall be solely responsible for all matters relating to the payment of his employees, including compliance with Social Security, withholding, and all other regulations governing such matters.

**20.    Entire Agreement and Modification.** This Agreement constitutes the entire understanding of the parties hereto. ENGINEER shall be entitled to no other compensation and/or benefits than those specified herein. No changes, amendments or alterations shall be effective unless in writing and signed by both parties. Any changes increasing ENGINEER'S compensation and/or benefits must be approved by the DISTRICT'S Board of Supervisors; any other changes may be signed by the District Director of Public Works on behalf of the

DISTRICT. ENGINEER specifically acknowledges that in entering into and executing this Agreement, ENGINEER relies solely upon the provisions contained in this Agreement and no others.

**21. Enforceability.** If any term, covenant, condition or provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions hereof shall remain in full force and effect and shall in no way be affected, impaired, or invalidated thereby.

**22. Warranty of ENGINEER.** ENGINEER warrants that ENGINEER and each of the personnel employed or otherwise retained by ENGINEER for work under this Agreement are properly certified and licensed under the laws and regulations of the State of California to provide the special services herein agreed to.

**23. Subcontractors**

a. Other than work designated in Exhibits A and B to be performed by other persons, the ENGINEER shall perform the work contemplated with resources available within its own organization and no portion of the work shall be subcontracted without written authorization by the DISTRICT.

b. Any subcontract entered into by ENGINEER relating to this Agreement shall contain all the provisions contained in this Agreement.

c. Any substitution of subcontractors must be approved in writing by the DISTRICT in advance of assigning work to a substitute subcontractor.

**24. Applicable Law and Venue.** This Contract has been executed and delivered in the State of California and the validity, enforceability and interpretation of any of the clauses of this Contract shall be determined and governed by the laws of the State of California. All duties and obligations of the parties created hereunder are performable in San Luis Obispo County and such County shall be the venue for any action or proceeding that may be brought or arise out of, in connection with or by reason of this Contract.

**25. Notices.** Any notice required to be given pursuant to the terms and provisions hereof shall be in writing and shall be sent by first class mail to the District at:

Mr. Paavo Ogren, Director  
San Luis Obispo County  
Flood Control and Water Conservation District  
Department of Public Works  
County Government Center, Room 207  
San Luis Obispo, CA 93408

and to the ENGINEER:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

26. **Cost Disclosure - Documents and Written Reports.** Pursuant to Government Code section 7550, if the total cost of this Agreement is over \$5,000, the ENGINEER shall include in all final documents and in all written reports submitted a written summary of costs, which shall set forth the numbers and dollar amounts of all contracts and subcontracts relating to the preparation of such documentation or written report. The Agreement and subagreement numbers and dollar amounts shall be contained in a separate section of such document or written report.

27. **Findings Confidential.** No reports, maps, information, documents, or any other materials given to or prepared by ENGINEER under this Contract which DISTRICT requests in writing to be kept confidential, shall be made available to any individual or organization by ENGINEER without the prior written approval of DISTRICT.

28. **Restrictive Covenant.** ENGINEER agrees that he will not, during the continuance of this Agreement, perform or otherwise exercise the services described in Exhibit A for anyone except for the DISTRICT, unless and until said DISTRICT waives this restriction.

29. **Quality Control and Quality Assurance.** ENGINEER shall provide a description of its Quality Control procedure. The process shall be implemented for all facets of work and a QC-QA statement and signature shall be placed on all submittals to the DISTRICT.

**IN WITNESS THEREOF,** DISTRICT and ENGINEER have executed this Agreement on the day and year first hereinabove set forth.

**IN WITNESS THEREOF,** the parties hereto have executed this Agreement, and this Agreement shall become effective on the date shown signed by the San Luis Obispo County Flood Control and Water Conservation District.

SAN LUIS OBISPO COUNTY  
FLOOD CONTROL AND WATER  
CONSERVATION DISTRICT

Date: \_\_\_\_\_, 20\_\_

By: \_\_\_\_\_  
Chairperson of the Board  
San Luis Obispo County Flood  
Control and Water Conservation  
District  
State of California

**ATTEST:**

\_\_\_\_\_  
County Clerk and Ex-Officio Clerk of the  
Board of Supervisors, San Luis Obispo County  
Flood Control and Water Conservation District,  
State of California

Date: \_\_\_\_\_, 20\_\_

ENGINEER

Date: \_\_\_\_\_, 20\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

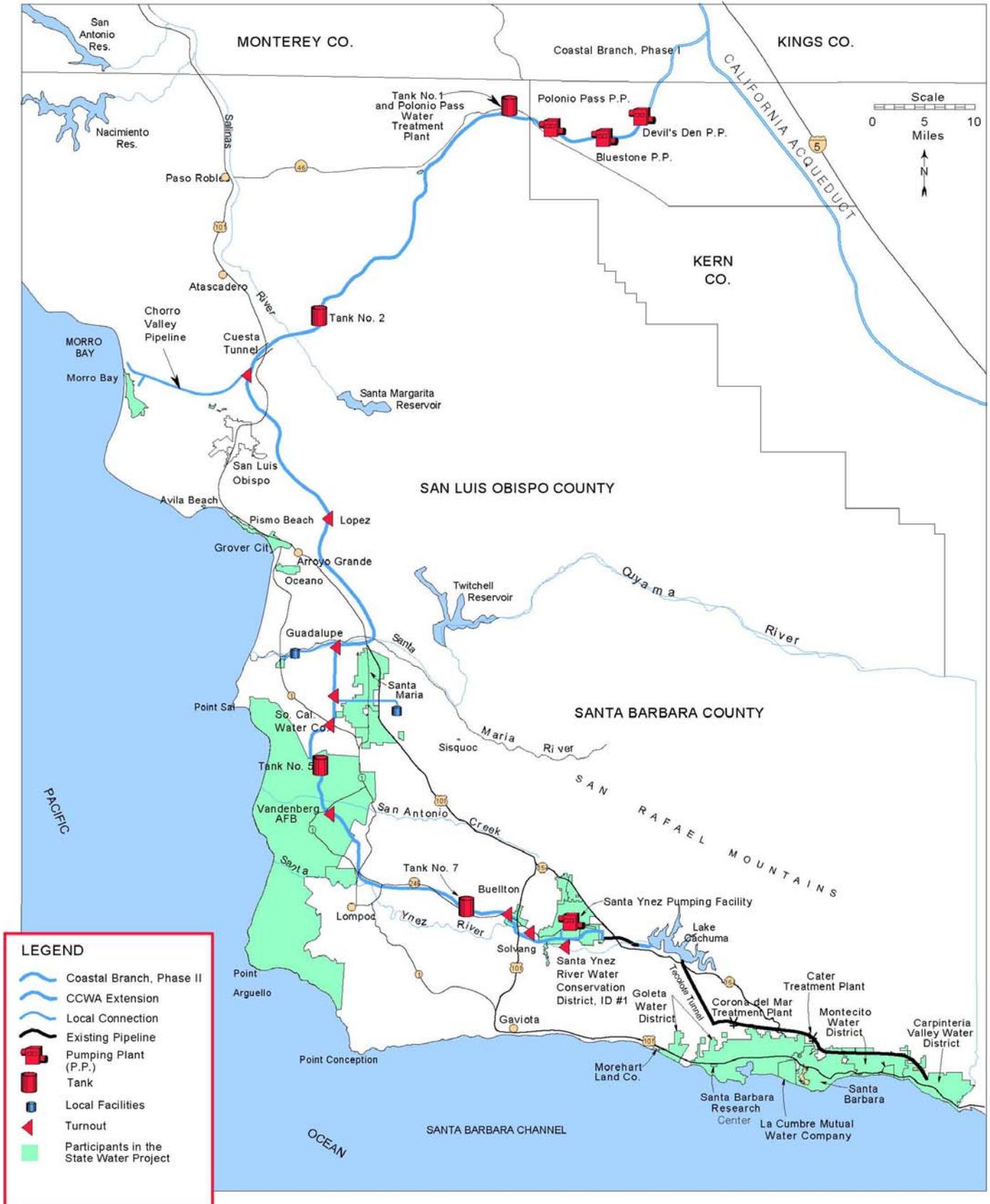
**APPROVED AS TO FORM AND LEGAL EFFECT:**

WARREN R. JENSEN  
District Counsel

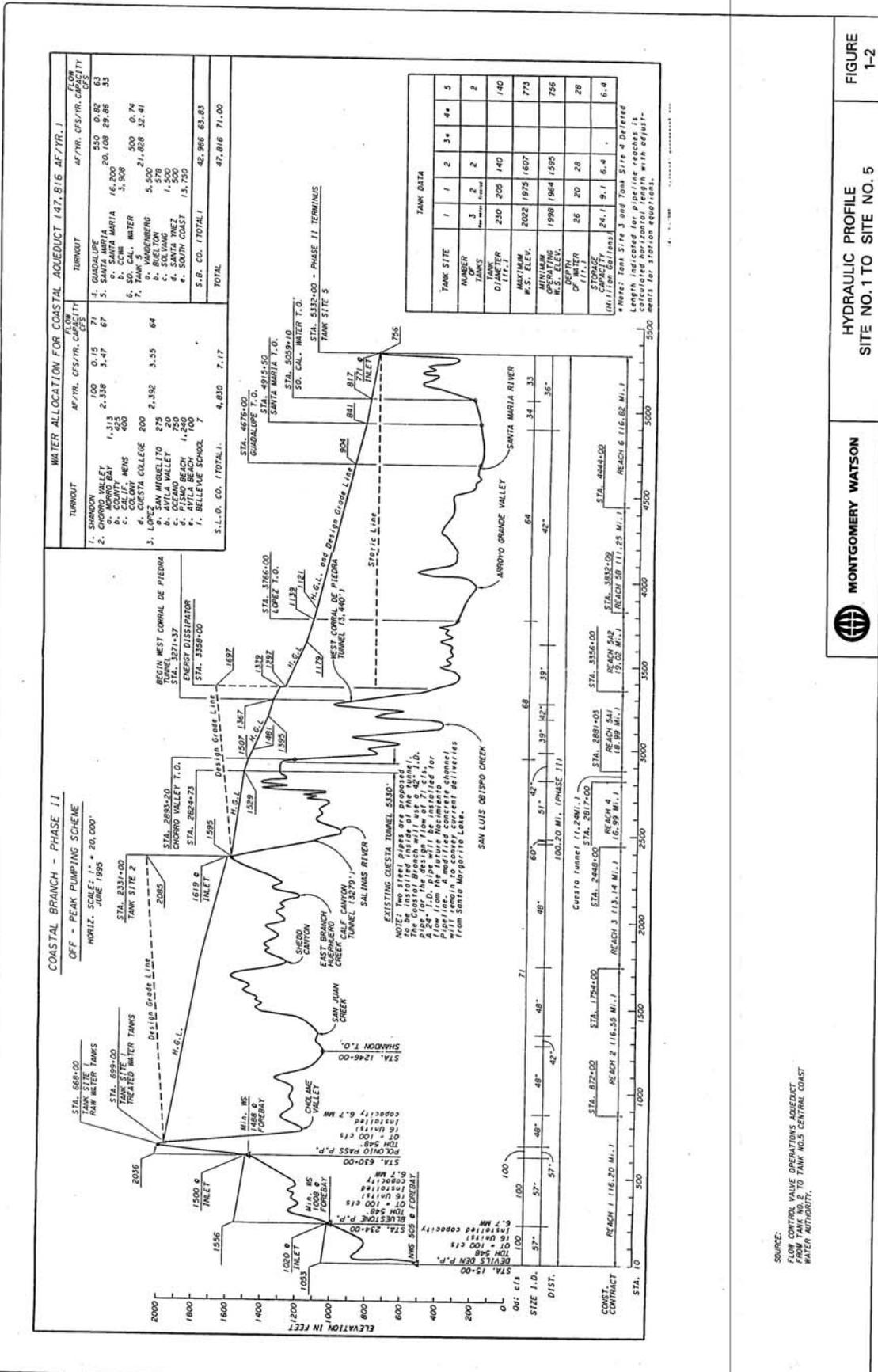
By: \_\_\_\_\_  
Deputy District Counsel

Date: \_\_\_\_\_

## ATTACHMENT B – Diagram of Coastal Branch



# ATTACHMENT C – HYDRAULIC GRADE LINE DIAGRAM



HYDRAULIC PROFILE  
SITE NO. 1 TO SITE NO. 5  
MONTGOMERY WATSON  
FIGURE 1-2

## Capacity Assessment of the State Water Project Coastal Branch

## ATTACHMENT D – SUMMARY TABLE FLOW CAPACITIES ALONG PIPELINE

**TABLE 1-1  
SUMMARY OF PROJECT FACILITIES**

Facility/Name	Owner	Type <sup>(1)</sup>	Size/Number	Rated Capacity
<b>Treatment Plant:</b>				
Polonio Pass	CCWA	Conventional	1	43 mgd
<b>Pipelines:</b>				
Reach 1 (TW)	DWR	Steel <sup>(2)</sup>	48-inch	71 cfs
Reach 2	DWR	Steel <sup>(2)</sup>	48-inch	71 cfs
Reach 3	DWR	Steel <sup>(2)</sup>	48-inch	71 cfs
Reach 4	DWR	Steel <sup>(2)</sup>	51-inch	71 cfs
Reach 5A1	DWR	Steel <sup>(2)</sup>	42-inch	68 cfs
Reach 5A2	DWR	Steel <sup>(2)</sup>	42/39-inch	68 cfs
Reach 5B	CCWA	Steel <sup>(3)</sup>	42-inch	64 cfs
Reach 6	CCWA	Steel <sup>(3)</sup>	42-inch	33 cfs
Schedule A	CCWA	Steel <sup>(3)</sup>	39 inch	35/26 cfs
Schedule B	CCWA	Steel <sup>(3)</sup>	36 inch	26cfs
Schedule C	CCWA	Steel <sup>(4)</sup>	36 inch	26/22 cfs
SYID#1	CCWA	CCP <sup>(5)</sup>	30 inch	22 cfs
<b>Tanks:</b>				
No. 1 (TW)	DWR	Concrete	2 @ 205 ft	9.1 mgal
No. 2	DWR	Concrete	2 @ 140 ft	6.4 mgal
No. 5	CCWA	Concrete	2 @ 128 ft	5.0 mgal
No. 7	CCWA	Concrete	1 @ 128 ft	2.5 mgal
<b>Pumping Plant:</b>				
Santa Ynez	CCWA	Vert. Turbine	5 @ 5.5 cfs (4 duty, one standby)	22 cfs

TW = Treated Water.

(1) All pipe is mortar-lined.

**Pipe Coatings:**

- (2) Coal Tar Enamel.
- (3) Tape.
- (4) Mortar.
- (5) Concrete.

## ATTACHMENT E

# Pipeline System Modeling Tank 1 to Santa Ynez Pump Facility Definition of Available Extra Capacity



**June 2005**

**Central Coast Water Authority**

**Central Coast Water Authority  
Pipeline System Modeling  
Tank 1 to Santa Ynez Pump Facility  
Definition of Available Additional Capacity**

**Summary**

This model development and calibration effort is in response to the desire of CCWA to have a high level of confidence regarding available additional capacity in the State Water pipeline from Tank 1 to its Santa Ynez Pump Facility.

The CCWA pipeline from Tank 1 to the Santa Ynez Pump Facility forebay (approximately 124 miles) was modeled using a series of Excel spreadsheets. The model was calibrated using data from the peak flows that occurred during July and September 2004 (flow out of Tank 1 over 70 cfs).

The model is based on the Hazen Williams formula which is used in all water system models. The C-factors used in the Hazen Williams formula generally range from 135 to 153 for mortar lined pipe. The C factors associated with the CCWA pipeline are shown in Table 1 below.

**Table 1: Summary of C Factors**

<b>CCWA and DWR Design:</b>	<b>135 throughout</b>
<b>Model Calibration:</b>	<b>150-156 upstream of Tank 5 135 downstream of Tank 5</b>
<b>Recommended:</b>	<b>150 upstream of Tank 5 135 downstream of Tank 5</b>

The difference in the C factors in the two portions of the pipeline appears to be a function of the alignment and valves along the pipeline and not the surface lining. For example, the DWR section of the pipeline is generally much straighter with fewer valves than the CCWA section of pipeline. The CCWA pipeline has numerous mitered turns and a series of isolation valves associated with avoiding large spills on chloraminated water into endangered species habitat. These miter turns and valves increase losses in the pipeline resulting in the relatively lower C factor. The entire pipeline with a couple of minor exceptions is mortar lined steel pipe.

One area of concern regarding the calibration effort is that the calibration relies heavily on pressure readings along the pipeline. During the calibration process we used five sets of pressure data from the following points:

Upstream of the Energy Dissipation Valve (EDV)  
 Downstream of the Energy Dissipation Valve (EDV)  
 At the SYID#1 Turnout

To confirm the accuracy of the model we used the calibrated model to calculate the pressures at the various turnouts. The results are shown below.

**Table 2: Confirmation of Model Accuracy**

Turnout	Pressure Reading Actual psi	Pressure Calculated by Model psi	Difference psi
Chorro	418	425	-7
Lopez	313	307	+6
Guadalupe	297	296	+1
Santa Maria	261	266	-5
SoCAL	265	268	-3
VAFB	17	17	0
Buellton	120	98	+22
Solvang	69	68	-1
SYID#1	40	40	0
*****			
Date	7-12-04		
Flow Tank 2	68.7	68.7	
Flow to Cachuma	18.8	18.8	
C Factor		150,150,135	

The model accurately estimated the pressure at the turnouts to within 1 to 2 percent except for the Buellton turnout. CCWA staff are investigating the data associated with the Buellton turnout pressure.

To further confirm the model calibration and accuracy we put the collected data into a WaterCad model. The WaterCad model was based on the modeling work done by Montgomery Watson in the 1990's. The WaterCad model duplicated the results obtained from the spreadsheet model. The simplicity and accuracy of the spreadsheet model for this single pipeline system, make it the best model to accurately and quickly run a variety of flow scenarios.

During the design of the pipeline during the early 1990s there was some concern that the C factor would degrade over time as the flow of water inside of the pipe caused the lining to become rougher. Our research has determined that the mortar lined pipe industry has now concluded that unless water velocities exceed approximately 14 feet per second, the mortar on the inside of the pipe will not become rougher over time. Based on the highest flows possible through the smallest portions of the pipeline, the worst case scenario involves 81 cfs through a short 42" diameter section of pipe with a water velocity of approximately 8.5 feet per second. Since the velocity of water in the pipeline is generally less than

6 feet per second, no roughening of the inside of the pipe is anticipated. Therefore the C factors estimated at this point in time should be good for the life of the pipe.

Based on our calibration work, our familiarity with the pipeline, our research, standard C-factors for pipes with the same lining and these test results we have a high level of confidence that the model reasonably calculates the friction losses along the pipeline and can be used to estimate maximum flows and pressures in the water line.

## Results

The calibrated spreadsheet model was used to calculate maximum flows through the pipeline based on several criteria.

First flow data associated with CCWA entitlements and drought buffer were put into the model using a conservative C factor of 135 throughout the pipeline. This flow data is summarized in **Table 3: CCWA Turnout Demand Flows for Modeling Purposes**. The model confirmed that the CCWA water system can deliver to the turnouts all entitlements plus the drought buffer associated with each turnout. The flow rates assume that the CCWA pipeline will only be available 11 months each year due to downtime for maintenance.

The next model run used the C factor of 135 throughout to estimate additional capacity in the pipeline. This model run estimated that an additional 1.5 cfs of water could be added to the pipeline between Tank 1 and the Lopez Turnout. Additional capacity was not available below Tank 5. The 1.5 cfs is equivalent to 1,000 acre feet per year with one month of downtime for maintenance.

The next model run used a C factor of 150 above Tank 5 and 135 below Tank 5 as estimated during the calibration process. This model run estimated an additional 13.7 cfs of water could be added to the pipeline between Tank 1 and the Lopez Turnout (above entitlements plus drought buffer). Additional capacity was not available below Tank 5. The 13.7 cfs is equivalent to 9,100 acre feet per year with one month of downtime for maintenance.

The next model run was used to estimate the additional amount of water that could be removed from the pipeline in the Santa Maria Valley with 1.5 cfs removed from the pipeline at the Lopez turnout. This model run also used a C factor of 150 above Tank 5 and 135 below Tank 5 as estimated during the calibration process. The model estimated that an additional 7.5 cfs could be added to the pipeline between Tank 1 and Santa Maria Valley (in addition to the 1.5 cfs for Lopez). Additional capacity was not available below Tank 5. The 7.5 cfs to the Santa Maria Valley is equivalent to approximately 5,000 acre feet per year with one month of downtime for maintenance.

**Table 3: CCWA Turnout Demand Flows For Modeling Purposes**

PROJECT TURNOUT	Entitlement AFY	Drought Buffer AFY	Entitlement Plus Drought Buffer AFY	Turnout Raw cfs* cfs	Peak Turnout Demand ** cfs	Peak Turnout Demand gpm
<b>PPWTP - Tank 1</b>						
<b>Tank 2</b>						
<b>Chorro</b>	2,438		2,438	3.37	3.67	1,649
<b>Energy Dissipation Valve</b>						
<b>Lopez</b>	2,392		2,392	3.30	3.60	1,618
<b>City of Guadalupe</b>	550	55	605	0.84	0.91	409
<b>City of Santa Maria</b>	16,200	1,620	17,820	24.61	26.85	12,052
<b>SCWC</b>	500	50	550	0.76	0.83	372
<b>Tank 5</b>						
<b>Vandenberg AFB</b>	5,500	550	6,050	8.36	9.12	4,092
<b>Tank 7</b>						
<b>City of Buellton</b>	578	58	636	0.88	0.96	430
<b>Santa Ynez ID#1 (Solvang)</b>	1,500		1,500	2.07	2.26	1,014
<b>Santa Ynez ID#1 ***</b>	500	200	700	0.97	1.05	473
<b>Pump Facility</b>						
<b>Lake Cachuma</b>	13,750	1,375	15,125	20.89	22.79	10,229
<b>Goleta WD</b>	4,500					
<b>Morehart Land Company</b>	200					
<b>La Cumbre Mutual WC</b>	1,000					
<b>Raytheon Systems Co.</b>	50					
<b>City of Santa Barbara</b>	3,000					
<b>Montecito WD</b>	3,000					
<b>Carpinteria Valley WD</b>	2,000					
<b>CCWA Subtotal</b>	39,078					
<b>SLOCFC&amp;WCD Subtotal</b>	4,830					
<b>TOTAL</b>	43,908	3,908	47,816	66	72.1	32,339

\* AFY/724=cfs

\*\*Raw cfs /11 months \* 12 months (one month downtime)=Demand cfs

1 cfs for 1 year = 724 acre-feet per year

1 cfs for 11 months = 664 acre-feet per year

1 cfs = 448.83 gpm

\*\*\*The Exchange Agreement allows SYID#1 to divert flow that would go to Lake Cachuma to its turnout during the summer months. This modeling effort assumes that the extra amount going to SYID#1 will not exceed the amount that would otherwise go to Lake Cachuma. Therefore the net result is that to upstream users there is no change in the demand downstream of SYID#1.

The last two columns of the table show the flow rates needed to deliver the base entitlement and drought buffer in 11 months leaving one month for maintenance downtime.

Note that the friction losses between Lopez turnout and the Santa Maria Valley (approximately 22 miles) means that more additional water can be taken out of the pipeline at Lopez Turnout than at the Santa Maria turnout.

A separate model run was made to estimate the additional amount of water that could be removed from the pipeline in the Santa Maria Valley with 2.3 cfs removed from the pipeline at the Lopez turnout (1,500 AFY). The model estimated that an additional 7.1 cfs could be added to the pipeline between Tank 1 and Santa Maria Valley (in addition to the 2.3 cfs for Lopez). Additional capacity was not available below Tank 5. The 7.1 cfs to the Santa Maria Valley is equivalent to approximately 4,700 acre feet per year with one month of downtime for maintenance.

Finally a model run was made to estimate the additional amount of water that could be removed from the pipeline in the Santa Maria Valley with no water removed from the pipeline at the Lopez turnout. The model estimated that an additional 8.4 cfs could be added to the pipeline between Tank 1 and Santa Maria Valley. Additional capacity was not available below Tank 5. The 8.4 cfs to the Santa Maria Valley is equivalent to approximately 5,600 acre feet per year with one month of downtime for maintenance.

**Table 4: Model Run Results Additional Capacity Available**

**C Factor of 135 Throughout 124 Mile Pipeline**

**Entitlement with Drought Buffer &  
Additional 1.5 cfs (1,000 AFY) to Lopez**

**C Factor of 150 Upstream of Tank 5**

**Additional 13.7 cfs (9,100 AFY) to Lopez**

**or**

**Additional 1.5 cfs (1,000 AFY) to Lopez &  
7.5 cfs (5,000 AFY) to Santa Maria Valley**

**or**

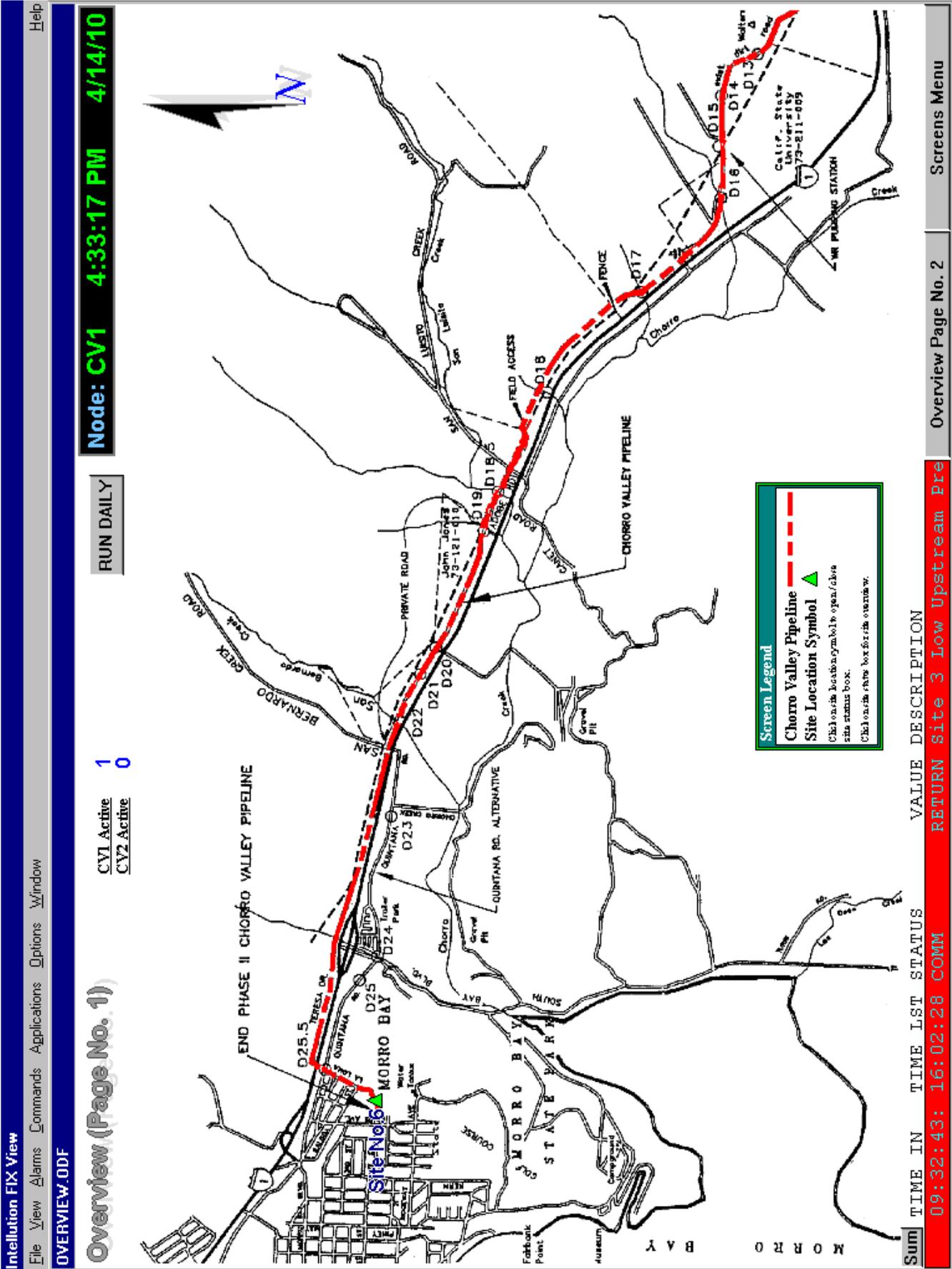
**Additional 2.3 cfs (1,500 AFY) to Lopez &  
7.1 cfs (4,700 AFY) to Santa Maria Valley**

**or**

**Additional 8.4 cfs (5,600 AFY) to Santa Maria Valley**

**Additional capacity not available below Tank 5**

# ATTACHMENT F – CHORRO VALLEY PIPELINE



Node: CV1 4:33:17 PM 4/14/10

RUN DAILY

CV1 Active 1  
CV2 Active 0

Overview (Page No. 1)

Intellution FIX View

File View Alarms Commands Applications Options Window

OVERVIEW.ODF

Help

Overview Page No. 2

RETURN site 3 Low Upstream Pre

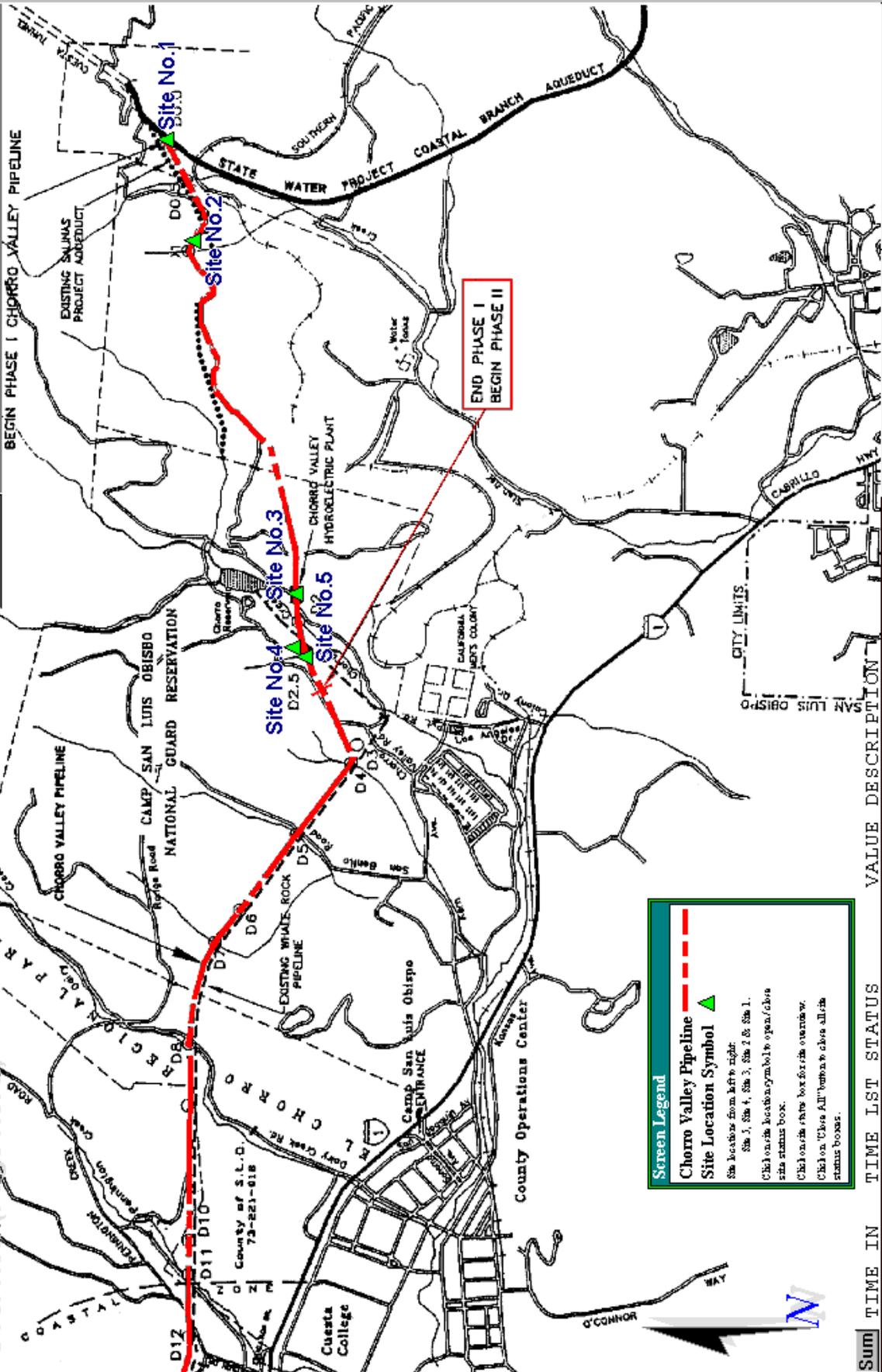
09:32:43: 16:02:28 COMM

SCREEN MENU

Capacity Assessment of the State Water Project Coastal Branch

Close All  
 Node: CV1 4:34:49 PM 4/14/10

Overview (Page No. 2)  
 RETURN site 3 Low Upstream Pre



**Screen Legend**

- Chorro Valley Pipeline (Red dashed line)
- Site Location Symbol (Green triangle)
- Site locations from left to right: Site 1, Site 4, Site 3, Site 2 & Site 1.
- CKI on site location symbol to open/close site status box.
- CKI on site status box for site overview.
- CKI on 'Close All' button to close all site status boxes.

## ATTACHMENT G – LOPEZ PIPELINE

