

COOPERATIVE AGREEMENT
FOR PROJECT DEVELOPING AND SUBMITTING NECESSARY DOCUMENTATION
FOR FEMA TO PROCESS
A CONDITIONAL LETTER OF MAP REVISION (CLOMR) FOR THE
SMITH CANAL CLOSURE STRUCTURE

This Cost-Share Agreement ("Agreement") is made this 10 day of April, 2009, by, between and among the San Joaquin Area Flood Control Agency ("SJAFCA"), a joint powers agency (City of Stockton, San Joaquin County and the San Joaquin County Flood Control and Water Conservation District), and the following Reclamation Districts: Smith Tract ("RD 1614"), and Weber Tract ("RD 828") (all of whom are collectively called "affected parties"), for a project ("Project") to develop and submit to FEMA a Conditional Letter of Map Revision ("CLOMR"). This Agreement may be signed in counterparts, all of which shall constitute one and the same instrument. This Agreement shall be effective only when executed by all of the parties.

RECITALS

WHEREAS, the affected parties are facing new FEMA floodplains and levee issues within the boundaries of said affected parties, (such area is hereinafter called the "affected area"); and

WHEREAS, the affected parties are developing plans to remove the affected areas from the FEMA designated floodplains and are resolving levee issues that may impact their protected areas; and

WHEREAS, the affected parties hereto are contemplating the development and submission of the necessary documentation for FEMA to process a CLOMR for Smith Canal closure structure; and

WHEREAS, FEMA's approval of the CLOMR will provide the affected parties with a method to remove the affected area from the floodplain associated with the Smith Canal levee decertification; and

WHEREAS, the Project may properly be funded pursuant to the powers granted to said affected parties; and

WHEREAS, approval of this cost-share in no way indicates the willingness, obligation, or ability of the affected parties of this Agreement, to cost-share in a similar fashion the additional steps needed to complete the Smith Canal closure structure.

NOW, THEREFORE, in consideration of the mutual promises, covenants and conditions in this Agreement, and the mutual benefits to be derived therefrom the affected parties agree as follows:

1. MUTUAL COVENANTS.

- 1.1. Recitals Correct. The above recitals are true and correct.
- 1.2. Term. This Agreement shall remain in effect until terminated as provided in Section 1.3.
- 1.3. Termination. This Agreement shall be subject to termination as follows:
 - 1.3a Termination by Mutual Consent. This Agreement may be terminated at any time by mutual consent of the parties. The parties may terminate this Agreement if one or more parties default in funding.

If one or more of the parties to this contract default on their payments, the remaining parties may renegotiate a new agreement.

Defaulting parties are responsible for their share of the project costs prior to default. Therefore, final billing for the defaulting parties will include any and all of these expenses.
 - 1.3b Termination Upon Completion of Project. Except as to any rights or obligations which survive termination, this Agreement shall be terminated, and the parties shall have no further obligation to each other, upon completion of the attached scope of work. The estimated completion date for the work involved with this Agreement is December 22, 2009.
- 1.4. Notices. Any notice which may be required under this Agreement shall be in writing and shall be given by personal service, or by certified or registered mail, return receipt requested, to the addresses set forth below:

TO SJAFCA:

James B. Giottonini
Executive Director
San Joaquin Area Flood Control Agency
22 East Weber Avenue, Room 301
Stockton, CA 95202-2317

TO RD 828:

Bill Mendelson, President, Board of Trustees
Reclamation District 828
221 Tuxedo Court, Suite F
Stockton, CA 95204

TO RD 1614:

William V. Dunning, President, Board of Trustees
Reclamation District 1614
P.O. Box 4807
Stockton, CA 95204-4807

Any party changing its address must give notice of such change to the other parties in the manner provided in this Section 1.4. All notices and other communications shall be deemed communicated as of actual receipt or after the second business day after deposit in the United States mail.

- 1.5. Amendment. This Agreement may not be changed, modified or rescinded except in writing, signed by all parties hereto, and any attempt at oral modification of this Agreement shall be void and of no effect.
- 1.6. Applicable Law. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of California.
- 1.7. Cost Share Agreement. The scope of work (attached) and cost estimate (attached) outlines the effort needed and costs needed to complete and submit a CLOMR to FEMA. The schedule (attached) provides a timeline needed to complete the work.

As stated in the cost estimate, the total cost of this Project is estimated at \$352,568.52. The Project will be cost-shared among the benefiting parties at the maximum amount as follows:

<u>Agency</u>	<u>Cost-share</u>
SJAFCA	33% (\$ 117,522.84)
RD 1614	33% (\$ 117,522.84)
RD 828	33% (\$ 117,522.84)

Any project cost overruns will require an amended agreement.

SJAFCA will contract this work with a consultant and manage this work effort in coordination with both Reclamation Districts.

- 1.8. No Continuing Waiver. The waiver by any party of any breach of any of the provisions of this Agreement shall not constitute a continuing waiver or a waiver of any subsequent breach of the same, or any other provision of this Agreement.
- 1.9. Signator's Warranty. Each party warrants to each other that he or she is fully authorized and competent to enter into this Agreement in the capacity indicated by his or her signature and agrees to be bound by this Agreement as of the day and year first mentioned above upon the execution of this Agreement by each other party.

2. RECORDS AND REPORTS.

- 2.1. SJAFCA shall coordinate with the parties of this Agreement in the maintenance of adequate records of the expenses and revenues of the Project, and such records shall be available for inspection and audit by the designated representatives of this Agreement within 14 days of any such records being compiled, and shall maintain such records available for inspection and audit by the parties hereto for a period of three years after final payment under this Agreement
- 2.2. SJAFCA shall furnish parties to this Agreement with copies of progress reports received from the designer within 14 days of receipt of such reports.
- 2.3. SJAFCA shall be available to provide updates to individual parties or parties to this Agreement at the convenience of all.
- 2.4. Upon completion of the Project, SJAFCA shall furnish all parties to this Agreement a copy of the Project within 30 days of receipt of such by SJAFCA.

3. COVENANTS OF DISTRICT

3.1. Payments. SJAFCA shall fund Project costs on a quarterly basis and after the end of each quarter SJAFCA will submit an accounting of the costs to each of the parties of this Agreement for payment. Reclamation Districts shall, within thirty (30) days of notice of costs used to fund the Project, submit payment of their cost-share. Reclamation Districts can advance the estimated annual expenses to the Agency. On a quarterly basis, if needed, the Agency will issue a bill for the remainder of the actual expenses for these periods.

IN WITNESS WHEREOF, the undersigned parties have executed this Agreement on the day and year first written above.

SJAFCA:

RECLAMATION DISTRICT 828:

**Executed in counterparts;
see following page.**



JAMES B. GIOTTONINI
EXECUTIVE DIRECTOR

BILL MENDELSON
PRESIDENT

RECLAMATION DISTRICT 828

RECLAMATION DISTRICT 1614

**Executed in counterparts;
see following page.**

**Executed in counterparts;
see following page.**

RICHARD W. JOHNSON
SECRETARY

WILLIAM V. DUNNING
PRESIDENT

APPROVED AS TO FORM



GUY PETZOLD
DEPUTY CITY ATTORNEY

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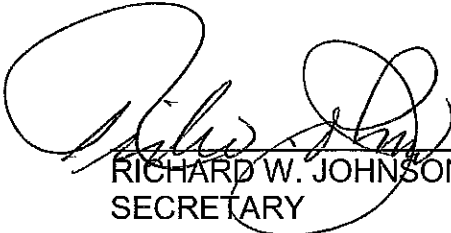
JAMES B. GIOTTONINI
EXECUTIVE DIRECTOR

RECLAMATION DISTRICT 828:



BILL MENDELSON
PRESIDENT

RECLAMATION DISTRICT 828



RICHARD W. JOHNSON
SECRETARY

RECLAMATION DISTRICT 1614

**Executed in counterparts;
see following page.**

WILLIAM V. DUNNING
PRESIDENT

APPROVED AS TO FORM

See preceding page.

GUY PETZOLD
DEPUTY CITY ATTORNEY

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EXECUTIVE DIRECTOR

RECLAMATION DISTRICT 828

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RICHARD W. JOHNSON
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APPROVED AS TO FORM

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GUY PETZOLD
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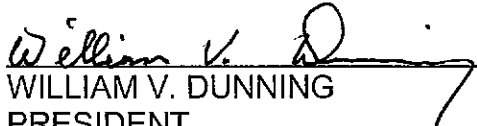
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see preceding page.**

BILL MENDELSON
PRESIDENT

RECLAMATION DISTRICT 1614



WILLIAM V. DUNNING
PRESIDENT

Smith Canal CLOMR

Scope of Work

The Smith Canal Closure CLOMR must be coordinated with geotechnical investigations being done under separate contract by others, and the LOMR for the balance of the levees protecting the central Stockton area.

The Smith Canal Closure CLOMR submittal will state the assumption that all connecting and cooperating levees are to be fully accredited under a separate effort¹. It will cover the Closure and tie-ins to the RD1614 levee on the west and high ground on the east. It will cover all interior drainage analyses and closure requirements of 44 CFR 65.10 for the protected area, along with a partial O&M Manual for the Closure and interior drainage systems. It will also include design requirements for the Closure (freeboard, stability, etc.). The scope includes preparation of the CLOMR package only; follow-up responses to FEMA questions and requests for information are not included. Our scope below aligns with 44 CFR 65.10 requirements.

The CLOMR effort has been budgeted as a 9-month effort. The schedule is contingent on receiving geotechnical borings for the Dad's Point portion of the project by 3/1/09 in order to complete the predesign. The in-channel geotechnical borings must be received by 5/1/09 in order to meet the schedule. The Dad's Point information is needed earlier because a critical design decision must be made whether Dad's Point can be considered a levee and modified accordingly, or whether it must be designed as a buttressed wall.

Task 1 – Project Management and Meetings

Project management activities include:

- Preparation of work plan and schedule
- Monitoring of project performance
- Preparation of monthly status reports
- Client communications
- Monthly invoicing
- Management of the consultant team including Consultant staff and subconsultants

Workshops funded under this task include:

- Monthly progress work sessions. The Consultant project manager and staff engineer will engage with SJAFCA staff over the 9-month course of this project to discuss project status, schedules, potential project challenges/problems, staff changes, workload, preliminary findings, deliverable review discussions, and action items. All progress sessions are assumed to be held at the SJAFCA office. Duration of each session is assumed to be two hours.

¹ Kathy Shaefer of FEMA agreed with this approach in an August 4, 2008 meeting with SJAFCA and leaders of our team. She also committed to personally usher this CLOMR through FEMA's review process.

- Board Meetings. Consultant's project manager will attend one SJAFCA board meeting to answer questions, and 2 other agency board meetings to answer questions regarding adoption of the O&M Manual.
- FEMA Meetings. Consultant's Project Manager and Staff Engineer will attend up to 2 meetings with FEMA at the FEMA Region 9 office, and 1 meeting at FEMA's Washington office.

Deliverables: Emailed meeting notes for kickoff meeting and monthly meetings, one copy of monthly invoices, and presentation materials.

Task 2 – Closure Preliminary Design

Note: A subsurface investigation is required to complete this task (see Work by Others, below).

CLOMRs have been accepted by FEMA with varying degrees of design completeness. For relatively straightforward projects, it is typical for project proponents to submit final designs as part of the CLOMR package, so that bidding and construction can proceed rapidly following CLOMR approval. In other cases where flood protection systems or residual flooding issues are more complicated, it is prudent to submit a more conceptual level of design.

This task includes preliminary design (30% complete), which includes plan views, profiles, sections, and details needed to reveal concepts. Specifications will not be produced. The survey completed for PBI's previous work is sufficient for this effort.

A cost estimate will be prepared based on the 30% plans. This is not required for the CLOMR, but will be useful for initial discussions and actions related to funding.

Once subsurface geotechnical investigations have been complete, a decision can be made on whether to change from a buttressed sheet pile configuration to levee fill along Dad's Point. This scope assumes sheet piles will be used.

It is estimated that 30 sheets of drawings will be produced. An administrative draft set of plans will be produced for SJAFCA review. Comments will be addressed and a plan set assembled for the CLOMR submittal.

Deliverables: Five copies of administrative draft 30% plans (11x17). After SJAFCA comments have been addressed, one set of reproducible plans (11x17) will be prepared for the CLOMR submittal.

Task 3 – Embankment Protection

Embankment protection must be discussed in the CLOMR submittal. The preliminary design will include full embankment protection, so no detailed analyses will be required.

Deliverables: Paragraph for the CLOMR binder referring to the design plans.

Task 4 – Freeboard

Analysis is needed to verify that 3' of freeboard (above the 1% flood) exists at all locations, except 4' is required within 100' upstream and downstream of all bridges and structures. The height of the entire closure will be set to exceed the 4' structure standard.

100- and 200-year water surface elevations will be estimated for the San Joaquin River to confirm the assumptions used in the PBI Smith Canal Closure Structure Conceptualization. An additional allowance will be made for climate change.

Deliverables: Freeboard write-up for the CLOMR binder.

Task 5 – Interior Drainage

This task includes analysis of interior drainage and mapping of residual floodplains. KSN has begun this work for RD 1614, which must be expanded to include the entire area of interest. Of special note, in an August 4, 2008 meeting with FEMA it was decided that, once isolated by the Smith Canal Closure, the Smith Canal will be considered as a detention basin; an interior drainage feature. This means that water pumped into the canal while the Closure is inflated can be stored on a limited basis. We feel that it may be possible to obviate the \$10M pumping facility through interior drainage modeling, possible re-routing of some interior drainage to the Lower Calaveras River, and establishment of Closure operating rules. Eliminating the terminal pump station will not only save costs, but it will eliminate difficult permitting issues such as fish screening requirements. Because the levees of the Smith Canal will not be accredited, it will be necessary to analyze and delineate the extent of residual floodplains caused by potential breaching of the Smith Canal levees.

The general intent of this task is to; determine interior drainage limits of the areas tributary to Smith Canal, analyze the existing tributary surface drainage system(s) of Smith Canal and determine the extent of flooding due to direct rainfall runoff from a 100-year rainfall event, estimate the maximum flow rate capable of being discharged into Smith Canal, calculate the stage/storage capacity of Smith Canal, develop a stage/storage/discharge relationship between the detention capacity of Smith Canal and the operation of the flood gate proposed for Smith Canal at its discharge into the Stockton Deep Water Channel.

The approximate limits of the study area are generally bounded by the Stockton Deep Water Channel on the south and west, Alpine Avenue and the Calaveras River on the north and Sanguinetti Lane and Waterloo Road on the south.

Research and Meetings (Project Management)

KSN will research and obtain copies of existing background documents including, but not limited to, land use designations, Flood Insurance Rate Maps (FIRMs) from the Federal Emergency Management Agency (FEMA), and City of Stockton GIS data. The GIS data will include parcel, right of way and storm drain system mapping. San Joaquin County data of the area will be obtained as well.

KSN will attend up to a total of three (3) design and coordination meetings.

Determine Boundaries of Existing Drainage Sheds & Verify Project Limits

Background documents will be reviewed to establish the characteristics of the study area including confirming the limits of the study area, soil types, topography and land use.

KSN will review GIS and record storm drain improvement plans to verify the extent and limits of the existing drainage sheds. The limits of each drainage shed will be delineated

and the acreage will be calculated. Land uses and their corresponding hydrologic characteristics will be determined.

KSN will perform topographic surveying to determine and/or confirm horizontal and vertical positions of the study area limits. The topographic survey will include profiles and sections of Smith Canal and selected streets and levees.

KSN will base the topographic survey on published information of existing control monuments, and will establish horizontal and vertical survey control. Horizontal control will be based on the California Coordinate System of 1983, Zone 3, U.S. Foot units (CA83IIF), and vertical control will be based on the North American Vertical Datum of 1988 (NAVD88), pursuant to the City of Stockton Bench Mark Book, 1996 Adjustment, 2003 Revision, unless otherwise specified by the local jurisdictional agency.

Perform Hydrologic/Hydraulic Analysis

KSN will perform hydrologic/hydraulic analysis of each drainage shed within the project limits. Specific issues to be considered in the analysis may include:

- Calculation of storm runoff flows for each existing drainage shed based on a 100-year return frequency storm.
- Determine the detention capacity of local streets.
- Review and analysis of existing drainage pump station capacity with respect to the calculated storm runoff flows.
- Develop a Stage/Storage table for Smith Canal and determine the canal's detention capacity.
- Identify areas of potential flooding of depths one foot or greater.
- Identify possible improvements to reduce and/or eliminate potential flooding.
- Develop a Stage/Storage table for Smith Canal and determine the canal's detention capacity.
- Develop a Stage/Storage/Discharge relationship between the detention capacity of Smith Canal and the operations of the proposed flood gate as it relates to various water surface elevations in the Stockton Deep Water Channel.

Prepare Interior Drainage Analysis Memorandum

The Interior Drainage Analysis Memorandum will be prepared to summarize the findings of the hydrologic/hydraulic analysis of the study area, and the resulting recommendations to reduce flooding within the study area. The Memorandum will include, as a minimum, the following sections;

- Introduction
- Study Area
- Design Criteria
- Hydrology
- Hydraulics

Deliverables: Five copies of administrative draft interior drainage memo. After addressing SJAFCA comments, one reproducible copy will be prepared for the CLOMR submittal.

Task 6 – Residual Floodplain Mapping

Mapping of the residual floodplain is a required element of the CLOMR package. Because the Smith Canal levees cannot be accredited, FEMA regulations dictate that the levees cannot be relied upon to hold water back during the base flood. The operational elevation of the closure structure will control the storage capacity of Smith Canal which would be released upon an assumed failure of each of the Smith Canal levees. The released water will be distributed over the residual floodplain assuming the Smith Canal Levees fail when the closure structure is closed.

PBI proposes to use existing LiDAR data provided by DWR to develop contour mapping of the residual floodplain. The LiDAR data was collected in January – February of 2007. DWR has provided details about the data set with a reported vertical accuracy of +/- 0.6 feet, and a reported horizontal accuracy is +/- 2 feet. The LiDAR data has been provided in point format, in metric units, in a non-standard coordinate system, and requires a considerable effort to make usable for the purpose of this project. Newer LiDAR mapping will be available in June 2009, which will be too late for the purposes of this project, so the scope of work for this task includes reduction of the earlier LiDAR data:

1. KSN will extract the LiDAR point data from the master DWR data set for areas covering the Smith Canal Residual Floodplain (see exhibit).
2. KSN will convert the LiDAR data from its non-standard coordinate system and metric units, to NAD83 survey feet units, NAVD 88 vertical datum.
3. KSN will create surface models covering the Smith Canal Residual Floodplain, and produce contour mapping of the residual floodplain from the LiDAR data.
4. KSN will provide for limited field surveys to ground truth the final contour mapping

PBI will use the topographic maps to estimate the extent of residual flooding caused by independent breaks of the north and south levees of the Smith Canal.

Deliverables: AutoCAD files of the final contour mapping and point files of the ground truth field surveys. Residual floodplain maps for the CLOMR submittal.

Task 7 – Geotechnical Analysis

Geotechnical analyses will be performed using DWR's subsurface explorations. Analyses will be as required for a CLOMR submittal.

1. Embankment and Foundation Stability. Analyses are needed to analyze through-seepage, under-seepage, and associated stability of the levee and closure. In assembling the CLOMR submittal, it is assumed that Kleinfelder will provide the package of data and analyses for this item concurrently with completion of the other elements of the CLOMR submittal.
2. Settlement. Analyses are needed to analyze settlement of the levee and closure. In assembling the CLOMR submittal, it is assumed that Kleinfelder will provide

the package of data and analyses for this item concurrently with completion of the other elements of the CLOMR submittal.

Deliverables: Five copies of administrative draft Geotechnical Analysis Technical Memorandum. After addressing SJAFCA comments, one reproducible copy will be prepared for agency adoption and CLOMR submittal.

Task 8 – Operation & Maintenance Manual

Our experience is that it is most efficient to combine operations and maintenance plans into a single document. The operating plan for the Smith Canal Closure and interior drainage facilities will be key to FEMA's accreditation of the levee protection system. Maintenance activities for levees and typical interior drainage facilities are fairly standard, but the Smith Canal Closure will require customized maintenance instructions. The operating plan will be combined with maintenance instructions into an O&M Manual for adoption by one or more public operating agencies.

This task assumes that SJAFCA will identify an owner, operator, and maintenance agency prior to initiation of this task. No budget has been included for discussions of institutional responsibilities.

Deliverables: Five copies of administrative draft O&M Manual. After addressing SJAFCA comments, one reproducible copy will be prepared for CLOMR submittal.

Task 9. Preparation of CLOMR Package

A total of eight (8) CLOMR binders will be prepared to include the applicable application forms and the appropriate supporting information according to FEMA submittal requirements. The package will include the preliminary design of the closure, Kleinfelder's geotechnical report covering stability and settlement (assumed ready to insert), freeboard, embankment protection, interior drainage, operation and maintenance plans, existing topography mapping with residual floodplains. An electronic CD containing all the information listed above will also be included in each binder. Recipients of the CLOMR binder package will include FEMA (3 copies), SJAFCA (2 copies), San Joaquin County Flood Control and Water Conservation District, RD 1614, and RD 828.

Deliverables: Two copies of administrative draft CLOMR binder. After addressing SJAFCA comments, edit inserts/replacements will be prepared for the 2 administrative draft copies, plus 6 additional complete copies will be prepared for agency adoption and CLOMR submittal. Electronic copies of all contents will be included in each copy on a CD.

Work by Others

It is assumed that geotechnical investigations will be performed by Kleinfelder under separate contract with DWR. Borings will be made along the alignment of the closure, including the Louis Park boat launch, Dad's Point, sheet pile alignment, and RD 1614 tie-in. It is assumed that the Dad's Point field work will be completed by March 1, 2009, and the in-channel work by May 1, 2009. Number of borings, extent of electromagnetic surveys, and required analyses will be determined after discussions with Kleinfelder and

DWR. It is assumed that DWR will provide environmental documentation and permitting associated with these investigations.

Other Assumptions

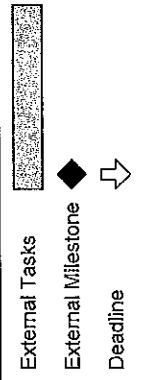
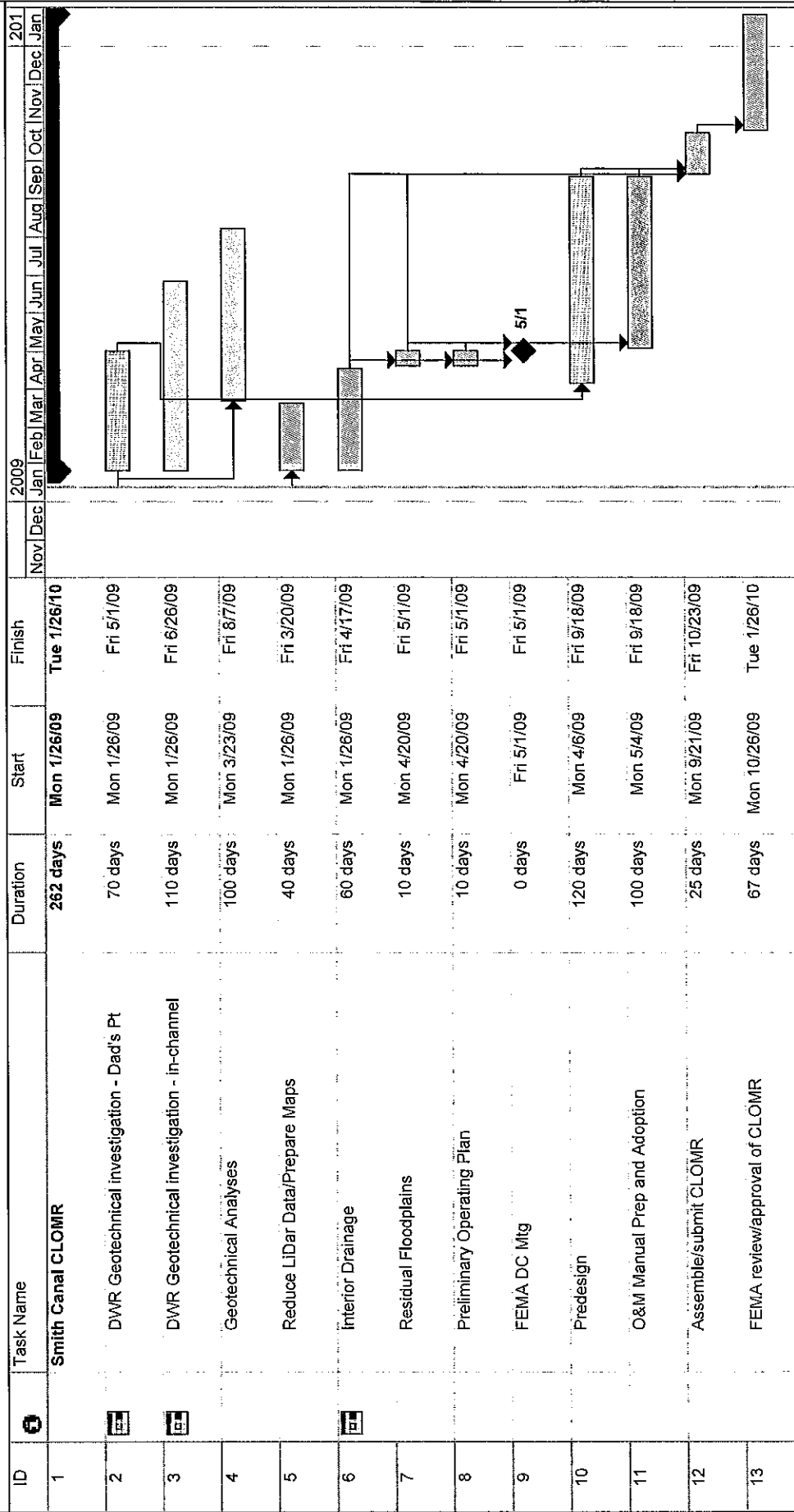
- All deliverables will be transmitted in hardcopy or Adobe Acrobat Reader 6.0 compatible electronic format.
- All mapping and profiles will be prepared in AutoCAD 2008 compatible electronic format and will be transmitted in hardcopy or Adobe Acrobat Reader 6.0 compatible electronic format.
- SJAFCA will secure all rights of entry and will provide any rules, keys or codes to the premises.
- All meetings will take place within the Stockton metropolitan area, except where noted in Task descriptions.
- The scope includes preparation of the CLOMR package only

Exclusions

Scope does not include:

- Fees for federal, state, county, city, local district, other agency or third-party for applications, reviews, permits, sub-consulting, reproductions, recordings, etc. Scope does not include DHS-FEMA fee estimated at approximately \$5,500 associated with reviewing and processing the CLOMR request.
- Environmental documents or acquisition of permits.
- Legal or title documentation, e.g. title searches, easement descriptions, boundary analysis, leasing agreements, etc.
- Supplemental surveying as may be requested by public agencies or utility providers.
- Potholing of utilities other than storm drain, as noted in Task 5.
- Boundary study, surveys or mapping.
- Follow-up responses to FEMA questions and information requests regarding the CLOMR submittal.

SJAFCA Smith Canal CLOMR Schedule



Project: SJAFCA Smith Canal CLOMF
Date: Mon 1/12/09