

**COST-SHARE AGREEMENT BETWEEN  
SANTA CLARA VALLEY WATER DISTRICT AND  
CITY OF MILPITAS**

**for**

**Levee Recertification in Compliance with  
FEMA's Flood Map Modernization Program  
For  
Lower Penitencia Creek**

This Cost-Share Agreement (AGREEMENT) is made and entered into as of the day of MAR 25 2008, 2008 by and between the Santa Clara Valley Water District (DISTRICT) and the City of Milpitas (MILPITAS), referred to hereafter as "PARTY" individually or collectively as "PARTIES."

**1. DEFINITIONS**

- 1% FLOOD EVENT** The magnitude of flood that has a 1% chance of occurring in any given year. This is sometimes referred to as the "100-year flood"
- AGREEMENT** This Cost-Share Agreement
- CONSULTANT** The engineering consulting firm selected to carry out the work effort to provide a complete certification package for the levee that is the subject of this Agreement. Schaaf & Wheeler, Inc. is the selected Prime Consultant
- DFIRM** Digital Flood Insurance Rate Map
- FEMA** The Federal Emergency Management Agency
- PAL** Provisionally Accredited Levee
- PARTIES** Both signatories to this Agreement
- PARTY** Any single entity that is a signatory to this Agreement
- PROJECT** The work effort to be undertaken by CONSULTANT to provide a complete certification package for the levee reach of Lower Penitencia Creek that is part of this Agreement
- PROJECT COST** The total of all billing received from CONSULTANT for the work related to certification of the levee reach of Lower Penitencia Creek that is part of this Agreement
- LOWER PENITENCIA CREEK LEVEE** The levee along the east side of Lower Penitencia Creek approximately 2000 feet long, from California Circle near Dixon Landing Road to Berryessa Creek

**2. RECITALS**

- A. The Federal Emergency Management Agency (FEMA) is undertaking a Flood Map Modernization program to update their Flood Insurance Rate Maps (FIRM)

from the current paper form to a digital format to produce Digital Flood Insurance Rate Maps (DFIRM).

B. As part of their Map Modernization program, FEMA intends to re-confirm that all levees mapped as protective for insurance purposes continue to meet FEMA mapping standards for levees as published in 44 CFR 65.10.

C. FEMA contacted the PARTIES in May 2007 offering a Provisionally Accredited Levee (PAL) agreement for the subject levee. The PAL agreement allows the community and levee owner 24 months to evaluate and provide certified evidence that the specified levee currently meets FEMA mapping standards for levees as published in 44 CFR 65.10.

A PAL agreement was accepted and signed by the PARTIES for the certification of the Lower Penitencia Creek levee on the east side of the creek between Highway 880 and the Berryessa Creek confluence.

This was confirmed by each PARTY signing and submitting FEMA's "Letter of Agreement Requesting PAL Designation" prior to the FEMA-imposed deadline of August 2, 2007 for the named levee reach.

D. The FEMA PAL agreement offers a Provisional status to the previously-accredited levee reach for a period of 24 months, during which time the areas protected by the levee will be noted on DFIRMs as protected by "Provisionally Accredited Levees." Flood insurance will be available but not mandatory for the areas protected by the levee.

E. By the close of the 24-month period (August 1, 2009), the PARTIES have agreed to provide, for the specific levee for which they have signed a PAL agreement, documentation to FEMA certifying that the specific levee and surrounding floodplain facilities satisfy FEMA mapping standards as published in 44 CFR 65.10. If the submitted material is approved by FEMA, then the specific levee will be re-accredited and the adjacent areas will be shown as protected by a levee on the DFIRM. Flood insurance will continue to be available but not mandatory.

F. If fully certified documentation meeting FEMA requirements is not provided by August 1, 2009 for any specific levee reach, then FEMA will de-accredit that levee reach and map the adjacent areas as flood-prone, with mandatory insurance requirements and related development restrictions.

G. MILPITAS provides and maintains internal floodplain storm-water conveyance facilities, some of which will also require analysis by CONSULTANT.

H. The DISTRICT owns and maintains the reach of levee and channels named above.

I. It is in the mutual interest of the PARTIES to work collaboratively to certify the levee covered by the PAL agreement.

**NOW, THEREFORE**, it is agreed as follows:

### **3. MUTUAL OBJECTIVES**

The PARTIES agree on the following mutual objectives:

- a. To provide the necessary information to enable FEMA to determine whether to re-accredit the Lower Penitencia Creek Levee within the FEMA-prescribed 24-month timeframe which ends on August 1, 2009;
- b. To retain the existing Flood Insurance Rate Map (FIRM) status for those areas protected by the Lower Penitencia Creek Levee;
- c. To identify any deficiencies that would prevent re-certification of specific levee reaches and an estimated scope and cost for remediation of such deficiencies.

### **4. SCOPE OF WORK**

The PARTIES will initiate a PROJECT to complete the work needed to provide the FEMA required certification or re-certification in accordance with the PAL agreements. The PROJECT will consist of collecting, certifying and submitting the required technical information to FEMA in the appropriate format so that FEMA can determine whether to re-accredit the levee named above as providing flood protection to adjacent areas up to and including the 1% FLOOD EVENT. A private CONSULTANT will be engaged by DISTRICT to complete the PROJECT.

CONSULTANT has been chosen through a Request for Proposal process conducted by DISTRICT, with input and concurrence from MILPITAS, to complete the PROJECT, which work will include preparation of data, calculations, models, drawings, analyses, etc. as described in Exhibit A (Scope of Services and Fees and Payment). CONSULTANT will certify the package of materials according to FEMA requirements.

In the event that further investigation shows that any levee or portion thereof does not meet current FEMA mapping standards, CONSULTANT will provide sufficient technical data for that levee to demonstrate the specific deficiency(ies) of that levee and will prepare an estimated scope and cost for remediation of the deficiency(ies) sufficient to meet FEMA criteria. Further investigation toward the certification of that specific levee would be terminated unless both the DISTRICT and MILPITAS agree to proceed with further investigation. DISTRICT and MILPITAS would pay for the work already completed by the CONSULTANT for that levee, in accordance with the agreed-upon cost-share formula as described in Section 5 of this AGREEMENT.

Exhibit A (Attached) provides the Scope of Services and Fees and Payment as prepared by CONSULTANT for this PROJECT.

## **5. ALLOCATION OF PROJECT COST**

### **a. General Provisions**

PARTIES agree that each will be responsible for its own internal expenditures relating to the PROJECT, including, but not limited to: staff time; travel expenses; publication, printing and advertising costs; and other internal or incidental costs.

PARTIES agree that the PROJECT COST will be allocated between the DISTRICT and MILPITAS, with DISTRICT paying 50% of the PROJECT COST for certification of the levee and MILPITAS paying 50% of the PROJECT COST for the certification of the levee, as set forth in Section 5b, below.

Actual costs will be tracked and invoiced to DISTRICT by CONSULTANT. Payment from MILPITAS to District will be in accordance with the schedule outlined in Section 8 of this AGREEMENT.

CONSULTANT costs are based on the final scope of services provided by CONSULTANT and reviewed by DISTRICT and MILPITAS. For budgeting purposes, the costs include Contingent Tasks which may or may not be required, such as disposal of drilling cuttings if HazMat materials are encountered; additional field surveys if required; and technical memoranda. Contingency costs are a significant portion of the total project costs, because each finding in the investigation will determine the next required analysis; specific tasks are not precisely known a-priori. This approach is described in the Scope of Services and Fees and Payment, Exhibit A (Attached).

Billing will be for Time & Materials, with each task and sub-task billed at an individual "Not-to-Exceed" amount, as delineated in Exhibit A. However, unused amounts of a completed task may be transferred to an uncompleted task. It is likely that the full Not-To-Exceed amount will not be used. However, encumbrance of the full amount will be required to enter in to the CONSULTANT Agreement.

### **b. Cost-Shared Work and Allocations**

#### **i. Lower Penitencia Creek Levee Certification (FEMA Levee Number P-52) Task C1 through C7**

The Lower Penitencia Creek east levee is estimated to be approximately 0.7 miles long. MILPITAS and DISTRICT will each pay 50% of the PROJECT COST to re-certify the east levee of Lower Penitencia Creek, from I-880 to the confluence with Berryessa Creek, which will be itemized as task C1 through C7 in the CONSULTANT Agreement. The costs for levee re-certification include Basic Tasks, Optional Tasks (which may or may not be

required, depending on the findings of the Basic Tasks), and Contingent costs, which are estimated to be approximately 10% of the Basic Services costs). These costs are summarized in Exhibit A.

The total Not-To-Exceed cost for tasks C1 through C7 is \$313,700, divided as follows:

<u>Agency</u>	<u>Proposed Share</u>	<u>% Share</u>
DISTRICT	\$156,850	50%
MILPITAS	\$156,850	50%

**ii. TASK C8: Lower Penitencia Creek CEQA Clearance  
Cost is borne entirely by DISTRICT**

DISTRICT has identified a potential need for assistance with CEQA clearance for the field work required for Tasks C1 through C6. This work will be itemized as task C8 in the CONSULTANT Agreement. The DISTRICT will pay 100% of the costs for this TASK, if activated.

**iii. MILPITAS is only responsible for payment of the cost-share amount it agreed to under Section 5(b)(i) of this AGREEMENT. Additional cost sharing commitments by MILPITAS must be documented in an executed amendment to this AGREEMENT.**

## **6. ALLOCATION OF PROJECT RESPONSIBILITIES**

Based upon resources, jurisdictional responsibilities and expertise, PARTIES will provide the best available existing data that is within their possession or control to the CONSULTANT to complete the necessary analyses. Examples of data that might be necessary or helpful in completing the PROJECT include:

- a. Existing hydraulic, hydrologic, geotechnical or topographic information for the creek or any other relevant information that may be available in DISTRICT files;
- b. Existing storm drain (interior drainage), topographic, land use or land use changes, construction information (e.g. bridges), emergency management information or any other relevant information that may be reasonably available in files of MILPITAS.

## **7. MANAGEMENT OF CONSULTANT AGREEMENT**

### **a. Duties of DISTRICT**

DISTRICT will be the lead agency for the PROJECT. As lead agency, DISTRICT will perform or has performed the following duties at its own cost:

1. Solicitation of proposals for engineering services, including preparation of Request for Proposal documents, advertisement for Proposals, CONSULTANT selection and award of CONSULTANT Agreement, with concurrence of MILPITAS.
2. Negotiation of Final Scope of Services and PROJECT COST, with concurrence of MILPITAS.
3. Arranging for site access for CONSULTANT for the preparation of surveys, soils, geotechnical or other investigations as may be required.
4. Obtaining such permits as may be required from other governmental agencies for the PROJECT.
5. Administration of the CONSULTANT Agreement , including supervision and review of the work, and processing of any CONSULTANT Agreement amendments.
6. Recordation of Notice of Completion of PROJECT.
7. Submittal of certified packages, as prepared by CONSULTANT, to FEMA.

DISTRICT will promptly review and respond to all materials submitted by the CONSULTANT in connection with the PROJECT. Copies of all materials submitted to DISTRICT by CONSULTANT will be forwarded to MILPITAS for review, as stated in Section 7(b), below.

**b. Duties of MILPITAS**

Provide DISTRICT with this signed AGREEMENT prior to DISTRICT execution of CONSULTANT Agreement.

MILPITAS will promptly review within a reasonable review time and respond to all materials submitted by the CONSULTANT or DISTRICT for review in connection with the PROJECT. Approval, where required, may be by e-mail or in writing. By signing this AGREEMENT, MILPITAS authorizes Thomas C. Williams, City Manager to provide approvals within the scope and budget of this AGREEMENT on behalf of MILPITAS.

**8. PAYMENT**

During the CONSULTANT Agreement term, DISTRICT will review each invoice as submitted by CONSULTANT, and pay the approved amount. DISTRICT will provide copies of each invoice to MILPITAS. On or before July 10, 2008, MILPITAS will submit to DISTRICT an amount equal to 50% of MILPITAS's Proposed Share, as described in Section 5 of this AGREEMENT.

Upon final payment to the CONSULTANT by DISTRICT; MILPITAS will reimburse to DISTRICT 50% of actual costs for Tasks C1 through C7, less any previous reimbursements, in accordance with the final CONSULTANT invoices for the PROJECT COST. No interest will be paid on the deposits made by any PARTY.

## **9. ADDITIONAL COSTS**

Any additional costs resulting from additional tasks not included in the original Final Scope of Services for the Lower Penitencia Creek levee certification will first require an amendment to this AGREEMENT and then an amendment to the CONSULTANT Agreement. Once approved, the amendment(s) to this AGREEMENT will describe the additional work and the applicable cost-sharing arrangement for the cost of that additional work, including what percentage of the cost will be borne by each party.

## **10. PROJECT RECORDS**

DISTRICT will keep and maintain a complete copy of all costs and expenditures relating to the PROJECT, together with a complete copy of all reports, contracts and other documents relating to the PROJECT, and the same will be available for inspection by MILPITAS at any time during usual business hours for the duration of this PROJECT. The DISTRICT will maintain all records for a minimum of three (3) years after the PROJECT is terminated or completed.

## **11. TERMINATION OF AGREEMENT**

In the event a CONSULTANT Agreement for completing the requirements of the PROJECT is not awarded by June 1, 2008 this AGREEMENT will terminate immediately, unless extended by mutual written consent of all PARTIES.

If any PARTY does not pay its share of PROJECT COST in accordance with Section 8 established in this AGREEMENT, the PROJECT may be terminated and any and all actual expenditures made on behalf of MILPITAS will be reimbursed to the DISTRICT within 30 days of DISTRICT invoicing.

## **12. LIMITATION OF LIABILITY**

Except for each party's payment obligations under this AGREEMENT, neither PARTY to this AGREEMENT will be responsible or liable to any other PARTY for any act or omission resulting in loss, liability, expense, claim, costs (including costs of defense), suits, and damages of every kind, nature and description directly or indirectly arising from the good faith performance of its duties hereunder nor will any PARTY be responsible or liable for any act or omission by CONSULTANT. This paragraph will not be construed to exempt any PARTY, including its employees and officers, from its own fraud, willful injury or violation of law whether willful or negligent.

### **13. ALTERNATIVE DISPUTE RESOLUTION/ COSTS & ATTORNEYS FEES**

The PARTIES will make a good faith effort to settle any dispute or claim arising under this AGREEMENT. If the PARTIES fail to resolve such disputes or claims, they will submit them to nonbinding mediation in California prior to initiating any litigation. If mediation does not arrive at a satisfactory result, the PARTIES involved in the dispute may agree to engage in arbitration. In the event any of these alternative dispute resolution processes are employed, each PARTY thereto will bear its own costs and attorneys fees. If these alternative dispute resolution processes are not successful and litigation results, the prevailing PARTY or PARTIES in the litigation shall recover their reasonable costs and attorneys fees.

### **14. JURISDICTION AND SEVERABILITY**

This AGREEMENT will be administered and interpreted under the laws of the State of California. If any part of this AGREEMENT is found to conflict with applicable laws, such part will be inoperative, null and void insofar as it conflicts with said laws, but the remainder of this AGREEMENT will be in full force and effect.

### **15. ASSIGNMENT**

No PARTY to this AGREEMENT may assign any right or obligation pursuant to this AGREEMENT. Any attempted or purported assignment of any right or obligation pursuant to this AGREEMENT will be void and of no effect.

### **16. COUNTERPARTS**

This AGREEMENT may be executed in any number of counterparts, each of which, when executed and delivered, will be deemed to be an original, and all of which, taken together, will be deemed to be one and the same instrument.

**IN WITNESS WHEREOF**, the PARTIES have executed this AGREEMENT the day and year first above written.

APPROVED AS TO FORM:

CITY OF MILPITAS

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City Attorney

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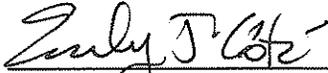
City Manager

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Date

APPROVED AS TO FORM:

SANTA CLARA VALLEY WATER  
DISTRICT

  
\_\_\_\_\_  
District Counsel

By   
\_\_\_\_\_  
Chief Executive Officer

MAR 25 2008

\_\_\_\_\_  
Date

**EXHIBIT A**  
**APPENDIX ONE**  
**SCOPE OF SERVICES**  
THE RECERTIFICATION OF LEVEES TO MEET FEMA MAPPING STANDARDS

This Appendix One describes the Agreement between Santa Clara Valley Water District (District) and Schaaf & Wheeler Consulting Civil Engineers, Inc. (Consultant) in providing technical services for the Recertification of Levees to meet FEMA Mapping Standards (Project).

**I PROJECT OVERVIEW**

FEMA's Map Modernization Program (MapMod) intends to reflect the current reality of the natural and man-made environments, as they relate to flood hazards in affected communities. The ultimate goal is to provide updated maps that support a flood insurance program properly aligned with actual risk. Access to accurate maps enhances community-based floodplain decisions, provides jurisdictional agencies with the proper tools for floodplain management and -- most importantly -- provides local property owners with meaningful flood risk data so they may make informed decisions.

District participation in MapMod includes the accreditation of its levees that provide protection from the base flood, that is, the one percent annual chance flood also referred to as the "100-year flood." Certain levees believed to meet federal standards for levee performance -- as listed in the Code of Federal Regulations, Title 44, Section 65 (44 CFR §65) -- are thought to be eligible as Provisionally Accredited Levees (PAL) and are currently shown as providing one-percent flood protection on Flood Insurance Rate Maps (FIRMs).

The approach and scope of work outlined herein are intended to evaluate and certify the following levees, which the District has co-signed PAL agreements as offered by FEMA with National Flood Insurance Program Communities as noted below:

- The north bank levee of Uvas Creek in Gilroy, constructed by the U.S. Army Corps of Engineers in 1990 from 2,200 feet downstream of Thomas Road to Santa Teresa Boulevard. The approximate length of levee for recertification is 11,500 feet or 2.2 miles. A PAL agreement has been signed with the City of Gilroy and County of Santa Clara.
- The east and west bank levees of Stevens Creek in Mountain View, constructed by the Santa Clara Valley Water District in 1983 from Crittenden Lane to U.S. Highway 101. The approximate total length of levee on both sides of the creek for recertification is approximately 12,000 feet or 2.3 miles. A PAL agreement has been signed with the City of Mountain View.
- The east bank levee of Lower Penitencia Creek in Milpitas, constructed by a private developer in 1988 from California Circle near Dixon Landing Road to Berryessa Creek. The approximate total length of levee for recertification is approximately 4,000 feet or 0.75 mile. A PAL agreement has been signed with the City of Milpitas.

To receive FEMA accreditation, the levee must be shown to conform to the requirements of 44 CFR §65.10 as indicated by the terms of the Provisionally Accredited Levee Program (PAL):

"To the best of [the District's and municipalities'] knowledge, the [subject] levee...meets the requirements of 44 CFR 65.10 and has been maintained in accordance with an adopted

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operation and maintenance plan and records of levee maintenance and operation, as well as tests of the mechanized interior drainage system if applicable.....”

## **II GENERAL SCOPE OF WORK**

The Consultant will perform Basic, Optional and Additional Tasks as defined herein for the following categories of professional services:

- Engineering analyses and calculations relevant to certifying an earthen levee to 44 CRF §65.10 requirements
- Geotechnical field exploration and laboratory analyses
- Topographic surveying
- Preparation of levee certification documents in conformance with Federal Emergency Management Agency (FEMA) requirements
- Coordination with Santa Clara Valley Water District, City of Gilroy, County of Santa Clara, City of Mountain View, City of Milpitas, FEMA and US Army Corps of Engineers

### **Types of Tasks:**

**Basic Tasks** are those defined as necessary to secure the satisfactory completion of levee certification.

**Optional Tasks** are those that may become necessary to the satisfactory completion of levee certification depending upon the outcome of analyses performed under the Basic Tasks, and may be initiated only upon expressed written consent by the District. Consultant will only perform an Optional Task upon receiving prior written authorization from the District.

**Additional Tasks** are those that are not specifically required for levee recertification, but are ancillary to Basic Tasks. These Additional Tasks will be initiated only upon express written authorization from the District. Consultant will only perform an Additional Task upon receiving prior written authorization from the District. Billing for Additional Tasks will be specifically noted in invoices to aid the District in seeking reimburse from outside agencies.

Consultant will periodically inform District staff of Consultant's data and analyses, and provide District staff with an opportunity to provide feedback to Consultant regarding any portion of the levee recertification process. Nothing in this Agreement should be construed as limiting Consultant's professional judgment. District expects and Consultant agrees that Consultant will use its best efforts, professional judgment, skill, and knowledge and shall efficiently perform its duties hereunder.

Project coordination meetings will be held at one of the District facilities located at 5750 Almaden Expressway in San Jose, California; or at one of the respective City offices as requested by the District.

Unless noted otherwise in a specific task, the Consultant will provide:

- Written response, with brief description of rationale, to all District review comments that the Consultant disagrees with, is concerned about, or is not

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incorporating. The written response(s) will be provided to District within seven working days of receiving written District comments.

- Draft meeting agenda and draft minutes via e-mail without hardcopies.
- Final meeting agenda and minutes, one hard copy per attendee.
- Meeting handouts, one copy per attendee.

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**III PROVIDED BY DISTRICT**

Unless noted otherwise in the specific task or subtasks, the District will provide:

- A facility for meetings.
- One set of consolidated review comments to the Consultant.
- The District and the Consultant will coordinate the format and exchange of electronic files for comments and responses to minimize the labor required to achieve this deliverable.
- Periodic review of Consultant's work in progress.
- Topographic information for the project areas as identified on the District's survey request form submitted by the Consultant.
- Topographic information will be provided in digital format as ArcGIS TIN and contour shape files.
- Data requested by the Consultant that is readily available (such as existing reports, hydrologic and hydraulic models and/or project documentation).
- District will use its best efforts to provide data within 10 business days of each request.
- Assistance in securing access to the project sites and providing escort for security purposes at project sites, if necessary.
- Copies of all relevant District Operations and Maintenance plans, procedures and records for the subject levees; suitable for review and submittal to FEMA as part of the levee certification packages.

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**IV TASKS**

The Consultant will perform the following tasks to complete levee recertification documents meeting FEMA mapping standards for the north bank Uvas Creek levee in Gilroy, Stevens Creek levees in Mountain View, and the east levee of Lower Penitencia Creek in Milpitas; including project management, quality assurance, and quality control.

**Task A Certify Uvas Creek North Levee**

The Consultant will provide data, analyses and documents to show whether the north bank levee of Uvas Creek in Gilroy meets the requirements of 44 CFR 65.10.

**Task A1 Meetings and Coordination for Uvas Creek Levee**

Purpose

The Consultant will manage work under this Agreement to ensure completion of all tasks within the Appendix Two budget and in accordance with Appendix Three, "Schedule of Completion," and will ensure that all work and deliverables, including all work performed by sub-consultant(s), are appropriately prepared and reviewed by the Consultant for quality assurance and quality control.

District Responsibilities:

- The District will identify District team members and others, as appropriate.
- District will provide facilities located at 5750 Almaden Expressway in San Jose, California for monthly progress meetings.
- The District's project management team will coordinate work of their team members, oversee their performance, and provide for communications within the District team.
- The District's project management team will review deliverables and comment on prior to submitting them to the Consultant for its review.
- District will provide from its files:
  - Reports and plans for Uvas Creek Levee
  - Currently effective hydraulic model(s) for Uvas Creek
  - Geotechnical reports and data relevant to the Uvas Creek Levee
  - O&M plans and records for Uvas Creek and the Uvas Creek Levee
  - GIS Data in usable digital form

Approach

1. The Consultant will work diligently to maintain project schedule and budget.
2. The Consultant will communicate weekly with the District's project manager to plan and review work progress.
3. Consultant will prepare and maintain a Work Plan consisting of:

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- a. A flow diagram showing Project tasks including prerequisites and milestone decisions
  - b. Schedule of Completion
  - c. Standards for data acquisition and analysis
  - d. Monthly updates and corrections to the most current Work Plan to reflect progress and/or changed circumstances.
4. The Consultant team will attend the following meetings:
- a. One (1) kick-off meeting
  - b. Twelve (12) monthly progress meetings of up to four hours each
  - c. One (1) coordination meeting with FEMA representative(s)
  - d. One (1) coordination meeting with USACE representative(s), and
  - e. Five (5) joint coordination meetings with the District, City of Gilroy and County of Santa Clara after completing the following Tasks:
    1. Task A2 - Levee Reconnaissance
    2. Task A4 - Freeboard Determination
    3. Task A5 - Geotechnical Evaluation
    4. Task A6 - Certification Package (before submittal to FEMA)
    5. Task A7 - Hydrologic Reconciliation

One (1) public meeting/workshop at the District's discretion. Typically, the Consultant team will be the Project Manager and/or the Project Engineer, and lead from each discipline as required.

5. Consultant must provide monthly progress reports complete with up-dated schedules that include the identification of critical path items. Such report must be provided with each monthly invoice. The purpose of this report is to record the work completed and document the execution of the tasks described in this Appendix and to allow the District to evaluate, at its reasonable discretion, the Consultant's progress and performance of completing the Scope of Services. The status summary report will include:
- a. An assessment of actual versus planned progress in completing the Services, including a description of the tasks, and deliverables completed to date.
  - b. For each task, the percentage of the fees incurred for such task compared to dollar amount allocated to such task.
  - c. A statement that all tasks will be completed within the agreed upon not-to-exceed amounts set forth in Appendix Two.
  - d. A statement that progress towards completion of the Scope of Services is on schedule to be completed within the time line set forth in the project schedule detailed in Appendix Three, or if completion of the Services is not on schedule, then a statement of the anticipated length of the delay, the cause of the delay, measures proposed or taken to prevent or minimize the delay, and the timetable for implementation of such measures, and

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- e. Any proposed change to the scope of services, and the rationale for such change.
  - f. Consultant will not bill District for the time expended in preparing and delivering this status summary report to the District.
6. The Consultant will be responsible for overseeing all activities among assigned Consultant's staff, managing and approving all work of sub-consultants, and maintaining appropriate coordination and communication with the District.
  7. If necessary, the District may request additional work for project management, meetings, and communication as a part of Contingent Services.
  8. Only written authorizations and directions to the Consultant from authorized District staff will be considered as directions from the District. E-mail from such staff will be considered written communications.
  9. Only the following software will be allowed to produce documents that are transmitted electronically by the Consultant to the District and may be changed only by mutual consent of the District and the Consultant.
    - a. Microsoft Word
    - b. Microsoft Excel
    - c. Microsoft Project
    - d. AutoCAD Version 2005 or 2008
    - e. ArcMap9.2
    - f. Adobe Acrobat PDF (Reader)

**Deliverables**

- Draft Work Plan to be submitted within two weeks of initial Notice to Proceed
- Final Work Plan
- Summary minutes of kick-off meeting
- Meeting agenda and handouts
- Draft meeting minutes within seven calendar days following each meeting and final meeting minutes within seven calendar days after receipt of District comments.
- Monthly progress reports, tied to the Work Plan, will be submitted within three working days of each invoice. This report will include an action item list and decision log updated monthly as an attachment to the progress report.
- Monthly invoices including support documentation, consistent with Terms and Conditions Section of Appendix Two, Fees and Payment.
- Quality review records
- Electronic copies of above deliverable items one through eight in the electronic format prescribed by the District

**Task A2      Uvas Creek Levee Reconnaissance**

**Purpose**

The macro assessment levee "walk down" provides a baseline visual inventory of potential maintenance issues for the Uvas Creek levee. The purpose of performing the

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walk down early in the project is to allow the District as much time as possible to address discovered issues before certification documentation is due. The walk down will be performed by the Consultant's geotechnical and hydraulic specialists. District staff, City staff, and County staff will be invited to participate. Field exploration locations will be selected where evidence of instability, seepage, or settlement issues are observed.

Upon completion of the walk downs, the project team will meet with the District to discuss the observed issues. If necessary, Consultant will prepare possible maintenance solutions to observed problems at the reference locations or indicate where the problems appear to be beyond maintenance type of improvement. The District will then decide whether to implement the recommended improvements and whether that implementation is feasible within the recertification timeline. If it appears that the recertification process can continue, Consultant will prepare a geotechnical exploration Work Plan to allow sufficient time for CEQA clearance.

District Responsibilities:

- The District will provide ortho-rectified aerial photography of the Project site in reproducible digital format.
- The District will provide the Consultant with five half-size sets of record drawings and specifications as available.
- The District will provide the Consultant with desired levee stationing for record purposes.
- The District will invite appropriate City and County staff to participate in up to eight hours of field levee reconnaissance and assist Consultant with coordination of said field reconnaissance.

Approach

Consultant will:

1. Set appropriate stationing along the top of the Uvas Creek levee using ortho-rectified aerial photographs provided by the District.
2. Observe levee for visually detectable issues and described by reference station number. Observations will be made for:
  - a. Evidence of settlement
  - b. Erosion
  - c. Encroachments by vegetation or other improvements
  - d. Potential slope stability problems
  - e. Inadequate maintenance
  - f. Evidence of structural problems
  - g. Evidence of seepage
  - h. Evidence of distressed or blocked closures or interior drainage structures
  - i. Excess debris within creek
  - j. Animal burrows
3. Photograph levee and adjacent areas and reference to stationing from Task A2.1. Prepare descriptive text for photos and identify observed deficiencies.

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4. Prepare Technical Memorandum describing visual levee assessment including date, time, Consultant and sub-consultant staff present, others present, observations and photo-documentation.
  - a. List any issues of concern including issues described in Task A2.2 or other issues that are apparent during the visual levee assessment. If there are no significant visually identified issues that could affect or jeopardize potential levee recertification, so state.
  - b. Submit memorandum for review and comment by District, City of Gilroy and County of Santa Clara.
  - c. If substantial visually identifiable issues could affect or jeopardize potential levee recertification, prepare a request for authorization of Task A2.5, "Corrective Action TM".
  - d. Meet with District, City of Gilroy and County of Santa Clara to present results of levee reconnaissance.
  - e. If Optional Task A2.5 is activated, present recommended corrective action for District consideration.
5. Prepare a Work Plan and obtain necessary permits for geotechnical field exploration.
  - a. Review available geotechnical data and observations made during "walk-down".
  - b. Prepare work plan for subsurface exploration program indicating levee access, impacts to the recreational trail (e.g. potential detours), locations for exploration, type of subsurface exploration at each location and approximate schedule with allowances for weather delays.
  - c. Prepare Health and Safety Plan, including plan for disposal of hazardous materials if encountered during field work and public safety within the recreational trail.
  - d. Obtain deep well exploration and/or encroachment permit(s) from the Santa Clara Valley Water District.
  - e. At one or more regularly scheduled monthly progress meetings, consultant will review and coordinate work plan with District, City of Gilroy and County of Santa Clara staff prior to initiating field work.

*This scope assumes the District and or City of Gilroy, and or County of Santa Clara will arrange for site access and property encroachment permits, including the unlikely event that access is required through private property. The District will provide CEQA clearance for field work as required, or may ask Consultant to provide CEQA clearance as Additional Task A8.*
6. **Optional Task.** Prepare recommended maintenance solutions to observed problems at the reference stations.
  - a. Indicate where the problems appear to be beyond maintenance type of improvement.
  - b. Discuss findings with District, City of Gilroy and County of Santa Clara.
  - c. If District agrees that recommended maintenance solutions are feasible, Consultant will prepare a Memorandum of the District's Intent to Implement the Required Solution(s).

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- d. If maintenance solutions are infeasible as mutually agreed by Consultant and District, City of Gilroy and County of Santa Clara, proceed to Task A2.7.
  - e. Include findings and recommendations in Corrective Action TM.
7. **Optional Task.** Prepare a "Levee Deficiency Report" that documents improvements required for levee certification to proceed; noting that correcting the listed deficiencies at this point would not necessarily lead to levee certification. **The certification process would be stopped for Uvas Creek.**

Deliverables

- Draft "Levee Reconnaissance" technical memoranda
- Final "Levee Reconnaissance" technical memoranda incorporating District's comments
- Work Plan for geotechnical exploration
- Draft "Corrective Action" technical memoranda (**Optional**)
- Final "Corrective Action" technical memoranda incorporating District's comments (**Optional**)
- Draft "Levee Deficiency Report" (**Optional**)
- Final "Levee Deficiency Report" incorporating District's comments (**Optional**)

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the absence of visually identifiable issues that could jeopardize levee recertification or an agreement that visually identifiable issues are correctable, and a plan for said correction as developed in Optional Task A2.5.

"GO" = Advance to Task A3

"NO GO" = Advance to Optional Task A2.6

**Task A3 Uvas Creek Cross Section Verification**

Purpose

Consultant will verify that cross sectional information (i.e. channel geometry) within hydraulic models furnished in Task A1 adequately represent current site conditions.

Consultant will not begin Task A3 until authorized by District contingent on positive results from Task A2.4 or Task A2.5.

District Responsibilities:

- The District will provide access for field surveys.

Approach

1. The Consultant will compare representative cross sections contained in currently effective hydraulic model(s) against field surveys and the District's digital topographic data, as appropriate.
  - a. Review existing hydraulic model(s) for critical cross section geometry locations.

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- b. Select model cross section locations between Southern Pacific Railroad and Santa Teresa Boulevard at approximate intervals of 1,000 feet and prepare graphic showing plan view of cross sections.
  - c. Coordinate cross section locations in the vicinity of the Luchessa and Tenth Street Bridge Projects with the City of Gilroy.
  - d. Survey selected cross sections, establishing horizontal and vertical control to NAD83 and NAVD88 horizontal and vertical datums, respectively.
  - e. Establish vertical datums for existing model(s) and surveyed cross sections. Convert datum for comparison as required.
  - f. Prepare graphic and numerical comparison of model cross section to field cross section at the selected locations between Santa Teresa Boulevard and Highway 101. Provide standard root mean square estimate of difference.
2. The Consultant will compare water surface profiles obtained from the currently effective hydraulic model(s) against water surface profiles obtained using field surveys from Santa Teresa Boulevard to Highway 101.
- a. Using existing hydraulic model(s) for Uvas Creek, remove all cross sections other than those selected for comparison. Use interpolated cross sections as necessary. Compute water surface profile using existing hydraulic model parameters.
  - b. Substitute corresponding field-surveyed cross sections in the existing hydraulic model for Uvas Creek. Use the same cross section interpolation interval. Compute water surface profile using existing hydraulic model parameters.
  - c. Prepare graphic and numerical comparison of modeled water surface profiles based on the existing model cross sections and field surveyed cross sections. Provide standard root mean square estimate of difference.
3. The Consultant will document the verification of cross sections from the effective hydraulic model provided by the District.
- a. Research and list FEMA standards for the required accuracy of computed water surface profiles.
  - b. Determine whether the water surface profile computed using the existing model cross sections is within the required water surface profile accuracy based on the water surface profile computed using field verified cross sections.
  - c. Identify reaches of Uvas Creek where the computed water surface profile does not meet FEMA accuracy standards.
  - d. Prepare a technical memorandum describing cross section verification methodologies and results, and submit to District.
  - e. For identified reaches not meeting computed water surface profile accuracy standards, proceed to Task A3.4 only after obtaining written authorization from District.
4. As an **Optional Task**, Consultant will perform a detailed survey for Uvas Creek only if cross sectional information cannot be verified as described in Task A3.3. This Scope of Services assumes that the entire study reach will require a detailed creek

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survey, so less money may be expended if portions of the creek study reach are verified by field surveys.

- a. Identify reach(es) of Uvas Creek where detailed creek surveys are required. The maximum reach limit is Monterey Road (Highway 101) to Santa Teresa Boulevard.
- b. Identify cross section locations and extents for field surveys based on hydraulic modeling requirements. (Previously surveyed sections will be incorporated into the new hydraulic model.)
- c. Survey cross sections at selected locations using control set up under Task A3.1d to meet FEMA accuracy standards. *It is assumed that survey control points set up under Task A3.1d for cross section verification will not be disturbed. If control points need to be re-established for reasons outside of the Consultant's control, this will be considered a Contingent Service.*
- d. Provide horizontal coordinates and vertical elevation points in a format suitable for HEC-RAS import.
- e. Provide a profile of the top of existing levee with stationing set at 50-foot intervals, using the same survey control.

Deliverables

- Draft memorandum on cross section verification results (pdf).
- Final memorandum on cross section verification results, after taking into consideration whether to incorporate District comments (i.e. If Consultant decides not to incorporate any District comment, Consultant must provide District with a written rationale for that decision).
- Authorization Requests for detailed creek surveys as required.

**Task A4 Uvas Creek Levee Freeboard Evaluation**

Purpose

The Consultant will complete hydraulic modeling of existing conditions for the identified study reach using software and methodologies approved by FEMA. The purpose of this task is to evaluate levee freeboard against 44 CFR §65.10 criteria and certify the levee for adequate freeboard (if it is provided) for the computed one-percent water surface profile.

Consultant will not begin Task A4 until authorized by District based on positive results from Task A2.4 or Task A2.5.

District Responsibilities:

- Facilitate Consultant access to Uvas Creek as required.
- Define base flood discharge(s) to be used in freeboard evaluation.

Approach

1. The Consultant will observe and photo-document the basic Uvas Creek study reach described herein including:
  - a. general channel condition

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- b. vegetation
  - c. signs of erosion or sediment aggradation
  - d. obstructions
  - e. bridges, crossings and other structures
2. Consultant will confirm bridge and culvert parameters contained in the hydraulic model using record drawings obtained in Task A1, direct field observation, and measurement. Road crossings include:
    - a. Monterey Road (U.S. Highway 101)
    - b. Thomas Road/ Luchessa Ave.
    - c. Miller Avenue
  3. Based on observations made in Tasks A4.1 and A4.2, provide reach-by-reach estimates of relevant hydraulic parameters including Manning's roughness coefficients, expansion and contraction coefficients, effective conveyance area encroachments, and other modeling parameters, including bed material sampling for any sediment transport calculations necessary to meet FEMA documentation requirements.
  4. The Consultant will complete an HEC-RAS model for Uvas Creek between Monterey Road (U.S Highway 101 – downstream face) and the downstream face of Santa Teresa Boulevard.
    - a. If Task A3.4 is activated, Task A4.7 is also activated as an Optional Task
    - b. Consultant will document all modeling assumptions as necessary for FEMA submittal.
  5. For the Uvas Creek reach parallel to the Uvas Creek Levee, the Consultant will compare graphically and in tabular form, computed base flood elevations to the top of levee profile.
    - a. Calculate the freeboard provided above base flood elevations (one-percent water surface profile) computed in Task A4.4.
    - b. Compare calculated freeboard to NFIP criteria as specified in 44 CFR §65.10(b)(1)(i).
  6. The Consultant will prepare a technical memorandum describing hydraulic methodologies and results, including freeboard evaluation.
    - a. List any reaches with deficient freeboard.
    - b. Submit memorandum for review and comment by District.
    - c. If there are areas of substandard freeboard, prepare a request for authorization of Task A4.10, "Freeboard Deficiency TM".
    - d. The Consultant will meet with District, City and County representatives to present results of freeboard evaluation.
  7. **Optional Task.** Convert field cross section data to HEC-RAS cross sections; and import to the effective hydraulic model for those reaches whose cross sectional geometry is not verified in Task A3.3.

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8. **Optional Task - Field Survey of Levee Profile.** This task may be required if the freeboard determined in Task A4.5 differs from FEMA's minimum criterion by values that are within the mapping accuracy of information used for freeboard determination, but detailed cross sections have not been surveyed (i.e. Task A3.4 is not activated; for efficiency, this work would be included in Task A3.4 if that Optional Task is activated) AND the District's digital topographic data is not sufficient to produce an adequate levee profile.
9. **Optional Task - Freeboard Deficiency Memorandum.** Consultant will prepare recommended maintenance solutions to calculated freeboard deficiencies.
  - a. Indicate where the causes of substandard freeboard appear to be beyond a maintenance type of improvement.
  - b. Discuss findings with District, City of Gilroy and County of Santa Clara.
  - c. If District agrees that recommended maintenance solutions are feasible, include findings and corrective action recommendations in Freeboard Deficiency TM.
  - d. If maintenance solutions are infeasible as mutually agreed by Consultant and District, proceed to Task A2.7, "Levee Deficiency Report".
10. **Optional Task - Freeboard Determination using Risk-Based Methods.** Upon written authorization from the District, consultant will perform a risk-based analysis for levee freeboard using methods outlined in USACE EM 1110-2-1619 and ER 1105-2-101. The risk-based approach replaces deterministic NFIP levee freeboard criteria with the concept of a probabilistic level of "assurance" for levee certification.
  - a. Document risk-based methodologies and any simplifying assumptions made.
  - b. Establish distribution of one-percent discharge estimates using appropriate standard error for hydrologic methodology used for selected levee certification discharge(s).
  - c. Quantify potential errors in surveys and Manning's Coefficient using methods outlined in "Accuracy of Computed Water Surface Profiles" (HEC Research Document 26, 1986).
  - d. Use HEC-FDA and/or other software to produce distributions of one-percent water surface profile estimates necessary to evaluate level of assurance for freeboard.
  - e. Use "Levee Certification Decision Tree" from ER 1105-2-101 to ascertain whether the existing top of levee elevations meet risk-based criteria for levee certification
  - f. Prepare a "Risk-Based Levee Freeboard Evaluation" Technical Memorandum. Said memorandum will contain sufficient information and data to form the basis of a FEMA submittal if risk-based criteria will be used in lieu of NFIP criteria
  - g. Add Addendum to Freeboard Deficiency TM prepared in Task A4.9 explaining the results of the risk-based analysis and whether freeboard deficiencies remain.
  - h. Meet with District, City of Gilroy and County of Santa Clara to discuss risk-based freeboard evaluation.

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Deliverables

- Effective HEC-RAS model for Uvas Creek between Highway 101 and Santa Teresa Boulevard, provided to District in electronic format compatible with FEMA requirements
- Technical Memoranda documenting freeboard evaluation for Uvas Creek Levee as described.
- Freeboard Deficiency TM if applicable.

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the certification of adequate freeboard in Task A4.6 or Task A4.10, or an agreement that freeboard deficiencies are correctable through maintenance activities, and a plan for said correction as developed in Optional Task A4.9.

"GO" = Advance to Task A5

"NO GO" = Advance to Optional Task A2.6

**Task A5 Uvas Creek Levee Geotechnical Evaluation**

Purpose

The Consultant will provide the geotechnical evaluation necessary to support levee certification in conformance with 44 CFR §65.10(b)(4) and (5). A site specific geotechnical investigation will be performed in two phases (the scope of the second phase will be contingent on results obtained in the first phase and will be based on specific additional information required by the sub-consultant to certify the condition of the levee), based on the program outlined in USACOE EM 1110-2-1913 to:

- Characterize subsurface conditions.
- Obtain soil samples for visual examination and laboratory testing.
- Describe subsurface conditions, engineering properties, engineering analyses and evaluations.
- Provide for engineering analyses to evaluate liquefaction, seepage, embankment stability, settlement, and stability of concrete structures or appurtenant works. Based on cursory review of the available geotechnical information, the project team expects all levees to be underlain by alluvial soils consisting of both coarse-grained and fine-grained strata. The key geotechnical concerns are the potential presence of liquefiable non-plastic soils and soft, compressible fine-grained soils, and potential under-seepage due to coarse gravels in Uvas Creek.
- Document field exploration, analyses, findings, and recommendations.

Consultant will not begin Task A5 until obtaining written authorization from District based on positive results from Task A4.6, Task A4.9, or Task A4.10.

District Responsibilities:

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- Facilitate Consultant access to Uvas Creek as required.
- Provide available geotechnical data and reports.
- Facilitate permits for boring material disposal.

Approach

1. Consultant will perform geotechnical field exploration in two separate phases (Phase 1 and Phase 2), following the Work Plan prepared in Task A2.5. A combination of rotary wash borings and cone penetration tests (CPTs) will be used for the first phase of field investigation as indicated in Table A1. Phase 2 exploration is described by Optional Task A5.13.

**Table A1: Schedule of Phase 1 Exploratory Borings for Uvas Creek Levee**

Type	Total Number	Depth
CPT	9	70 feet
Rotary Wash	3	70 feet

2. Consultant will complete the Phase 1 Field Exploration.
  - a. Delineate an exploration location on the levee top at intervals of approximately 1,000 linear feet. The number of Phase 1 exploration locations may be reduced based on the availability and quality of existing geotechnical data.
  - b. Consultant will alternate boring and CPT where appropriate, and each will be advanced to a depth below the levee toe of at least three times the height of the levee (USACOE EM 1110-2-1913), or a minimum of 50 feet below the levee if liquefiable soils are encountered, per standard practice.
  - c. Samples will be obtained using a 2-inch outside diameter (1.4-inch inside diameter) split-barrel sampler (also called a Standard Penetration Test sampler), a 3-inch outside diameter (2.5-inch inside diameter) split barrel sampler lined with brass rings or tubes (also called a Modified California sampler), or with a thin-walled Shelby tube. Samples will be driven 18 inches by a 140 pound hammer falling 30 inches, and the number of hammer blows will be recorded every 6 inches of driving.
  - d. Consultant will obtain soil samples from the borings at 5 foot intervals for visual classification and laboratory testing. The sampling frequency will be increased to an interval of 2.5 feet in liquefiable soils.
    - i) Standard Penetration Test (SPT) samples will be collected in coarse-grained, non-plastic soil to provide N-values for evaluation of liquefaction. Modified California samples will be collected in fine-grained or coarse-grained soils that do not exhibit susceptibility to liquefaction. Shelby tube samples will be collected in soft, fine-grained soils.
    - ii) Borings and CPTs will be backfilled with cement grout as required by the District, and topped off with cold patch asphalt within paved areas.
    - iii) Spoil cuttings from the borings will be tested on-site, drummed or otherwise contained, and transported to the nearest landfill properly licensed to dispose of the material. The presence of tested hazardous materials in the spoil

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cuttings will trigger Task A5.12 as a Contingent Service. Cuttings material will be removed from the site within 30 days of generation.

- e. Consultant will evaluate the existing geotechnical data and the results of the Phase 1 investigation to divide the levee into reaches with similar subsurface and embankment conditions. Potential geotechnical issues may exist for each reach. This scope of work assumes that the levee will be divided into no more than three reaches for further field exploration and laboratory testing as defined in Optional Tasks A5.13 and A5.14. If more than three reaches are necessary based on the findings of the Phase 1 investigation, an estimate for evaluation of additional reaches will be furnished by the Consultant as a Contingent Scope of Service.
3. Consultant will perform laboratory testing in phases corresponding to the field investigation phases. The types and anticipated quantity of laboratory tests for Phase 1 are summarized in Table A2. The purpose of the Phase 1 laboratory testing is predominantly to provide classification of subsurface soils.

**Table A2: Schedule of Phase 1 Laboratory Testing for Uvas Creek Levee**

Test	ASTM Designation	Anticipated Number
Moisture Content and Dry Density	D2937	21
Moisture Content Only	D2216	13
Atterberg Limits	D4318	3
Consolidation	D2435	3
Unconfined Compression	D2166	4
Triaxial UU	D2850	3
Triaxial CU with Pore Pressure	D4767	1
Sieve Analysis	D422	8
Sieve Analysis + Hydrometer	D422	2
Percent Passing No. 200 Sieve	D1140	8
Compaction Curve	D1557	3

4. Consultant will perform geotechnical analyses to evaluate liquefaction and levee stability per USACOE EM 1110-2-1913.
- a. Evaluate triggering of liquefaction using procedures outlined in Youd et al. (2001). The SPT N-values and CPT data collected during the field investigation will be the primary data used for evaluating liquefaction. Earthquake ground motions will be determined using the California Geological Survey (CGS) probabilistic seismic hazard map for California. (The CGS seismic hazard model uses current fault source characterizations and is well defined in California. Attenuation relationships for soil sites used by the CGS model were developed from primarily California seismic events and are suitable for the subsurface conditions of the subject levees.)
  - b. Evaluate liquefaction hazards, including seismically-induced settlement, residual strength of liquefied soil, and lateral spreading.
5. Consultant will complete a levee seepage analysis.
- a. Review field and laboratory data.

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- b. Review available information provided by District.
- c. Perform geotechnical analyses to evaluate seepage per USACOE EM 1110-2-1913.
  - i) Evaluate seepage through and under the levee using the finite-element computer program Seep/W (GeoSlope, 2004) to determine the exit gradient at the landside toe of the embankment under steady-state seepage conditions.
  - ii) Evaluation of transient seepage conditions based on the anticipated flood duration may be performed if the exit gradient under steady-state conditions exceeds 0.5.
- 6. Consultant will complete a stability evaluation for the levee.
  - a. Review field and laboratory data.
  - b. Review information provided by District.
  - c. Perform geotechnical analyses to evaluate the stability of the levee per USACOE EM 1110-2-1913.
  - d. Levee stability will be analyzed using Slope/W, a companion program to Seep/W, which utilizes limit-equilibrium theory for calculating the factor of safety (FS) for slope stability.
  - e. Evaluate levee stability for dry (existing), steady-state seepage, rapid drawdown, and pseudo-static conditions, as well as with post-liquefaction residual strength, if applicable.
- 7. Consultant will complete a settlement evaluation of the Uvas Creek levee.
  - a. Review field and laboratory data.
  - b. Review available information provided by District
  - c. Determine from a comparison of verified levee cross sectional surveys and/or levee profile survey and/or digital topographic data to record drawings whether significant settlement of the levee has occurred, or if the levee section will change due to maintenance recommendations made for other tasks. This evaluation will take into account the original settlement analysis and allowances prepared by the USACOE.
  - d. If comparison analysis indicates that after nearly 20 years post-construction, further study is warranted, determine simple geologic conditions and settlement parameters, and evaluate the increase in stress using a closed-form solution for the shape of loading assuming that geologic strata are essentially horizontally deposited and homogenous across the levee section.
  - e. If the geometry of the levee does not fit closely into one of the available closed-form solutions and detailed analysis is warranted, use Sigma/W (a finite element code used to evaluate the stress increase below the levee) to establish anticipated settlement.
- 8. Consultant will complete an Appurtenant Works Assessment for the levee.
  - a. Review field and laboratory data.
  - b. Review available information provided by the District.

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- c. Determine from visual inspection whether the presence and/or condition of appurtenant structures, such as gauging stations, walls, fences, abutments, etc. located on or very near the levee present geotechnical concerns.
  - d. Settlement of concrete structures or any other appurtenant works will be evaluated if evidence of distress to the levee is identified based on the visual levee assessment of Task A2, or if it is anticipated that new structures will be constructed.
9. Consultant will meet with District and its geotechnical engineering staff, City of Gilroy and County of Santa Clara, to present preliminary results of the field investigation and geotechnical evaluations, including methodologies and assumptions.
- a. Incorporate as it deems appropriate District comments into the final geotechnical evaluations.
10. Consultant will prepare a draft geotechnical report that documents site plans, boring and CPT logs, laboratory test data, and parameters used in geotechnical evaluations.
- a. Document results of liquefaction evaluation, seepage analysis, levee stability analysis, and settlement analysis, including the results of Optional Tasks.
  - b. If supported by the analysis, certify that the data and analyses meet the requirements of USACOE EM 1110-2-1913 and by direct reference, 44 CFR §65.10(b)(4) and (5).
  - c. Indicate where the levee is substandard and the corrective maintenance action necessary to meet standards, if applicable; or indicate that substantial levee improvement is required to meet standards.
  - d. Submit three (3) copies of Draft Geotechnical Report to the District for review and comment.
  - e. Incorporate District comments into Final Geotechnical Report. Report will meet standards for FEMA submittal.
11. Consultant may perform Hazardous Spoil and Cutting Disposal as an **Optional Task**, upon District's prior written approval. Phase 1 field exploration will generate waste including drilling mud, excess soil cuttings and other debris. Materials will be tested, placed in 55-gallon drums and off-hauled to an appropriate disposal site as part of Task A5.3. The additional fee associated with this Optional Task assumes the worst reasonably foreseeable case of material contamination and associated increases in handling, transportation, and disposal costs.
12. Consultant may perform Phase 2 Field Work as an **Optional Task** if his interpretation of the results from Phase 1 Field Work indicates that additional information is necessary to complete the geotechnical evaluation, and District provides its prior written approval. The decision to pursue Phase 2 Field Work would be discussed with the District, City of Gilroy and County of Santa Clara prior to beginning Phase 2 Field Work.
- a. Unless access is prohibited, Phase 2 field investigations would be performed at both river-side and dry-side toes to provide cross-sectional variation of subsurface information for each reach that exhibits potential geotechnical issues. (Alternatively, a companion CPT or boring may be substituted at a Phase 1 location at the top of the levee).

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- b. The scope of work for Phase 2 field investigations is the same as for Phase 1; however, specific sample types and depths would be specified based on the subsurface conditions encountered during the Phase 1 field investigation.
- i) A combination of rotary wash borings and cone penetration tests (CPTs) would be used for the field investigation as indicated in Table A3.
  - ii) Obtain soil samples from the borings at five to ten foot intervals for visual classification and laboratory testing.
  - iii) Borings and CPTs would be backfilled with cement grout as required by the District, and topped off with cold patch asphalt within paved areas. Spoil cuttings from the borings will be tested on-site, transported to the nearest landfill properly licensed to dispose of the material. The presence of hazardous materials encountered during Phase 2 would trigger Task A5.15 as an Optional Task.

**Table A3: Schedule of Phase 2 Exploratory Borings for Uvas Creek Levee**

Type	Total Number	Depth
CPT	3	70 feet
Rotary Wash	3	70 feet

13. Consultant may perform Phase 2 Lab Work as an **Optional Task**, upon District's prior written approval. The types and anticipated maximum number of laboratory tests for up to three Phase 2 reaches are summarized in Table A4.

**Table A4: Schedule of Phase 2 Laboratory Testing for Uvas Creek Levee**

Test	ASTM Designation	Anticipated Number
Moisture Content and Dry Density	D2937	21
Moisture Content Only	D2216	13
Atterberg Limits	D4318	3
Consolidation	D2435	3
Unconfined Compression	D2166	4
Triaxial UU	D2850	3
Triaxial CU with Pore Pressure	D4767	3
Sieve Analysis	D422	8
Sieve Analysis + Hydrometer	D422	2
Percent Passing No. 200 Sieve	D1140	8
Compaction Curve	D1557	3

14. Consultant may perform additional Hazardous Spoil and Cutting Disposal as an **Optional Task**, upon District's prior written approval. Phase 2 field exploration may generate waste including drilling mud, excess soil cuttings and other debris. Materials would be tested, placed in 55-gallon drums and off-hauled to an appropriate disposal site as part of Task A5.13. The additional fee associated with this Optional Task assumes the worst reasonably foreseeable case of material contamination and associated increases in handling, transportation, and disposal costs.

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Deliverables

- An electronic (pdf) version of the Draft Geotechnical Report for distribution by the District.
- Three (3) hard copies of the Final Geotechnical Report., incorporating District comments.
- An electronic (pdf) version of the Final Geotechnical Report.

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the certification of geotechnical levee stability as described in Task A5 or an agreement that geotechnical deficiencies are correctable through maintenance activities, and a plan for said correction as developed in Task A5.11.

"GO" = Advance to Task A6

"NO GO" = Advance to Optional Task A2.6

**Task A6 Certification Package for Uvas Creek Levee**

Purpose

The Consultant will complete a Levee Recertification Package for District submittal to FEMA. The submittal will be in conformance with NFIP guidelines (CFR44 §65.10), FEMA Study Contractor Guidelines and other criteria developed in Task A1.

Consultant will not begin Task A6 until authorized by District in writing based on positive results from Task A4 and Task A5.

District Responsibilities

- The District will review the Consultant's Certification Package and provide comments as necessary.
- The District will obtain Community Acknowledgement Form signatures from the appropriate District, City of Gilroy and County of Santa Clara floodplain managers.
- The District is responsible for the payment of fees associated with the submittal, if any.
- The District and City of Gilroy and County of Santa Clara are responsible for public notification as required by regulation.

Approach

1. Consultant will prepare narrative and graphic documentation of the Uvas Levee certification process that includes:
  - a. Study and levee reaches
  - b. Certification methodologies and assumptions
  - c. Hydraulic modeling synopsis
  - d. Sediment transport analysis suitable for MT-2 Form 3, as required

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- e. Geotechnical evaluation synopsis
2. Consultant will prepare the effective HEC-RAS model for submittal in digital format.
3. Consultant will compile all relevant backup documentation for FEMA submittal:
  - a. Narrative and graphics
  - b. Hydraulic model
  - c. Geotechnical Report
  - d. Certification of all field surveys
  - e. Record levee drawings as applicable
  - f. Operations and maintenance plan, including relevant records, as provided by District
4. Consultant will complete FEMA Standard Form MT-2 including:
  - a. Form 1: Overview and Concurrence (LOMR, stamped)
  - b. Form 2: Riverine Hydrology and Hydraulics
    - i) Section A (Hydrology) if necessary. *The District will provide detailed analytical hydrologic documentation if needed.*
    - ii) Sections B, C, and D
  - c. Form 3: Riverine Structures
5. Consultant will submit a Draft Certification Package to District for distribution, review and comment.
6. Consultant will meet with District, City of Gilroy and County of Santa Clara officials to finalize package prior to FEMA submittal.
7. Consultant will prepare the final Levee Recertification Package for District submittal to FEMA and include:
  - a. Cover letter
  - b. Cover letter for separate payment (if applicable)
  - c. Full certification package defined in Task A6.4
8. Consultant will track certification progress during FEMA review period, obtaining monthly updates after the initial letter from FEMA is received.
9. Consultant may prepare FEMA re-submittals as an **Optional Task**.
  - a. Respond to FEMA requests for additional information and data.
  - b. Prepare up to two (2) substantial re-submittals.

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Deliverables

- Electronic (pdf) copy of the Draft Certification Package for distribution by the District
- Five (5) hard-copies and one electronic copy of the Final Certification Package, incorporating District comments.

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**Task A7 Hydrologic Reconciliation for Uvas Creek**

Purpose

If so directed by the District as an **Additional Task**, Consultant will evaluate the District's "Uvas Creek Hydrology Study" (2003). The evaluation would focus on whether the District's estimates of base flood discharge are reasonable, how they compare with USACE methods, FEMA's approach to quantifying discharges for levee certification and floodplain mapping, and placing discharge estimates into context relative to standard errors. Consultant would not prepare a watershed model.

Consultant will not begin Task A7 until authorized by District. However, District must authorize this task prior to the completion of Task A4.

The City of Gilroy and/or the County of Santa Clara may engage a consultant to provide similar services on their behalf. Coordination for these services would occur at one or more of the regularly scheduled monthly project meetings.

District Responsibilities

- The District would be responsible for providing hydrologic reports, background data and models (soft copy) for the Uvas Creek watershed.
- The District would review the Consultant's Hydrologic Reconciliation TM and provide comments as necessary.
- The District would select the discharge(s) for use in levee recertification.
- If the District elects to establish a revised hydrology (1% flow rate) with FEMA, the District would be responsible for submitting the revised hydrology and technical justification to FEMA such that FEMA will accept it as the new hydrology.

Approach

1. The Consultant would review the District's 2003 Hydrology Study, including:
  - a. General approach and methodology
  - b. Rainfall data used
  - c. General land use parameters and assumptions
  - d. Uvas Reservoir modeling and assumptions
  - e. Stream routing assumptions
2. The Consultant would review available USACE (preferably San Francisco District or perhaps other USACE District) procedures for hydrologic analyses.
3. The Consultant would review FEMA's Guidelines for Study Contractors with respect to hydrologic methods and changing published base flow discharges.
4. The Consultant would evaluate other available hydrologic data and/or analyses. This evaluation may include:
  - a. Streamflow gage records
  - b. USACE hydrology for Uvas Creek
  - c. Original FIS modeling for Uvas Creek
  - d. Other independent methods of flow estimation

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5. The Consultant would prepare a technical memorandum that presents its evaluation of the District's 2003 Hydrology Study. The memorandum would focus on standard errors of estimates, a comparison to USACE methodology (if available), and FEMA's criterion for changing published flood discharges. The Consultant would recommend discharges for use in levee certification and/or floodplain mapping.
6. Consultant will meet with District, City of Gilroy and County of Santa Clara staff to present findings.

**Task A8      CEQA Clearance for Geotechnical Exploration of Uvas Creek Levee**

Purpose

If so directed by the District as an **Additional Task**, Consultant will obtain clearance to perform the exploratory borings described in Tasks A5, under the California Environmental Quality Act (CEQA).

Based on CEQA guidelines, the proposed project is likely eligible for Class 1 Categorical Exemption which consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures.

If a more substantive CEQA document proves to be required (e.g. Initial Study/Negative Declaration or EIR), a separate scope would be provided to the District as a Contingent Service.

District Responsibilities

- Provide Consultant access to levee for field review.
- Review CEQA clearance document if requested.

Approach

1. Consultant will complete a preliminary field review of the levee site to document existing site conditions and determine potential constraints and issues.
2. Consultant will coordinate Work Plan prepared under Task A5.1 in light of potential constraints and issues to ensure insofar as practical, that the necessary CEQA clearance remains a Categorical Exemption.
3. Consultant will prepare a CEQA clearance document for the Geotechnical Exploration Work Plan
  - a. Consultant will file the CEQA document with County of Santa Clara and pay the filing fee.

Deliverable

- CEQA clearance document filed with County of Santa Clara.

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**Task A9      Additional Soil Borings**

Purpose

This task will be performed by Consultant at the District's sole direction as an **Additional Task**. The District will consider at its sole discretion whether Consultant will perform the supplemental soil borings are desired by the City of Gilroy for concurrent bridge improvement work which is occurring under a separate agreement.

District must authorize this task prior to the start of Task A5.

District Responsibilities

- Provide Consultant written notice of Additional Task requests.
- Coordinate with City of Gilroy.

Approach

1. Consultant will provide District, City of Gilroy and City of Gilroy's consultants with Geotechnical Work Plan, which will delineate anticipated locations of soil borings necessary for levee certification work.
2. Consultant will coordinate boring locations and soil sampling requirements with District, City of Gilroy and City of Gilroy's consultants.
  - a. Notify the District and City of Gilroy one week in advance of commencing with Task A5.1.
3. Consultant will incorporate additional borings into work plan and permits identified in Task A5.1, if borings additional to those required for levee certification are requested by City of Gilroy.
4. Drill two (2) 30-foot deep exploratory wash borings at the locations determined in Task A5.1).
  - a. Provide soil material from borings to City of Gilroy's representative for their use in laboratory testing and/or analysis.
  - b. Borings will be backfilled with cement grout as required by the District, and topped off with cold patch asphalt within paved areas.
  - c. Spoil cuttings from the borings will be tested on-site, transported to the nearest landfill properly licensed to dispose of the material as part of Task A5.3.

*It is the responsibility of the City of Gilroy and its representative to provide written instructions with respect to boring locations and soil sampling requirements; and to obtain the soil sample(s) in a timely manner during field exploration, or make arrangements in advance for the storage of the samples. Additional borings made as a part of this task will take place concurrently with borings taken in Task A5.2. Should the District fail to notify Consultant of its intent to activate this task prior to the completion of field work for Task A5.2, Task A9 will not be activated.*

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**Task A10      ADDITIONAL FLOODPLAIN MAPPING IN GILROY**

Purpose

The District may ask Consultant to re-analyze special flood hazards outside the putative limits of levee recertification as an **Additional Task**. This optional analysis would require a downstream extension of the limits of study on Uvas Creek from Monterey Road (U.S. Highway 101) to the Southern Pacific Railroad and Bloomfield Road, which represent the limits of detailed study on the effective Flood Insurance Rate Map.

District Responsibilities

- Provide directive to perform additional floodplain mapping.
- Provide discharge(s) for use in additional floodplain mapping.
- Provide currently effective hydraulic model(s) for Uvas Creek.
- Provide digital topographic base mapping materials.

Approach

1. Consultant will verify cross section information contained within the effective hydraulic model(s).
  - a. Prepare graphic and numerical comparison of model cross sections to field cross sections obtained in Task A3.1 from Highway 101 to Southern Pacific Railroad. Provide standard root mean square estimate of difference.
  - b. Using the existing hydraulic model for Uvas Creek, remove all cross sections other than those selected for comparison. Use interpolated cross sections as necessary. Compute water surface profile using existing hydraulic model parameters.
  - c. Substitute corresponding field surveyed cross sections in the existing hydraulic model for Uvas Creek. Use the same cross section interpolation interval. Compute water surface profile using existing hydraulic model parameters.
  - d. Prepare graphic and numerical comparison of modeled water surface profiles based on the existing model cross sections and field surveyed cross sections. Provide standard root mean square estimate of difference.
  - e. Determine whether the water surface profile computed using the existing model cross sections is within the required water surface profile accuracy (Task A3.3) based on the water surface profile computed using field verified cross sections.
  - f. Identify the downstream reaches of Uvas Creek where the computed water surface profile does not meet FEMA accuracy standards.
  - g. Prepare Technical Memorandum describing methodologies and results, and submit to District.

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- h. For identified reaches not meeting computed water surface profile accuracy standards, proceed to Task A10.2.
- 2. The preparation of a detailed survey for downstream reaches of Uvas Creek is necessary as an **Optional Task** only if cross sectional information cannot be verified as described in Task A10.1. The fee associated with this Additional Task assumes that the entire downstream study reach requires a detailed creek survey. Therefore, less money may be expended if portions of the creek study reach are verified by field surveys.
  - a. Identify reach(es) of Uvas Creek where detailed creek surveys are required. The maximum reach limit is Southern Pacific Railroad to Monterey Road.
  - b. Identify cross section locations and extents for field surveys based on hydraulic modeling requirements. (Previously surveyed sections will be incorporated into the new hydraulic model.)
  - c. Survey cross sections at selected locations using control set up under Task A3.1d to FEMA accuracy standards.
  - d. Provide horizontal coordinates and vertical elevation points in a format suitable for HEC-RAS import as necessary.

*It is assumed that survey control points set up under Task A3.1d for cross section verification will not be disturbed. If control points need to be re-established for reasons outside of the Consultant's control, this will be considered a Contingent Service.*

- 3. Consultant will observe as necessary and accessible, and provide photo-documentation for the downstream Uvas Creek study reach described herein including:
  - a. general channel condition
  - b. vegetation
  - c. signs of erosion or sediment aggradation
  - d. obstructions
  - e. bridges, crossings and other structures
- 4. Consultant will confirm bridge and culvert parameters contained in the existing model using record drawings if obtained during Task A1, and direct field observation and measurement. Road crossings within the downstream Uvas Creek study area include:
  - a. Southern Pacific Railroad
  - b. Bloomfield Avenue
- 5. Consultant will extend hydraulic modeling of existing conditions into the identified downstream study reach. The purpose of this task is to provide an analytical basis for evaluating channel capacity, identifying overflow locations, and computing the one-percent water surface profile.

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- a. Extend the HEC-RAS model prepared under Task A4.4 downstream of Monterey Road (U.S Highway 101) to the Southern Pacific Railroad. All cross sections will be verified (Task A10.1) or new (Task A10.2).
  - b. Based on observations made in Tasks A10.3 and A10.4, provide reach-by-reach estimates of relevant hydraulic parameters including Manning's roughness coefficients, expansion and contraction coefficients, effective conveyance area encroachments, and other modeling parameters, including bed material sampling for sediment transport calculations.
  - c. Document all modeling assumptions as necessary for eventual FEMA submittal. (A FEMA submittal is not included with this Scope of Services.)
6. Consultant will use the completed existing conditions hydraulic model between the Southern Pacific Railroad and Santa Teresa Boulevard, Consultant will use results from Tasks A4 and A5 to analyze channel overbanking within the extended study limits. The purpose of this task is to provide overflow locations and one-percent spill rates for each of the potential levee failure scenarios:
- a. USACE Constructed levee holds.
  - b. USACE Constructed levee fails if not certified in Task A5.
  - c. "Push-up" levees on south bank of Uvas Creek hold.
  - d. "Push-up" levees on south bank of Uvas Creek fail.
7. Consultant will use results from Tasks A10.6 to analyze special flood hazard areas within the extended study limits. The purpose of this task is to provide flood hazard mapping to FEMA standards reflective of the situation after the completion of the levee recertification process.
- a. Prepare Work Map showing effective Special Flood Hazard Areas (SFHAs) after levee recertification (or lack thereof) within the Uvas Creek channel as well as the vicinity of Uvas Creek, from SPRR/Bloomfield Road to Santa Teresa Boulevard. Work maps will be based on digital LIDAR topographic base sheets provided by the District.
  - b. Prepare Work Map that shows SFHA changes from effective Flood Insurance Rate Map, if any.
  - c. Meet with District, City of Gilroy and County of Santa Clara to present results of floodplain mapping work.

**Task A11 Recertification Process Memorandum**

Purpose

At the conclusion of this Scope of Services, Consultant will prepare a Technical Memorandum that documents the levee re-certification process just completed and provides recommendations on the process of re-certification. The Memorandum will outline a uniform approach that could be applied District-wide, including the decision process for determining the most appropriate certification flow rate for each watershed,

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with comments on the Risk and Uncertainty method as appropriate. The Memorandum will include FEMA and USACE feedback and discuss lessons learned during the re-certification process in a way that provides guidance for future re-certification efforts.

Deliverable

- Levee Re-certification Process Memorandum

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**Task B Certification of Stevens Creek Levees**

The Consultant will provide data, analyses and documents to show that if warranted, the levees on both banks of Stevens Creek from Crittenden Lane to Highway 101 in Mountain View meet the requirements of 44 CFR 65.10.

**Task B1 Meetings and Coordination for Stevens Creek Levees**

Purpose

The Consultant will manage work under this Agreement to ensure completion of all tasks within the Appendix Two budget and in accordance with Appendix Three, "Schedule of Completion," and will ensure that all work and deliverables, including all tasks performed by sub-consultant(s), are appropriately prepared, and reviewed by the Consultant, for quality assurance and quality control.

District Responsibilities:

- The District will identify District team members and others, as appropriate.
- District will provide facilities located at 5750 Almaden Expressway in San Jose, California for monthly progress meetings.
- The District's project management team will coordinate work of their team members, oversee their performance, and provide for communications within the District team.
- The District's project management team will review and comment on deliverables prior to returning them to the Consultant for revision.
- District will provide from its files:
  - Reports and plans for Stevens Creek Levees
  - Hydraulic model for Stevens Creek prepared by USACE
  - Currently effective hydraulic model(s) for Stevens Creek
  - Geotechnical reports and data relevant to the Stevens Creek Levees
  - O&M plans and records for Stevens Creek and the Stevens Creek Levees
  - GIS Data in usable digital form

Approach

1. The Consultant will work diligently to maintain project schedule and budget.
2. The Consultant will communicate weekly with the District's Project Manager to plan and review work progress.
3. Consultant will prepare and maintain a Work Plan consisting of:
  - a. A flow diagram showing Project tasks including prerequisites and milestone decisions
  - b. Schedule of Completion
  - c. Standards for data acquisition and analysis
  - d. Monthly updates and corrections to the most current Work Plan to reflect progress and/or changed circumstances

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4. The Consultant team will attend the following meetings:
  - a. One (1) kick-off meeting
  - b. Twelve (12) monthly progress meetings of up to four hours each
  - c. One (1) coordination meeting with FEMA representative(s)
  - d. One (1) coordination meeting with USACE representative(s), and
  - e. Up to six (6) joint coordination meetings with the District and City of Mountain View after completing the following Tasks:
    1. Task B2 - Levee Reconnaissance
    2. Task B3 - Freeboard Determination
    3. Task B4 – Interior Drainage Study
    4. Task B5 - Geotechnical Evaluation
    5. Task B6 - Certification Package (before submittal to FEMA)
    6. Task B7 - Additional Floodplain Mapping (optional)

Typically, the Consultant team will be the Project Manager and/or the Project Engineer, and lead from each discipline as required.

5. Consultant must provide monthly progress reports complete with up-dated schedules that include the identification of critical path items. Such report must be provided with each monthly invoice. The purpose of this report is to record the work completed and document the execution of the tasks described in this Appendix and to allow the District to evaluate, at its reasonable discretion, the Consultant's progress and performance of completing the Scope of Services. The status summary report will include:
  - a. An assessment of actual versus planned progress in completing the Services, including a description of the tasks, and deliverables completed to date;
  - b. For each task, the percentage of the fees incurred for such task compared to dollar amount allocated to such task;
  - c. A statement that all tasks will be completed within the agreed upon not-to-exceed amounts set forth in Appendix Two;
  - d. A statement that progress towards completion of the Scope of Services is on schedule to be completed within the time line set forth in the project schedule detailed in Appendix Three, or if completion of the Services is not on schedule, then a statement of the anticipated length of the delay, the cause of the delay, measures proposed or taken to prevent or minimize the delay, and the timetable for implementation of such measures; and
  - e. Any proposed change to the scope of Services, and the rationale for such change.
  - f. The cost for preparing and delivering this report is included in the overall costs for providing the Services.
6. The Consultant will be responsible for overseeing all activities among assigned Consultant's staff, managing and approving all work of sub-consultants, and maintaining appropriate coordination and communication with the District.

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7. If necessary, the District may request additional work for project management, meetings, and communication as a part of Contingent Services.
8. Only written authorizations and directions to the Consultant from authorized District staff will be considered as directions from the District. E-mail from authorized District staff will be considered as written communications.
9. Only the following software will be allowed for documents transmitted electronically by the Consultant to the District and may be changed only by mutual consent of the District and the Consultant.
  - a. Microsoft Word
  - b. Microsoft Excel
  - c. Microsoft Project
  - d. AutoCAD Version 2005 or 2008,
  - e. ArcMap9.2
  - f. Adobe Acrobat PDF (Reader)

Deliverables

- Draft Work Plan to be submitted within two weeks of initial Notice to Proceed
- Final Work Plan
- Summary minutes of kick-off meeting
- Meeting agenda and handouts
- Draft meeting minutes within seven calendar days following each meeting and final meeting minutes within seven calendar days after receipt of District comments.
- Monthly progress reports, tied to the Work Plan, will be submitted within three working days of each invoice. This report will include an action item list and decision log updated monthly as an attachment to the progress report.
- Monthly invoices including support documentation, consistent with Terms and Conditions Section of Appendix Two, Fees and Payment.
- Quality review records
- Electronic copies of above deliverable items one through eight

**Task B2      Stevens Creek Levee Reconnaissance**

Purpose

The macro assessment levee "walk down" provides a baseline visual inventory of potential maintenance issues for the Stevens Creek levees. The purpose of performing the walk down early in the project is to allow the District as much time as possible to address discovered issues before certification documentation is due. The walk down will be performed by the Consultant's geotechnical and hydraulic specialists. District and City of Mountain View staff will be invited to participate. Field exploration locations will be selected where evidence of instability, seepage, or settlement issues are observed.

Upon completion of the walk downs, the project team will meet with the District to discuss the observed issues. If necessary, Consultant will prepare possible maintenance solutions to observed problems at the reference locations or indicate where the problems appear to be beyond maintenance type of improvement. The District will then

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decide whether to implement the recommended improvements and whether that implementation is feasible within the recertification timeline. If it appears that the recertification process can continue, Consultant will prepare a geotechnical exploration work plan to allow sufficient time for CEQA clearance.

District Responsibilities:

- The District will provide ortho-rectified aerial photography of the Project site in reproducible digital format.
- The District will provide the Consultant with five half-size sets of record drawings and specifications as available.
- The District will provide the Consultant with desired levee stationing for record purposes.
- The District will invite appropriate City of Mountain View staff to participate in up to eight hours of field levee reconnaissance and assist Consultant with coordination of said field reconnaissance.

Approach

Consultant will:

1. Set appropriate stationing along the top of the Stevens Creek levees using ortho-rectified aerial photographs provided by the District.
2. Observe levee for visually detectable issues and described by reference station number. Observations will be made for:
  - a. Evidence of settlement
  - b. Erosion
  - c. Encroachments by vegetation or other improvements
  - d. Potential slope stability problems
  - e. Inadequate maintenance
  - f. Evidence of structural problems
  - g. Evidence of seepage
  - h. Evidence of distressed or blocked closures or interior drainage structures
  - i. Excess debris within creek
  - j. Animal burrows
3. Photograph levee and adjacent areas and reference to stationing from Task B2.1. Prepare descriptive text for photos and identify observed deficiencies.
4. Prepare Technical Memorandum describing visual levee assessment including date, time, Consultant and sub-consultant staff present, others present, observations and photo-documentation.
  - a. List any issues of concern including issues described in Task B2.2 or other issues that are apparent during the visual levee assessment. If there are no significant visually identified issues that could affect or jeopardize potential levee recertification, so state.
  - b. Submit memorandum for review and comment by District and City of Mountain View.

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- c. If substantial visually identifiable issues could affect or jeopardize potential levee recertification, prepare a request for authorization of Task B2.5, "Corrective Action TM".
  - d. Meet with District and City of Mountain View to present results of levee reconnaissance.
  - e. If Optional Task B2.5 is activated, present recommended corrective action for District consideration.
5. Prepare a work plan and obtain necessary permits for geotechnical field exploration.
- a. Review available geotechnical data and observations made during "walk-down".
  - b. Prepare work plan for subsurface exploration program indicating levee access, impacts to maintenance roads and/or recreational paths (e.g. potential detours), locations for exploration, type of subsurface exploration at each location and approximate schedule with allowances for weather delays.
  - c. Prepare Health and Safety Plan, including plan for disposal of hazardous materials if encountered during field work and public safety within the work area.
  - d. Obtain deep well exploration and/or encroachment permit(s) from the Santa Clara Valley Water District.
  - e. At one or more regularly scheduled monthly progress meetings, consultant will review and coordinate work plan with District and Mountain View staff prior to initiating field work.

*This scope assumes the District and or City will arrange for site access and property encroachment permits, including the unlikely event that access is required through private property. The District will provide CEQA clearance for field work as required, or may ask Consultant to provide CEQA clearance as Additional Task B7.*

6. **Optional Task.** Prepare recommended maintenance solutions to observed problems at the reference stations.
- a. Indicate where the problems appear to be beyond maintenance type of improvement.
  - b. Discuss findings with District.
  - c. If District agrees that recommended maintenance solutions are feasible, Consultant will prepare a Memorandum of the District's Intent to Implement the Required Solution(s).
  - d. If maintenance solutions are infeasible as mutually agreed by Consultant and District, proceed to Task B2.7.
  - e. Include findings and recommendations in Corrective Action TM.
7. **Optional Task.** Prepare a "Levee Deficiency Report" that documents improvements required for levee certification to proceed; noting that correcting the listed deficiencies at this point would not necessarily lead to levee certification. **The certification process would be stopped for Stevens Creek.**

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Deliverables

- Draft "Levee Reconnaissance" technical memorandum
- Final "Levee Reconnaissance" technical memorandum, incorporating District comments
- Work Plan for geotechnical exploration
- Draft "Corrective Action" technical memorandum (**Optional**)
- Final "Corrective Action" technical memorandum, incorporating District comments (**Optional**)
- Draft "Levee Deficiency Report" (**Optional**)
- Final "Levee Deficiency Report," incorporating District comments. (**Optional**)

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the absence of visually identifiable issues that could jeopardize levee recertification or an agreement that visually identifiable issues are correctable, and a plan for said correction as developed in Optional Task B2.5.

"GO" = Advance to Task B3

"NO GO" = Advance to Optional Task B2.6

**Task B3      Stevens Creek Levee Freeboard Evaluation**

Purpose

The Consultant will complete hydraulic modeling of existing conditions for the identified study reach using software and methodologies approved by FEMA. The purpose of this task is to evaluate levee freeboard against 44 CFR §65.10 criteria and certify the levee for adequate freeboard (if it is provided) for the computed one-percent water surface profile.

Consultant will not begin Task B3 until authorized by District contingent on positive results from Task B2.4 or Task B2.5.

District Responsibilities:

- Facilitate Consultant access to Stevens Creek as required.
- Define base flood discharge(s) to be used in freeboard evaluation.

Approach

1. The Consultant will observe and photo-document the Stevens Creek study reach described herein including:
  - a. general channel condition
  - b. vegetation
  - c. signs of erosion or sediment aggradation
  - d. obstructions
  - e. bridges, crossings and other structures

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2. Consultant will confirm bridge and culvert parameters contained in the hydraulic model using record drawings obtained in Task B1, direct field observation, and measurement. Road crossings include:
  - a. Crittenden Lane Pedestrian Bridge
3. Based on observations made in Tasks B3.1 and B3.2, provide reach-by-reach estimates of relevant hydraulic parameters including Manning's roughness coefficients, expansion and contraction coefficients, effective conveyance area encroachments, and other modeling parameters, including bed material sampling for any sediment transport calculations necessary to meet FEMA documentation requirements.
4. The Consultant will complete an HEC-RAS model for Stevens Creek between San Francisco Bay and Bayshore Freeway (U.S Highway 101) and will document all modeling assumptions as necessary for FEMA submittal.
5. For the Stevens Creek reach parallel to the Stevens Creek Levees scheduled for recertification, the Consultant will compare graphically and in tabular form, computed base flood elevations to the top of levee profile.
  - a. Calculate the freeboard provided above base flood elevations (one-percent water surface profile) computed in Task B3.4.
  - b. Compare calculated freeboard to NFIP criteria as specified in 44 CFR §65.10(b)(1)(i).

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6. The Consultant will prepare a technical memorandum describing hydraulic methodologies and results, including freeboard evaluation.
  - a. List any reaches with deficient freeboard.
  - b. Submit memorandum for review and comment by District.
  - c. If there are areas of substandard freeboard, prepare a request for authorization of Task B3.8, "Freeboard Deficiency TM".
  - d. The Consultant will meet with District and City representatives to present results of freeboard evaluation.
  
7. **Optional Task - Field Survey of Levee Profiles.** This task may be required if the freeboard determined in Task B3.5 differs from FEMA's minimum criterion by values that are within the mapping accuracy of information used for freeboard determination, as provided by USACE AND the District's digital topographic data is not sufficient to produce an adequate levee profile
  - a. Determine project survey control used by USACE from record information.
  - b. Establish horizontal and vertical control for levee profiles if necessary
  - c. Survey top of each levee at approximately 50-foot intervals
  - d. Provide cross section surveys at approximately 1,000-foot intervals for verification of USACE cross sections.
  
8. **Optional Task - Freeboard Deficiency Memorandum.** Consultant will prepare recommended maintenance solutions to calculated freeboard deficiencies.
  - a. Indicate where the causes of substandard freeboard appear to be beyond a maintenance type of improvement.
  - b. Discuss findings with District.
  - c. If District agrees that recommended maintenance solutions are feasible, include findings and corrective action recommendations in Freeboard Deficiency TM.
  - d. If maintenance solutions are infeasible as mutually agreed by Consultant and District, proceed to Task B2.6, "Levee Deficiency Report".

Deliverables

- Effective HEC-RAS model for Stevens Creek between San Francisco Bay and Highway 101, provided to District in electronic format compatible with FEMA requirements
- Technical Memoranda documenting freeboard evaluation for Stevens Creek Levees as described.
- Freeboard Deficiency TM if warranted.

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**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the certification of adequate freeboard in Task B3.6 or an agreement that freeboard deficiencies are correctable through maintenance activities, and a plan for said correction as developed in Optional Task B3.8.

"GO" = Advance to Task B4

"NO GO" = Advance to Optional Task B2.6

**Task B4      Stevens Creek Interior Drainage Study**

Purpose

Consultant will perform an interior drainage study (IDS) conforming to 44 CFR §65.10(b)(6). The interior drainage study will consider coincident sources of inundation with watersheds tributary to drainage facilities that discharge to Stevens Creek through the levee recertification reach. Local infrastructure that evacuates the residual interior floodplain area (generally gravity storm drain outfalls and pumping plants meeting NFIP criteria for construction, operation and maintenance) may be considered in the analysis. Consultant will calibrate 100-year interior runoff hydrographs for the coincident rainfall event based on the verified published discharge, using depth-area corrections as needed.

Consultant will obtain record information on storm drain infrastructure from City of Mountain View and Moffett Field representatives to perform this analysis. Mapping will be based upon the certified 2006 LiDAR topographic data provided by the District.

District Responsibilities

- Provide 2006 topographic information for Project vicinity in usable digital form.
- Review work product and distribute to City of Mountain View for comment.

Approach

Consultant will:

1. Meet with City of Mountain View and Moffett Field representatives to obtain information and plans regarding storm drainage pump stations and gravity outfalls that drain to Stevens Creek within the levee recertification reach.
  - a. Determine which storm drainage infrastructure, particularly pumping facilities, meets criteria outlined in 44CFR §65.10.
  - b. Prepare summary tables for storm drainage infrastructure inventory and indicate which facilities meet NFIP criteria for consideration within interior drainage analysis.
2. Prepare coincident interior runoff calculations.
  - a. Establish interior precipitation depth based on District's hydrologic methodology.
  - b. Establish interior precipitation pattern based on archived or District hydrology model for Stevens Creek.

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- c. Apply appropriate depth-area correction if applicable (USACE Northern California).
- d. Construct hydrologic models for interior drainage areas using HEC-HMS.
3. Map inundation from interior runoff.
  - a. Establish flow depths and interior ponding elevations using HEC-HMS and LiDAR topography.
  - b. Use LiDAR topography to map Special Flood Hazard Areas greater in depth than one foot.
4. Present Findings of Interior Drainage Study.
  - a. Meet with District and City of Mountain View to present the results of the interior drainage study.
  - b. Present a list of storm drainage infrastructure that does not meet FEMA criteria.

Deliverables

- Interior Drainage Study Report sufficient for eventual submittal to FEMA as part of Task B6.
- Digital Work Map showing extent of interior residual flooding suitable for eventual submittal to FEMA as part of Task B6.

**Task B5      Stevens Creek Levees Geotechnical Evaluation**

Purpose

The Consultant will provide the geotechnical evaluation necessary to support levee certification in conformance with 44 CFR §65.10(b)(4) and (5). A site specific geotechnical investigation will be performed in two phases (the scope of the second phase will be contingent on results obtained in the first phase and will be based on specific additional information required by the sub-consultant to certify the condition of the levee), based on the program outlined in USACOE EM 1110-2-1913 to:

- Characterize subsurface conditions.
- Obtain soil samples for visual examination and laboratory testing.
- Describe subsurface conditions, engineering properties, engineering analyses and evaluations.
- Provide for engineering analyses to evaluate liquefaction, seepage, embankment stability, settlement, and stability of concrete structures or appurtenant works. Based on cursory review of the available geotechnical information, the project team expects all levees to be underlain by alluvial soils consisting of both coarse-grained and fine-grained strata. The key geotechnical concerns are the potential presence of liquefiable non-plastic soils and soft, compressible fine-grained soils.
- Document field exploration, analyses, findings, and recommendations.

Consultant will not begin Task B5 until authorized by District based on positive results from Task B3.6 or Task B3.9.

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District Responsibilities:

- Facilitate Consultant access to Stevens Creek as required.
- Provide available geotechnical data and reports.
- Facilitate permits for boring material disposal.

Approach

1. Consultant will perform geotechnical field exploration in two separate phases (Phase 1 and Phase 2). A combination of rotary wash borings and cone penetration tests (CPTs) will be used for the first phase of field investigation as indicated in Table B1. Phase 2 exploration is described by Optional Task B5.13.

**Table B1: Schedule of Phase 1 Exploratory Borings for Stevens Creek Levees**

Type	Total Number	Depth
CPT	16	70 feet
Rotary Wash	3	70 feet

2. Consultant will complete the Phase 1 Field Exploration.
  - a. Delineate an exploration location on the levee top at intervals of approximately 1,000 linear feet. The number of Phase 1 exploration locations may be reduced based on the availability and quality of existing geotechnical data.
  - b. Consultant will alternate boring and CPT where appropriate, and each will be advanced to a depth below the levee toe of at least three times the height of the levee (USACOE EM 1110-2-1913), or a minimum of 50 feet below the levee if liquefiable soils are encountered, per standard of practice.
  - c. Samples will be obtained using a 2-inch outside diameter (1.4-inch inside diameter) split-barrel sampler (also called a Standard Penetration Test sampler), a 3-inch outside diameter (2.5-inch inside diameter) split barrel sampler lined with brass rings or tubes (also called a Modified California sampler), or with a thin-walled Shelby tube. Samples will be driven 18 inches by a 140 pound hammer falling 30 inches, and the number of hammer blows will be recorded every 6 inches of driving.
  - d. Consultant will obtain soil samples from the borings at five foot intervals for visual classification and laboratory testing. The sampling frequency will be increased to an interval of 2.5 feet in liquefiable soils.
    - i) Standard Penetration Test (SPT) samples will be collected in coarse-grained, non-plastic soil to provide N-values for evaluation of liquefaction. Modified California samples will be collected in fine-grained or coarse-grained soils that do not exhibit susceptibility to liquefaction. Shelby tube samples will be collected in soft, fine-grained soils.
    - ii) Borings and CPTs will be backfilled with cement grout as required by the District, and topped off with cold patch asphalt within paved areas.
    - iii) Spoil cuttings from the borings will be tested on-site, drummed or otherwise contained, and transported to the nearest landfill properly licensed to dispose of the material. The presence of tested hazardous materials in the spoil

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cuttings will trigger Task B5.12 as an Optional Task. Cuttings material will be removed from the site within 30 days of generation.

- e. Consultant will evaluate the existing geotechnical data and the results of the Phase 1 investigation to divide the levee into reaches with similar subsurface and embankment conditions. Potential geotechnical issues may exist for each reach. This scope of work assumes that the levee will be divided into no more than three reaches for further field exploration and laboratory testing as defined in Optional Tasks B5.13 and B5.14. If more than three reaches are necessary based on the findings of the Phase 1 investigation, an estimate for evaluation of additional reaches will be furnished by the Consultant as a Contingent Scope of Service.
3. Consultant will perform laboratory testing in phases corresponding to the field investigation phases. The types and anticipated quantity of laboratory tests for Phase 1 are summarized in Table B2. The purpose of the Phase 1 laboratory testing is predominantly to provide classification of subsurface soils.

**Table B2: Schedule of Phase 1 Laboratory Testing for Stevens Creek Levees**

Test	ASTM Designation	Anticipated Number
Moisture Content and Dry Density	D2937	21
Moisture Content Only	D2216	13
Atterberg Limits	D4318	3
Consolidation	D2435	3
Unconfined Compression	D2166	4
Triaxial UU	D2850	3
Triaxial CU with Pore Pressure	D4767	3
Sieve Analysis	D422	8
Sieve Analysis + Hydrometer	D422	2
Percent Passing No. 200 Sieve	D1140	8
Compaction Curve	D1557	3

4. Perform geotechnical analyses to evaluate liquefaction and levee stability per USACOE EM 1110-2-1913.
- a. Evaluate triggering of liquefaction using procedures outlined in Youd et al. (2001). The SPT N-values and CPT data collected during the field investigation will be the primary data used for evaluating liquefaction. Earthquake ground motions will be determined using the California Geological Survey (CGS) probabilistic seismic hazard map for California. (The CGS seismic hazard model uses current fault source characterizations and is well defined in California. Attenuation relationships for soil sites used by the CGS model were developed from primarily California seismic events and are suitable for the subsurface conditions of the subject levees.)
  - b. Evaluate liquefaction hazards, including seismically-induced settlement, residual strength of liquefied soil, and lateral spreading.
5. Consultant will complete a levee seepage analysis.
- a. Review field and laboratory data.

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- b. Review available information provided by District.
- c. Perform geotechnical analyses to evaluate seepage per USACOE EM 1110-2-1913.
  - i) Evaluate seepage through and under the levee using the finite-element computer program Seep/W (GeoSlope, 2004) to determine the exit gradient at the landside toe of the embankment under steady-state seepage conditions.
  - ii) Evaluation of transient seepage conditions based on the anticipated flood duration may be performed if the exit gradient under steady-state conditions exceeds 0.5.
6. Consultant will complete a stability evaluation for the levee.
  - a. Review field and laboratory data.
  - b. Review information provided by District.
  - c. Perform geotechnical analyses to evaluate the stability of the levee per USACOE EM 1110-2-1913.
  - d. Levee stability will be analyzed using Slope/W, a companion program to Seep/W, which utilizes limit-equilibrium theory for calculating the factor of safety (FS) for slope stability.
  - e. Evaluate levee stability for dry (existing), steady-state seepage, rapid drawdown, and pseudostatic conditions, as well as with post-liquefaction residual strength, if applicable.
7. Consultant will complete a settlement evaluation for the Stevens Creek levees.
  - a. Review field and laboratory data.
  - b. Review available information provided by District
  - c. Determine from a comparison of verified levee cross sectional surveys and/or levee profile survey and/or digital topographic data to record drawings whether significant settlement of the levee has occurred, or if the levee section will change due to maintenance recommendations made for other tasks.
  - d. If comparison analysis indicates that after over 20 years post-construction further study is warranted, determine simple geologic conditions and settlement parameters, and evaluate the increase in stress using a closed-form solution for the shape of loading assuming that geologic strata are essentially horizontally deposited and homogenous across the levee section.
  - e. If the geometry of the levee does not fit closely into one of the available closed-form solutions and detailed analysis is warranted, use Sigma/W (a finite element code used to evaluate the stress increase below the levee) to establish anticipated settlement.
8. Consultant will complete an appurtenant works assessment for the levee.
  - a. Review field and laboratory data.
  - b. Review available information provided by the District.

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- c. Determine from visual inspection whether the presence and/or condition of appurtenant structures, such as gauging stations, walls, fences, abutments, etc. located on or very near the levee present geotechnical concerns.
  - d. Settlement of concrete structures or any other appurtenant works will be evaluated if evidence of distress to the levee is identified based on the visual levee assessment of Task B2, or if it is anticipated that new structures will be constructed.
9. Consultant will meet with District and its geotechnical engineering staff to present preliminary results of the field investigation and geotechnical evaluations, including methodologies and assumptions.
- a. Incorporate District comments into the final geotechnical evaluations.
10. Consultant will prepare a draft geotechnical report that documents site plans, boring and CPT logs, laboratory test data, and parameters used in geotechnical evaluations.
- a. Document results of liquefaction evaluation, seepage analysis, levee stability analysis, and settlement analysis, including the results of Optional Tasks.
  - b. If supported by the analysis, certify that the data and analyses meet the requirements of USACOE EM 1110-2-1913 and by direct reference, 44 CFR §65.10(b)(4) and (5).
  - c. Indicate where the levee is substandard and the corrective maintenance action necessary to meet standards, if applicable; or indicate that substantial levee improvement is required to meet standards.
  - d. Submit three (3) copies of Draft Geotechnical Report to the District for review and comment.
  - e. Incorporate District comments into Final Geotechnical Report. Report will meet standards for FEMA submittal.
11. Consultant may perform Hazardous Spoil and Cutting Disposal as an **Optional Task**, upon receiving prior written authorization from the District. Phase 1 field exploration will generate waste including drilling mud, excess soil cuttings and other debris. Materials will be tested, placed in 55-gallon drums and off-hauled to an appropriate disposal site as part of Task B5.3. The additional fee associated with this Optional Task assumes the worst reasonably foreseeable case of material contamination and associated increases in handling, transportation, and disposal costs.
12. Consultant may (upon receiving prior written authorization from the District), if his interpretation of the perform Phase 2 Field Work as an **Optional Task** results from Phase 1 Field Work indicates that additional information is necessary to complete the geotechnical evaluation. The decision to pursue Phase 2 Field Work would be discussed with the District and City of Mountain View prior to beginning Phase 2 Field Work.
- a. Unless access is prohibited, Phase 2 field investigations would be performed at both river-side and dry-side toes to provide cross-sectional variation of subsurface information for each reach that exhibits potential geotechnical issues. (Alternatively, a companion CPT or boring may be substituted at a Phase 1 location at the top of the levee).

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- b. The scope of work for Phase 2 field investigations is the same as for Phase 1; however, specific sample types and depths would be specified based on the subsurface conditions encountered during the Phase 1 field investigation.
- i) A combination of rotary wash borings and cone penetration tests (CPTs) would be used for the field investigation as indicated in Table B3.
  - ii) Obtain soil samples from the borings at five to ten foot intervals for visual classification and laboratory testing.
  - iii) Borings and CPTs would be backfilled with cement grout as required by the District, and topped off with cold patch asphalt within paved areas. Spoil cuttings from the borings would be tested on-site, transported to the nearest landfill properly licensed to dispose of the material. The presence of hazardous materials encountered during Phase 2 would trigger Task B5.15 as an Optional Task.

**Table B3: Schedule of Phase 2 Exploratory Borings for Stevens Creek Levees**

Type	Total Number	Depth
CPT	4	70 feet
Rotary Wash	4	70 feet

13. Consultant may perform Phase 2 Lab Work as an **Optional Task**, upon receiving prior written authorization from the District. The types and anticipated maximum quantity of laboratory tests for up to three Phase 2 reaches are summarized in Table B4.

**Table B4: Schedule of Phase 2 Laboratory Testing for Stevens Creek Levees**

Test	ASTM Designation	Anticipated Number
Moisture Content and Dry Density	D2937	28
Moisture Content Only	D2216	17
Atterberg Limits	D4318	4
Consolidation	D2435	4
Unconfined Compression	D2166	4
Triaxial UU	D2850	4
Triaxial CU with Pore Pressure	D4767	4
Sieve Analysis	D422	11
Sieve Analysis + Hydrometer	D422	3
Percent Passing No. 200 Sieve	D1140	11
Compaction Curve	D1557	4

14. Consultant may perform additional Hazardous Spoil and Cutting Disposal as an **Optional Task**, upon receiving prior written authorization from the District. Phase 2 field exploration may generate waste including drilling mud, excess soil cuttings and other debris. Materials will be tested, placed in 55-gallon drums and off-hauled to an appropriate disposal site as part of Task B5.13. The additional fee associated with this Optional Task assumes the worst reasonably foreseeable case of material contamination and associated increases in handling, transportation, and disposal costs.

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Deliverables

- An electronic (pdf) version of the Draft Geotechnical Report for distribution by the District.
- Three (3) hard-copies of the Final Geotechnical Report
- An electronic (pdf) version of the Final Geotechnical Report., incorporating District comments.

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the certification of geotechnical levee stability as described in Task B5 or an agreement that geotechnical deficiencies are correctable through maintenance activities, and a plan for said correction as developed in Task B5.10.

"GO" = Advance to Task B6

"NO GO" = Advance to Optional Task B2.6

**Task B6 Certification Package for Stevens Creek Levee**

Purpose

The Consultant will complete a Levee Recertification Package for District submittal to FEMA. The submittal will be in conformance with NFIP guidelines (44 CFR §65.10), FEMA Study Contractor Guidelines and other criteria developed in Task B1.

Consultant will not begin Task B6 until authorized by District based on positive results from Task B3 and Task B5.

District Responsibilities

- The District will review the Consultant's Certification Package and provide comments as necessary.
- The District will obtain Community Acknowledgement Form signatures from the appropriate District and City of Mountain View floodplain managers.
- The District is responsible for the payment of fees associated with the submittal, if any.
- The District and City of Mountain View are responsible for public notification as required by regulation.

Approach

1. Consultant will prepare narrative and graphic documentation of the Stevens Creek Levee certification process that includes:

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- a. Study and levee reaches
  - b. Certification methodologies and assumptions
  - c. Hydraulic modeling synopsis
  - d. Sediment transport analysis suitable for MT-2 Form 3, as required
  - e. Geotechnical evaluation synopsis
2. Consultant will prepare the effective HEC-RAS model for submittal in digital format.
  3. Consultant will compile all relevant backup documentation for FEMA submittal:
    - a. Narrative and graphics
    - b. Hydraulic model
    - c. Geotechnical Report
    - d. Certification of all field surveys
    - e. Record levee drawings as applicable
    - f. Operations and maintenance plan, including relevant records, as provided by District
  4. Consultant will complete FEMA Standard Form MT-2 including:
    - a. Form 1: Overview and Concurrence (LOMR, stamped)
    - b. Form 2: Riverine Hydrology and Hydraulics (Sections B, C, and D)
    - c. Form 3: Riverine Structures
  5. Consultant will submit a Draft Certification Package to District for distribution, review and comment.
  6. Consultant will meet with District and City officials to finalize package prior to FEMA submittal.
  7. Consultant will prepare the final Levee Recertification Package for District submittal to FEMA and include:
    - a. Cover letter
    - b. Cover letter for separate payment (if applicable)
    - c. Full certification package defined in Task B6.4
  8. Consultant will track certification progress during FEMA review period, obtaining monthly updates after the initial letter from FEMA is received.
  9. Consultant may prepare FEMA re-submittals as an **Optional Task**, upon receiving prior written authorization from the District.
    - a. Respond to FEMA requests for additional information and data.
    - b. Prepare up to two (2) substantial re-submittals.

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Deliverables

- Electronic (pdf) copy of the Draft Certification Package for distribution by the District
- Five (5) hard-copies and one electronic copy of the Final Certification Package, incorporating District comments.

**Task B7      CEQA Clearance for Exploration of Stevens Creek Levees**

Purpose

If so directed by the District as an **Additional Task**, Consultant will obtain clearance to perform the exploratory borings described in Tasks B5, under the California Environmental Quality Act (CEQA).

Based on CEQA guidelines, the proposed project is likely eligible for Class 1 Categorical Exemption which consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures.

If a more substantive CEQA document proves to be required (e.g. Initial Study/Negative Declaration or EIR), a separate scope would be provided to the District as a Contingent Service.

District Responsibilities

- Provide Consultant access to levee for field review.
- Review CEQA clearance document if requested.

Approach

1. Consultant will complete a preliminary field review of the levee site to document existing site conditions and determine potential constraints and issues.
2. Consultant will coordinate Work Plan prepared under Task B5.1 in light of potential constraints and issues to ensure insofar as practical, that the necessary CEQA clearance remains a Categorical Exemption.

Consultant will prepare a CEQA clearance document for the Geotechnical Exploration Work Plan

- a. Consultant will file the CEQA document with County of Santa Clara and pay the filing fee.

Deliverable

- CEQA clearance document filed with County of Santa Clara.

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**Task B8      ADDITIONAL FLOODPLAIN MAPPING IN MOUNTAIN VIEW**

Purpose

The District may ask and Consultant agrees to re-analyze special flood hazards outside the putative limits of levee recertification as an **Additional Task**, provided that District provides Consultant with prior written authorization. This optional analysis would require an upstream extension of the limits of study on Stevens Creek from Bayshore Freeway (U.S. Highway 101) to the Southern Pacific Railroad near Evelyn Avenue.

District Responsibilities

- Provide directive to perform additional floodplain mapping.
- Provide discharge(s) for use in additional floodplain mapping.
- Provide currently effective hydraulic model(s) for Stevens Creek.
- Provide digital topographic base mapping materials.

Approach

1. Consultant will use the effective hydraulic model(s) provided by the District for all cross section information outside of the USACE limit of study.
2. Observe as necessary and provide photo-documentation for the accessible upstream Stevens Creek study reach described herein including:
  - a. general channel condition
  - b. vegetation
  - c. signs of erosion or sediment aggradation
  - d. obstructions
  - e. bridges, crossings and other structures
3. Consultant will confirm bridge and culvert parameters contained in the existing model using record drawings if obtained during Task B1.4, and direct field observation and measurement. Road crossings within the upstream Stevens Creek study area include:
  - a. Bayshore Freeway (U.S. Highway 101)
  - b. Moffett Boulevard
  - c. Middlefield Road
  - d. California Highway 85
  - e. Central Expressway
  - f. Southern Pacific Railroad
  - g. Evelyn Avenue

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4. Consultant will extend hydraulic modeling of existing conditions into the identified upstream study reach. The purpose of this task is to provide an analytical basis for evaluating channel capacity, identifying overflow locations, and computing the one-percent water surface profile.
  - a. Extend the HEC-RAS model prepared under Task B4.1 upstream of Bayshore Freeway Road (U.S Highway 101) to the Southern Pacific Railroad and Evelyn Avenue. All cross sections will be based upon existing HEC-RAS models obtained from the District, including the downstream USACE model.
  - b. Based on observations made in Tasks B8.2 and B8.3, provide reach-by-reach estimates of relevant hydraulic parameters including Manning's roughness coefficients, expansion and contraction coefficients, effective conveyance area encroachments, and other modeling parameters, including bed material sampling for sediment transport calculations.
  - c. Document all modeling assumptions as necessary for FEMA submittal. (FEMA submittal is not part of this scope of services.)
5. Using the completed existing conditions hydraulic model between the Southern Pacific Railroad and Bayshore Freeway, Consultant will analyze channel overbanking within the extended study limits. The purpose of this task is to provide overflow locations and one-percent spill rates and volumes for floodplain mapping.
6. Consultant will evaluate special flood hazard areas within the extended study limits. The purpose of this task is to provide flood hazard mapping to FEMA standards reflective of the situation after the completion of the levee recertification process.
  - a. Stevens Creek spills determined in Task B8.5 will be traced and routed using standard methodologies. The area of special flood hazard analysis is limited to interior bayfront levees to the north, Permanente Creek levees to the west, Highway 101 to the south and the Sunnyvale West Channel levee to the east. Consultant will perform the mapping study assuming the referenced levees do not fail.
  - b. If the resulting elevations of inundation are higher than the one percent tide (8 feet NGVD), profiles based on LiDAR data for the referenced levees will be used to determine ultimate ponding release elevations for interior mapping. This exercise will be limited to flood sources from Stevens Creek.
7. Consultant will prepare a Work Map showing effective Special Flood Hazard Areas (SFHAs) after levee recertification (or lack thereof) within the Stevens Creek channel as well as the vicinity of Stevens Creek as described herein.
  - a. Work maps will be based on digital LiDAR topographic base sheets provided by the District.
  - b. Prepare a second Work Map that shows SFHA changes from effective Flood Insurance Rate Map, if any.
  - c. Meet with District and City of Mountain View to present results of floodplain mapping work.

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**Task C            Certify Lower Penitencia Creek East Levee**

The Consultant will provide data, analyses and documents to show that if warranted, the east bank levee of Lower Penitencia Creek in Milpitas between Interstate 880 and Berryessa Creek meets the requirements of 44 CFR 65.10.

**Task C1           Meetings and Coordination for Lower Penitencia Creek Levee**

Purpose

The Consultant will manage work under this Agreement to ensure completion of all tasks within the Appendix Two budget and in accordance with Appendix Three, "Schedule of Completion," and will ensure that all work and deliverables, including all work performed by sub-consultant(s) are appropriately prepared, and reviewed by the Consultant for quality assurance and quality control.

District Responsibilities:

- The District will identify District team members and others, as appropriate.
- District will provide facilities located at 5750 Almaden Expressway in San Jose, California for monthly progress meetings.
- The District's project management team will coordinate work of their team members, oversee their performance, and provide for communications within the District team.
- The District's project management team will review deliverables and comments on prior to submitting them to the Consultant for revision.
- District will provide from its files:
  - a. Reports and plans for Lower Penitencia Creek Levee
  - b. Currently effective hydraulic model(s) for Lower Penitencia Creek
  - c. Geotechnical reports and data relevant to the Lower Penitencia Creek Levee
  - d. O&M plans and records, for Lower Penitencia Creek and levee
  - e. GIS Data in usable digital form

Approach

1. The Consultant will work diligently to maintain project schedule and budget.
2. The Consultant will communicate weekly with the District's project manager to plan and review work progress.
3. Consultant will prepare and maintain a Work Plan consisting of:
  - a. A flow diagram showing Project tasks including prerequisites and milestone decisions
  - b. Schedule of Completion
  - c. Standards for data acquisition and analysis

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- d. Monthly updates and corrections to the most current Work Plan to reflect progress and/or changed circumstances.
- 4. The Consultant team will attend the following meetings and more with District approval or at District's direction as a Contingent Service:
  - a. One (1) kick-off meeting
  - b. Twelve (12) monthly progress meetings of up to four hours each
  - c. One (1) coordination meeting with FEMA representative(s)
  - d. One (1) coordination meeting with USACE representative(s), and
  - e. Four (4) joint coordination meetings with the District and City of Milpitas after completing the following Tasks:
    - 1. Task C2 - Levee Reconnaissance
    - 2. Task C4 - Freeboard Determination
    - 3. Task C5 - Geotechnical Evaluation
    - 4. Task C7 - Certification Package (before submittal to FEMA)
  - f. One (1) public meeting/workshop at the District's direction. *Additional public meetings will be considered a Contingent Service.*

Typically, the Consultant team will be the Project Manager and/or the Project Engineer, and lead from each discipline as required.

- 5. Consultant will obtain available information, drawings, data and reports from the City of Milpitas.
- 6. Consultant must provide monthly progress reports complete with up-dated schedules that include the identification of critical path items. Such report must be provided with each monthly invoice. The purpose of this report is to record the work completed and document the execution of the tasks described in this Appendix and to allow the District to evaluate, at its reasonable discretion, the Consultant's progress and performance of completing the Scope of Services. The status summary report will include:
  - a. An assessment of actual versus planned progress in completing the Services, including a description of the tasks, and deliverables completed to date
  - b. For each task, the percentage of the fees incurred for such task compared to dollar amount allocated to such task
  - c. A statement that all tasks will be completed within the agreed upon not-to-exceed amounts set forth in Appendix Two
  - d. A statement that progress towards completion of the Scope of Services is on schedule to be completed within the time line set forth in the project schedule detailed in Appendix Three, or if completion of the Services is not on schedule, then a statement of the anticipated length of the delay, the cause of the delay, measures proposed or taken to prevent or minimize the delay, and the timetable for implementation of such measures, and
  - e. Any proposed change to the Scope of Services, and rationale for such change.

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- f. The cost for preparing and delivering this report is included in the overall costs for providing the Services
7. The Consultant will be responsible for overseeing all activities among assigned Consultant's staff, managing and approving all work of sub-consultants, and maintaining appropriate coordination and communication with the District.
8. If necessary, the District may request additional work for project management, meetings, and communication as a part of Contingent Services.
9. Only written authorizations and directions to the Consultant from authorized District staff will be considered as directions from the District. E-mail from authorized District staff will be considered as written communications.
10. Only the following software will be allowed for documents transmitted electronically by the Consultant to the District and may be changed only by mutual consent of the District and the Consultant.
  - a. Microsoft Word
  - b. Microsoft Excel
  - c. Microsoft Project
  - d. AutoCAD Version 2005 or 2008,
  - e. ArcMap9.2
  - f. Adobe Acrobat PDF (Reader)

Deliverables

- Draft Work Plan to be submitted within two weeks of initial Notice to Proceed
- Final Work Plan
- Summary minutes of kick-off meeting
- Meeting agenda and handouts
- Draft meeting minutes within seven calendar days following each meeting and final meeting minutes within seven calendar days after receipt of District comments.
- Monthly progress reports, tied to the Work Plan, will be submitted within three working days of each invoice. This report will include an action item list and decision log updated monthly as an attachment to the progress report.
- Monthly invoices including support documentation, consistent with Terms and Conditions Section of Appendix Two, Fees and Payment.
- Quality review records
- Electronic copies of above deliverable items one through eight

**Task C2      Lower Penitencia Creek Levee Reconnaissance**

Purpose

The macro assessment levee "walk down" provides a baseline visual inventory of potential maintenance issues for the Lower Penitencia Creek levee. The purpose of performing the walk down early in the project is to allow the District as much time as possible to address discovered issues before certification documentation is due. The walk down will be performed by the Consultant's geotechnical and hydraulic specialists.

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District staff and City of Milpitas staff will be invited to participate. Field exploration locations will be selected where evidence of instability, seepage, or settlement issues are observed.

Upon completion of the walk downs, the project team will meet with the District to discuss the observed issues. If necessary, Consultant will prepare possible maintenance solutions to observed problems at the reference locations or indicate where the problems appear to be beyond maintenance type of improvement. The District will then decide whether to implement the recommended improvements and whether that implementation is feasible within the recertification timeline. If it appears that the recertification process can continue, Consultant will prepare a geotechnical exploration work plan to allow sufficient time for CEQA clearance.

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District Responsibilities:

- The District will provide ortho-rectified aerial photography of the Project site in reproducible digital format.
- The District will provide the Consultant with five half-size sets of record drawings and specifications as available.
- The District will provide the Consultant with desired levee stationing for record purposes.
- The District will invite appropriate City of Milpitas staff to participate in up to eight hours of field levee reconnaissance and assist Consultant with coordination of said field reconnaissance.

Approach

1. Set appropriate stationing along the top of the Lower Penitencia Creek levee using ortho-rectified aerial photographs provided by the District.
2. Observe levee for visually detectable issues and described by reference station number. Observations will be made for:
  - a. Evidence of settlement
  - b. Erosion
  - c. Encroachments by vegetation or other improvements
  - d. Potential slope stability problems
  - e. Inadequate maintenance
  - f. Evidence of structural problems
  - g. Evidence of seepage
  - h. Evidence of distressed or blocked closures or interior drainage structures
  - i. Excess debris within creek
  - j. Animal burrows
3. Photograph levee and adjacent areas and reference to stationing from Task C2.1. Prepare descriptive text for photos and identify observed deficiencies.
4. Prepare Technical Memorandum describing visual levee assessment including date, time, Consultant and subconsultant staff present, other present, observations and photo-documentation.
  - a. List any issues of concern including issues described in Task C2.2 or other issues that are apparent during the visual levee assessment. If there are no significant visually identified issues that could affect or jeopardize potential levee recertification, so state.
  - b. Submit memorandum for review and comment by District and City of Milpitas.
  - c. If substantial visually identifiable issues could affect or jeopardize potential levee recertification, prepare a request for authorization of Task C2.5, "Corrective Action TM".
  - d. Meet with District and City of Milpitas to present results of levee reconnaissance.
  - e. If Optional Task C2.5 is activated, present recommended corrective action for District consideration.

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5. Prepare a work plan and obtain necessary permits for geotechnical field exploration.
  - a. Review available geotechnical data and observations made during "walk-down".
  - b. Prepare work plan for subsurface exploration program indicating levee access, impacts to the maintenance road and adjacent property, locations for exploration, type of subsurface exploration at each location and approximate schedule with allowances for weather delays.
  - c. Prepare Health and Safety Plan, including plan for disposal of hazardous materials if encountered during field work and public safety within the work area.
  - d. Obtain deep well exploration and/or encroachment permit(s) from the Santa Clara Valley Water District.
  - e. At one or more regularly scheduled monthly progress meetings, consultant will review and coordinate work plan with District and Milpitas staff prior to initiating field work.

*This scope assumes the District and or City of Milpitas will arrange for site access and property encroachment permits, including the unlikely event that access is required through private property. The District will provide CEQA clearance for field work as required, or may ask Consultant to provide CEQA clearance as Additional Task C8.*

5. **Optional Task.** Prepare recommended maintenance solutions to observed problems at the reference stations.
  - a. Indicate where the problems appear to be beyond maintenance type of improvement.
  - b. Discuss findings with District.
  - c. If District agrees that recommended maintenance solutions are feasible, Consultant will prepare a Memorandum of the District's Intent to Implement the Required Solution(s).
  - d. If maintenance solutions are infeasible as mutually agreed by Consultant and District, proceed to Task C2.6.
  - e. Include findings and recommendations in Corrective Action TM.
6. **Optional Task.** Prepare a "Levee Deficiency Report" that documents improvements required for levee certification to proceed; noting that correcting the listed deficiencies at this point would not necessarily lead to levee certification. **The certification process would be stopped for Lower Penitencia Creek.**

Deliverables

- Draft "Levee Reconnaissance" technical memorandum
- Final "Levee Reconnaissance" technical memorandum incorporating District comments.
- Work Plan for geotechnical field exploration
- Draft "Corrective Action" technical memorandum (**Optional**)
- Final "Corrective Action" technical memorandum, incorporating District comments (**Optional**)

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- Draft "Levee Deficiency Report" (**Optional**)
- Final "Levee Deficiency Report," incorporating District comments. (**Optional**)

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the absence of visually identifiable issues that could jeopardize levee recertification or an agreement that visually identifiable issues are correctable, and a plan for said correction as developed in Optional Task C2.5.

"GO" = Advance to Task C3

"NO GO" = Advance to Optional Task C2.6

**Task C3 Lower Penitencia Creek Cross Section Verification**

Purpose

Consultant will verify that cross sectional information (i.e. channel geometry) within hydraulic models furnished in Task C1 adequately represent current site conditions.

Consultant will not begin Task C3 until authorized by District based on positive results from Task C2.4 or Task C2.6

District Responsibilities:

- The District will provide access for field surveys.

Approach

1. The Consultant will compare representative cross sections contained in currently effective hydraulic model(s) against field surveys and the District's digital topographic data, as appropriate.
  - a. Review existing hydraulic model(s) for critical cross section geometry locations.
  - b. Select model cross section locations between Coyote Creek and the Berryessa Creek confluence at approximate intervals of 1,000 feet and prepare graphic showing plan view of cross sections.
  - c. Survey selected cross sections, establishing horizontal and vertical control to NAD83 and NAVD88 horizontal and vertical datums, respectively.
  - d. Establish vertical datums for existing model(s) and surveyed cross sections. Convert datum for comparison as required.
  - e. Prepare graphic and numerical comparison of model cross section to field cross section at the selected locations between Coyote Creek and Interstate 880. Provide standard root mean square estimate of difference.
2. The Consultant will compare water surface profiles obtained from the currently effective hydraulic model(s) against water surface profiles obtained using field surveys from Berryessa Creek to Coyote Creek.
  - a. Using existing hydraulic model(s) for Lower Penitencia Creek, remove all cross sections other than those selected for comparison. Use interpolated cross

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- sections as necessary. Compute water surface profile using existing hydraulic model parameters.
- b. Substitute corresponding field-surveyed cross sections in the existing hydraulic model for Lower Penitencia Creek. Use the same cross section interpolation interval. Compute water surface profile using existing hydraulic model parameters.
  - c. Prepare graphic and numerical comparison of modeled water surface profiles based on the existing model cross sections and field surveyed cross sections. Provide standard root mean square estimate of difference.
3. The Consultant will document the verification of cross sections from the effective hydraulic model provided by the District.
- a. Research and list FEMA standards for the required accuracy of computed water surface profiles.
  - b. Determine whether the water surface profile computed using the existing model cross sections is within the required water surface profile accuracy based on the water surface profile computed using field verified cross sections.
  - c. Identify reaches of Lower Penitencia Creek where the computed water surface profile does not meet FEMA accuracy standards.
  - d. Prepare a technical memorandum describing cross section verification methodologies and results, and submit to District.
  - e. For identified reaches not meeting computed water surface profile accuracy standards, proceed to Task C3.4 only after obtaining prior written authorization from District.
4. As an **Optional Task**, Consultant will perform a detailed survey for Lower Penitencia Creek only if cross sectional information cannot be verified as described in Task C3.3. This Scope of Services assumes that the entire study reach will require a detailed creek survey, so less money may be expended if portions of the creek study reach are verified by field surveys.
- a. Identify reach(es) of Lower Penitencia Creek where detailed creek surveys are required. The maximum reach limit is from the Coyote Creek confluence to the Berryessa Creek confluence.
  - b. Identify cross section locations and extents for field surveys based on hydraulic modeling requirements. (Previously surveyed sections will be incorporated into the new hydraulic model.)
  - c. Survey cross sections at selected locations using control set up under Task C3.1d to meet FEMA accuracy standards. *It is assumed that survey control points set up under Task C3.1d for cross section verification will not be disturbed. If control points need to be re-established for reasons outside of the Consultant's control, this will be considered a Contingent Service.*
  - d. Provide horizontal coordinates and vertical elevation points in a format suitable for HEC-RAS import.
  - e. Provide a profile of the top of existing levee with stationing set at 50-foot intervals, using the same survey control.

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Deliverables

- Draft memorandum on cross section verification results (pdf).
- Final memorandum on cross section verification results, incorporating District comments (pdf).
- Authorization Requests for detailed creek surveys as required.

**Task C4 Lower Penitencia Creek Levee Freeboard Evaluation**

Purpose

The Consultant will complete hydraulic modeling of existing conditions for the identified study reach using software and methodologies approved by FEMA. The purpose of this task is to evaluate levee freeboard against 44 CFR §65.10 criteria and certify the levee for adequate freeboard (if it is provided) for the computed one-percent water surface profile.

Consultant will not begin Task C4 until authorized by District based on positive results from Task C2.4 or Task C2.5.

District Responsibilities:

- Facilitate Consultant access to Lower Penitencia Creek as required.
- Define base flood discharge(s) to be used in freeboard evaluation.

Approach

1. The Consultant will observe and photo-document the Lower Penitencia Creek study reach described herein including:
  - a. general channel condition
  - b. vegetation
  - c. signs of erosion or sediment aggradation
  - d. obstructions
  - e. bridges, crossings and other structure
2. Consultant will confirm bridge and culvert parameters contained in the hydraulic model using record drawings obtained in Task C1, direct field observation, and measurement. Road crossings include:
  - a. Interstate 880
  - b. California Circle
  - c. Milmont Drive
3. Based on observations made in Tasks C4.1 and A4.2, provide reach-by-reach estimates of relevant hydraulic parameters including Manning's roughness coefficients, expansion and contraction coefficients, effective conveyance area encroachments, and other modeling parameters, including bed material sampling for any sediment transport calculations necessary to meet FEMA documentation requirements.

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4. The Consultant will complete an HEC-RAS model for Lower Penitencia Creek between Coyote Creek (downstream of Interstate 880) and the Berryessa Creek confluence.
  - a. If Task C3.4 is activated, Task C4.7 is also activated as an Optional Task.
  - b. Consultant will document all modeling assumptions as necessary for FEMA submittal.

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5. For the Lower Penitencia Creek reach parallel to the Lower Penitencia Creek Levee, the Consultant will compare graphically and in tabular form, computed base flood elevations to the top of levee profile.
  - a. Calculate the freeboard provided above base flood elevations (one-percent water surface profile) computed in Task C4.4.
  - b. Compare calculated freeboard to NFIP criteria as specified in 44 CFR §65.10(b)(1)(i).
6. The Consultant will prepare a technical memorandum describing hydraulic methodologies and results, including freeboard evaluation.
  - a. List any reaches with deficient freeboard.
  - b. Submit memorandum for review and comment by District.
  - c. If there are areas of substandard freeboard, prepare a request for authorization of Task C.9, "Freeboard Deficiency TM".
  - d. The Consultant will meet with District and City of Milpitas representatives to present results of freeboard evaluation.
7. **Optional Task.** Convert field cross section data to HEC-RAS cross sections; and import to the effective hydraulic model for those reaches whose cross sectional geometry is not verified in Task C3.3.
8. **Optional Task - Field Survey of Levee Profile.** This task may be required if the freeboard determined in Task C4.6 differs from FEMA's minimum criterion by values that are within the mapping accuracy of information used for freeboard determination, but detailed cross sections have not been surveyed (i.e. Task C3.4 is not activated; for efficiency, this work would be included in Task C3.4 if that Optional Task is activated) AND the District's digital topographic data is not sufficient to produce an adequate levee profile.
9. **Optional Task - Freeboard Deficiency Memorandum.** Consultant will prepare recommended maintenance solutions to calculated freeboard deficiencies.
  - a. Indicate where the causes of substandard freeboard appear to be beyond a maintenance type of improvement.
  - b. Discuss findings with District and City of Milpitas.
  - c. If District agrees that recommended maintenance solutions are feasible, include findings and corrective action recommendations in Freeboard Deficiency TM.
  - d. If maintenance solutions are infeasible as mutually agreed by Consultant and District, proceed to Task C2.6, "Levee Deficiency Report."

Deliverables

- Effective HEC-RAS model for Lower Penitencia Creek between Coyote Creek and Berryessa Creek in electronic format compatible with FEMA requirements.
- Technical Memoranda documenting freeboard evaluation for Lower Penitencia Creek Levee as described.

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- Freeboard Deficiency TM if warranted.

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the certification of adequate freeboard in Task C4.6, or an agreement that freeboard deficiencies are correctable through maintenance activities, and a plan for said correction as developed in Task A4.6.

"GO" = Advance to Task A5

"NO GO" = Advance to Optional Task A2.6

**Task C5 Lower Penitencia Creek Levee Geotechnical Evaluation**

Purpose

The Consultant will provide the geotechnical evaluation necessary to support levee certification in conformance with 44 CFR §65.10(b)(4) and (5). A site specific geotechnical investigation will be performed in two phases (the scope of the second phase will be contingent on results obtained in the first phase and will be based on specific additional information required by the sub-consultant to certify the condition of the levee), based on the program outlined in USACOE EM 1110-2-1913 to:

- Characterize subsurface conditions.
- Obtain soil samples for visual examination and laboratory testing.
- Describe subsurface conditions, engineering properties, engineering analyses and evaluations.
- Provide for engineering analyses to evaluate liquefaction, seepage, embankment stability, settlement, and stability of concrete structures or appurtenant works. Based on cursory review of the available geotechnical information, the project team expects all levees to be underlain by alluvial soils consisting of both coarse-grained and fine-grained strata. The key geotechnical concerns are the potential presence of liquefiable non-plastic soils and soft, compressible fine-grained soils.
- Document field exploration, analyses, findings, and recommendations.

Consultant will not begin Task C5 until obtaining written authorization by District based on positive results from Task C4.6.

District Responsibilities:

- Facilitate Consultant access to Lower Penitencia Creek as required.
- Provide available geotechnical data and reports.
- Facilitate permits for boring material disposal.

Approach

1. Consultant will perform geotechnical field exploration in two separate phases (Phase 1 and Phase 2). A combination of rotary wash borings and cone penetration tests (CPTs) will be used for the first phase of field investigation as indicated in Table C1. Phase 2 work is described as Optional Task C.5.

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**Table C1: Schedule of Phase 1 Exploratory Borings for Lower Penitencia Creek Levee**

Type	Total Number	Depth
CPT	9	70 feet
Rotary Wash	3	70 feet

2. Consultant will complete the Phase 1 Field Exploration.
  - a. Delineate an exploration location on the levee top at intervals of approximately 1,000 linear feet. The number of Phase 1 exploration locations may be reduced based on the availability and quality of existing geotechnical data.
  - b. Consultant will alternate boring and CPT where appropriate, and each will be advanced to a depth below the levee toe of at least three times the height of the levee (USACOE EM 1110-2-1913), or a minimum of 50 feet below the levee if liquefiable soils are encountered, per standard practice.
  - c. Samples will be obtained using a 2-inch outside diameter (1.4-inch inside diameter) split-barrel sampler (also called a Standard Penetration Test sampler), a 3-inch outside diameter (2.5-inch inside diameter) split barrel sampler lined with brass rings or tubes (also called a Modified California sampler), or with a thin-walled Shelby tube. Samples will be driven 18 inches by a 140 pound hammer falling 30 inches, and the number of hammer blows will be recorded every 6 inches of driving.
  - d. Consultant will obtain soil samples from the borings at five foot intervals for visual classification and laboratory testing. The sampling frequency will be increased to an interval of 2.5 feet in liquefiable soils.
    - i) Standard Penetration Test (SPT) samples will be collected in coarse-grained, non-plastic soil to provide N-values for evaluation of liquefaction. Modified California samples will be collected in fine-grained or coarse-grained soils that do not exhibit susceptibility to liquefaction. Shelby tube samples will be collected in soft, fine-grained soils.
    - ii) Borings and CPTs will be backfilled with cement grout as required by the District, and topped off with cold patch asphalt within paved areas.
    - iii) Spoil cuttings from the borings will be tested on-site, drummed or otherwise contained, and transported to the nearest landfill properly licensed to dispose of the material. The presence of tested hazardous materials in the spoil cuttings will trigger Task C5.12 as a Contingent Service. Cuttings material will be removed from the site within 30 days of generation.
  - e. Consultant will evaluate the existing geotechnical data and the results of the Phase 1 investigation to divide the levee into reaches with similar subsurface and embankment conditions. Potential geotechnical issues may exist for each reach. This scope of work assumes that the levee will be divided into no more than three reaches for further field exploration and laboratory testing as defined in Optional Tasks C5.13 and C5.14. If more than three reaches are necessary based on the findings of the Phase 1 investigation, an estimate for evaluation of additional reaches will be furnished by the Consultant as a Contingent Scope of Service.

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3. Consultant will perform laboratory testing in phases corresponding to the field investigation phases. The types and anticipated quantity of laboratory tests for Phase 1 are summarized in Table C2. The purpose of the Phase 1 laboratory testing is predominantly to provide classification of subsurface soils.

**Table C2: Schedule of Phase 1 Laboratory Testing for Lower Penitencia Creek Levee**

Test	ASTM Designation	Anticipated Number
Moisture Content and Dry Density	D2937	21
Moisture Content Only	D2216	13
Atterberg Limits	D4318	3
Consolidation	D2435	3
Unconfined Compression	D2166	4
Triaxial UU	D2850	3
Triaxial CU with Pore Pressure	D4767	1
Sieve Analysis	D422	8
Sieve Analysis + Hydrometer	D422	2
Percent Passing No. 200 Sieve	D1140	8
Compaction Curve	D1557	3

4. Perform geotechnical analyses to evaluate liquefaction and levee stability per USACOE EM 1110-2-1913.
  - a. Evaluate triggering of liquefaction using procedures outlined in Youd et al. (2001). The SPT N-values and CPT data collected during the field investigation will be the primary data used for evaluating liquefaction. Earthquake ground motions will be determined using the California Geological Survey (CGS) probabilistic seismic hazard map for California. (The CGS seismic hazard model uses current fault source characterizations and is well defined in California. Attenuation relationships for soil sites used by the CGS model were developed from primarily California seismic events and are suitable for the subsurface conditions of the subject levees.)
  - b. Evaluate liquefaction hazards, including seismically-induced settlement, residual strength of liquefied soil, and lateral spreading.
5. Consultant will complete a levee seepage analysis.
  - a. Review field and laboratory data.
  - b. Review available information provided by District.
  - c. Perform geotechnical analyses to evaluate seepage per USACOE EM 1110-2-1913.
    - i) Evaluate seepage through and under the levee using the finite-element computer program Seep/W (GeoSlope, 2004) to determine the exit gradient at the landside toe of the embankment under steady-state seepage conditions.
    - ii) Evaluation of transient seepage conditions based on the anticipated flood duration may be performed if the exit gradient under steady-state conditions exceeds 0.5.

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6. Consultant will complete a stability evaluation for the levee.
  - a. Review field and laboratory data.
  - b. Review information provided by District.
  - c. Perform geotechnical analyses to evaluate the stability of the levee per USACOE EM 1110-2-1913.
  - d. Levee stability will be analyzed using Slope/W, a companion program to Seep/W, which utilizes limit-equilibrium theory for calculating the factor of safety (FS) for slope stability.
  - e. Evaluate levee stability for dry (existing), steady-state seepage, rapid drawdown, and pseudostatic conditions, as well as with post-liquefaction residual strength, if applicable.
7. Consultant will complete a settlement evaluation for the levee.
  - a. Review field and laboratory data.
  - b. Review available information provided by District
  - c. Determine from a comparison of verified levee cross sectional surveys and/or levee profile survey and/or digital topographic data to record drawings whether significant settlement of the levee has occurred, or if the levee section will change due to maintenance recommendations made for other tasks.
  - d. If comparison analysis indicates that after nearly 20 years post-construction, further study is warranted, determine simple geologic conditions and settlement parameters, and evaluate the increase in stress using a closed-form solution for the shape of loading assuming that geologic strata are essentially horizontally deposited and homogenous across the levee section.
  - e. If the geometry of the levee does not fit closely into one of the available closed-form solutions and detailed analysis is warranted, use Sigma/W (a finite element code used to evaluate the stress increase below the levee) to establish anticipated settlement.
8. Consultant will complete an appurtenant works assessment for the levee.
  - a. Review field and laboratory data.
  - b. Review available information provided by the District.
  - c. Determine from visual inspection whether the presence and/or condition of appurtenant structures, such as gauging stations, walls, fences, abutments, etc. located on or very near the levee present geotechnical concerns.
  - d. Settlement of concrete structures or any other appurtenant works will be evaluated if evidence of distress to the levee is identified based on the visual levee assessment of Task C2, or if it is anticipated that new structures will be constructed.
9. Consultant will meet with District and its geotechnical engineering staff to present preliminary results of the field investigation and geotechnical evaluations, including methodologies and assumptions.
  - a. Incorporate District comments into the final geotechnical evaluations.

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10. Consultant will prepare a draft geotechnical report that documents site plans, boring and CPT logs, laboratory test data, and parameters used in geotechnical evaluations.
  - a. Document results of liquefaction evaluation, seepage analysis, levee stability analysis, and settlement analysis, including the results of Optional Tasks.
  - b. If supported by the analysis, certify that the data and analyses meet the requirements of USACOE EM 1110-2-1913 and by direct reference, 44 CFR §65.10(b)(4) and (5).
  - c. Indicate where the levee is substandard and the corrective maintenance action necessary to meet standards, if applicable; or indicate that substantial levee improvement is required to meet standards.
  - d. Submit three (3) copies of Draft Geotechnical Report to the District for review and comment.
  - e. Incorporate District comments into Final Geotechnical Report. Report will meet standards for FEMA submittal.
11. Consultant may perform Hazardous Spoil and Cutting Disposal as an **Optional Task**. Phase 1 field exploration will generate waste including drilling mud, excess soil cuttings and other debris. Materials will be tested, placed in 55-gallon drums and off-hauled to an appropriate disposal site as part of Task C5.3. The additional fee associated with this Optional Task assumes the worst reasonably foreseeable case of material contamination and associated increases in handling, transportation, and disposal costs.
12. Consultant may perform Phase 2 Field Work as an **Optional Task** if his interpretation of the results from Phase 1 Field Work indicates that additional information is necessary to complete the geotechnical evaluation. The decision to pursue Phase 2 Field Work would be discussed with the District and City of Milpitas prior to beginning Phase 2 Field Work.
  - a. Unless access is prohibited, Phase 2 field investigations would be performed at both river-side and dry-side toes to provide cross-sectional variation of subsurface information for each reach that exhibits potential geotechnical issues. (Alternatively, a companion CPT or boring may be substituted at a Phase 1 location at the top of the levee).
  - b. The scope of work for Phase 2 field investigations is the same as for Phase 1; however, specific sample types and depths will be specified based on the subsurface conditions encountered during the Phase 1 field investigation.
    - i) A combination of rotary wash borings and cone penetration tests (CPTs) would be used for the field investigation as indicated in Table C3.
    - ii) Obtain soil samples from the borings at five to ten foot intervals for visual classification and laboratory testing.
    - iii) Borings and CPTs would be backfilled with cement grout as required by the District, and topped off with cold patch asphalt within paved areas. Spoil cuttings from the borings would be tested on-site, transported to the nearest landfill properly licensed to dispose of the material. The presence of hazardous materials encountered during Phase 2 would trigger Task C5.15 as an Optional Task.

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**Table C3: Schedule of Phase 2 Borings for Lower Penitencia Creek Levee**

Type	Total Number	Depth
Rotary Wash	3	70 feet

13. Consultant may perform Phase 2 Lab Work as an **Optional Task**. The types and anticipated maximum quantity of laboratory tests for up to three Phase 2 reaches are summarized in Table C4.

**Table C4: Phase 2 Laboratory Testing for Lower Penitencia Creek Levee**

Test	ASTM Designation	Anticipated Number
Moisture Content and Dry Density	D2937	21
Moisture Content Only	D2216	13
Atterberg Limits	D4318	3
Consolidation	D2435	3
Unconfined Compression	D2166	4
Triaxial UU	D2850	3
Triaxial CU with Pore Pressure	D4767	3
Sieve Analysis	D422	8
Sieve Analysis + Hydrometer	D422	2
Percent Passing No. 200 Sieve	D1140	8
Compaction Curve	D1557	3

14. Consultant may perform additional Hazardous Spoil and Cutting Disposal as an **Optional Task**. Phase 2 field exploration may generate waste including drilling mud, excess soil cuttings and other debris. Materials will be tested, placed in 55-gallon drums and off-hauled to an appropriate disposal site as part of Task C5.13. The additional fee associated with this Optional Task assumes the worst reasonably foreseeable case of material contamination and associated increases in handling, transportation, and disposal costs.

Deliverables

- An electronic (pdf) version of the Draft Geotechnical Report for distribution by the District.
- Three (3) hard-copies of the Final Geotechnical Report incorporating District comments.
- An electronic (pdf) version of the Final Geotechnical Report.

**Go/No Go Decision**

The decision to proceed with levee recertification efforts depends upon the certification of geotechnical levee stability as described in Task C5 or an agreement that geotechnical deficiencies are correctable through maintenance activities, and a plan for said correction as developed in Task C5.11.

"GO" = Advance to Task C6

"NO GO" = Advance to Optional Task C2.6

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**Task C6 Interior Drainage Study for Lower Penitencia Creek**

Purpose

Consultant will perform an interior drainage study (IDS) conforming to 44 CFR §65.10(b)(6). The interior drainage study will consider coincident sources of inundation with watersheds tributary to drainage facilities that discharge to Lower Penitencia Creek through the levee recertification reach. Local infrastructure that evacuates the residual interior floodplain area (generally gravity storm drain outfalls and pumping plants meeting NFIP criteria for construction, operation and maintenance) may be considered in the analysis. Consultant will calibrate 100-year interior runoff hydrographs for the coincident rainfall event based on the verified published discharge, using depth-area corrections as needed.

Consultant will obtain record information on storm drain infrastructure from Milpitas representatives to perform this analysis. Mapping will be based upon the certified 2006 LiDAR topographic data provided by the District.

District Responsibilities

- Provide 2006 topographic information for Project vicinity in usable digital form.
- Review work products and distribute to City of Milpitas for comment.

Approach

1. Meet with City of Milpitas representatives to obtain information and plans regarding storm drainage pump stations and gravity outfalls that drain to Lower Penitencia Creek within the levee recertification reach.
  - a. Determine which storm drainage infrastructure, particularly pumping facilities, meets criteria outlined in 44CFR §65.10.
  - b. Prepare summary tables for storm drainage infrastructure inventory and indicate which facilities meet NFIP criteria for consideration within interior drainage analysis.
2. Prepare coincident interior runoff calculations.
  - a. Establish interior precipitation depth based on District's hydrologic methodology.
  - b. Establish interior precipitation pattern based on archived or District hydrology model for Lower Penitencia and Berryessa Creeks.
  - c. Apply appropriate depth-area correction if applicable (USACE Northern California).
  - d. Construct hydrologic models for interior drainage areas using HEC-HMS.
3. Map inundation from interior runoff.
  - a. Establish flow depths and interior ponding elevations using HEC-HMS and LiDAR topography.
  - b. Use LiDAR topography to map Special Flood Hazard Areas greater in depth than one foot.
4. Present Findings of Interior Drainage Study.

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- a. Meet with District and City of Milpitas representatives to present the results of the interior drainage study.
- b. Present a list of storm drainage infrastructure that does not meet FEMA criteria.

Deliverables

- Interior Drainage Study Report sufficient for eventual submittal to FEMA as part of Task C7.
- Digital Work Map showing extent of interior residual flooding suitable for eventual submittal to FEMA as part of Task C7.

**Task C7 Certification Package for Lower Penitencia Creek Levee**

Purpose

The Consultant will complete a Levee Recertification Package for District submittal to FEMA. The submittal will be in conformance with NFIP guidelines, FEMA Study Contractor Guidelines and other criteria developed in Task C1.

Consultant will not begin Task C7 until authorized by District based on positive results from Task C4 and Task C5, and until Task C6 is complete.

District Responsibilities

- The District will review the Consultant's Certification Package and provide comments as necessary.
- The District will obtain Community Acknowledgement Form signatures from the appropriate District and City of Milpitas floodplain managers.
- The District is responsible for the payment of any fees associated with the submittal.
- The District and City of Milpitas are responsible for public notification as required by regulation.

Approach

1. Consultant will prepare narrative and graphic documentation of the Lower Penitencia Creek levee certification process that includes:
  - a. Study and levee reaches
  - b. Certification methodologies and assumptions
  - c. Hydraulic modeling synopsis
  - d. Sediment transport analysis suitable for MT-2 Form 3, as required
  - e. Geotechnical evaluation synopsis
2. Consultant will prepare the effective HEC-RAS model for submittal in digital format.
3. Consultant will compile all relevant backup documentation for FEMA submittal:
  - a. Narrative and graphics

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- b. Hydraulic model
  - c. Geotechnical Report
  - d. Certification of all field surveys
  - e. Record levee drawings as applicable
  - f. O&M plan and records as provided by District
4. Consultant will complete FEMA Standard Form MT-2 including:
    - a. Form 1: Overview and Concurrence (LOMR, stamped)
    - b. Form 2: Riverine Hydrology and Hydraulics (Sections B, C, and D)
    - c. Form 3: Riverine Structures
  5. Consultant will submit a Draft Certification Package to District for distribution, review and comment.
  6. Consultant will meet with District and City of Milpitas officials to finalize package prior to FEMA submittal.
  7. Consultant will prepare the final Levee Recertification Package for District submittal to FEMA and include:
    - a. Cover letter
    - b. Cover letter for separate payment (if applicable)
    - c. Full certification package defined in Task C6.4
  8. Consultant will track certification progress during FEMA review period, obtaining monthly updates after the initial letter from FEMA is received.
  9. Consultant may prepare FEMA re-submittals as an **Optional Task**
    - a. Respond to FEMA requests for additional information and data.
    - b. Prepare up to two (2) substantial re-submittals.

Deliverables

- Electronic (pdf) copy of the Draft Certification Package for distribution by the District
- Five (5) hard-copies and one electronic copy of the Final Certification Package, incorporating District comments.

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**Task C8      CEQA Clearance for Exploration of Lower Penitencia Creek Levee**

Purpose

If so directed by the District as an **Additional Task**, Consultant will obtain clearance to perform the exploratory borings described in Tasks C5, under the California Environmental Quality Act (CEQA).

Based on the CEQA guidelines the proposed project is likely eligible for Class 1 Categorical Exemption which consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures.

If a more substantive CEQA document proves to be required (e.g. Initial Study/Negative Declaration or EIR), a separate scope would be provided to the District as a Contingent Service.

District Responsibilities

- Provide Consultant access to levee for field review.
- Review CEQA Clearance document if requested.

Approach

1. Consultant will complete a preliminary field review of the levee site to document existing site conditions and determine potential constraints and issues.
2. Consultant will coordinate Work Plan prepared under Task C5.1 in light of potential constraints and issues to ensure insofar as practical, that the necessary CEQA clearance remains a Categorical Exemption.
3. Consultant will prepare a CEQA clearance document for the Geotechnical Exploration Work Plan.
4. Consultant will file the CEQA clearance document with County of Santa Clara and pay the filing fee.

Deliverable

- CEQA clearance document filed with County of Santa Clara.

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**Contingent Services**

Consultant may be required to provide contingent services for various reasons at the District's discretion. Examples of additional work include: change in permitting requirement, changed site conditions or additional meetings, etc. in addition to those listed in Tasks A through C.

The District will negotiate the approach, assumptions and deliverables along with budgets for contingent services on an ongoing basis during the course of the agreement. Consultant will not initiate work on any of the contingent services without obtaining prior written authorization from the District.

For budgeting purposes, the Contingent Services are estimated as approximately 10% of the Basic Tasks for each levee, described as "Contingency" in the budget.

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**V STANDARDS, REFERENCES AND CODES**

The Consultant will observe, but not be limited to the following published standards and references as applicable to the process of analyzing watersheds, river systems, levees and interior areas for levee re-certification.

- Code of Federal Regulations (CFR)
- Federal Emergency Management Agency (FEMA)
- National Flood Insurance Program (NFIP)
- United States Army Corps of Engineers (USACE)

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**VI ADDITIONAL TERMS AND CONDITIONS**

**1. Notices:**

All notices will be deemed to have been given when made in writing and delivered or mailed to the representatives of District and Consultant at their respective addresses as follows:

District:

Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose, CA 95118-3638  
Attention: Roger Narsim, or Designee

Consultant:

Schaaf & Wheeler, Consulting Civil Engineers  
100 N. Winchester Boulevard, Suite 200  
Santa Clara, CA 95050  
Attention: Charles D. Anderson, Vice President

**2. Appendix One Attachments:**

The following listed Attachments referred to herein are incorporated in this Appendix One Scope of Services as thought set forth in full:

Attachment One - Consultant's Staff and Sub-Consultants

Attachment Two - Dispute Resolution

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## APPENDIX ONE – ATTACHMENT ONE

### CONSULTANT'S STAFF AND SUB-CONSULTANT THE RECERTIFICATION OF LEVEES TO MEET FEMA MAPPING STANDARDS

#### Consultant's Staff and Sub-Consultants:

1. Consultant's key personnel assigned to the project are as follows:

Name	Title
James R. Schaaf, PhD, PE	Principal in Charge, QA/QC
Charles D. Anderson, PE	Project Manager
M. Eliza McNulty, PE	Staff Engineer
Stephanie L. Conran, PE	Staff Engineer

Consultant will replace any person assigned to the project team upon the District's request.

2. Consultant will employ sub-consultants it deems appropriate to the complexity and nature of the required Services and said sub-consultants must, if their specialty is licensable, be licensed by the State of California to perform their specific Services. Consultant must obtain District's approval of all sub-consultants. Upon District's request, Consultant must provide copies of all sub-consultant contract Agreements. Sub-consultants are:

Firm	Responsibility
Geomatrix, Inc.	Geotechnical Levee Evaluation
Pacific Geotechnical Engineering	Geotechnical Field Exploration
Ruggeri-Jensen-Azar, Inc.	Surveying
David J. Powers and Associates	CEQA Clearance

Any delegation or subcontracting by Consultant does not operate to relieve Consultant of its responsibilities under this Agreement.

3. None of the above named staff or sub-consultants will be replaced without the approval of the District's Project Manager. If Consultant's Project Manager or any other designated key staff person or sub-consultant fails to perform to the satisfaction of the District, on written notice from District's Project Manager, Consultant will have fifteen (15) calendar days to remove that person from the project and provide a replacement acceptable to the District.
4. The District's Project Manager may approve any revisions to Consultant's key personnel or designated sub-consultant as an administrative modification to this Agreement.

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## APPENDIX ONE – ATTACHMENT TWO

### DISPUTE RESOLUTION

#### Dispute Resolution

##### I Consultant's Questions & Concerns

Questions regarding the terms, conditions and Services relating to this Agreement will be decided by the District who will furnish the decisions to Consultant in writing within thirty (30) Days after receiving a written request from Consultant.

##### II Dispute Resolution during Design

- A. Alternate Dispute Resolution (ADR)
- B. District intends to use ADR techniques Consultant and Its Sub consultants are expected to participate in all ADR efforts.
- C. The cost of facilities and facilitator will be borne by District.

##### III Negotiations Before and During Mediation

Negotiations to resolve disputes before and during Mediation are initiated for settlement purposes only and are not binding unless otherwise agreed by District and Consultant.

##### IV Mediation

- A. Voluntary Mediation
  - 1. In the event a dispute or issue is not resolved by the Internal Review process stated in the Standard Consultant Agreement, Section VIII. Resolution of Disputes, District and Consultant agree to attempt to resolve the matter by Mediation.
  - 2. Said Mediation is voluntary, non-binding, and intended to provide an opportunity for the parties to evaluate each other's cases and arrive at a mutually agreeable solution.
  - 3. These provisions relating to voluntary Mediation will not be construed or interpreted as mandatory arbitration.
- B. Initiation of Mediation
  - 1. Any party to a dispute or claim may initiate Mediation by notifying the other party or parties in writing.
- C. Request for Mediation
  - 1. A Request for Mediation must contain a brief statement of the nature of the dispute or claim, and the names, addresses, and phone numbers of all parties to the dispute or claim, and those who will represent them, if any, in the Mediation.

D. Selection of Mediator

1. Upon receipt of a Request for Mediation, within fourteen (14) Days, the parties will confer to select an appropriate Mediator agreeable to all parties.
2. If the parties cannot agree on a Mediator, they hereby agree to accept a Mediator appointed by a recognized association such as the American Arbitration Association.

E. Qualifications of a Mediator

1. Any Mediator selected must have expertise in the area of the dispute and be knowledgeable in the Mediation process.
2. No person will serve as a Mediator in any dispute in which that person has any financial or personal interest in the result of the Mediation.
3. Before accepting an appointment, the prospective Mediator must disclose any circumstances likely to create a presumption of bias or prevent a prompt meeting with the parties. Upon receipt of such information, the parties will confer and decide whether to select another Mediator.

F. Vacancies

1. If any Mediator becomes unwilling or unable to serve, another Mediator will be selected unless the parties agree otherwise.

G. Representation

1. Any party may be represented by person(s) of their choice who must have full authority to negotiate.
2. The names and addresses of such person(s) must be communicated in writing to all parties and to the Mediator.

H. Time and Place of Mediation

1. The Mediator will set the time of each Mediation session.
2. The Mediation will be held at a convenient location agreeable to the Mediator and the parties, as determined by the Mediator.
3. All reasonable efforts will be made by the parties and the Mediator to schedule the first session within sixty (60) Days after selection of the Mediator.

I. Identification of Matters in Dispute

1. Unless a longer period of time is required by the Mediator, at least ten (10) Days before the first scheduled Mediation session, each party must provide the Mediator a brief memorandum setting forth its position with regard to the issues that need to be resolved. At the discretion of the Mediator, or otherwise agreed by the parties, the parties may mutually exchange such memoranda.
2. At the first session, the parties will be expected to produce all information reasonably required for the Mediator to understand the

issue(s) presented. The Mediator may require each party to supplement such information.

J. Authority of Mediator

1. The Mediator does not have authority to impose a settlement on the parties but will attempt to assist the parties in reaching a satisfactory resolution of their dispute.
2. The Mediator is authorized to conduct joint and separate meetings with the parties and to make oral and written recommendations for settlement.
3. Whenever necessary, the Mediator may also obtain expert advice concerning technical aspects of the dispute, provided the parties agree and assume the expenses of obtaining such advice. Arrangements for obtaining such advice will be made by the Mediator or the parties, as determined by the Mediator
4. The Mediator is authorized to end the Mediation whenever, in the Mediator's judgment, further efforts at Mediation would not contribute to a resolution of the dispute between the parties.

K. Privacy

1. Mediation sessions are private.
2. The parties and their representatives may attend Mediation sessions.
3. Other persons may attend only with the permission of the parties and with the consent of the Mediator.

L. Confidentiality

1. The Mediator will not divulge confidential information disclosed to a Mediator by the parties or by witnesses in the course of the Mediation.
2. All records, reports, or other documents received by a Mediator while serving as Mediator, are confidential.
3. Neither party will compel the Mediator to divulge such records or to testify in regard to the Mediation in any adversary proceeding or judicial forum.
4. The parties must maintain the confidentiality of the Mediation and must not rely on, or introduce as evidence in any arbitration, judicial or other proceedings:
  - a. Views expressed or suggestions made by the other party with respect to a possible settlement of the dispute;
  - b. Statements made by the other party in the course of the Mediation proceedings;
  - c. Proposals made or views expressed by the Mediator;
  - d. Whether the other party had or had not indicated willingness to accept a proposal for settlement made by the Mediator.

M. No Stenographic Record

1. There will be no stenographic record of the Mediation.

**N. Termination of Mediation**

1. The Mediation will be terminated:

- a. By the execution of a Settlement Agreement by the parties;
- b. By a written declaration of the Mediator to the effect that further efforts at Mediation are no longer worthwhile; or
- c. By a written declaration of a party or parties to the effect that the Mediation proceedings are terminated.

**O. Exclusion of Liability**

1. No Mediator will be a necessary party in judicial proceedings related to the Mediation.

**P. Interpretation and Application of These Mediation Provisions**

1. The Mediator will interpret and apply these Mediation provisions insofar as they relate to the Mediator's duties and responsibility.

**Q. Expenses**

1. The expenses of witnesses for each party must be paid by the party producing the witnesses.
2. All other expenses of the Mediation, including required traveling and other expenses of the Mediator; and the expenses of any witness called by the Mediator, or the cost of any proofs or expert advice produced at the direct request of the Mediator, will be apportioned as the Mediator finds appropriate or as otherwise agreed to by the parties.

**V Compensation for Participation in Mediation**

Neither Consultant nor the District is entitled to compensation for time spent in or for negotiations or Mediation to or disputes between Consultant and District arising out of this Agreement.

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## APPENDIX TWO

### FEES AND PAYMENT

#### General

The fee for completing each task and subtask described in Appendix One is based on: (i) the hourly labor rates expressly specified in the Hourly Rate Table listed below, and (ii) the Reimbursable Non-Labor Expenses Table (subject to the appropriate mark up rate) listed below, subject to the not-to-exceed amount associated with that task and subtask. Consultant must complete the services for each task or subtask within the not-to-exceed amount associated with that task or subtask described in the Not-To-Exceed Fee Tables contained in Appendix Two. These fees are considered full compensation for all personnel, materials, suppliers, subcontractors, equipment, travel, and any other item that was necessary for the Consultant to complete the work associated with that task or subtask.

The total funding allocated to this Agreement is \$1,483,900. Therefore, payments made under this Agreement must not exceed this \$1,483,900 amount. Additional expenditures require the prior written authorization of the District's Board of Directors or a designee delegated this authority by the Board.

#### Not-To-Exceed Fee Tables

No services will be performed or costs paid by the District to the Consultant for Contingent Tasks, unless the District provided Consultant with prior written authorization to proceed with those Contingent Tasks.

If District terminates levee certification efforts as to any particular levee, Consultant will not undertake additional tasks related to certification of such levee without District's prior written approval. District will not be required to compensate Consultant for any tasks undertaken without District's prior written approval.

Table 1: Basic Tasks

Task	Description	Fees \$	Direct Costs \$	Total Not-to- Exceed Fee \$
A1	Meetings and Coordination	\$ 25,300	\$ 3,900	\$ 29,200
A2	Levee Reconnaissance	\$ 27,300	\$ 2,100	\$ 29,400
A3	Cross Section Verification	\$ 75,200	\$ 6,500	\$ 81,700
A4	Freeboard Evaluation	\$ 33,200	\$ 0	\$ 33,200
A5	Geotechnical Evaluation	\$ 110,300	\$ 56,500	\$ 166,800
A6	Certification Package	\$ 7,400	\$ 100	\$ 7,500
	Contingency			\$ 35,000
<b>Task A</b>	<b>Certify Uvas Creek Levee</b>	<b>\$ 278,700</b>	<b>\$ 69,100</b>	<b>\$ 382,800</b>
B1	Meetings and Coordination	\$ 25,300	\$ 3,900	\$ 29,200
B2	Levee Reconnaissance	\$ 27,300	\$ 2,100	\$ 29,400
B3	Freeboard Evaluation	\$ 22,000	\$ 0	\$ 22,000
B4	Interior Drainage Study	\$ 26,200	\$ 0	\$ 26,200
B5	Geotechnical Evaluation	\$ 129,200	\$ 70,200	\$ 199,400

B6	Certification Package	\$ 7,400	\$ 100	\$ 7,500
	Contingency			\$ 20,000
<b>Task B</b>	<b>Certify Stevens Creek Levees</b>	<b>\$ 237,400</b>	<b>\$ 76,300</b>	<b>\$ 333,700</b>
C1	Meetings and Coordination	\$ 21,100	\$ 3,800	\$ 24,900
C2	Levee Reconnaissance	\$ 20,900	\$ 1,400	\$ 22,300
C3	Cross Section Verification	\$ 22,400	\$ 1,400	\$ 23,800
C4	Freeboard Evaluation	\$ 24,200	\$ 0	\$ 24,200
C5	Geotechnical Evaluation	\$ 63,900	\$ 26,700	\$ 90,600
C6	Interior Drainage Study	\$ 20,000	\$ 0	\$ 20,000
C7	Certification Package	\$ 7,400	\$ 100	\$ 7,500
	Contingency			\$ 20,000
<b>Task C</b>	<b>Certify Lower Penitencia Creek Levee</b>	<b>\$ 179,900</b>	<b>\$ 33,400</b>	<b>\$ 233,300</b>
	<b>Total - Task A to C</b>	<b>\$ 696,000</b>	<b>\$ 178,800</b>	<b>\$ 949,800</b>

Table 2: Optional Tasks

Task	Description	Fees \$	Direct Costs \$	Total Not-to- Exceed Fee \$
A2.5	Maintenance Solutions TM	\$ 1,400	\$ 0	\$ 1,400
A2.6	Levee Deficiency Report	\$ 3,500	\$ 0	\$ 3,500
A3.4	Detailed Field Survey	\$ 35,000	\$ 3,500	\$ 38,500
A4.7	Field Data Conversion	\$ 5,000	\$ 0	\$ 5,000
A4.9	Freeboard Deficiency TM	\$ 4,400	\$ 0	\$ 4,400
A4.10	Risk Based Freeboard Evaluation	\$ 25,200	\$ 0	\$ 25,200
A5.12	Hazardous Materials Disposal – Phase 1	\$ 0	\$ 19,500	\$ 19,500
A5.13	Phase 2 Field Exploration + Laboratory	\$ 11,500	\$ 41,200	\$ 52,700
A5.15	Hazardous Materials Disposal – Phase 2	\$ 0	\$ 19,500	\$ 19,500
A6.9	FEMA Resubmittal	\$ 5,800	\$ 0	\$ 5,800
<b>Task A</b>	<b>Certify Uvas Creek Levee</b>	<b>\$ 91,800</b>	<b>\$ 83,700</b>	<b>\$ 175,500</b>
B2.5	Maintenance Solutions TM	\$ 1,400	\$ 0	\$ 1,400
B2.6	Levee Deficiency Report	\$ 3,500	\$ 0	\$ 3,500
B3.7	Detailed Field Survey	\$ 14,000	\$ 1,400	\$ 15,400
B3.8	Freeboard Deficiency TM	\$ 4,400	\$ 0	\$ 4,400
B5.11	Hazardous Materials Disposal – Phase 1	\$ 0	\$ 19,500	\$ 19,500
B5.12 & B5.13	Phase 2 Field Exploration + Laboratory	\$ 9,800	\$ 29,000	\$ 38,800
B5.14	Hazardous Materials Disposal – Phase 2	\$ 0	\$ 14,400	\$ 14,400
B6.9	FEMA Resubmittal	\$ 5,800	\$ 0	\$ 5,800
<b>Task B</b>	<b>Certify Stevens Creek Levees</b>	<b>\$ 38,900</b>	<b>\$ 64,300</b>	<b>\$ 103,200</b>
C2.5	Maintenance Solutions TM	\$ 1,400	\$ 0	\$ 1,400
C2.6	Levee Deficiency Report	\$ 3,500	\$ 0	\$ 3,500
C3.4	Detailed Field Survey	\$ 13,800	\$ 1,400	\$ 15,200
C4.7	Field Data Conversion	\$ 5,000	\$ 0	\$ 5,000
C4.9	Freeboard Deficiency TM	\$ 4,400	\$ 0	\$ 4,400

C5.12	Hazardous Materials Disposal – Phase 1	\$ 0	\$ 9,200	\$ 9,200
C5.13	Phase 2 Field Exploration + Laboratory	\$ 7,500	\$ 19,200	\$ 26,700
C5.15	Hazardous Materials Disposal – Phase 2	\$ 0	\$ 9,200	\$ 9,200
C7.9	FEMA Resubmittal	\$ 5,800	\$ 0	\$ 5,800
<b>Task C</b>	<b>Certify Lower Penitencia Creek Levee</b>	<b>\$ 41,400</b>	<b>\$ 39,000</b>	<b>\$ 80,400</b>
	<b>Total - Task A to C</b>	<b>\$ 172,100</b>	<b>\$ 187,000</b>	<b>\$ 359,100</b>

Table 3: Additional Tasks

Task	Description	Fees \$	Direct Costs \$	Total Not-to- Exceed Fee \$
A7	Hydrologic Reconciliation (Uvas Creek)	\$ 18,600	\$ 0	\$ 18,600
A8	CEQA Clearance for Soil Borings	\$ 4,900	\$ 500	\$ 5,400
A9	Additional Soil Borings	\$ 800	\$ 5,100	\$ 5,900
A10	Additional Floodplain Mapping (Gilroy)	\$ 71,200	\$ 1,500	\$ 72,700
A11	Levee Certification Memorandum	\$ 2,000	\$ 0	\$ 2,000
<b>Task A</b>	<b>Certify Uvas Creek Levee</b>	<b>\$ 97,500</b>	<b>\$ 7,100</b>	<b>\$ 104,600</b>
B7	CEQA Clearance for Soil Borings	\$ 4,900	\$ 500	\$ 5,400
B8	Additional Floodplain Mapping (Mtn View)	\$ 59,600	\$ 0	\$ 59,600
<b>Task B</b>	<b>Certify Stevens Creek Levees</b>	<b>\$ 64,500</b>	<b>\$ 500</b>	<b>\$ 65,000</b>
C8	CEQA Clearance for Soil Borings	\$ 4,900	\$ 500	\$ 5,400
<b>Task C</b>	<b>Certify Lower Penitencia Creek Levee</b>	<b>\$ 4,900</b>	<b>\$ 500</b>	<b>\$ 5,400</b>
	<b>Total - Task A to C</b>	<b>\$ 166,900</b>	<b>\$ 8,100</b>	<b>\$ 175,000</b>

Table 4: Summary

Task	Description	Basic \$	Optional \$	Additional \$	Total \$
A	Uvas Creek Recertification	\$ 382,800	\$ 175,500	\$ 104,600	\$ 662,900
B	Stevens Creek Recertification	\$ 333,700	\$ 103,200	\$ 65,000	\$ 501,900
C	Lower Penitencia Creek Recert.	\$ 233,300	\$ 80,400	\$ 5,400	\$ 319,100
	<b>Total - Task A to C</b>	<b>\$ 949,800</b>	<b>\$ 359,100</b>	<b>\$ 175,000</b>	<b>\$ 1,483,900</b>

- Unused not-to-exceed amounts from a completed task and subtask may be reallocated to an incomplete task and subtask upon written authorization from the authorized District Assistant Operating Officer or designee, provided that the total Not-to-Exceed amount of this Agreement (i.e. \$1,483,900) is not exceeded. However, transferring of budget from future uncompleted tasks and subtask to current tasks will not be permitted.
- Any inter-task budget reallocations will be clearly noted and described in the subsequent monthly project status report to the District.

**Hourly Labor Rate Table:** The hourly rates listed in the table below will remain in effect during the entire term of this Agreement. These are “all-up” rates, meaning that they include direct salary cost, overhead, general and administrative costs not separately accounted for, and profit. Consultant’s services will be performed by its staff members at the lowest hourly rates commensurate with the complexity of the work required.

<b>Classification</b>	<b>Hourly Rate</b>
Principal in Charge, QA/QC	\$ 193
Project Manager	\$ 193
Project Engineer	\$ 181
Senior Engineer	\$ 164
Associate Engineer	\$ 147
Assistant Engineer	\$ 129
Junior Engineer	\$ 116
CAD Technician	\$ 116
Engineering Trainee	\$ 80

**Prevailing Wages:**

Some of the services to be performed pursuant to this Agreement may be “public works” subject to California Labor Code Section 1771, et. seq. and the applicable implementing regulations. The General Prevailing Wage Rates issued by the California Department of Industrial Relations may be adjusted by the State during the term of this Agreement. Notwithstanding any other provisions of this Agreement, Consultant will not be entitled to any adjustment in compensation rates in the event there are adjustments to the General Prevailing Wage Rates.

Labor Code Section §1720 includes “Inspection and Land Surveying” in its definition of “Public Works.” If Consultant’s Scope of Services includes such work, Consultant must comply with all Labor Codes applicable to prevailing wages.

**Reimbursable Non-Labor Expenses Table:**

<b>Reimbursable Non-Labor Expense</b>	<b>Mark Up Rate</b>
Sub – consultant service fees	10%
Outsourced mapping services fees	5%
Leased equipment fees	5%
Mailing and delivery services fees	5%
Outsourced printing services fees	5%
Outsourced film and processing fees	5%
Outsourced plotting services fees	5%
Other direct expenses pre-approved by the District in writing	To-Be-Determined (but under no circumstances may this rate exceed 5%)

**Small Business Enterprise (SBE) Participation**

Consultant is a SBE certified by the District.

**APPENDIX TWO – ATTACHMENT ONE**

**SAMPLE INVOICE**

**Schaaf & Wheeler**  
CONSULTING CIVIL ENGINEERS

James R. Schaaf, PE  
Kirk R. Wheeler, PE  
David A. Foote, PE  
Peder C. Jorgensen, PE  
Charles D. Anderson, PE

100 N. Winchester Blvd., Suite 200  
Santa Clara, CA 95050-6566  
408-246-4848  
FAX 408-246-5624

Offices  
Santa Clara  
Sacramento  
San Francisco  
Monterey Bay

July 11, 2008

Invoice Number: **Sample**

Santa Clara Valley Water District  
Attention: Accounts Payable  
P.O. Box 20670  
San Jose, CA 95160-0670

Re: Levee Recertification to Meet FEMA Standards (Agreement No. xxxxxxx)

**Authorized Consulting Services from June 01, 2008 through June 30, 2008**

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**Task A – Certify Uvas Creek Levee**

**Subtask A1 (Meetings and Coordination)**

Charles D. Anderson	Project Manager	2.5 hrs @	\$193/hr	<u>\$482.50</u>
Total Labor				\$482.50
Direct Expenses				<u>\$0.00</u>
Subtask A1 Total				\$482.50

**Subtask A3.4 (Detailed Field Survey)**

M. Eliza McNulty	Associate Engineer	2.0 hrs @	\$147/hr	<u>\$294.00</u>
Total Labor				\$294.00
Ruggeri-Jensen-Azar (see attached)		\$14,950.00	+10% m/u	\$16,445.00
Deliveries (see attached itemization)		\$56.25	+5% m/u	<u>\$59.06</u>
Direct Expenses				\$16,504.06
Subtask A3.4 Total				\$16,798.06

**Subtask A4 (Freeboard Evaluation)**

Charles D. Anderson	Project Manager	9.5 hrs @	\$193/hr	\$1,833.50
M. Eliza McNulty	Associate Engineer	28.0 hrs @	\$147/hr	\$4,116.00
Emily M. Straley	Assistant Engineer	56.0 hrs @	\$129/hr	<u>\$7,224.00</u>
Total Labor				\$13,173.50
Direct Expenses				<u>\$0.00</u>
Subtask A4 Total				\$13,173.50

**Subtask A4.7 (Field Data Conversion)**

M. Eliza McNulty	Associate Engineer	2.0 hrs @	\$147/hr	\$294.00
Miles D. Coltrane	Engineering Trainee	27.5 hrs @	\$80/hr	<u>\$2,200.00</u>
Total Labor				\$2,494.00
Direct Expenses				\$0.00
Subtask A3.4 Total				\$2,494.00

**Subtask A7 (Hydrologic Reconciliation)**

James R. Schaaf	Principal in Charge	16.0 hrs @	\$193/hr	\$3,088.00
Charles D. Anderson	Project Manager	22.5 hrs @	\$193/hr	\$4,342.50
M. Eliza McNulty	Associate Engineer	32.0 hrs @	\$147/hr	<u>\$4,704.00</u>
Total Labor				\$12,134.50
Direct Expenses				\$0.00
Subtask A3.4 Total				\$12,134.50
<b>Task A Total</b>				<b>\$45,082.56</b>

**Task B – Certify Stevens Creek Levees**

**Subtask B1 (Meetings and Coordination)**

Charles D. Anderson	Project Manager	6.0 hrs @	\$193/hr	\$1,158.00
Charles B. Parker	Junior Engineer	8.0 hrs @	\$116/hr	<u>\$928.00</u>
Total Labor				\$2,086.00
Reproduction (see attached itemization)		\$124.63	+5% m/u	\$130.86
Delivery (see attached)		\$10.75	+5% m/u	<u>\$11.29</u>
Direct Expenses				\$142.15
Subtask B1 Total				\$2,228.15

**Subtask B4 (Interior Drainage Study)**

Charles D. Anderson	Project Manager	6.0 hrs @	\$193/hr	\$1,158.00
Stephanie L. Conran	Associate Engineer	24.0 hrs @	\$147/hr	\$3,528.00
Charles B. Parker	Junior Engineer	46.0 hrs @	\$116/hr	<u>\$5,336.00</u>
Total Labor				\$10,022.00
Direct Expenses				<u>\$0.00</u>
Subtask B4 Total				\$10,022.00

**Subtask B5 (Geotechnical Evaluation)**

Geomatrix (see attached)		\$4,950.00	+10% m/u	\$5,445.00
Pacific Geotechnical (see attached)		\$32,856.25	+10% m/u	<u>\$36,141.88</u>
Direct Expenses				\$41,586.88
Subtask B5 Total				\$41,586.88
<b>Task B Total</b>				<b>\$53,837.03</b>

**Task C – Certify Lower Penitencia Creek Levee**

Subtask C1 (Meetings and Coordination)

Charles D. Anderson	Project Manager	4.0 hrs @	\$193/hr	\$772.00
M. Eliza McNulty	Associate Engineer	4.0 hrs @	\$147/hr	<u>\$588.00</u>
Total Labor				\$1,360.00
Direct Expenses				\$0.00
Subtask C1 Total				\$1,360.00

Subtask C2 (Levee Reconnaissance)

Charles D. Anderson	Project Manager	8.0 hrs @	\$193/hr	\$1,544.00
M. Eliza McNulty	Associate Engineer	24.0 hrs @	\$147/hr	\$3,528.00
Emily K. Caldwell	Assistant Engineer	8.0 hrs @	\$129/hr	<u>\$1,032.00</u>
Total Labor				\$6,104.00
Geomatrix (see attached)		\$10,320.00	+10% m/u	\$11,352.00
Pacific Geotechnical (see attached)		\$4,040.00	+10% m/u	<u>\$4,444.00</u>
Direct Expenses				\$15,796.00
Subtask C2 Total				\$21,900.00

Subtask C3 (Cross Section Verification)

James R. Schaaf	Principal in Charge	2.0 hrs @	\$193/hr	\$386.00
Charles D. Anderson	Project Manager	4.0 hrs @	\$193/hr	\$772.00
M. Eliza McNulty	Associate Engineer	24.0 hrs @	\$147/hr	\$3,528.00
T. Monk	Junior Engineer	24.0 hrs @	\$116/hr	<u>\$2,784.00</u>
Total Labor				\$7,470.00
Ruggeri-Jensen-Azar (see attached)		\$14,040.00	+10% m/u	<u>\$15,444.00</u>
Direct Expenses				\$15,444.00
Subtask C3 Total				\$22,914.00

Subtask C3.4 (Detailed Field Survey)

Ruggeri-Jensen-Azar (see attached)		\$6,930.00	+10% m/u	<u>\$7,623.00</u>
Direct Expenses				\$7,623.00
Subtask C3.4 Total				\$7,623.00

Subtask C8 (CEQA Clearance for Soil Borings)

David J. Powers and Associates (see attached)		\$4,200.00	+10% m/u	<u>\$4,620.00</u>
Direct Expenses				\$4,620.00
Subtask C8 Total				\$4,620.00

**Task C Total \$58,417.00**

**\*\*\* Total Project Invoice Amount \$157,336.59**

Please remit payment to:

Schaaf & Wheeler  
Attention: Accounts Payable  
100 N. Winchester Blvd., Suite 200  
Santa Clara, CA 95050-6566

I hereby certify as an executive officer of Schaaf & Wheeler Consulting Civil Engineers, Inc. that the charge of \$ [Insert amount due] as summarized above and shown in detail in the attached Summary of Not-To-Exceed Amount Status report represents charges for time actually worked, is fair and reasonable, is in accordance with the terms of the Standard Consultant Agreement with the District, and has not been previously paid.

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

Name/Title: \_\_\_\_\_

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

SAMPLE

**Summary of Not-to-Exceed Amount Status Since Project Inception**

Table 1: Basic Tasks

Task	Description	Allocated NTE Amount	Previous Invoices	Current Invoice	Allocated NTE Amount Remaining	% Comp.	% Spent
A1	Meetings and Coordination	\$29,200	\$5,059.00	\$482.50	\$23,658.50	20	19
A2	Levee Reconnaissance	\$29,400	\$26,800.76	\$0	\$2,599.24	100	91
A3	Cross Section Verification	\$81,700	\$81,700	\$0	\$0	100	100
A4	Freeboard Evaluation	\$33,200	\$0	\$13,173.50	\$20,026.50	50	40
A5	Geotechnical Evaluation	\$166,800	\$0	\$0	\$166,800	0	0
A6	Certification Package	\$7,500	\$0	\$0	\$7,500	0	0
	Contingency	\$35,000	\$0	\$0	\$35,000	0	0
<b>Task A</b>	<b>Uvas Creek Levee</b>	<b>\$382,800</b>	<b>\$113,559.76</b>	<b>\$13,656.00</b>	<b>\$255,584.24</b>	<b>35</b>	<b>33</b>
B1	Meetings and Coordination	\$29,200	\$3,064	\$2,228.15	\$28,907.85	20	18
B2	Levee Reconnaissance	\$29,400	\$29,400	\$0	\$0	100	100
B3	Freeboard Evaluation	\$22,000	\$19,660	\$0	\$2,340	100	89
B4	Interior Drainage Study	\$26,200	\$0	\$10,022	\$16,178	50	38
B5	Geotechnical Evaluation	\$199,400	\$0	\$41,586.88	\$157,813.12	20	21
B6	Certification Package	\$7,500	\$0	\$0	\$7,500	0	0
	Contingency	\$20,000	\$0	\$0	\$20,000	0	0
<b>Task B</b>	<b>Stevens Creek Levees</b>	<b>\$333,700</b>	<b>\$52,124</b>	<b>\$53,837.03</b>	<b>\$227,738.97</b>	<b>33</b>	<b>32</b>
C1	Meetings and Coordination	\$24,900	\$1,360	\$1,360	\$22,180	10	11
C2	Levee Reconnaissance	\$22,300	\$0	\$21,900	\$400	100	98
C3	Cross Section Verification	\$23,800	\$0	\$22,914	\$886	100	96
C4	Freeboard Evaluation	\$24,200	\$0	\$0	\$24,200	0	0
C5	Geotechnical Evaluation	\$90,600	\$0	\$0	\$90,600	0	0
C6	Interior Drainage Study	\$20,000	\$0	\$0	\$20,000	0	0
C7	Certification Package	\$7,500	\$0	\$0	\$7,500	0	0
	Contingency	\$20,000	\$0	\$0	\$20,000	33	32
<b>Task C</b>	<b>Lower Penitencia Creek Levee</b>	<b>\$233,300</b>	<b>\$1,360</b>	<b>\$46,174.00</b>	<b>\$185,766</b>	<b>21</b>	<b>20</b>
	<b>Total - Task A to C</b>	<b>\$949,800</b>	<b>\$167,043.76</b>	<b>\$113,667.03</b>	<b>\$669,089.21</b>	<b>31</b>	<b>30</b>

Table 2: Optional Tasks

Task	Description	Allocated NTE Amount	Previous Invoices	Current Invoice	Allocated NTE Amount Remaining	% Comp.	% Spent
A2.5	Maintenance Solutions TM	\$1,400	\$0	\$0	\$1,400	0	0
A2.6	Levee Deficiency Report	\$3,500	\$0	\$0	\$3,500	0	0
A3.4	Detailed Field Survey	\$38,500	\$0	\$16,798.06	\$21,701.94	50	44
A4.7	Field Data Conversion	\$5,000	\$0	\$2,494	\$2,506	100	50
A4.9	Freeboard Deficiency TM	\$4,400	\$0	\$0	\$4,400	0	0
A4.10	Risk Based Freeboard Evaluation	\$25,200	\$0	\$0	\$25,200	0	0
A5.12	Hazardous Materials Disposal - Phase 1	\$19,500	\$0	\$0	\$19,500	0	0
A5.13	Phase 2 Field Exploration + Laboratory	\$52,700	\$0	\$0	\$52,700	0	0

Task	Description	Allocated NTE Amount	Previous Invoices	Current Invoice	Allocated NTE Amount Remaining	% Comp.	% Spent
A5.15	Hazardous Materials Disposal – Phase 2	\$19,500	\$0	\$0	\$19,500	0	0
A6.9	FEMA Resubmittal	\$5,800	\$0	\$0	\$5,800	0	0
<b>Task A</b>	<b>Uvas Creek Levee</b>	<b>\$175,500</b>	<b>\$0</b>	<b>\$19,292.06</b>	<b>\$156,207.94</b>	<b>14</b>	<b>11</b>
B2.5	Maintenance Solutions TM	<del>-\$1,400</del>	<del>\$0</del>	<del>\$0</del>	<del>-\$1,400</del>	<del>0</del>	<del>0</del>
B2.6	Levee Deficiency Report	\$3,500	\$0	\$0	\$3,500	0	0
B3.7	Detailed Field Survey	<del>-\$15,400</del>	<del>\$0</del>	<del>\$0</del>	<del>-\$15,400</del>	<del>0</del>	<del>0</del>
B3.8	Freeboard Deficiency TM	\$4,400	\$0	\$0	\$4,400	0	0
B5.11	Hazardous Materials Disposal – Phase 1	\$19,500	\$0	\$0	\$19,500	0	0
B5.12 & B5.13	Phase 2 Field Exploration + Laboratory	\$38,800	\$0	\$0	\$38,800	0	0
B5.14	Hazardous Materials Disposal – Phase 2	\$14,400	\$0	\$0	\$14,400	0	0
B6.9	FEMA Resubmittal	\$5,800	\$0	\$0	\$5,800	0	0
<b>Task B</b>	<b>Stevens Creek Levees</b>	<b>\$103,200</b>	<b>\$0</b>	<b>\$0</b>	<b>\$103,200</b>	<b>0</b>	<b>0</b>
C2.5	Maintenance Solutions TM	<del>-\$1,400</del>	<del>\$0</del>	<del>\$0</del>	<del>-\$1,400</del>	<del>0</del>	<del>0</del>
C2.6	Levee Deficiency Report	\$3,500	\$0	\$0	\$3,500	0	0
C3.4	Detailed Field Survey	\$15,200	\$0	\$7,623.00	\$7,577	50	50
C4.7	Field Data Conversion	\$5,000	\$0	\$0	\$5,000	0	0
C4.9	Freeboard Deficiency TM	\$4,400	\$0	\$0	\$4,400	0	0
C5.12	Hazardous Materials Disposal – Phase 1	\$9,200	\$0	\$0	\$9,200	0	0
C5.13	Phase 2 Field Exploration + Laboratory	\$26,700	\$0	\$0	\$26,700	0	0
C5.15	Hazardous Materials Disposal – Phase 2	\$9,200	\$0	\$0	\$9,200	0	0
C7.9	FEMA Resubmittal	\$5,800	\$0	\$0	\$5,800	0	0
<b>Task C</b>	<b>Lower Penitencia Creek Levee</b>	<b>\$80,400</b>	<b>\$0</b>	<b>\$7,623.00</b>	<b>\$72,777</b>	<b>9</b>	<b>9</b>
	<b>Total - Task A to C</b>	<b>\$359,100</b>	<b>\$0</b>	<b>\$26,915.06</b>	<b>\$332,184.94</b>	<b>9</b>	<b>7</b>

Note: Strikethrough Indicates Optional Task Confirmed as Not Required

Table 3: Additional Tasks

Task	Description	Allocated NTE Amount	Previous Invoices	Current Invoice	Allocated NTE Amount Remaining	% Comp.	% Spent
A7	Hydrologic Reconciliation (Uvas Creek)	\$18,600	\$4,865	\$12,134.50	\$1,600.50	100	91
A8	CEQA Clearance for Soil Borings	\$5,400	\$5,400	\$0	\$0	100	100
A9	Additional Soil Borings	\$5,900	\$0	\$0	\$5,900	0	0
A10	Additional Floodplain Mapping (Gilroy)	\$72,700	\$0	\$0	\$72,700	0	0
A11	Levee Certification Memorandum	\$2,000	\$0	\$0	\$2,000	0	0
<b>Task A</b>	<b>Uvas Creek Levee</b>	<b>\$104,600</b>	<b>\$10,265</b>	<b>\$12,134.50</b>	<b>\$82,200.50</b>	<b>23</b>	<b>21</b>
B7	CEQA Clearance for Soil Borings	\$5,400	\$4,980	\$0	\$420	100	92
B8	Additional Floodplain Mapping (Mtn View)	\$59,600	\$0	\$0	\$59,600	0	0
<b>Task B</b>	<b>Stevens Creek Levees</b>	<b>\$65,000</b>	<b>\$4,980</b>	<b>\$0</b>	<b>\$60,020</b>	<b>8</b>	<b>8</b>
C8	CEQA Clearance for Soil Borings	\$5,400	\$0	\$4,620.00	\$780	100	86
<b>Task C</b>	<b>Lower Penitencia Creek Levee</b>	<b>\$5,400</b>	<b>\$0</b>	<b>\$4,620.00</b>	<b>\$780</b>	<b>100</b>	<b>86</b>
	<b>Total - Task A to C</b>	<b>\$175,000</b>	<b>\$15,245</b>	<b>\$16,754.50</b>	<b>\$143,000.50</b>	<b>20</b>	<b>18</b>

Table 4: Summary

Task	Description	Allocated NTE Amount	Previous Invoices	Current Invoice	Allocated NTE Amount Remaining	% Comp.	% Spent
A	Uvas Creek Recertification	\$662,900	\$123,824.76	\$45,082.56	\$493,992.68	28	25
B	Stevens Creek Recertification	\$501,900	\$57,104.00	\$53,837.03	\$390,958.97	23	22
C	Lower Penitencia Creek Recert.	\$319,100	\$1,360.00	\$58,417.00	\$259,323.00	19	19
<b>Total - Task A to C</b>		<b>\$1,483,900</b>	<b>\$182,288.76</b>	<b>\$157,336.59</b>	<b>\$1,144,274.65</b>	<b>24</b>	<b>21</b>

cc: Project Manager  
 5750 Almaden Expressway  
 San Jose, CA 95118

SAMPLE

## APPENDIX THREE

### SCHEDULE OF COMPLETION

#### Schedule of Completion:

The Consultant will complete the scope of services as listed in Appendix One of this Agreement as per the schedule provided in the table below. Weeks listed below are measured from the date the District issues the Consultant the Notice to Proceed. District staff and Consultant may agree to modify the dates specified for Consultant's performance, provided that such agreement is memorialized in the form of a written amendment to this Agreement signed by both parties.

Milestone / Deliverable	Duration from Date of Issuance of Notice to Proceed (Weeks)		
	Task A Uvas	Task B Stevens	Task C Lower Pen.
Coordination	Schedule applies to Tasks A, B and C		
Kickoff Meeting		1	
Project Work Plan		2	
Progress Report #1		5	
Progress Report #2 ("Mid-Term")		21	
Progress Report #3		48	
Levee Reconnaissance TMs	3	4	5
Geotechnical Work Plans	5	6	7
Cross Section Verification			
Verification Survey	5	n/a	7
Cross Section Verification TM	7	n/a	9
Detailed Field Survey	9	11	13
Hydrology Reconciliation	4	n/a	n/a
Freeboard Certification	20	12	11
Interior Drainage Studies	n/a	16	16
Geotechnical Evaluations			
CEQA Clearance for Field Exploration	23	15	14
Complete Field Exploration	27	20	23
Draft Geotechnical Report	43	36	35
Geotechnical Certification	47	40	39
FEMA Submittal			
Draft Package for Review	49	42	41
Package Ready for Submittal	54	47	46
Additional Floodplain Mapping	64	57	n/a

Consultant will coordinate work with the District to provide the timeline of all tasks and subtasks including the site visits, document review, meetings and deliverables. The approved project schedule will be monitored monthly. Task and deliverable schedules will only be changed with advance written approval by the District.