

VENTURA COUNTY



PUBLIC WORKS AGENCY
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WATERSHED PROTECTION DISTRICT

April 7, 2009

Board of Supervisors
Ventura County Watershed Protection District
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Ventura, CA 93009

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**Subject: Approval of and Authorization for the Director of Public Works or Designee to Execute Standard Form County Consulting Engineering Services Contract(s) with Tetra Tech, Inc., in a Total Not-to-Exceed Amount of \$2.9 Million for Phase 3 Levee Certification Action Plan Implementation Work
Project Nos. P6011007, P6012007, and P6015007
All Supervisorial Districts, Zones 1, 2, and 3**

Recommendations:

It is recommended that your Board:

1. Receive a presentation from Watershed Protection District (District) staff summarizing the current status of FEMA's Flood Insurance Studies (FIS), Digital Flood Insurance Rate Maps (DFIRMs), and Levee Certification efforts in Ventura County, and
2. Hear any comments regarding those efforts from Kathy Schaefer, Engineer, National Flood Insurance Program – Region IX, Mitigation Division, FEMA, and
3. Approve and Authorize the Director of Public Works or his Designee to execute Standard Form Consulting Services Contracts with Tetra Tech, Inc., in a total Not-to-Exceed Amount of \$2.9 Million (*including 10% contingency estimate*) for Phase 3 Levee Certification Action Plan Implementation Work. Funds are available in FY09 Zones 1, 2, and 3, Budget Org Nos. 6310, 6320, and 6330, Account No. 2194, (Engineering and Tech Surveys).

Fiscal/Mandates Impact:

Mandatory: No [] Yes [X] Title 44, Code of Federal Regulations, Section 65.10 FEMA
Levee Certification Requirements

Source of Funding: Watershed Protection District Zones 1, 2, and 3

Funding Match Required: None

Impact on Other Department(s): None

Summary of Revenues and Costs:	<u>FY 2008-09</u>	<u>FY 2009-10</u>
Revenue	\$ 0	0
Costs:		
Direct:	\$ 2,900,000	0
Indirect-Dept.	\$ 0	0
Indirect-County CAP	\$ 0	0
Total Costs	\$ 2,900,000	0
Net District Costs	\$ 2,900,000	0
Recovered Indirect Costs	0	0

Current FY 2008-09 Budget Projection

Current FY 2008-09 Budget Projection for Watershed Protection - Zones 1, 2, & 3 - 6310, 6320 & 6330				
	Adopted Budget	Adjusted Budget	Projected Budget	Estimated Savings
Appropriations	66,982,325	72,306,932	65,743,600	6,563,332
Revenue	36,273,700	36,273,700	38,317,200	(2,043,500)
Net Cost	30,708,625	36,033,232	27,426,400	8,606,832

Appropriations sufficient to fund the Tetra-Tech's Phase 3 Consulting Engineering Services Contract costs referenced above are included in the FY09 Zones 1, 2, and 3 adopted budgets.

Discussion:

National Flood Insurance Program - Map Modernization Program

The National Flood Insurance Program (NFIP) plays a major role in efforts to both reduce flood losses to property and the loss of natural floodplain functions. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968 (Public Law 90-448). The goals of the NFIP are as follows: (1) decrease the risk of future floods, (2) reduce the costs and adverse consequences of flooding, (3) reduce the demands and expectations for disaster assistance after floods, and (4) preserve and restore the natural and beneficial values of floodplains.

The Federal Emergency Management Agency (FEMA) is currently in the process of producing Flood Insurance Study (FIS) reports and Digital Flood Insurance Rate Maps (DFIRMs) for communities all across the nation as a part of the National Flood Insurance Program Map Modernization Program (NFIP-MMP). The NFIP-MMP effort was designed to update the existing Flood Insurance Rate Maps (FIRMs), many of which were produced in the 1970's, 80's, and early 90's. Nationwide, FEMA reports that 56% of effective FIRMs are at least 15 years old. In Ventura County, 79% of effective FIRMs are more than 15 years old. The progression of the development of FIS studies and DFIRMs in Ventura County during the last five years is set forth in Exhibit No. 1.

Status of Levee Certification Efforts in Ventura County

In 2005, FEMA also initiated efforts nationwide to verify the certification status of *all* levees currently depicted in the then effective FIRMs as providing protection from the base-level flood as part of the NFIP-MMP. FEMA's levee certification efforts were accelerated and given new urgency as a result of the catastrophic levee failures in New Orleans triggered by Hurricane Katrina in the fall of 2005.

In order for FEMA to continue to accredit levees with providing base-level flood protection, levees *must* meet the *minimum design, operation, and maintenance standards* found in 44 CFR 65.10 of the NFIP regulations. Under those regulations, it is the District's responsibility to provide FEMA with a Levee Certification Report (LCR) which contains technically adequate documentation and qualified certifications by a Registered Civil Engineer confirming that the levee systems it owns and operates meet the minimum federal levee certification standards referenced above.

During the 2005 through 2006 time period, FEMA issued Procedural Memoranda 34 and 43 which, among other things, established a two-year Provisionally Accredited Levee (PAL) designation process. During the PAL period, FEMA's DFIRM mapping efforts continue without interruption. Flood plain maps which show protected areas behind the PALs will remain in effect until *either* the District's submittal of LCRs to FEMA or the *expiration* of the PAL period. *In the case of Ventura County, that expiration date is December 1, 2009.*

FEMA initially identified *sixty (60) levees or levee-like situations* in Ventura County which might *potentially* provide base-level flood protection to the areas behind such structures. Based on rigorous District Quality Assurance/Quality Control (QA/QC) efforts regarding this initial list, FEMA agreed to remove a total of forty-three (43) of the sixty levees and levee-like situations identified in their August 31, 2007 letter.

On November 27, 2007, after conducting additional technical review and field inspections, the District submitted Two-Year PAL and One-Year Maintenance Correction Period Agreement letters to FEMA for a total of *seventeen (17) levees*. More than seven months later in a letter dated June 5 2008, FEMA advised the District that for a number of reasons (*including the new flood plain shown by the Santa Clara River FIS*) it had awarded PAL-designations to only nine (9) of the seventeen levees.

On October 21, 2008, the Public Works Agency Director approved the selection of Tetra-Tech, Inc., to perform the District's Levee Certification Engineering Study work. Negotiations resulted in a mutually agreed generic Scope of Work and phasing schedule for the Consulting Engineering Studies required to complete the District's levee certification work. Essentially, the generic Scope of Work for those studies was broken up into *four potential phases*:

Phase 1 included preliminary levee documentation analysis, field inspections, evaluation and categorization work for all nine PALs, including categorizing levees in accordance with the following options:

- **Category 1 Levees:** those levees that *meet* 44 CFR 65.10 and for which all data and complete documentation are available.
- **Category 2 Levees:** those levees that *may meet* 44 CFR 65.10 but for which additional data, documentation, and/or hydraulic, hydrology, structural and/or geotechnical engineering analysis is required to ensure that complete documentation is available.
- **Category 3 Levees:** those levees that do not meet the requirements of 44 CFR 65.10 in their existing condition and cannot be certified by the expiration of the PAL period on December 1, 2009.

Phase 2 included levee certification documentation package implementation work on any levees identified in Phase 1 as Category 1 Levees. *(None of the District's nine PALs met the Category 1 status as a result of the Phase 1 Study).*

Phase 3 included levee certification documentation package implementation work on any levees identified in Phase 1 as Category 2 Levees *(six of the nine PALs were identified as Category 2 Levees in Phase 1 as explained below).*

Phase 4 included implementation work on any levees identified as Category 3 Levees in Phase 1 *(three of the nine PALs were so identified as explained below).*

Levee Certification Engineering Studies - Tetra-Tech's Phase 1 – Preliminary Levee Evaluation and Categorization Results

Tetra-Tech commenced Phase 1 Study Work on November 26, 2008. Their work included a detailed review of levee design drawings, as-built plans, operation and maintenance manuals and records, joint field inspection of all nine PALs by District and Tetra-Tech personnel, and a preliminary evaluation including categorization of all nine levees. Final Phase 1 Levee Evaluation Reports were completed on February 27, 2009.

Tetra-Tech's Phase 1 Final Evaluation Reports document that **six (6) of the nine PALs are Category 2 levees** *(meaning that they are certifiable under 44 CFR 65.10)* PROVIDED that the District performs additional geotechnical, hydrology and hydraulics, and structural engineering analysis and field tests corroborating their structural integrity and compliance with all applicable levee certification standards.

Both digital and hard copies of all nine Final Levee Evaluation Reports are on file in the Clerk of the Board's Office, and copies were also delivered to each member of the Board of Supervisors, the CEO, County Counsel, and the Auditor-Controller's Offices. Also, digital copies of the Final Levee Evaluation Reports are available on the District's website <http://www.vcwatershed.org/levee>.

A Graphical Summary of Phase 1 Study Final Evaluation Report Levee Categorization Results, Planning Level Total Cost Estimates for Levee Certifications, Total Value of Property and Improvements for the Parcels behind the PALs, Estimated Flood Damages Prevented, and Return on Infrastructure Investment Ratio is set forth as Exhibit No. 2.

Phase 3 Levee Certification - Consulting Engineering Services Contract Award

In order to complete the preparation and submittal of the levee certification documentation packages to FEMA by the November 30, 2009 deadline, the District must address and document the resolution of a variety of levee certification challenges for each levee. Challenges include: vegetation removal, resolution of structures encroaching into the District's flood protection required maintenance areas, scour and embankment stability issues, animal burrows that potentially could undermine the levees, interior drainage problems and closure device integrity, rip-rap rock revetment issues, and seepage problems.

Accordingly, the District prepared a Draft Scope of Work for a Phase 3 Consulting Engineering Services Contract, including an engineer's estimate of the level of effort, technical disciplines required, and costs necessary to perform the engineering analyses required to certify these levees. A copy of a generic Scope of Work prepared for the Phase 3 Consulting Engineering Services Contract with Tetra-Tech is set forth as Exhibit No. 3.

Detailed engineering analyses and technical work must be performed for all nine PALs during the next six months in order to ensure that the District can document that these levees meet Federal levee certification requirements. Site investigations will be performed for each levee including sub-surface soil explorations, geotechnical, laboratory and materials testing and analysis, and topographic mapping coordination.

At the conclusion of the Phase 3 site investigations, engineering analyses and technical work, the Consultant shall prepare a Levee Certification Report (LCR) to fully document the technical basis for the levee's certification. The LCR must contain full documentation of technical data, information, assumptions, and levee systems analysis used to certify the levee.

As an added check, the Consultant will be required to conduct an Independent Technical Review (ITR) of the LCR by a qualified team of professionals not involved in the day-to-day production of the LCR. This ITR will be performed in compliance with Federal requirements for the purpose of confirming that proper procedures were followed in the application of established criteria, policies, and that professional practices were met, and that appropriate methods of analyses were performed and documented to support the final determination of the levee's certification.

District staff requests that your Board approve and authorize the Director of Public Works or his Designee to execute Standard Form Consulting Services Contracts with Tetra Tech, Inc., in a total Not-to-Exceed Amount of \$2.9 Million (*including 10% contingency estimate*) for Phase 3 Levee Certification Documentation Action Plan Implementation work.

District staff analyzed the Consultant's proposed costs using staff's internal engineers' cost estimate prepared in accordance with USACOE best engineering management practices. Based on the results of that analysis, in the aggregate, *the Consultant's proposed \$2.6 Million cost estimate is within 15% of the District's \$2.3 Million cost estimate for Phase 3.* This difference is considered to be within the acceptable professional limits for such complex work under extremely tight time deadlines. The result of that analysis is set forth as Exhibit No. 4.

Subsequent to your Board's approval of the recommended actions, specific contracts will be finalized with Tetra-Tech on the basis of the final negotiated Scope of Services for each levee. However, in the aggregate, the total amount of these contracts will not exceed the \$2.9 Million maximum amount requested to be approved by the Board for the Phase 3 portion of the Levee Certification Project.

Phase 4 Levees – Not-Certifiable by December 1, 2009 and Certifiable by Other Means

The results of Tetra-Tech's Phase 1 Study concluded that three of the nine PALs (i.e., VR-1, VR-3, and CC-2) were Category 3 Levees (i.e., *those levees that do not meet the requirements of 44 CFR 65.10 in their existing condition and cannot be certified by the expiration of the PAL period on December 1, 2009*). District staff has already begun the process of identifying Levee Safety Enhancement Construction Projects for these three Category 3 levees, as well as for a separate, Non-PAL levee system (SCR-3) along the southern bank of the Santa Clara River beginning at the Hwy 101 Bridge and moving west of the Victoria Avenue bridge.

Work on these projects is expected to include alternatives analysis, design engineering, plans and specification development, and construction *with a total Planning Level Cost Estimate of \$55 Million.* Over the next several months, the District staff intends to bring the Board of Supervisors specific action plan recommendations for these Category 3 levee systems including collaborative funding strategies involving Federal Stimulus monies, State Bond monies, City funding, and developer contributions, as appropriate.

Levee Certification Cost Estimates vs. Flood Damages Prevented - Economic Valuation Data and Return on Infrastructure Investment

District staff has prepared a spreadsheet which includes planning-level levee certification cost estimates, property and improvement values for the properties in the flood plains behind and protected by these levees, an estimate of the flood damages which could be experienced if these levees were not-present, and potential flood insurance premiums which may be required for property owners with federally-backed mortgages if they are placed in a special flood-hazard zone should the levees fail certification for whatever reason. That spreadsheet is attached as Exhibit No. 5.

The spreadsheet reports that the total economic valuation of both the land and improvements of the parcels behind and protected by the six PALs *amounts to \$898 Million*. Using FEMA's standard depth of flooding vs. percent damages curves, District staff has calculated that were all six of these PALs not present, *property owners could experience up to \$169 Million in flood damages*.

Accordingly, District staff has calculated a 26:1 Return on Infrastructure Investment (ROI) ratio for the cost of certification of these six PALs. *In other words, for every dollar of District funds invested in certifying that these six PALs provide base-flood protection to the properties behind them, a maximum of twenty-six dollars in flood damages would be prevented.*

SUMMARY

Subsequent to receiving District staff's presentation and hearing any comments from Kathleen Schaefer, Engineer, National Flood Insurance Program – Region IX, Mitigation Division, FEMA, regarding the latest information from FEMA on these efforts, District staff requests that your Board take the actions necessary to approve the award of Phase 3 Levee Certification Consulting Services Contracts with Tetra-Tech, Inc. Funds for these contracts are available in Zones 1, 2 and 3, Budget Org Nos. 6310, 6320, and 6330, Account No. 2194 Engineering Tech Surveys.

The approval of Tetra-Tech's Phase 3 Consulting Engineering Services Contracts, as a project, is categorically exempt from the California Environmental Quality Act (CEQA) under Article 19, Sections 15306 and 15309 of the State CEQA Guidelines.

This item has been reviewed by the County Executive Office, Auditor-Controller's Office, and County Counsel.

If you have any questions regarding this item, please contact me directly at 654-2040, or you may contact Gerard Kapuscik, the District's Project Manager directly at 648-9284.


TOM LAGIER, P.E.
Director

- Exhibit No. 1: Progression and Status of FIS and DFIRMs in Ventura County
- Exhibit No. 2: Graphical Summary Levee Categorization Results and Cost Estimates
- Exhibit No. 3: Proposed Generic Scope of Work for Phase 3 Engineering Work
- Exhibit No. 4: Spreadsheet Comparing Consultants' with District's Cost Estimates for Phase 3 Work
- Exhibit No. 5: Levee Certification Economic Valuation and Costs Spreadsheet 9