142848

FISCAL PROCEDURES APPROVED
IVAN M. CHANG, FINANCE DIRECTOR
12/27/2011
BY

SUBMITTAL TO THE FLOOD CONTROL AND WATER CONSERVATION DISTRICT BOARD COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

4148

FROM: General Manager-Chief Engineer

SUBMITTAL DATE: January 10, 2012

SUBJECT: Santa Ana River, San Jacinto River and Chino Canyon Levees
Project Nos. 1-0-00010, 4-0-00020 and 6-0-00070
Professional Services Agreement
Amendment No. 4

RECOMMENDED MOTION:

1. Ratify and approve Amendment No. 4 between the District and Tetra Tech, Inc. (Consultant);
2. Authorize the Chairman to execute Amendment No. 4 on behalf of the District; and
3. Authorize the General Manager-Chief Engineer to extend the agreement for Fiscal Year 2012-2013 (if needed).

BACKGROUND

On March 18, 2008 (Agenda Item 11.6), the Board of Supervisors approved a Professional Services Agreement which set forth the terms and conditions by which Consultant would perform engineering analysis to determine levee criteria for Santa Ana River, San Jacinto River and Chino Canyon Levees.

(Continued on page 2)

Departmental Concurrence

FORM APPROVED COUNTY COUNSEL
BY NEAL R. KIPNIS
DATE 12/27/11

KEC:blj

WARREN D. WILLIAMS
General Manager-Chief Engineer

FINANCIAL DATA				
	F.Y. 11-12 District Cost:	$118,549	**In Current Year Budget:**	Yes
	Current F.Y. County Cost:	N/A	**Budget Adjustment:**	No
	Annual Net District Cost:	N/A	**For Fiscal Year:**	11-12

SOURCE OF FUNDS:
25140 947460 525440 –Professional Services
25160 947500 525440 - Professional Services
25110 947400 525440 – Professional Services

Positions To Be Deleted Per A-30 ☐

Requires 4/5 Vote ☐

C.E.O. RECOMMENDATION:

APPROVE
BY: Michael R. Shetler
Michael R. Shetler

County Executive Office Signature

☐ Dep't Recomm.: ☐ Policy ☐ Consent
☐ Per Exec. Ofc.: ☐ Policy ☐ Consent

Prev. Agn. Ref.:

District: 2nd, 3rd & 5th

Agenda Number: 11.2

ATTACHMENTS FILED
WITH THE CLERK OF THE BOARD

PROFESSIONAL SERVICES AGREEMENT
Santa Ana River; San Jacinto River and Chino Canyon Levees
Project Nos. 1-0-00010, 4-0-00020 and 6-0-00070
Amendment No. 4

The RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, hereinafter called "DISTRICT" and TETRA TECH, INC., hereinafter called "CONSULTANT", previously entered into that certain Agreement, March 18, 2008, for the Project described as the Santa Ana River Levee, the San Jacinto River Levee and the Chino Canyon Levee, hereinafter called "AGREEMENT"; and

On June 30, 2009 DISTRICT and CONSULTANT entered into Amendment No. 1 to extend the time for performance of AGREEMENT to June 30, 2010.

On September 14, 2010, DISTRICT and CONSULTANT entered into Amendment No. 2 to extend the time for performance of AGREEMENT to June 30, 2011.

On August 2011, DISTRICT and CONSULTANT entered into Amendment No. 3 to extend the time for performance for AGREEMENT to June 30, 2013; and based upon comments received from the Federal Emergency Management Agency's (FEMA) review of the Levee Certification Reports prepared by CONSULTANT, DISTRICT wishes to extend time for performance for CONSULTANT to further assist the DISTRICT in providing additional analysis and addressing FEMA's concerns associated with its levee accreditation requirements.

NOW, therefore, the parties hereto mutually agree to amend AGREEMENT as follows, effective June 30, 2011:

1. Provision 2 of the AGREEMENT is changed to read:

2. SCOPE OF SERVICES – CONSULTANT, as an independent contractor, shall perform all technical and professional services including but not limited to expertise, supervision, equipment, facilities, materials, labor, and other incidental services necessary to

fully and adequately perform in a complete, skillful and professional manner those consulting services separately described on Attachment "C" attached hereto and made a part hereof.

2. Provision 4 of the AGREEMENT is changed to read:

4. COMPENSATION - DISTRICT shall pay CONSULTANT for professional services performed and expenses incurred in accordance with CONSULTANT'S fee schedule as set forth on Attachment "B" attached hereto and made a part hereof. Unless otherwise specifically stated in Attachment B, DISTRICT shall not be responsible for payment of any of CONSULTANT's expenses related to this Agreement. The total amount of compensation paid to CONSULTANT under this Agreement shall not exceed the sum of one hundred eighteen thousand five hundred forty-nine dollars ($118,549) unless a written amendment to this Agreement is executed by both parties prior to performance of additional services.

3. Provision 20, per this Amendment, is added to AGREEMENT:

20. DISCREPANCY – In the event of a conflict between the terms of this Agreement, including any documents attached to or incorporated into the Agreement, the following precedence of documents shall, unless otherwise stated, apply (with the earlier listed document controlling): the main agreement; Attachment "A"; and Attachment "B".

Except to the extent specifically added to, modified or amended hereunder, all of the terms, covenants and conditions of said AGREEMENT dated September 4, 2007 remain in full force and effect between the parties hereto.

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement on

_____.
(to be filled in by Clerk of the Board)

RECOMMENDED FOR APPROVAL:

By _____
WARREN D. WILLIAMS
General Manager-Chief Engineer

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

By _____
MARION ASHLEY, Chairman
Riverside County Flood Control and
Water Conservation District Board of
Supervisors

APPROVED AS TO FORM:

PAMELA J. WALLS
County Counsel

By _____
NEAL KIPNIS
Deputy County Counsel

ATTEST:

KECIA HARPER-IHEM
Clerk of the Board

By _____
Deputy

(SEAL)

Professional Services Agreement – Tetra Tech, Inc. - Amendment No. 4
12/27/11
KEC:blj

TETRA TECH, INC.

By _____
Responsible Officer

Ira Mark Artz

Printed Name

Divisional Vice President

Title

Professional Services Agreement – Tetra Tech, Inc. - Amendment No. 4:
12/27/11
KEC:blj

Fee Estimate - Tetra Tech
FEMA Levee Certification - Santa Jacinto River (Meridian Street Channel Levee)

		Hourly Rates:	$228.00	$228.00	$190.00	$170.00	$142.00	$120.00	$108.00	$93.50	
Scoped Tasks			Senior Technical / QA/QC	Senior Project Manager	Senior Geotechnical Engineer	Project Engineer	Staff Engineer/ Geotechnical Engineer	Engineer II / Field Geologist	CAD Draftsman	Admin Support	Total Cost
Task 1	**Project Coordination**										
	Project Management			24							$ 8,816
	Meeting (1 in-person)			8	8						$ 5,472
											$ 3,344
Task 2	**Data Collection and Field Investigation**										
	Data Collection			2	2	4	6		2		$ 5,768
	Field Investigation			8		8					$ 2,584
											$ 3,184
Task 3	**Geotechnical Assessment**										
	Field Exploration & Lab Testing		3	2	8			15	15		$ 45,564
	Interpretation & Analyses		8	2	24		75	16	10		$ 6,080
	Draft Geotechnical Appendix		6		24		32	16	6	8	$ 20,490
	Final Geotechnical Appendix		2		8		12	6	4	4	$ 13,788
											$ 5,206
Task 4	**Hydrologic and Hydraulic Evaluation**										
	Hydrologic Analysis										
	Develop HEC-RAS model		TO BE COMPLETED BY RC FLOOD								
	Run models and review results										
Task 7	**Levee Certification Report**										
	Draft Report (update to Existing Report)		6	8		24			6	4	$ 12,729
	MT-2 Forms			2	4	4	12		6	2	$ 8,294
											$ 4,435
										Sub-Total	$ 72,877

	unit price	quantity	units	cost
Travel	$ 0.61	220	miles	$ 134
Field Exploration (Outside Services)		1	lump sum	$ 6,028
Lab Testing		1	lump sum	$ 2,472
Printing, Shipping, etc..	$ 400.00	1	lump sum	$ 400
			TT Total	$ 81,911

OPTIONAL TASKS

Task 5	**Floodplain Mapping**										$ 8,496
	Develop mapping			4		16	16		24		$ 8,496
Task 6	**Structural Evaluation**										$ 14,384
	Structural Evaluation		12	2	4	48	16				$ 14,384
Task 8	**Report Update**										$ 13,758
	FEMA Coordination & Comment Response		2	16	16	8	8			16	$ 11,136
	Report Update			2		8			4	4	$ 2,622
										TT Optional Task Total	$ 36,638

SCOPE OF WORK FOR THE MERIDIAN STREET CHANNEL – TETRA TECH

TASK 1 – PROJECT COORDINATION

Project management will include weekly internal reviews of the budget and schedule and the progress on the task items. Throughout the project, the Tetra Tech team will maintain appropriate coordination with the District regarding progress on the technical tasks as well as providing updates on the schedule.

Three in-person meetings are anticipated in this scope: (1) an initial kick-off meeting with the City at the time of the field investigation, (2) at the time of the draft report deliverable, and (3) at receipt of FEMA comments. In addition, it is anticipated that weekly progress meetings will be held via telephone.

TASK 2 DATA COLLECTION AND FIELD INVESTIGATION

The data collection effort will be focused on those items needed to complete the certification process. The items identified in Section 65.10 of the NFIP regulations and on FEMA Form 3 "Riverine Hydraulic Structures" of the MT-2 form provide a guide to the data needed. Information to be collected includes:

- As-built plans for the levee, channel, and pipes penetrating the levee (received from District)
- Recent topography of the project reach. The downstream limit of the Meridian Street Channel shown on the as-built plans is at Station 16+76. A cursory investigation indicates that at approximately Station 25+00 the natural grade adjacent to the channel banks will exceed the 100-year water surface elevation. The as-built plans indicate that the USACE levee extends to Station 33+62. Topography should extend from the San Jacinto River confluence to Station 33+62.
- Existing geotechnical data (received from District)

The team will perform one field investigation to document the condition of the existing levee and identify critical locations for the geotechnical field work.

TASK 3 GEOTECHNICAL ASSESSMENT

Geotechnical evaluations will be based upon USACE levee design criteria for existing levees per Engineering Manual (EM) 1110-2-1913 *Design and Construction of Levees* and Engineering Technical Letter (ETL) 1110-2-569 *Design Guidance for Levee Underseepage*.

Key considerations will be seepage and stability analysis during the 100-year WSE event, seismic stability as a result of earthquake on the nearby San Jacinto Fault, and Sudden Drawdown. Currently USACE does not have design criteria for seismic stability. From discussions with USACE we understand the USACE is currently proposing a 100-year recurrence interval in draft documents under development regarding seismic stability. Our team proposes to use this analysis as the basis of seismic evaluation unless the County requests otherwise.

Geotechnical Exploration

Based on our understanding of the levee construction, the following scope of exploration is proposed:

- Advance 3 hollow stem auger borings spaced at roughly 1000 foot intervals along the top of the levee. The borings will be advanced to a depth of 30 to 45 feet below the crown elevation. Sampling will be conducted at approximately 5-foot spacing below.

Laboratory testing will be conducted to evaluate strength, gradation and hydraulic conductivity.

Engineering Analysis

Cross sections of the site will be developed and up to 3 critical cross sections will be selected for seepage analysis. Seepage analysis of critical sections will initially evaluate steady state conditions. Due to the anticipated short duration of flood loading for this levee, assuming steady state conditions is considered a very conservative approach. If this method indicates that assuming steady state seepage through and under the levee produces unacceptable exit gradients or low factors of safety for slope stability, then a more rigorous transient seepage evaluation, which incorporates realistic duration for flood loading, will be performed.

A geotechnical section will be prepared documenting the subsurface exploration and the geotechnical analyses to become part of the levee certification package.

TASK 4 HYDROLOGIC AND HYDRAULIC EVALUATION

NOTE: RIVERSIDE COUNTY FLOOD WILL COMPLETE ALL WORK ASSOCIATED WITH THIS TASK AND PROVIDE MODELS AND A WRITEUP OF THE EFFORT (INCLUDING ANALYSIS OF THE RESULTS) TO BE INCLUDED IN THE LEVEE CERTIFICATION REPORT.

A simple hydrologic analysis of the San Jacinto and Meridian Street Channel watersheds will be performed to justify the lack of coincidence in the peak discharges and support the use of the San Jacinto 100-year discharge for evaluation.

Based on the District provided topography and the as-built plans, a HEC-RAS model for the Meridian Street Channel will be developed from the confluence with the San Jacinto River to Station 33+62 along Meridian Street Channel.

In addition to information regarding the freeboard, the results of the hydraulic analysis will be used as input to the geotechnical analysis. Information provided for the geotechnical analysis includes:

1) The Q for both the 100 year recurrence event and a 2 year recurrence event. The more probable 2 year event is used to set the initial conditions for the transient analysis.
2) The hydrograph Q versus time for the 100 year event.
3) A plot of Water Elevation v Q for various sections along the channel (Note: Q needs to range from low flow to 100 year event). Data at up to 3 sections may be required.

Based on the existing concrete channel, it is anticipated that no erosion protection evaluation is required and no scour or aggradation analyses will be required. Because there are no penetrations through the bank along the project reach, it is anticipated that no interior drainage analysis will be required.

TASK 5 FLOODPLAIN MAPPING (OPTIONAL)

Based on the results of Task 4, revised floodplain mapping will be generated that identifies the updated floodplain associated with the San Jacinto River considering tie-back levees along the Meridian Street Channel.

TASK 6 STRUCTURAL EVALUATION (OPTIONAL)

The structural evaluation will be confined to the concrete paving used along the channel banks and invert and the bridge crossing at the confluence of the Meridian Street Channel with the San Jacinto River. This task is optional

TASK 7 LEVEE CERTIFICATION REPORT

The Levee Certification Report will include the results of the site inspections, engineering assessment, and the geotechnical analysis.

It is anticipated that the leveed channel banks will meet the requirements of Section 65.10 of the NFIP Regulations, and the report will include a cover letter for FEMA to support certification. It is anticipated that the District will provide an Operations and Maintenance Manual as part of the FEMA submittal package.

Each report will include electronic copies of the report, supporting data, and a georeferenced GIS data layer for each levee in accordance with FEMA guidelines to allow the levee to be located. This report will include the levee forms (the MT-2 FEMA Form 1 – "Overview & Concurrence", Form 2 – "Riverine Hydrology & Hydraulic", and Form 3 – "Riverine Structures") and other supporting information such as the topographic workmap and the annotated FIRM showing the changes to the floodplain boundaries.

After comments are received from the District, a final report will be produced.

TASK 8 REPORT UPDATE (OPTIONAL)

Any comments from FEMA will be addressed as part of an Optional Task as identified in the Fee Estimate.

SCHEDULE AND FEE

It is anticipated that Data Collection and Field Work (including Geotechnical Investigations) will take approximately 45 days from NTP and that a draft report will be ready 80 days from NTP. Task 4 results will need to be provided to Tetra Tech within 14 days from NTP in order to meet this schedule. The attached spreadsheet identifies the fee associated with each task. The total fee estimate is $81,911.