TO: JAMES L. APP, CITY MANAGER

FROM: MEG WILLIAMSON, ASSISTANT CITY MANAGER
DOUG MONN, PUBLIC WORKS DIRECTOR

SUBJECT: LIBRARY/CITY HALL SULFUR SPRING REPAIRS – CONTRACT AMENDMENT

DATE: OCTOBER 3, 2006

Needs: For the City Council to consider amending an existing contract with Boyle Engineering to conduct additional technical analysis required by the Federal environmental review process for the sulfur spring.

Facts:

1. On May 2004, City Council awarded a contract for $118,270.00 to Boyle Engineering to assist the City in mitigating the flow of the geo-thermal spring at the Library/City Hall and to provide design drawings for the repair of the parking lot.

2. On December 7, 2004, the City Council amended the contract with Boyle Engineering to include additional services related to the State and Federal environmental review processes. The cost of the additional environmental and design alternative services was $86,300 and included a subcontract with Padre Associates for portions of that work.

3. The City has obtained the support of the State Regional Water Quality Control Board for a disposal technique of the sulfur spring water to the Salinas River. The Percolation Disposal approach was submitted to FEMA and OES in May 2006 and described to Council in a status memo dated June 2, 2006.

4. FEMA has resumed the processing of the environmental documentation of the sulfur spring repair and has required that the City provide hydro-geologic modeling of potential impacts of percolating the sulfur water discharge adjacent to the river might have on the river's seasonal surface flow.

5. Boyle has provided a scope of work that has been approved by FEMA to accomplish this next step in the environmental review documentation. The cost of the additional work is $18,500.

6. The estimated time for completion of the additional work scope is four to six weeks.

7. Once the modeling is complete, FEMA will use the results to initiate the consultation process with federal environmental agencies (such as Fish and Wildlife Service and NOAA Fisheries). While the outcome of those consultations will still take months to complete, both the State OES and FEMA environmental representatives believe this approach is the most expeditious in documenting a finding of no negative impact to the environment.

8. Environmental review and documentation is a necessary step if the City is to receive any federal reimbursement for the earthquake repairs. The cost of parking lot repair and disposal of the sulfur spring water to the river is estimated between $1.5 and $2 million.

Analysis and Conclusion: The City cannot complete the design for remediation of the sulfur spring and repair of the parking lot until the environmental review process has been completed. FEMA oversees the federal environmental review process (NEPA) and has determined that hydro-geological modeling of the river and spring water is necessary to complete that process. Because this modeling was not part of the original scope of work under the City's contract with Boyle Engineering, it is necessary to consider a contract amendment to cover the additional work.

The additional environmental documentation would provide empirical data necessary to demonstrate to State and Federal agencies that the repair project will not have significant impacts to the environment, thereby allowing the City to complete the project and FEMA to fully fund the cost of the remediation.

Policy Reference: None

Fiscal Impact: Amendment of the contract to Boyle Engineering for the necessary hydro-geological modeling associated with environmental documentation of disposal of the flow from the sulfur spring would impact the General Fund in an amount of $18,500. This will bring the total cost of the Boyle Engineering contract to $223,000. While staff has filed for a Project Worksheet with FEMA to cover the cost of mitigating the sulfur spring and repair of the parking lot, there is no guarantee as to when or if the cost will be reimbursed. The process being followed has the highest level of assurance for reimbursement.

Options:

1. Adopt the attached resolution 06-XXX to amend the contract with Boyle Engineering in an amount of $18,500 for the FEMA required hydro-geological modeling.

2. Amend, modify, or reject the above options.

Attachments:

1. Resolution amending the contract with Boyle Engineering
2. Boyle's amended scope of work proposal dated September 13, 2006

RESOLUTION NO. 06- _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EL PASO DE ROBLES AMENDING AN EXISTING CONTRACT WITH BOYLE ENGINEERING FOR DESIGN SERVICES ASSOCIATED WITH THE REMEDIATION AND REPAIR OF THE SULFUR SPRING AT 1000 SPRING STREET TO INCLUDE HYDRO-GELOGIC MODELING IN CONJUNCTION WITH THE ENVIRONMENTAL REVIEW TO COMPLY WITH STATE AND FEMA GUIDELINES

WHEREAS, the City Council has determined it to be in the best interest of the City to complete the work necessary to mitigate the flow from the spring to allow repair of the parking lot; and

WHEREAS, the City Council of the City of El Paso de Robles did enter into a contract for $118,270.00 with Boyle Engineering for design services necessary to mitigate the sulfur spring and repair the parking lot located at the Library/City Hall; and

WHEREAS, on December 7, 2004 the City Council amended that existing contract to include $86,300 of additional environmental review service and documentation to address disposal alternatives for the natural flow from the sulfur spring; and

WHEREAS, a disposal alternative has been identified for the spring water to be conveyed and distributed into the Salinas River (percolation method) which has been endorsed by the State Regional Water Quality Control Board; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has resumed their environmental review of the parking lot and sulfur spring repair (specifically with the percolation disposal method alternative) and has indicated that hydro-geologic modeling of the mixing of sulfur spring and river surface water is necessary before proceeding with further consultation with federal environmental agencies; and

WHEREAS, Boyle Engineering has provided a revised scope of work to provide the requested hydro-geologic modeling to be subcontracted with Fugro West Inc.; and

WHEREAS, FEMA's environmental consultants have verified the appropriateness of the scope of work submitted by Boyle Engineering.

THEREFORE BE IT RESOLVED by the City Council of the City of El Paso de Robles, that the City Manager for the City of Paso Robles is hereby authorized to enter into an amended contract with Boyle Engineering in an amount of $18,500, for services associated with hydro-geologic modeling and expanded environmental review services required for the remediation of the spring and repair of the parking lot at the Library/City Hall, as outlined in an amended proposal letter from Boyle Engineering, dated September 13, 2006.

PASSED AND ADOPTED this 3rd day of October, 2006 by the following roll call vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Frank R. Mecham, Mayor

ATTEST:

_____
Deborah Robinson, Deputy City Clerk

BOYLE

Engineering Excellence Since 1942

Employee Owned

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Meg Williamson
CITY OF PASO ROBLES
1000 Spring Street
Paso Robles CA 93446

September 13, 2006
BK-P53-300-04

Engineering Services for Parking Lot Repair
Authorization to Perform Additional Services

This letter requests authorization for Boyle Engineering Corporation ("Boyle") to perform the following services, which are outside of our present scope of work for the Project (the "Additional Services"):

- Coordinate with our subconsultants, Fugro West, Inc., (Fugro) to perform additional groundwater modeling of the percolation system proposed for sulfur spring water disposal.

This modeling has been requested to evaluate the possibility and extent of groundwater-surface water interactions due to the subsurface disposal of spring water into a proposed leachfield adjacent to the Salinas River. Previously, a steady-state groundwater model was developed by Fugro to simulate the impacts on groundwater levels in the trench and channel bed areas due to the disposal of the hot springs water. Fugro presented the findings of that modeling effort in a technical memorandum dated December 6, 2005.

In an informal note prepared on August 7, 2006, a more detailed modeling approach was outlined by Fugro to evaluate the possibility of daylighting in the trench and channel bed areas. The technical merit of the revised approach was then reviewed by URS Corp. and they recommended several modifications. As part of that review process, the purpose of the conference call on August 29, 2006 was to clearly define the problem that needed to be evaluated by the revised groundwater model and to develop a modeling approach that was agreeable to the City of Paso Robles, Boyle Engineering, Fugro, and the URS Corp. In the conference call, it was agreed that the major issue to be addressed by the model concerned the potential for mixing of the hot springs water with surface water in the Salinas River. As a first step to addressing this concern, it was decided by the participants of the conference call that the model should initially evaluate the likelihood and extent of any groundwater and surface water interactions due to the subsurface percolation of the hot springs water.

During the conference call, the various types of data required to revise the groundwater model were discussed. In particular, a spatial distribution of the subsurface sediment hydraulic conductivities is needed to develop an appropriate model. The hydraulic conductivity parameter in the model represents a quantified measure of the resistance to groundwater flow provided by the subsurface sediments due to friction and tortuosity. Fugro investigated the subsurface sediments in the unsaturated zone of the leachfield area on November 22, 2005 by excavation of five test pits to depths between 8 to 13 feet below

ground surface. Although the field and laboratory results on the test pit sediment samples indicated that the unsaturated zone sediments would provide adequate infiltration capacity for the reinjection project, the shallow depths and locations of the test pits did not provide lithology information at depths below the water table or at locations further away from the leachfield area (e.g., in the channel bed). Consequently, for the revised model Fugro initially recommended that additional fieldwork be performed to better delineate the lithology in the leachfield area and to estimate the hydraulic conductivities of the sediments there. The field data and estimated hydraulic conductivities could then be used to develop the groundwater model and evaluate the impacts of the discharge on groundwater-surface water interactions.

URS suggested that prior to performing any additional fieldwork, the potential for significant groundwater-surface water interaction be first evaluated by performing a sensitivity analysis using a revised groundwater model. For this, a groundwater model would be developed that consists of multiple model layers (e.g., 4 to 6 layers) to represent anisotropy and the variation in hydraulic conductivity with depth. The sensitivity analysis would consist of varying the values of the horizontal and vertical hydraulic conductivities of the model layers and executing the model to evaluate the impacts of these values on groundwater-surface water interactions. If the results of the sensitivity analysis indicate that no significant groundwater-surface water interactions occur due to the subsurface reinjection of the hot springs water, then a determination might be made without the need of additional fieldwork that the proposed project will not generate these impacts. However, if the results of the sensitivity analysis are inconclusive or indicate that the groundwater-surface water interaction potential is significant, then additional fieldwork may be required to more precisely quantify these impacts.

Data Collection and Preparation. Development of the groundwater model will require several types of data, including: 1) ground surface elevations, 2) seasonal groundwater levels, 3) seasonal Salinas River flows and stages, and 4) estimated hydraulic conductivities of the subsurface layers in the trench and channel bed areas. A 2-foot contour map of ground surface elevations has been provided by Boyle Engineering and appears to sufficiently quantify the topography in the leachfield and channel bed areas. Based on comments by participants of the conference call, measured seasonal groundwater levels in the model area probably are not available. Seasonal groundwater levels will therefore need to be estimated, likely from existing groundwater level measurements in wells located in channel corridor areas to the north and to the south of the proposed site. Estimated values of the depth to groundwater in these off-site wells will be used in conjunction with the 2-foot topographic contours to estimate the groundwater elevations in the model area during different times of an average water year.

Historical flow and stage measurements in the Salinas River at the 13th Street Bridge in Paso Robles are available through the California Department of Water Resources website. The river flow and stage measurements will be used to represent the Salinas River in the groundwater model and to determine the months of an average water year that the river contains surface flows and the months that it is dry. Stage measurements and topographic information will be used to estimate groundwater levels in the near vicinity of the Salinas River during months of an average water year when surface flows are present.

Field estimates of sediment hydraulic conductivities below the water table in the trench area and in the channel bed are not available. However, a range of expected hydraulic conductivities for the types of sediments present in the trench and channel bed areas can be obtained through the literature and from field studies conducted in areas elsewhere along the Salinas River corridor. The range of possible hydraulic conductivity values will be used to define the sensitivity analysis.

Groundwater Modeling and Sensitivity Analysis. A transient groundwater model will be developed in MODFLOW-2000 using the Groundwater Vistas software. The model domain will encompass the trench area, the adjacent Salinas River channel bed, and other areas to the north and to the south of the trench area. The size of the model domain will be on the order of 30-50 acres, the exact size determined to assure that the boundary conditions are appropriately represented in the model. The number of model layers representing the subsurface will consist of between 4 to 6 layers. The model layers near the ground surface will be thinner than at greater depths to accurately simulate the vertical groundwater gradient created by the percolation of the hot springs water in the trench. The finite-difference grid representing the model domain will also be refined in the trench area and the nearby channel bed to provide sufficient spatial resolution during the simulation of the groundwater-surface water interactions as well as horizontal groundwater flow in the embankment area.

In addition to the representing alluvial aquifer, the model will also simulate the Salinas River using the MODFLOW River or Stream package. Appropriate general-head boundary conditions will be assigned to the southern and northern boundaries of the alluvial aquifer using the approximated groundwater elevation data as described above. The percolation of the hot springs water will be modeled using the MODFLOW Recharge package. The proposed trench system will be evaluated by the model for the designed flow rate of 400 gallons per minute.

The main parameters to be varied in the sensitivity analysis are the horizontal and vertical hydraulic conductivities of the model layers. Due to the lack of groundwater level data in the model area, assumed groundwater levels in the trench and channel bed areas may also be varied in the sensitivity analysis. In terms of climate conditions, it was concluded during the conference call that the groundwater model should be developed to represent groundwater and surface water flows representative of average water year conditions, rather than for 100-year or 500-year flood conditions.

Technical Memorandum. The results of the groundwater modeling and sensitivity analysis will be presented in a technical memorandum and will include supporting hydrogeologic data, graphical depiction of model results, conclusions and recommendations relative to the feasibility of the proposed concept and the need for any additional fieldwork.

The cost to complete the additional work outlined above is $18,500. The schedule to complete the work discussed above is 3 to 4 weeks from receipt of Notice to Proceed (NTP). We are pleased to do so and will begin immediately upon receipt of an executed copy of this letter authorizing us to proceed.

Please sign and return to me the enclosed copy of this letter indicating your concurrence, thereby enabling us to provide these services. Thank you.

Boyle Engineering Corporation

Jon Hanlon, PE

Accepted:

By:_____

Title:_____

CS-B99-190-00/jh /hydro modeling budget revision request