

Council Meeting of  
December 12, 2006

Honorable Mayor and Members  
of the City Council  
City Hall  
Torrance, California

Members of the Council:

**SUBJECT: Public Works - Professional Service Agreement with Carollo Engineers for final design services for the Walteria and Ben Haggott Reservoirs Rehabilitation and Nitrification Reduction Project, CIP No. S-31. Expenditure: \$199,424**

### **RECOMMENDATION**

The Public Works Director recommends that the City Council approve a Professional Services Agreement with Carollo Engineers for the final design services for the Walteria and Ben Haggott Reservoirs Rehabilitation and Nitrification Reduction Project, CIP No. S-31, in the amount not to exceed \$199,424.

### **Funding**

Funding for this Agreement is available from CIP No. S-31.

### **BACKGROUND**

The Walteria Reservoir is a 10 million gallon (MG) water reservoir built in 1952. The Ben Haggott Reservoir is an 18 MG water reservoir built in 1987. Both reservoirs are buried and constructed of steel-reinforced concrete. The reservoirs are located just east of the intersection of Crenshaw Boulevard and Rolling Hills Road as shown in Attachment "B". The Las Canchas tennis courts are located on top of the Walteria reservoir.

In 1985, the Metropolitan Water District of Southern California (MWD) changed their water disinfectant from chlorine to chloramines (a combination of chlorine and ammonia). This change was made because chlorine reacts with naturally-occurring, organic particulate in the water to form trihalomethanes (THMs) which have been determined to be carcinogens.

The use of chloramines has resulted in another problem: nitrification. Nitrification is a biological process caused by naturally-occurring ammonia-oxidizing bacteria (AOB). Nitrification in chloraminated drinking water can have various adverse effects on water quality, the most serious of which is the loss of total chlorine residual and subsequent increase in bacteria.

AOB thrive in chloraminated water in covered reservoirs during warm summer months, and they are very resistant to chloramine disinfection. AOB feed upon free ammonia and convert it to nitrite. This nitrite, in turn, rapidly reduces free chlorine, accelerates the decomposition of chloramines and can interfere with the measurement of free chlorine. The by-products of their biological breakdown can support the growth of coliform bacteria. Nitrification has become a common problem as water utilities switched from chlorine to chloramine disinfectant to control THMs.

Some control strategies to prevent or reduce nitrification are to reduce detention times, or stagnation, in large reservoirs, add supplemental chlorine at the reservoir influents and/or improve mixing and circulation of water in the reservoirs. In addition, many water utilities, including Torrance, reduce nitrification by “flushing” large volumes of water at fire hydrants, thereby moving the water out of the reservoirs. The City of Torrance flushes about 13 acre-feet, or over four million gallons, of water per year. Additionally, the City keeps the reservoirs half full during summer months to reduce water age.

Genterra Consultants was hired on March 15, 2000 for civil and geotechnical services to evaluate the hairline cracking of the reservoirs. Genterra Consultants recommended performing structural inspections of the interior of the reservoirs. The City drained and structurally inspected the two reservoirs in 2001. The inspections revealed cracks and leaks in the reservoirs’ concrete and confirmed the need to have both the reservoirs structurally rehabilitated. Rehabilitation of the reservoirs is done about once every twenty years.

A Professional Services Agreement was awarded to Carollo engineers on July 12, 2005 to develop circulation and control strategies and associated construction costs to reduce nitrification and improve water quality in the reservoirs and develop structural rehabilitation concepts and associated construction cost estimates for the structural rehabilitation of the reservoirs.

## **ANALYSIS**

Carollo Engineers was selected via the Request for Proposal (RFP) process for the pre-design report and they were awarded that contract based on a competitive and open evaluation by the project team. They were the best qualified and had a reasonable price. They have proven their understanding of the problem and their competence with the pre-design report. Now they know this project better than anyone and they worked very well with our project team and already have base maps prepared. Their proposal for final design is very reasonable, in part because there will be no learning curve for them on the final design and they have base maps prepared. Recommendations for the final design to rehabilitate the Walteria and Ben Haggott reservoirs and to end the nitrification problem that keeps the reservoirs from being fully utilized are as follows:

1. New valve by-passes near the intersection of Pacific Coast Highway and Crenshaw Boulevard for the transmission main from our T-7 MWD connection that will enable us to send all the flows from that connection to the reservoirs and still maintain good water quality in the areas around that intersection.

2. Construct a new 24" pipeline on the reservoir site from the Walteria Pump Station to the north side of the reservoirs that will be for new inlets to the reservoirs (the current inlet-outlet pipes will become outlet only and all water to the main pressure zone from T-7 will have to flow through the reservoirs).
3. New inlet headers and reservoir wall penetrations for improved mixing.
4. Two new flow control valves to distribute the inlet flows appropriately to the two reservoirs.
5. Repair of existing cracks in the Walteria Reservoir.
6. Apply a crystalline compound to the reservoir floors and walls to seal any existing or new hairline cracks.
7. Install a slurry wall down hill of the Walteria Reservoir to prevent any leakage from the reservoir from causing settlement.

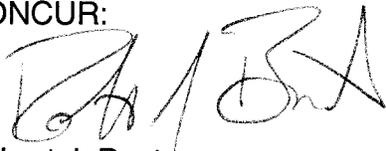
The not to exceed fee proposal for final design is \$199,424. The existing remaining budget is \$630,000. The original budget for CIP No. S-31 was only for rehabilitation of the reservoirs and did not include water quality improvements. The costs to reduce nitrification were unknown until the pre-design was completed. The cost estimates provided by Carollo for this project is \$1,720,000. The Public Works Director will be requesting an additional appropriation for this project of \$900,000 when the Department takes the Water and Sewer Enterprise Fund Capital Improvement Program to Council in the near future. The fee proposal is reasonable and in line with the cost estimates provided and appropriate for the level of design required.

Respectfully submitted,

ROBERT J. BESTE  
Public Works Director

  
By: John Dettle  
Project Manager

CONCUR:

  
Robert J. Beste  
Public Works Director

  
LeRoy J. Jackson  
City Manager

Attachments: A. Professional Services Agreement  
B. Location Map of Walteria and Ben Haggott Reservoirs



## CONSULTING SERVICES AGREEMENT

This CONSULTING SERVICES AGREEMENT (“Agreement”) is made and entered into as of December 12, 2006 (the “Effective Date”), by and between the CITY OF TORRANCE, a municipal corporation (“CITY”), and Carollo Engineers, an Arizona Corporation (“CONSULTANT”).

### RECITALS:

- A. CITY wishes to retain the services of an experienced and qualified CONSULTANT to provide engineering services for the rehabilitation of the Walteria and Ben Haggott Water Reservoirs and for modifications to decrease nitrification in the reservoirs.
- B. CONSULTANT represents that it is qualified to perform those services.

### AGREEMENT:

#### 1. SERVICES TO BE PERFORMED BY CONSULTANT

CONSULTANT will provide the services listed in the Scope of Services attached as Exhibit A. CONSULTANT warrants that all work and services set forth in the Scope of Services will be performed in a competent, professional and satisfactory manner.

#### 2. TERM

Unless earlier terminated in accordance with Paragraph 4 below, this Agreement will continue in full force and effect from the Effective Date through December 12, 2007.

#### 3. COMPENSATION

##### A. CONSULTANT’s Fee.

For services rendered pursuant to this Agreement, CONSULTANT will be paid in accordance with the Compensation Schedule attached as Exhibit B, provided, however, that in no event will the total amount of money paid the CONSULTANT, for services initially contemplated by this Agreement, exceed the sum of \$199,424 (“Agreement Sum”), unless otherwise first approved in writing by CITY.

##### B. Schedule of Payment.

Provided that the CONSULTANT is not in default under the terms of this Agreement, upon presentation of an invoice, CONSULTANT will be paid monthly the fees described in Paragraph 3.A. above, according to the Compensation Schedule. Payment will be due within 30 days after the date of the monthly invoice.

#### 4. **TERMINATION OF AGREEMENT**

##### A. Termination by CITY for Convenience.

1. CITY may, at any time, terminate the Agreement for CITY's convenience and without cause.
2. Upon receipt of written notice from CITY of such termination for CITY's convenience, CONSULTANT will:
  - a. cease operations as directed by CITY in the notice;
  - b. take actions necessary, or that CITY may direct, for the protection and preservation of the work; and
  - c. except for work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.
3. In case of such termination for CITY's convenience, CONSULTANT will be entitled to receive payment for work executed; and costs incurred by reason of such termination, along with reasonable overhead and profit on the work not executed.

##### B. Termination for Cause.

1. If either party fails to perform any term, covenant or condition in this Agreement and that failure continues for 15 calendar days after the nondefaulting party gives the defaulting party written notice of the failure to perform, this Agreement may be terminated for cause; provided, however, that if during the notice period the defaulting party has promptly commenced and continues diligent efforts to remedy the default, the defaulting party will have such additional time as is reasonably necessary to remedy the default.
2. In the event this Agreement is terminated for cause by the default of the CONSULTANT, the CITY may, at the expense of the CONSULTANT and its surety, complete this Agreement or cause it to be completed. Any check or bond delivered to the CITY in connection with this Agreement, and the money payable thereon, will be forfeited to and remain the property of the CITY. All moneys due the CONSULTANT under the terms of this Agreement will be retained by the CITY, but the retention will not release the CONSULTANT and its surety from liability for the default. Under these circumstances, however, the CONSULTANT and its surety will be credited with the amount of money retained, toward any amount by which the cost of completion exceeds the Agreement Sum and any amount authorized for extra services.

3. Termination for cause will not affect or terminate any of the rights of the CITY as against the CONSULTANT or its surety then existing, or which may thereafter accrue because of the default; this provision is in addition to all other rights and remedies available to the CITY under law.

C. Termination for Breach of Law.

In the event the CONSULTANT or any of its officers, directors, shareholders, employees, agents, subsidiaries or affiliates is convicted (i) of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract, or in the performance of a contract or subcontract; (ii) under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which currently, seriously, and directly affects responsibility as a public consultant or contractor; (iii) under state or federal antitrust statutes arising out of the submission of bids or proposals; or (iv) of violation of Paragraph 19 of this Agreement; or for any other cause the CITY determines to be so serious and compelling as to affect CONSULTANT's responsibility as a public consultant or contractor, including but not limited to, debarment by another governmental agency, then the CITY reserves the unilateral right to terminate this Agreement or to impose such other sanctions (which may include financial sanctions, temporary suspensions or any other condition deemed appropriate short of termination) as it deems proper. The CITY will not take action until CONSULTANT has been given notice and an opportunity to present evidence in mitigation.

5. **FORCE MAJEURE**

If any party fails to perform its obligations because of strikes, lockouts, labor disputes, embargoes, acts of God, inability to obtain labor or materials or reasonable substitutes for labor or materials, governmental restrictions, governmental regulations, governmental control, judicial orders, enemy or hostile governmental action, civil commotion, fire or other casualty, or other causes beyond the reasonable control of the party obligated to perform, then that party's performance shall be excused for a period equal to the period of such cause for failure to perform.

6. **RETENTION OF FUNDS**

CONSULTANT authorizes CITY to deduct from any amount payable to CONSULTANT (whether or not arising out of this Agreement) any amounts the payment of which may be in dispute or that are necessary to compensate CITY for any losses, costs, liabilities, or damages suffered by CITY, and all amounts for which CITY may be liable to third parties, by reason of CONSULTANT's negligent acts or omissions or willful misconduct in performing or failing to perform CONSULTANT's obligations under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by CONSULTANT, or any indebtedness exists that appears to be the basis for a claim of lien, CITY may withhold from any payment due, without liability for interest because of the withholding, an amount sufficient to cover the claim. The failure of CITY to exercise the right to deduct or to withhold will not, however, affect the obligations of

CONSULTANT to insure, indemnify, and protect CITY as elsewhere provided in this Agreement.

**7. CITY REPRESENTATIVE**

Robert J. Beste, Public Works Director is designated as the “City Representative,” authorized to act in its behalf with respect to the work and services specified in this Agreement and to make all decisions in connection with this Agreement. Whenever approval, directions, or other actions are required by CITY under this Agreement, those actions will be taken by the City Representative, unless otherwise stated. The City Manager has the right to designate another City Representative at any time, by providing notice to CONSULTANT.

**8. CONSULTANT REPRESENTATIVE(S)**

The following principal(s) of CONSULTANT are designated as being the principal(s) and representative(s) of CONSULTANT authorized to act in its behalf with respect to the work specified in this Agreement and make all decisions in connection with this Agreement:

Graham J. G. Juby, Ph.D., P.E.  
Ash K. Wason, P.E.

**9. INDEPENDENT CONTRACTOR**

The CONSULTANT is, and at all times will remain as to CITY, a wholly independent contractor. Neither CITY nor any of its agents will have control over the conduct of the CONSULTANT or any of the CONSULTANT’s employees, except as otherwise set forth in this Agreement. The CONSULTANT may not, at any time or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of CITY.

**10. BUSINESS LICENSE**

The CONSULTANT must obtain a City business license prior to the start of work under this Agreement, unless CONSULTANT is qualified for an exemption.

**11. OTHER LICENSES AND PERMITS**

CONSULTANT warrants that it has all professional, contracting and other permits and licenses required to undertake the work contemplated by this Agreement.

**12. FAMILIARITY WITH WORK**

By executing this Agreement, CONSULTANT warrants that CONSULTANT (a) has thoroughly investigated and considered the scope of services to be performed, (b) has carefully considered how the services should be performed, and (c) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, CONSULTANT warrants that CONSULTANT has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services set forth in this Agreement. Should CONSULTANT discover any latent or unknown conditions that will materially affect the performance of the services set forth in this Agreement, CONSULTANT must immediately inform CITY of that fact and may not proceed except at CONSULTANT’s risk until written instructions are received from CITY.

13. **CARE OF WORK**

CONSULTANT must adopt reasonable methods during the term of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and other components to prevent losses or damages, and will be responsible for all damages, to persons or property, until acceptance of the work by CITY, except those losses or damages as may be caused by CITY's own negligence.

14. **CONSULTANT'S ACCOUNTING RECORDS; OTHER PROJECT RECORDS**

Records of the CONSULTANT's time pertaining to the project, and records of accounts between CITY and the CONSULTANT, will be kept on a generally recognized accounting basis. CONSULTANT will also maintain all other records, including without limitation specifications, drawings, progress reports and the like, relating to the project. All records will be available to CITY during normal working hours. CONSULTANT will maintain these records for three years after final payment.

15. **INDEMNIFICATION**

CONSULTANT will indemnify, pay for cost of defense, and hold harmless CITY, the City Council, each member thereof, present and future, its officers, agents and employees from and against any and all liability, expenses, including defense costs and legal fees, and claims for damages whatsoever, including, but not limited to, those arising from breach of contract, bodily injury, death, personal injury, property damage, loss of use, or property loss. The obligation to indemnify, pay for cost of defense, and hold harmless includes, but is not limited to, any liability or expense, including defense costs and legal fees, arising from the negligent acts or omissions, or willful misconduct of CONSULTANT, its officers, employees, agents, subcontractors or vendors. It is further agreed, CONSULTANT's obligations to indemnify, defend and hold harmless will apply, but only to the extent covered by CONSULTANT's negligence, even in the event of concurrent negligence on the part of CITY, the City Council, each member thereof, present and future, or its officers, agents and employees, except for liability resulting from the negligence or willful misconduct of CITY, its officers, employees or agents. Payment by CITY is not a condition precedent to enforcement of this indemnity.

16. **NON-LIABILITY OF CITY OFFICERS AND EMPLOYEES**

No officer or employee of CITY will be personally liable to CONSULTANT, in the event of any default or breach by the CITY or for any amount that may become due to CONSULTANT.

**17. INSURANCE**

- A. CONSULTANT must maintain at its sole expense the following insurance, which will be full coverage not subject to self insurance provisions:
1. Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
    - a. Primary Bodily Injury with limits of at least \$500,000 per person, \$1,000,000 per occurrence; and
    - b. Primary Property Damage of at least \$250,000 per occurrence; or
    - c. Combined single limits of \$1,000,000 per occurrence.
  2. General Liability including coverage for premises, products and completed operations, independent contractors/vendors, personal injury and contractual obligations with combined single limits of coverage of at least \$1,000,000 per occurrence.
  3. Professional liability insurance with limits of at least \$1,000,000 per occurrence.
  4. Workers' Compensation with limits as required by the State of California and Employers Liability with limits of at least \$1,000,000.
- B. The insurance provided by CONSULTANT will be primary and non-contributory
- C. CITY, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insured under the automobile and general liability policies.
- D. CONSULTANT must provide certificates of insurance and/or endorsements to the City Clerk of the City of Torrance before the commencement of work.
- E. Each insurance policy required by this Paragraph must contain a provision that no termination, cancellation or change of coverage can be made without thirty days notice to CITY.

**18. SUFFICIENCY OF INSURERS AND SURETIES**

Insurance or bonds required by this Agreement will be satisfactory only if issued by companies admitted to do business in California, rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category Class VII or better, unless these requirements are waived by the Risk Manager of CITY ("Risk Manager") due to unique circumstances. In the event the Risk Manager determines that the work or services to be performed under this Agreement creates an increased or decreased risk of loss to CITY, the CONSULTANT agrees that the minimum limits of any insurance policies or performance bonds required by this Agreement may be changed

accordingly upon receipt of written notice from the Risk Manager; provided that CONSULTANT will have the right to appeal a determination of increased coverage by the Risk Manager to the City Council of CITY within 10 days of receipt of notice from the Risk Manager.

**19. CONFLICT OF INTEREST**

- A. No officer or employee of the CITY may have any financial interest, direct or indirect, in this Agreement, nor may any officer or employee participate in any decision relating to the Agreement that effects the officer or employee's financial interest or the financial interest of any corporation, partnership or association in which the officer or employee is, directly or indirectly interested, in violation of any law, rule or regulation.
- B. No person may offer, give, or agree to give any officer or employee or former officer or employee, nor may any officer or employee solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any way pertaining to any program requirement, contract or subcontract, or to any solicitation or proposal.

**20. NOTICE**

- A. All notices, requests, demands, or other communications under this Agreement will be in writing. Notice will be sufficiently given for all purposes as follows:
  - 1. Personal delivery. When personally delivered to the recipient: notice is effective on delivery.
  - 2. First Class mail. When mailed first class to the last address of the recipient known to the party giving notice: notice is effective three mail delivery days after deposit in an United States Postal Service office or mailbox.
  - 3. Certified mail. When mailed certified mail, return receipt requested: notice is effective on receipt, if delivery is confirmed by a return receipt.
  - 4. Overnight delivery. When delivered by an overnight delivery service, charges prepaid or charged to the sender's account: notice is effective on delivery, if delivery is confirmed by the delivery service.
  - 5. Facsimile transmission. When sent by fax to the last fax number of the recipient known to the party giving notice: notice is effective on receipt. Any notice given by fax will be deemed received on the next business day if it is received after 5:00 p.m. (recipient's time) or on a non-business day.

6. Addresses for purpose of giving notice are as follows:

CONSULTANT: Carollo Engineers  
10540 Talbert Avenue, Suite 200 East  
Fountain Valley, CA 92708

Fax: (714) 593-5101

CITY: City Clerk  
City of Torrance  
3031 Torrance Boulevard  
Torrance, CA 90509-2970  
Fax: (310) 618-2931

- B. Any correctly addressed notice that is refused, unclaimed, or undeliverable because of an act or omission of the party to be notified, will be deemed effective as of the first date the notice was refused, unclaimed or deemed undeliverable by the postal authorities, messenger or overnight delivery service.
- C. Either party may change its address or fax number by giving the other party notice of the change in any manner permitted by this Agreement.

**21. PROHIBITION AGAINST ASSIGNMENT AND SUBCONTRACTING**

This Agreement and all exhibits are binding on the heirs, successors, and assigns of the parties. The Agreement may not be assigned or subcontracted by either CITY or CONSULTANT without the prior written consent of the other.

**22. INTEGRATION; AMENDMENT**

This Agreement represents the entire understanding of CITY and CONSULTANT as to those matters contained in it. No prior oral or written understanding will be of any force or effect with respect to the terms of this Agreement. The Agreement may not be modified or altered except in writing signed by both parties.

**23. INTERPRETATION**

The terms of this Agreement should be construed in accordance with the meaning of the language used and should not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction that might otherwise apply.

**24. SEVERABILITY**

If any part of this Agreement is found to be in conflict with applicable laws, that part will be inoperative, null and void insofar as it is in conflict with any applicable laws, but the remainder of the Agreement will remain in full force and effect.

**25. TIME OF ESSENCE**

Time is of the essence in the performance of this Agreement.

26. **GOVERNING LAW; JURISDICTION**

This Agreement will be administered and interpreted under the laws of the State of California. Jurisdiction of any litigation arising from the Agreement will be in Los Angeles County, California.

27. **COMPLIANCE WITH STATUTES AND REGULATIONS**

CONSULTANT will be knowledgeable of and will comply with all applicable federal, state, county and city statutes, rules, regulations, ordinances and orders.

28. **WAIVER OF BREACH**

No delay or omission in the exercise of any right or remedy by a nondefaulting party on any default will impair the right or remedy or be construed as a waiver. A party's consent or approval of any act by the other party requiring the party's consent or approval will not be deemed to waive or render unnecessary the other party's consent to or approval of any subsequent act. Any waiver by either party of any default must be in writing and will not be a waiver of any other default concerning the same or any other provision of this Agreement.

29. **ATTORNEY'S FEES**

Except as provided for in Paragraph 15, in any dispute, litigation, arbitration, or other proceeding by which one party either seeks to enforce its rights under this Agreement (whether in contract, tort or both) or seeks a declaration of any rights or obligations under this Agreement, the prevailing party will be awarded reasonable attorney's fees, together with any costs and expenses, to resolve the dispute and to enforce any judgment.

30. **EXHIBITS**

All exhibits identified in this Agreement are incorporated into the Agreement by this reference.

31. **CONSULTANT'S AUTHORITY TO EXECUTE**

The person(s) executing this Agreement on behalf of the CONSULTANT warrant that (i) the CONSULTANT is duly organized and existing; (ii) they are duly authorized to execute this Agreement on behalf of the CONSULTANT; (iii) by so executing this Agreement, the CONSULTANT is formally bound to the provisions of this Agreement;

and (iv) the entering into this Agreement does not violate any provision of any other Agreement to which the CONSULTANT is bound.

CITY OF TORRANCE  
a Municipal Corporation

Carollo Engineers  
An Arizona Corporation

\_\_\_\_\_  
Frank Scotto, Mayor

ATTEST:

By: \_\_\_\_\_  
Ash K. Wason  
Partner

\_\_\_\_\_  
Sue Herbers  
City Clerk

By: \_\_\_\_\_  
Graham J. G. Juby  
Partner

APPROVED AS TO FORM:  
JOHN L. FELLOWS III  
City Attorney

By: \_\_\_\_\_

Attachments:      Exhibit A      Scope of Services  
                         Exhibit B      Compensation Schedule

Revised:      1/30/01

## EXHIBIT A

## CITY OF TORRANCE

ENGINEERING SERVICES FOR WALTERIA  
AND BEN HAGGOTT RESERVOIR REHABILITATION DESIGNSCOPE OF SERVICES

This Scope of Services establishes the tasks Carollo Engineers (Carollo) will complete to provide engineering services for the rehabilitation of the Walteria and Ben Haggott Water Reservoirs. The work includes plans and specifications to implement the recommendations of the Preliminary Design Report, including:

1. New valve bypasses near the intersection of Crenshaw Boulevard and Pacific Coast Highway.
2. A new pipeline from near the Walteria Pump Station to the north side of the reservoirs.
3. Two new flow-regulating valve vaults including electrical supply.
4. New inlet headers and reservoir wall penetrations.
5. Repair of existing cracks in the Walteria Reservoir.
6. Application of a crystalline compound to the Walteria reservoir floor to seal existing cracks and seal new hairline cracks.

A detailed Scope of Work is presented in the following Tasks 1 through 3.

**Task 1 - Meetings and Project Management**

- 1.1 Conduct the following project meetings.

Meeting	Schedule	Purpose
Kick-Off Meeting	Soon after Notice to Proceed	<ul style="list-style-type: none"> <li>▶ Review the project scope, schedule, budget, and work plan.</li> <li>▶ Confirm budgets and schedules.</li> <li>▶ Adjust task schedule and work plan as required.</li> <li>▶ Finalize the City of Torrance's (City's) design criteria and parameters.</li> </ul>
Progress Meeting 1	Midway through 35-Percent Design	<ul style="list-style-type: none"> <li>▶ Review status of progress, schedule, and budget.</li> <li>▶ Gather City input on initial design.</li> <li>▶ Ask questions that arise during initial design.</li> <li>▶ Conduct field visit.</li> </ul>

Meeting	Schedule	Purpose
Progress Meeting 2	Following City review of 35-Percent Design	<ul style="list-style-type: none"> <li>▶ Review status of progress, schedule, and budget.</li> <li>▶ Discuss City's comments on 35-percent design.</li> <li>▶ Review preliminary construction cost estimate and schedule.</li> </ul>
Progress Meeting 3	Following City review of 90-Percent Design	<ul style="list-style-type: none"> <li>▶ Review status of progress, schedule, and budget.</li> <li>▶ Discuss City's comments on 90-percent design.</li> <li>▶ Meet with Department of Health Services (DHS) and Dam Safety to present 90-percent design.</li> </ul>
Progress Meeting 4	Following DHS and Dam Safety review of 90-Percent Design	<ul style="list-style-type: none"> <li>▶ Review status of progress, schedule, and budget.</li> <li>▶ Meet with DHS and Dam Safety comments to review their comments on 90-percent design.</li> </ul>
Progress Meeting 5	Following City review of 100-Percent Design	<ul style="list-style-type: none"> <li>▶ Review status of progress, schedule, and budget.</li> <li>▶ Discuss City's comments on 100-percent design.</li> <li>▶ Review final construction cost estimate and schedule.</li> </ul>
Progress Meeting 6	Midway through Bid Period	<ul style="list-style-type: none"> <li>▶ Review status of progress, schedule, and budget.</li> <li>▶ Discuss questions from bidders.</li> <li>▶ Plan for construction management.</li> </ul>

*Deliverable: Meeting agenda, handouts, and meeting minutes will be provided to the City within five working days of each meeting or presentation.*

- 1.2 Prepare a Project Management Plan that outlines how Carollo will manage the project for the duration.

*Deliverable: A project management plan will be provided to the City.*

- 1.3 Maintain coordination of the project team consisting of Carollo, City's Operations and Engineering Staff, and City Department of Parks and Recreation. This task includes internal team meetings and regular correspondence with team members.
- 1.4 Prepare progress reports that include a summary of the work completed by task for the month, the work anticipated to be completed in the following month, and a status report on the project schedule and budget.

*Deliverable: Six progress reports will be provided to the City.*

## **Task 2 - Plans and Specifications**

- 2.1 Prepare 35-percent plans and specifications. The 35-percent drawings will include sufficient dimensions and descriptions of the selected components to illustrate how the concepts developed

in the Project Report will be implemented. The level of detail will include such items as facility siting, facility dimensions, equipment locations and relative size, piping and other appurtenance locations, and proposed process and system control diagrams. Drawings will be based on existing as-built drawings, surface photography, and public domain aerial photography. Equipment specifications will be provided at this stage of design. The 35-percent plans will be of sufficient detail to show operations staff how much space will be provided for working and how equipment will be operated.

For the purposes of fee estimation, a preliminary drawing list is given below. The preliminary drawing list will be revised during preparation of the plans and specifications.

<b>Preliminary Sheet List</b>	
<b>Rehabilitation of Ben Haggott and Walteria Reservoirs</b>	
<b>City of Torrance</b>	
<b>General Drawings</b>	
G-1	Cover Sheet
G-2	Location & Vicinity Maps and Sheet Index
G-3	Abbreviations, Legends & Symbols
G-4	Site Plan
G-5	General Details
<b>Civil Drawings</b>	
C-1	Civil Notes & Symbols
C-2	Valve Bypass Details (1/2)
C-3	Valve Bypass Details (2/2)
C-4	Pipeline Plan and Profile
C-5	Slurry Wall Plan and Profile
<b>Mechanical Drawings</b>	
M-1	Mechanical Notes & Symbols
M-2	Flow Control Structure Details
M-3	Inlet Header Details
<b>Structural Drawings</b>	
S-1	Structural Notes & Symbols
S-2	Wall Penetration Details
S-3	Access Hatch Details
<b>Electrical Drawings</b>	
E-1	Electrical Legend and Abbreviations
E-2	Electrical Site Plan
E-3	Single Line Diagram and Elevation
E-4	Schematic Diagram, and Panel and Lighting Fixture Schedule

<b>Preliminary Sheet List</b>	
<b>Rehabilitation of Ben Haggott and Walteria Reservoirs</b>	
<b>City of Torrance</b>	
<b>Instrumentation Drawings</b>	
N-1	Legend and General Notes
N-2	Process & Instrumentation Diagram
<b>Typical Details</b>	
T-1	Typical Details (1/3)
T-2	Typical Details (2/3)
T-3	Typical Details (3/3)
<b>Total: 25 Sheets</b>	

*Deliverable: Five sets of 35-percent plans and specifications will be submitted to the City for review. Plans will be submitted on half-size sheets and will be prepared consistent with the City's CADD standards.*

- 2.2 Prepare 90-percent plans and specifications. The 90-percent drawings will incorporate the City's comments on the 35-percent submittal, and will include sections, details, one-line diagrams, process and instrumentation diagrams, and construction sequencing. The level of detail will be such that only minor changes are required to produce the 100-percent submittal. A detailed cost estimate will be submitted at the 90-percent design level.

*Deliverable: Five sets of 90-percent plans and specifications will be submitted to the City for review. Plans will be submitted on full-size sheets and will be prepared consistent with the City's CADD standards. A detailed construction cost estimate and construction schedule will be submitted.*

- 2.3 Prepare 100-percent plans and specifications. In addition to the contents of the 90-percent drawings, the 100-percent drawings will incorporate comments from the City and typical details. The 100-percent submittal is a final check for completeness and accuracy prior to printing the full-size final submittal.

*Deliverable: Five sets of 100-percent plans and specifications will be submitted to the City for review. Plans will be submitted on full-size sheets and will be prepared consistent with the City's CADD standards.*

- 2.4 Prepare final plans and specifications.

*Deliverable: One set of final plans and specifications will be submitted to the City. Plans will be submitted electronically, and one set will be provided on 22-inch by 34-inch mylar sheets and will be prepared consistent with the City's CADD standards.*

### **Task 3 - Construction Cost Estimate**

- 3.1 Prepare and submit construction cost estimates in Microsoft® Excel format. Two cost estimates will be submitted, one with the 35-percent design submittal and the second with the 100-percent design submittal.

#### Task 4 - Bid Period Services

- 4.1 Assist the City during bidding including conducting the pre-bid conference, answering questions from contractors, and preparing addenda, if required.

#### Task 5 - Supervisory Control and Data Acquisition (SCADA) Services

Work under Task 5 will be primarily performed by Northern Digital, Inc. (NDI), with Carollo providing project management and coordination with the City.

- 5.1 NDI will review SCADA specifications prepared by Carollo.
- 5.2 NDI will program the City's Wonderware SCADA system to add an additional screen showing the proposed improvements described in the preliminary design report. The SCADA screen will diagrammatically show the two reservoirs, the two inlet vaults, and the following information:
- ▶ Measured flow through each control valve.
  - ▶ Total measured flow through both control valves.
  - ▶ Setpoint percentage of total flow through each control valve.
  - ▶ Measured percentage of total flow through each control valve.
  - ▶ Flow through the MWD T-7 connection.
  - ▶ Percentage of T-7 flow that is reaching the reservoirs.

The SCADA programming will cause an alarm under the following circumstances:

- ▶ Difference between measured and setpoint flow percentage falls outside of deadband for a user-defined period of time.
  - ▶ Flow to reservoirs is less than a user-defined percentage of the flow to T-7 for a user-defined period of time.
- 5.3 NDI will meet with City staff at the Waleria Booster Pump Station to provide simulated start-up, testing, and training. NDI will test the new programming by providing two 4-20 mA signals at the Waleria Booster Pump Station to simulate control valve operations. NDI will demonstrate features of the new SCADA programming to City staff. NDI will incorporate comments by City staff into the final program design.
- 5.4 NDI will provide inserts to update the City's existing SCADA Operations and Maintenance (O&M) manuals to reflect changes under this task order, including an updated table of contents.

#### ASSUMPTIONS

The Scope of Services is based on the following assumptions:

1. A total of six monthly project reports and progress meetings are included in the budget.
2. No geotechnical work will be required.
3. Construction drawings will be based on as-built drawings and public-domain aerial photographs. The City will provide AutoCAD as-built drawings where available. A physical site survey will not be

necessary because no major construction projects have taken place at the reservoirs since the available as-built drawings were made.

4. The specifications will include a requirement for the Contractor to prepare a traffic control plan. Preparation of a traffic control plan is not included in this scope of work.
5. Printing of bid documents (plans and specifications) is not included.
6. A template for the front-end portion of the Bid Documents (Division 0) will be provided by the City.
7. No new programmable logic controllers (PLCs) will be required. Modifications to control logic will be limited to changes needed to accommodate the new flow control valves. Existing equipment that is not operated with automatic logic prior to this project will not be automated by this project.
8. No additional SCADA hardware will be provided.

**Exhibit B: Fee Estimate**  
**City of Torrance**  
**Engineering Services for Waltheria and Ben Haggott Reservoir Rehabilitation Design**  
**Carollo Engineers**

Task Description	Personnel Hours										Budget					Total
	Senior Professional	Lead Project Professional	Project Professional	Professional	Assistant Professional	Senior Technician	Technician	Word Processing/Clerical	Total Hours	Labor	Project Equipment and Communications Expense (PECE)	Subconsultant: Northern Digital, Inc.	Subconsultant Markup (10%)	Other Direct Costs (Printing, Mileage)		
	215	195	180	150	115	130	90	77	8.5							
<b>Task 1 - Project Management and Administration</b>	<b>Hourly Billing Rate (\$/hr)</b>															
1.1 Project Meetings	4	4	4	4	4	4	4	16	\$2,488	\$136	\$0	\$0	\$0	\$25		
a. Initial Meeting	18	24	24	24	24	24	12	78	\$12,714	\$663	\$0	\$0	\$0	\$150		
b. Monthly Status Meetings (6)	2	6	6	6	6	6	8	36	\$1,510	\$68	\$0	\$0	\$0	\$0		
1.2 Project Management Plan									\$5,670	\$306	\$0	\$0	\$0	\$0		
1.3 Progress Reports (6)	24	0	43	55	0	0	16	138	\$22,382	\$1,173	\$0	\$0	\$0	\$175		
<b>Subtotal</b>	<b>37</b>	<b>57</b>	<b>130</b>	<b>143</b>	<b>343</b>	<b>70</b>	<b>280</b>	<b>37</b>	<b>\$140,514</b>	<b>\$9,326</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$640</b>		
<b>Task 2 - Plans and Specifications</b>	<b>Hourly Billing Rate (\$/hr)</b>															
2.1 Plans and Specifications: 35% Submittal	11	17	39	43	103	21	84	11	329	\$2,797	\$0	\$0	\$0	\$40		
2.2 Plans and Specifications: 90% Submittal	11	17	39	43	103	21	84	11	329	\$2,797	\$0	\$0	\$0	\$150		
2.3 Plans and Specifications: 100% Submittal	11	17	39	43	103	21	84	11	329	\$2,797	\$0	\$0	\$0	\$150		
2.4 Plans and Specifications: Final Submittal	4	6	13	14	34	7	28	4	110	\$935	\$0	\$0	\$0	\$300		
<b>Subtotal</b>	<b>37</b>	<b>57</b>	<b>130</b>	<b>143</b>	<b>343</b>	<b>70</b>	<b>280</b>	<b>37</b>	<b>\$140,514</b>	<b>\$9,326</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$640</b>		
<b>Task 3 - Construction Cost Estimate</b>	<b>Hourly Billing Rate (\$/hr)</b>															
3.1 Construction Cost Estimate	2	6	6	6	6	6	0	4	30	\$4,578	\$255	\$0	\$0	\$50		
<b>Subtotal</b>	<b>2</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>\$4,578</b>	<b>\$255</b>	<b>\$0</b>	<b>\$0</b>	<b>\$50</b>		
<b>Task 4 - Bid Period Services</b>	<b>Hourly Billing Rate (\$/hr)</b>															
4.1 Bid Period Services	2	8	16	16	0	0	0	4	46	\$391	\$0	\$0	\$0	\$150		
<b>Subtotal</b>	<b>2</b>	<b>8</b>	<b>16</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>46</b>	<b>\$391</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$150</b>		
<b>Task 5 - SCADA Services</b>	<b>Hourly Billing Rate (\$/hr)</b>															
5.1 SCADA Services	2	0	16	8	0	0	0	4	30	\$255	\$6,490	\$649	\$0	\$0		
<b>Subtotal</b>	<b>2</b>	<b>0</b>	<b>16</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>\$255</b>	<b>\$6,490</b>	<b>\$649</b>	<b>\$0</b>	<b>\$0</b>		
<b>GRAND TOTAL</b>	<b>67</b>	<b>71</b>	<b>211</b>	<b>228</b>	<b>349</b>	<b>70</b>	<b>280</b>	<b>65</b>	<b>1,341</b>	<b>\$179,870</b>	<b>\$11,400</b>	<b>\$6,490</b>	<b>\$649</b>	<b>\$1,015</b>		
														<b>\$199,424</b>		

Fee Schedule As of March 1, 2006  
Preliminary and Final Design

Engineering Services for WALTERIA and  
Ben Haggott Reservoir Rehabilitation Design  
City of Torrance

<u>Category</u>	<u>Hourly Rate</u>
<b>Engineers/Scientists</b>	
Assistant Professional	\$ 115.00
Professional	\$ 150.00
Project Professional	\$ 180.00
Lead Project Professional	\$ 195.00
Senior Professional	\$ 215.00
<b>Technicians</b>	
Technicians	\$ 90.00
Senior Technicians	\$ 130.00
<b>Support Staff</b>	
Word Processing / Clerical	\$ 77.00
<b>Project Equipment and Communication Expenses (PECE) Charge Per Direct Labor Hour</b>	
	\$ 8.50
<b>Other Direct Expenses</b>	
Travel and Subsistence	at cost
Mileage Charge Per Mile	\$ 0.445
Subconsultant	Cost + 10%
Other Direct Costs	Cost + 10%
Expert Witness	Rate x 2.0

This fee schedule is revised in March and September of every year.  
Invoice for each month will be prepared based on the fee schedule in effect during  
the month.

# LOCATION MAP OF WALTERIA AND BEN HAGGOTT RESERVOIRS

