

## **COST-SHARING AGREEMENT FOR CONSULTING SERVICES TO EVALUATE INCREASING WATER STORAGE IN LAKE DEL VALLE RESERVOIR**

This Cost Sharing Agreement ("Agreement") is made as of \_\_\_\_\_, 2016, by and between the Alameda County Water District ("ACWD"), East Bay Regional Parks District ("EBRPD"), Santa Clara Valley Water District (SCVWD), and Zone 7 of the Alameda County Flood Control and Water Conservation District ("Zone 7 Water Agency" or "Zone 7"). Throughout this Agreement ACWD, EBRPD, SCVWD, and Zone 7 may be collectively referred to as the "Parties", or individually as a "Party." Throughout this Agreement ACWD, SCVWD, and Zone 7 may be referred to as the "Funding Partners."

### **RECITALS**

WHEREAS, ACWD's mission is to provide a reliable supply of high quality water at a reasonable price to its customers; and

WHEREAS, EBRPD's mission is to preserve a rich heritage of natural and cultural resources and provide open space, parks, trails, safe and healthful recreation and environmental education. An environmental ethic guides the District in all of its activities; and

WHEREAS, SCVWD's mission is to provide Silicon Valley safe, clean water for a healthy life, environment, and economy; and

WHEREAS, Zone 7's mission is to provide a reliable supply of high quality water and an effective flood control system in a fiscally responsible, innovative, proactive, and environmentally sensitive way; and

WHEREAS, Lake Del Valle Reservoir ("Lake Del Valle") is connected to the South Bay Aqueduct ("SBA") and is owned by the State Water Project (SWP); and

WHEREAS, ACWD, SCVWD, and Zone 7 are all contracted customers of the State Water Project ("SWP") and are served by the SBA; and

WHEREAS, EBRPD manages and operates Lake Del Valle in Alameda County, California pursuant to an Operating Agreement with the State of California; and

WHEREAS the SWP has insufficient gravity-fed storage to supply the SBA during a disruption of the Sacramento-San Joaquin River Delta such as that which may occur as a result of earthquake, flooding, or severe drought; and

WHEREAS, ACWD, SCVWD, and Zone 7 are signatories to the 2014 Guiding Principles for Bay Area Regional Water Supply Reliability Partnership Development, and have agreed to evaluate near and long term joint water supply reliability projects; and

WHEREAS, ACWD, SCVWD, and Zone 7 recognize that Lake Del Valle may have more accessible water storage potential than is currently utilized; and

WHEREAS, EBRPD owns and operates facilities that would be impacted by raising or lowering the nominal operating levels of Lake Del Valle; and

WHEREAS, the Parties agree to study the potential to increase accessible storage in Lake Del Valle without negatively impacting flood management or recreation, and to assess the cost of suitable replacements for any facilities that would be displaced or otherwise impacted by operational changes that increase or decrease the nominal operating levels in Lake Del Valle; and

WHEREAS, the Funding Partners agree to pay for the costs of the study.

NOW, THEREFORE, ACWD, EBRPD, SCVWD, and Zone 7 agree that the above recitals are hereby incorporated into and made a part of this Agreement, and further agree as follows:

## **1. SCOPE OF SERVICES**

The scope of services includes (1) an evaluation of the potential to increase water storage in Lake Del Valle by utilizing a greater portion of the existing reservoir capacity currently designated for flood protection or storage below the currently designated conservation pool, which may involve relocating or replacing existing EBRPD facilities to accommodate potential changed operating levels ("Evaluation Services"); and (2) an asset valuation of recreation facilities that would be impacted by changed water storage operations in Lake Del Valle ("Cost Services"). The scope of services for the Evaluation Services and Cost Services is described in more detail in Exhibit A, which is attached and incorporated by this reference.

## **2. CONSULTANTS**

ACWD will be responsible for entering into a contract and administering the contract with a consultant for both the Evaluation Services and Cost Services. The selection of the consultant for the Evaluation Services will be approved by all the Parties prior to ACWD entering into a contract with the consultant. The Parties agree that the Cost Services consultant will be EBRPD's contracted assessor.

## **3. CONSULTANT FEES**

The Funding Parties will share equally in the consultant fees to perform the Evaluation and the Cost Services and estimate the combined cost of both services not to exceed two hundred and twenty-five thousand dollars (\$225,000). ACWD will not authorize Services that exceed this amount without the written consent of SCVWD and Zone 7. EBRPD will not be responsible for paying any consultant fees.

Staff time contributed by each Party toward implementing this Agreement will be at each Party's own expense.

## **4. PAYMENT OF CONSULTANT FEES**

ACWD will be responsible for paying the consultants for the services rendered. ACWD will provide SCVWD and Zone 7 with the monthly invoices submitted by the consultants for said services. ACWD will provide monthly invoices that will reflect one-third of the consultant invoice for that month. SCVWD and Zone 7 shall pay ACWD within thirty days from the date of receipt of the invoice.

## 5. GRANT FUNDING

The Parties will work cooperatively together to pursue any grant funds that may be available for the Evaluation Services and Cost Services. If grant funds are obtained, the grant funds will be applied to these services and the Funding Parties will be responsible for paying the balance of the fees as set forth above.

If the Parties agree to pursue future grant funding opportunities based on the results of the Evaluation Services and Cost Services, a separate agreement, or an amendment to this Agreement, shall be required.

## 6. SCHEDULE

The Evaluation Services and the Cost Services will be completed by July 1, 2017.

## 7. TERM

This Agreement will be effective on the date all Parties have signed this Agreement and will remain in effect until December 31, 2017.

## 8. DISPUTE RESOLUTION

In the event of any dispute, the Parties will promptly meet and confer, first at a staff level and then elevated to a meeting of Executive Management, in a good faith attempt to resolve the dispute. If a dispute cannot be resolved by the Parties independently, they may agree to submit such dispute to non-binding mediation by a mutually agreed-upon neutral third party with offices in the San Francisco Bay Area. The cost of mediation will be shared equally.

## 9. NOTICE

Day-to-Day communications regarding the Evaluation Services and the Cost Services will be among the following representatives:

	<b>Name</b>	<b>Phone Number</b>	<b>Email</b>
<b>EBRPD</b>	Jeff Manley	510-544-3233	JManley@ebparks.org
<b>ACWD</b>	Thomas Niesar	510-668-6549	Thomas.Niesar@ACWD.com
<b>SCVWD</b>	Melih Ozbilgin	408-630-2725	MOzbilgin@valleywater.org
<b>Zone 7</b>	Amparo Flores	925-454-5019	AFflores@zone7water.com

All other notices will be given in writing and deposited in the United States mail, registered and postage prepaid and addressed as follows:

If to EBRPD: East Bay Regional Park District  
2950 Peralta Oaks Ct. P.O box 5381  
Oakland, CA 94605-0381

Attention: Jeff Manley

If to ACWD: Alameda County Water District  
43885 S. Grimmer Boulevard  
P.O. Box 5110  
Fremont, CA 94537-5110  
Attention: Thomas Niesar

If to SCVWD: Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose, CA 95118  
Attention: Cindy Kao

If to Zone 7: Zone 7 Water Agency  
100 North Canyons Parkway  
Livermore, CA 94551  
Attention: Amparo Flores

Notification of a change in the name of the contact person shall be in writing.

## **10. INTERPRETATION**

Section headings are solely for convenience and are not intended to affect the interpretation of the Agreement. The Agreement will be interpreted reasonably, not in favor of or against either party.

## **11. SEVERABILITY**

If any provision of this Agreement or any portion thereof is held to be invalid or unenforceable for any reason, that provision will be reformed and/or construed consistently with applicable law as nearly as possible to reflect the original intentions of this Agreement, and in any event such provision will be severable and will not affect the validity or enforceability of any other provision.

## **12. APPLICABLE LAW**

This Agreement, its interpretation and all services performed under it will be governed by the laws of the State of California.

## **13. ENTIRE AGREEMENT**

This Agreement, including its exhibits, constitutes the complete agreement between the Parties and supersedes any prior agreements, promises, and understandings whether written or oral. This Agreement may be modified or amended only by written instrument signed by all Parties.

## **14. COUNTERPARTS**

This Agreement may be signed in counterparts, which together constitute one Agreement.

IN WITNESS WHEREOF the parties have executed this Agreement by their duly authorized officers as of the day and year first above written.

**EAST BAY REGIONAL PARK DISTRICT**

By: \_\_\_\_\_ Date: \_\_\_\_\_, 2016

Title: \_\_\_\_\_

**ALAMEDA COUNTY WATER DISTRICT**

By: \_\_\_\_\_ Date: \_\_\_\_\_, 2016

Title: \_\_\_\_\_

**SANTA CLARA VALLEY WATER DISTRICT**

By: \_\_\_\_\_ Date: \_\_\_\_\_, 2016  
Norma Camacho

Title: Interim Chief Executive Officer

**ZONE 7 OF ALAMEDA COUNTY FLOOD CONTROL  
AND WATER CONSERVATION DISTRICT**

By: \_\_\_\_\_ Date: \_\_\_\_\_, 2016

Title: \_\_\_\_\_

EXHIBIT A

SCOPE OF SERVICES

## **AGREEMENT FOR SERVICES**

THIS AGREEMENT is made by and between the ALAMEDA COUNTY WATER DISTRICT ("DISTRICT") located at 43885 South Grimmer Boulevard, Fremont, CA 94538 and VFA, INC. ("CONSULTANT"), located at 4000 Barranca Parkway, Suite 250, Irvine, CA 92604 ("PARTIES").

WHEREAS, the DISTRICT desires to obtain appraisal services (Services) and the CONSULTANT is ready, willing and able to furnish such services and has submitted a proposal dated, November 8, 2016, a copy of which is attached and incorporated as Attachment 1.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

### **1. RENDITION OF SERVICES**

The CONSULTANT agrees to provide professional services to the DISTRICT in accordance with the terms and conditions of this Agreement. CONSULTANT represents that it will exercise the same degree of professional care, skill, efficiency, and judgment ordinarily used by consultants providing similar professional services. CONSULTANT at all times will comply with all federal, state, and local laws, regulations and policies applicable to the services performed pursuant to this Agreement.

### **2. SCOPE OF SERVICES**

The scope of the CONSULTANT's services is set forth in Attachment 1. However, to the extent that Attachment 1 is inconsistent with this Agreement, this Agreement will govern over Attachment 1.

### **3. TERM OF AGREEMENT**

The term of this Agreement shall commence upon the DISTRICT's issuance of a written Notice to Proceed (NTP) and conclude upon the DISTRICT's final acceptance of the Services.

It is further understood that the term of the Agreement is subject to the DISTRICT's right to terminate the Agreement in accordance with Section 15 of this Agreement.

### **4. OWNERSHIP OF WORK**

All reports, designs, drawings, plans, specifications, and other materials prepared, or in the process of being prepared, by CONSULTANT, its employees, subcontractors, or agents under this Agreement ("Work Product") shall be and are the property of the DISTRICT.

The DISTRICT shall be entitled to access and to copy the Work Product during the progress of the work. If requested by DISTRICT, CONSULTANT shall deliver one copy of the Work Product remaining in the hands of the CONSULTANT, or in the hands of any subcontractor, upon completion or termination of the work.

CONSULTANT assigns to DISTRICT all right, title, and interest in and to the Work Product, including ownership of copyright in the Work Product. The DISTRICT may utilize any material prepared or work performed by CONSULTANT pursuant to this Agreement, including computer software, in any manner which the DISTRICT deems proper without additional compensation to

CONSULTANT. CONSULTANT shall have no responsibility or liability for any revisions, changes, or corrections to the Work Product made by the DISTRICT, nor for any use or reuse of the Work Product for any purpose other than the Work unless CONSULTANT accepts such responsibility in writing.

The CONSULTANT shall not disclose Work related data or information without the prior written consent of the DISTRICT.

5. **USE OF SUBCONTRACTORS**

CONSULTANT shall not subcontract any Services to be performed under this Agreement without the prior written approval of the DISTRICT. CONSULTANT may subcontract with service firms engaged in drawing, reproduction, typing and printing without the prior written consent of the DISTRICT. CONSULTANT shall be solely responsible for reimbursing any subcontractor and the DISTRICT shall have no obligation to them.

6. **CHANGES**

The DISTRICT may, at any time, by written order, make changes within the scope of work and services described in this Agreement. If such changes cause an increase or decrease in the budgeted cost of or the time required for performance of the agreed upon work, an equitable adjustment as mutually agreed shall be made in the limit on compensation as set forth in Section 9 or in the term of the Agreement as set forth in Section 3, or both. In the event that CONSULTANT encounters any unanticipated conditions or contingencies that may affect the scope of work or services and result in an adjustment in the amount of compensation specified herein, CONSULTANT shall so advise the DISTRICT immediately upon notice of such condition or contingency. The written notice shall explain the circumstances giving rise to the unforeseen condition or contingency and shall set forth the proposed adjustment in compensation. This notice shall be given to the DISTRICT prior to the time that CONSULTANT performs work or services related to the proposed adjustment in compensation. The pertinent changes shall be expressed in a written supplement to this Agreement prior to implementation of such changes.

7. **RESPONSIBILITY; INDEMNIFICATION**

Notwithstanding any other provision of this Agreement, CONSULTANT agrees to indemnify, defend and hold harmless the DISTRICT, East Bay Recreational Parks District (EBRPD), Santa Clara Valley Water District (SCVWD), and Zone 7 of the Alameda County Flood Control and Water Conservation District (Zone 7), their agents, officers, directors, and employees from and against any and all demands, claims, damages, losses and reasonable expenses, (including without limitation interest, penalties and reasonable attorney's fees), fines, taxes, levies, imposts, assessment, demands, damages or judgments of any kind or nature, whether in law or equity (including without limitation, death or injury to any person, property damage, administrative and judicial orders and consents, or any other loss) to the extent they arise out of, pertain to, or relate to the consultant's performance of services as described in Exhibit A, including its negligence, recklessness, or willful misconduct. The foregoing does not limit any strict liability imposed onto the consultant by law. The rights, duties,



and obligations of the Parties as set for above in this paragraph 7, indemnification; survive termination, expiration, and suspension of this Agreement.

## 8. **INSURANCE**

The CONSULTANT will be required to secure insurance as indicated below.

- A. **Insurance Requirements**: The CONSULTANT shall, at their expense, maintain during the life of the Contract all the insurance on all of their operations in companies acceptable to the District, as required by this section, and shall endeavor to submit Certificates of Insurance to the District. The notice to proceed shall not be issued, and the CONSULTANT shall not commence work until such insurance has been approved by the District. Acceptance of the Certificates shall not relieve the CONSULTANT of any of the insurance requirements, nor decrease the liability of the CONSULTANT. The District reserves the right to require the CONSULTANT to provide Insurance Policies for review by the District in the event there is a dispute regarding the scope and coverage of insurance.
- B. **Workers' Compensation Insurance**: The CONSULTANT shall take out and maintain during the life of the Contract, Workers' Compensation and Employers' Liability Insurance for all employees on the project. Employers' liability insurance shall be provided in amounts not less than \$1,000,000 each accident for bodily injury by accident, \$1,000,000 policy limit for bodily injury by disease, and \$1,000,000 each employee for bodily injury by disease. In lieu of evidence of Workers' Compensation Insurance, the District will accept a Self-Insuring Certificate from the State of California. The CONSULTANT shall require any subcontractor to provide evidence of Workers' Compensation and Employers' Liability Insurance, all in strict compliance with California State Laws.
- C. **General Liability Insurance**: The CONSULTANT shall also secure and maintain during the life of the Contract such General Liability Insurance as shall protect the District, its directors, officers, employees, and agents from claim which may arise from operations under this Contract, whether such operations are by itself, by any subcontractor, or by anyone directly or indirectly employed by either of them. CONSULTANT shall carry Comprehensive General Liability or Commercial General Liability insurance covering all operations by or on behalf of District for bodily injury, property damage, and personal injury liability for the limits of liability indicated below and including, but not limited to, coverage for:

- premises and operations;
- products and completed operations;
- contractual liability insuring the obligations assumed by CONSULTANT in this contract;
- broad form property damage (including completed operations);
- explosion, collapse and underground hazards;
- bodily injury;
- property damage;

arrest, false imprisonment, malicious prosecution, defamation of character, libel and slander alleged to have been caused by CONSULTANT or employees of CONSULTANT or subcontractors;

personal injury liability; and

accidental spillage, cleanup and other related costs.

Except with respect to bodily injury and property damage included within the products and completed operations hazards, the aggregate limits where applicable.

This Liability Insurance shall be in an amount not less than \$1,000,000 for each occurrence, \$1,000,000 for each occurrence for work on public roadways.

Broad form property damage liability must be afforded. Permission is granted for deductible which shall not exceed \$25,000 without approval of the District.

- 1) One of the following coverage forms is required:
  - a. Comprehensive General Liability Commercial
  - b. General Liability (Occurrence)
- 2) If CONSULTANT carries a Comprehensive General Liability policy, the limits of liability shall not be less than a Combined Single Limit for bodily injury, property damage and Personal Injury Liability of:
  - a. \$1,000,000 each occurrence
  - b. \$2,000,000 Aggregate
- 3) If CONSULTANT carries a Commercial General Liability (Occurrence) policy, the limits of liability shall not be less than:
  - a. \$1,000,000 each occurrence (combined single limit for bodily injury and property damage)
  - b. \$1,000,000 for Personal Injury Liability
  - c. \$2,000,000 Aggregate for Products-Completed Operations
  - d. \$2,000,000 General Aggregate

If the policy does not have an endorsement providing that the General Aggregate Limit applies separately to this Contract or if Defense Costs are included in the aggregate limits, then the required aggregate limits shall be \$2,000,000.

- 4) With respect to whichever general liability policy form is furnished, the DISTRICT, East Bay Recreational Parks District (EBRPD), Santa Clara Valley Water District (SCVWD), and Zone 7 of the Alameda County Flood Control and Water Conservation District (Zone 7), their officers, directors, employees and agents shall be included as Additional Insured per Additional Insured Endorsement CG20 10 10 93 or equivalent. This Endorsement is to be attached to insurance certificates submitted to the District. The policy shall stipulate that the insurance afforded the Additional Insured shall apply as primary insurance and that any other

insurance carried by District, its officers, directors, employees and agents will be excess only and will not contribute with Contractors insurance. Exclusions of contractual liability as to bodily injuries, personal injuries and property damage MUST BE ELIMINATED from the basic policy and endorsements.

- D. Automobile Liability Insurance: The CONSULTANT shall take out and maintain during the life of the Contract, Automobile Liability Insurance (Bodily Injury and Property Damage Liability) including coverage for all hired, rented, leased and non-owned automobiles. The limits of liability shall be not less than \$1,000,000 Combined Single Limit for each accident and \$1,000,000 for each occurrence for work on public roadways.
- 1) If a CONSULTANT's vehicle is used in the performance of work on District property or at a jobsite then with respect to the automobile liability policy that is furnished, District, its officers, directors, employees and agents shall be named as Additional Insured. The policy shall stipulate that the insurance afforded the Additional Insured shall apply as primary insurance and that any other insurance carried by District, its officers, directors, employees and agents will be excess only and will not contribute with this insurance. The policy must cover complete contractual liability. Exclusions of contractual liability as to bodily injuries, personal injuries and property damage MUST BE ELIMINATED from the basic policy and endorsements.
- E. Technology Professional Liability Insurance. CONSULTANT also shall maintain Technology Professional Liability Insurance covering CONSULTANT's performance under this Agreement with a limit of liability of One Million Dollars (\$1,000,000) for any one claim.
- F. Certificates of Insurance: Consultant shall endeavor to furnish Certificates of Insurance to District before any work is commenced hereunder by CONSULTANT. The required insurance shall be subject to the approval of the District, but any acceptance of insurance certificates by District shall not limit or relieve CONSULTANT of the duties and responsibilities assumed by it under this Contract.
- G. Waiver of Subrogation: With the exception of the Technology Professional Liability, the referenced policies and any Excess or Umbrella policies, where applicable, shall contain a waiver of subrogation in favor of the Alameda County Water District and their respective directors, officers, employees, volunteers and agents while acting in such capacity, and their successors or assignees, as they now or as they may hereafter be constituted, singly, jointly or severally.
- H. Deductibles and Self-insured Retention:  
Any deductibles or self-insured retention must be declared to ACWD.
- I. District and CONSULTANT waive all rights against each other and against all other contractors for loss or damage to the extent covered by Builder's Risk or any other property or equipment insurance applicable to the work, except such rights as they may have to the proceeds of such

insurance. If the policies of insurance referred to in this Section require an endorsement or consent of the insurance company to provide for continued coverage where there is a waiver of subrogation, the owners of such policies will cause them to be endorsed or obtain such consent.

J. The requirement for carrying insurance hereunder is cumulative and shall not be in derogation of other provisions of this Contract.

K. Insurance carrier must have a Best's Rating of "A-VII" or better.

#### **IMPORTANT**

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

#### **DISCLAIMER**

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsements(s).

#### **9. COMPENSATION**

The CONSULTANT agrees to perform all of the work set forth in Attachment 1, on a firm-fixed fee basis. Total compensation shall not to exceed Twenty-Eight Thousand One Hundred Eighty-Two Dollars (\$28,182). The amount shall include all labor, materials, taxes, profit, overhead, insurance, travel, subcontractor costs, and all other costs and expenses incurred by the CONSULTANT.

#### **10. MANNER OF PAYMENT**

Payment shall be made upon approval of invoices, no more than once a month. All invoices shall reference the agreement number. The DISTRICT shall make payments to the CONSULTANT for satisfactory Services performed and the costs of such services within thirty (30) calendar days from the date the DISTRICT receives the CONSULTANT's invoice. All invoices and supporting documentation, clearly identifying the Agreement number, shall be submitted by email, addressed to Thomas Niesar, Water Resources Planning Manager, at [accounting@acwd.com](mailto:accounting@acwd.com).

#### **11. CONSULTANT'S STATUS**

Neither the CONSULTANT nor any party contracting with the CONSULTANT shall be deemed to be an agent or employee of the DISTRICT. The CONSULTANT is and shall be an independent contractor, and the legal relationship of any person performing services for the CONSULTANT shall be one solely between that person and the CONSULTANT.

#### **12. ASSIGNMENT**

CONSULTANT shall not assign any of its rights nor transfer any of its obligations under this Agreement without the prior written consent of DISTRICT.

13. **DISTRICT WARRANTIES**

The DISTRICT makes no warranties, representations or agreements, either expressed or implied, beyond such as are explicitly stated in this Agreement.

14. **DISTRICT REPRESENTATIVES**

Except when approval or other action is required to be given or taken by the Board of Directors of the DISTRICT, the General Manager of the DISTRICT, or such person or persons as the General Manager shall designate in writing from time to time, shall represent and act for the DISTRICT on the day to day activities under this Agreement. For strictly contractual matters relating to this Agreement, an authorized representative of the Procurement and Contracts Division, shall represent and act for the District.

15. **TERMINATION**

The DISTRICT shall have the right to terminate this Agreement at any time for cause or convenience by giving written notice to the CONSULTANT. Upon receipt of notice of termination for convenience, the CONSULTANT shall not commit itself to any further expenditure of time or resources. Upon receipt of notice of default, CONTRACTOR shall be afforded thirty days to correct the identified deficiency(ies). If said deficiency(ies) are not corrected to the DISTRICT's satisfaction, the Agreement will be terminated immediately.

If the Agreement is terminated for any reason other than a default by CONSULTANT, the DISTRICT shall pay to CONSULTANT in accordance with the provisions of Sections 9 and 10 all sums actually due and owing from DISTRICT for all services satisfactorily performed up to the day written notice of termination is given, plus any costs reasonably and necessarily incurred by CONSULTANT to effect such suspension or termination. If the Agreement is terminated for default, the DISTRICT shall remit final payment to CONSULTANT in an amount to cover only those services performed in full accordance with the terms and conditions of this Agreement up to the effective date of termination.

16. **MAINTENANCE, AUDIT, AND INSPECTION OF RECORDS**

The CONSULTANT shall permit the authorized representatives of the DISTRICT to inspect, audit, make copies and transcriptions of books and all data and records of the CONSULTANT relating to its performance under the Agreement, if requested.

17. **CONFIDENTIAL INFORMATION**

A. **Definition.** The CONSULTANT acknowledges that it may receive Confidential Information from the DISTRICT, Santa Clara Valley Water District (SCVWD) or the Alameda County Flood Control and Water Conservation District (Zone 7) (hereafter collectively referred to as "AGENCIES") in connection with this Agreement. "**Confidential Information**" means all information or material that AGENCIES treat as confidential and any information relating to third parties that a party has an obligation to treat as confidential, which is disclosed by or obtained by a party in connection with this Agreement, whether such information is in oral,

written, graphic or electronic form, which: is (A) marked "Confidential," "Restricted," or "Proprietary Information" or other similar marking, (B) known by the parties to be considered confidential or proprietary, or (C) which should be known or understood to be confidential or proprietary by an individual exercising reasonable commercial judgment in the circumstances. Confidential Information does not include information to the extent that such information: (i) is or becomes generally known to the public by any means other than a breach of the obligations of a receiving party hereunder; (ii) was previously known to the receiving party as evidenced by its written records; (iii) is rightly received by the receiving party from a third party who is not under an obligation of confidentiality; or (iv) is independently developed by the receiving party without reference to or use of the other party's Confidential Information which such independent development can be established by evidence that would be acceptable to a court of competent jurisdiction.

**B. Confidentiality Obligations.** Each of the PARTIES agree:

- 1) to maintain the Confidential Information of the other party in confidence and to take all reasonable steps, which shall be no less than those steps it takes to protect its own confidential and proprietary information, to protect the Confidential Information of the other party from unauthorized use, disclosure, copying or publication;
- 2) not to use the Confidential Information of the other party other than in the course of exercising its rights or performing its obligations under this Agreement;
- 3) not to disclose or release such Confidential Information except to the extent required by applicable law or during the course of or in connection with any litigation, arbitration or other proceeding based upon or in connection with the subject matter of this Agreement, provided that the receiving party shall first give reasonable notice to the disclosing party prior to such disclosure so that the disclosing party may obtain a protective order or equivalent and provided that the receiving party shall comply with any such protective order or equivalent;
- 4) not to disclose or release such Confidential Information to any third person without the prior written consent of the disclosing party, except for authorized employees or agents of the receiving party who have a need to know such information for the purpose of performance under this Agreement and exercising its rights under this Agreement, and who are bound by confidentiality obligations at least as protective of the disclosing party's Confidential Information as this Agreement; and
- 5) to take such actions as may be reasonably necessary to enforce its agreements with its employees and agents, including commencing legal proceedings.

**C. Information Subject to the Public Records Act.** CONSULTANT understands and agrees that the DISTRICT is a public entity and is thus subject to the California Public Records Act (Government Code Section 6250 et seq.) and its relevant disclosure requirements. Under certain

circumstances, the DISTRICT may be required to disclose information including the contents of this Agreement in accordance with the California Public Records Act. If CONSULTANT requests that the DISTRICT withhold from disclosure information identified by CONSULTANT as confidential, and the DISTRICT complies with CONSULTANT's request, CONSULTANT shall assume all responsibility for any challenges resulting from the non-disclosure, indemnify and hold harmless the DISTRICT from and against all damages (including but not limited to attorneys' fees that may be awarded to the party requesting CONSULTANT's information), and pay any and all costs and expenses related to the withholding of CONSULTANT's information.

#### **18. RELEASE OF INFORMATION**

CONSULTANT shall not release any reports or other information prepared in connection with this Agreement without the approval of the General Manager or his designee.

#### **19. KEY PERSONNEL**

Michael Wentz shall serve as the primary staff person of CONSULTANT to oversee all of the services under this Agreement. The other principal participants shall be individuals identified by position title in Attachment 1.

#### **20. NOTICES**

All communications relating to the day to day activities of the project shall be exchanged between the DISTRICT's Contract Administrator and the CONSULTANT's Account Manager.

All other notices and communications deemed by either party to be necessary or desirable to be given to the other party shall be in writing and may be given by personal delivery to a representative of the parties or by mailing the same postage prepaid, addressed as follows:

If to the DISTRICT: Alameda County Water District  
43885 South Grimmer Blvd  
Fremont, California 94538

Attention: Procurement & Contracts Division

If to the CONSULTANT: VFA, Inc.  
4000 Barranca Parkway, Suite 250  
Irvine, CA 92604

Attention: Michael Wentz

The address to which mailings may be made may be changed from time to time by mailed notice as described above. Any notice given by mail shall be deemed given on the day after that on which it is deposited in the United States Mail as provided above.



**20. ATTORNEYS' FEES**

If any legal proceeding should be instituted by either of the parties to enforce the terms of this Agreement or to determine the rights of the parties under this Agreement, the prevailing party in said proceeding shall recover, in addition to all court costs, reasonable attorneys' fees.

**21. APPLICABLE LAW**

This Agreement, its interpretation and all work performed under it shall be governed by the laws of the State of California, venue the courts of the County of Alameda.

**22. BINDING ON SUCCESSORS**

All of the terms, provisions and conditions of this Agreement shall be binding upon and inure to the benefit of the parties and their respective successors, assigns and legal representatives.

**23. NON-DISCRIMINATION**

The District is an equal opportunity employer and requires all parties it contracts with to have and adhere to a policy of equal opportunity and non-discrimination. In the performance of this Agreement, CONSULTANT will comply with all applicable federal, state, local laws and regulations, and will not discriminate against any subcontractor, employee, or applicant for employment, in the recruitment, selection for training including apprenticeship, hiring, employment, utilization, promotion, layoff rates of pay, or other forms of compensation, or against any other person, on the basis of age (40 and over), ancestry, color, religious creed (including religious dress and grooming practices), disability (mental and physical) including HIV and AIDS, marital status, medical condition (cancer and genetic characteristics), genetic information, military and veteran status, national origin (including language use restrictions), race, sex (which includes pregnancy, childbirth, breastfeeding and medical conditions related to pregnancy, childbirth or breastfeeding), gender, gender identity and gender expression, and sexual orientation. The CONSULTANT's policy must conform with applicable state and federal guidelines including the Federal Equal Opportunity Clause, "Section 60-1.4 of Title 41, Part 60 of the Code of Federal Regulations," Title VII of the Civil Rights Act of 1964 as amended; the American's with Disabilities Act of 1990; the Rehabilitation Act of 1973 (Sections 503 and 504); California Fair Employment and Housing Act (Government Code Section 12900 et. Seq.); California Labor Code Sections 1101 and 1102.

**24. SEVERABILITY**

Should any provision, or portion of a provision, herein be found or deemed to be invalid, this Agreement shall be construed as not containing such provision, or portion of such provision, and all other provisions which are otherwise lawful shall remain in full force and effect, and to this end the provisions of this Agreement are declared to be severable.



## **25. LIMITATION OF LIABILITIES**

With the exception of the indemnification obligations set forth in Section 7, to the fullest extent permitted by law, each party's total liability (including attorney's fees awarded under the agreement) to the other for any claim under this agreement will be limited to the fees paid for the prior twelve (12) months for the service which is the subject matter of the claim.

## **26. EXCLUSION OF INDIRECT AND CONSEQUENTIAL DAMAGES**

In no event will either party be liable to the other for any indirect, special, incidental, exemplary punitive, treble or consequential damages (including, without limitation, loss of business, revenue, profits, staff time, goodwill, use, data, or other economic advantage), whether based on breach of contract, breach of warranty, tort (including negligence), product liability or otherwise, whether or not a party has previously been advised of the possibility of such damages.

[illegible]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by their duly authorized officers as of the last signature date set forth below.

ALAMEDA COUNTY WATER DISTRICT

VFA, INC. \*

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

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

DocuSigned by:

*Van Goodrich*

9AC3D5BBF0D3485...

Name: Steven Inn

Name: Van Goodrich

Title: Manager of Water Resources

Title: CFO

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

Date: 11/9/2016

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

DocuSigned by:

*Kelly Connery*

792F72B0674E459...

Name: Kelly Connery

Title: Chief Revenue Officer

Date: 11/13/2016

\*If Consultant is a corporation, the Contract must be executed by two corporate officers, one from each of the following categories 1) the President, the Vice President or the Chair of the Board, and 2) the Secretary, Assistant Secretary, Chief Financial Officer, or Assistant Treasurer.

Attachment 1  
Proposal

### Facility Condition Assessment Services - FIXED FEE STATEMENT OF WORK

This Statement of Work ("SOW" and "Statement of Work") incorporates by reference and is governed by the terms and conditions of the "Contract for Services dated November 8, 2016 between Alameda County Water District ("Client") and VFA, Inc. ("VFA"), ("Agreement") and is effective as of November 8, 2016 ("Statement of Work Effective Date"). When in conflict, the terms of this SOW shall supersede those of the Agreement solely in relation to the Project listed below.

GENERAL INFORMATION	
Client Name:	Alameda County Water District
Project Name:	2017 Del Valle Park Facility Condition Assessment
Issue Date:	November 8, 2016
Issued By:	Lee Kaufman, <a href="mailto:lkaufman@accruent.com">lkaufman@accruent.com</a> , 677.772.8160

TERM INFORMATION	
Term of Offer:	VFA, Inc. ("VFA") reserves the right to reject this Statement of Work if it is not signed and returned to Accruent sent to Mike Wintz; <a href="mailto:mwintz@accruent.com">mwintz@accruent.com</a> ; (949) 468-7179 by November 30, 2016
Term of Services:	The Comprehensive Facility Condition Assessment Services ordered hereunder will be available to Client for 180 days from Statement of Work Effective Date. After such date any unused portion of the Services defined will be forfeited. Services shall not be scheduled or started pursuant to this SOW if Client has an Accounts Receivable balance with VFA that is more than thirty (30) days delinquent.

The parties accept and agree to this Statement of Work, as follows:

CLIENT CONTACT INFORMATION					
Contact Type	Name	Address	E-Mail	Phone	Mobile Phone
SOW Contact	Robert Ferro	43885 S. Grimmer Blvd., Fremont, CA 94538	<a href="mailto:Robert.Ferro@acwd.com">Robert.Ferro@acwd.com</a>	510-668-4291	
Invoicing Contact	Robert Ferro	43885 S. Grimmer Blvd., Fremont, CA 94538	<a href="mailto:Robert.Ferro@acwd.com">Robert.Ferro@acwd.com</a>	510-668-4291	

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CLIENT BILLING INFORMATION	
<b>Does Client require a purchase order for this order? IF YES IS SELECTED, PO Number Must Be Provided</b>  <input checked="" type="checkbox"/> No. <input type="checkbox"/> Yes. If yes, PO#:	<b>Please provide PO number or other Customer Internal Reference Code to be Included with Invoice(s):</b>
<b>Special Invoicing Requirements</b>	<b>Please indicate any customer specific invoicing requirements (expense backup, format of invoice, customer specific internal numbers, etc).</b>

SERVICE FEES		
Item	Description	One Time Fee
	Facility Condition Assessment Services – Scope of Work per Exhibit 2 on assets listed in Exhibit 1- Building List.	\$28,182
<b>FEE SUMMARY:</b>  <b>All fees exclude applicable taxes and include expenses</b>		<b>\$28,182</b>

PAYMENT TERMS	
INVOICING	<u>Assessment Services</u>  Accruent will invoice Alameda County Water District at the end of every month based on percent complete of the overall fee plus any applicable taxes. Payment will be due within thirty (30) days of invoice date. The monthly invoicing will be inclusive of any applicable expenses.
TERMS:	<u>Ownership.</u> Client acknowledges that Client acquires only the right to use the output of Services and Accruent shall retain sole and exclusive ownership of and all rights, title, and interest in the output of Services, including all copies and derivative works thereof. The Services hereunder are not "works for hire".

By signing below, I represent that I am authorized to make this commitment on behalf of the company indicated above.

**Alameda County Water District**

**VFA, Inc.**

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

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

Print Name: \_\_\_\_\_

Print Name: Van Goodrich

Title: \_\_\_\_\_

Title: CFO

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

Date: 11/9/2016

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**Exhibit 1- Building List**

<b>Asset</b>	<b>Park</b>	<b>SF</b>
Kiosk	Del Valle	
Residence	Del Valle	1,122
Residence Garage	Del Valle	800
Residence	Del Valle	1,650
Workshop	Del Valle	1,152
Storage Area	Del Valle	633
Storage Area	Del Valle	180
Office	Del Valle	1,065
Amphitheater	Del Valle	4,000
Changing Room	Del Valle	893
Changing Room	Del Valle	893
Changing Room	Del Valle	893
Changing Room	Del Valle	893
Changing Room	Del Valle	893
Changing Room	Del Valle	893
Changing Room	Del Valle	893
Changing Room	Del Valle	893
Visitor Center/Concession	Del Valle	968
Restroom	Del Valle	340
Restroom	Del Valle	340
Restroom	Del Valle	552
Restroom	Del Valle	552
Restroom	Del Valle	552
Restroom	Del Valle	552
Restroom	Del Valle	552
Restroom	Del Valle	552
Concession/Boat House	Del Valle	225
WTP: Chlorine Building	Del Valle	225
dock - Marina Service Yard	Del Valle	35
dock - West Shore Marina	Del Valle	35

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<b>dock - East Shore Marina</b>	<b>Del Valle</b>	<b>35</b>
<b>dock - boat launch</b>	<b>Del Valle</b>	<b>35</b>
<b>dock - boat launch</b>	<b>Del Valle</b>	<b>75</b>
<b>dock - kayak launch</b>	<b>Del Valle</b>	<b>75</b>
<b>Wastewater pumping Station #1 @ Main Entry</b>	<b>Del Valle</b>	
<b>Station #2@ Eagle</b>	<b>Del Valle</b>	
<b>Wastewater pumping Station #5@ Campground</b>	<b>Del Valle</b>	
<b>Wastewater pumping Station #3 @ Oak Point</b>	<b>Del Valle</b>	
<b>Station #6 @ West Beach</b>	<b>Del Valle</b>	
<b>Water Treatment Plant</b>	<b>Del Valle</b>	
<b>Station #4@ Del Valle Rd.</b>	<b>Del Valle</b>	

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**EXHIBIT 2****Statement of Work – Description of Services****Facilities Inspection and Assessment**

VFA will provide a facility condition assessment of the Del Valle park using the assessment methodology described below. VFA's assessment methodology includes the use of industry standards, like BOMA for system lifecycle standards, RSMeans construction cost estimator for developing deferred maintenance and renewal costs, and, ASTM designation E2018-01 for Property Condition Assessments. These standards are very reliable sources of information. However, experience has taught us that your staff will have valuable insight into the maintenance history and local costing of the ongoing operation for much of your portfolio. Our assessors with combined average of 20 years' experience with the local knowledge of your staff and the standards mention before to achieve the highest level of accuracy possible within the scope of services being delivered.

VFA provides consistent, reliable data and transparent, easy-to-follow program management advice that will enable you to effectively and efficiently manage your facility capital program. Figure 1 shows VFA's process for conducting facility assessments and providing deliverables that enable customers to more effectively manage their asset portfolios.



*Figure 1 VFA's assessment process has been refined and proven through the assessment of more than 4 billion square feet of assets under management.*

Details about each phase of this process are provided in the following sections.

***Pre-Assessment Preparation Phase***





**Set Goals** - To kick off the project, VFA will set up a meeting via teleconference with your key stakeholders to confirm the goals and objectives for the project. Understanding what you want to achieve with this project is the key to its success and will drive the project effort. This will ensure that the end deliverable is exactly what you are expecting and will best meet your goals.

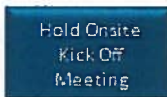
**Confirm Scope and Deliverables** - During this planning phase, VFA will work with your key stakeholders to establish and document the parameters for the assessment / survey. A scoping meeting also via teleconference will be held to discuss and confirm schedules, assessment/survey criteria, data classifications, prioritizations and categorizations, and the best method for storing asset data to support your analysis, reporting, and planning needs. We'll also assist you in determining which assets to input into the CPMS system, (VFA.facility). Often the goal setting and confirmation of scope and deliverables can be discussed and agreed in one

meeting.

**Collect Baseline Data / Documentation** - The VFA team will communicate with your facility managers, plant maintenance managers, and staff members (via email or teleconference) to help them gather information that the VFA assessment and survey teams will need. This data typically includes asset location, number, use and name, photos, dates of initial construction and any renovations, number of floors, gross area, types of heating and cooling systems, and any other relevant data. Data that will be uploaded into VFA.facility must be provided to VFA in spreadsheet or database format. Additionally, any information regarding site maps, principal asset activities, occupancy schedules, any outstanding asset code violations, recent studies such as ADA or roofing inspections, that are provided to VFA, and that will impact how VFA conducts our assessment work, will also be reviewed.

As a result from the discussions of the scope parameters, VFA will configure our software tools to align with the level of assessments / surveys agreed to in the workshop.

**The Assessment phase** is the on-site work performed by VFA's assessment professional and subsequent data entry/analysis done at VFA's offices. Included is the assessment of the remaining lifecycle of major asset systems and the identification of deferred maintenance requirements. By the end of this stage, the assessment data will be collected and populated in VFA.facility; this includes analysis of the data, such as cost estimates for corrective actions.



On the morning of the first day of the field visit, VFA will organize a meeting with the staff that will be involved with the field assessment phases of the project to kick off the on-site survey work. This meeting will enable your staff to meet the VFA assessment professional and understand the project schedule. It will also include discussion of the logistics of the site visit, such as gaining access to all elements of a facility, located all assets across the park and other practical information important to undertaking the physical assessment. VFA will ensure that all functional teams understand project objectives, conditions, and goals.

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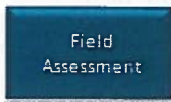
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As part of the meeting the following information is typically discussed as part of our assessment needs:

- Basic building information
- Systems to be assessed
- Special data that needs to be tracked
- Previous assessments performed and success rates working with the results
- Current process for capital planning
- Assessment logistics



VFA's assessment professional will visually inspect all of the assets included in the scope of the project to identify deficient conditions and assess the remaining lifecycle of designated asset systems. Requirements will be documented, including digital photographs of asset exteriors and any observed conditions within the assets. The survey will include a visual inspection of the asset including all architectural, mechanical, electrical, and site systems listed in Table 1.

**Table 1 VFA assesses architectural, mechanical, and electrical systems as classified by the Uniformat standards.**

- Building exterior systems: roofs, walls, window systems, exterior doors, and structural
- Major components
- Building interior systems: walls, doors, floors and ceilings
- Linear utility systems (within 10ft perimeter of major asset)
- Heating, ventilation and air conditioning, controls and instrumentation, special equipment
- Electrical service and distribution
- Lighting and branch wiring
- Communications and security
- Plumbing
- Fire protection
- Elevators
- Bridges, piers and docks (if included in the Asset List of Exhibit 1)

The inspection of the asset interiors will include all mechanical and electrical rooms, as well as a representative sampling of rooms. Resultant requirements will be identified for the entire asset or system (not by individual room or component). The inspections of the asset exteriors will include an approximate ten-foot perimeter around the asset and the areas adjacent to and/or attached to

the asset that are inherent to the asset's use, such as ramps, stairs, paving, landscaping, and exterior, wall-mounted lighting.

VFA does not include intrusive and destructive testing such as infrared, roofing core sampling, soil testing, generator testing, and hazardous material testing as part of the standard assessment methodology. If observed field conditions warrant further testing, VFA will make recommendations for such investigation as appropriate.

#### Data Entry & Cost Estimation

After the on-site work is complete, the assessment professional will review their notes and findings and begin entering all of the collected data into VFA facility. This will include descriptive narratives, field entries, and photos as described in the following list:

*Asset Descriptions:* A narrative summary of each assessed facility/asset will be documented in the asset description. Additional details of each of the asset's systems will be recorded in system descriptions. This information is useful for having documentation regarding the basic information about an asset, such as construction information.

*System Models and Conditions:* Assets (buildings or site) are broken down into their component systems in the database. These system models provide an up-to-date record of what exists within the building at the time of the assessment (i.e., what type of roof?), and how much of it is present (i.e., how much acoustical ceiling tile vs. gypsum wallboard ceilings). System models record the expected useful lifespan of each system (i.e., how long should this roof last?) and how much useful life remains based on the visual inspection (i.e., how long can we expect the roof will last?). A replace-in-kind replacement value is established for each system as well as a projected renewal cost (i.e., how much should we expect to pay when the system is at the end of its life?). Based on the information gathered in the inspection, you will have an understanding of the reinvestment rate required on an annual basis to replace system components that have reached or exceeded the end of their useful lives.

*Requirements:* Requirements are issues such as systems or components that are unsafe, broken/damaged, can no longer perform the intended function, are approaching or have exceeded their useful life spans, do not conform to current codes, or may be an improvement to the facility, such as an energy conservation project. The survey will typically include capital needs rather than operational, such as major repair to air handling unit vs. changing a fan belt. (Capital vs. operational expenses is often set by a dollar minimum threshold, such as \$5,000 and will be agreed upon at the beginning of project.) Each requirement is individually classified by priority, category (cause of issue), system, and inspector, thereby allowing for multiple queries and flexible data analysis. If required, additional classifications for specific needs can also be created by the project manager or your site administrator.

Each Requirement must be assigned a Priority that indicates its severity and the ideal time frame for correction. The VFA standard Priorities are described in detail below.

The chart below lists the current Priorities along with their definitions and default years offset.

**Table 2 Priorities associate requirements with a timeframe; standard priorities shown here can be tailored to meet client requirements.**

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Priority	Definition	Years Offset
Priority 1	Due within 1 Year of Inspection	1
Priority 2	Due within 2 Years of Inspection	2
Priority 3	Due within 5 Years of Inspection	5
Priority 4	Not Time Based	null

Each Requirement must be assigned a category that indicates the general issue or the reason for the deficiency. The standard Requirement Categories, listed below, include a broad range of topical causes for adding the Requirement to the Asset, but may be customized by the client if necessary.

While the software allows a user to assign a parent or child category to a Requirement, the VFA standard is to use the child categories only. All types of Requirements can be categorized within the child categories, and doing so allows for a more precise classification of the issue. Standard categories are shown in Table 3.

**Table 3 Categories group requirements by cause or reason.**

Category	Sub-category
Integrity	Lifecycle Reliability
Regulatory	Life Safety Building Code HazMat Accessibility
Optimization	Technological Improvements Capacity Mission Maintenance Abandoned Energy Sustainability

*Corrective Actions:* VFA's assessors will recommend a corrective action for each requirement. The actions are based upon the materials and equipment required to repair or replace the identified deficiency along with necessary labor. VFA will work with your organization to identify any soft costs (e.g., permitting fees, project management fees, etc.) that should also be included.

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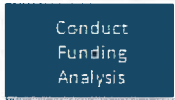
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*Digital Photos:* VFA will import digital photos taken during the assessment to visually illustrate existing conditions. A selection of photographs of the asset exterior and the critical requirements within each asset will be stored and linked to requirements where a supporting photo is beneficial.



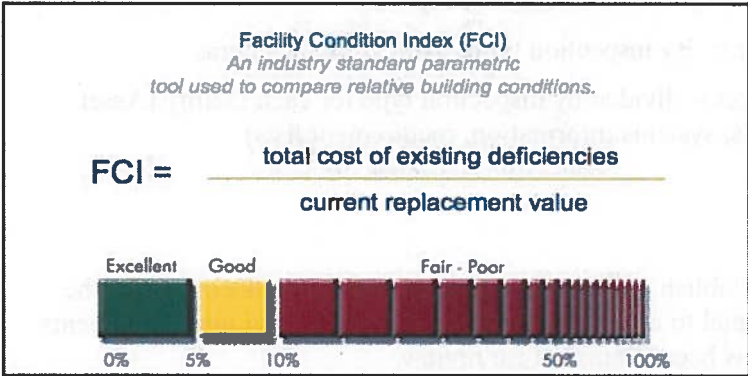
VFA ensures a quality project through a comprehensive Quality Assurance program. Data is reviewed by team members, project managers, and the designated QA manager for the project before submission to you for review.



Data in VFA facility will be used to determine the long-term system renewal costs and timing, develop multiple funding options, and perform a comparative analysis of these funding options; these analyses will be discussed with you. The VFA Team will equip your organization with information to make sound decisions about long-term capital reinvestment in your existing assets. VFA understands that facility conditions are not the only factor in determining what renovations, replacements, or repairs to undertake, and are in many cases considered in support of other drivers such as impact on mission, risk, space planning needs, or changes in use.

After the facilities assessment data has been entered into the database and action methodologies and costs have been established, benchmarking the condition of the facilities can begin. VFA has automated a standard process to assess the relative condition of assets, facilitating comparison both within and among organizations and locations. A Facility Condition Index (FCI) will be calculated for each asset (building) evaluated, providing a key benchmark indicator to quantify the condition of the property (see Figure 2). It is calculated as the deferred maintenance and renewal needs (typically over a 5 year period) divided by the current replacement value of the building. The lower the FCI value, the better the condition of the building.

Your organization will be able to ascertain the impact of various funding levels on the FCI of the assets, or alternatively, the funding requirements to achieve a specific asset FCI.



**Figure 2 FCI is an extremely useful metric for assessing asset condition.**

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Based on the criteria selected (i.e., assets, building systems, requirement priorities and categories, number of years forecasted, etc.), VFA facility will calculate the long-term renewals for the assets and systems included in the project utilizing the previously developed system model and systems conditions evaluation. In addition, VFA will also explore and analyze alternative funding strategies for restoring and maintaining a targeted level of asset condition. By varying levels of funding, timing and project content, the impact on facilities/infrastructure condition over time can be understood. These alternative strategies will be reviewed and discussed with your organization.

Using these analytical capabilities, competing funding requirements can be analyzed based on criteria and logic that VFA will establish with you to ensure consistent, equitable, goal-oriented, needs-based, and efficient capital planning. The resulting funding analysis can then be used by you to establish funding levels to support the development of your capital plan.

#### Prepare Draft Reports

During this phase, VFA's capital planning and management software will be used by VFA's Project Manager to determine the long-term system renewal costs and timing, multiple funding options will be developed, and a comparative analysis of these funding options will be discussed with you. A preliminary draft report will be submitted to you after the data has been evaluated and entered into VFA facility. This preliminary report will give you an opportunity to review content, including a review of data classifications (such as priorities, categories, and systems), general consistency of overall estimates, and report formats.

The draft report will contain:

- **Narrative Summary:** A complete description of the facility and a summary of deficiencies listed within each section of the detailed report. (Asset lists and summaries – by age, use, FCI)
- **Facility Work Type Summary:** A summary breakdown of type of work and total costs for each facility. (Deferred maintenance summaries – presented by priority, system and category and cross tabular format)
- **Facility System Summary:** A summary breakdown of the total costs for a facility by assessed system. (System renewal forecasts and SCI reports)
- **Major Deficiency Photographs:** By inspection types using digital cameras
- **Inspection Details:** This report is divided by inspection type for each facility (Asset snapshots – asset descriptions, systems information, requirement lists)



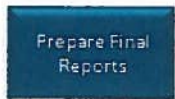
In addition, VFA will establish a read-only user account during the course of the project which will allow your personnel to monitor progress, review data, and make comments on facility assessment data once it has been submitted for review.

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Following your review of the Draft Building Evaluation Report format, the VFA Project Manager will make any adjustments to the format of the report and will prepare The Final Building Evaluation Report for the remainder of the assets. The Final Building Evaluation Report will document the findings and present analyses of the FCA, and will include the following sections:

- Executive Summary
- Assessment Methodology
- Funding Scenarios
- Capital Renewal Requirements
- Client Summary Data Reports (Requirement Summaries and Cross-tabular Reports)
- Detailed Requirement Reports (Including Asset Summary, Requirement Descriptions)

### ***Post-Assessment Phase***

Once the assessment and analysis is complete, VFA will present their findings.



***Presentation of Findings*** - The final key step in the assessment process is the Presentation of Findings. This is a formal meeting, presented by the VFA Project Manager or Project Director via WebEx or at your site to present the final results of the assessment. The data will be presented logically and methodically.

### **Client Responsibilities:**

Client acknowledges that its participation and cooperation is both required and critical for the success of the Project. Deviations from these responsibilities may lead to commensurate changes in the timeline and fees:

- a. VFA utilizes the WebEx platform. Clients must be able access WebEx and to download active X controls required.
- b. Participants in WebEX must have computers with Internet access.
- c. Client shall provide a Project Manager who will be responsible for the coordination of the client's resources as necessary for the Project. The Client acknowledges that the Project Manager has the ability to plan and commit resources (human and otherwise) on behalf of Client that are necessary to execute the Project.
- d. Ensure appropriate levels of Client executive and Client project team resources will be made available to the VFA project team to ensure successful completion of tasks by jointly developed timelines. If certain areas are identified as more complex than initially identified, additional Client or VFA resources may be

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requested to supplement the team in order to ensure timely delivery, which would be addressed separately under the Change Control procedures described in this SOW.

#### Assumptions

1. In addition, this SOW is based upon the following assumptions:
  - a. Any change in the specified Services must be mutually agreed upon in writing by VFA and Client. Until such agreement has been made, VFA will continue performing the Services in accordance with the SOW.
  - b. Any work not explicitly stated in this SOW will be considered out of scope.
  - c. If additional services are needed, an approved Change Request will be required.
  - d. VFA resources are not dedicated solely to the Client during the engagement. Reasonable notice is required by the Client to request VFA resources whether work is performed on-site or off-site.
  - e. Client will be required to provide VFA with a minimum of ten (10) business days prior notice ("Resource Request Notification Period") of Client's requested services date for allocation of VFA consultant resources and provision of Services ("Requested Dates"). While VFA will use commercially reasonable efforts to allocate resources in accordance with the Requested Dates, VFA shall be under no obligation or penalty to meet such Requested Dates and shall be entitled to reject or offer alternative dates to Client for any reason.
  - f. In the event Client cancels or reschedules any on-site engagements with VFA Consultant(s) with less than fourteen (14) business days lead time but more than ten (10) business days, VFA will invoice Client and Client will pay for fifty percent (50%) of the cancellation and/or change fees associated with rebooking travel and arrangement. In the event Client cancels or reschedules any VFA resource(s) with less than ten (10) business days lead time, VFA will invoice Client and Client will pay for one hundred percent (100%) of the associated fee.
  - g. In the event VFA cancels or reschedules any on-site engagements with the Client one hundred percent (100%) of the cancellation and/or change fees associated with rebooking travel and arrangements will be absorbed by VFA.
  - h. Product enhancements are not part of this SOW and considered out of scope.
  - i. Once Client and VFA agree on a Project plan that identifies specific dates when VFA and Client will perform the work described herein, Client will pay for fifty percent (50%) of the costs associated with any change in VFA's resource scheduling tied to a change in the Project schedule or VFA staffing plan introduced by Client. Any such charge will be over and above the fees provided within this SOW.
  - j. Further, Client acknowledges that its timely provision of and access to offices accommodations; skilled personnel; facilities; equipment; assistance; cooperation; complete and accurate information and data from its officers, agents, and employees; and suitably configured computer products (collectively, "Cooperation") are essential to performance of any Services as set forth in this SOW. VFA shall not be responsible for any deficiency in performing Services if such deficiency results from Client's failure to provide full Cooperation. Client agrees to allow VFA to post, at a site at which Services are performed, any documents necessary for VFA to provide Services in compliance with the law.
  - k. VFA reserves the right to update pricing should there be a change in scope or building list.

10801-2 N. Mo-Pac Expressway | Suite 400 | Austin, TX 78759 | 512.861.0726

[www.vfa.com](http://www.vfa.com)

[www.accruent.com](http://www.accruent.com)

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## **AGREEMENT FOR SERVICES**

THIS AGREEMENT is made by and between the ALAMEDA COUNTY WATER DISTRICT ("DISTRICT") located at 43885 South Grimmer Boulevard, Fremont, CA 94538 and DAVID FORD CONSULTING ENGINEERS, INC. ("CONSULTANT"), located at 2015 J Street, Suite 200, Sacramento, CA 95811 ("PARTIES").

WHEREAS, the DISTRICT desires to obtain consulting services (Services) and requested a proposal from CONSULTANT, dated October 03, 2016, a copy of which is attached and incorporated as Attachment 1.

WHEREAS, the CONSULTANT is ready, willing and able to furnish such services and has submitted a revised proposal dated, October 7, 2016, a copy of which is attached and incorporated as Attachment 2.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

### **1. RENDITION OF SERVICES**

The CONSULTANT agrees to provide professional services to the DISTRICT in accordance with the terms and conditions of this Agreement. CONSULTANT represents that it will exercise the same degree of professional care, skill, efficiency, and judgment ordinarily used by consultants providing similar professional services. CONSULTANT at all times will comply with all federal, state, and local laws, regulations and policies applicable to the services performed pursuant to this Agreement.

### **2. SCOPE OF SERVICES**

The scope of the CONSULTANT's services is set forth in Attachment 1, as supplemented by Attachment 2. However, to the extent that Attachment 2 is inconsistent with Attachment 1, Attachment 1 will govern over Attachment 2.

### **3. TERM OF AGREEMENT**

The term of this Agreement shall commence upon the DISTRICT's issuance of a written Notice to Proceed (NTP) and conclude upon the DISTRICT's final acceptance of the Services.

It is further understood that the term of the Agreement is subject to the DISTRICT's right to terminate the Agreement in accordance with Section 15 of this Agreement.

### **4. OWNERSHIP OF WORK**

All reports, designs, drawings, plans, specifications, and other materials prepared, or in the process of being prepared, by CONSULTANT, its employees, subcontractors, or agents under this Agreement ("Work Product") shall be and are the property of the DISTRICT.

The DISTRICT shall be entitled to access and to copy the Work Product during the progress of the work. If requested by DISTRICT, CONSULTANT shall deliver one copy of the Work Product remaining in the hands of the CONSULTANT, or in the hands of any subcontractor, upon completion or termination of the work.

CONSULTANT assigns to DISTRICT all right, title, and interest in and to the Work Product, including ownership of copyright in the Work Product. The DISTRICT may utilize any material prepared or work performed by CONSULTANT pursuant to this Agreement, including computer software, in any manner which the DISTRICT deems proper without additional compensation to CONSULTANT. CONSULTANT shall have no responsibility or liability for any revisions, changes, or corrections to the Work Product made by the DISTRICT, nor for any use or reuse of the Work Product for any purpose other than the Work unless CONSULTANT accepts such responsibility in writing.

The CONSULTANT shall not disclose Work related data or information without the prior written consent of the DISTRICT.

5. **USE OF SUBCONTRACTORS**

CONSULTANT shall not subcontract any Services to be performed under this Agreement without the prior written approval of the DISTRICT. CONSULTANT may subcontract with service firms engaged in drawing, reproduction, typing and printing without the prior written consent of the DISTRICT. CONSULTANT shall be solely responsible for reimbursing any subcontractor and the DISTRICT shall have no obligation to them.

6. **CHANGES**

The DISTRICT may, at any time, by written order, make changes within the scope of work and services described in this Agreement. If such changes cause an increase or decrease in the budgeted cost of or the time required for performance of the agreed upon work, an equitable adjustment as mutually agreed shall be made in the limit on compensation as set forth in Section 9 or in the term of the Agreement as set forth in Section 3, or both. In the event that CONSULTANT encounters any unanticipated conditions or contingencies that may affect the scope of work or services and result in an adjustment in the amount of compensation specified herein, CONSULTANT shall so advise the DISTRICT immediately upon notice of such condition or contingency. The written notice shall explain the circumstances giving rise to the unforeseen condition or contingency and shall set forth the proposed adjustment in compensation. This notice shall be given to the DISTRICT prior to the time that CONSULTANT performs work or services related to the proposed adjustment in compensation. The pertinent changes shall be expressed in a written supplement to this Agreement prior to implementation of such changes.

7. **RESPONSIBILITY; INDEMNIFICATION**

To the fullest extent permitted by law, CONSULTANT shall indemnify, keep and save harmless the DISTRICT, and its board members, officers, agents, and employees against any and all suits, claims, actions, damages, liabilities, costs, and expenses (collectively, "Liabilities") for any personal injury (including death, bodily injury, emotional or mental distress, and loss of consortium), property damage, intellectual property infringement, or financial or economic loss that arises out of, pertains to, or relates to the negligence, recklessness, or the willful misconduct of the CONSULTANT, its employees, subcontractors, or agents to the extent that such Liabilities arise out of the performance

(or non-performance) of this Agreement. This duty to indemnify includes any proceedings, actions, damages, or penalties due to the violation of any governmental law or regulation, the compliance with which is the responsibility of the CONSULTANT, its employees, subcontractors, or agents. CONSULTANT further agrees to defend any and all such actions, suits, or claims, and pay all charges of attorneys and all other incurred costs and expenses relating to the investigation, defense, negotiation, or settlement of any action, suit, or claim, and to reimburse the DISTRICT for any and all legal and other costs and expenses incurred by the DISTRICT in connection with the defense of such actions, suits, or claims. If any judgment is rendered against the DISTRICT or any of the other individuals enumerated above in any such action, CONSULTANT shall, at its expense, satisfy and discharge the same to the extent that the judgment is based on the CONSULTANT's agreement to indemnify as set forth in this section. This indemnification obligation will survive the termination or expiration of this Agreement. CONSULTANT shall require its subcontractors to similarly indemnify, defend, and keep and save harmless, the DISTRICT.

8. **INSURANCE**

The CONSULTANT will be required to secure insurance as indicated below.

- A. **Insurance Requirements:** The CONSULTANT shall, at their expense, procure and maintain during the life of the Contract all the insurance on all of their operations in companies acceptable to the District, as required by this section, and shall submit Certificates of Insurance to the District. The notice to proceed shall not be issued, and the CONSULTANT shall not commence work until such insurance has been approved by the District. Acceptance of the Certificates shall not relieve the CONSULTANT of any of the insurance requirements, nor decrease the liability of the CONSULTANT. The District reserves the right to require the CONSULTANT to provide Insurance Policies for review by the District in the event there is a dispute regarding the scope and coverage of insurance.
- B. **Workers' Compensation Insurance:** The CONSULTANT shall take out and maintain during the life of the Contract, Workers' Compensation and Employers' Liability Insurance for all employees on the project. Employers' liability insurance shall be provided in amounts not less than \$1,000,000 each accident for bodily injury by accident, \$1,000,000 policy limit for bodily injury by disease, and \$1,000,000 each employee for bodily injury by disease. In lieu of evidence of Workers' Compensation Insurance, the District will accept a Self-Insuring Certificate from the State of California. The CONSULTANT shall require any subcontractor to provide evidence of Workers' Compensation and Employers' Liability Insurance, all in strict compliance with California State Laws.
- C. **General Liability Insurance:** The CONSULTANT shall also secure and maintain during the life of the Contract such General Liability Insurance as shall protect the District, its directors, officers, employees, and agents from claim which may arise from operations under this Contract, whether such operations are by itself, by any subcontractor, or by anyone directly or indirectly employed by either of them. CONSULTANT shall carry Comprehensive General Liability or Commercial General Liability insurance covering all operations by or on behalf of District for

bodily injury, property damage, and personal injury liability for the limits of liability indicated below and including, but not limited to, coverage for:

- premises and operations;
- products and completed operations;
- contractual liability insuring the obligations assumed by CONSULTANT in this contract;
- broad form property damage (including completed operations);
- explosion, collapse and underground hazards;
- bodily injury;
- property damage;
- arrest, false imprisonment, malicious prosecution, defamation of character, libel and slander alleged to have been caused by CONSULTANT or employees of CONSULTANT or subcontractors;
- personal injury liability; and
- accidental spillage, cleanup and other related costs.

Except with respect to bodily injury and property damage included within the products and completed operations hazards, the aggregate limits where applicable, shall apply separately to CONSULTANT work under this Contract.

This Liability Insurance shall be in an amount not less than \$1,000,000 for each occurrence, \$1,000,000 for each occurrence for work on public roadways.

Contractors performing construction work shall carry the required Commercial General Liability Insurance for ten (10) years following completion of CONSULTANT's work under this Contract and CONSULTANT shall furnish Certificates of Insurance to District at the inception of each of these subsequent policies for ten (10) years as evidence of this required insurance.

Broad form property damage liability must be afforded. Permission is granted for deductible which shall not exceed \$25,000 without approval of the District.

- 1) One of the following coverage forms is required:
  - a. Comprehensive General Liability Commercial
  - b. General Liability (Occurrence)
- 2) If CONSULTANT carries a Comprehensive General Liability policy, the limits of liability shall not be less than a Combined Single Limit for bodily injury, property damage and Personal Injury Liability of:
  - a. \$1,000,000 each occurrence
  - b. \$2,000,000 Aggregate
- 3) If CONSULTANT carries a Commercial General Liability (Occurrence) policy, the limits of liability shall not be less than:

- a. \$1,000,000 each occurrence (combined single limit for bodily injury and property damage)
- b. \$1,000,000 for Personal Injury Liability
- c. \$2,000,000 Aggregate for Products-Completed Operations
- d. \$2,000,000 General Aggregate

If the policy does not have an endorsement providing that the General Aggregate Limit applies separately to this Contract or if Defense Costs are included in the aggregate limits, then the required aggregate limits shall be \$2,000,000.

- 4) With respect to whichever general liability policy form is furnished, District, its officers, directors, employees and agents shall be named as Additional Insured per Additional Insured Endorsement CG20 10 10 93 or equivalent. This Endorsement is to be attached to insurance certificates submitted to the District. The policy shall stipulate that the insurance afforded the Additional Insured shall apply as primary insurance and that any other insurance carried by District, its officers, directors, employees and agents will be excess only and will not contribute with Contractors insurance. Exclusions of contractual liability as to bodily injuries, personal injuries and property damage MUST BE ELIMINATED from the basic policy and endorsements.
- D. Automobile Liability Insurance: The CONSULTANT shall take out and maintain during the life of the Contract, Automobile Liability Insurance (Bodily Injury and Property Damage Liability) including coverage for all owned, hired, rented, leased and non-owned automobiles. The limits of liability shall be not less than \$1,000,000 Combined Single Limit for each accident and \$1,000,000 for each occurrence for work on public roadways.
- 1) If a CONSULTANT's vehicle is used in the performance of work on District property or at a jobsite then with respect to the automobile liability policy that is furnished, District, its officers, directors, employees and agents shall be named as Additional Insured. The policy shall stipulate that the insurance afforded the Additional Insured shall apply as primary insurance and that any other insurance carried by District, its officers, directors, employees and agents will be excess only and will not contribute with this insurance. The policy must cover complete contractual liability. Exclusions of contractual liability as to bodily injuries, personal injuries and property damage MUST BE ELIMINATED from the basic policy and endorsements.
- E. Professional Liability Insurance. CONSULTANT also shall maintain Professional Liability Insurance covering CONSULTANT's performance under this Agreement with a limit of liability of One Million Dollars (\$1,000,000) for any one claim.
- F. Certificates of Insurance: Certificates of Insurance shall be furnished by CONSULTANT to District before any work is commenced hereunder by CONSULTANT. The Certificate of Insurance shall provide that there will be no cancellation, reduction or modification of coverage without thirty (30) days prior written notice to District. District is to be notified if insurance is

cancelled for any reason. If CONSULTANT does not comply with this Section, District may, at its option, provide insurance coverage to protect District and charge CONSULTANT for the cost of that insurance. The required insurance shall be subject to the approval of the District, but any acceptance of insurance certificates by District shall not limit or relieve CONSULTANT of the duties and responsibilities assumed by it under this Contract.

G. Waiver of Subrogation: The referenced policies and any Excess or Umbrella policies, where applicable, shall contain a waiver of subrogation in favor of the Alameda County Water District and their respective directors, officers, employees, volunteers and agents while acting in such capacity, and their successors or assignees, as they now or as they may hereafter be constituted, singly, jointly or severally.

H. Deductibles and Self-insured Retention:

Any deductibles or self-insured retention must be declared to ACWD.

I. District and CONSULTANT waive all rights against each other and against all other contractors for loss or damage to the extent covered by Builder's Risk or any other property or equipment insurance applicable to the work, except such rights as they may have to the proceeds of such insurance. If the policies of insurance referred to in this Section require an endorsement or consent of the insurance company to provide for continued coverage where there is a waiver of subrogation, the owners of such policies will cause them to be endorsed or obtain such consent.

J. The requirement for carrying insurance hereunder is cumulative and shall not be in derogation of other provisions of this Contract.

K. Insurance carrier must have a Best's Rating of "A-VII" or better.

### **IMPORTANT**

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

### **DISCLAIMER**

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsements(s).

## **9. COMPENSATION**

The CONSULTANT agrees to perform all of the work set forth in Attachment 1 further supplemented by Attachment 2, on a firm fixed price basis. Total compensation shall not to exceed One Hundred Twenty-Four Thousand Eight Hundred Sixty-Two Dollars and Seventy-Five Cents (\$124,862.75). The amount shall include all labor, materials, taxes, profit, overhead, insurance, travel, subcontractor costs, and all other costs and expenses incurred by the CONSULTANT.

**10. MANNER OF PAYMENT**

Payment shall be made upon approval of invoices, no more than once a month. All invoices shall reference the agreement number. The DISTRICT shall make payments to the CONSULTANT for satisfactory Services performed and the costs of such services within thirty (30) calendar days from the date the DISTRICT receives the CONSULTANT's invoice. All invoices and supporting documentation, clearly identifying the Agreement number, shall be submitted by email, addressed to Thomas Niesar, Water Resources Planning Manager, at [accounting@acwd.com](mailto:accounting@acwd.com).

**11. CONSULTANT'S STATUS**

Neither the CONSULTANT nor any party contracting with the CONSULTANT shall be deemed to be an agent or employee of the DISTRICT. The CONSULTANT is and shall be an independent contractor, and the legal relationship of any person performing services for the CONSULTANT shall be one solely between that person and the CONSULTANT.

**12. ASSIGNMENT**

CONSULTANT shall not assign any of its rights nor transfer any of its obligations under this Agreement without the prior written consent of DISTRICT.

**13. DISTRICT WARRANTIES**

The DISTRICT makes no warranties, representations or agreements, either expressed or implied, beyond such as are explicitly stated in this Agreement.

**14. DISTRICT REPRESENTATIVES**

Except when approval or other action is required to be given or taken by the Board of Directors of the DISTRICT, the General Manager of the DISTRICT, or such person or persons as the General Manager shall designate in writing from time to time, shall represent and act for the DISTRICT on the day to day activities under this Agreement. For strictly contractual matters relating to this Agreement, an authorized representative of the Procurement and Contracts Division, shall represent and act for the District.

**15. TERMINATION**

The DISTRICT shall have the right to terminate this Agreement at any time for cause or convenience by giving written notice to the CONSULTANT. Upon receipt of notice of termination for convenience, the CONSULTANT shall not commit itself to any further expenditure of time or resources. Upon receipt of notice of default, CONTRACTOR shall be afforded thirty days to correct the identified deficiency(ies). If said deficiency(ies) are not corrected to the DISTRICT's satisfaction, the Agreement will be terminated immediately.

If the Agreement is terminated for any reason other than a default by CONSULTANT, the DISTRICT shall pay to CONSULTANT in accordance with the provisions of Sections 9 and 10 all sums actually due and owing from DISTRICT for all services satisfactorily performed up to the day written notice of termination is given, plus any costs reasonably and necessarily incurred by



CONSULTANT to effect such suspension or termination. If the Agreement is terminated for default, the DISTRICT shall remit final payment to CONSULTANT in an amount to cover only those services performed in full accordance with the terms and conditions of this Agreement up to the effective date of termination.

#### 16. **MAINTENANCE, AUDIT, AND INSPECTION OF RECORDS**

The CONSULTANT shall permit the authorized representatives of the DISTRICT to inspect, audit, make copies and transcriptions of books and all data and records of the CONSULTANT relating to its performance under the Agreement, if requested.

#### 17. **CONFIDENTIAL INFORMATION**

A. **Definition.** The CONSULTANT acknowledges that it may receive Confidential Information from the DISTRICT, Santa Clara Valley Water District (SCVWD) or the Alameda County Flood Control and Water Conservation District (Zone 7) (hereafter collectively referred to as "AGENCIES") in connection with this Agreement. "**Confidential Information**" means all information or material that AGENCIES treat as confidential and any information relating to third parties that a party has an obligation to treat as confidential, which is disclosed by or obtained by a party in connection with this Agreement, whether such information is in oral, written, graphic or electronic form, which: is (A) marked "Confidential," "Restricted," or "Proprietary Information" or other similar marking, (B) known by the parties to be considered confidential or proprietary, or (C) which should be known or understood to be confidential or proprietary by an individual exercising reasonable commercial judgment in the circumstances. Confidential Information does not include information to the extent that such information: (i) is or becomes generally known to the public by any means other than a breach of the obligations of a receiving party hereunder; (ii) was previously known to the receiving party as evidenced by its written records; (iii) is rightly received by the receiving party from a third party who is not under an obligation of confidentiality; or (iv) is independently developed by the receiving party without reference to or use of the other party's Confidential Information which such independent development can be established by evidence that would be acceptable to a court of competent jurisdiction.

B. **Confidentiality Obligations.** Each of the PARTIES agree:

- 1) to maintain the Confidential Information of the other party in confidence and to take all reasonable steps, which shall be no less than those steps it takes to protect its own confidential and proprietary information, to protect the Confidential Information of the other party from unauthorized use, disclosure, copying or publication;
- 2) not to use the Confidential Information of the other party other than in the course of exercising its rights or performing its obligations under this Agreement;
- 3) not to disclose or release such Confidential Information except to the extent required by applicable law or during the course of or in connection with any litigation, arbitration or



other proceeding based upon or in connection with the subject matter of this Agreement, provided that the receiving party shall first give reasonable notice to the disclosing party prior to such disclosure so that the disclosing party may obtain a protective order or equivalent and provided that the receiving party shall comply with any such protective order or equivalent;

- 4) not to disclose or release such Confidential Information to any third person without the prior written consent of the disclosing party, except for authorized employees or agents of the receiving party who have a need to know such information for the purpose of performance under this Agreement and exercising its rights under this Agreement, and who are bound by confidentiality obligations at least as protective of the disclosing party's Confidential Information as this Agreement; and
- 5) to take such actions as may be reasonably necessary to enforce its agreements with its employees and agents, including commencing legal proceedings.

C. Information Subject to the Public Records Act. CONSULTANT understands and agrees that the DISTRICT is a public entity and is thus subject to the California Public Records Act (Government Code Section 6250 et seq.) and its relevant disclosure requirements. Under certain circumstances, the DISTRICT may be required to disclose information including the contents of this Agreement in accordance with the California Public Records Act. If CONSULTANT requests that the DISTRICT withhold from disclosure information identified by CONSULTANT as confidential, and the DISTRICT complies with CONSULTANT's request, CONSULTANT shall assume all responsibility for any challenges resulting from the non-disclosure, indemnify and hold harmless the DISTRICT from and against all damages (including but not limited to attorneys' fees that may be awarded to the party requesting CONSULTANT's information), and pay any and all costs and expenses related to the withholding of CONSULTANT's information.

## **18. RELEASE OF INFORMATION**

CONSULTANT shall not release any reports or other information prepared in connection with this Agreement without the approval of the General Manager.

## **19. KEY PERSONNEL**

David Ford shall serve as the primary staff person of CONSULTANT to oversee all of the services under this Agreement. The other principal participants shall be individuals identified by position title in Attachment 2.

## **20. NOTICES**

All communications relating to the day to day activities of the project shall be exchanged between the DISTRICT's Contract Administrator and the CONSULTANT's Account Manager.

All other notices and communications deemed by either party to be necessary or desirable to be given to the other party shall be in writing and may be given by personal delivery to a representative of the parties or by mailing the same postage prepaid, addressed as follows:

If to the DISTRICT:	Alameda County Water District 43885 South Grimmer Blvd Fremont, California 94538
Attention:	Procurement & Contracts Division
If to the CONSULTANT:	David Ford Consulting Engineers 2015 J Street, Suite 200 Sacramento, CA 95811
Attention:	David Ford

The address to which mailings may be made may be changed from time to time by mailed notice as described above. Any notice given by mail shall be deemed given on the day after that on which it is deposited in the United States Mail as provided above.

## **20. ATTORNEYS' FEES**

If any legal proceeding should be instituted by either of the parties to enforce the terms of this Agreement or to determine the rights of the parties under this Agreement, the prevailing party in said proceeding shall recover, in addition to all court costs, reasonable attorneys' fees.

## **21. APPLICABLE LAW**

This Agreement, its interpretation and all work performed under it shall be governed by the laws of the State of California, venue the courts of the County of Alameda.

## **22. BINDING ON SUCCESSORS**

All of the terms, provisions and conditions of this Agreement shall be binding upon and inure to the benefit of the parties and their respective successors, assigns and legal representatives.

## **23. SEVERABILITY**

Should any provision, or portion of a provision, herein be found or deemed to be invalid, this Agreement shall be construed as not containing such provision, or portion of such provision, and all other provisions which are otherwise lawful shall remain in full force and effect, and to this end the provisions of this Agreement are declared to be severable.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by their duly authorized officers as of the last signature date set forth below.

ALAMEDA COUNTY WATER DISTRICT

DAVID FORD CONSULTING ENGINEERS\*

Signature: 

Signature: 

Name: Robert T. Shaver

Name: David Ford

Title: General Manager

Title: President

Date: 10/26/16

Date: October 20, 2016

Signature: 

Name: Nathan Pingel

Title: Vice President

Date: October 20, 2016

ATTEST:

  
District Secretary

\*If Consultant is a corporation, the Contract must be executed by two corporate officers, one from each of the following categories 1) the President, the Vice President or the Chair of the Board, and 2) the Secretary, Assistant Secretary, Chief Financial Officer, or Assistant Treasurer.

# Attachment 1

## Request for Proposal

DIRECTORS

JAMES G. GUNTHER  
JUDY C. HUANG  
MARTIN L. KOLLER  
PAUL SETHY  
JOHN H. WEED

43885 SOUTH GRIMMER BOULEVARD • FREMONT, CALIFORNIA 94538  
(510) 668-4200 • FAX (510) 770-1793 • [www.acwd.org](http://www.acwd.org)

MANAGEMENT

ROBERT  
SHAVER  
General  
Manager  
  
SHELLEY  
BURGETT  
Finance  
  
STEVEN D.  
INN Water  
Resources  
  
STEVE PETERSON  
Operations and  
Maintenance  
  
ED STEVENSON  
Engineering and Technology  
Services

October 3, 2016

SENT VIA EMAIL: [FORD@FORD-CONSULTING.COM](mailto:FORD@FORD-CONSULTING.COM)

Mr. David T. Ford  
David Ford Consulting Engineers  
2015 J Street  
Suite 200  
Sacramento, CA 95811

Subject: Request for Proposal 16/17-18 for the Provision of Consulting Services

Dear Mr. Ford:

The Alameda County Water District (District), in conjunction with Santa Clara Valley Water District (SCVWD), Alameda County Flood Control and Water Conservation District (Zone 7) and East Bay Regional Park District (hereafter collectively referred to as “Agencies”), have identified a potential avenue to increase water storage at the Del Valle Reservoir, located in Livermore, CA. In order to verify the aforementioned avenue the Agencies require that a feasibility study of Forecast-Informed Reservoir Operations (FIRO) at Lake Del Valle Reservoir be conducted.

Scope of Services

The objective of the study is to answer three overarching questions:

1. What storage and water supply enhancements can be achieved by implementing FIRO at Del Valle Reservoir?
2. What storage and water supply enhancements can be achieved by implementing FIRO and redrawing the existing rule curves for flood management?
3. What storage and water supply enhancements can be achieved by changing the structure of the dam (i.e. raise the spillway)?

In order to answer these questions, the study itself should answer, at a minimum, the following questions:

1. What are the components of a FIRO system at Lake Del Valle Reservoir?
  - a. Who will provide these components?
  - b. What agencies will be involved and need to be coordinated with?
2. What policy and procedural shifts are required by the agencies involved to implement FIRO?
3. Will FIRO alone at Lake Del Valle improve water supply availability? If so, when and how are improvements made?
4. If FIRO alone improves water supply, are there any negative impacts on flood management? If so, when and how are these impacts made?
5. If FIRO alone improves water supply, are there any negative impacts on recreation facilities at Lake Del Valle? If so, when, where, and how are these impacts made?
6. Will FIRO in conjunction with storage reallocation of Lake Del Valle improve water supply availability? If so, when and how are improvements made?
7. If FIRO and storage reallocation improve water supply, are there any negative impacts on flood management? If so, when and how are these impacts made?
8. If FIRO and storage reallocation improve water supply, are there any negative impacts on recreation facilities at Lake Del Valle? If so, when, where, and how are these impacts made?
9. Will FIRO in conjunction with structural changes to the dam improve water supply availability? If so, when and how are improvements made?
10. If FIRO and structural changes improve water supply, are there any negative impacts on flood management? If so, when and how are these impacts made?
11. If FIRO and structural changes improve water supply, are there any negative impacts on recreation facilities at Lake Del Valle? If so, when, where, and how are these impacts made?

#### Agencies' Responsibilities

The Agencies shall provide all the required information, in the form of access, interviews, correspondence, reports, models and drawings in order to complete the analysis.

#### Deliverables

The expected deliverables include:

- Draft and final technical study describing the scope, methods, and findings of the analysis
- Weekly progress reports, via email or telephone
- Monthly in-person progress reports
- All models and hydrologic datasets at completion of the study

The resulting Agreement will be the District's standard Agreement for Services, a sample of which is

attached as Appendix A.

### Submittal Requirements

Please ensure that your proposal includes:

- A fully burdened hourly rate;
- A level of effort, expressed in a number of hours required to complete the study;
- a proposed timeline for completion;
- name(s) of proposed personnel who will provide the services, a resume(s); and
- Any exceptions to the proposed terms and conditions in the Agreement.

For technical questions, please contact Thomas Niesar, Water Resources Planning Manager, at 510-668-6549. For contractual questions or questions regarding this request, please contact me at 510-668-4291 or [robert.ferro@acwd.com](mailto:robert.ferro@acwd.com).

Please submit your proposal no later than October 6, 2016, either electronically to [robert.ferro@acwd.com](mailto:robert.ferro@acwd.com) or mail a hard copy to:

Alameda County Water District  
Procurement and Contracts Division  
43885 S. Grimmer Boulevard  
Fremont, CA 94538

Thank you.  
Sincerely,

A handwritten signature in blue ink, appearing to be 'Rf' followed by a horizontal line.

Robert Ferro  
Senior Buyer

# Appendix A

## Sample

### Agreement for Services



## **AGREEMENT FOR SERVICES**

THIS AGREEMENT is made by and between the ALAMEDA COUNTY WATER DISTRICT ("DISTRICT") located at 43885 South Grimmer Boulevard, Fremont, CA 94538 and DAVID FORD CONSULTING ENGINEERS, INC. ("CONSULTANT"), located at 2015 J Street, Suite 200, Sacramento, CA 95811 ("PARTIES").

WHEREAS, the DISTRICT desires to obtain consulting services (Services) and requested a proposal from CONSULTANT, dated October 03, 2016, a copy of which is attached and incorporated as Attachment 1.

WHEREAS, the CONSULTANT is ready, willing and able to furnish such services and has submitted a proposal dated, October 7, 2016, a copy of which is attached and incorporated as Attachment 2.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

### **1. RENDITION OF SERVICES**

The CONSULTANT agrees to provide professional services to the DISTRICT in accordance with the terms and conditions of this Agreement. CONSULTANT represents that it will exercise the same degree of professional care, skill, efficiency, and judgment ordinarily used by consultants providing similar professional services. CONSULTANT at all times will comply with all federal, state, and local laws, regulations and policies applicable to the services performed pursuant to this Agreement.

### **2. SCOPE OF SERVICES**

The scope of the CONSULTANT's services is set forth in Attachment 1, as supplemented by Attachment 2. However, to the extent that Attachment 2 is inconsistent with Attachment 1, Attachment 1 will govern over Attachment 2.

### **3. TERM OF AGREEMENT**

The term of this Agreement shall commence upon the DISTRICT's issuance of a written Notice to Proceed (NTP) and conclude upon the DISTRICT's final acceptance of the Services.

It is further understood that the term of the Agreement is subject to the DISTRICT's right to terminate the Agreement in accordance with Section 15 of this Agreement.

### **4. OWNERSHIP OF WORK**

All reports, designs, drawings, plans, specifications, and other materials prepared, or in the process of being prepared, by CONSULTANT, its employees, subcontractors, or agents under this Agreement ("Work Product") shall be and are the property of the DISTRICT.

The DISTRICT shall be entitled to access and to copy the Work Product during the progress of the work. If requested by DISTRICT, CONSULTANT shall deliver one copy of the Work Product remaining in the hands of the CONSULTANT, or in the hands of any subcontractor, upon completion or termination of the work.

CONSULTANT assigns to DISTRICT all right, title, and interest in and to the Work Product, including ownership of copyright in the Work Product. The DISTRICT may utilize any material prepared or work performed by CONSULTANT pursuant to this Agreement, including computer software, in any manner which the DISTRICT deems proper without additional compensation to CONSULTANT. CONSULTANT shall have no responsibility or liability for any revisions, changes, or corrections to the Work Product made by the DISTRICT, nor for any use or reuse of the Work Product for any purpose other than the Work unless CONSULTANT accepts such responsibility in writing.

The CONSULTANT shall not disclose Work related data or information without the prior written consent of the DISTRICT.

5. **USE OF SUBCONTRACTORS**

CONSULTANT shall not subcontract any Services to be performed under this Agreement without the prior written approval of the DISTRICT. CONSULTANT may subcontract with service firms engaged in drawing, reproduction, typing and printing without the prior written consent of the DISTRICT. CONSULTANT shall be solely responsible for reimbursing any subcontractor and the DISTRICT shall have no obligation to them.

6. **CHANGES**

The DISTRICT may, at any time, by written order, make changes within the scope of work and services described in this Agreement. If such changes cause an increase or decrease in the budgeted cost of or the time required for performance of the agreed upon work, an equitable adjustment as mutually agreed shall be made in the limit on compensation as set forth in Section 9 or in the term of the Agreement as set forth in Section 3, or both. In the event that CONSULTANT encounters any unanticipated conditions or contingencies that may affect the scope of work or services and result in an adjustment in the amount of compensation specified herein, CONSULTANT shall so advise the DISTRICT immediately upon notice of such condition or contingency. The written notice shall explain the circumstances giving rise to the unforeseen condition or contingency and shall set forth the proposed adjustment in compensation. This notice shall be given to the DISTRICT prior to the time that CONSULTANT performs work or services related to the proposed adjustment in compensation. The pertinent changes shall be expressed in a written supplement to this Agreement prior to implementation of such changes.

7. **RESPONSIBILITY; INDEMNIFICATION**

To the fullest extent permitted by law, CONSULTANT shall indemnify, keep and save harmless the DISTRICT, and its board members, officers, agents, and employees against any and all suits, claims, actions, damages, liabilities, costs, and expenses (collectively, "Liabilities") for any personal injury (including death, bodily injury, emotional or mental distress, and loss of consortium), property damage, intellectual property infringement, or financial or economic loss that arises out of, pertains to, or relates to the negligence, recklessness, or the willful misconduct of the CONSULTANT, its employees, subcontractors, or agents to the extent that such Liabilities arise out of the performance

(or non-performance) of this Agreement. This duty to indemnify includes any proceedings, actions, damages, or penalties due to the violation of any governmental law or regulation, the compliance with which is the responsibility of the CONSULTANT, its employees, subcontractors, or agents. CONSULTANT further agrees to defend any and all such actions, suits, or claims, and pay all charges of attorneys and all other incurred costs and expenses relating to the investigation, defense, negotiation, or settlement of any action, suit, or claim, and to reimburse the DISTRICT for any and all legal and other costs and expenses incurred by the DISTRICT in connection with the defense of such actions, suits, or claims. If any judgment is rendered against the DISTRICT or any of the other individuals enumerated above in any such action, CONSULTANT shall, at its expense, satisfy and discharge the same to the extent that the judgment is based on the CONSULTANT's agreement to indemnify as set forth in this section. This indemnification obligation will survive the termination or expiration of this Agreement. CONSULTANT shall require its subcontractors to similarly indemnify, defend, and keep and save harmless, the DISTRICT.

8. **INSURANCE**

The CONSULTANT will be required to secure insurance as indicated below.

- A. **Insurance Requirements:** The CONSULTANT shall, at their expense, procure and maintain during the life of the Contract all the insurance on all of their operations in companies acceptable to the District, as required by this section, and shall submit Certificates of Insurance to the District. The notice to proceed shall not be issued, and the CONSULTANT shall not commence work until such insurance has been approved by the District. Acceptance of the Certificates shall not relieve the CONSULTANT of any of the insurance requirements, nor decrease the liability of the CONSULTANT. The District reserves the right to require the CONSULTANT to provide Insurance Policies for review by the District in the event there is a dispute regarding the scope and coverage of insurance.
- B. **Workers' Compensation Insurance:** The CONSULTANT shall take out and maintain during the life of the Contract, Workers' Compensation and Employers' Liability Insurance for all employees on the project. Employers' liability insurance shall be provided in amounts not less than \$1,000,000 each accident for bodily injury by accident, \$1,000,000 policy limit for bodily injury by disease, and \$1,000,000 each employee for bodily injury by disease. In lieu of evidence of Workers' Compensation Insurance, the District will accept a Self-Insuring Certificate from the State of California. The CONSULTANT shall require any subcontractor to provide evidence of Workers' Compensation and Employers' Liability Insurance, all in strict compliance with California State Laws.
- C. **General Liability Insurance:** The CONSULTANT shall also secure and maintain during the life of the Contract such General Liability Insurance as shall protect the District, its directors, officers, employees, and agents from claim which may arise from operations under this Contract, whether such operations are by itself, by any subcontractor, or by anyone directly or indirectly employed by either of them. CONSULTANT shall carry Comprehensive General Liability or Commercial General Liability insurance covering all operations by or on behalf of District for

bodily injury, property damage, and personal injury liability for the limits of liability indicated below and including, but not limited to, coverage for:

- premises and operations;
- products and completed operations;
- contractual liability insuring the obligations assumed by CONSULTANT in this contract;
- broad form property damage (including completed operations);
- explosion, collapse and underground hazards;
- bodily injury;
- property damage;
- arrest, false imprisonment, malicious prosecution, defamation of character, libel and slander alleged to have been caused by CONSULTANT or employees of CONSULTANT or subcontractors;
- personal injury liability; and
- accidental spillage, cleanup and other related costs.

Except with respect to bodily injury and property damage included within the products and completed operations hazards, the aggregate limits where applicable, shall apply separately to CONSULTANT work under this Contract.

This Liability Insurance shall be in an amount not less than \$1,000,000 for each occurrence, \$1,000,000 for each occurrence for work on public roadways.

Contractors performing construction work shall carry the required Commercial General Liability Insurance for ten (10) years following completion of CONSULTANT's work under this Contract and CONSULTANT shall furnish Certificates of Insurance to District at the inception of each of these subsequent policies for ten (10) years as evidence of this required insurance.

Broad form property damage liability must be afforded. Permission is granted for deductible which shall not exceed \$25,000 without approval of the District.

- 1) One of the following coverage forms is required:
  - a. Comprehensive General Liability Commercial
  - b. General Liability (Occurrence)
- 2) If CONSULTANT carries a Comprehensive General Liability policy, the limits of liability shall not be less than a Combined Single Limit for bodily injury, property damage and Personal Injury Liability of:
  - a. \$1,000,000 each occurrence
  - b. \$2,000,000 Aggregate
- 3) If CONSULTANT carries a Commercial General Liability (Occurrence) policy, the limits of liability shall not be less than:

- a. \$1,000,000 each occurrence (combined single limit for bodily injury and property damage)
- b. \$1,000,000 for Personal Injury Liability
- c. \$2,000,000 Aggregate for Products-Completed Operations
- d. \$2,000,000 General Aggregate

If the policy does not have an endorsement providing that the General Aggregate Limit applies separately to this Contract or if Defense Costs are included in the aggregate limits, then the required aggregate limits shall be \$2,000,000.

- 4) With respect to whichever general liability policy form is furnished, District, its officers, directors, employees and agents shall be named as Additional Insured per Additional Insured Endorsement CG20 10 10 93 or equivalent. This Endorsement is to be attached to insurance certificates submitted to the District. The policy shall stipulate that the insurance afforded the Additional Insured shall apply as primary insurance and that any other insurance carried by District, its officers, directors, employees and agents will be excess only and will not contribute with Contractors insurance. Exclusions of contractual liability as to bodily injuries, personal injuries and property damage MUST BE ELIMINATED from the basic policy and endorsements.
- D. Automobile Liability Insurance: The CONSULTANT shall take out and maintain during the life of the Contract, Automobile Liability Insurance (Bodily Injury and Property Damage Liability) including coverage for all owned, hired, rented, leased and non-owned automobiles. The limits of liability shall be not less than \$1,000,000 Combined Single Limit for each accident and \$1,000,000 for each occurrence for work on public roadways.
- 1) If a CONSULTANT's vehicle is used in the performance of work on District property or at a jobsite then with respect to the automobile liability policy that is furnished, District, its officers, directors, employees and agents shall be named as Additional Insured. The policy shall stipulate that the insurance afforded the Additional Insured shall apply as primary insurance and that any other insurance carried by District, its officers, directors, employees and agents will be excess only and will not contribute with this insurance. The policy must cover complete contractual liability. Exclusions of contractual liability as to bodily injuries, personal injuries and property damage MUST BE ELIMINATED from the basic policy and endorsements.
- E. Professional Liability Insurance. CONSULTANT also shall maintain Professional Liability Insurance covering CONSULTANT's performance under this Agreement with a limit of liability of One Million Dollars (\$1,000,000) for any one claim.
- F. Certificates of Insurance: Certificates of Insurance shall be furnished by CONSULTANT to District before any work is commenced hereunder by CONSULTANT. The Certificate of Insurance shall provide that there will be no cancellation, reduction or modification of coverage without thirty (30) days prior written notice to District. District is to be notified if insurance is

cancelled for any reason. If CONSULTANT does not comply with this Section, District may, at its option, provide insurance coverage to protect District and charge CONSULTANT for the cost of that insurance. The required insurance shall be subject to the approval of the District, but any acceptance of insurance certificates by District shall not limit or relieve CONSULTANT of the duties and responsibilities assumed by it under this Contract.

G. Waiver of Subrogation: The referenced policies and any Excess or Umbrella policies, where applicable, shall contain a waiver of subrogation in favor of the Alameda County Water District and their respective directors, officers, employees, volunteers and agents while acting in such capacity, and their successors or assignees, as they now or as they may hereafter be constituted, singly, jointly or severally.

H. Deductibles and Self-insured Retention:

Any deductibles or self-insured retention must be declared to ACWD.

I. District and CONSULTANT waive all rights against each other and against all other contractors for loss or damage to the extent covered by Builder's Risk or any other property or equipment insurance applicable to the work, except such rights as they may have to the proceeds of such insurance. If the policies of insurance referred to in this Section require an endorsement or consent of the insurance company to provide for continued coverage where there is a waiver of subrogation, the owners of such policies will cause them to be endorsed or obtain such consent.

J. The requirement for carrying insurance hereunder is cumulative and shall not be in derogation of other provisions of this Contract.

K. Insurance carrier must have a Best's Rating of "A-VII" or better.

### **IMPORTANT**

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

### **DISCLAIMER**

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsements(s).

## **9. COMPENSATION**

The CONSULTANT agrees to perform all of the work set forth in Attachment 1 further supplemented by Attachment 2, on a time and materials basis. Total compensation shall not to exceed (\$XXXXXXX). The amount shall include all labor, materials, taxes, profit, overhead, insurance, travel, subcontractor costs, and all other costs and expenses incurred by the CONSULTANT.

**10. MANNER OF PAYMENT**

Payment shall be made upon approval of invoices, no more than once a month. All invoices shall reference the agreement number. The DISTRICT shall make payments to the CONSULTANT for satisfactory Services performed and the costs of such services within thirty (30) calendar days from the date the DISTRICT receives the CONSULTANT's invoice. All invoices and supporting documentation, clearly identifying the Agreement number, shall be submitted by email, addressed to Thomas Niesar, Water Resources Planning Manager, at [accounting@acwd.com](mailto:accounting@acwd.com).

**11. CONSULTANT'S STATUS**

Neither the CONSULTANT nor any party contracting with the CONSULTANT shall be deemed to be an agent or employee of the DISTRICT. The CONSULTANT is and shall be an independent contractor, and the legal relationship of any person performing services for the CONSULTANT shall be one solely between that person and the CONSULTANT.

**12. ASSIGNMENT**

CONSULTANT shall not assign any of its rights nor transfer any of its obligations under this Agreement without the prior written consent of DISTRICT.

**13. DISTRICT WARRANTIES**

The DISTRICT makes no warranties, representations or agreements, either expressed or implied, beyond such as are explicitly stated in this Agreement.

**14. DISTRICT REPRESENTATIVES**

Except when approval or other action is required to be given or taken by the Board of Directors of the DISTRICT, the General Manager of the DISTRICT, or such person or persons as the General Manager shall designate in writing from time to time, shall represent and act for the DISTRICT on the day to day activities under this Agreement. For strictly contractual matters relating to this Agreement, an authorized representative of the Procurement and Contracts Division, shall represent and act for the District.

**15. TERMINATION**

The DISTRICT shall have the right to terminate this Agreement at any time for cause or convenience by giving written notice to the CONSULTANT. Upon receipt of notice of termination for convenience, the CONSULTANT shall not commit itself to any further expenditure of time or resources. Upon receipt of notice of default, CONTRACTOR shall be afforded thirty days to correct the identified deficiency(ies). If said deficiency(ies) are not corrected to the DISTRICT's satisfaction, the Agreement will be terminated immediately.

If the Agreement is terminated for any reason other than a default by CONSULTANT, the DISTRICT shall pay to CONSULTANT in accordance with the provisions of Sections 9 and 10 all sums actually due and owing from DISTRICT for all services satisfactorily performed up to the day written notice of termination is given, plus any costs reasonably and necessarily incurred by



CONSULTANT to effect such suspension or termination. If the Agreement is terminated for default, the DISTRICT shall remit final payment to CONSULTANT in an amount to cover only those services performed in full accordance with the terms and conditions of this Agreement up to the effective date of termination.

16. **MAINTENANCE, AUDIT, AND INSPECTION OF RECORDS**

The CONSULTANT shall permit the authorized representatives of the DISTRICT to inspect, audit, make copies and transcriptions of books and all data and records of the CONSULTANT relating to its performance under the Agreement, if requested.

17. **CONFIDENTIAL INFORMATION**

A. **Definition.** The CONSULTANT acknowledges that it may receive Confidential Information from the DISTRICT, Santa Clara Valley Water District (SCVWD) or the Alameda County Flood Control and Water Conservation District (Zone 7) (hereafter collectively referred to as "AGENCIES") in connection with this Agreement. "**Confidential Information**" means all information or material that AGENCIES treat as confidential and any information relating to third parties that a party has an obligation to treat as confidential, which is disclosed by or obtained by a party in connection with this Agreement, whether such information is in oral, written, graphic or electronic form, which: is (A) marked "Confidential," "Restricted," or "Proprietary Information" or other similar marking, (B) known by the parties to be considered confidential or proprietary, or (C) which should be known or understood to be confidential or proprietary by an individual exercising reasonable commercial judgment in the circumstances. Confidential Information does not include information to the extent that such information: (i) is or becomes generally known to the public by any means other than a breach of the obligations of a receiving party hereunder; (ii) was previously known to the receiving party as evidenced by its written records; (iii) is rightly received by the receiving party from a third party who is not under an obligation of confidentiality; or (iv) is independently developed by the receiving party without reference to or use of the other party's Confidential Information which such independent development can be established by evidence that would be acceptable to a court of competent jurisdiction.

B. **Confidentiality Obligations.** Each of the PARTIES agree:

- 1) to maintain the Confidential Information of the other party in confidence and to take all reasonable steps, which shall be no less than those steps it takes to protect its own confidential and proprietary information, to protect the Confidential Information of the other party from unauthorized use, disclosure, copying or publication;
- 2) not to use the Confidential Information of the other party other than in the course of exercising its rights or performing its obligations under this Agreement;
- 3) not to disclose or release such Confidential Information except to the extent required by applicable law or during the course of or in connection with any litigation, arbitration or

other proceeding based upon or in connection with the subject matter of this Agreement, provided that the receiving party shall first give reasonable notice to the disclosing party prior to such disclosure so that the disclosing party may obtain a protective order or equivalent and provided that the receiving party shall comply with any such protective order or equivalent;

- 4) not to disclose or release such Confidential Information to any third person without the prior written consent of the disclosing party, except for authorized employees or agents of the receiving party who have a need to know such information for the purpose of performance under this Agreement and exercising its rights under this Agreement, and who are bound by confidentiality obligations at least as protective of the disclosing party's Confidential Information as this Agreement; and
- 5) to take such actions as may be reasonably necessary to enforce its agreements with its employees and agents, including commencing legal proceedings.

C. Information Subject to the Public Records Act. CONSULTANT understands and agrees that the DISTRICT is a public entity and is thus subject to the California Public Records Act (Government Code Section 6250 et seq.) and its relevant disclosure requirements. Under certain circumstances, the DISTRICT may be required to disclose information including the contents of this Agreement in accordance with the California Public Records Act. If CONSULTANT requests that the DISTRICT withhold from disclosure information identified by CONSULTANT as confidential, and the DISTRICT complies with CONSULTANT's request, CONSULTANT shall assume all responsibility for any challenges resulting from the non-disclosure, indemnify and hold harmless the DISTRICT from and against all damages (including but not limited to attorneys' fees that may be awarded to the party requesting CONSULTANT's information), and pay any and all costs and expenses related to the withholding of CONSULTANT's information.

## **18. RELEASE OF INFORMATION**

CONSULTANT shall not release any reports or other information prepared in connection with this Agreement without the approval of the General Manager.

## **19. KEY PERSONNEL**

David Ford shall serve as the primary staff person of CONSULTANT to oversee all of the services under this Agreement. The other principal participants shall be individuals identified by position title in Attachment 2.

## **20. NOTICES**

All communications relating to the day to day activities of the project shall be exchanged between the DISTRICT's Contract Administrator and the CONSULTANT's Account Manager.

All other notices and communications deemed by either party to be necessary or desirable to be given to the other party shall be in writing and may be given by personal delivery to a representative of the parties or by mailing the same postage prepaid, addressed as follows:

If to the DISTRICT:	Alameda County Water District 43885 South Grimmer Blvd Fremont, California 94538
Attention:	Procurement & Contracts Division
If to the CONSULTANT:	David Ford Consulting Engineers 2015 J Street, Suite 200 Sacramento, CA 95811
Attention:	David Ford

The address to which mailings may be made may be changed from time to time by mailed notice as described above. Any notice given by mail shall be deemed given on the day after that on which it is deposited in the United States Mail as provided above.

## **20. ATTORNEYS' FEES**

If any legal proceeding should be instituted by either of the parties to enforce the terms of this Agreement or to determine the rights of the parties under this Agreement, the prevailing party in said proceeding shall recover, in addition to all court costs, reasonable attorneys' fees.

## **21. APPLICABLE LAW**

This Agreement, its interpretation and all work performed under it shall be governed by the laws of the State of California, venue the courts of the County of Alameda.

## **22. BINDING ON SUCCESSORS**

All of the terms, provisions and conditions of this Agreement shall be binding upon and inure to the benefit of the parties and their respective successors, assigns and legal representatives.

## **23. SEVERABILITY**

Should any provision, or portion of a provision, herein be found or deemed to be invalid, this Agreement shall be construed as not containing such provision, or portion of such provision, and all other provisions which are otherwise lawful shall remain in full force and effect, and to this end the provisions of this Agreement are declared to be severable.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by their duly authorized officers as of the last signature date set forth below.

ALAMEDA COUNTY WATER DISTRICT

DAVID FORD CONSULTING ENGINEERS\*

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

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

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

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

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

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

Name: \_\_\_\_\_

Title: \_\_\_\_\_

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

ATTEST:

\_\_\_\_\_  
District Secretary

\*If Consultant is a corporation, the Contract must be executed by two corporate officers, one from each of the following categories 1) the President, the Vice President or the Chair of the Board, and 2) the Secretary, Assistant Secretary, Chief Financial Officer, or Assistant Treasurer.

# Attachment 2

## Proposal



**DAVID FORD  
CONSULTING  
ENGINEERS**

2015 J Street, Suite 200  
Sacramento, CA 95811  
Ph. 916.447.8779 Fx. 916.588.9566

## MEMORANDUM

To: Robert Ferro and Thomas Niesar, PE

From: Michael Konieczki, PE (Lic # CA 74357) and David Ford, PE, PhD

Date: 10/7/2016

Subject: Scope of work and cost proposal for feasibility study of forecast-informed reservoir operations (FIRO) at Lake Del Valle Reservoir in response to your letter of October 3, 2016

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### Summary

David Ford Consulting Engineers, Inc. (Ford Engineers) proposes to provide labor and materials to complete a feasibility study of FIRO at Lake Del Valle Reservoir for a fixed price of \$124,862.75. This price includes labor and direct costs. This proposal is valid for 30 days.

In addition, we propose an optional task of 3 in-person progress reports for an additional fixed price of \$11,474.88. This price includes labor and direct costs. This optional task may be exercised at any time before project completion.

As requested in your letter of October 3, we provide in this proposal:

- A detailed scope of work (SOW).
- A proposed schedule for project completion.
- Identification of the proposed project team, including resumes.
- Detailed cost information.

We take no exceptions with the standard agreement for services that was included with your letter. We will request certificates of insurance upon execution of the contract.

### Scope of Work

Task 1. Identify and document FIRO system components (Question 1 in your letter)

To complete this task we will:

1. Coordinate with Alameda County Water District (ACWD), Santa Clara Valley Water District (SCVWD), Alameda County Flood Control and Water Conservation District (Zone 7), East Bay Regional Park District (EBRPD), and other agencies, as required (collectively, the Stakeholder Agencies), to identify:

- The components of a FIRO system at Lake Del Valle Reservoir.
  - The agencies that will provide those components.
  - All of the agencies that should be included in the set of Stakeholder Agencies, i.e., all the agencies that will be involved and need to be coordinated with.
2. Summarize findings for inclusion in the technical study report (Task 16).

Task 2. Identify and document required policy and procedural shifts for FIRO implementation (Question 2)

To complete this task, we will:

1. Coordinate with the Stakeholder Agencies to identify policy and procedural shifts required by the FIRO system components defined in Task 1.
2. Summarize findings for inclusion in the technical study report (Task 16).

Task 3. Identify and document metrics for assessing water supply availability, flood management, and recreational facilities impacts (Questions 3-11)

To complete this task, we will:

1. Coordinate with the Stakeholder Agencies to identify metrics for assessing water supply availability, flood management, and recreational facilities impacts.
2. Develop, in coordination with the Stakeholder Agencies, methods for computing metric values if needed.
3. Summarize findings for inclusion in the technical study report (Task 16).

Task 4. Review HEC-ResSim model, document findings, and modify as needed (Questions 3-11)

To complete this task, we will:

1. Coordinate with ACWD to obtain the HEC-ResSim model and flow dataset of Lake Del Valle developed by Zone 7.
2. Obtain and review the water control manual (WCM) for Lake Del Valle Reservoir.
3. Review the Zone 7 HEC-ResSim model and identify modifications required to represent the Lake Del Valle operations, as defined by the WCM.
4. Modify the HEC-ResSim model given the required modifications identified in step 3.
5. Summarize findings for inclusion in the technical study report (Task 16).

Task 5. Develop period of record hydrologic dataset and document methods (Questions 3-11)

To complete this task, we will:

1. Review the revised HEC-ResSim model from Task 4 and identify the hydrologic data required as boundary conditions for simulation of the FIRO system defined in Task 1.



2. Coordinate with the Stakeholder Agencies to identify sources of hydrologic data identified in step 1 of this task.
3. Compile all data and develop, for each required boundary condition, time series for the period of record.
4. Review developed time series and identify, in coordination with ACWD, the common period of record.
5. Identify "gaps" and potential enhancements in the hydrologic dataset for the common period of record.
6. Develop and implement methods for "filling-in," or otherwise enhancing, hydrologic dataset deficiencies.
7. Construct the hydrologic dataset for the common period of record.
8. Summarize findings and methods for inclusion in the technical study report (Task 16).

Task 6. Configure baseline HEC-ResSim model, and simulate hydrologic period of record (Questions 3-11)

To complete this task, we will:

1. Configure the revised HEC-ResSim model (from Task 4) to use the appropriate time series from the hydrologic dataset to represent baseline conditions.
2. Simulate baseline conditions for the common period of record, defined in Task 5.
3. Summarize findings for inclusion in the technical study report (Task 16).

Task 7. Analyze baseline HEC-ResSim model results and identify impacts (Questions 3-11)

To complete this task, we will:

1. Review the baseline results simulated in Task 6.
2. Identify, or compute as needed, the metrics required to assess water supply availability, flood management, and recreational facilities impacts, defined in Task 3.
3. Summarize findings for inclusion in the technical study report (Task 16).

Task 8. Configure FIRO in HEC-ResSim model, and simulate hydrologic period of record (Questions 3-5)

To complete this task, we will:

1. Modify the Lake Del Valle HEC-ResSim model from Task 4 to represent the FIRO system, defined in Task 1.
2. Configure the revised HEC-ResSim model to use the appropriate time series from the hydrologic dataset.
3. Simulate FIRO for the common period of record, defined in Task 5.

Task 9. Analyze FIRO results and identify impacts (Questions 3-5)

To complete this task, we will:

1. Review the FIRO results from Task 8.

2. Identify, or compute as needed, the metrics required to assess water supply availability, flood management, and recreational facilities impacts, defined in Task 3.
3. Summarize findings for inclusion in the technical study report (Task 16).

Task 10. Identify and document water supply reallocation volume to be analyzed (Questions 6-8)

To complete this task, we will:

1. Coordinate with the Stakeholder Agencies to identify 1 scenario for reallocating reservoir storage from flood control to water supply to be analyzed in conjunction with FIRO at Lake Del Valle.
2. Summarize findings for inclusion in the technical study report (Task 16).

Task 11. Configure FIRO and water supply reallocation in HEC-ResSim model, and simulate hydrologic period of record (Questions 6-8)

To complete this task, we will:

1. Modify the Lake Del Valle FIRO HEC-ResSim model from Task 8 to represent the water supply reallocation scenario defined in Task 10.
2. Configure the revised HEC-ResSim model to use the appropriate time series from the hydrologic dataset.
3. Simulate FIRO and reallocation scenario for the common period of record, defined in Task 5.

Task 12. Analyze FIRO and water supply reallocation simulation results and identify impacts (Questions 6-8)

To complete this task, we will:

1. Review the FIRO and water supply reallocation scenario results from Task 11.
2. Identify, or compute as needed, the metrics required to assess water supply availability, flood management, and recreational facilities impacts, defined in Task 3.
3. Summarize findings for inclusion in the technical study report (Task 16).

Task 13. Identify and document structural changes to be analyzed (Questions 9-11)

To complete this task, we will:

1. Coordinate with the Stakeholder Agencies to identify 1 structural change scenario, such as dam raise and/or outlet works modifications, to be analyzed in conjunction with FIRO at Lake Del Valle.
2. Summarize findings for inclusion in the technical study report (Task 16).

Task 14. Configure FIRO and structural changes in HEC-ResSim model, simulate hydrologic period of record, and analyze results (Questions 9-11)

To complete this task, we will:

1. Modify the Lake Del Valle FIRO HEC-ResSim model from Task 8 to represent the structural change scenario defined in Task 13.

2. Configure the revised HEC-ResSim model to use the appropriate time series from the hydrologic dataset.
3. Simulate FIRO and structural change scenario for the common period of record, defined in Task 5.

Task 15. Analyze FIRO and structural change simulation results and identify impacts (Questions 9-11)

To complete this task, we will:

1. Review the FIRO and structural change scenario results from Task 14.
2. Identify, or compute as needed, the metrics required to assess water supply availability, flood management, and recreational facilities impacts, defined in Task 3.
3. Summarize findings for inclusion in the technical study report (Task 16).

Task 16. Develop draft and final technical study report

To complete this task, we will:

1. Develop a draft technical study report that details our methods and presents our findings.
2. Submit the draft technical study report to ACWD for review within 90 days of receiving notice to proceed. ACWD and its agents will have 7 days to review the draft technical study and provide comments.
3. Revise the technical study after addressing the comments provided, if any.
4. Submit the final technical study report 5 days after receipt of comments.

Task 17. 12 weekly progress reports

To complete this task, we will report project status to ACWD, and other agencies as required, via email or teleconference.

Task 18. Develop final model and hydrologic dataset package

To complete this task, we will package and provide all final study materials, including models, hydrologic datasets, technical memoranda, and technical study reports to ACWD. We will provide this package electronically

Optional Task 19. 3 monthly in-person progress reports

To complete this task, we will visit ACWD's offices to provide in-person reports of project status.

## Schedule

We will complete all tasks described in the scope of work within 102 days of notice to proceed. This presumes that all material to be furnished by you will be made available on the date we receive notice to proceed and that all reviews of submittals will be completed as shown in the SOW. Any such delays will result in corresponding delays in completion.

## Understandings and clarification of scope items

We note the items below to confirm and clarify our understanding of the scope of work. Our cost proposal is based upon this understanding; if any of

the items shown below are unacceptable to you, we respectfully reserve the right to revise our cost to be consistent with your requirements.

- For Tasks 1, 2, 3, 10, and 13, we have included direct costs of mileage for 1 in-person meeting to be held at ACWD's offices for all items.
- For Task 5, the hydrologic datasets we develop will be stored in HEC-DSS format.
- For Tasks 4, 6, 8, 11, and 14, any model modifications will be coordinated with, and approved by, ACWD and Zone 7. Such modifications will be limited to creation of networks, alternatives, and simulations required to complete this study.
- For Task 16, all comments will be provided electronically by reviewers within 7 days of receipt of the draft technical study. We will revise and finalize the technical study report within 5 days of receipt of comments.
- For Task 18, we will provide final study products electronically via our secure FTP service.
- For Optional Task 19, we include direct costs of mileage for 3 meetings to be held at ACWD's offices.

## Project team

Table 1 lists the Ford Engineers project team and applicable rate categories.

*Table 1. Ford Engineers project team*

ID (1)	Team member (2)	Rate category (3)
1	David Ford, PE, PhD, D.WRE	Principal engineer
2	Michael Konieczki, PE (project engineer)	Senior engineer
3	Max Barry	Senior technical specialist
4	Teresa Bowen, PE	Senior engineer
5	Holly Canada, PE	Engineer
6	Marilyn Hurst	Senior technical specialist
7	Donna Lee, CFM	Senior technical specialist
8	Nathan Pingel, PE, D.WRE	Principal engineer
9	Rhonda Robins, JD, CFM	Senior technical specialist
10	Adam Schneider, PE	Senior engineer

## Cost by task

Table 2 summarizes the cost by task required to complete a feasibility study of FIRO at Lake Del Valle Reservoir as defined by the SOW. Table 3 summarizes the cost of the optional task.

Table 4 displays the proposed labor required for each task in the SOW. Table 5 displays the proposed labor required for each optional task in the SOW. All labor costs shown are fully burdened.

Table 2. Cost estimates by task

Task (1)	Description (2)	Cost <sup>1</sup> (3)
1	Identify and document FIRO system components (Question 1 from your letter)	\$4,522.72
2	Identify and document required policy and procedural shifts for FIRO implementation (Question 2)	\$4,522.72
3	Identify and document metrics for assessing water supply availability, flood management, and recreational facilities impacts (Questions 3-11)	\$4,522.72
4	Review HEC-ResSim model, document findings, and modify as needed (Questions 3-11)	\$10,382.07
5	Develop period of record hydrologic dataset and document methods (Questions 3-11)	\$8,865.00
6	Configure baseline HEC-ResSim model, and simulate hydrologic period of record (Questions 3-11)	\$9,255.88
7	Analyze baseline HEC-ResSim model results and identify impacts (Questions 3-11)	\$10,244.90
8	Configure FIRO in HEC-ResSim model, and simulate hydrologic period of record (Questions 3-5)	\$9,255.88
9	Analyze FIRO results and identify impacts (Questions 3-5)	\$10,244.90
10	Identify and document water supply reallocation volume to analyze (Questions 6-8)	\$3,337.28
11	Configure FIRO and water supply reallocation in HEC-ResSim model, and simulate hydrologic period of record (Questions 6-8)	\$6,907.62
12	Analyze FIRO and water supply reallocation simulation results and identify impacts (Questions 6-8)	\$7,896.63
13	Identify and document structural changes to analyze (Questions 9-11)	\$3,337.28
14	Configure FIRO and structural changes in HEC-ResSim model, simulate hydrologic period of record, and analyze results (Questions 9-11)	\$6,907.62
15	Analyze FIRO and structural changes simulation results and identify impacts (Questions 9-11)	\$7,896.63
16	Develop draft and final technical study report	\$11,671.57
17	12 weekly progress reports	\$3,556.32
18	Develop final model and hydrologic dataset package	\$1,416.22
<i>Labor subtotal for all tasks</i>		<i>\$124,743.95</i>
Direct costs	Mileage expense (1 roundtrip to ACWD offices at 220 miles)	\$118.20
<b>Total cost</b>		<b>\$124,862.75</b>

1. Labor costs shown represent fully burdened costs.

*Table 3. Cost estimates by optional task*

Task (1)	Description (2)	Cost <sup>1</sup> (3)
19	Optional Task. 3 monthly in-person progress reports	\$11,118.48
Direct costs	Mileage expense (3 round trips to ACWD offices at 220 miles per trip)	\$356.40
Total optional cost		\$11,474.88

1. Labor costs shown represent fully burdened costs.

Table 4. Detailed labor estimate breakdown by task

Labor					
Task	Labor hours				Task cost
	Principal Eng	Sr. Eng	Eng	Sr. Tech Spec	
	282.04	155.34	138.19	143.88	
1 Identify and document FIRO system components (Q1 in your letter)	4	20		2	\$ 4,522.72
2 Identify and document required policy and procedural shifts for FIRO implementation (Q2)	4	20		2	\$ 4,522.72
3 Identify and document metrics for assessing water supply availability, flood management, and recreational facilities impacts (Q3-11)	4	20		2	\$ 4,522.72
4 Review HEC-ResSim model, document findings, and modify as needed (Q3-11)	2	40	24	2	\$ 10,382.07
5 Develop period of record hydrologic dataset and document methods (Q3-11)	2	16	40	2	\$ 8,865.00
6 Configure baseline HEC-ResSim model, and simulate hydrologic period of record (Q3-11)		24	40		\$ 9,255.88
7 Analyze baseline HEC-ResSim model results and identify impacts (Q3-11)	2	32	32	2	\$ 10,244.90
8 Configure FIRO in HEC-ResSim model, and simulate hydrologic period of record (Q3-5)		24	40		\$ 9,255.88
9 Analyze FIRO results and identify impacts (Q3-5)	2	32	32	2	\$ 10,244.90
10 Identify and document water supply reallocation volume to analyze (Q6-8)	2	16		2	\$ 3,337.28
11 Configure FIRO and water supply reallocation in HEC-ResSim model, and simulate hydrologic period of record (Q6-8)		16	32		\$ 6,907.62
12 Analyze FIRO and water supply reallocation simulation results and identify impacts (Q6-8)	2	24	24	2	\$ 7,896.63
13 Identify and document structural changes to analyze (Q9-11)	2	16		2	\$ 3,337.28
14 Configure FIRO and structural changes in HEC-ResSim model, simulate hydrologic period of record, and analyze results (Q9-11)		16	32		\$ 6,907.62
15 Analyze FIRO and structural changes simulation results and identify impacts (Q9-11)	2	24	24	2	\$ 7,896.63
16 Develop draft and final technical study report	4	24	16	32	\$ 11,671.57
17 12 weekly progress reports	6	12			\$ 3,556.32
18 Develop final model and hydrologic dataset package		2	8		\$ 1,416.22
Labor subtotal for all tasks	38	378	344	54	\$ 124,743.95
Subcontracts					
Other	0	hr @	\$0.00/hr		\$ -
Subcontract subtotal					\$ -
Direct cost					
Reproduction 8- 1/2 X 11	0	copies @	\$0.07/page		\$ -
Reproduction 11 X17	0	copies @	\$0.14/page		\$ -
Reproduction color 8-1/2 X 11	0	copies @	\$0.79/page		\$ -
Reproduction color 11 X 17	0	copies @	\$1.58/page		\$ -
Mileage (1 roundtrip to ACWD @ 220 miles)	220	mi @	\$0.54/mi		\$ 118.80
Other costs					\$ -
Direct cost subtotal					\$ 118.80
Total cost					
Labor subtotal for all tasks					\$ 124,743.95
Direct cost					\$ 118.80
Total					\$ 124,862.75



Table 5. Detailed labor estimate breakdown by optional task

Labor					
Optional Task	Labor hours				Task cost
	Principal Eng	Sr. Eng	Eng	Sr. Tech Spec	
	282.04	282.04	282.04	282.04	
19 Optional Task. 3 monthly in-person progress reports	24	28			\$ 11,118.48
Labor subtotal for all tasks	24	28	0	0	\$ 11,118.48
Subcontracts					
Other	0	hr @	\$0.00/hr		\$ -
Subcontract subtotal					\$ -
Direct cost					
Reproduction 8-1/2 X 11	0	copies @	\$0.07/page		\$ -
Reproduction 11 X17	0	copies @	\$0.14/page		\$ -
Reproduction color 8-1/2 X 11	0	copies @	\$0.79/page		\$ -
Reproduction color 11 X 17	0	copies @	\$1.58/page		\$ -
Optional Task 19. Mileage (3 roundtrips to ACWD @ 220 miles per trip)	660	mi @	\$0.54/mi		\$ 356.40
Other costs					\$ -
Direct cost subtotal					\$ 356.40
Total cost					
Labor subtotal for all tasks					\$ 11,118.48
Direct cost					\$ 356.40
Total					\$ 11,474.88

## Attachment 1. Resumes for Ford Engineers' project team

# David Ford, PhD, PE, D.WRE, Principal engineer

Years of experience: 42 years total, 26 with Ford Engineers

Education: PhD Water resources systems and hydrologic engineering (1978); MS Engineering (1975); BS Civil engineering (1973) (all from University of Texas)

Professional registrations: All registrations in civil engineering— Alabama; Arizona; California; Colorado; Iowa; Kansas; Nevada; North Carolina; Ohio; Oklahoma; Tennessee; Texas; NCEES

## Overview

DR. DAVID FORD is an internationally recognized expert in hydrologic, hydraulic, and water resources engineering, planning, and management, and has provided consulting services to local, state, and federal governmental agencies throughout the US and internationally. Ford has been a key advisor to the California Department of Water Resources (DWR) in the development of flood risk reduction policy for the State of California, including the Statewide Flood Management Planning Program, the Central Valley Flood Protection Plan, and the Urban Levee Design Criteria Program. His areas of expertise include management of complex, multi-agency projects; surface water hydrologic analysis; fluvial hydraulic analysis; flood risk management; and real-time forecasting, flood warning, and decision support analysis. He has trained thousands of engineers and scientists in hydrologic and hydraulic engineering principles; and prepared dozens of training documents, engineering manuals, and other guidance for local government agencies, state agencies, USACE, NWS, and UN agencies; (ghost)written and/or revised, in whole or in part, USACE guidance documents such as the Engineer Manuals (EMs) on risk-based analysis and hydrologic engineering requirements for flood risk management studies, chapters for the flood-runoff analysis EM, the technical reference manual and applications guide for HEC-HMS, the application guides for HEC-FDA and HEC-FIA, and Engineer Regulations (ERs) on water control management; authored numerous articles published in professional engineering journals, and appeared as a speaker at many professional hydrologic, hydraulic, and water resource engineering conferences.

## Professional associations and committees

- Diplomate Water Resources Engineers (D.WRE), American Academy of Water Resource Engineers
- American Society of Civil Engineers, member; past chair, Water Resources Systems Committee, Water Resource Planning and Management Division; past associate editor, Journal of Water Resource Planning and Management
- Association of State Floodplain Managers, member
- National Hydrologic Warning Council, member
- ALERT Users Group, member
- Southwestern Association of ALERT Systems, member
- National Research Council (NRC) committee on Missouri River ecosystem science, past member
- NRC committee on Grand Canyon monitoring and research, past member
- NRC standing committee on hydrologic science, past member
- NRC ad hoc committee examining FEMA's treatment of levees within the National Flood Insurance Program, member
- NRC committee on risk-based methods for insurance premiums of negatively elevated structures in the National Flood Insurance Program, past chair

## Professional recognition

- ALERT Users Group Outstanding Service Award (2004)
- David N. Kennedy Water Resources Award, ASCE Sacramento Section (2014)
- Julian Hinds Award, ASCE Environmental and Water Resources Institute (2015)

## Project-specific experience

Membership on Dam Safety Review Board (DSRB), for the FERC Part 12D Safety Inspection of Project No. 2426, Alamo-William E. Warne, Castaic, and Mojave Siphon-Devil Canyon powerplant complexes (DWR, Ongoing). As a member of the DSRB for the Project 2426 powerplant complex facilities, Ford is investigating and deliberating with unrestricted access to DWR infrastructure design, operation, maintenance, and inspection information. DSRB findings are reported directly to the Director, they form the basis for reports to FERC, and they guide DWR's decisions on investments for long-term care of this backbone of California's water delivery system. Fee: \$75,000. Role: Principal engineer.

Facilitation of technical expert panels, various clients. Examples of expert panels that Ford has facilitated include (1) an expert elicitation session for the Corps of Engineers to develop a strategy for accounting for climate change impacts in designs for flood protection for the Fargo, ND-Moorhead, MN metropolitan area (2009); (2) for the DWR Division of Flood Management, a panel of geotechnical engineers, leading them to develop a set of levee fragility curves that were used for risk analyses for the 2012 Central Valley Flood Protection Plan (CVFPP) (2011); and (3) for the Sacramento County Department of Water Resources, an expert panel that reviewed stormwater and environmental water storage policy and advised the county on changes to that policy (2013).

Lake Mendocino forecast-informed reservoir operations (FIRO) viability study, Sonoma County Water Agency (SCWA) (Ongoing). Ford is serving as hydrologic and hydraulic engineering consultant on a project in which SCWA is partnering with the National Oceanic and Atmospheric Administration (NOAA), US Geological Survey (USGS), USACE, Scripps Institution, and others to develop the Lake Mendocino Forecast Informed Reservoir Operations (FIRO) work plan. This plan describes an approach for using modeling, forecasting tools, and improved information, such as a greater understanding of the role of atmospheric rivers in filling Lake Mendocino, to determine whether the Lake Mendocino water control manual can be adjusted to improve flood control and water supply operations. Fee: \$94,000. Role: Principal-in-charge.

Dambreak inundation mapping for emergency response planning, DWR (2012). In support of the development of dambreak inundation maps for potential flooded areas under various conditions for emergency response planning, Ford Engineers modeled the dambreak flood wave over land and identified the inundation limits for hypothetical breaches of eight dams using HEC-RAS, FLO-2D, and GIS tools. Preparation of inundation maps required the use of data from topographic maps and river channel and cross-sections and discharge data. Fee: \$1,200,000. Role: Principal-in-charge.

Hydrologic engineering analysis, modeling, and studies for USACE Hydrologic Engineering Center (Ongoing). Currently managing USACE HEC W91238-14-D-0001, which is a five-year contract with a \$6.4M capacity for hydrologic engineering analysis, modeling, and studies support. This is our fourth consecutive IDIQ-type contract with HEC. Under the first three contracts, we completed 102 task orders; we have completed one task order under this contract. Role: Principal-in-charge.

Hydrologic, hydraulic, and water resources management engineering services for the USACE Sacramento District (2013). Currently managing USACE Sacramento District IDIQ W91238-15-D-0004, which is a five-year (three-year base period, two-year option period) contract with a \$5M capacity, for hydrologic, hydraulic, and water management engineering. This is our fourth consecutive IDIQ contract with USACE SPK to provide on-call hydrologic and hydraulic engineering services, and have two task orders in progress under that contract. Under our first three IDIQ contracts, we completed 32 task orders. Role: Principal-in-charge.

# Michael Konieczki, PE, Senior engineer

Years of experience: 11 years total, 9 with Ford

Education: MS Engineering (University of Texas, 2007); BS Engineering (University of Michigan, 2005)

Professional registrations: PE Civil engineering (CA 2009 #74357)

## Overview

MICHAEL KONIECZKI's areas of expertise include computer modeling of complex hydrologic and hydraulic systems, statistical hydrology, including flood frequency analysis, and flood warning system development. His project experience with hydrologic software programs includes HEC-GeoHMS, HEC-HMS, HEC-RAS, HEC-ResSim, FLO-2D, esri's GIS tools, SEI's Water Evaluation and Planning System, and EPANET. Konieczki has developed and presented an HEC-HMS advanced training course, an HEC-RAS unsteady flow training course, and a flood forecasting and warning training workshop. He presented "Flood forecasting and warning solutions for the Trinity River and Fort Worth Floodway" at the ALERT User's Group conference in Reno, NV (Spring 2012).

## Project-specific experience

Dam safety evaluation of Coyote Dam, Chesbro Dam, and Uvas Dam (DSE 1), Santa Clara Valley Water District, CA (2016). Ford Engineers is partnered with a large prime contractor to complete probable maximum flood (PMF) studies as part of a dam safety evaluation for 3 dams. Ford Engineers' role includes using Arc Hydro, ArcGIS, and HEC software to develop hydrologic and hydraulic models for use in the PMF study. Fee: \$54,000. Role: Senior engineer.

Hydraulic modeling in support of floodplain mapping for the Central Valley Floodplain Evaluation and Delineation (CVFED) project, California Department of Water Resources (2015). We worked with our teaming partners to establish an overall hydraulic model development strategy, oversee and coordinate hydraulic model development, develop 1-dimensional unsteady HEC-RAS system models and 2-dimensional unsteady FLO-2D models, and perform quality assurance (QA) and review. Fee: \$1,309,000. Role: Engineer.

Hydrologic analysis and reservoir operations modeling in support of the Folsom Dam Joint Federal Project Study, USACE Sacramento District (Ongoing). In early part of project, determined critical storm duration for Folsom Dam; developed a software tool that allows users to analyze historical events given a flow-duration-frequency curve, and balance hydrographs to multiple durations and frequencies derived from a family of flow frequency curves; produced a period of record of daily flows; and assessed the runoff potential of the American River watershed above Folsom Dam for various spring storm scenarios. In later part of project, developed and tested candidate forecast-based operation for water control manual update, which takes into account new spillway; developed and applied techniques to process National Weather Service ensemble forecast information for use within the HEC-ResSim reservoir operation model; routed historical and scaled floods; and refined operation rules in the model to meet flood control objectives, including emergency flood operations, with consideration of water supply and other objectives. Fee: \$1,200,000 to date. Role: Senior engineer.

Addition of ensemble forecasting to forecast-coordinated operations (F-CO), Yuba County Water Agency, CA (2015). Determined how the existing Yuba-Feather F-CO decision support system (DSS) could be modified to (1) implement the use of ensemble forecasts, and (2) facilitate uncertainty analysis. Task included developing information display options for the F-CO DSS interface; testing the candidate HEC-ResSim ver. 3.2; developing and testing scripts that execute HEC-ResSim within the F-CO DSS using the forecast ensemble with a coordinated release schedule; developing an application to retrieve results of the ensemble analysis and store those results in the CDEC database; developing a statistical analysis application; and developing an application to store the statistical results in the CDEC database. Fee: \$180,000. Role: Engineer.

CWMS modeling support and CAVI integration for Cape Fear river basin, USACE MMC for Wilmington District (2015). In support of implementation of CWMS for the Thames and Cape Fear river basin in the Wilmington District, we provided a 2-day HEC-ResSim modeling workshop, HEC-ResSim modeling support and review, a 2-day CAVI integration workshop, CAVI integration support and review, and other modeling support such as refining HEC-HMS, HEC-RAS, and HEC-FIA, and technical review for the final basin report. Fee: \$182,000. Role: Engineer.

Hydrologic studies in support of floodplain mapping of the Central Valley (Central Valley Hydrology Study), USACE Sacramento District (2014). As principal contractor for USACE, managed hydrologic analyses to support floodplain delineation behind all the Federal-State levees in the Sacramento and San Joaquin river basins. This project included flow-frequency analysis of large watersheds, simulation of reservoir operations, and estimation of flows for ungaged watersheds. Configured HEC-ResSim and HEC-RAS models to simulate period-of-record regulated and unregulated flows. Also developed procedures for determining how climate variability may affect the flow-frequency analysis completed for the Central Valley Hydrology Study; developed project management plan for climate variability study. Fee: \$8 million. Role: Engineer.

Development of flood forecast system, Tarrant Regional Water District (2013). Developed, tested, and deployed a rainfall-runoff model and upper basin forecasting system for the Fort Worth Floodway. Tasks included design, development, deployment, and documentation of applications to connect to and retrieve real-time data from a data warehouse, display data, monitor threshold exceedences and notify users, forecast watershed behavior, simulate channel behavior, simulate reservoir operation, display forecasts and simulation results, and archive and publish forecasts. We also documented the system and trained users. Fee: \$524,000. Role: Engineer.

Asset exposure information to support Delta levee improvement prioritization, California Department of Water Resources (2013). Developed and implemented a prioritization method using exposure criteria (that is, the number and value of assets behind levees that could be inundated in the event of levee failure), building upon the statewide flood exposure analysis completed for the Statewide Flood Management Program (SFMP). We identified assets, collected GIS data, conducted GIS exposure analysis, assigned economic values to assets, developed performance indicators, conducted quality assurance and control, and prepared a technical memorandum. Fee: \$ 196,000. Role: Engineer.

Dambreak inundation mapping for emergency response planning, California Department of Water Resources, Sacramento, CA (2012). In support of the development of dambreak inundation maps for potential flooded areas under various conditions for emergency response planning, Ford Engineers modeled the dambreak flood wave over land and identified the inundation limits for hypothetical breaches of eight dams using HEC-RAS, FLO-2D, and GIS tools. Preparation of inundation maps required the use of data from topographic maps and river channel and cross-sections and discharge data. Fee: \$1,200,000. Role: Engineer.

North-of-Delta offstream storage (NODOS) analysis (Sites Reservoir), California Department of Water Resources, Colusa County, CA (2011). Investigated the potential for flood damage reduction benefits of increased flood storage in Lake Oroville through integration of Lake Oroville operations with proposed north-of-Delta off-stream storage (NODOS). Tasks included using HEC-RAS for the hydraulic analysis, using HEC-ResSim for reservoir routings through the Feather-Yuba river system, and using HEC-FDA to complete the consequence analysis. Fee: \$95,000. Role: Engineer.

Hydrologic studies in support of Lower San Joaquin River Feasibility Study, USACE Sacramento District (2011). As part of the Lower San Joaquin River Feasibility Study (LSJRFS), we developed unregulated volume-frequency curves at the reservoirs and other study points; simulated reservoir releases and routed historical and scaled floods, including local flows, on two streams; fitted flow transforms to the event maxima datasets; developed regulated flow-frequency curves and associated volumes; and developed "expected" outflow hydrographs for each reservoir for eight flood frequencies. Fee: \$272,500. Role: Engineer.

# Max Barry, Technical specialist (information technology/programming)

Years of experience: 19 years total, 15 with Ford

Education: MS Mechanical engineering (University of Nevada, 1997); BS Computer science (CSU Sacramento, 2001)

## Overview

Max Barry develops custom applications for hydrologic and hydraulic engineering analysis and water resources management. He has designed and developed information technology tools and graphical user interfaces for data collection, data transmission, and database management systems; for threat recognition systems and forecasting systems; and for threat dissemination systems.

He is an expert programmer in multiple languages, including Java, C and C++, Visual Basic, Visual Basic .NET, Python, Jython, and FORTRAN, has database system management experience with MS Access, MS SQL Server, PostgreSQL, and HEC-DSS. He has development and support experience in Windows, Linux, and UNIX environments, including Sun Solaris.

Barry has extensive project experience covering the entire software development life cycle, from identifying an application's requirements and developing design documentation, to code and script development, application deployment, testing, and fixing bugs, to developing technical reference documentation and user guidance and providing ongoing support for clients across the US.

Prior to joining Ford Engineers, Barry worked at the National Weather Service servicing rain gages and NEXRAD equipment.

## Project-specific experience

Folsom Dam Joint Federal Project, US Army Corps of Engineers (USACE) Sacramento District, Folsom, CA (Ongoing). Ford Engineers has provided hydrologic and hydraulic analyses for the Folsom Dam modification project, including developing the hydrologic engineering management plan (HEMP) for the array of modeling simulations required for development of an updated water control manual; seasonal flood frequency analysis for Folsom Dam inflow; development of spreadsheet algorithms for modeling alternative configurations of outlets, quality control review of the reservoir operations models for the Folsom Dam permanent operations study; development of a forecast-informed operations scheme for Folsom Reservoir; and we are currently developing the updated Water Control Manual for Folsom Dam. Fee: \$1,200,000 (to date). Role: Technical specialist (information technology/programming).

Overland Park Aviso FS (flood forecasting system) development and enhancements, Overland Park, KS (Ongoing). David Ford Consulting Engineers has had and continues to have a major role in development and incremental enhancement of Overland Park's complete flood warning system, including data collection equipment; data management, threat recognition, and flood forecasting applications; plans and procedures; and trained personnel. Fee: \$510,000 (to date). Role: Technical specialist/programmer.

Development of software application for Central Valley Hydrology Study, USACE Sacramento District (2015). Developed software that facilitates the extraction of model results and processes those results to create the required hydrologic outputs. Fee: \$800,000. Role: Technical specialist/programmer.

Independent testing of CWMS v. 3.0, USACE HEC (2014). Coordinated with HEC to test software according to the agreed-upon testing plan and two data sets. Testing results were recorded in a testing log, and described in reports: component verification reports, issue classification reports, minor bug detection reports, moderate bug detection reports, and modification or enhancement design reports. Fee: \$198,000. Role: Technical specialist/programmer.



Development of flood forecast system, Tarrant Regional Water District (2014). Developed, tested, and deployed a rainfall-runoff model and upper basin forecasting system for the Fort Worth Floodway. Tasks included design, development, deployment, and documentation of applications to connect to and retrieve real-time data from a data warehouse, display data, monitor threshold exceedences and notify users, forecast watershed behavior, simulate channel behavior, simulate reservoir operation, display forecasts and simulation results, and archive and publish forecasts. We also documented the system and trained users. Fee: \$559,000. Role: Technical specialist/programmer.

Flood forecast system Aviso FS customization and enhancements, City of Charlotte and County of Mecklenburg, NC (2013). Implemented Ford Engineers' proprietary Aviso Watch flood threat identification system and Aviso FS forecasting model for three watersheds in Mecklenburg County. Specific tasks included integration of watershed models into the system, configuring Aviso Watch to use flood threat recognition rules, and model testing. We developed scripts and programs that allow Aviso FS to use HEC-HMS when running forecasts and scripts to automate the running of Aviso FS at a specified time interval and updated the Aviso Watch system to monitor forecasts from Aviso FS. Fee: \$183,000. Role: Technical specialist/programmer.

SacCalc development and enhancement, USACE Sacramento District (2010). Developed components of and made subsequent substantial enhancements to SacCalc, a decision support system for drainage design for Sacramento County. Fee: \$31,000. Role: Technical specialist/programmer.

Hydrograph balancing and reporting tool (HyBART) development, USACE Sacramento District (2010). Developed hydrograph balancing and reporting tool in VB.NET for USACE SPK. This tool allows users to query flow duration-frequency curves, analyze historical hydrographs, and develop balanced hydrographs. Fee: \$314,000. Role: Technical specialist/programmer.

Forecast-coordinated operations (F-CO) development, Yuba County Water Agency (YCWA) (2009; one task in an ongoing project). Developed a system of programs for forecast-coordinated operations for the Yuba-Feather River and Reservoir System. This F-CO system executes scripts to execute HEC-ResSim for both Windows and Linux. The system, written in Python and VBscript, stores observed and forecast data and runs HEC-ResSim simulations on demand. The system then transmits the forecasted results to the California Data Exchange Center (CDEC). Fee: \$320,000. Role: Technical specialist/programmer.

Forecast-coordinated software application development—flow calculator and transmitter system, Yuba County Water Agency (YCWA) (2007). Developed applications, written in VB.NET, to allow the Colgate Powerhouse operators to enter spillway gate settings and low-level outflow values from New Bullards Bar Reservoir. Role: Technical specialist/programmer.

Risk and Uncertainty Analyzer (RUA), Flood Control District of Maricopa County, AZ (2005). Developed RUA, an uncertainty and risk analysis tool for HEC-1 and HEC-RAS. RUA extends the agency's existing flood management decision support tools by adding the capability to examine how specific input parameters and conditions affect the peak flows and stages computed by HEC-1 and HEC-RAS. Tasks included designing and developing a graphical user interface and writing the user's manual. Fee: \$48,000. Role: Technical specialist/programmer.



# Teresa Bowen, PE, Senior engineer

Years of experience: 38 years total, 7 with Ford

Education: MS Civil engineering (UC Davis, 1987); BS Civil engineering (University of Minnesota, 1978)

Professional registrations: PE Civil engineering (CA 1986 #40122)

## Overview

TERESA BOWEN specializes in hydrology, reservoir regulation, and water management analysis. She has expertise in analysis of multi-purpose, multi-reservoir systems; computer modeling of complex hydrologic and hydraulic systems; and computations of water supply reallocation. Prior experience includes staff positions with US Army Corps of Engineers' St. Paul District, Pacific Ocean Division, and Hydrologic Engineering Center.

## Project-specific experience

Folsom Dam Joint Federal Project, USACE Sacramento District, Folsom, CA (Ongoing). Ford Engineers has provided hydrologic and hydraulic analyses for the Folsom Dam modification project, including developing the hydrologic engineering management plan (HEMP) for the array of modeling simulations required for development of an updated water control manual; seasonal flood frequency analysis for Folsom Dam inflow; development of spreadsheet algorithms for modeling alternative configurations of outlets, quality control review of the reservoir operations models for the Folsom Dam permanent operations study; development of a forecast-informed operations scheme for Folsom Reservoir; and we are currently developing the updated Water Control Manual for Folsom Dam. Fee: \$1,200,000 (to date). Role: Senior engineer.

Support expansion of forecast-coordinated operations program in the San Joaquin river basin, California Department of Water Resources (2015). We attended San Joaquin River forecast-coordinated operations meetings; provided exercise and training support; and completed technical assignments. Goals of the project include converting the existing snowmelt-based reservoir simulation model from an Excel and Access framework to a Java Oracle application; develop a graphical user interface for the new application; and training. Fee: \$29,000. Role: Senior engineer.

Addition of ensemble forecasting to forecast-coordinated operations (F-CO) for the Yuba-Feather river system, Yuba County Water Agency (2015). Determined how the existing Yuba-Feather F-CO decision support system (DSS) could be modified to (1) implement the use of ensemble forecasts, and (2) facilitate uncertainty analysis. Task included developing information display options for the F-CO DSS interface; testing the candidate HEC-ResSim ver. 3.2; developed and tested scripts that execute HEC-ResSim within the F-CO DSS using the forecast ensemble with a coordinated release schedule; developed an application to retrieve results of the ensemble analysis and store those results in the CDEC database; developed a statistical analysis application; and developed an application to store the statistical results in the CDEC database. Fee: \$180,000. Role: Senior engineer.

Hydrologic studies in support of floodplain mapping of the Central Valley, USACE Sacramento District (2014). As principal contractor for USACE, Ford Engineers managed hydrologic analyses to support floodplain delineation behind the 1600-mile system of Federal-State levees in the Sacramento and San Joaquin river basins. Project included flow-frequency analysis of large watersheds, simulation of reservoir operations for regulated curve development, and estimation of flow for ungaged watershed analysis. The study team used HEC-ResSim and HEC-RAS models to simulate period of record regulated and unregulated flows. Also developed a procedures document and hydrologic engineering management plan for a study of the effect of climate variability on the CVHS flow frequency analysis. Other aspects of this project included development and implementation of procedures for determining how climate variability may affect the flow-frequency analysis completed for the CVHS; and development of a software application to facilitate the extraction of model results and process those results to create the required hydrologic outputs. Fee: \$8 million. Role: Senior engineer.

Flood risk reduction benefit analysis for New Bullards Bar forecast-coordinated operations, Yuba County Water Agency (2014). Studied the flood risk reduction benefits of forecast-based operations (F-BO) of Oroville and New Bullards Bar reservoirs. The studies include flood risk reduction benefits of Oroville and NBB F-BO alone and with other complementary projects. We used standard hydrologic, hydraulic, risk, and economic analysis procedures; available hydrologic inputs; and reservoir simulation, channel, and economic models developed and used for other inundation-reduction benefit analyses in the Feather-Yuba system. We also assisted with a functional exercise. Cost: \$74,000. Role: Project manager; senior engineer.

Update to Alabama-Coosa-Tallapoosa and Apalachicola-Chattahoochee-Flint (ACT/ACF) unimpaired flow data set, USACE Mobile District (2014). The original unimpaired flow data set developed as part of the ACT/ACF River Basins Comprehensive Water Resources Study included data at over 50 locations for the 1939 to 1993 period of record. These data serve as input to HEC-ResSim reservoir system models used for the ACF Water Control Manual Update Study. Under this task order, we extended the unimpaired flow data set for 2002-2012. Data sets included reservoir data (elevation, inflow, outflow, evaporation), observed rainfall and pan evaporation data, gaged river flow data, and computed incremental local flow data. Tasks included an examination of possible software tools for various computation steps; review of data quality; modification of streamflow, reservoir, evaporation/precipitation, municipal and industrial water use, and agricultural withdrawals and returns data; computation of local flows; and preparation of a report. Fee: \$141,000. Role: Senior engineer.

Reservoir operation and watershed modeling to support water control manual update, USACE Sacramento District, Weber Basin, UT (2012). Ford Engineers developed HEC-ResSim and HEC-HMS models of the Weber Basin reservoir system in north central Utah: incorporated diversions, routing, and channel capacities into the model; developed evaporation; built time series data sets in HEC-DSS of flow and storage; and verified the model. Also developed a Weber Basin HEC-HMS model with snowmelt capabilities; calibrated and verified the model; and prepared documentation. Cost: \$198,000. Role: Project manager; senior engineer.

Accelerated Corps Water Management System (CWMS) deployment through the American Recovery and Reinvestment Act of 2009, USACE Hydrologic Engineering Center, Buffalo Bayou, TX; Red River of the North, MN/ND; and Sacramento, CA (2011). Deployed CWMS on the Buffalo Bayou (Galveston District), Red River of the North (St. Paul District), and American River (Sacramento District). In addition to overall project management, site-specific tasks include developing, updating, and calibrating component models of CWMS. Cost: management \$609,000; deployment \$1,030,000. Role: Task order manager, senior engineer.

Hydrologic analyses of New Hogan and Farmington reservoirs for Lower San Joaquin River Feasibility Study, California (2011). As part of the Lower San Joaquin River Feasibility Study (LSJRFS), we developed unregulated volume-frequency curves at the reservoirs and other study points, simulated reservoir releases and routed historical and scaled floods, including local flows, on two streams, fitted flow transforms to the event maxima datasets, developed regulated flow-frequency curves and associated volumes, and developed "expected" outflow hydrographs for each reservoir for eight flood frequencies. Fee: \$273,000. Role: Senior engineer.

Revision of Engineer Regulation 1110-2-240, Water control management, USACE HEC (2009). To enhance understanding of Corps water management requirements and in light of issues that arose since the previous edition of the ER, we identified and proposed resolution to new policy issues, consulted with Corps staff, and developed final draft of revised ER. Topics included Corps policies regarding water control manuals, plans, and agreements; real-time data acquisition and management; and water system management operation. Fee: \$80,000. Role: Senior engineer.

Sacramento and San Joaquin Comprehensive Study, USACE Sacramento District (2000). Provided independent technical review of procedures, methods, assumptions, and data used in an HEC-5 model representing baseline conditions in two multi-purpose, multi-reservoir systems. Fee: \$9,000. Role: Senior engineer/independent technical reviewer (not with Ford Engineers).

# Holly Canada, PE, Engineer

Years of experience: 6 years total, 2 with Ford

Education: MS Civil and environmental engineering (UC Davis, 2012); BS Civil engineering (Lehigh University, 2010); BS Integrated business and engineering (Lehigh University, 2010)

Professional registrations: PE Civil engineering (CA)

## Overview

HOLLY CANADA's areas of expertise include water supply modeling for planning and management, systems analysis in water resources, deterministic and probabilistic optimization, and risk assessment. Her experience includes 2.5 years as a water resources engineer with the California Department of Water Resources. She designed operations and planning studies using the CalSim and CalLite models and acted as DWR's team leader for the latest CalLite GUI development and testing effort. Prior to joining DWR, Ms. Canada contributed to a 1.7 million dollar research project at UC Davis, where she analyzed water supply alternatives and funding and policy options to groundwater nitrate affected communities in California's Salinas Valley and Tulare Lake Basin as part of a larger report to the California State Water Resources Control Board. She later expanded on this research with a risk analysis of nitrate contamination in the study area, giving special focus to point-of-use water treatment devices in small communities. Ms. Canada has experience applying the following to recent projects: CalLite, CalSim, DWR's Water Resources Simulation Language (WRESL), WRIMS simple GUI, WRIMS 2.0 GUI/IDE, C2VSim, HEC-ResSim, HEC-FDA, HEC-RAS, HEC-HMS, ArcGIS, MATLAB, AutoCAD, SPSS statistical software, Visual C++, Java, and VBA. She has received formal training with HEC-FDA, C2VSim, and IWFM.

## Project-specific experience

Hydrology, hydraulics, and risk analyses for Lower Elkhorn Levee setback project, California Department of Water Resources (Ongoing). The Lower Elkhorn Levee setback project includes the permitting, design, and construction of a levee setback along the Yolo Bypass and Sacramento Bypass in California's Central Valley. This project will reduce flood risk for several communities along the Sacramento River and allow for ecosystem restoration. Ford Engineers is providing technical guidance to DWR to execute the hydrologic, hydraulic, and risk analyses for the Lower Elkhorn Levee setback project to complete the so-called "Section 408" analysis. Fee: \$310,000. Role: Engineer.

Risk analysis activities for the 2012 and 2017 Central Valley Flood Protection Plan (CVFPP), California Department of Water Resources (Ongoing). Helped the study team identify updated HEC-FDA modeling requirements; designed a database to contain parcel data and other relevant data and information used in the HEC-FDA models; researched and developed a method to estimate flood loss of life using the HEC-FDA models; researched methods to evaluate benefits for potential CVFPP multi-purpose measures; reviewed the final HEC-FDA models for technical accuracy and consistency; supported agency policy development; developed guidance on how to assess flood risk reduction investments; and currently investigating benefits of nonstructural flood risk reduction measures. Fee: \$4 million (to date). Role: Engineer.

Hydrologic analysis and reservoir operations modeling in support of the Folsom Dam Joint Federal Project Study, USACE Sacramento District (Ongoing). In early part of project, determined critical storm duration for Folsom Dam; developed a software tool that allows users to analyze historical events given a flow-duration-frequency curve, and balance hydrographs to multiple durations and frequencies derived from a family of flow frequency curves; produced a period of record of daily flows; and assessed the runoff potential of the American River watershed above Folsom Dam for various spring storm scenarios. In later part of project, developed and tested candidate forecast-based operation for water control manual update, which takes into account new spillway; developed and applied techniques to process National Weather Service ensemble forecast information for use within the HEC-ResSim reservoir operation model; routed historical and scaled

floods; and refined operation rules in the model to meet flood control objectives, including emergency flood operations, with consideration of water supply and other objectives. Fee: \$1,200,000 to date. Role: Engineer.

Economic flood risk analysis of the Dry Creek feasibility study, Reclamation District 2103 (2016). Quantified economic inundation-reduction (IR) benefit of the proposed improvements and repairs to the Dry Creek levees. Fee: \$42,000. Role: Engineer.

Risk assessment to estimate benefits attributable to flood fighting and levee maintenance in the Central Valley, California Department of Water Resources (DWR) (2016). We assessed flood risk reduction as economic damage avoided and reduction in potential lives lost attributable to flood fighting at 4 sites and attributable to levee maintenance at 5 sites in the Central Valley. In addition, at one of the sites for the levee maintenance assessment, we measured the reduction in the acreage of giant garter snake (GGS) habitat lost. A unique feature of this analysis was that a detailed geotechnical engineering analysis to assess levee performance function changes attributable to flood fighting and maintenance is not attainable, so the risk analysis used levee performance curves based on information obtained through a process of expert opinion elicitation (EOE). With this project, we demonstrated the development of a systematic, repeatable, understandable method for estimating benefit that incorporated EOE. Fee: \$160,000. Role: Engineer.

Comparison of C2VSim model flow routing with CVHS/CVFPP HEC-RAS model flow routing and additional hydraulic modeling support, DWR (2016). DWR sought to evaluate the two versions of its channel flow routing method within its California Central Valley Groundwater-Surface Water Simulation Model (C2VSim): the original model that uses a water balance approach to move surface water at each model time step, and a version that uses kinematic wave stream routing. For two events, we compared C2VSim stream depths, velocities, and travel times with those from the CVFPP/CVFED HEC-RAS system routing model. Based on the results of our analysis, we identified options for enhancing C2VSim's stream routing capabilities. Under another task order, we developed rating curves and channel invert elevations at every C2VSim-FG stream mode within the CVHS/CVFPP model extent. Fee: \$48,000. Role: Engineer.

Identification of benefits attributable to Central Valley flood warning system enhancements, California Department of Water Resources (2015). Ford Engineers evaluated the benefit resulting from reduced residential content inundation damage as a result of implementation of flood warning system components described in the Enhanced Flood Response and Emergency Preparedness Initial Project report (USACE 2003 and USACE 2005). We also described water supply benefits derived from those flood emergency response enhancements. Fee: \$36,000. Role: Engineer.

Development of meteorological and runoff models for the White River, US Army Corps of Engineers, Little Rock District (2015). Ford Engineers developed an HEC-HMS rainfall-runoff model of the White River watershed and calibrated and verified the model to historical hydrographs at locations throughout the watershed. Fee: \$142,000. Role: Engineer.

Projects for the California Department of Water Resources (2012-2014). Supported decisions for operating, planning, and managing California's water project facilities through the application and development of CalLite and CalSim; designed studies using models, computer programs, and spreadsheets to evaluate the effect of water management alternatives on California's statewide water supply deliveries and outflow to the Sacramento and San Joaquin Delta; created tools to better evaluate and disseminate model results; and prepared technical reports and presentations. Cost: n/a. Role: Water resources engineer.

# Marilyn Hurst, Senior technical specialist

Years of experience: 45 years total, 4 with Ford

Education: Completed coursework towards a Mathematics degree at the University of Houston, TX, and University of California, Davis

## Overview

MARILYN HURST has 48 years' technical and project management experience, including staff positions at the Water Resource Systems Division and Training Division of USACE HEC. She develops, designs, maintains, and supports USACE reservoir operations modeling software applications. Her expertise is in adaptation of watershed characteristics for rainfall-runoff analysis, reservoir system simulation analysis, water quality analysis, and flood risk reduction analysis. She excels at providing training and user support for the Corps' reservoir operation simulation and optimization software.

## Project-specific experience

Folsom Dam Joint Federal Project, USACE Sacramento District, Folsom, CA (Ongoing). Ford Engineers has provided hydrologic and hydraulic analyses for the Folsom Dam modification project, including developing the hydrologic engineering management plan (HEMP) for the array of modeling simulations required for development of an updated water control manual; seasonal flood frequency analysis for Folsom Dam inflow; development of spreadsheet algorithms for modeling alternative configurations of outlets, quality control review of the reservoir operations models for the Folsom Dam permanent operations study; development of a forecast-informed operations scheme for Folsom Reservoir; and we are currently developing the updated Water Control Manual for Folsom Dam. Fee: \$1,114,000 (to date). Role: Senior technical specialist.

CWMS modeling support and CAVI integration, USACE Modeling, Mapping, and Consequence Center for Wilmington District, Norfolk District, Little Rock District, and New England District (Ongoing). The Corps' Modeling, Mapping, and Consequence (MMC) Center, which is part of the Corps' Dam Safety Program, is sponsoring implementation of the Corps Water Management System (CWMS) at several sites throughout the US. Ford Engineers, as subcontractor, has supported this effort for the Thames and Cape Fear watershed, the Jackson James watershed, the Arkansas River watershed, and the Blackstone River watershed. Typical tasks include HEC-ResSim modeling support and review, refinement of HEC-HMS, HEC-RAS, and HEC-FIA models; and integration of models with the CWMS Control and Visual Interface (CAVI). Fee: \$363,824.00. Role: Senior technical specialist.

Update to Alabama-Coosa-Tallapoosa and Apalachicola-Chattahoochee-Flint (ACT/ACF) unimpaired flow data set, USACE Mobile District (2014). The original unimpaired flow data set developed as part of the ACT/ACF River Basins Comprehensive Water Resources Study included data at over 50 locations for the 1939 to 1993 period of record. These data serve as input to HEC-ResSim reservoir system models used for the ACF Water Control Manual Update Study. Under this task order, we extended the unimpaired flow data set for 2002-2012. Data sets included reservoir data (elevation, inflow, outflow, evaporation), observed rainfall and pan evaporation data, gaged river flow data, and computed incremental local flow data. Tasks included an examination of possible software tools for various computation steps; review of data quality; modification of streamflow, reservoir, evaporation/precipitation, municipal and industrial water use, and agricultural withdrawals and returns data; computation of local flows; and preparation of a report. Fee: \$141,000. Role: Senior technical specialist.

Development of Unimpaired Flows for ACF watershed, USACE Mobile District (2013). Extend unimpaired flow dataset to include data for 2002-2012. Data sets include reservoir data (elevation, inflow, outflow, evaporation), observed rainfall and pan evaporation data, gaged river flow data, and computed incremental local flow data. Fee: \$140,000. Role: Senior technical specialist.

Assessing status of CWMS deployment nationwide, HEC (2012). Assisting HEC in collecting information necessary to develop the estimated value of a nationwide deployment of CWMS. Verifying reports on the



current extent of deployment of CWMS in districts nationwide, describing the geographic extent CWMS watersheds, and estimating the cost of deploying CWMS for the watersheds that are not yet modeled with CWMS. Fee: \$79,000. Role: Senior technical specialist.

Representative project experience while employed as computer specialist/hydrologic technician at USACE HEC:

ACT/ACF reservoir modeling in support of water control manual updates, HEC, Mobile, AL (2011).

Developed HEC-ResSim models for the Alabama-Coosa-Tallapoosa and Apalachicola-Chattahoochee-Flint river basins, including transitioning from HEC-5 to HEC-ResSim reservoir models. Provided support and guidance to the USACE Mobile District in developing modeling techniques to transition from HEC-5 options to HEC-ResSim capabilities; developed baseline and alternative operations; analyzed results; and developed project study reports. Role: Computer specialist/hydrologic technician.

Delaware River Basin reservoir operations and streamflow routing components, USACE HEC, Philadelphia, PA (2008). Multi-agency [Delaware River Basin Commission (DRBC), USACE (HEC & Philadelphia District), USGS, and NWS] study to develop flood analysis model for the Delaware River Basin to evaluate the effects of various reservoir operating alternatives to reduce flooding at locations downstream of the reservoirs. Provided HEC-ResSim watershed model development, software design, implementation, and testing, documentation of new routing method (Variable Lag & K), training to stakeholders, developed the study report. Role: Computer specialist/hydrologic technician.

Projects for USACE, Afghanistan Engineering District (2004-2006). provided extensive technical review of and revisions to the hydrologic data used for watershed modeling and initial HEC-ResSim model development for the Helmand Valley Water Management Study, Afghanistan; assisted in the development of the HEC-ResSim model for Kajakai Reservoir Water Balance alternatives and corresponding report for the Helmand Valley Water Management Study, Afghanistan; developed preliminary HEC-5 storage-yield optimization model for Kajakai Reservoir; helped develop scope of work and prepared data for delivery to contractor for Helmand Valley Data Quality Control; assisted in the development of the "Period of Record" and "PMF" simulations and corresponding write-up of the HEC-ResSim model for Kajakai Reservoir for the Helmand Valley Water Management Study, Phase II, Afghanistan; assisted with HEC-ResSim and HEC-DSSVue training of visiting Afghan engineers; assisted in development of SWLRI (Iraq) ResSim model; provided training to Iraqi engineers in the use of HEC-DSS and HEC-ResSim. Role: Computer specialist/hydrologic technician.

Development of HEC-ResSim documentation (2000-2012): Assisted in preparation of software design and software design documents, task orders, user support documents (User's Manuals), watershed model development, testing and user support for the HEC-ResSim program. Required understanding of reservoir simulation, operations, rule (guide) curves, and release diagrams. Role: Computer specialist/hydrologic technician.

Technical review of user support documentation (2000-2012). Review and usability testing for user's manuals, application guides, and technical reference manuals; and installation and webpage testing for various HEC software packages for public release including HEC-5, HEC-6, HEC-UNET, HEC-HMS, HEC-GeoHMS, HEC-RAS, HEC-GeoRAS, HEC-ResSim, and HEC-DSSVue. Role: Computer specialist/hydrologic technician.

CWMS development (2001-2009). Team member and participant in coordination telephone conferences, development meetings, preparation and review of CWMS user documentation, software testing and user support for the real time data acquisition and modeling Corps Water Management System (CWMS) software. Assisted in CWMS Working Sessions at HEC for USACE Division offices (North Atlantic, South Atlantic, Great Lakes and Ohio River, Mississippi Valley, Southwestern, Northwestern--Missouri River and Portland, and South Pacific). Performed on-site implementation and training at District offices (New England, Vicksburg, Kansas City, Wilmington, Charleston, Mobile, and Sacramento). Role: Computer specialist/hydrologic technician.

USACE PROSPECT courses at HEC (1990-2012). Provided preparation, testing, and training assistance for HEC-5, HEC-ResSim, HEC-DSS/HEC-DSSVue, and CWMS. Role: Computer specialist/hydrologic technician.

## Donna Lee, CFM, Senior technical specialist

Years of experience: 11 years total, 7 with Ford

Education: BA Molecular and cell biology (UC Berkeley, 2004); MS Journalism (Columbia University, 2009)

Professional registration: Certified Floodplain Manager (Association of State Flood Plain Managers); Project Management Professional (Project Management Institute, 2015)

### Overview

DONNA LEE specializes in water resources planning, technical writing and editing, and project management. Her project experience includes developing flood risk management policy, flood emergency response plans, and hydrologic and hydraulic engineering plans, reports, and memoranda. Ms. Lee has published both scientific and journalistic articles in a wide variety of publications including the Department of Energy Journal of Undergraduate Research; The New York Times; the Statesman Journal (a Gannett daily newspaper); the Sacramento News & Review (an alternative weekly); and InfoTejo, a Portuguese water resources newsletter. She specializes in managing complex projects, coordinating multi-agency workgroups, and communicating complex ideas through writing, graphics, slideshows, and video.

### Project-specific experience

Hydrologic analysis and reservoir operations modeling in support of the Folsom Dam Joint Federal Project Study, USACE Sacramento District (Ongoing). In early part of project, determined critical storm duration for Folsom Dam; developed a software tool that allows users to analyze historical events given a flow-duration-frequency curve, and balance hydrographs to multiple durations and frequencies derived from a family of flow frequency curves; produced a period of record of daily flows; and assessed the runoff potential of the American River watershed above Folsom Dam for various spring storm scenarios. In later part of project, developed and tested candidate forecast-based operation for water control manual update, which takes into account new spillway; developed and applied techniques to process National Weather Service ensemble forecast information for use within the HEC-ResSim reservoir operation model; routed historical and scaled floods; and refined operation rules in the model to meet flood control objectives, including emergency flood operations, with consideration of water supply and other objectives. Fee: \$900,000 to date. Role: Senior technical specialist.

Buchanan Dam and Hidden Dam water control manual datum revisions, USACE Sacramento District (2016). Updated the datum and modified figures in these water control manuals. Fee: \$36,000. Role: Senior technical specialist.

Development of portions of the 2012 Central Valley Flood Protection Plan (CVFPP) and related policies, California Department of Water Resources (2012). As part of a larger effort to assess and communicate flood risk in California's Central Valley, Ford Engineers (1) developed innovative, simplified method to represent expected annual life loss from flooding; (2) developed a regional flood damage analysis comparing flood risk reduction approaches; (3) facilitated an expert panel on levee fragility curves for use in the CVFPP; (4) facilitated development of a statewide benefit policy and a hydraulic impact policy; and (5) managed program team meetings. Cost: \$450,000. Role: Assistant project manager (PM), technical specialist (writer/editor).

Project management of CWMS deployment at 11 sites in the US, HEC (2011). Assisted the USACE HEC with managing CWMS deployment at 11 district offices, a \$5 million project overall. The project was funded by the American Recovery and Reinvestment Act (ARRA) of 2009. As the "lead contractor," Ford Engineers helped HEC oversee the three contractors deploying CWMS. Cost: \$610,000. Role: Assistant PM, technical specialist (writer/editor).

Flood response plan template development, California Department of Water Resources (2012). Developed flood response plans for three California communities representing diverse flood hazards. Gather information from communities to include in flood response plans and research state and local guidelines to ensure that

plans conform. In addition, supported development of a template for statewide use and related documentation. Cost: \$350,000. Role: Technical specialist (writer/editor).

Hydraulic modeling in support of floodplain mapping for the Central Valley Floodplain Evaluation and Delineation (CVFED) project, California Department of Water Resources (2015). Working with our teaming partners to establish an overall hydraulic model development strategy, oversee and coordinate hydraulic model development, develop 1-D unsteady HEC- RAS system models, develop 2-D unsteady FLO-2D models, perform quality assurance (QA) and review, and describe our work in numerous technical reports. Cost: \$1,309,000. Role: Technical specialist (writer/editor).

Revision of CWMS version 3.0 user manual, USACE HEC (2015). The Corps Water Management System (CWMS) is used throughout USACE to provide information that supports water control decision making. CWMS integrated USACE simulation models with data management and reporting capabilities under a common user interface. Recent development of CWMS has made revision of the software user manual necessary. We provided independent testing of version 3.0 of the Corps Water Management System (CWMS). Version 3.0 added new simulation, data management, and reporting capabilities, as well as enhanced capabilities for users to adjust model calibration and configuration. Updated the CWMS version 3.0 user's manual to conform to revisions made to the CWMS Control and Visual Interface (CAVI). Added three new chapters on HEC-HMS forecast parameter adjustment editors, rating editors, and HEC-MetVue. (The user's manual was revised in parallel with CWMS ver. 3.0 testing also done by Ford Engineers.) Cost: \$198,000 (testing) + \$145,000 (manual). Role: Senior technical specialist (writer/editor).

Dambreak inundation mapping for statewide emergency response planning, California Department of Water Resources (2012). CA DWR undertook a study on behalf of the California Emergency Management Agency and the California Natural Resources Agency to develop dambreak inundation maps for emergency response planning. We modeled the movement of the dambreak flood wave over land and identified the inundation limits for hypothetical breaches of eight dams. The study team used HEC-RAS for the dam breach modeling, FLO-2D for the inundation modeling, and GIS tools for the inundation mapping. Cost: \$1,201,000. Role: Assistant PM, technical specialist (writer/editor).

Expert Opinion Elicitation for examining issues related to initial storage conditions in flood detention basins, Sacramento County Department of Water Resources (2013). Real estate developers have submitted master drainage studies for areas of Sacramento County that incorporate both hydromodification flow duration control (FDC) and flood detention into a single detention basin. These plans assume that the FDC basins are completely empty at the beginning of the design storm event. However, Sacramento County Department of Water Resources and the developers' engineers disagree on what the initial storage conditions in the basins should be at the start of flood control modeling. We convened a panel of independent experts to recommend initial storage conditions. We reported the experts' consensus recommendation to the county. Cost: \$23,000. Role: Technical specialist (writer/editor).

Cost-benefit study of remediating West Sacramento levees for seismic hazard, California Department of Water Resources (2013). To address levee deficiencies, the City of West Sacramento initiated the West Sacramento Levee Improvement Program (WSLIP) to rehabilitate and strengthen the West Sacramento levees, thereby reducing the risk to people and property from the flood event with an annual exceedence probability of 0.005. The City is evaluating alternatives for meeting this goal. Our tasks in support of this study included: review of seismic fragility curves prepared by other contractors; computing the estimated annual damage for three scenarios (no pre-earthquake fixes, pre-earthquake fixes, and post-earthquake repairs); preparation of a technical memorandum summarizing our procedures and results. Cost: \$15,000. Role: Technical specialist (writer/editor).



# Nathan Pingel, PE, D.WRE, Principal engineer

Years of experience: 18 years total, 15 with Ford

Education: MS Civil and environmental engineering (UC Davis, 1999); BS Civil engineering (Loyola Marymount University, 1998)

Professional registrations: PE Civil engineering (CA); Diplomate, Water Resources Engineer (D.WRE) by the American Academy of Water Resource Engineers

## Overview

NATHAN PINGEL specializes in the management of diverse complex water resource public works projects and is an expert in the use of modeling applications in hydrologic and hydraulic engineering and USACE risk and uncertainty analysis. He is co-author of "Interior floodplain flood-damage reduction study," by N. D. Pingel and D. T. Ford, in *Journal of Water Resources Planning and Management*, Vol. 130, No. 2, March 2004; and "Multiple flood source expected annual damage computations," by N. D. Pingel and D. Watkins, in *Journal of Water Resources Planning and Management*, Vol. 136, No. 3, May 2010.

## Project-specific experience

Hydrologic analysis and reservoir operations modeling in support of the Folsom Dam Joint Federal Project Study, USACE Sacramento District (Ongoing). In early part of project, determined critical storm duration for Folsom Dam; developed a software tool that allows users to analyze historical events given a flow-duration-frequency curve, and balance hydrographs to multiple durations and frequencies derived from a family of flow frequency curves; produced a period of record of daily flows; and assessed the runoff potential of the American River watershed above Folsom Dam for various spring storm scenarios. In later part of project, developed and tested candidate forecast-based operation for water control manual update, which takes into account new spillway; developed and applied techniques to process National Weather Service ensemble forecast information for use within the HEC-ResSim reservoir operation model; routed historical and scaled floods; and refined operation rules in the model to meet flood control objectives, including emergency flood operations, with consideration of water supply and other objectives. Fee: \$900,000 to date. Role: Ford Engineers' project manager (PM); principal engineer.

Risk analysis activities for the 2012 and 2017 Central Valley Flood Protection Plan (CVFPP), California Department of Water Resources (Ongoing). Helped the study team identify updated HEC-FDA modeling requirements; designed a database to contain parcel data and other relevant data and information used in the HEC-FDA models; researched and developed a method to estimate flood loss of life using the HEC-FDA models; researched methods to evaluate benefits for potential CVFPP multi-purpose measures; reviewed the final HEC-FDA models for technical accuracy and consistency; supported agency policy development; developed guidance on how to assess flood risk reduction investments; and currently investigating benefits of nonstructural flood risk reduction measures. Fee: \$4 million (to date). Role: Ford Engineers' PM, principal engineer.

Expanded analysis to support channel capacity atlas preparation, California Department of Water Resources (2015). In support of DWR's development of a map atlas for State Plan of Flood Control system performance, Ford Engineers conducted analyses to prepare regulated-flow frequency curves based on one of the CVFED program system model and the Central Valley Hydrology Study (CVHS) products, tools, and procedures. We provided updated regulated flow-frequency curves and water surface profiles for all CVHS analysis points in summary table(s) for the State Plan of Flood Control facilities specifically for the  $p=0.01$  (100-year) and  $p=0.005$  (200-year) flood events in the Sacramento River Basin. Then, Ford Engineers developed summary tables which indicate scale factors closest to the  $p=0.01$  and  $p=0.005$  events. Fee: \$85,000. Role: Ford Engineers' PM, principal engineer.

Hydraulic modeling for the Central Valley Floodplain Evaluation and Delineation (CVFED) program, California Department of Water Resources (2015). Ford Engineers (1) established an overall hydraulic model development strategy, (2) oversaw and coordinated hydraulic model development, (3) developed one-dimensional unsteady HEC-RAS system models, (4) developed two-dimensional unsteady FLO-2D models, and (5) provided technical review. Fee: \$1,309,000. Role: Principal engineer.

Hydrologic studies in support of floodplain mapping of the Central Valley, USACE Sacramento District (2014). As principal contractor for USACE, Ford Engineers managed hydrologic analyses to support floodplain delineation behind the 1600-mile system of Federal-State levees in the Sacramento and San Joaquin river basins. Project included flow-frequency analysis of large watersheds, simulation of reservoir operations for regulated curve development, and estimation of flow for ungaged watershed analysis. The study team used HEC-ResSim and HEC-RAS models to simulate period of record regulated and unregulated flows. Also developed a procedures document and hydrologic engineering management plan for a study of the effect of climate variability on the CVHS flow frequency analysis. Other aspects of this project included development and implementation of procedures for determining how climate variability may affect the flow-frequency analysis completed for the CVHS; and development of a software application to facilitate the extraction of model results and process those results to create the required hydrologic outputs. Fee: \$8 million. Role: Ford Engineers' PM, principal engineer.

Hydrologic analysis in support of Sutter Basin feasibility study, USACE Sacramento District (2011). In support of feasibility-level engineering alternatives analysis, recommended procedure for analyzing interior drainage, including concurrent flow analysis, completed precipitation-frequency analysis to develop design storm events to support the rainfall-runoff modeling effort, and completed "most-likely" wave-runup analysis for flood risk reduction analysis. Fee: \$154,000. Role: Ford Engineers' PM; senior engineer.

Hydrologic analyses of New Hogan and Farmington reservoirs for the Lower San Joaquin Feasibility Study, USACE Sacramento District (2011). As part of the Lower San Joaquin River Feasibility Study (LSJRFS), we developed unregulated volume-frequency curves at the reservoirs and other study points, simulated reservoir releases and routed historical and scaled floods, including local flows, on two streams, fitted flow transforms to the event maxima datasets, developed regulated flow-frequency curves and associated volumes, and developed "expected" outflow hydrographs for each of two reservoirs for eight flood frequencies. Fee: \$273,000. Role: Ford Engineers' PM, senior engineer.

Natomas Levee Improvement Project developer fee economic analysis, USACE Sacramento District, Sacramento, CA (2007). Ford Engineers evaluated the economic impacts of increased development and the effectiveness of proposed mitigation measures, including evaluating system improvements such as increased resiliency and erosion control enhancements on levees. Fee: \$115,000. Role: Senior engineer.

Yuba-Feather Supplemental Flood Control Project, Phase IV, Feather River Levee Repair Project, Yuba County Water Agency (2006). To compute economic benefits for three proposed inundation-reduction alternatives, assembled an economic analysis model that considered potential flood damages in three major impact areas adjacent to the confluence of the Yuba and Feather rivers. Used HEC-FDA, including uncertainty analysis methods, to compute expected annual damage for the without-project condition and each alternative. Fee: \$150,000. Role: Ford Engineers' PM; senior engineer.

Oroville and New Bullards Bar reservoirs flood operations analysis, Yuba County Water Agency (2004). Developed and evaluated scenarios for the operation of New Bullards Bar and Oroville reservoirs (multi-purpose reservoirs used for flood control, water supply, hydroelectricity, and recreation) with different modeling assumptions of unregulated downstream flows, river travel times, operating limitations, and inflow forecast uncertainty. Fee: \$223,000. Role: Ford Engineers' PM; engineer.

## Rhonda Robins, JD, CFM, Senior technical specialist

Years of experience: 21 years total, 9 with Ford

Education: BA Genetics/biochemistry (UC Berkeley, 1983); JD Law (UC Hastings College of Law, 1988); Project Management certificate (UC Davis Extension, 2016)

Professional registration: Member, California Bar Association; Certified Floodplain Manager (Association of State Flood Plain Managers)

### Overview

RHONDA ROBINS is a senior technical specialist with David Ford Consulting Engineers in water resources planning, technical writing/editing, project management, and legal/policy research and interpretation. She is adept at communicating complex hydrologic and hydraulic engineering and water resource economics concepts to diverse audiences. Her areas of expertise include managing complex hydrologic and hydraulic engineering documentation projects; communicating complex hydrologic and hydraulic engineering concepts to diverse audiences; legal research and interpretation related to water resources engineering, planning analysis, and floodplain management; and technical writing, such as flood emergency response plan development, software application user documentation, and engineering guidance. She is well-versed in the requirements of DWR grant programs, and has project experience developing flood safety plans in compliance with AB 156/Water Code Section 9650. Robins is a member of the California Bar and is a certified floodplain manager.

### Project-specific experience

Development of flood safety plans, Sutter Butte Flood Control Agency, Sutter and Butte counties (2016). Developing flood safety plans in accordance with new California Water Code Section 9650 requirements for the Sutter Butte Flood Control Agency (SBFCA), Levee District 9 in Sutter County, and the cities of Live Oak, Gridley, and Biggs. Tasks included writing the original grant proposal for funds under the first round of DWR's flood emergency response grant program; invoice management; research and comparison of existing flood emergency response plans in southern Butte and northern Sutter counties; organizing and facilitating stakeholder meetings, including representatives from county emergency operations agencies and public works departments, city administrators/emergency directors and public works departments, Cal OES, and DWR; drafting outlines and first drafts for agency approval; revising drafts; and preparing plans for board approval. Fee: \$154,000. Role: Ford Engineers' project manager; senior technical specialist.

Risk assessment to estimate benefits attributable to flood fighting and levee maintenance in the Central Valley, California Department of Water Resources (DWR) (2016). We assessed flood risk reduction as economic damage avoided and reduction in potential lives lost attributable to flood fighting at 4 sites and attributable to levee maintenance at 5 sites in the Central Valley. In addition, at one of the sites for the levee maintenance assessment, we measured the reduction in the acreage of giant garter snake (GGS) habitat lost. A unique feature of this analysis was that a detailed geotechnical engineering analysis to assess levee performance function changes attributable to flood fighting and maintenance is not attainable, so the risk analysis used levee performance curves based on information obtained through a process of expert opinion elicitation (EOE). With this project, we demonstrated the development of a systematic, repeatable, understandable method for estimating benefit that incorporated EOE. Fee: \$160,000. Role: Senior technical specialist.

Development of hydraulic impact policy and risk transfer policy, California Department of Water Resources (2015). (1) Presented alternatives and supported management-level decision making to determine how the Central Valley Flood Protection Project Delivery Team (CVFPPDT) will determine if a potential alteration of the existing or authorized federal system will be injurious to the public interest or affect the ability of the project to meet its authorized purpose, and thus whether a Section 408 permit will be approved. (2) Presented policy and procedure alternatives and supported management-level decision making on how the CVFPPDT will

determine if flood risk management alternatives formulated for the Sacramento and San Joaquin Basin Wide Feasibility Studies transfer risk. Fee: \$52,000. Role: Ford Engineers' PM; senior technical specialist.

Development of NFIP Quick Guide Coastal Supplement, California Department of Water Resources, Sacramento, CA (2015). Working with CA DWR, Ocean Science Trust, and Scripps Institution, Ford Engineers developed the *National Flood Insurance Program in California Quick Guide Coastal Supplement: Planning for Sea-Level Rise*. This supplement summarizes for floodplain managers many issues to consider when including sea-level rise in future planning. Fee: \$108,000. Role: Ford Engineers' PM; senior technical specialist.

Development or revision of USACE engineer guidance documents, USACE Hydrologic Engineering Center (various). Served as project manager and provided research, writing, and editing services for revision of USACE guidance, including EM 1110-2-1619, Risk-based analysis of flood risk reduction studies, ER 1110-2-240, Water control management, ER 1110-2-241, Use of storage allocated for flood control and navigation at non-Corps projects, and EM 1110-2-1413, Hydrologic analysis of interior areas. Fee: \$90,000; \$65,000; and \$90,000, respectively. Role: Ford Engineers' project manager; senior technical specialist.

Economic analysis procedures for integrated flood risk management studies, California Department of Water Resources, Sacramento, CA (2014). For DWR, providing research, writing, and editing services in the revision of a manual that describes how to estimate the benefits and costs associated with integrated flood risk management projects undertaken by DWR. Fee: \$230,000. Role: Senior technical specialist/editor.

User documentation for water supply accounting software, USACE Little Rock District (2013). Developed the user documentation ("Help" file) for a desktop application for tracking, managing, and reporting water supply information for the district's reservoirs. Cost: part of \$85,000 project. Role: Senior technical specialist.

Flood emergency preparedness, response, and recovery plan template for California communities, California Department of Water Resources (2011). For CA DWR's FloodSAFE program, developed template for local communities to enhance their existing flood emergency preparedness, response, and recovery plans. Applied template to develop three example plans for communities in CA. Wrote flood emergency response scenarios that illustrate DWR's role in flood emergency response under California's Standardized Emergency Management System framework. Fee: \$350,000. Role: Ford Engineers' PM; senior technical specialist.

USACE software user guidance. For the USACE Risk Management Center, developed the combined *Application Guide* and *User Manual* for the Levee Screening Tool (2012); for HEC, developed the *User's Manual* for LifeSim, a life loss simulation program (2012); and for HEC, supported development of the *HEC-FIA Technical Reference Guide* (2011). Fee: \$75,000; \$93,000, and \$49,000, respectively. Role: Ford Engineers' PM; senior technical specialist.

User documentation for Ford Engineers' proprietary flood warning system (Aviso). Developed and/or revised the user documentation ("Help" file) for Ford Engineers' customized flood forecasting system for several agencies and communities, including Tarrant Regional Water District (TX) and Mecklenburg County/Charlotte (NC). Fee: varies. Role: Senior technical specialist.

Facilitation of Expert Opinion Elicitation on climate variability in Fargo-Moorhead; USACE, St. Paul District (2009). Task order manager for facilitation of expert opinion elicitation for USACE St. Paul District, in which a panel of experts was invited to share views on climate variability trends in the Fargo-Moorhead region. Tasks included gathering and distributing research materials, reporting on session outcomes, and summarizing experts' opinions in a format useful to the Corps in its planning for flood risk management measures in Fargo-Moorhead. Fee: \$55,000. Role: Senior technical specialist.

## Adam Schneider, PE, Senior engineer

Years of experience: 11 years total, 7 with Ford

Education: MS Civil engineering (UC Davis, 2007); BS Civil engineering (University of Wisconsin, 2005)

Professional registrations: PE Civil engineering (CA 2009 #74084; WI 2013 #42932-6)

### Overview

ADAM SCHNEIDER's areas of expertise include watershed modeling, reservoir system modeling, hydraulic modeling, statistical analysis, water supply forecasting, climate variability studies, and data quality control. Schneider is an expert user of HEC-HMS (HEC-1), HEC-GeoHMS, HEC-ResSim(HEC-5), HEC-RAS, and HEC-DSS/utilities, ESRI's GIS, the USGS Precipitation Runoff Modeling System (PRMS), and statistical software such as R and S-Plus. He presented "Emergency reservoir inflow forecasting for the Sheyenne River, ND, in March 2010" at the 2011 National Hydrologic Warning Council conference.

### Project-specific experience

Support for CWMS deployment nationwide, US Army Corps of Engineers (USACE) Modeling, Mapping, and Consequence (MMC) Center (Ongoing). As a subcontractor under a Mapping, Modeling, Consequence Analysis IDIQ contract with the USACE, providing modeling support (e.g., refinements to the HEC-HMS, HEC-RAS, HEC-ResSim, and HEC-FIA models) and CAVI integration for the CWMS modeling of river basins across the U.S. Locations to date include Jackson-James River, Norfolk District; Cape Fear River, Wilmington District; Susquehanna, Juniata, and Chemung rivers, Baltimore District; Blackstone River, New England District; Big Sandy River, Huntington District; and Arkansas River, Little Rock District. Fee: varies by task order. Role: Ford Engineers' project manager (PM); senior engineer.

Folsom Dam Joint Federal Project, USACE Sacramento District, Folsom, CA (Ongoing). Ford Engineers has provided hydrologic and hydraulic analyses for the Folsom Dam modification project, including developing the hydrologic engineering management plan (HEMP) for the array of modeling simulations required for development of an updated water control manual; seasonal flood frequency analysis for Folsom Dam inflow; development of spreadsheet algorithms for modeling alternative configurations of outlets, quality control review of the reservoir operations models for the Folsom Dam permanent operations study; development of a forecast-informed operations scheme for Folsom Reservoir; and we are currently developing the updated Water Control Manual for Folsom Dam. Fee: \$1,200,000 (to date). Role: Senior engineer.

Dam safety evaluation of Coyote Dam, Chesbro Dam, and Uvas Dam (DSE 1), Santa Clara Valley Water District, CA (2016). Ford Engineers is partnered with a large prime contractor to complete probable maximum flood (PMF) studies as part of a dam safety evaluation for 3 dams. Ford Engineers' role includes using Arc Hydro, ArcGIS, and HEC software to develop hydrologic and hydraulic models for use in the PMF study. Fee: \$54,000. Role: Senior engineer.

Hydrologic engineering services for Marin County, CA (Ongoing). Since February 2012, we have been providing on-call hydrologic engineering services for Marin County Public Works under a time and materials contract. Tasks have included watershed delineation using the Golden Gate LiDAR dataset, HEC-GeoHMS software, and other GIS applications; HEC-HMS watershed model development; historical data compilation and review; HEC-HMS watershed model calibration and verification; hands-on HEC-GeoHMS and HEC-HMS training for county staff; and independent technical review of hydrologic engineering reports prepared for Marin County Public Works by other contractors. Fee: \$51,000 to date. Role: Ford Engineers' PM; senior engineer.

Overland Park Aviso FS development and enhancements, Overland Park, KS (Ongoing). Developed a flood threat recognition system ("Aviso Watch") for the city; integrated additional watershed models into flood threat recognition system; identified additional warning thresholds; evaluated the suitability of Aviso FS (a



flood warning system developed by Ford Engineers) for the city; and determined precipitation gage weights for computing mean areal precipitation over NWS subbasins. We continue to provide support. Fee: \$510,000. Role: Senior engineer.

Hydraulic modeling in support of mapping for the Central Valley (CA) Floodplain and Delineation (CVFED) program, California Department of Water Resources (2015). For this DWR project, aimed at improving the quality and accuracy of flood hazard data and mapping in the Central Valley, Ford Engineers (1) established an overall hydraulic model development strategy, (2) oversaw and coordinated hydraulic model development, (3) developed one-dimensional unsteady HEC-RAS system models, (4) developed two-dimensional unsteady FLO-2D models, and (5) provided technical review. Fee: \$1,309,000. Role: Senior engineer.

Hydrologic studies in support of floodplain mapping of the Central Valley (Central Valley Hydrology Study), USACE Sacramento District (2014). As principal contractor for USACE, Ford Engineers managed hydrologic analyses to support floodplain delineation behind all the Federal-State levees in the Sacramento and San Joaquin river basins. This project included flow-frequency analysis of large watersheds, simulation of reservoir operations, and estimation of flows for ungaged watersheds. We configured HEC-ResSim and HEC-RAS models to simulate period-of-record regulated and unregulated flows. Also developed procedures for determining how climate variability may affect the flow-frequency analysis completed for the Central Valley Hydrology Study; and developed project management plan for climate variability study. Fee: \$8 million. Role: Senior engineer.

PMF analyses for Calero and Guadalupe dams seismic retrofit projects, Santa Clara Valley Water District (2014). As part of a project to complete planning and environmental studies that support a final design to resolve the seismic stability, flood, and outlet deficiencies at Calero and Guadalupe dams, Ford Engineers completed the updated Probable Maximum Flood (PMF) studies for each dam. Tasks included computing probable maximum precipitation (PMP) and PMF inflow to each reservoir for acceptance by Santa Clara Valley Water District and California Division of Dam Safety; evaluating the ability of the reservoirs and existing spillway structures to pass the PMF and maintain sufficient freeboard at the dam crests; evaluating the ability of the spillway discharge channels to pass the PMF peak reservoir outflow without overtopping of the spillway channel's lining; and proposing approximate dam and spillway modifications that would result in acceptable freeboard at the dam crests. Note: we are about to begin the next phase of this project, which includes supporting design of the new spillway. Fee: \$106,000. Role: Senior engineer.

Reservoir operation and watershed modeling to support water control manual update, USACE Sacramento District, Weber Basin, UT (2012). Developed HEC-ResSim and HEC-HMS models of the Weber Basin reservoir system in north central Utah: incorporated diversions, routing, and channel capacities into the model; built time series data sets in HEC-DSS of flow and storage; verified the model; and prepared documentation. Also developed a Weber Basin HEC-HMS model with snowmelt capabilities; calibrated and verified the model; and prepared documentation. Fee: \$198,000. Role: Ford Engineers' PM; senior engineer.

Implementation of CWMS in Galveston, TX, St. Paul, MN, and Sacramento, CA, HEC (2011). Implemented CWMS for the Buffalo Bayou watershed near Houston, TX, the Red River of the North watershed near Fargo, ND, and the American River watershed near Sacramento, CA. Developed and calibrated HEC-HMS models of all watersheds, surveyed sources of real-time data, and configured test forecasts. Fee: \$1,027,000. Role: Engineer.

Red River of the North emergency inflow forecasting, USACE St. Paul District (2011). Used gridded HEC-HMS watershed models, real-time data, and current precipitation and temperature forecasts to predict spring snowmelt inflows for reservoirs in the Red River of the North watershed in North Dakota, South Dakota, and Minnesota. Developed all HEC-HMS models using HEC-GeoHMS. Fee: \$273,000. Role: Ford Engineers' PM; engineer.