# Notice and Agenda of a Special Workshop of the Yucaipa Groundwater Sustainability Agency

Wednesday, March 14, 2018 at 10:00 a.m.

City of Yucaipa, 34272 Yucaipa Boulevard
Yucaipa, California 92399
(909) 797-2489

**I. Call to Order**

**II. Roll Call**

**III. Public Comments** At this time, members of the public may address the representatives of the Yucaipa Groundwater Sustainability Agency on matters within its jurisdiction.

**IV. Discussion Items**

A. Discussion and Possible Action Regarding Infiltration Testing at Various Sites within the Yucaipa Basin

- Draft Grant Agreement - Proposition 1 [Page 2 of 226]
- SBVMWD Request for Proposals for Infiltration Testing [Page 40 of 226]
- Sample Budget Distribution for Yucaipa GSA [Page 164 of 226]
- Todd Groundwater Proposal [Page 165 of 226]
- Todd Groundwater Proposal Clarifications [Page 188 of 226]
- Todd Groundwater Project Budget and Fees [Page 190 of 226]
- Geoscience Proposal [Page 191 of 226]
- Geoscience Proposal Clarifications [Page 221 of 226]
- Geoscience Project Budget - Alternative A [Page 224 of 226]
- Geoscience Project Budget - Alternative B [Page 225 of 226]
- Geoscience Project Schedule [Page 226 of 226]

**V. Topics for Future Meetings**

A. Presentation of the San Bernardino Groundwater Sustainability Counsel and the San Bernardino Basin Framework Agreement - Bob Tincher

B. Discussion Regarding the Methodology for Achieving a Sustainable Groundwater Plan

**VI. Comments by the Board Members of the Yucaipa Groundwater Sustainability Agency**

**VII. Announcements - Future Meetings**

A. Wednesday, March 28, 2018 at 10:00 am

B. Wednesday, April 25, 2018 at 10:00 am

C. Wednesday, May 23, 2018 at 10:00 am

D. Wednesday, June 27, 2018 at 10:00 am

E. Wednesday, July 25, 2018 at 10:00 am

**VIII. Adjournment**

**STATE OF CALIFORNIA**

**CALIFORNIA NATURAL RESOURCES AGENCY**

**DEPARTMENT OF WATER RESOURCES**

**Agreement Number: 46000XXXXX**

# GRANT AGREEMENT BETWEEN THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND <INSERT GRANTEE NAME>

**FOR A <PROJECT TYPE>**

**FOR THE < PROJECT NAME>**

**A PART OF THE SUSTAINABLE GROUNDWATER PLANNING GRANT PROGRAM UNDER**

**PROPOSITION 1, 2017 SUSTAINABLE GROUNDWATER PLANNING (SGWP) GRANT**

**GRANT AGREEMENT BETWEEN THE STATE OF CALIFORNIA (DEPARTMENT OF WATER RESOURCES) AND**

**<GRANTEE NAME>**

**AGREEMENT NUMBER <SAP AGREEMENT NUMBER>**

**PROPOSITION 1, 2017 SUSTAINABLE GROUNDWATER PLANNING (SGWP) GRANT**

THIS GRANT AGREEMENT is entered into by and between the Department of Water Resources of the State of California, herein referred to as the "State" and the <insert Grantee Name>, a <select appropriate descriptor and delete others – public agency, non-profit, etc.> in the State of California, duly organized, existing, and acting pursuant to the laws thereof, herein referred to as the "Grantee," which parties do hereby agree as follows:

1) PURPOSE. State shall provide funding from the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1) to assist the Grantee in financing the planning and/or selected project activities (Project) that will improve sustainable groundwater management, pursuant to Water Code section 79700 et seq.

2) TERM OF GRANT AGREEMENT. The term of this Grant Agreement begins on the date this Grant Agreement is executed by the State, through final payment plus three (3) years unless otherwise terminated or amended as provided in this Grant Agreement. However, all work shall be completed by <insert date according to schedule> and no funds may be requested after <insert date work completed plus three months>.

3) GRANT AMOUNT. The maximum amount payable by the State under this Grant Agreement shall not exceed $<INSERT AMOUNT>.

4) GRANTEE COST SHARE. Grantee is required to provide a Local Cost Share (non-state funds) of not less than 50 percent of the Total Project Cost unless a unless a Disadvantaged Community waiver (DAC Waiver), Economically Distressed Areas (EDA Waiver), or Severely Disadvantaged Community (SDAC Waiver) is granted. Grantee agrees to provide a Local Cost Share (non-state funds) for the amount as documented in Exhibit B Budget. Local Cost Share may include expenses directly related to Exhibit A Work Plan after January 1, 2015.

5) BASIC CONDITIONS. State shall have no obligation to disburse money for a project under this Grant Agreement until Grantee has satisfied the following conditions (if applicable):

   1. Prior to execution of this Grant Agreement, selected applicants (Groundwater Sustainability Agency) for Category 2 projects must submit evidence of a notification to the public and DWR prior to initiating development of a GSP in compliance with California Code of Regulations, title 23, section 350 et seq. (GSP Regulations) and Water Code section 10727.8.
   2. Grantee must demonstrate compliance with all relevant eligibility criteria as set forth on pages 7 and 8 of the 2015 Grant Program Guidelines for the SGWP Grant Program.
   3. For the term of this Grant Agreement, Grantee submits timely Progress Reports as required by Paragraph 16, “Submission of Reports.”
   4. Grantee submits all deliverables as specified in Paragraph 16 of this Grant Agreement and in Exhibit A.
   5. Prior to the commencement of construction or implementation activities, if applicable, Grantee shall submit the following to the State:

Not applicable to Category 2 planning or feasibility studies.

   a. Final plans and specifications certified, signed, and stamped by a California Registered Civil Engineer as to compliance for each approved project as listed in Exhibit A of this Grant Agreement.

b. Work that is subject to the California Environmental Quality Act (CEQA) and or environmental permitting shall not proceed under this Grant Agreement until the following actions are performed:

(1) Grantee submits to the State all applicable environmental permits as indicated on the Environmental Information Form to the State,

(2) Documents that satisfy the CEQA process are received by the State,

(3) State has completed its CEQA compliance review as a Responsible Agency, and

(4) Grantee receives written concurrence from the State of Lead Agency's CEQA document(s) and State notice of verification of environmental permit submittal.

State's concurrence of Lead Agency's CEQA documents is fully discretionary and shall constitute a condition precedent to any work (i.e., construction or implementation activities) for which it is required. Once CEQA documentation has been completed, State will consider the environmental documents and decide whether to continue to fund the project or to require changes, alterations or other mitigation. Grantee must also demonstrate that it has complied with all applicable requirements of the National Environmental Policy Act by submitting copies of any environmental documents, including environmental impact statements, Finding of No Significant Impact, mitigation monitoring programs, and environmental permits as may be required prior to beginning construction/implementation.

c. A monitoring plan as required by Paragraph 18, "Project Monitoring Plan Requirements", if applicable for Category 1 Implementation Project(s).

6) DISBURSEMENT OF FUNDS. State will disburse to Grantee the amount approved, subject to the availability of funds through normal State processes. Notwithstanding any other provision of this Grant Agreement, no disbursement shall be required at any time or in any manner which is in violation of, or in conflict with, federal or state laws, rules, or regulations, or which may require any rebates to the federal government, or any loss of tax-free status on state bonds, pursuant to any federal statute or regulation. Any and all money disbursed to Grantee under this Grant Agreement shall be deposited in a non-interest bearing account and shall be used solely to pay Eligible Project Costs.

7) ELIGIBLE PROJECT COST. Grantee shall apply State funds received only to eligible Project Costs in accordance with applicable provisions of the law and Exhibit B. Eligible Project Costs include the reasonable costs of studies, engineering, design, land and easement acquisition, legal fees, preparation of environmental documentation, environmental mitigations, monitoring, project construction, and/or any other scope of work efforts as described in Exhibit A. Reimbursable administrative expenses are the necessary costs incidental but directly related to the Project included in this Agreement. Work performed on the Project after July 1, 2017, but before January 31, {**2020** (Category 2, Tier 1) or **2022** (Category 2, Tier 2)} (end date), shall be eligible for reimbursement.

Costs that are not eligible for reimbursement with State funds cannot be counted as Cost Share. Costs that are not eligible for reimbursement include, but are not limited to, the following items:

1. Costs, other than those noted above, incurred prior to the award date of this Grant.
2. Costs for preparing and filing a grant application belonging to another solicitation.
3. Operation and maintenance costs, including post construction performance and monitoring costs.
4. Purchase of equipment not an integral part of a project.
5. Establishing a reserve fund.
6. Purchase of water supply.
7. Monitoring and assessment costs for efforts required after project construction is complete.
8. Replacement of existing funding sources for ongoing programs.

9. Travel and per diem costs. <Remove if Grantee has a DAC, EDA, or SDAC Waiver>
10. Support of existing agency requirements and mandates (e.g., punitive regulatory agency requirement).
11. Purchase of land in excess of the minimum required acreage necessary to operate as an integral part of a project, as set forth and detailed by engineering and feasibility studies, or land purchased prior to the execution date of this Grant Agreement.
12. Payment of principal or interest of existing indebtedness or any interest payments, unless:
    a. The debt is incurred after execution of this Grant Agreement,
    b. The State agrees in writing to the eligibility of the costs for reimbursement before the debt is incurred,
    c. The purposes for which the debt is incurred are otherwise eligible costs, and
    d. If all the above is met, Grantee submits indebtedness or any interest payments as Cost Share only.
13. Overhead and indirect costs. "Indirect Costs" means those costs that are incurred for a common or joint purpose benefiting more than one cost objective and are not readily assignable to the funded project (i.e., costs that are not directly related to the funded project). Examples of Indirect Costs include, but are not limited to: central service costs; general administration of the Grantee; non-project-specific accounting and personnel services performed within the Grantee's organization; depreciation or use allowances on buildings and equipment; the costs of operating and maintaining non-project-specific facilities; tuition and conference fees; and, generic overhead or markup. This prohibition applies to the Grantee and any subcontract or sub-agreement for work on the Project that will be reimbursed pursuant to this Agreement.

8) METHOD OF PAYMENT FOR REIMBURSEMENT. After the disbursement requirements in Paragraph 5 "Basic Conditions" are met, State will disburse the whole or portions of State funding to Grantee, following receipt from Grantee via U.S. mail or Express mail delivery of a "wet signature" invoice for costs incurred, including Cost Share, and timely Progress Reports as required by Paragraph 16, "Submission of Reports." Payment will be made no more frequently than monthly, in arrears, upon receipt of an invoice bearing the Grant Agreement number. State will notify Grantee, in a timely manner, whenever, upon review of an Invoice, State determines that any portion or portions of the costs claimed are not eligible costs or is not supported by documentation or receipts acceptable to State. Grantee may, within thirty (30) calendar days of the date of receipt of such notice, submit additional documentation to State to cure such deficiency(ies). If Grantee fails to submit adequate documentation curing the deficiency(ies), State will adjust the pending invoice by the amount of ineligible or unapproved costs.

Invoices submitted by Grantee shall include the following information:

1. Costs incurred for work performed in implementing the project during the period identified in the particular invoice.
2. Costs incurred for any interests in real property (land or easements) that have been necessarily acquired for a project during the period identified in the particular invoice for the implementation of a project.
3. Invoices shall be submitted on forms provided by State and shall meet the following format requirements:
    a. Invoices must contain the date of the invoice, the time period covered by the invoice, and the total amount due.
    b. Invoices must be itemized based on the categories (i.e., tasks) specified in the Exhibit B. The amount claimed for salaries/wages/consultant fees must include a calculation formula (i.e., hours or days worked times the hourly or daily rate = the total amount claimed).

c. One set of sufficient evidence (i.e., receipts, copies of checks, time sheets) must be provided for all costs included in the invoice.

d. Each invoice shall clearly delineate those costs claimed for reimbursement from the State's funding amount, as depicted in Paragraph 3, "Grant Amount" and those costs that represent Grantee's costs, as applicable, in Paragraph 4, "Grantee Cost Share."

e. Original signature and date (in ink) of Grantee's Project Representative. Submit the original "wet signature" copy of the invoice form to the address listed in Paragraph 23, "Project Representative."

All invoices submitted shall be accurate and signed under penalty of perjury. Any and all costs submitted pursuant to this Agreement shall only be for the tasks set forth herein. The Grantee shall not submit any invoice containing costs that are ineligible or have been reimbursed from other funding sources unless required and specifically noted as such (i.e., match costs). Any eligible costs for which the Grantee is seeking reimbursement shall not be reimbursed from any other source. Double or multiple billing for time, services, or any other eligible cost is illegal and constitutes fraud. Any suspected occurrences of fraud, forgery, embezzlement, theft, or any other misuse of public funds may result in suspension of disbursements of grant funds and/or termination of this Agreement requiring the repayment of all funds disbursed hereunder plus interest. Additionally, the State may request an audit pursuant to Exhibit D and refer the matter to the Attorney General's Office or the appropriate district attorney's office for criminal prosecution or the imposition of civil liability. (Civ. Code, §§ 1572-1573; Pen. Code, §§ 470, 489-490.)

9) ADVANCED PAYMENT. Water Code section 10551 authorizes advance payment by the State for projects which are sponsored by a nonprofit organization; a DAC; or the proponent of a project that benefits a DAC. If these projects are awarded less than $1,000,000 in grant funds, the project proponent may receive an advanced payment of up to 50% of the grant award; the remaining 50% of the grant award will be reimbursed in arrears. Within ninety (90) calendar days of execution of the Grant Agreement, the Grantee shall provide the State an Advanced Payment Request. The Advanced Payment Request must contain the following:

1. Documentation demonstrating that each Local Project Sponsor (if different from Grantee, as listed in Exhibit M) was notified about their eligibility to receive an advanced payment and a response from the Local Project Sponsor stating whether it wishes to receive the advanced payment or not.
2. If the Local Project Sponsor is requesting the advanced payment, the request must include:
   a. A funding plan which shows how the advanced funds will be expended within 18 months of this Grant Agreement's execution (i.e., for what, how much, and when)
   b. A discussion of the Local Project Sponsor's financial capacity to complete the project once the advance funds have been expended, and include an "Audited Financial Statement Summary Form" specific to the DAC.
3. If a Local Project Sponsor is requesting advanced payment, Grantee shall also submit a single Advance Payment Form Invoice, containing the request for each qualified project, to the State Project Manager with "wet signature" and date of Grantee's Project Representative, as indicated in Paragraph 23, "Project Representative." The Grantee shall be responsible for the timely distribution of the advanced funds to the respective Local Project Sponsor(s). Within sixty (60) calendar days of receiving the Advanced Payment Form Invoice and subject to the availability of funds, State will authorize payment of the advanced funds sought of up to 50% of the grant award for the qualified project(s). The Advanced Payment Form Invoice shall be submitted on forms provided by State and shall meet the following format requirements:
   a. Invoice must contain the date of the invoice, the time period covered by the invoice, and the total amount due.
   b. Invoice must be itemized based on the categories (i.e., tasks) specified in Exhibit B.

c. State Project Manager will notify Grantee, in a timely manner, when, upon review of an Advance Payment Form Invoice, the State determines that any portion or portions of the costs claimed are not eligible costs. Grantee may, within thirty (30) calendar days of the date of receipt of such notice, submit additional documentation to cure such deficiency(ies). After the distribution requirements in Paragraph 5, "Basic Conditions" are met, State will disburse the whole or portions of State funding to Grantee, following receipt from Grantee via US mail or Express mail delivery of a "wet signature" nvoice for costs incurred, including Cost Share, and timely Progress Reports as required by Paragraph 16, "Submission of Reports."

4. On a quarterly basis, the Grantee will submit an Accountability Report to State that demonstrates how actual expenditures compare with the scheduled budget. The Accountability Report shall include the following information:

   a. An itemization of how advanced funds have been expended to-date (Expenditure Summary), including documentation that supports the expenditures (e.g., contractor invoices, receipts, personnel hours, etc.). Invoices must be itemized based on the budget categories (i.e., tasks) specified in Exhibit B.

   b. A funding plan which shows how the remaining advanced funds will be expended.

   c. Documentation that the funds were placed in a non-interest bearing account, including the dates of deposits and withdrawals from that account.

   d. State Project Manager will notify Grantee, in a timely manner, when, upon review of the Expenditure Summary, the State determines that any portion of the expenditures claimed are not eligible costs. Grantee may, within thirty (30) calendar days of the date of receipt of such notice, submit additional documentation to cure such deficiency(ies). If costs are not consistent with the tasks in Exhibit B, the State will reject the claim and remove them from the Expenditure Summary.

5. Once Grantee has expended all advanced funds, then the method of payment will revert to the reimbursement process specified in Paragraph 8, "Method of Payment for Reimbursement.", and any remaining requirements of Paragraph 5, "Basic Conditions."

10) REPAYMENT OF ADVANCES. State may demand repayment from Grantee of all or any portion of the advanced State funding along with interest at the California general obligation bond interest rate at the time the State notifies the Grantee, as directed by State, and take any other action that it deems necessary to protect its interests for the following conditions:

1. A project is not being implemented in accordance with the provisions of the Grant Agreement.
2. Grantee has failed in any other respect to comply with the provisions of this Grant Agreement, and if Grantee does not remedy any such failure to State's satisfaction.
3. Repayment amounts may also include:

   a. Advance funds which have not been expended within 18 months of the Grant Agreement's execution by the Local Project Sponsor.

   b. Actual costs incurred are not consistent with the activities presented in Exhibit A, not supported, or are ineligible.

   c. At the completion of the project, the funds have not been expended.

For conditions 10) 3.a. and 10) 3.b., repayment may consist of deducting the amount from future reimbursement invoices. State may consider Grantee's refusal to repay the requested advanced amount a substantial breach of this Grant Agreement subject to the default provisions in Paragraph 12, "Default Provisions." If State notifies Grantee of its decision to demand repayment or withhold the entire funding amount from Grantee pursuant to this paragraph, this Grant Agreement shall terminate upon receipt of

such notice by Grantee and the State shall no longer be required to provide funds under this Grant Agreement and the Grant Agreement shall no longer be binding on either part.

11) WITHHOLDING OF DISBURSEMENTS BY STATE. If State determines that a project is not being implemented in accordance with the provisions of this Grant Agreement, or that Grantee has failed in any other respect to comply with the provisions of this Grant Agreement, and if Grantee does not remedy any such failure to State's satisfaction, State may withhold from Grantee all or any portion of the State funding and take any other action that it deems necessary to protect its interests. Where a portion of the State funding has been disbursed to the Grantee and State notifies Grantee of its decision not to release funds that have been withheld pursuant to Paragraph 13, "Continuing Eligibility," the portion that has been disbursed shall thereafter be repaid immediately with interest at the California general obligation bond interest rate at the time the State notifies the Grantee, as directed by State. State may consider Grantee's refusal to repay the requested disbursed amount a contract breach subject to the default provisions in Paragraph 12, "Default Provisions." If State notifies Grantee of its decision to withhold the entire funding amount from Grantee pursuant to this paragraph, this Grant Agreement shall terminate upon receipt of such notice by Grantee and the State shall no longer be required to provide funds under this Grant Agreement and the Grant Agreement shall no longer be binding on either party.

12) DEFAULT PROVISIONS. Grantee will be in default under this Grant Agreement if any of the following occur:

1. Substantial breaches of this Grant Agreement, or any supplement or amendment to it, or any other agreement between Grantee and State evidencing or securing Grantee's obligations;
2. Making any false warranty, representation, or statement with respect to this Grant Agreement or the application filed to obtain this Grant Agreement;
3. Failure to operate or maintain project in accordance with this Grant Agreement.
4. Failure to make any remittance required by this Grant Agreement.
5. Failure to comply with Labor Compliance Plan requirements.
6. Failure to submit timely progress reports.
7. Failure to routinely invoice State.
8. Failure to meet any of the requirements set forth in Paragraph 13, "Continuing Eligibility."

Should an event of default occur, State shall provide a notice of default to the Grantee and shall give Grantee at least ten (10) calendar days to cure the default from the date the notice is sent via first-class mail to the Grantee. If the Grantee fails to cure the default within the time prescribed by the State, State may do any of the following:

9. Declare the funding be immediately repaid, with interest, which shall be equal to State of California general obligation bond interest rate in effect at the time of the default.
10. Terminate any obligation to make future payments to Grantee.
11. Terminate the Grant Agreement.
12. Take any other action that it deems necessary to protect its interests.

In the event State finds it necessary to enforce this provision of this Grant Agreement in the manner provided by law, Grantee agrees to pay all costs incurred by State including, but not limited to, reasonable attorneys' fees, legal expenses, and costs.

13) CONTINUING ELIGIBILITY. Grantee must meet the following ongoing requirement(s) to remain eligible to receive State funds:

1. An urban water supplier that receives grant funds pursuant to this Grant Agreement must maintain compliance with the Urban Water Management Planning Act (UWMP; Wat. Code, § 10610 et seq.) and Sustainable Water Use and Demand Reduction (Wat. Code, § 10608 et seq.) by doing the following:

   a. Have submitted their 2015 UWMP and had it deemed consistent by DWR. If the 2015 UWMP has not been submitted to DWR funding disbursements to the urban water supplier will cease until the 2015 UWMP is submitted. If the 2015 UWMP is deemed inconsistent by DWR, the urban water supplier will be ineligible to receive funding disbursements until the inconsistencies are addressed and DWR deems the UWMP consistent. For more information, visit the following website: http://www.water.ca.gov/urbanwatermanagement.

   b. All urban water suppliers must submit documentation that demonstrates they are meeting the 2015 interim gallons per capita per day (GPCD) target. If not meeting the interim target, the Grantee must submit a schedule, financing plan, and budget for achieving the GPCD target, as required pursuant to Water Code section 10608.24. Urban water suppliers that did not meet their 2015 interim GPCD target must also submit annual reports that include a schedule, financing plan, and budget for achieving the GPCD target by June 30 of each year.

2. An agricultural water supplier receiving grant funding must:

   a. Comply with Sustainable Water Use and Demand Reduction requirements outlined Water Code section 10608, et seq. Submit to the State a schedule, financing plan, and budget for implementation of the efficient water management practices, required pursuant to Water Code section 10608.48.

   b. Have their Agricultural Water Management Plan (AWMP) deemed consistent by DWR. To maintain eligibility and continue funding disbursements, an agricultural water supply must have their 2015 AWMP identified on the State's website. For more information, visit the following website: http://www.water.ca.gov/wateruseefficiency/sb7/planlist2015.cfm.

3. Grantee diverting surface water must maintain compliance with diversion reporting requirements as outlined in Part 5.1 of Division 2 of the Water Code.

4. If applicable, Grantee must demonstrate compliance with the Groundwater Management Act set forth on pages 7 and 8 of the 2015 SGWP Grant Program Guidelines, dated October 2015.

5. Grantees that have been designated as monitoring entities under the California Statewide Groundwater Elevation Monitoring (CASGEM) Program must maintain reporting compliance, as required by Water Code section 10932 and the CASGEM Program.

14) PERMITS, LICENSES, APPROVALS, AND LEGAL OBLIGATIONS. Grantee shall be responsible for obtaining any and all permits, licenses, and approvals required for performing any work under this Grant Agreement, including those necessary to perform design, construction, or operation and maintenance of the Project(s). Grantee shall be responsible for observing and complying with any applicable federal, state, and local laws, rules or regulations affecting any such work, specifically those including, but not limited to, environmental, procurement, and safety laws, rules, regulations, and ordinances. Grantee shall provide copies of permits and approvals to State.

15) RELATIONSHIP OF PARTIES. If applicable, Grantee is solely responsible for design, construction, and operation and maintenance of projects within the work plan. Review or approval of plans, specifications, bid documents, or other construction documents by State is solely for the purpose of proper administration of funds by State and shall not be deemed to relieve or restrict responsibilities of Grantee under this Grant Agreement.

16) SUBMISSION OF REPORTS. The submittal and approval of all reports is a requirement for the successful completion of this Grant Agreement. Reports shall meet generally accepted professional standards for technical reporting and shall be proofread for content, numerical accuracy, spelling, and grammar prior to submittal to State. All reports shall be submitted to the State's Project Manager, and shall be submitted via Department of Water Resources (DWR) "Grant Review and Tracking System" (GRanTS). If requested, Grantee shall promptly provide any additional information deemed necessary by State for the approval of reports. Reports shall be presented in the formats described in the applicable portion of Exhibit F. The timely submittal of reports is a requirement for initial and continued disbursement of State funds. Submittal and subsequent approval by the State, of a Project Completion Report is a requirement for the release of any funds retained for such project.

1. Progress Reports: Grantee shall submit Progress Reports to meet the State's requirement for disbursement of funds. Progress Reports shall be shall be uploaded via GRanTS, and the State's Project Manager notified of upload. Progress Reports shall, in part, provide a brief description of the work performed, Grantees activities, milestones achieved, any accomplishments and any problems encountered in the performance of the work under this Grant Agreement during the reporting period. The first Progress Report should be submitted to the State no later than <insert a reasonable date, generally at least 1 quarter after the execution of the agreement> with future reports then due on successive three-month increments based on the invoicing schedule and this date.
2. Groundwater Sustainability Plan: Grantee shall submit a Final Groundwater Sustainability Plan (GSP) to DWR by the date as specified per SGMA. The GSP shall be formatted, drafted, prepared, and completed as required by the GSP Regulations, and in accordance with any other regulations or requirements that are stipulated through SGMA.
3. Coordination Agreement: Grantee shall provide State a copy of the executed Coordination Agreement, and any and all supporting documentation. This condition is only required in basins where GSAs develop multiple GSPs pursuant to Water Code section 10727(b)(3). Refer to the GSP Regulations for necessary details and requirements to prepare and submit a Coordination Agreement.
4. Accountability Report: Grantee shall prepare and submit to State an Accountability Report on a quarterly basis if the Grantee received an Advanced Payment, consistent with the provisions in Paragraph 9, "Advanced Payment."
5. Project Completion Report: Grantee shall prepare and submit to State a separate Project Completion Report for each project included in Exhibit A. Grantee shall submit a Project Completion Report within ninety (90) calendar days of project completion. Each Project Completion Report shall include, in part, a description of actual work done, any changes or amendments to each project, and a final schedule showing actual progress versus planned progress, copies of any final documents or reports generated or utilized during a project. The Project Completion Report shall also include, if applicable for Category 1 Implementation Project(s), certification of final project by a registered civil engineer, consistent with Exhibit D. A "Certification of Project Completion" form will be provided by the State.
6. Post-Performance Reports: Grantee shall prepare and submit to State Post-Performance Reports on each applicable implementation type Project(s). Post-Performance Reports shall be submitted to State within ninety (90) calendar days after the first operational year of a project has elapsed. This record keeping and reporting process shall be repeated annually for a total of 10 years after the completed project begins operation. <NOTE: Post-Performance Reports are not required for GSP submittal Projects or other planning Projects. Only include in Grant Agreement for Category 1 Implementation type Projects. Remove this requirement if not applicable.>

17) OPERATION AND MAINTENANCE OF PROJECT. For the useful life of construction and implementation projects (pertinent to Implementation Projects (Category 1)) and in consideration of the funding made by State, Grantee agrees to ensure or cause to be performed the commencement and continued operation of the project, and shall ensure or cause the project to be operated in an efficient and economical manner;

shall ensure all repairs, renewals, and replacements necessary to the efficient operation of the same are provided; and shall ensure or cause the same to be maintained in as good and efficient condition as upon its construction, ordinary and reasonable wear and depreciation excepted. The State shall not be liable for any cost of such maintenance, management, or operation. Grantee or their successors may, with the written approval of State, transfer this responsibility to use, manage, and maintain the property. For purposes of this Grant Agreement, "useful life" means period during which an asset, property, or activity is expected to be usable for the purpose it was acquired or implemented; "operation costs" include direct costs incurred for material and labor needed for operations, utilities, insurance, and similar expenses, and "maintenance costs" include ordinary repairs and replacements of a recurring nature necessary for capital assets and basic structures and the expenditure of funds necessary to replace or reconstruct capital assets or basic structures. Refusal of Grantee to ensure operation and maintenance of the projects in accordance with this provision may, at the option of State, be considered a breach of this Grant Agreement and may be treated as default under Paragraph 12, "Default Provisions."

18) PROJECT MONITORING PLAN REQUIREMENTS. Pertinent to Implementation Projects (Category 1), a Project Monitoring Plan shall be submitted to the State prior to disbursement of State funds for construction or monitoring activities. The Project Monitoring Plan should incorporate items defined and listed in Exhibit I.

19) STATEWIDE MONITORING REQUIREMENTS. Grantee shall ensure that all groundwater projects and projects that include groundwater monitoring requirements are consistent with the Groundwater Quality Monitoring Act of 2001 (Wat. Code, § 10780 et seq.) and, where applicable, projects that affect water quality shall include a monitoring component that allows the integration of data into statewide monitoring efforts, including where applicable, the Surface Water Ambient Monitoring Program carried out by the State Water Resources Control Board. See Exhibit G for web links and information regarding other State monitoring and data reporting requirements.

20) NOTIFICATION OF STATE. Grantee shall promptly notify State, in writing, of the following items:

    1. Events or proposed changes that could affect the scope, budget, or work performed under this Grant Agreement. Grantee agrees that no substantial change in the scope of a project will be undertaken until written notice of the proposed change has been provided to State and State has given written approval for such change. Substantial changes generally include changes to the scope of work, schedule or term, and budget.
    2. Any public or media event publicizing the accomplishments and/or results of this Grant Agreement and provide the opportunity for attendance and participation by State's representatives. Grantee shall make such notification at least fourteen (14) calendar days prior to the event.
    3. Applicable to Category 1 Projects only, Final inspection of the completed work on a project by a Registered Professional (Civil Engineer, Engineering Geologist, or other State approved certified/license Professional), in accordance with Exhibit D. Grantee shall notify the State's Project Manager of the inspection date at least 14 calendar days prior to the inspection in order to provide State the opportunity to participate in the inspection.

21) NOTICES. Any notice, demand, request, consent, or approval that either party desires or is required to give to the other party under this Grant Agreement shall be in writing. Notices may be transmitted by any of the following means:

    1. By delivery in person.
    2. By certified U.S. mail, return receipt requested, postage prepaid.
    3. By "overnight" delivery service; provided that next-business-day delivery is requested by the sender.
    4. By electronic means.

5. Notices delivered in person will be deemed effective immediately on receipt (or refusal of delivery or receipt). Notices sent by certified mail will be deemed effective given ten (10) calendar days after the date deposited with the U.S. Postal Service. Notices sent by overnight delivery service will be deemed effective one business day after the date deposited with the delivery service. Notices sent electronically will be effective on the date of transmission, which is documented in writing. Notices shall be sent to the below addresses. Either party may, by written notice to the other, designate a different address that shall be substituted for the one below.

22) PERFORMANCE EVALUATION. Upon completion of this Grant Agreement, Grantee's performance will be evaluated by the State and a copy of the evaluation will be placed in the State file and a copy sent to the Grantee.

23) PROJECT REPRESENTATIVES. The Project Representatives during the term of this Grant Agreement are as follows:

Department of Water Resources

<Insert DWR Project Representative, title, name, mailing address and contact information>

<Insert Grantee Project Representative title, name, mailing address and contact information>

Direct all inquiries to the Project Manager:

Department of Water Resources

<Insert DWR Project Manager name, mailing address and contact information>

<Insert Grantee Project Manager name, mailing address and contact information>

Either party may change its Project Representative or Project Manager upon written notice to the other party.

24) STANDARD PROVISIONS. The following Exhibits are attached and made a part of this Grant Agreement by this reference:

Exhibit A – Work Plan

Exhibit B – Budget

Exhibit C – Schedule

Exhibit D – Standard Conditions

Exhibit E – Grantee Resolution

Exhibit F – Report Formats and Requirements

Exhibit G – Requirements for Data Submittal

Exhibit H – State Audit Document Requirements and Cost Share Guidelines for Grantees

Exhibit I – Monitoring and Maintenance Plan Components

Exhibit J – Project Location

Exhibit K – Information Needed for Escrow Process and Closure

Exhibit L – Appraisal Specifications

Exhibit M – Local Project Sponsors

IN WITNESS WHEREOF, the parties hereto have executed this Grant Agreement.

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

_____

<Insert DWR Project Representative, Title, and Division>

Date_____

<Insert Grantee name>

_____

<Insert Grantee Project Representative Name and title>

Date_____

Approved as to Legal Form and Sufficiency

_____

<Insert name and title>
Office of Chief Counsel

Date_____

## EXHIBIT A

## WORK PLAN

The work plan must consist of scope of proposed work including tasks and project deliverables.

**Category (a): Project Administration <Use the following template for Category (a), modify with additional tasks as needed>**

**Task 1: Administration**

Manage Grant agreement including Agreement execution and Amendment(s) (if necessary), communication with DWR on a timely basis, and maintenance of project files related to implementation of the grant agreement.

- Deliverables
  - Executed Grant Agreement. Amendment(s) (if necessary)
  - Executed contract(s) with consultants <if applicable>

**Task 2: Invoicing**

Prepare and submit invoices to DWR, track task progress and schedule, and manage contracts and budgets associated with the Grant Agreement. The Grantee, or its designee, will administer and track any contracts with consultants or other agencies that are necessary to complete tasks in the Work Plan and compile the required invoice back-up information.

- Deliverables
  - Invoices and associated backup documentation

**Task 3: Reporting**

The Grantee will be responsible for compiling progress reports for submittal to DWR. The Grantee will retain consultants as needed to prepare and submit quarterly progress reports, at a minimum and the Final Grant Completion Report.

Reports will meet generally accepted professional standards for technical reporting and the requirements outlined in Exhibit F of this Agreement. Upon completion of this Work Plan, a final Grant Completion Report will be prepared and submitted to DWR.

- Deliverables
  - Progress reports
  - Draft and Final Grant Completion Report

## EXHIBIT B

## BUDGET

Table B is an example that provides an outline of the format that may be submitted for this grant program. The budget must be consistent with the work plan and schedule. Table B must be completed as a summary or roll-up budget for the entire work plan.

| Table B - Budget | | | | | |
|---|---|---|---|---|---|
| **Project Title:** | | | | | |
| **Tasks** | | **Grant Amount** | ***Required Local Cost Share (non-state source)** | **Other Cost Share** | **Total Project Cost** |
| (a) | Task 1 – | | | | |
| (b) | Task 2 – | | | | |
| (c) | Task n… | | | | |

*Footnote should explain if the grantee received a cost share waiver or reduction.

## EXHIBIT C

## SCHEDULE

Table C is an example that provides an outline of the format for a schedule that may be submitted for this grant program. The schedule must be consistent with the work plan and budget.

| Tasks | Start Date | End Date |
|---|---|---|
| Task 1 – | | |
| Task 2 – | | |
| Task n… | | |

## EXHIBIT D

## STANDARD CONDITIONS

D.1) ACCOUNTING AND DEPOSIT OF FUNDING DISBURSEMENT:

a) Separate Accounting of Funding Disbursements: Grantee shall account for the money disbursed pursuant to this Grant Agreement separately from all other Grantee funds. Grantee shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied. Grantee shall keep complete and accurate records of all receipts and disbursements on expenditures of such funds. Grantee shall require its contractors or subcontractors to maintain books, records, and other documents pertinent to their work in accordance with generally accepted accounting principles and practices. Records are subject to inspection by State at any and all reasonable times.

b) Disposition of Money Disbursed: All money disbursed pursuant to this Grant Agreement shall be deposited in a non-interest bearing account, administered, and accounted for pursuant to the provisions of applicable law.

c) Remittance of Unexpended Funds: Grantee shall remit to State any unexpended funds that were disbursed to Grantee under this Grant Agreement and were not used to pay Eligible Project Costs within a period of sixty (60) calendar days from the final disbursement from State to Grantee of funds or, within thirty (30) calendar days of the expiration of the Grant Agreement, whichever comes first.

D.2) ACKNOWLEDGEMENT OF CREDIT AND SIGNAGE: Grantee shall include appropriate acknowledgement of credit to the State for its support when promoting the Project or using any data and/or information developed under this Grant Agreement. Signage shall be posted in a prominent location at Project site(s) (if applicable) or at the Grantee's headquarters and shall include the Department of Water Resources color logo and the following disclosure statement: "Funding for this project has been provided in full or in part from the Water Quality, Supply, and Infrastructure Improvement Act of 2014 and through an agreement with the State Department of Water Resources." The Grantee shall also include in each of its contracts for work under this Agreement a provision that incorporates the requirements stated within this paragraph.

D.3) AMENDMENT: This Grant Agreement may be amended at any time by mutual agreement of the Parties, except insofar as any proposed amendments are in any way contrary to applicable law. Requests by the Grantee for amendments must be in writing stating the amendment request and the reason for the request. State shall have no obligation to agree to an amendment.

D.4) AMERICANS WITH DISABILITIES ACT: By signing this Grant Agreement, Grantee assures State that it complies with the Americans with Disabilities Act (ADA) of 1990, (42 U.S.C. § 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

D.5) AUDITS: State reserves the right to conduct an audit at any time between the execution of this Grant Agreement and the completion of the Project, with the costs of such audit borne by State. After completion of the Project, State may require Grantee to conduct a final audit to State's specifications, at Grantee's expense, such audit to be conducted by and a report prepared by an independent Certified Public Accountant. Failure or refusal by Grantee to comply with this provision shall be considered a breach of this Grant Agreement, and State may elect to pursue any remedies provided in Paragraph 11 or take any other action it deems necessary to protect its interests.

Pursuant to Government Code section 8546.7, the Grantee shall be subject to the examination and audit by the State for a period of three (3) years after final payment under this Grant Agreement with respect of all matters connected with this Grant Agreement, including but not limited to, the cost of

administering this Grant Agreement. All records of Grantee or its contractor or subcontractors shall be preserved for this purpose for at least three (3) years after receipt of the final disbursement under this Agreement. If an audit reveals any impropriety, the Bureau of State Audits or the State Controller's Office may conduct a full audit of any or all of the Funding Recipient's activities. (Wat. Code, § 79708, subd. (c).)

D.6) BUDGET CONTINGENCY: If the Budget Act of the current year covered under this Grant Agreement does not appropriate sufficient funds for this program, this Grant Agreement shall be of no force and effect. This provision shall be construed as a condition precedent to the obligation of State to make any payments under this Grant Agreement. In this event, State shall have no liability to pay any funds whatsoever to Grantee or to furnish any other considerations under this Grant Agreement and Grantee shall not be obligated to perform any provisions of this Grant Agreement. Nothing in this Grant Agreement shall be construed to provide Grantee with a right of priority for payment over any other Grantee. If funding for any fiscal year after the current year covered by this Grant Agreement is reduced or deleted by the Budget Act, by Executive Order, or by order of the Department of Finance, the State shall have the option to either cancel this Grant Agreement with no liability occurring to State, or offer a Grant Agreement amendment to Grantee to reflect the reduced amount.

D.7) CEQA: Activities funded under this Grant Agreement, regardless of funding source, must be in compliance with the California Environmental Quality Act (CEQA). (Pub. Resources Code, § 21000 et seq.) Any work that is subject to CEQA and funded under this Grant Agreement shall not proceed until documents that satisfy the CEQA process are received by the State's Project Manager and the State has completed its CEQA compliance. Work funded under the Grant Agreement subject to a CEQA document shall not proceed until and unless approved by State Project Manager. Such approval is fully discretionary and shall constitute a condition precedent to any work for which it is required. If CEQA compliance by the Grantee is not complete at the time the State signs this Agreement, once State has considered the environmental documents, it may decide to require changes, alterations, or other mitigation to the Project; or to not fund the Project. Should the State decide to not fund the Project, this Agreement shall be terminated in accordance with Paragraph 11.

D.8) CHILD SUPPORT COMPLIANCE ACT: The Grantee acknowledges in accordance with Public Contract Code section 7110, that:

a) The Grantee recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Family Code section 5200 et seq.; and

b) The Grantee, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

D.9) CLAIMS DISPUTE: Any claim that the Grantee may have regarding performance of this Agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the DWR Project Representative, within thirty (30) days of the Grantee's knowledge of the claim. State and Grantee shall then attempt to negotiate a resolution of such claim and process an amendment to this Agreement to implement the terms of any such resolution.

D.10) COMPETITIVE BIDDING AND PROCUREMENTS: Grantee shall comply with all applicable laws and regulations regarding securing competitive bids and undertaking competitive negotiations in Grantee's contracts with other entities for acquisition of goods and services and construction of public works with funds provided by State under this Grant Agreement.

D.11) COMPUTER SOFTWARE: Grantee certifies that it has appropriate systems and controls in place to ensure that state funds will not be used in the performance of this Grant Agreement for the acquisition, operation, or maintenance of computer software in violation of copyright laws.

D.12) CONFLICT OF INTEREST: All participants are subject to State and Federal conflict of interest laws. Failure to comply with these laws, including business and financial disclosure provisions, will result in the application being rejected and any subsequent contract being declared void. Other legal action may also be taken. Applicable statutes include, but are not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411, for State conflict of interest requirements.

a) Current State Employees: No State officer or employee shall engage in any employment, activity, or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any State agency, unless the employment, activity, or enterprise is required as a condition of regular State employment. No State officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

b) Former State Employees: For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements, or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

c) Employees of the Grantee: Employees of the Grantee shall comply with all applicable provisions of law pertaining to conflicts of interest, including but not limited to any applicable conflict of interest provisions of the California Political Reform Act. (Gov. Code, § 87100 et seq.)

d) Employees and Consultants to the Grantee: Individuals working on behalf of a Grantee may be required by the Department to file a Statement of Economic Interests (Fair Political Practices Commission Form 700) if it is determined that an individual is a consultant for Political Reform Act purposes.

D.13) DELIVERY OF INFORMATION, REPORTS, AND DATA: Grantee agrees to expeditiously provide throughout the term of this Grant Agreement, such reports, data, information, and certifications as may be reasonably required by State.

D.14) DISPOSITION OF EQUIPMENT: Grantee shall provide to State, not less than 30 calendar days prior to submission of the final invoice, an itemized inventory of equipment purchased with funds provided by State. The inventory shall include all items with a current estimated fair market value of more than $5,000.00 per item. Within 60 calendar days of receipt of such inventory State shall provide Grantee with a list of the items on the inventory that State will take title to. All other items shall become the property of Grantee. State shall arrange for delivery from Grantee of items that it takes title to. Cost of transportation, if any, shall be borne by State.

D.15) DRUG-FREE WORKPLACE CERTIFICATION: Certification of Compliance: By signing this Grant Agreement, Grantee, its contractors or subcontractors hereby certify, under penalty of perjury under the laws of State of California, compliance with the requirements of the Drug-Free Workplace Act of 1990 (Gov. Code § 8350 et seq.) and have or will provide a drug-free workplace by taking the following actions:

a) Publish a statement notifying employees, contractors, and subcontractors that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees, contractors, or subcontractors for violations, as required by Government Code section 8355.

b) Establish a Drug-Free Awareness Program, as required by Government Code section 8355 to inform employees, contractors, or subcontractors about all of the following:

   i) The dangers of drug abuse in the workplace,

   ii) Grantee's policy of maintaining a drug-free workplace,

   iii) Any available counseling, rehabilitation, and employee assistance programs, and

   iv) Penalties that may be imposed upon employees, contractors, and subcontractors for drug abuse violations.

c) Provide, as required by Government Code section 8355, that every employee, contractor, and/or subcontractor who works under this Grant Agreement:

   i) Will receive a copy of Grantee's drug-free policy statement, and

   ii) Will agree to abide by terms of Grantee's condition of employment, contract or subcontract.

D.16) EASEMENTS: Where the Grantee acquires property in fee title or funds improvements to real property already owned in fee by the Grantee using State funds provided through this Grant Agreement, an appropriate easement or other title restriction providing for floodplain preservation and agricultural and/or wildlife habitat conservation for the subject property in perpetuity, approved by the State, shall be conveyed to a regulatory or trustee agency or conservation group acceptable to the State. The easement or other title restriction must be in first position ahead of any recorded mortgage or lien on the property unless this requirement is waived by the State.

Where the Grantee acquires an easement under this Agreement, the Grantee agrees to monitor and enforce the terms of the easement, unless the easement is subsequently transferred to another land management or conservation organization or entity with State permission, at which time monitoring and enforcement responsibilities will transfer to the new easement owner.

Failure to provide an easement acceptable to the State can result in termination of this Agreement.

D.17) FINAL INSPECTIONS AND CERTIFICATION OF REGISTERED PROFESSIONAL: Upon completion of the Project, Grantee shall provide for a final inspection and certification by a California Registered Professional (i.e., Professional Civil Engineer, Engineering Geologist, that the Project has been completed in accordance with submitted final plans and specifications and any modifications thereto and in accordance with this Grant Agreement.

D.18) GRANTEE'S RESPONSIBILITY. Grantee and its representatives shall:

a) Faithfully and expeditiously perform or cause to be performed all project work as described in Exhibit A and in accordance with Project Exhibit B and Exhibit C.

b) Accept and agree to comply with all terms, provisions, conditions, and written commitments of this Grant Agreement, including all incorporated documents, and to fulfill all assurances, declarations, representations, and statements made by Grantee in the application, documents, amendments, and communications filed in support of its request for funding.

c) Comply with all applicable California, federal, and local laws and regulations.

d) Implement the Project in accordance with applicable provisions of the law.

e) Fulfill its obligations under the Grant Agreement and be responsible for the performance of the Project.

f) Obtain any and all permits, licenses, and approvals required for performing any work under this Grant Agreement, including those necessary to perform design, construction, or operation and maintenance of the Project. Grantee shall provide copies of permits and approvals to State.

g) Be solely responsible for design, construction, and operation and maintenance of projects within the work plan. Review or approval of plans, specifications, bid documents, or other construction documents by State is solely for the purpose of proper administration of funds by State and shall not be deemed to relieve or restrict responsibilities of Grantee under this Agreement.

h) Be solely responsible for all work and for persons or entities engaged in work performed pursuant to this Grant Agreement, including, but not limited to, contractors, subcontractors, suppliers, and providers of services. The Grantee shall be responsible for any and all disputes arising out of its contracts for work on the Project, including but not limited to payment disputes with contractors and subcontractors. The State will not mediate disputes between the Grantee and any other entity concerning responsibility for performance of work.

D.19) GOVERNING LAW: This Grant Agreement is governed by and shall be interpreted in accordance with the laws of the State of California.

D.20) INCOME RESTRICTIONS: The Grantee agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Grantee under this Agreement shall be paid by the Grantee to the State, to the extent that they are properly allocable to costs for which the Grantee has been reimbursed by the State under this Agreement.

D.21) INDEMNIFICATION: Grantee shall indemnify and hold and save the State, its officers, agents, and employees, free and harmless from any and all liabilities for any claims and damages (including inverse condemnation) that may arise out of the Project and this Agreement, including, but not limited to any claims or damages arising from planning, design, construction, maintenance and/or operation of this Project and any breach of this Agreement. Grantee shall require its contractors or subcontractors to name the State, its officers, agents and employees as additional insureds on their liability insurance for activities undertaken pursuant to this Agreement.

D.22) INDEPENDENT CAPACITY: Grantee, and the agents and employees of Grantees, in the performance of the Grant Agreement, shall act in an independent capacity and not as officers, employees, or agents of the State.

D.23) INSPECTION OF BOOKS, RECORDS, AND REPORTS: During regular office hours, each of the parties hereto and their duly authorized representatives shall have the right to inspect and to make copies of any books, records, or reports of either party pertaining to this Grant Agreement or matters related hereto. Each of the parties hereto shall maintain and shall make available at all times for such inspection accurate records of all its costs, disbursements, and receipts with respect to its activities under this Grant Agreement. Failure or refusal by Grantee to comply with this provision shall be considered a breach of this Grant Agreement, and State may withhold disbursements to Grantee or take any other action it deems necessary to protect its interests.

D.24) INSPECTIONS OF PROJECT BY STATE: State shall have the right to inspect the work being performed at any and all reasonable times during the term of the Grant Agreement. This right shall extend to any subcontracts, and Grantee shall include provisions ensuring such access in all its contracts or subcontracts entered into pursuant to its Grant Agreement with State.

D.25) LABOR CODE COMPLIANCE: The Grantee agrees to be bound by all the provisions of the Labor Code regarding prevailing wages and shall monitor all contracts subject to reimbursement from this Agreement to assure that the prevailing wage provisions of the Labor Code are being met. The

Grantee certifies that it has a Labor Compliance Program (LCP) in place or has contracted with a third party that has been approved by the Director of the Department of Industrial Relations (DIR) to operate an LCP. Current DIR requirements may be found at http://www.dir.ca.gov/lcp.asp. For more information, please refer to DIR's *Public Works Manual* at: http://www.dir.ca.gov/dlse/PWManualCombined.pdf. The Grantee affirms that it is aware of the provisions of section 3700 of the Labor Code, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance, and the Grantee affirms that it will comply with such provisions before commencing the performance of the work under this Agreement and will make its contractors and subcontractors aware of this provision.

D.26) MODIFICATION OF OVERALL WORK PLAN: At the request of the Grantee, the State may at its sole discretion approve non-material changes to the portions of Exhibit A which concern the budget and schedule without formally amending this Grant Agreement. Non-material changes with respect to the budget are changes that only result in reallocation of the budget and will not result in an increase in the amount of the State Grant Agreement. Non-material changes with respect to the Project schedule are changes that will not extend the term of this Grant Agreement. Requests for non-material changes to the budget and schedule must be submitted by the Grantee to the State in writing and are not effective unless and until specifically approved by the State's Program Manager in writing.

D.27) NONDISCRIMINATION: During the performance of this Grant Agreement, Grantee and its contractors or subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex (gender), sexual orientation, race, color, ancestry, religion, creed, national origin (including language use restriction), pregnancy, physical disability (including HIV and AIDS), mental disability, medical condition (cancer/genetic characteristics), age (over 40), marital status, and denial of medial and family care leave or pregnancy disability leave. Grantee and its contractors or subcontractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Grantee and its contractors or subcontractors shall comply with the provisions of the California Fair Employment and Housing Act (Gov. Code, § 12990.) and the applicable regulations promulgated there under (Cal. Code Regs., tit. 2, § 11000 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing the California Fair Employment and Housing Act are incorporated into this Agreement by reference. Grantee and its contractors or subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

Grantee shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Grant Agreement.

D.28) OPINIONS AND DETERMINATIONS: Where the terms of this Grant Agreement provide for action to be based upon, judgment, approval, review, or determination of either party hereto, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review, or determination to be arbitrary, capricious, or unreasonable.

D.29) PRIORITY HIRING CONSIDERATIONS: If this Grant Agreement includes services in excess of $200,000, the Grantee shall give priority consideration in filling vacancies in positions funded by the Grant Agreement to qualified recipients of aid under Welfare and Institutions Code section 11200 in accordance with Public Contract Code section 10353.

D.30) PROHIBITION AGAINST DISPOSAL OF PROJECT WITHOUT STATE PERMISSION: The Grantee shall not sell, abandon, lease, transfer, exchange, mortgage, hypothecate, or encumber in any manner whatsoever all or any portion of any real or other property necessarily connected or used in conjunction with the Project, or with Grantee's service of water, without prior permission of State. Grantee shall not take any action, including but not limited to actions relating to user fees, charges, and assessments that could adversely affect the ability of Grantee meet its obligations under this Grant Agreement, without

prior written permission of State. State may require that the proceeds from the disposition of any real or personal property be remitted to State.

D.31) REMEDIES NOT EXCLUSIVE: The use by either party of any remedy specified herein for the enforcement of this Grant Agreement is not exclusive and shall not deprive the party using such remedy of, or limit the application of, any other remedy provided by law.

D.32) RETENTION: The State shall withhold ten percent (10%) of the funds requested by the Grantee for reimbursement of Eligible Project Costs until the Project is completed and Final Project Completion Report is approved. Any retained amounts due to the Grantee will be promptly disbursed to the Grantee, without interest, upon completion of the Project.

D.33) RIGHTS IN DATA: Grantee agrees that all data, plans, drawings, specifications, reports, computer programs, operating manuals, notes and other written or graphic work produced in the performance of this Grant Agreement shall be made available to the State and shall be in the public domain to the extent to which release of such materials is required under the California Public Records Act. (Gov. Code, § 6250 et seq.) Grantee may disclose, disseminate and use in whole or in part, any final form data and information received, collected and developed under this Grant Agreement, subject to appropriate acknowledgement of credit to State for financial support. Grantee shall not utilize the materials for any profit-making venture or sell or grant rights to a third party who intends to do so. The State shall have the right to use any data described in this paragraph for any public purpose.

D.34) SEVERABILITY: Should any portion of this Grant Agreement be determined to be void or unenforceable, such shall be severed from the whole and the Grant Agreement shall continue as modified.

D.35) SUSPENSION OF PAYMENTS: This Grant Agreement may be subject to suspension of payments or termination, or both if the State determines that:

a) Grantee, its contractors, or subcontractors have made a false certification, or

b) Grantee, its contractors, or subcontractors violates the certification by failing to carry out the requirements noted in this Grant Agreement.

D.36) SUCCESSORS AND ASSIGNS: This Grant Agreement and all of its provisions shall apply to and bind the successors and assigns of the parties. No assignment or transfer of this Grant Agreement or any part thereof, rights hereunder, or interest herein by the Grantee shall be valid unless and until it is approved by State and made subject to such reasonable terms and conditions as State may impose.

D.37) TERMINATION BY GRANTEE: Subject to State approval which may be reasonably withheld, Grantee may terminate this Agreement and be relieved of contractual obligations. In doing so, Grantee must provide a reason(s) for termination. Grantee must submit all progress reports summarizing accomplishments up until termination date.

D.38) TERMINATION FOR CAUSE: Subject to the right to cure under Paragraph 11, the State may terminate this Grant Agreement and be relieved of any payments should Grantee fail to perform the requirements of this Grant Agreement at the time and in the manner herein, provided including but not limited to reasons of default under Paragraph 11.

D.39) TERMINATION WITHOUT CAUSE: The State may terminate this Agreement without cause on 30 days advance written notice. The Grantee shall be reimbursed for all reasonable expenses incurred up to the date of termination.

D.40) THIRD PARTY BENEFICIARIES: The parties to this Agreement do not intend to create rights in, or grant remedies to, any third party as a beneficiary of this Agreement, or any duty, covenant, obligation or understanding established herein.

D.41) TIMELINESS: Time is of the essence in this Grant Agreement.

D.42) TRAVEL – DAC, EDA, or SDAC Project: If a Project obtains a DAC, EDA, or SDAC Waiver, the Grantee may submit travel and per diem costs for eligible reimbursement with State funds. Travel includes the reasonable and necessary costs of transportation, subsistence, and other associated costs incurred by personnel during the term of this Grant Agreement. Any reimbursement for necessary travel and per diem shall be at rates not to exceed those set by the California Department of Human Resources. These rates may be found at: http://www.calhr.ca.gov/employees/Pages/travel-reimbursements.aspx. Reimbursement will be at the State travel and per diem amounts that are current as of the date costs are incurred. No travel outside the State of California shall be reimbursed unless prior written authorization is obtained from the State. All travel approved expenses will be reimbursed at the percentage rate of the DAC, EDA, or SDAC Waiver. For example, if the Grantee obtains a 100% Waiver, 100% of all approved travel expenses can be invoiced for reimbursement. If the Grantee obtains a 50% Waiver, only 50% of eligible travel expenses will be reimbursed by these grant funds.

D.43) TRAVEL – NON-DAC, EDA, or SDAC PROJECT: Grantee agrees that travel and per diem costs shall NOT be eligible for reimbursement with State funds, unless the Grantee's service area is considered a DAC, EDA, or SDAC and shall NOT be eligible for computing Grantee Local Cost Share. Travel includes the costs of transportation, subsistence, and other associated costs incurred by personnel during the term of this Grant Agreement.

D.44) UNION ORGANIZING: Grantee, by signing this Grant Agreement, hereby acknowledges the applicability of Government Code sections 16645 through 16649 to this Grant Agreement. Furthermore, Grantee, by signing this Grant Agreement, hereby certifies that:

a) No State funds disbursed by this Grant Agreement will be used to assist, promote, or deter union organizing.

b) Grantee shall account for State funds disbursed for a specific expenditure by this Grant Agreement to show those funds were allocated to that expenditure.

c) Grantee shall, where State funds are not designated as described in (b) above, allocate, on a pro rata basis, all disbursements that support the program.

d) If Grantee makes expenditures to assist, promote, or deter union organizing, Grantee will maintain records sufficient to show that no State funds were used for those expenditures and that Grantee shall provide those records to the Attorney General upon request.

D.45) VENUE: The State and the Grantee hereby agree that any action arising out of this Agreement shall be filed and maintained in the Superior Court in and for the County of Sacramento, California, or in the United States District Court in and for the Eastern District of California. The Grantee hereby waives any existing sovereign immunity for the purposes of this Agreement.

D.46) WAIVER OF RIGHTS: None of the provisions of this Grant Agreement shall be deemed waived unless expressly waived in writing. It is the intention of the parties here to that from time to time either party may waive any of its rights under this Grant Agreement unless contrary to law. Any waiver by either party of rights arising in connection with the Grant Agreement shall not be deemed to be a waiver with respect to any other rights or matters, and such provisions shall continue in full force and effect.

## EXHIBIT E

## AUTHORIZING RESOLUTION ACCEPTING FUNDS

## EXHIBIT F

## REPORT FORMATS AND REQUIREMENTS

The following reporting formats should be utilized. Please obtain State approval prior to submitting a report in an alternative format.

### PROGRESS REPORTS

Progress reports shall generally use the following format. This format may be modified as necessary to effectively communicate information. For each project, discuss the following at the task level, as organized in Exhibit A (Work Plan):

- Percent complete estimate.
- Discussion of work accomplished during the reporting period.
- Milestones or deliverables completed/submitted during the reporting period.
- Meetings held or attended.
- Scheduling concerns and issues encountered that may delay completion of the task.

For each project, discuss the following at the project level, as organized in Exhibit A (Work Plan):

- Work anticipated for the next reporting period.
- Photo documentation, as appropriate.
- Any schedule or budget modifications approved by DWR during the reporting period.

### PROJECT COMPLETION REPORT

The Grant Completion Report shall generally use the following format.

**Executive Summary**

Should include a brief summary of project information and include the following items:

- Brief description of work proposed to be done in the original Grant application.
- Description of actual work completed and any deviations from Exhibit A. List any official amendments to this Grant Agreement, with a short description of the amendment.

**Reports and/or Products**

The following items should be provided, unless already submitted as a deliverable:

- A copy of the GSP that meets all the requirements of the GSP Regulations (for Category 2 Projects)
- A copy of any final technical report or study, produced for or utilized in this Project as described in the Work Plan
- Electronic copies of any data collected, not previously submitted
- Discussion of problems that occurred during the work and how those problems were resolved
- Final Project schedule showing actual progress versus planned progress

Additional information that may be applicable for Category 1 Implementation Projects includes the following:

- As-built drawings
- Final geodetic survey information
- Project photos

**Cost & Disposition of Funds**

A list showing:

- Summary of Project costs including the following items:
  - Accounting of the cost of project expenditure
  - Include all internal and external costs not previously disclosed (i.e., additional cost share); and
  - A discussion of factors that positively or negatively affected the project cost and any deviation from the original Project cost estimate.

**Additional Information**

- Benefits derived from the project, with quantification of such benefits provided, applicable for Category 1 Implementation Projects.
- A final project schedule showing actual progress versus planned progress as shown in Exhibit C.
- Certification from a California Registered Professional (Civil Engineer or Geologist, as appropriate) that the project was conducted in accordance with the approved work plan and any approved modifications thereto.
- Submittal schedule for the Post Performance Report.

## GRANT COMPLETION REPORT

The Grant Completion Report shall generally use the following format. This format may be modified as necessary to effectively communicate information on the various projects in the SGWP Grant Program funded by this Grant Agreement, and includes the following:

**Executive Summary**

The Executive Summary consists of a maximum of twenty (20) pages summarizing information for the grant as well as the individual projects.

**Reports and/or products**

- Summary of the regional priorities, objectives, and water management strategies of the IRWM Plan.
- Brief comparison of work proposed in the original 2017 SGWP Grant application and actual work done.
- Brief description of the projects completed and how they do either or both of the following:
  - Serve SDAC(s) and support groundwater sustainability planning and management in the basin (Category 1 Projects); and/or
  - Support planning, development, and/or preparation of GSP(s) that will comply with and meet the requirements of the GSP Regulations (Category 2 Projects).
- Identify remaining work and mechanism for their implementation (Category 1 Implementation Projects).
- If applicable, a discussion of the benefits to DAC, EDA, SDAC as part of this Grant Agreement.

**Cost & Disposition of Funds Information**

- A summary of final funds disbursement for each project.

**Additional Information**

- Summary of the submittal schedule for the Post Performance Reports for each of the projects in this Grant Agreement.

**POST-PERFORMANCE REPORT**

Report should be concise, and focus on how (each/the) project is actually performing compared to its expected performance; whether the project is being operated and maintained, and providing intended benefits as proposed (for Category 1 Implementation Projects).

**Reports and/or products**

- Time period of the annual report (e.g., January 2018 through December 2018)
- Short project description
- Discussion of the project benefits
- An assessment of any explanations for any differences between the expected versus actual project benefits as stated in the original 2017 SGWP Grant application. Where applicable, the reporting should include quantitative metrics, i.e., new acre-feet of water produced that year, etc.
- Summary of any additional costs and/or benefits deriving from the project since its completion, if applicable.
- Continued reporting on meeting the Output Indicators and Targets discussed in the Project Monitoring Plan discussed in Paragraph 18 of this Grant Agreement.
- Any additional information relevant to or generated by the continued operation of the project.

## EXHIBIT G

## REQUIREMENTS FOR DATA SUBMITTAL

### Surface and Groundwater Quality Data:

Groundwater quality and ambient surface water quality monitoring data that include chemical, physical, or biological data shall be submitted to the State as described below, with a narrative description of data submittal activities included in project reports, as described in Exhibit F.

Surface water quality monitoring data shall be prepared for submission to the California Environmental Data Exchange Network (CEDEN). The CEDEN data templates are available on the CEDEN website. Inclusion of additional data elements described on the data templates is desirable. Data ready for submission should be uploaded to your CEDEN Regional Data Center via the CEDEN website. CEDEN website: http://www.ceden.org.

If a project's Work Plan contains a groundwater ambient monitoring element, groundwater quality monitoring data shall be submitted to the State for inclusion in the State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program Information on the GAMA Program can be obtained at: http://www.waterboards.ca.gov/water_issues/programs/gama/. If further information is required, the Grantee can contact the State Water Resources Control Board (SWRCB) GAMA Program. A listing of SWRCB staff involved in the GAMA program can be found at: http://www.swrcb.ca.gov/water_issues/programs/gama/contact.shtml

### Groundwater Level Data

Grantee shall submit to DWR groundwater level data collected as part of this grant. Water level data must be submitted using the California Statewide Groundwater Elevation Monitoring (CASGEM) online data submission system. Grantee should use their official CASGEM Monitoring Entity or Cooperating Agency status to gain access to the online submittal tool and submit data. If the data is from wells that are not part of the monitoring network, the water level measurements should be classified as voluntary measurements in the CASGEM system. If the grantee is not a Monitoring Entity or Cooperating Agency, please contact your DWR grant project manager for further assistance with data submittal. The activity of data submittal should be documented in appropriate progress or final project reports, as described in Exhibit F. Information regarding the CASGEM program can be found at http://www.water.ca.gov/groundwater/casgem/.

# EXHIBIT H

## STATE AUDIT DOCUMENT REQUIREMENTS AND COST SHARE GUIDELINES FOR GRANTEES

The following provides a list of documents typically required by State Auditors and general guidelines for Grantees. List of documents pertains to both State funding and Grantee's Cost Share and details the documents/records that State Auditors would need to review in the event of this Grant Agreement is audited. Grantees should ensure that such records are maintained for each funded project.

**State Audit Document Requirements**

Internal Controls

1. Organization chart (e.g., Agency's overall organization chart and organization chart for the State funded Program/Project).
2. Written internal procedures and flowcharts for the following:
   a) Receipts and deposits
   b) Disbursements
   c) State reimbursement requests
   d) Expenditure tracking of State funds
   e) Guidelines, policy, and procedures on State funded Program/Project
3. Audit reports of the Agency internal control structure and/or financial statements within the last two years.
4. Prior audit reports on the State funded Program/Project.

State Funding:

1. Original Grant Agreement, any amendment(s) and budget modification documents.
2. A listing of all bond-funded grants, loans, or subventions received from the State.
3. A listing of all other funding sources for each Program/Project.

Contracts:

1. All subcontractor and consultant contracts and related or partners documents, if applicable.
2. Contracts between the Agency and member agencies as related to the State funded Program/Project.

Invoices:

1. Invoices from vendors and subcontractors for expenditures submitted to the State for payments under the Grant Agreement.
2. Documentation linking subcontractor invoices to State reimbursement, requests and related Grant Agreement budget line items.
3. Reimbursement requests submitted to the State for the Grant Agreement.

Cash Documents:

1. Receipts (copies of warrants) showing payments received from the State.
2. Deposit slips (or bank statements) showing deposit of the payments received from the State.
3. Cancelled checks or disbursement documents showing payments made to vendors, subcontractors, consultants, and/or agents under the grants or loans.

4. Bank statements showing the deposit of the receipts.

Accounting Records:

1. Ledgers showing entries for Grantee's receipts and cash disbursements.
2. Ledgers showing receipts and cash disbursement entries of other funding sources.
3. Bridging documents that tie the general ledger to requests for Grant Agreement reimbursement.

Administration Costs:

1. Supporting documents showing the calculation of administration costs.

Personnel:

1. List of all contractors and Agency staff that worked on the State funded Program/Project.
2. Payroll records including timesheets for contractor staff and the Agency personnel who provided services charged to the program

Project Files:

1. All supporting documentation maintained in the project files.
2. All Grant Agreement related correspondence.

**Cost Share Guidelines**

Cost Share (often referred to as cost share) consists of non-State funds, including in-kind services. In-kind services are defined as work performed (i.e., dollar value of non-cash contributions) by the Grantee (and potentially other parties) directly related to the execution of the funded project. Examples include volunteer services, equipment use, and use of facilities. The cost of in-kind service can be counted as cost share in-lieu of actual funds (or revenue) provide by the Grantee. Other cost share and in-kind service eligibility conditions may apply. Provided below is guidance for documenting cost share with and without in-kind services.

1. Although tracked separately, in-kind services shall be documented and, to the extent feasible, supported by the same methods used by the Grantee for its own employees. Such documentation should include the following:
    a. Detailed description of the contributed item(s) or service(s)
    b. Purpose for which the contribution was made (tied to project work plan)
    c. Name of contributing organization and date of contribution
    d. Real or approximate value of contribution. Who valued the contribution and how was the value determined? (e.g., actual, appraisal, fair market value, etc.). Justification of rate. (See item #2, below)
    e. Person's name and the function of the contributing person
    f. Number of hours contributed
    g. If multiple sources exist, these should be summarized on a table with summed charges
    h. Source of contribution if it was provided by, obtained with, or supported by government funds
2. Rates for volunteer or in-kind services shall be consistent with those paid for similar work in the Grantee's organization. For example, volunteer service of clearing vegetation performed by an attorney shall be valued at a fair market value for this service, not the rate for professional legal services. In those instances in which the required skills are not found in the recipient organization, rates shall be consistent with those paid for similar work in the labor market. Paid fringe benefits that are reasonable, allowable and allocable may be included in the valuation.

3. Cost Share contribution (including in kind services) shall be for costs and services directly attributed to activities included in the Grant Agreement. These services, furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as in-kind if the activities are an integral and necessary part of the project funded by the Grant Agreement.
4. Cash contributions made to a project shall be documented as revenue and in-kind services as expenditure. These costs should be tracked separately in the Grantee's accounting system.

## EXHIBIT I

## MONITORING AND MAINTENANCE PLAN COMPONENTS

For Category 1 Implementation Projects Only

Introduction

- Goals and objectives of project
- Site location and history
- Improvements implemented

Monitoring and Maintenance Plan

- Monitoring Metrics (ex: Plant establishment, bank erosion, hydraulic characteristics, habitat expansion)
- Maintenance Metrics (ex: irrigation, pest management, weed abatement, continuous invasive species removal until natives established)
- Special Environmental Considerations (ex: resource agency requirements, permit requirements, CEQA/NEPA mitigation measures)
- Performance Measures, or success/failure criteria monitoring results measured against (ex: percent canopy cover after 1, 5, 10 years, water temperature decrease, site specific sediment scour or retention)
- Method of Reporting (ex: paper reports, online databases, public meetings)
- Frequency of Duration Monitoring and Reporting (daily, weekly, monthly, yearly)
- Frequency and Duration of Maintenance Activities
- Responsible Party (who is conducting monitoring and/or maintenance) Implementing responsibility (i.e., who is responsible for monitoring and maintenance)
- Adaptive Management Strategies (i.e., what happens when routine monitoring or maintenance encounters a problem)

## EXHIBIT J
## PROJECT LOCATION

Project Location/Site/Vicinity Map – Provide a map and/or diagrams depicting the project location with a marker or service area (may represent the area covered by a GSP for Category 2 Projects); the basin boundary (per DWR Bulletin 118), facilities of the project (if applicable); DACs, EDAs, or SDACs within the project area (if applicable); and any other project features that may apply.

Project Drawings and Sketches – Provide drawings or sketches of project features in adequate detail to describe them.

If needed, provide a description of the project location including overlying jurisdiction (City, County, State, or Federal land), Assessor Parcel Numbers, property addresses, legal descriptions, and Latitude/Longitude of project site.

## EXHIBIT K

## INFORMATION NEEDED FOR ESCROW PROCESSING AND CLOSURE

For Category 1 Implementation Projects that include Land Acquisition Only:

The Grantee must provide the following documents to the State Project Representative during the escrow process. Property acquisition escrow documents must be submitted within the term of this Funding Agreement and after a qualified appraisal has been approved.

- Name and Address of Title Company Handling the Escrow
- Escrow Number
- Name of Escrow Officer
- Escrow Officer's Phone Number
- Dollar Amount Needed to Close Escrow
- Legal Description of Property Being Acquired
- Assessor's Parcel Number(s) of Property Being Acquired
- Copy of Title Insurance Report
- Entity Taking Title as Named Insured on Title Insurance Policy
- Copy of Escrow Instructions in Draft Form Prior to Recording for Review Purposes
- Copy of Final Escrow Instructions
- Verification that all Encumbrances (Liens, Back Taxes, and Similar Obligations) have been Cleared Prior to Recording the Deed to Transfer Title
- Copy of Deed For Review Purposes Prior to Recording
- Copy of Deed as Recorded in County Recorder's Office
- Copy of Escrow Closure Notice

## EXHIBIT L

## APPRAISAL SPECIFICATIONS

For Category 1 Implementation Projects that include Land Acquisition Only:

For property acquisitions funded this Funding Agreement, the Grantee must submit an appraisal for review and approval by the Department of General Services or DWR's Real Estate Branch prior to reimbursement or depositing State funds into an escrow account. All appraisal reports, regardless of report format, must include all applicable Appraisal Specifications below. Appraisals for a total compensation of $150,000 or more shall be reported as a Self-Contained Appraisal Report. Appraisals for a total compensation of less than $150,000 may be reported as a Summary Appraisal Report, which includes all information necessary to arrive at the appraiser's conclusion. Appraisal Specifications 14, 16, 21, 23-25, and 28 shall be narrative analysis regardless of the reporting format.

1. Title page with sufficient identification of appraisal assignment.
2. Letter of transmittal summarizing important assumptions and conclusions, value estimate, date of value and date of report.
3. Table of contents.
4. Assumptions and Limiting Conditions, Extraordinary Assumptions, and Hypothetical Conditions as needed.
5. Description of the scope of work, including the extent of data collection and limitations, if any, in obtaining relevant data.
6. Definition of Fair Market Value, as defined by California Code of Civil Procedure, Section 1263.320.
7. Photographs of subject property and comparable data, including significant physical features and the interior of structural improvements, if applicable.
8. Copies of Tax Assessor's plat map with the subject marked along with all contiguous assessor's parcels that depict the ownership.
9. A legal description of the subject property, if available.
10. For large, remote or inaccessible parcels, provide aerial photographs or topographical maps depicting the subject boundaries.
11. Three year subject property history, including sales, listings, leases, options, zoning, applications for permits, or other documents or facts that might indicate or affect use or value.
12. Discussion of any current Agreement of Sale, option, or listing of subject property. This issue required increased diligence since state agencies often utilize non-profit organizations to quickly acquire sensitive-habitat parcels using Option Agreements. However, due to confidentiality clauses, the terms of the Option are often not disclosed to the state. If the appraiser discovers evidence of an Option or the possible existence of an Option, and the terms cannot be disclosed due to a confidentiality clause, then the appraiser is to cease work and contact the client.
13. Regional, area, and neighborhood analyses. This information may be presented in a summary format.
14. Market conditions and trends including identification of the relevant market area, a discussion of supply and demand within the relevant market area, and a discussion of the relevant market factors impacting demand for site acquisition and leasing within the relevant market area. This information may be presented in a summary format.
15. Discussion of subject land/site characteristics (size, topography, current use, elevations, zoning and land use issues, development entitlements, General Plan designation, utilities, offsite improvements, access,

land features such as levees and creeks, offsite improvements, easements and encumbrances, covenants, conditions and restrictions, flood and earthquake information, toxic hazards, water rights, mineral rights, toxic hazards, taxes and assessments, etc.).

16. Description of subject improvements including all structures, square footage, physical age, type of construction, quality of construction, condition of improvements and/or identification of any permanent plantings. Discussion of construction cost methodology, costs included and excluded, accrued depreciation from all causes, remaining economic life, items of deferred maintenance and cost to cure, and incurable items. Construction cost data must include cost data source, date of estimate or date of publication of cost manual, section and page reference of cost manual, copies of cost estimate if provided from another source, replacement or reproduction cost method used, and supporting calculations including worksheets or spreadsheets.
17. Subject property leasing and operating cost history, including all items of income and expense.
18. Analysis and conclusion of the larger parcel for partial taking appraisals. For partial taking appraisals, Appraisal Specifications generally apply to the larger parcel rather than an ownership where the larger parcel is not the entire ownership.
19. Include a copy of a recent preliminary title report (within the past year) as an appraisal exhibit. Discuss the title exceptions and analyze the effect of title exceptions on fair market value.
20. For appraisals of partial takings or easements, a detailed description of the taking or easement area including surface features and topography, easements, encumbrances or improvements including levees within the subject partial take or easement, and whether the take area is characteristic of the larger parcel. Any characteristics of the taking area, including existing pre-project levees that render the take area different from the larger parcel must be addressed in the valuation.
21. Opinion of highest and best use for the subject property, based on an in depth analysis supporting the concluded use which includes the detail required by the complexity of the analysis. Such support typically requires a discussion of the four criteria of tests utilized to determine the highest and best use of a property. If alternative feasible uses exist, explain and support market, development, cash flow, and risk factors leading to an ultimate highest and best use decision.
22. All approaches to market value applicable to the property type and in the subject market. Explain and support the exclusion of any usual approaches to value.
23. Map(s) showing all comparable properties in relation to the subject property.
24. Photographs and plat maps of comparable properties.
25. In depth discussion of comparable properties, similarities and differences compared to the subject, adjustments to the comparable data, and discussion of the reliability and credibility of the data as it relates to the indicated subject property value. Improved comparable sales which are used to compare to vacant land subject properties must include an allocation between land and improvements, using methodology similar to methodology used in item 16 above to estimate improvement value when possible, with an explanation of the methodology used.
26. Comparable data sheets.
    a) For sales, include information on grantor/grantee, sale/recordation dates, listed or asking price as of the date of sale, highest and best use, financing, conditions of sale, buyer motivation, sufficient location information (street address, post mile, and/or distance from local landmarks such as bridges, road intersections, structures, etc.), land/site characteristics, improvements, source of any allocation of sale price between land and improvements, and confirming source.
    b) For listings, also include marketing time from list date to effective date of the appraisal, original list price, changes in list price, broker feedback, if available.

c) For leases, include significant information such as lessor/lessee, lease date and term, type of lease, rent and escalation, expenses, size of space leased, tenant improvement allowance, concessions, use restrictions, options, and confirming source. When comparing improved sales to a vacant land subject, the contributory value of the improvements must be segregated from the land value.

27. For appraisals of easements, a before and after analysis of the burden of the easement on the fee, with attention to how the easement affects highest and best use in the after condition. An Easement Valuation Matrix or generalized easement valuation references may be used ONLY as a reference for a secondary basis of value.
28. For partial taking and easement appraisals, valuation of the remainder in the after condition and analysis and identification of any change in highest and best use or other characteristics in the after condition, to establish severance damages to the remainder in the after condition, and a discussion of special and general benefits, and cost to cure damages or construction contract work.
29. There are occasions where properties involve water rights, minerals, or salable timber that require separate valuations. If an appraisal assignment includes water rights, minerals, or merchantable timber that requires separate valuation, the valuation of the water rights, minerals, or merchantable timber must be completed by a credentialed subject matter specialist.
30. For partial taking and easement appraisals, presentation of the valuation in California partial taking acquisition required format.
31. Implied dedication statement.
32. Reconciliation and final value estimate. Include analysis and comparison of the comparable sales to the subject, and explain and support conclusions reached.
33. Discussion of any departures taken in the development of the appraisal.
34. Signed Certification consistent with the language found in Uniform Standards of Professional Appraisal Practice.
35. If applicable, in addition to the above, appraisals of telecommunication sites must also provide:
    a) A discussion of market conditions and trends including identification of the relevant market, a discussion of supply and demand within the relevant market area and a discussion of the relevant market factors impacting demand for site acquisition and leasing within the relevant market area.
    b) An analysis of other (ground and vault) leases comparable to subject property. Factors to be discussed in the analysis include the latitude, longitude, type of tower, tower height, number of rack spaces, number of racks occupied, placement of racks, power source and adequacy, back-up power, vault and site improvements description and location on site, other utilities; access, and road maintenance costs.

## EXHIBIT M

## LOCAL PROJECT SPONSORS

Grantee has assigned, for each project, a Local Project Sponsor according to the roles of the participating agencies identified in<Exhibit A, Work Plan – or other appropriate reference such as the GSP >. Local Project Sponsors may act on behalf of Grantee for the purposes of individual project management, oversight, compliance, and operations and maintenance. Local Project Sponsors are identified for each Sponsored Project below:

| Local Project Sponsor Agency Designations | | |
|---|---|---|
| **Sponsored Project** | **Sponsor Agency** | **Agency Address** |
| Project 1 - <Title> | | |
| Project 2 - <Title> | | |
| Project 3 - <Title> | | |

# Request for Proposals

INFILTRATION TESTING IMPLEMENTATION FOR THIRTEEN SITES IN YUCAIPA BASIN AREA

YUCAIPA BASIN RECHARGE STUDY

## San Bernardino Valley Municipal Water District

**The Filing Deadline is:**

**1/17/2018, 4:00PM**

## I. PROJECT BACKGROUND

The San Bernardino Valley Municipal Water District (Valley District) has been working collaboratively with the City of Yucaipa, San Bernardino County Flood Control District (SBCFCD), and retail water agencies to develop a Groundwater Management Plan (Plan) for the Yucaipa Basin (Basin). A key objective of the Plan is to manage local groundwater resources conjunctively with imported State Water Project (SWP) water supplies, and to increase basin recharge with natural storm runoff and recycled water so that future demands can be met while also maintaining independence during periods of water shortages. During the past 10 years conjunctive use has been partially implemented in the Basin by Yucaipa Valley Water District (YVWD) who has operated groundwater recharge facilities by importing SWP water to replenish the Basin.

## II. PROJECT DESCRIPTION

Valley District and its partners have completed preliminary field investigations across the Basin and have identified thirteen sites that are potentially suitable for future managed aquifer recharge facilities, specifically surface spreading basins. To determine whether the permeability of upper vadose zone sediments are favorable for long-term groundwater recharge via surface spreading methods, Valley District and its partner agencies are proposing to conduct a series of short-term, field-scale infiltration tests. Test results will provide a planning-level estimate of the long-term infiltration capacity of each investigation site.

Valley District, on behalf of the other agencies, is soliciting proposals from qualified consultants for the implementation of the field recharge work plan (Work Plan) that TODD Groundwater has developed for thirteen (13) sites in the Yucaipa Basin area (Exhibit A). The consultant shall provide a separate scope of services and cost for each of the respective recharge locations listed in the Work Plan.

### Site Locations

**Table 1** is attached in *Exhibit B* and includes detailed ownership and location information for each of the thirteen sites selected for infiltration testing. Site locations are provided on **Figures 1 and 2** in *Exhibit B* as well. Figure 1 shows the locations of the seven investigation sites under the jurisdiction of San Bernardino County Flood Control District (SBCFCD), six of which are owned by SBCFCD and one of which is owned by the

City of Yucaipa. Figure 2 shows the six sites not under the jurisdiction of SBCFCD. These six sites are owned by the City of Yucaipa, South Mountain Water Company, and private individuals.

Impacted waterways include storm channels and storm detention basins along Oak Glen Creek, Wilson Creek, Yucaipa Creek and Wildwood Creek. As shown in the upper portion of Table 1, seven sites are existing flood control facilities under the jurisdiction of SBCFCD. Valley District has obtained the environmental permits needed to conduct the recharge testing. The sites under the jurisdiction of SBCFCD are currently pending review at the time of this writing, however all necessary documents have been submitted in order to obtain a permit from them.

**Proposed Infiltration Testing**

Each infiltration test will involve the construction of a temporary test infiltration basin, addition of water into the test basin, and monitoring of water volume added and ponded water height over an approximately 14-day period. Each test infiltration basin will have dimensions of approximately 30’ x 30’ x 5’ deep. Each test infiltration basin will be constructed using a backhoe and will involve soil excavation/management and potential onsite storage of water used for testing depending on the availability of preferred water sources. Test monitoring equipment includes a totalizing flowmeter connected to the hose bib at the water source, a water hose between the water source and the test infiltration pit, and a staff gage in the basin to allow for measurement of ponded water depth. During testing, the site needs to be secured with temporary construction fencing to ensure public safety and to prevent vandalism. The individual site maps on Figures 1 and 2 show the proposed areas of soil disturbance, including anticipated limits of the proposed test basin and site access routes for the backhoe.

**Management of Excavated Soils**

The bottom of each test basin will be excavated 5 feet below existing grade. Excavated material may be either a) stockpiled adjacent to the test pit above the storm channel/basin banks or b) if temporary storage of excavated soil within the channel is acceptable, the excavated soil could be used to create shallow berms around the test basin. At the completion of infiltration testing, each test basin would be backfilled with the native excavated material, and the site would be returned to its original, pre-

disturbed condition.

**Water Sources**

Potable water from local hydrants is the preferred source of water supply for all investigation sites with the exception of the Wilson Creek Basins (where SWP water is proposed). Potential water retailers include Yucaipa Valley Water District, Western Height Water Company, and South Mesa Water Company. Locations of the hydrant nearest to each test infiltration basin (if applicable) are shown on the zoomed-in maps for each site on Figures 1 and 2. The amount of water added to each test infiltration basin will be measured using a totalizing flowmeter connected to the hydrant. A float valve is required to be used to automatically control the amount of water added to each test infiltration basin during testing. Manually adjusting the water flow via a gate valve to match the basin infiltration rate for the duration of the test will not be an option. If water from a nearby hydrant is not available, water may be trucked in and temporarily stored in an onsite water storage tank (with temporary location of the tank to be determined). It is also possible that infiltration testing at a site would not occur if onsite water storage is necessary.

## III. SCOPE OF SERVICES

The project has been generally broken into two tasks: (1) Field work and (2) data analysis and reporting. The minimum requirements for each task are described in the following sections. Once finalized, all electronic files must be submitted to Valley District in the latest editions of the following software programs: Microsoft Excel, Microsoft Word, Adobe Acrobat and Microsoft Project. No other electronic file format will be accepted without written approval from Valley District.

1) **Implement recharge testing work plan as prescribed in *the Infiltration Test Work Plan for Thirteen Investigation Sites* by TODD Groundwater (*Exhibit A*), which generally includes but is not limited to:**

| |
|---|
| Engineering – Field Coordination and Project Management. |
| Provide process flow diagram for a recommended water conveyance and flow control system that is robust and automated (preferably) |
| Prepare Work Plans for Each Site and Design Basin Tree and Manifold. Provide plans to the San Bernardino County Flood Control District containing all proposed BMP's. |

| |
|---|
| Contractor Pre-Field Work Tasks—Including finalizing water source locations with Valley District staff and coordinating a preconstruction meeting with Valley District and San Bernardino County Flood Control District (SBCFCD) staff. |
| Contractor Mobilization, Setup, and Startup |
| Site Security and Fencing |
| Site Visits (opportunity to coordinate with local staff from participating agencies for field monitoring activities during testing) |
| Transportation of Equipment from Existing Site to New Site |
| Site Demobilization (13 sites) |
| Traffic Ramps and Signage |
| Engineering – Data Analysis and Reporting |

Contractor to provide all services and equipment necessary to conduct and complete the proposed infiltration work plan. For each test basin the contractor is expected to:

1. Dig Test Basin. A 30-foot by 30-foot basin is recommended. However, a smaller test basin footprint (e.g 20-foot by 20-foot) can be used to reduce water needs for sites where a direct water source is not available and onsite water storage tanks and trucking of water to the site is needed. Please propose on 30 x 30 basins (unless otherwise specified).
2. Excavated soils to be temporarily stored adjacent to test basin—not within existing channels (where this applies) but on channel banks.
3. Setup water conveyance, flow control system, and water tank (if needed).
4. Run pipeline from back flow preventer to manifold or tank—setup will be site specific, however.
5. Fill basin with water to 3 feet deep.
6. Open the manifold valves and allow float valves to automatically maintain water levels.
7. Monitor operation of equipment and collect data from flow meters.
8. Visit site as needed to check operation of equipment and to collect data.
9. Return to site to demobilize equipment after recharge test is determined complete (assume after 14 days of operation).
10. Backfill test basin with excavated material to return site to pre-disturbed grade.
11. Transport equipment at existing site to new site.

Proposed field scheduling and sequencing shall be included, along with difference in pricing, for shorter testing periods (e.g. if three infiltration test systems are fabricated and used instead of two systems).

Please note that the cost of test water does not need to be included. However, if a water tank(s) is needed to conduct the test then costs will need to be included. Thus, in your bid please include a line item indicating cost for one (1) 20' x 20' x 5' test basin with one (1) water tank as the source water (assume 14-day test duration). Backflow preventer and water meter to be provided by participating agencies. Please reference Table 2 (see *Exhibit C*) for approximate hydrant pressures, hydrant elevations, site elevations, and site distances from the hydrant.

Valley District has or will have obtained all necessary permits at time of project commencement. Contractor will be required to complete SBCFCD's certificate of insurance form for their issued permit.

2) **Gather and analyze data from infiltration test. Prepare report documenting pertinent field activities and recharge test results, and present conclusions pertinent to recharge feasibility and recommendations for additional work/evaluation based off of previous work and results yielded from recharge tests.**

Consultant to prepare a final report documenting field activities, test results, and conclusions pertinent to site recharge feasibility. Where appropriate, recommendations should be presented on a per site basis based off of previous work completed and the recharge test results.

## IV. PROPOSAL SCHEDULE

| Date | Event |
|---|---|
| 12/8/2017 | Release of Request for Proposal |
| 1/17/2018 by 4:00pm | Deadline for Valley District Receipt of Proposals |
| 1/23/2018 | Notice of Interviews (optional) |
| 1/26/2018 | Interviews (optional) |
| 2/20/2018 | Board of Directors Approval/Award Contract |

## V. TEAM

Proposer (Consultant) is responsible for assembling a team which meets all of the requirements outlined in this RFP.

## VI. MEETINGS

Consultant will conduct all meetings necessary to complete this project.

## VII. PROJECT SCHEDULE

The proposal shall include a detailed, project schedule which shows the project tasks. The schedule will be reviewed and finalized with the Consultant prior to start of the project. Please begin with an early Spring 2018 start date (e.g. March 2018) to avoid the winter months/rainy season. Once the schedule has been finalized, no extension will be allowed unless the extension has been requested, in writing, and approved by Valley District before a submittal deadline. Failure to submit required work by scheduled deadlines may result in cancellation of the remainder of the contract and all outstanding invoices. Should cancellation occur, all materials collected and/or developed during the process will become property of Valley District as stated in Valley District's standard agreement for consulting services.

## VIII. PROPOSAL REQUIREMENTS

**a) Body of the proposal** (may not exceed 15 pages in length with a minimum font size of 12 point)

i) Table of Contents
ii) Project Understanding. A clear statement of the project.
iii) Project Approach. The project approach shall include a detailed description of all the tasks needed for successful completion of the project and shall follow the general outline provided in the Scope of Services section above.
iv) Organizational chart illustrating the individuals who will actually work on the project complete with names, firm names, addresses, telephone numbers, email addresses and chain of responsibility (qualifications are to be provided in the appendix, see below).
v) Project Schedule
vi) Any other information that may assist Valley District in making its determination in the selection process: Consultant is encouraged to include any other information that will help Valley District make its selection.
vii) Fee schedule: Fee schedule shall be organized to follow the general tasks in the Scope of Services. Services outlined in each proposal must comply with all requirements set forth in this RFP. The costs shall provide hourly rates and hours to complete each task, including sub-consultant's hourly rates and hours, and any other costs for a complete project. The level of effort and associated costs are to be easily understood by Valley District. Valley District

accepts no responsibility for costs incurred by any individual or firm submitting a proposal pursuant to this RFP. The proposal must include a complete and fixed price. If the scope of services requires modification during the course of the work, Valley District will determine whether to amend the current agreement or to issue a subsequent RFP for additional services. The price specified must remain firm and irrevocable for 60 days following the RFP submission date. All proposals become property of Valley District and will not be returned.

**b) Appendix**

i) Qualifications, licenses, certificates and resumes for all persons, including sub-consultants that will actually work on the project. Please limit individual experience to similar projects. For each project, *highlight* the name(s) of each individual on the project team for this proposal. Please include photograph(s) and reference(s) (be sure they are current).

Four (4) hardcopies and a PDF version (can be submitted via email) of the proposal must be received by the filing deadline. Please submit your proposals to:

Aaron Jones
Assistant Engineer
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

All questions regarding this RFP must be submitted in writing via email to the following email address: aaronj@sbvmwd.com. Answers may be sent via email to the entire distribution list for this RFP.

## IX. INTERVIEW

Interviews may be scheduled with select firms following initial review of the proposals and will take place on the date specified in the introduction. Interview must be attended by the actual team members that will work on the project including any sub-consultants. The interview will consist of a 20-minute presentation by the project team followed by a 20-minute question and answer period.

## X. EVALUATION PROCESS AND CRITERIA

Evaluation of proposals shall be based upon a competitive selection process. Review and evaluation of the submitted proposals will be based upon the following criteria:

a) Project approach (10)

b) Experience on similar projects and/or projects of similar complexity and size (40)

c) Demonstrated ability to perform the tasks outlined in this RFP efficiently and accurately (40)

d) Interview presentation (10)

e) Fee (not an overriding consideration)

Valley District reserves the right to issue additional RFPs, to modify or to abandon this project before award of contract.

## XI. CONTRACT

A sample copy of Valley District's Standard Agreement for Consulting Services is attached as *Exhibit D* for your information. The selected consultant is expected to execute the agreement.

Exhibit "A"

TODD Groundwater: Infiltration Test Work Plan for Thirteen Investigation Sites

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

# FINAL

# INFILTRATION TEST WORK PLAN FOR THIRTEEN INVESTIGATION SITES

## YUCAIPA VALLEY, CA

**January 2017**

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920
ww.toddgroundwater.com

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# 1. INFILTRATION TESTING WORK PLAN APPROACH

The San Bernardino Valley Municipal Water District (Valley District) has been working collaboratively with the City of Yucaipa, San Bernardino County Flood Control District (SBCFCD), and retail water agencies to develop a Groundwater Management Plan (Plan) for the Yucaipa Basin (Basin). A key objective of the Plan is to manage local groundwater resources conjunctively with imported State Water Project (SWP) water supplies and to increase basin recharge with natural storm runoff and recycled water. Valley District and its partners have completed preliminary field investigations across the Basin and have identified up to thirteen (13) investigation sites potentially suitable for future recharge facilities.

To determine whether the permeability of upper vadose zone sediments are favorable for long-term groundwater recharge via surface spreading methods, Valley District and its partner agencies are proposing to conduct a series of short-term infiltration tests. Test results will provide a planning-level estimate of the long-term infiltration capacity of each investigation site.

The purpose of this Work Plan is to provide Valley District and its partners the information needed to (1) prioritize investigation sites for testing, (2) obtain necessary permits from local, state, and federal regulatory agencies, and (3) prepare and plan for the implementation of the infiltration tests (tentatively scheduled to commence in late Summer/early Fall of 2017). The work plan incorporates information collected during a reconnaissance visit to the thirteen sites on April 27, 2016. The site visit was attended by representatives from Todd Groundwater (TODD), Valley District, City of Yucaipa, Yucaipa Valley Water District (YVWD), Western Heights Mutual Water Company (WHMC), South Mesa Water Company (SMWC), San Bernardino County Flood Control District (SBCFCD), and the U.S. Geological Survey (USGS). During the site reconnaissance, (1) suitable locations and dimensions for test infiltration basins and potential water sources were identified at each site, (2) physical conditions and access routes were confirmed, and (3) site security and traffic control needs were assessed.

This Work Plan describes the proposed infiltration testing activities, including test basin locations, preferred sources for test water, equipment needs, soils management associated with proposed earthwork, security measures, and field monitoring protocol. A preliminary field schedule and cost estimate is provided to conduct the infiltration tests. Costs include contractor labor, material costs, and equipment rental fees. Costs are also included for engineering supervision to manage the field program, evaluate infiltration test results, and document key findings and recommendations in a final report.

## 1.1. INVESTIGATION SITES AND IMPACTED WATERWAYS

The thirteen proposed sites include undeveloped parcels, storm channels and basins along Oak Glen Creek, Wilson Creek, and Yucaipa Creek owned by the San Bernardino County

Flood Control District (6 sites), City of Yucaipa (4 sites), South Mountain Water Company (1 site), and private parties (2 sites). All thirteen investigation sites are located within an approximately 3-mile radius of downtown Yucaipa, California.

**Figures 1 and 2** show the locations of the thirteen investigation sites. Areas of disturbance, including footprints of proposed test infiltration basins and ingress/egress routes for heavy machinery and support vehicles, are shown on the inset maps. Areas for temporary stockpile of excavated soils and potential locations for optional onsite water storage tanks are not currently shown, as water sources and onsite soil management requirements have not yet been finalized.

The seven investigation sites shown on Figure 1 (adjacent to existing exploratory boreholes EX-1, EX-2, EX-3, EX-4, EX-5, EX-6, and EX-9) are located within stream channels (Wilson Creek, Oak Glen Creek, and Yucaipa Creek) or existing storm detention basin facilities under jurisdiction of SBCFCD. All seven sites are located on parcels owned by SBCFCD (highlighted in red).

The six investigation sites shown on Figure 2 are owned by the City of Yucaipa (Tennessee Street Basins, Chapman Heights Basins, and Dunlap Channel), South Mountain Water Company (adjacent to exploratory borehole EX-7), and private owners (adjacent to exploratory boreholes EX-10 and EX-11) and are not under the jurisdiction of SBCFCD.

A summary of information for each investigation site (including the owner parcel information, geographic coordinates, and directions to each site) is presented in **Table 1**. Site investigation photos taken during the April 27, 2016 site reconnaissance are provided in **Appendix F**.

## 1.2. INFILTRATION TEST METHODOLOGY

Each infiltration test will involve the temporary construction of a 30-foot by 30-foot test infiltration basin[1], controlled discharge of water into the test basin, and monitoring of water volume added and ponded water height over a 2-week period. The construction of each test infiltration basin will generally be accomplished using a backhoe loader and will involve earthwork, temporary soils management, and backfilling and final grading. It is envisioned that the test basins would either be excavated to either (a) 5 feet in depth with excavated material stockpiled next to the basin (or acceptable location as determined by pertinent permitting regulatory agencies), or (b) 2-3 feet in depth with excavated native material used to create shallow berms. For both methods, the design would allow for ponded water depths of up to approximately 2-3 feet with 1 to 2 feet of freeboard. The basin walls would

[1] A 30-foot by 30-foot basin is recommended. However, a smaller test basin footprint (e.g., 20-foot by 20-foot) can be used to reduce water needs for sites where a direct water source is not available and onsite water storage tanks(s) and trucking of water to the site is needed. While a smaller test basin may increase the effect of subsurface horizontal flows on surface infiltration rates, infiltration test results from smaller test basins can still provide meaningful results.

## Table 1. Investigation Site Information Summary

| Investigation Site | Owner | APN | Longitude[1] | Latitude[1] | USGS 7.5' Quad | TRS and 1/4 Section (San Bernardino) | SBCFCD Permit? | Proposed Test Basin | Preferred Water Source | Water Type | Location | Directions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SBCFCD Permit Sites (shown on Figure 1)** | | | | | | | | | | | | |
| Wilson Creek Basins (EX-1) | SBCFCD | 032-105-227 | -117.030388 | 34.050074 | Yucaipa | 1S/1W-30N | Yes | Existing Basin | SWP water | Imported SWP | Wilson Creek Basins | Heading east on Oak Glen road, take left and head north on Fremont Street, take left into Wilson Creek Basins; site is 500 feet north of Oak Glen Road b/t Fremont St and Bryant St; third basin west of Fremont St |
| Oak Glen Creek Basins (EX-2) | SBCFCD | 032-131-112 | -117.031687 | 34.044786 | Yucaipa | 1S/1W-31D | Yes | Existing Basin | YVWD Hydrant[2] | Potable | Oak Glen Creek Basins | enter Eucalyptus Street off Bryant Street; second basin from Bryant Street |
| Unnamed (EX-3) | SBCFCD | 030-319-104 | -117.043084 | 34.043645 | Yucaipa | 1S/2W-36F | Yes | New Temp Basin | YVWD Hydrant[2] | Potable | 2nd Street between Oak Glen Road and Persimmon Avenue | head south on 2nd St off Oak Glen Road. Site is approximately 1,500 feet south at low elevation point on east side of road; downstream of Potato Creek Flood Control Basin |
| Wildwood Creek Basins (EX-4) | SBCFCD ~~City of Yucaipa~~ | 124-227-103 | -117.019497 | 34.014224 | Yucaipa | 2S/1W-7H | Yes | Existing Basin | City of Yucaipa irrigation (50 gpm) | Potable | Wildwood Creek Basin | south of Wildwood Canyon Road, approximately 0.5 miles west of intersection with Mesa Grande Drive |
| Yucaipa Creek at California St (EX-5) | SBCFCD | 124-204-116 | -117.035441 | 34.014101 | Yucaipa | 2S/2W-12H | Yes | Existing Channel | SMWC hydrant | Potable | Yucaipa Creek | approxiamtely 350 feet upstream (east) of California Street overpass, north of equestrian facility |
| Yucaipa Creek at 7th Place (EX-6) | SBCFCD | 031-819-236 | -117.066233 | 34.012990 | Yucaipa | 2S/2W-11E | Yes | Existing Channel | SMWC hydrant | Potable | Yucaipa Creek | From Calimesa Blvd turn onto Avenue G and head north, take first left on unnamed street. Site is in channel approximately 250 northeast of where 7th Place would cross channel |
| Oak Glen Creek (EX-9) | SBCFCD | 031-801-328 | -117.078137 | 34.032730 | Yucaipa | 2S/2W-3C | Yes | Existing Channel | YVWD Hydrant[2] | Potable | Oak Glen Creek | 150 feet downstream of 10th Street overpass, approximately 400 feet south of Yucaipa Blvd |
| **Non-SBCFCD Permit Sites (shown on Figure 2)** | | | | | | | | | | | | |
| Tennessee Street Basins | City of Yucaipa | 029-940-118 | -117.105400 | 34.034243 | Yucaipa | 1S/2W-32R | No | Existing Basin | YVWD Hydrant[2] | Potable | Tennessee Street Basins | 150 feet north of Tennessee Street, 700 feet west of 16th Street |
| Chapman Heights Basins | City of Yucaipa | 029-932-105 | -117.091417 | 34.037674 | Yucaipa | 1S/2W-33K | No | New Temp Basin | YVWD Hydrant[2] | Potable | Chapman Heights Basin | 300 feet north/northeast or intersection between Chapman Height Road and 13th Street |
| Dunlap Channel | City of Yucaipa | 030-103-207 | -117.096351 | 34.030611 | Yucaipa | 2S/2W-4C | No | Existing Channel | WHWC hydrant | Potable | Dunlap Channel | 100 feet north of 14th Street and 280 feet east of Avenue D |
| 10th St and Avenue E (EX-7) | South Mountain Water Company | 031-806-107 | -117.079571 | 34.025065 | Yucaipa | 2S/2W-3L | No | New Temp Basin | YVWD Hydrant[2] | Potable | unnamed local drainage | 100 feet east of 10th street, between Avenue E and Washington Drive |
| "Garden Air Creek" (EX-10) | Private Property | NA | -117.016678 | 34.002332 | El Casco | 2S/1W-18A | No | New Temp Basin | SMWC hydrant | Potable | off east end of Holmes Way, 0.26 miles east of Holmes Street | head east on Holmes Way off Holmes Street, proposed location is approximately 120 feet southeast of end of road on undeveloped land |
| "Garden Air Creek" (EX-11) | Private Property | NA | -117.033741 | 33.996675 | El Casco | 2S/1W-17D | No | New Temp Basin | SMWC hydrant | Potable | Bryant St, 700 feet south of Green Tree Circle | head south on Bryant St, proposed location is 700 feet south of Green Tree Circle, 200 feet east off Bryant Street on undeveloped land |

Notes:
NA = Not available
SBCFCD - San Bernardino County Flood Control District
YVWD - Yucaipa Valley Water District
WHWC – Western Heights Water Company
SMWC – South Mesa Water Company
1 - North America Datum 1983
2 - Preferred source is YVWD hydrant. If unavailable, alternative water source will be used requiring onsite water storage

either have an approximate 1-to-1 horizontal-to-vertical slope and/or include a 2-foot wide ledge at 2.5 feet depth for public safety. At the completion of infiltration testing, each test basin would be backfilled with the excavated material, and the site would be returned to its original, pre-disturbed grade. Due to the presence of shallow fine-grained sediments observed (Geoscience, 2014), it is recommended that the test infiltration basin depth be increased to approximately 10 feet at the Oak Glen Creek Basins (EX-2) site.

Tests conducted 14 days are expected to yield sufficient data to estimate the long-term infiltration capacity at each site. Based on our experience in areas with no significant vertical or horizontal flow barriers, recharge rates are typically higher for the first few days of testing but begin to decrease and eventually asymptote at a long-term rate after several days. If recharge rates asymptote prior to 14 days, testing may be halted. Potential costs savings from a shortened test may result from less test water used and/or less site visits required by the contractor to check on operation of equipment. However, a recommended fixed weekly schedule (see Section 3) would limit potential cost savings on equipment rental costs.

Ground disturbing activities associated with infiltration testing are summarized below. In general, these activities include:

- Excavation of a test recharge basin at each site (30’ x 30’ x 5’ deep);
- Movement and staging of vehicles and heavy equipment along access routes and in vicinity of infiltration test basin;
- Temporary storage of excavated soils adjacent to the test basin;
- Discharge of water into the test basin up to 14 days;
- Backfilling the test basin with excavated material to return the site to pre-disturbed grade.

## 1.3. Site Security and Fencing

Several investigation sites are located on undeveloped land and natural drainages that are easily accessible by the public. While some of the investigation sites are located within gated parcels, it is recommended that each infiltration test basin be secured with temporary construction fencing to ensure public safety and prevent vandalism of water hoses and flow control equipment.

## 1.4. Traffic Control and Signage

Traffic-rated ramps should be used to protect fire hose crossing public roads, driveways, and/or sidewalks. Traffic cones and caution signs should be placed to direct vehicular traffic over the ramp and foot traffic onto the sidewalk around the ramp. Discussion with the City’s traffic engineering department is needed to understand whether “sidewalk closed” signs are required or ADA requirements must be met explicitly on a site-by-site basis.

Cones and a blinking barricade are recommended to direct any foot/bicycle traffic over traffic ramps crossing sidewalks. Signage will be placed approximately 200 feet away on

both sides of the ramp. Signage would include, but not necessarily be limited to “Slow Down, Speed Bump Ahead” and “Work Ahead” signs.

## 1.5. Potential Water Sources

A direct connection to a local fire hydrant (or water from the State Water Project [SWP] pipeline) is the preferred method to supply test water. The use of a hydrant (or SWP water) precludes the need for onsite water storage and provides significant positive pressure in the water conveyance system. A positive-pressure water conveyance system is more reliable and manageable than a gravity-drained conveyance system using an onsite water storage tank. Potential water retailers include YVWD, WHWC, and SMWC. Locations of the hydrant nearest to each test infiltration basin (if applicable) are shown on Figures 1 and 2. A water meter would be rented from the respective water company. Costs would include a refundable meter rental deposit, meter use fee, and water use fee.

## 1.6. Water Conveyance and Flow Control System

Based on (1) review of lithologic logs for sites with existing exploratory borings, (2) observations made during the site reconnaissance, and (3) results of historical infiltration testing conducted by the USGS at the Wilson Creek Basins (Moreland, 1970), vertical infiltration rates from investigation site to investigation site could range from less than 2 feet per day (feet/day) up to possibly 15 feet/day. This equates to test water needs ranging from about 13,000 gallons per day (gpd) up to 100,000 gpd, or about 9 to 70 gallons per minute (gpm). Higher infiltration rates are expected in basins underlain by coarser-grained sediments (i.e., within existing larger flood control facilities, Oak Glen Creek, and Yucaipa Creek). Lower infiltration rates are expected in basins underlain by finer-grained sediments (e.g., on currently undeveloped sites and within the smaller flood control basins in the northwest portion of the basin).

To accommodate the potentially large range in test water needs, a direct connection to pressurized source of water for the test (i.e., fire hydrant) is preferred. Additionally, a robust, automated engineered water conveyance and flow control system is desirable.

**Figure 3** shows a process flow diagram for a recommended water conveyance and flow control system. The system is described in further detail below and provides the following benefits:

1. The flow rate is automatically controlled, providing a high range of discharge rates to match variable infiltration rates during testing and from site-to-site.
2. The flow rate range is controlled by adjustment of the pressure regulator setting and hand valves to accommodate variable pressure from different water sources.
3. No water storage tank is needed, except for sites with no pressurized water source; having no onsite water storage tank results in a smaller work area footprint and less fencing.

4. The system has built-in telemetry to provide real-time notifications of (a) low-water pressure from the water source or (b) exceedances of low-water and high-water level thresholds in the test basin.
5. The system precludes the need for Valley District or the contractor to provide daily monitoring of flow volume and pond height.
6. Redundancy of flow meters at the hydrant connection and on the 1-inch and 2-inch final discharge piping ensures that volumes entering the pit are reliably tracked.

As shown on Figure 3, the conveyance system includes a totalizing flow meter, backflow prevention device, and hand valve (to be supplied by the water agency that owns the hydrant). Water would be conveyed from the hydrant by a combination of 3-inch diameter fire hose to an engineered manifold made with rigid steel or PVC pipe. A 3-inch diameter flexible fire hose is needed to maintain water pressure over the distances (generally several hundred feet up to 1,000 feet or more) and head differences to be encountered from the nearest hydrant to the test basin. General water conveyance routes from the nearest hydrant (if available) to each site are shown on Figures 1 and 2. The 4-inch manifold separates the flow into three individual pipes (one 2-inch diameter pipe and two 1-inch diameter pipes) set at varying depths. The setup shown on Figure 3 allows for flow into the test basin to be automatically controlled to maintain ponded water depths between 2 and 3 feet. A totalizing flowmeter, hand valve, and float valve would be installed on each 1-inch or 2-inch pipe to track and control flows to the test basin. The three individual flowmeters can be used to verify flows from the single fire hydrant flowmeter.

The three end pipes would be tied together in a “basin tree” with a steel gravity base that sits on the bottom of the test basin. As shown on the diagram, the test basin area covered by the basin tree is only 180 square inches (or less than 0.1 percent of the total infiltrating area of a 30-foot by 30-foot basin). The system would also be equipped with high and low water level sensors and telemetry to communicate if water levels fell below 1 feet or exceeded 4 feet. Additionally, a low-pressure sensor upstream of the pressure regulator on the 4-inch manifold would provide an automated warning if pressure from the fire hose dropped below a certain threshold, indicating that the water source itself or the fire hose was compromised and not able to provide water to the test basin.

## 1.7. Infiltration System Monitoring Activities

The telemetry built in to the engineered water conveyance and flow control system minimizes the need for onsite monitoring. Nevertheless, documentation of flowmeter readings for each test basin and maintenance of the systems will be needed. We understand that staff from Valley District and its partner agencies would be able to conduct daily site visits to record flowmeter readings and basin water levels. An example field data worksheet (and associated chart showing vertical infiltration rate calculated over time) is provided in **Appendix E**. Under such a scenario, monitoring by the contractor of the flow control system at a given investigation site would occur only once during the two-week test.

## 1.8. Groundwater Monitoring Activities

While infiltration testing would be conducted for only 14 days, depending on site infiltration rates, it is possible that recharged water will reach the water table at some investigation sites during or following infiltration testing. Groundwater level monitoring is recommended for sites with monitoring wells (or piezometers) to confirm whether infiltration testing results in a groundwater level response. Confirmation of such a response can be used to validate vertical infiltration and infer the degree of horizontal spreading of recharged water in the vadose zone. The following three existing piezometers are available for monitoring during infiltration testing:

- Piezometer YRP-PZ3 at the Wildwood Creek Basin (EX-4)
- Piezometer YRP-PZ1 at the Wilson Creek Basins (EX-1)
- Piezometer YRP-PZ2 at the Oak Glen Creek Basins

Depth to water (DTW) measured in 2014 was 104 feet-bgs at Wildwood Creek Basin, 272 feet-bgs at the Wilson Creek Basins, and 302 feet-bgs in the Oak Glen Creek Basins.

## 1.9. Best Management Practices

All field activities shall be conducted to ensure minimal disturbance to native vegetation and minimize soil erosion along channel banks. The following site management practices are recommended in addition to requirements to be specified by SBCFCD and other regulatory agencies:

- No grading shall occur on channel banks
- Any excess debris or sediment generated during testing will be disposed of properly
- No fueling shall occur within 100 feet of the channel
- Inadvertent impacts to the site from personnel and equipment will be prevented by limiting ingress/egress to proposed access paths.
- Any fuel or oils leaking shall be contained to ensure there is no release on the ground
- An emergency spill kit will be onsite at all times.
- Infiltration testing will not occur during or within 24 hours following a significant rainfall event, defined as ¼ inch or more of rain in a 24-hr period.
- All equipment and materials shall be inspected for presence of non-native invasive species.

# 2. REGULATORY PERMIT REQUIREMENTS

SBCFCD has informed Valley District that letters of authorization or permits from California Department of Fish and Wildlife (CDFW), United States Army Corps of Engineers (USACE), and California Regional Water Quality Control Board – Santa Ana Region (RWQCB) will be required to satisfy the Flood Control Permit Application for each of the seven sites within the SBCFCD right-of-way. Valley District has been working with each regulatory agency to comply with all applicable requirements.

## 2.1. SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT REQUIREMENTS

Valley District will need to submit a Flood Control Permit Application to SBCFCD for the seven investigation sites within a SBCFCD right-of-way. A copy of the SBCFCD Flood Control Permit Application is provided in **Appendix A** of this Work Plan. This Work Plan provides the required description of proposed activities including maps showing proposed test infiltration basin locations, access routes/layouts for equipment and water conveyance, and proposed water sources (for sites where an available hydrant is confirmed). Options for temporary storage of excavated soils either within existing storm channels or on channel banks may be subject to SBCFCD requirements, which have yet to be determined.

## 2.2. CDFW STREAMBED ALTERATION AGREEMENT

California Fish and Game Code Section 1602 requires an entity to notify California Department of Fish and Wildlife (CDFW) prior to commencing any activity that may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
- Deposit debris, waste or other materials that could pass into any river, stream or lake.

Water bodies include those that are episodic (dry for periods of time). It is anticipated that a streambed alteration agreement for the proposed testing would be approved by CDFW under provision that any modification to the creek bed would be temporary and occur when surface flows did not occur, and the sites would be returned to their pre-disturbed grade following completion of infiltration testing. A copy of the CDFW Notification of Lake or Streambed Alteration Permit Application is provided in **Appendix A** of this Work Plan.

Valley District has been working with CDFW to ensure a final letter of authorization would cover all seven SBCFCD sites as well as the six non-SBCFCD investigation sites.

## 2.3. USACE Section 404 Permit for Dredge and Fill Discharges

The proposed work is governed under the Clean Water Act, Section 404, which is administered by the USACE. The USACE issues nationwide permits (NWPs) to authorize activities under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 that will result in no more than minimal individual and cumulative adverse environmental effects. The NWP program is designed to provide timely authorizations for the regulated public while protecting the Nation's aquatic resources.

The work proposed by Valley District is consistent with NWP 6, "Survey Activities" (see **Appendix B** of this Work Plan). NWP 6 does not require formal notification to the USACE or USACE approval but does require that Valley District maintain a good record of all project activities and results. NWP 6 also identifies a list of General Conditions that the Valley District must follow for compliance. NWP 6 does not require mitigation as long as the terms of the General Conditions are met.

It should be noted that for SBCFCD facilities, SBCFCD may require that Valley District demonstrate compliance with permits from other agencies. Because the project falls within the guidelines of USACE NWP 6, which does not require approval from the USACE, Valley District can prepare a standard USACE Pre-Construction Notification Form (PCN) for inclusion in the SBCFCD permit documentation.

## 2.4. Regional Water Quality Control Board

The proposed work is governed under the Clean Water Act, Section 401, administered by the Regional Water Quality Control Board (RWQCB). Pursuant to title 23, section 3838 of the California Code of Regulations, the RWQCB reviews the USACE Nationwide Permit Program developed for Clean Water Act Section 404 and determines the level of state-required permitting necessary for Clean Water Act Section 401 compliance.

Because the project falls under the USACE NWP 6, the RWQCB has determined that this type of project is exempt from the California Environmental Quality Act (CEQA) review since their activities should not have a significant effect on the environment, either individually or cumulatively.

However, the RWQCB requires that a notification be submitted on the 2012 Certified Nationwide Permit Notification Form, which is provided in **Appendix C** of this Work Plan. The signed notification, along with the applicable fees, must be submitted to the Santa Ana Regional Water Quality Control Board, with a copy to the State Water Board, not less than 45 days before any activity which may result in a discharge is commenced. To avoid project delays, Valley District should submit the notification and fees as early as possible.

# 3. FIELDWORK SCHEDULE AND COST ESTIMATE

## 3.1. FIELDWORK SCHEDULE

Proposed Infiltration testing is scheduled to commence in late summer/early Fall of 2017, so that any re-routing of storm flows in flood control channels and basins would not be required. In order to minimize labor and equipment costs and ensure an efficient work flow, we recommend that initial site preparation (i.e., excavation and installation of conveyance piping, flow controls, fencing, and traffic control) and test initiation be conducted at two investigation sites, staggered one week apart. Site preparation (and demobilization) would occur on Mondays, with test initiation scheduled on Tuesdays. Under this scenario, site preparation and test initiation at Site 1 would occur on Monday and Tuesday of the first week (Week 1). This would be followed by site preparation and test initiation at Site 2 in Week 2. At the beginning of Week 3, testing would be completed at Site 1, and equipment and materials would be moved from Site 1 to Site 3, where testing would begin the same week. At the beginning of Week 4, testing would be completed at Site 2, and equipment and materials from Site 2 would be moved to Site 4, where testing would begin the same week. This process would be repeated as needed to complete infiltration testing for the total number of investigation sites selected for infiltration testing.

The proposed field schedule provides the following advantages: (1) the contractor is on a fixed weekly schedule for excavation, equipment mobilization/demobilization and monitoring activities, and (2) materials and labor (including fire hose, manifolds, basin trees, and traffic ramps/signage) are required for exactly two sites throughout the project at any given time.

Given this staggered approach, the number of weeks to complete proposed infiltration testing would equal to the number of investigation sites plus one week. Accordingly, if infiltration testing is proposed for thirteen sites, field activities could be completed in 14 weeks. Assuming a start date of August 14, 2017, testing would be completed by November 20, 2017). The period of testing could be shorter, if testing is conducted at fewer than thirteen sites, or if three infiltration test systems are fabricated and used instead of two systems.

## 3.2. PRELIMINARY COST ESTIMATE

**Table 2** shows a preliminary cost estimate for performing the infiltration testing at the thirteen investigation sites. Costs for contractor excavation, fencing, installation of water conveyance equipment and materials, weekly monitoring of operation and collection of flow meter data, site demobilization, and intra-site movement of equipment are included. A detailed breakdown of contractor equipment, rental fees, and labor is provided in **Appendix D**. Preliminary engineering costs for pre-field coordination (including permit acquisition support), project management, data analysis and reporting are also included.

**Table 2. Estimated Project Cost**

| Items | Total Engineering Labor | Total Contractor Costs | Total Cost |
|---|---|---|---|
| 1. Engineering – Pre-Field Coordination/Permit Acquisition and Project Management | $15,000 | | $15,000 |
| 2. Contractor Pre-Field Work Tasks | | $6,600 | $6,600 |
| 3. Contractor Mobilization, Setup, and Startup (2 sites) | | $19,200 | $19,200 |
| 4. Site Visit (weekly; 14 times) | | $9,400 | $9,400 |
| 5. Move Equipment from Existing Site to New Site (11 times) | | $116,800 | $116,800 |
| 6. Site Demobilization (13 sites) | | $86,200 | $86,200 |
| 7. Traffic Ramps and Signage | | $6,000 | $6,000 |
| 8. Engineering – Data Analysis and Reporting | $15,000 | | $15,000 |
| **Total Costs** | **$30,000** | **$244,200** | **$274,200** |
| **Markup Fee on Contractor (10%)** | | **$24,400** | |
| **Total Costs (with 10% Contractor Markup)** | **$30,000** | **$268,600** | **$298,600** |
| **Total Costs (with 10% Contractor Markup) Per Site (13 Sites)** | | | **$23,000** |

Notes:
1 – fire hose length assumed to be 1,000 feet for all investigation sites. Actual unit cost is $25 per 50-foot section.
2 – traffic ramps to protect fire hose at road crossings estimated at 50 feet per site based on nearest fire hydrant for 4 sites (Wilson Creek III, Yucaipa Creek at 7th Place, Chapman Heights Basin, and 10th Street and Avenue E). Rate is $20 per week per two-foot section of heavy duty traffic ramp, rating of 25,000 pounds per tire.
3 – Traffic signage of $500 per site for 2 weeks added.
4 – The following items have not been included in the cost estimate:

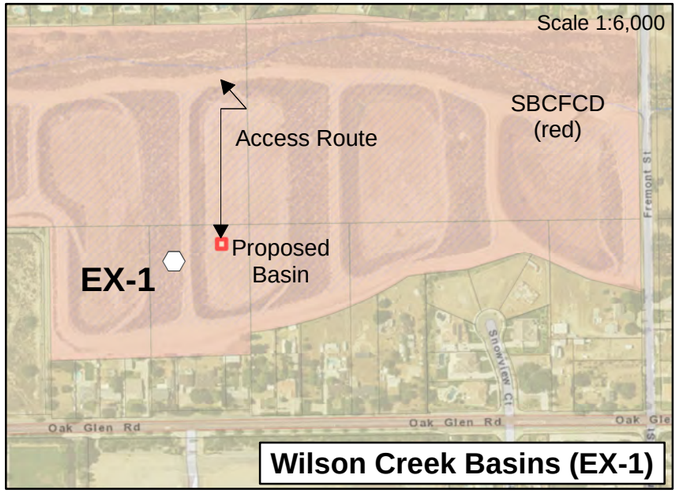
- Cost for test water
- Water meter rental fee
- Water tank (21,000 gallon closed steel roll off tank has an estimated delivery charge of $640, estimated pickup charge of $640, and estimated intra-site move charge of $640).
- City, county, and state permit fees

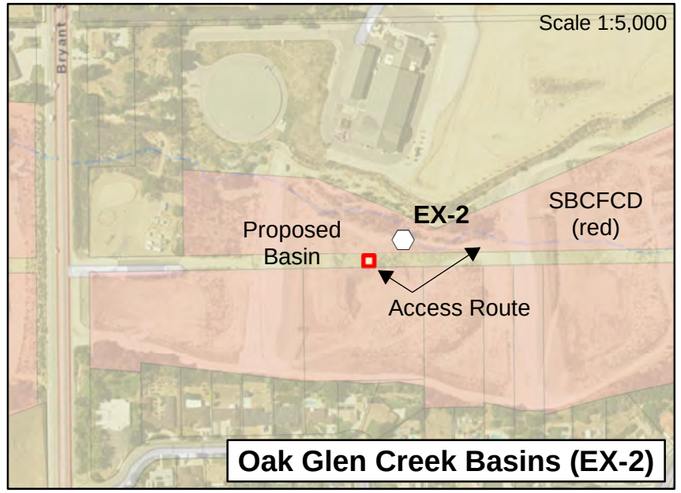
As shown in the table, the estimated total project cost is estimated at $298,600, equating to approximately $23,000 per site. This preliminary cost estimate does not include costs for test water, water tanks (if needed), hydrant meter rental fees, and associated permit fees.

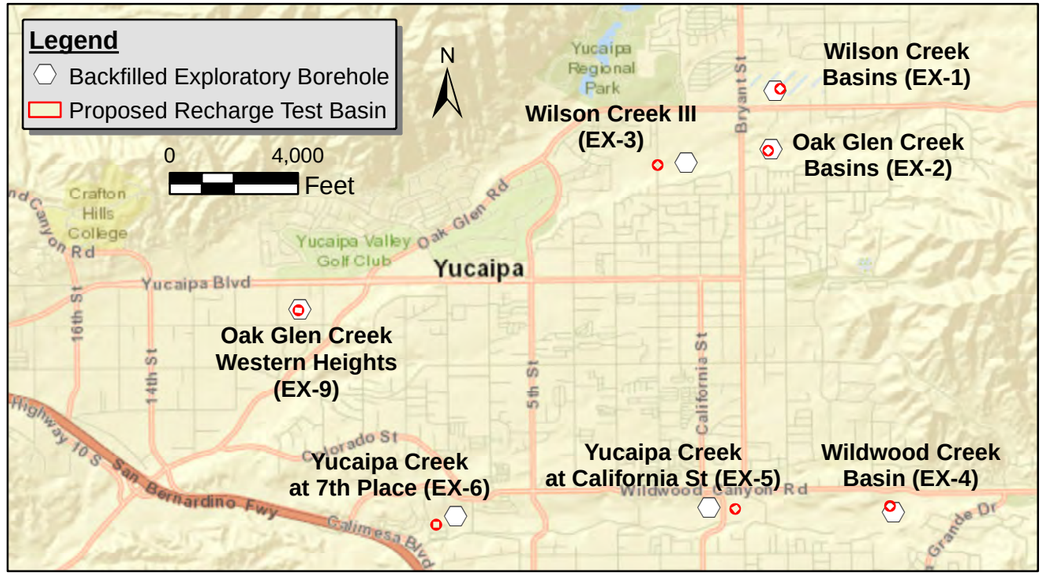
# 4. REFERENCES

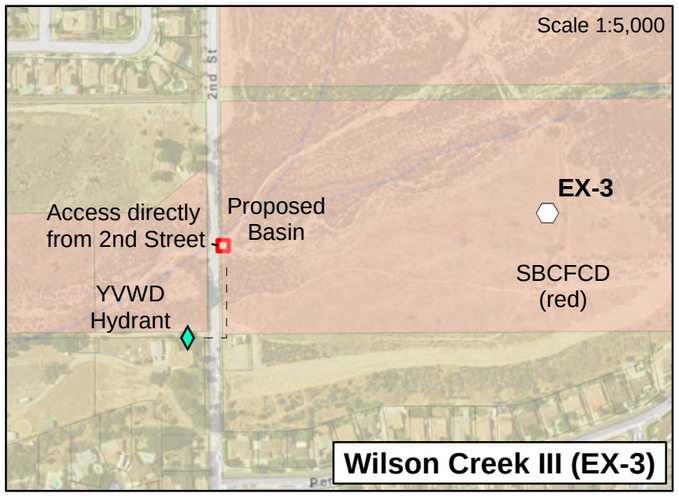
Geoscience Support Services (2014) Recharge Investigation of the Yucaipa Groundwater Basin. Prepared for San Bernardino Valley Municipal Water District. December 12, 2014.

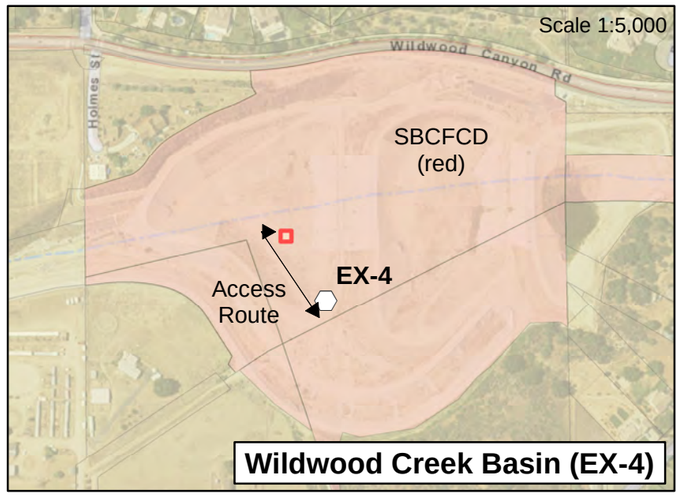
Moreland, J.A. (1970) Artificial Recharge, Yucaipa, California. USGS Open-File Report. August 7, 1970.



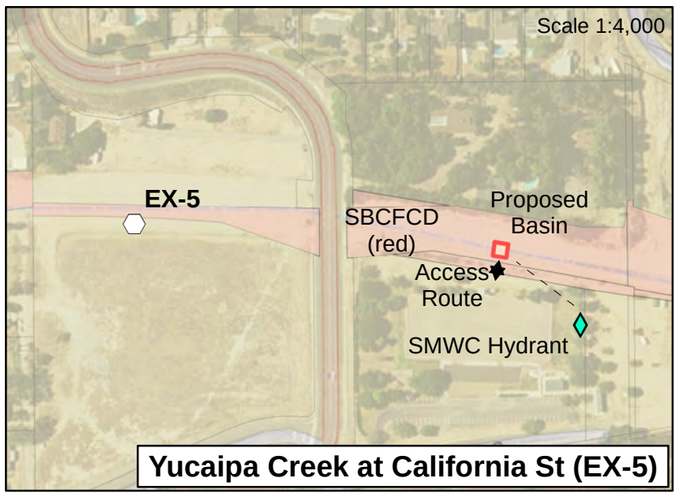



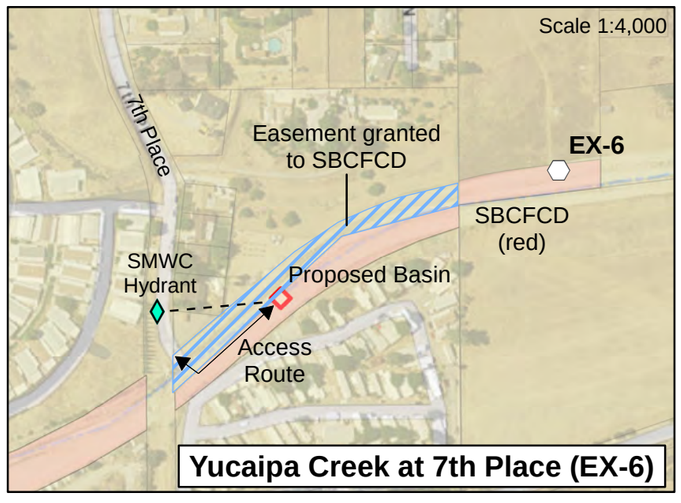



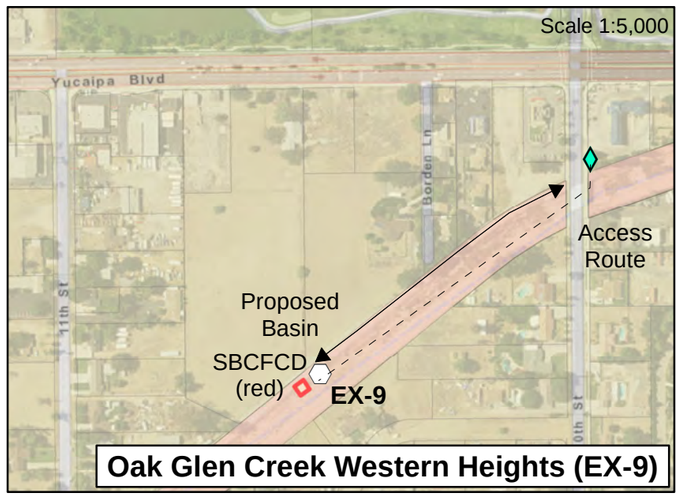




| Site | Owner | SBCFCD Permit | Proposed Test Basin | Preferred Water Source | Water Type |
|---|---|---|---|---|---|
| Wilson Creek Basins (EX-1) | SBCFCD | Yes | Existing Basin (30'x30'x5') | SWP water | Imported SWP |
| Oak Glen Creek Basins (EX-2) | SBCFCD | Yes | Existing Basin (30'x30'x10') | YVWD Hydrant[1] | Potable |
| Wilson Creek III (EX-3) | SBCFCD | Yes | New Temp Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| Wildwood Creek Basins (EX-4) | SBCFCD | Yes | Existing Basin (30'x30'x5') | City of Yucaipa Irrigation | Potable |
| Yucaipa Creek at California St (EX-5) | SBCFCD | Yes | Existing Channel (30'x30'x5') | SMWC hydrant | Potable |
| Yucaipa Creek at 7th Place (EX-6) | SBCFCD | Yes | Existing Channel (30'x30'x5') | SMWC hydrant | Potable |
| Oak Glen Creek (EX-9) | SBCFCD | Yes | Existing Channel (30'x30'x5') | YVWD Hydrant[1] | Potable |

1- To be determined. Preferred source is YVWD hydrant. If unavailable, alternative water source will be used requiring onsite water storage
SBCFCD = San Bernardino County Flood Control District
SMWC = South Mesa Water Company
YVWD = Yucaipa Valley Water District

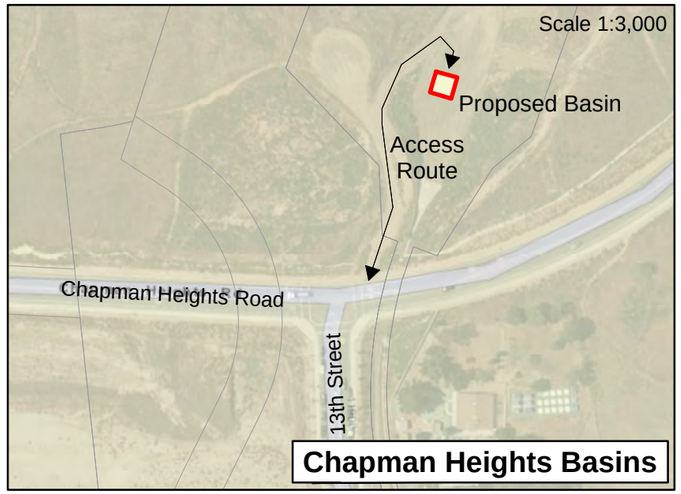


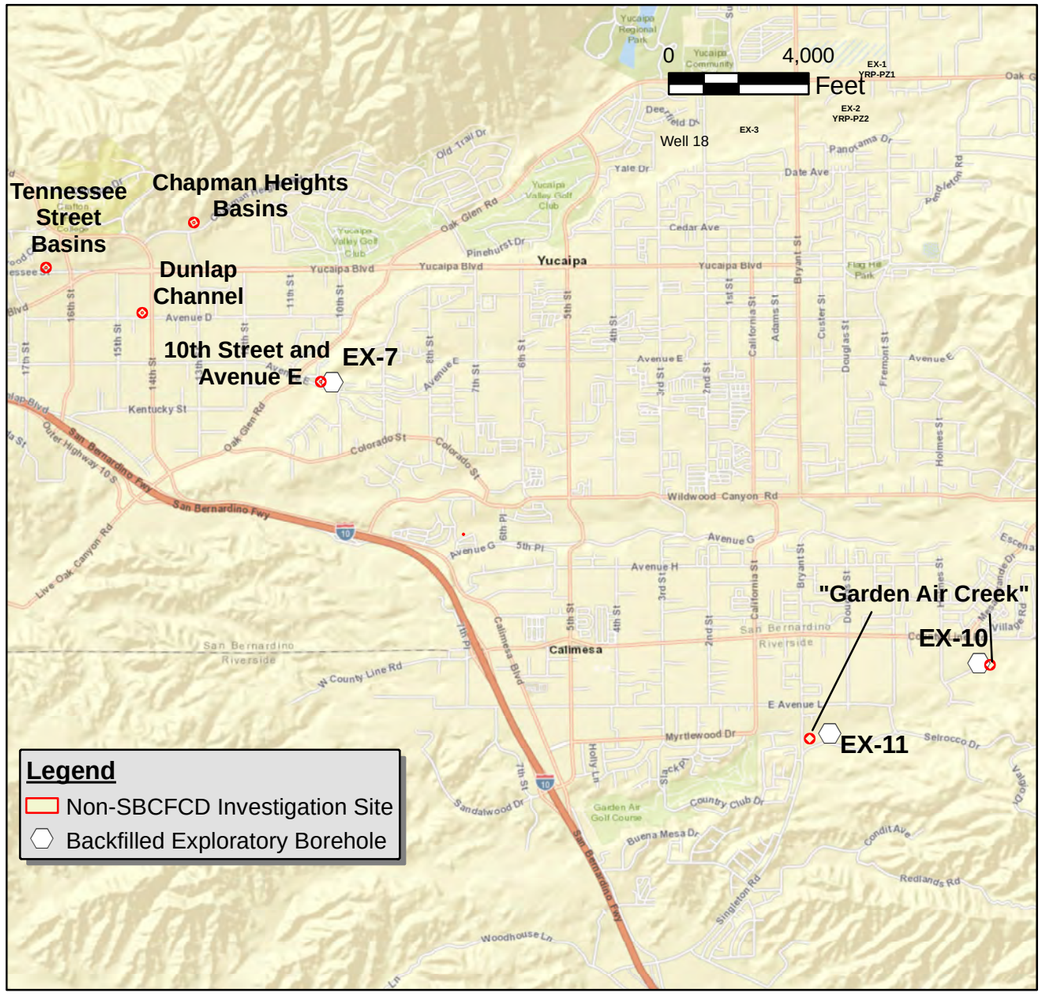



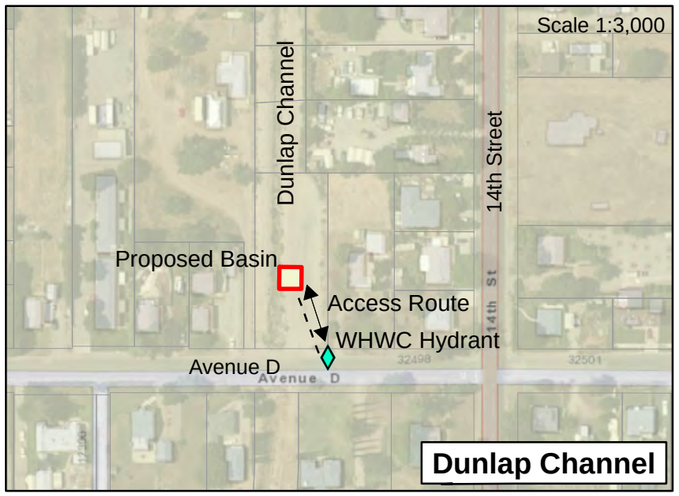



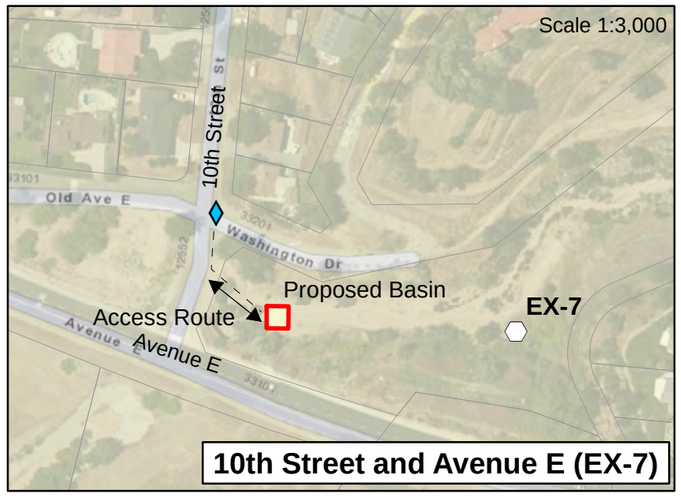

TODD GROUNDWATER

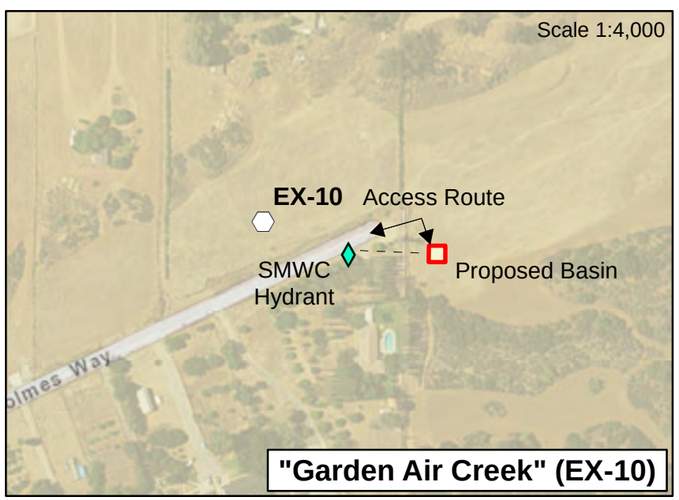
**Figure 1**
**Seven SBCFCD Recharge Testing Sites**

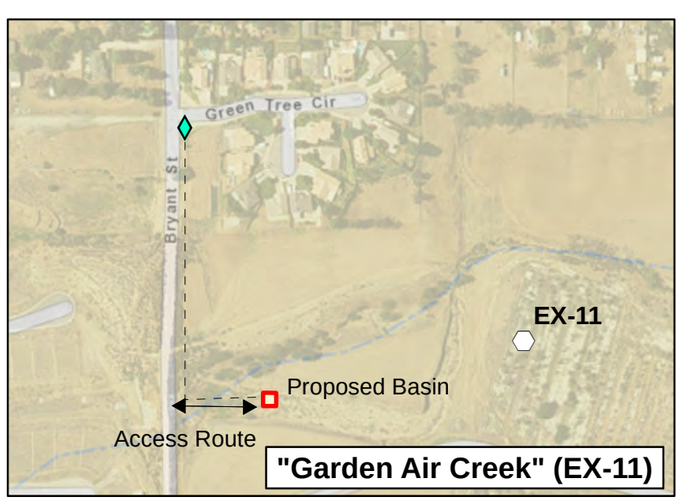



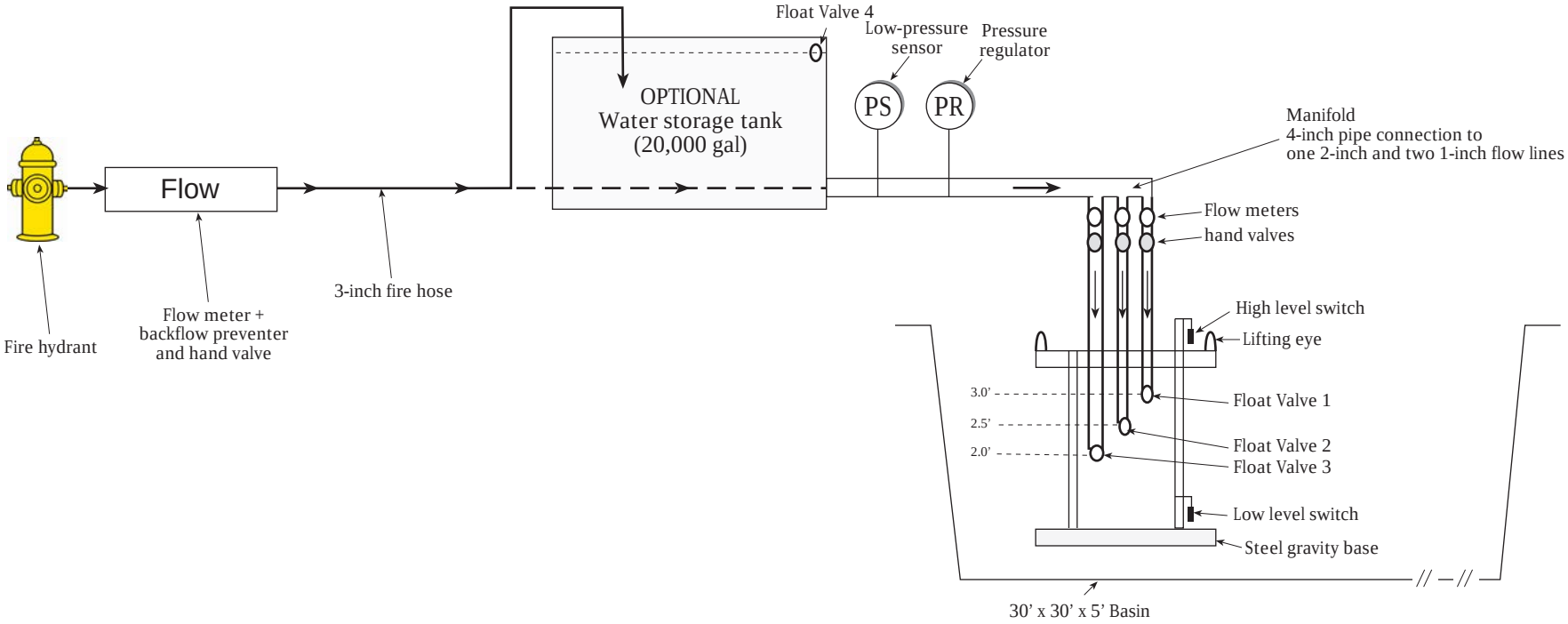




| Site | Owner | SBCFCD Permit | Proposed Test Basin | Preferred Water Source | Water Type |
|---|---|---|---|---|---|
| Tennesse Street Basins | City of Yucaipa | No | Existing Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| Chapman Heights Basins | City of Yucaipa | No | New Temp Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| Dunlap Channel | City of Yucaipa | No | Existing Channel (30'x30'x5') | WHWC hydrant | Potable |
| 10th Street and Avenue E (EX-7) | South Mountain Water Company | No | New Temp Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| "Garden Air Creek" (EX-10) | Private Property | No | New Temp Basin (30'x30'x5') | SMWC hydrant | Potable |
| "Garden Air Creek" (EX-11) | Private Property | No | New Temp Basin (30'x30'x5') | SMWC hydrant | Potable |

Notes:
1- Preferred source is YVWD hydrant. If unavailable, alternative water source will be used requiring onsite water storage
SBCFCD = San Bernardino County Flood Control District
SMWC = South Mesa Water Company
WHWC = Western Heights Water Company
YVWD = Yucaipa Valley Water District

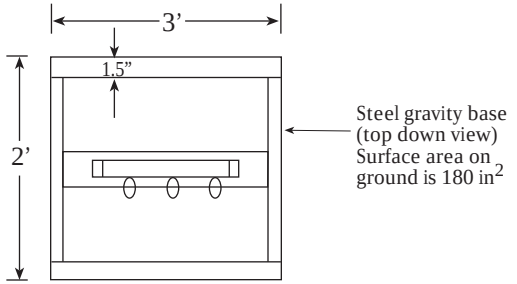
TODD GROUNDWATER

**Figure 2**
**Six non-SBCFCD Recharge Testing Sites**




Notes: Telemetry calls out when ponded water level is less than 1 foot
Telemetry calls out when ponded water level is greater than 4 foot

Process Flow
1. Fire hydrant with back flow preventer is primary water source
2. Pipeline from hydrant to manifold is 3-inch fire hose (preferred)
3. Optional Water tank outlet could require separate hand valve and flow meter
4. Manifold to basin tree 4" PVC to three PVC lines (two 2-inch and one 1-inch)
5. Float valve 1 opens at $H_2O$ < 3.0' depth
6. Float valve 2 opens at $H_2O$ < 2.5' depth
7. Float valve 3 opens at $H_2O$ < 2.0' depth
8. Optional Float valve 4 closes when water tank is full




Basin Tree Detail

Not to Scale

**Figure 3**
**Infiltration Test**
**Process Flow Diagram**

# Appendix A

SBCFCD Flood Control Permit Application
and
CDFW Notification of Lake or Streambed Alteration Permit Application

San Bernardino County
**Permits/Operations Support Division – Flood Control Section**
825 East Third Street, Room 108
San Bernardino, CA 92415-0835
(909) 387-7995 – FAX (909) 387-1858

# FLOOD CONTROL PERMIT APPLICATION

The undersigned hereby applies for permission to encroach upon District right-of-way to perform the following work. It is understood that completing this application does not constitute permission to commence the work on District right-of-way.

Fully describe work to be performed within District right-of-way.

_____
_____
_____
_____

****Is a WDID *(Waste Discharge Identification)* number required for this project? ☐ YES ☐ NO**
**If Yes, provide WDID number: _____ If no, provide justification:_____**
_____
_____

Location of Work:
(Be Specific) _____

_____

Area (city/community): _____ District Facility: _____

_____
Permittee *(PERMIT WILL BE ISSUED TO…..)*

_____
Contact Title

_____
Address

_____
City State Zip

_____
Phone # FAX #

_____
Email

_____
Applicant / Designee for Permittee
*ALL CORESPONDENCE WILL BE SENT TO DESIGNEE*

_____
Address

_____
City State Zip

_____
Applicant's Representative *(PRINT)*

_____
Phone # FAX #

_____
Date

**All applications shall be accompanied by 6 sets of plans, 2 sets of environmental approvals (if necessary), 3 sets of drainage calculations (if necessary) which include the input file listing, and all applicable fees. The submittal shall also contain one CD copy containing all plans and calculations.**
*****Permit issuance will be withheld without the required information*** **Rev 12/19/14**

San Bernardino County
**Permits Operations/Support Division – Flood Control**
825 East Third Street, Room 108
San Bernardino, CA 92415-0835
**(909) 387-7995 – Fax 387-1858**

# PERMIT APPLICATION CHECKLIST

Each permit application must contain the following minimum items, and, depending on the specific nature of the permit request, may also need to include additional information to meet District requirements for review:

- A Flood Control Permit Application signed by the Applicant (Engineer or preparer of permit submittal) which clearly specifies the Permittee's (the person or agency responsible for ensuring that all permit provisions or requirements stipulated by the District for activity within District right-of-way are properly adhered to) name, address, telephone number, and contact person.
- One copy of the Best Management Practices (BMP) Acknowledgement form, signed by the Permittee.
- **One CD containing all relevant information (i.e. plans, hydrology, hydraulics, structural calculations, environmental documentation, etc.)**
- **Seven sets of plans for proposed improvements located within District right-of-way only**, signed by a registered civil engineer. (Unless Army Corps of Engineers built facility; then see next bullet.)
- **Ten sets of plans for proposed improvements located within District right-of-way, that are within R/W of facilities constructed by the Army Corps of Engineers**, signed by a registered civil engineer. Additional information, such as geotechnical reports and structural reports assessing the impact of loading on the channel walls are also required. This information is used for a 408 permit submittal to ACOE (Army Corps of Engineers).
- **FOR ALL PLANS PROVIDED, ONLY INCLUDE PLAN SHEETS WHICH INDICATE WORK WITHIN DISTRICT RIGHT-OF-WAY. DO NOT INCLUDE PLAN SETS SUCH AS STREET LIGHTING, ELECTRICAL OR STRIPING PLANS. PLAN SETS SUBMITTED WHICH INCLUDE EXTRANEOUS SHEETS NOT IMPACTING DISTRICT RIGHT-OF-WAY MAY RESULT IN ALL SUBMITTED PLAN SETS BEING RETURNED WITHOUT REVIEW.**
- Please do not include fees with initial submittal. A letter will be provided by the District upon receipt of a permit application, requesting appropriate fees in accordance with the current Fee Schedule. All submitted checks must contain the assigned permit number for your project. **Cities, State, public agencies and non-profit organizations/agencies are exempt from filing fees for new permits, but still must pay review and inspection fees. Additionally, State agencies are exempt from review and inspection fees.**
- Two copies of environmental documents and permits related to the project. **IF NO PERMITS ARE REQUIRED, THE DISTRICT MUST BE PROVIDED WITH LETTERS OR E-MAIL VERIFICATION FROM THE REGULATORY AGENCIES STATING THAT NO PERMITS ARE REQUIRED.**
- One copy of the Construction General Permit SWPPP and State Water Resources Control Board-issued WDID, or an Erosion and Sediment Control Plan, as applicable; and the County of San Bernardino (or appropriate municipality) approved Water Quality Management Plan for the related Project.
- One signed copy of the completed Best Management Practices Attachment and Acknowledgement (including Table 1). **The DISTRICT will not issue a Permit without this information being provided.**
- Applications that involve storm drain connections or channel improvements must be accompanied by **three** hard copy sets and **one** electronic copy of hydrology and hydraulic calculations; **input file listings MUST accompany the hydraulic calculations.**
- **Note:** Prior to beginning any permit activities within District right-of-way, a certificate of insurance will be required covering the agency (Permittee and/or contractor) that will be performing the permitted activities. The insurance certificate must meet minimum District requirements, and list both San Bernardino County and San Bernardino County Flood Control District as additionally insured.
- **FAILURE TO PROVIDE ALL NECESSARY INFORMATION MAY RESULT IN DELAY OF THE DISTRICT'S REVIEW**

**All submitted plans must contain the following as applicable:**

1. **Digital Submittal** — Any connection to a Flood Control District facility shall require a CADD or GIS file of the location latitude/longitude at the connection. Additionally, when a Flood Control facility meets qualifications as a Regional facility or if the Flood Control District will assume any type of maintenance or rights-of-way over the facility, a CADD or GIS file showing the basin footprint and/or channel alignment with a minimum of 1 meter accuracy in NAD 1983 State Plane California V FIPS 0405 coordinates shall be submitted. Any basin, channel, or connection alignment/locations shall reflect the actual location in said real world coordinates. Acceptable file formats are as follows: .dgn, .dwg, .dxf, .pro, GIS .shp, or GIS .mdb.

2. **Best Management Practices (BMP) Acknowledgement Form** — A copy of this form shall be signed by the Permittee or Permittee's Authorized Agent, and submitted to the District prior to permit issuance. The BMP Attachment can be found in the Flood Control District's Permit Application Package, and shall be included as an exhibit in all permits issued by the District.

3. **Structural Integrity** — The District does not review the structural integrity of bridges crossing District right-of-way. It shall be the responsibility of the engineer of record to ensure the structural integrity of proposed bridge crossings.

4. **Title Block/Stationing** — Description/type of work, **District stationing** and location of the project. Corps' stationing must be shown for projects impacting a U.S. Army Corps of Engineers' facility.

5. **Vicinity Map** — Show the approximate location of the proposed project in relation to major streets and flood control facilities

6. **Streets** — All street names must be labeled on all applicable plan sheets.

7. **Right-of-Way** — All right-of-way (District, City, Street, Caltrans, etc.) must be clearly shown and labeled on each applicable sheet of the plans with dimensions. **Include a typical section.** Acceptable manner of indicating District right-of-way is SBCFCD R/W or similar. Using a designation such as "R/W" is not acceptable.

8. **Typical Cross Section** — Show all existing and proposed improvements as they relate to the District's right-of-way.

9. **Facility Name** — All District facilities must be clearly and correctly labeled on the plans. "Flood Control Channel" or similar designation is not acceptable.

10. **North Arrow** — Indicate the direction of true north relative to the project site on plan drawings.

11. **Scale** — Horizontal and vertical scales must be used on each sheet submitted for review. Use a scale that most accurately reflects the scope of the work that is being proposed.

12. **Benchmark** — The control elevation for the project should be shown on the plans.

13. **Notes** — General and construction notes must be shown on each plan sheet where applicable. Notes shall be clear, concise, legible and related to the proposed project.

14. **Invert** — The invert elevation of all District facilities and the proposed inlet shall be shown on the plans.

15. **Removal** — The removal or break out limits of an existing facility must be shown on the plans with dimensions.

16. **Match Line** — When a submittal includes multiple sheets within District right-of-way, each sheet shall have a match line to indicate how each sheet relates to one another.

17. **Non-District Standards** — Any proposed non-District standard referenced on the plans and/or notes shall be shown on the plans and are subject to District approval.

18. **USA** — Underground Service Alert note or similar must be shown on the plans.

19. **Legend** — Description of all symbols and abbreviations used on the plans. Include legend on all applicable plan sheets.

20. **Contact Personnel** — A list of relevant emergency personnel involved in the proposed project. Include name, title and telephone numbers of relevant parties on the Title Sheet.

21. **Revision Block** — Revision block must be placed on all plan sheets.

22. **Plans/Profiles** — Show elevations, grades, slopes, length, types and sizes of all proposed facilities and the existing and proposed finished grades.

23. **Drivable Widths** — All access routes within District right-of-way shall be constructed in such a manner as to allow unimpeded access to all District maintenance equipment, which includes 18-wheel vehicles. All drivable widths shall be a minimum of 20-feet wide, and shall have the following additional requirements:
    - All turns must be constructed with a minimum outside radius of 60-feet, and a maximum outside radius of 25-feet.
    - Hammerhead turnarounds shall be minimum 90-feet by 55-feet. Inside corners shall have a minimum radius of 35-feet.
    - Turnaround areas shall have a minimum radius of 50-feet.

24. **Gate Setbacks** — All District access gates shall be set back a minimum of 30-feet from curb face to allow for vehicular access.

25. **Channel Construction** — Drainage facilities that are designed utilizing Los Angeles County Flood Control District structural, hydraulic and design criteria shall be acceptable to the District. Please contact the District prior to utilizing design criteria from other agencies.

26. **Underground Utilities** — All underground utility crossings of District facilities shall be encased. Acceptable methods of encasement include steel or concrete. A minimum clearance of 5-feet must be shown between bottom of channel invert and top of casing. Plans must show all proposed and existing utilities within the District's right-of-way that will be affected by the proposed project. Trenching details must be shown on the plans indicating method of support of the District's facility, along with supporting structural calculations.

27. **Overhead Utilities** — A minimum of 35-feet of line clearance shall be maintained by all electrical lines

over District right-of-way. A minimum of 25-feet of line clearance shall be maintained by other non-electrical overhead lines over District right-of-way. This shall include new installations of aerial crossings and utility poles as well as aerial installations attached to existing poles. The installation of guy wires within District right-of-way is not allowed.

28. **Parallel Utilities** — Shall be located as close to the District's right-of-way boundaries as possible. A lease agreement or easement shall also be required to be executed **PRIOR** to permit issuance allowing a parallel utility within District right-of-way. Utilities shall have a minimum of 3-feet of cover within District right-of-way.

29. **Manholes** — Any manhole within District right-of-way shall be shown on the plans with depth, station and rim elevation indicated. The District's minimum manhole cover shall be 36-inches in diameter. All manholes not located within asphalt or concrete must include a manhole apron in accordance with District Standard D260. Under no circumstances shall any manhole within District right-of-way extend above finish grade.

30. **Side Drains** — All side drain connections to District facilities shall be reinforced concrete pipe (RCP), and shall be sized to adequately convey flows from a 100-year storm event. The size, type and loading must be labeled on the plans. The minimum allowable RCP connection size is 24-inches, with a 1350 D-load. RCP not meeting either minimum criteria shall be rejected.

31. **Concrete** — All structural concrete shall be 660-A-4000 in all inverts and 660-B-4000 for all walls, including wingwalls and headwalls. All concrete shall conform to Section 201-1 of the Standard Specification for Public Works Construction, latest edition, unless otherwise specified. Concrete for rock structures, bottom controls, and splash pads shall be 560-B or C-3250.

32. **Reinforcing Steel** — All reinforcing steel shall conform to the requirements of ASTM A-615 and shall be Grade 60.

33. **Angle of Entry** — The inlet angle to any District facility shall be shown on the plans. The following angles of confluence are recommended:

| **Super Critical Flows** | | **Sub-Critical Flows** | |
|---|---|---|---|
| 24" - 33" | 90 ° max | Up to 36" | 90 ° max |
| 36" – 57" | 45 ° max | 36" – 57" | 45 ° max |
| 60" and over | 30 ° max | 60" and over | 30 ° max |

34. **HGL** — Existing and proposed Hydraulic Grade Lines must be plotted on all plans involving storm drain connections or basin/channel improvements. Indicate $Q_{100}$ and $V_{100}$ in the profile view.

35. **Resubmittals** — All resubmitted plans must be accompanied by a cover letter that addresses the District's previous comments. Resubmittals without a cover letter addressing previous comments will be returned without review.

Rev 07/21/2014

# San Bernardino County Flood Control District

## Schedule of Fees Ordinance No. FCD 15-01

**Effective August 1, 2015**

(a) Permits and permit amendments:

1. Minor Construction
   - A. Definition: utilities (parallel up to 100', site, non-parallel); general and miscellaneous; small side drain connection (maximum 4'x4' reinforced concrete box (RCB) or 48" diameter reinforced concrete pipe (RCP)):
     - I. Filing fee (non-refundable)..... $ 385.00
     - II. Review fee (for each connection)..... Actual cost as described ..... in (j) herein (non-refundable)
       Review fee initial deposit..... $ 3,000.00 /ea connection
     - III. Inspection fee (for each connection) ..... Actual cost as described ..... in (j) herein (non-refundable)
       Inspection fee initial deposit..... $2,670.00 /ea connection
2. General and miscellaneous use:
   - A. Permit amendments:
     - I. General amendment (during construction only):..... $ 1,210.00
     - II. Administrative amendment (for each requested change)..... $ 237.00 /each change (changes include name change, site change and time extension)
   - B. Confined space video inspection ..... Actual cost as described ..... in (j) herein
     Confined Space Video Inspection Initial Deposit..... $ 1,300.00
   - C. Monthly land use fee of San Bernardino County Flood Control District property. Minimum $600/month for area up to 1 acre. Fee prorated above 1 acre..... $ 600.00 /acre/mo
   - D. Long term encroachment permit:
     - I. Definition: Long term encroachments are site encroachments initially installed under a minor or major permit but involve more permanent structures such as a well site.
     - II. Renewal fee ..... $ 287.00 (non-refundable)
     - III. Annual inspection fee- Applicable each anniversary date for any permit extending past 1 year term
       Initial Site..... $ 1,315.00
       Each Additional Site (within one mile radius)..... $ 323.00
     - IV. Late fee (for annual billings)(non-refundable)..... $287.00 plus 1.5%/month
       NOTE: If any fee is not paid when due and payable, permittee shall pay to the District an additional two hundred and eighty-seven dollars ($287) for each fee due as an administrative processing charge. Fees not paid when due shall bear interest from the date due at the rate of one and one-half percent (1 1/2 %) per month.
3. Major Construction:
   - A. Filing fee..... $ 857.00 (non-refundable)
   - B. Review fee..... Actual Cost as described in (j) herein (non-refundable)
     Review fee initial deposit..... $ 5,450.00
   - C. Inspection fee..... Actual Cost as described in (j) herein
     Inspection fee initial deposit..... $ 5,000.00
4. Community Benefit:
   - A. Definition: Community Benefit permits are when community groups want access to facilities for litter removal, graffiti removal or other beneficial reasons.
     - (I) Filing fee..... no fee
5. Non-obstructive existing encroachment (5 year term):
   - A. Definition: Non-obstructive existing encroachments are encroachments where the encroachment does not interfere with the operation and maintenance of the facility and has been in existence for over 10 years:
     - I. Filing fee..... no fee
6. Soil removal or select disposal (goods and services):
   - A. Under 50 cubic yards:
     - I. Borrow..... $75.00 (non-refundable)
     - II. Aggregate Material for Flood protection group:
       Definition: Aggregate Material for Flood protection group are permits for community and fire agencies who request material for sandbags and pick up the material themselves.
       - a. Filing fee..... no fee
   - B. 50 cubic yards to 100 cubic yards:
     - I. Borrow..... $ 150.00 (non-refundable)
   - C. 101 cubic yards to and including 10,000 cubic yards:
     - I. Filing fee..... $325.00 (non-refundable)
     - II. Adminitration and inspection fee:
       - i. Borrow ..... $1.50/cu. yd. (non-refundable)
   - D. Permit fees for sand and gravel removal over 10,000 cubic yards shall be set by competitive market conditions as determined by bids or proposals. In addition, a filing and inspection fee will apply as follows:
     - I. Filing fee ..... $ 431.00 (non-refundable)
     - II. Administration and Inspection fee:
       - i. Borrow ..... Actual Cost as described in ..... in (j) herein (non-refundable)
         Inspection fee initial deposit..... $ 2,000.00
   - E. Minor Temporary Ingress ..... $ 138.00 (non-refundable)
7. Apiary rental site on property..... $ 1.00 per colony
   - A. Apiary rental site on property minimum fee..... $ 100.00
8. San Bernardino County Flood Control District land use with Board of Supervisors approval:
   - A. Filing fee..... $ 680.00 (non-refundable)
     NOTE: San Bernardino County Flood Control District land use permits will be negotiated as leases on an individual basis. Existing land use permits will be reissued as leases upon expiration of the permit.

(b) Plans and special provisions:

1. Plans (CD) and special provisions (hardcopy) plus applicable sales tax..... $ 20.00 /set
2. Plans and special provisionsm (CD) plus applicable sales tax..... $ 8.00 /set
3. Mailing charge, if applicable..... Actual cost as described ..... in (j) herein

(c) Reproduction services:

1. Maps, exhibits and plans:
   - A. Prints..... $ 0.40 /sq. ft.
   - B. Plotting service (3 square feet minimum)..... $ 0.60 /sq. ft.
2. Miscellaneous documents:
   - A. Black and white copies:
     - I. 8 1/2" x 11"..... $ 0.10 /page
     - II. 8 1/2" x 14"..... $ 0.20 /page
     - III. 11" x 17"..... $ 0.30 /page
   - B. Color copies:
     - I. 8 1/2" x 11"..... $ 3.00 /page
     - II. 8 1/2" x 14"..... $ 3.10 /page
     - III. 11" x 17"..... $ 3.25 /page

(d) Hydrology manuals..... $ 83.00 /manual

(e) Flood hazard analysis..... $ 1,701.00 /report

(f) Hydrologic-climatological research..... $ 46.00 /half-hour

1. Biannual report..... $ 41.50 /volume
2. Transfer of data (CD/DVD)..... $ 11.00 /each

(g) Mapping services:

1. Digital data preparation (1/4 hour minimum)..... $ 23.00 /qrt hr
2. Digital data on CD..... $ 10.00 /order

(h) Area drainage plan fees:

1. Upper Etiwanda area..... $ 9,790.00 /acre
2. San Sevaine Creek Area..... $ 4,405.00 /acre
3. Comprehensive Storm Drain Plan #3
   Project 3-5..... $ 7,159.00 /acre

(i) Surplus Property

1. Application fee (non-refundable)..... $ 1,250.00
2. Appraisal and Administration..... Actual cost as described ..... in (j) herein (non-refundable)
   Appraisal and administration fee initial deposit..... $ 3,500.00
   Potential purchaser will be responsible for providing all property boundary surveys, legal descriptions and appraisals of the property. The San Bernardino County Flood Control District will review the survey work, prepare the grant deed and work with the Real Estate Services Department to prepare the resolution and Board agenda item for declaring the property surplus and seek Board of Supervisors' approval of the transaction. These fees are in addition to the requirement that the purchaser pay fair market value for the property.

(j) Actual cost calculation as identified in Sections (a)(1)(A)(II), (a)(1)(A)(III), (a)(2)(B), (a)(3)(B), (a)(3)(C), (a)(6)(D)(II)(i), (b)(3), and(i)(2) of this ordinance.

1. Actual cost is the sum of:
   - A. The products of multiplying the time spent on the project by the San Bernardino County Flood Control District personnel by the applicable hourly charge rates; and
   - B. Mileage charges; and
   - C. Any other costs incurred by the District in processing the project.
2. Hourly charge rates and mileage rates:
   - A. Schedule of Charges:

| Personnel Classification | Hourly Rate |
|---|---|
| I. Deputy Director | $ 194.00 |
| II. Ecological Resource Specialist | $ 93.00 |
| III. Engineering Technician II | $ 79.00 |
| IV. Engineering Technician III | $ 87.00 |
| V. Engineering Technician IV | $ 100.00 |
| VI. Engineering Technician V | $ 111.00 |
| VII. Equipment Operator I | $ 74.00 |
| VIII. Equipment Operator II | $ 82.00 |
| IX. Equipment Operator III | $ 86.00 |
| X. Equipment Parts Specialist | $ 58.00 |
| XI. Maintenance and Construction Supervisor I | $ 97.00 |
| XII. Maintenance and Construction Supervisor II | $ 105.00 |
| XIII. Maintenance and Construction Worker I | $ 65.00 |
| XIV. Maintenance and Construction Worker II | $ 77.00 |
| XV. Office Assistant II | $ 48.00 |
| XVI. Office Assistant III | $ 61.00 |
| XVII. Planner I | $ 98.00 |
| XVIII. Planner II | $ 105.00 |
| XIX. Planner III | $ 123.00 |
| XX. Public Service Employee | $ 31.00 |
| XXI. Public Works Engineer II | $ 125.00 |
| XXII. Public Works Engineer III | $ 152.00 |
| XXIII. Public Works Engineer IV | $ 177.00 |
| XXIV. Public Works Operations Supt | $ 127.00 |
| XXV. Public Works Operations Supvsr | $ 105.00 |
| XXVI. Secretary I | $ 67.00 |
| XXVII. Stormwater Program Manager | $ 139.00 |
| XXVIII Supervising Land Surveyor | $ 138.00 |
| XXIX. Supervising Planner | $ 135.00 |

   - B. Mileage Charges..... $ 0.88 /mile

3. Deposits:
   An initial deposit is required for each actual cost project. The initial deposit is as specified in this ordinance. If no amount is specified, the initial deposit is the San Bernardino County Flood Control District's initial estimate of the actual cost of the project. The San Bernardino County Flood Control District may revise its estimate at any time during the processing of the project. If a revised estimate is higher than a previous estimate, the San Bernardino County Flood Control District may require an additional deposit. Notice of any required additional deposit shall be mailed to the applicant. The notice shall include the date by which the deposit must be made, and shall inform the applicant that unless provision for payment is made by the date specified, the application will be deemed denied without prejudice, without further action by the San Bernardino County Flood Control District. Any such denial without prejudice is not appealable. Each estimate shall be the result of a good faith attempt to determine the probable actual cost of the project based on the nature of the project, the District's experience in processing projects, and applicable rates.
4. Applicant's obligation to pay actual cost:
   The applicant shall pay the actual cost of the project, regardless of any estimate; except that the applicant is not obligated for costs incurred after the applicant delivers to the San Bernardino County Flood Control District either an unconditional written withdrawal of the application, or a written notice to stop work which includes a waiver of any applicable time limits for processing the application.

(k) Waiver/refund of fees:
1. Except as otherwise provided by law, the San Bernardino County Flood Control District Board of Supervisors, by Board action, can waive or refund any fee set forth in this ordinance or any other fee levied by the Flood Control District provided one of the following conditions is met:
   A. The service for which the fee was levied has not and will not be performed; or
   B. The fee was collected in error; or
   C. For other good cause shown, provided such waiver/refund would serve a San Bernardino County Flood Control District purpose.
2. In the event of a disaster, or other good cause shown to serve a San Bernardino County Flood Control District purpose, the Flood Control Engineer may waive or refund any fee set forth in this Ordinance or any other fee levied by the San Bernardino County Flood Control District provided all of the following conditions are met:
   A. Exigent conditions exist whereby obtaining Board approval of the fee waiver/refund would not be immediately feasible; and
   B. The amount of the waiver/refund would not exceed $3,000 per event; and
   C. The San Bernardino County Flood Control District receives concurrence from the County Administrative Office
3. The Flood Control Engineer, or designee, may refund any fee or deposit set forth in this ordinance provided one of the following conditions is met:
   A. The service for which the fee or deposit was levied has not and will not be performed; or
   B. The fee or deposit was collected in error; or
   C. Unused deposit monies remain on actual cost projects when all charges for the project have been recorded.
4. Agencies with an elected board and cities are exempt from the filing fees and administrative amendment fee.
5. The State is exempt from the filing, administrative amendment and review fees.

San Bernardino County
**Permits/Operations Support Division – Flood Control Section**
825 East Third Street, Room 108
San Bernardino, CA 92415-0835
(909) 387-7995 – FAX (909) 387-1858

# FLOOD CONTROL PERMIT AMENDMENT APPLICATION

**PERMIT NO:** _____ **CITY/COMMUNITY:** _____

**FILE NO:** _____ **DISTRICT FACILITY:** _____

The undersigned hereby applies for permission to amend the above noted permit to perform the following work. It is understood that completing this application doesnot constitute permission to commence the work on District right-of-way.

Describe type of work performed within District right-of-way under original permit:

_____

_____

_____

*****Is coverage under the State Construction General Permit required for this project?***
***(http://www.swrcb.ca.gov/wter_issues/programs/stormwater/construction.shtml)*** ☐ **YES** ☐ **NO**
**If Yes, provide WDID number:** _____ **If no, provide justification:**_____

_____

_____

**CHECK ALL THAT APPLY:**

☐ Permittee Name Change To: _____
Name

☐ Time Extension To: _____
Date

☐ Revision to Permitted Activity
(Describe Proposed Revision, Including Location of Work): _____

_____

_____
Permittee *(PERMIT AMENDMENT WILL BE ISSUED TO…..)*

_____
Contact Title

_____
Address

_____
City State Zip

_____
Phone # FAX #

_____
Applicant (AGENT FOR PERMITTEE)

_____
Address

_____
City State Zip

_____
Applicant's Representative *(PRINT)*

_____
Phone # FAX #

_____
Date

**All applications shall be accompanied by 6 sets of plans, 2 sets of environmental approvals (if necessary), 3 sets of drainage calculations (if necessary) which include the input file listing, and all applicable fees. The submittal shall also contain one CD copy containing all plans and calculations.**
*****Permit Amendment issuance will be withheld without the required information***

**Rev 08/11/14**

San Bernardino County
**Flood Control Operations Division – Permit Section**
825 East Third Street, Room 108
San Bernardino, CA 92415-0835
(909) 387-7995 – FAX (909) 387-1858

# CERTIFICATE OF INSURANCE

***NOTE TO PERMITTEE*:** This form shall be completed by your insurance company. Mail completed form to San Bernardino County Flood Control District, Flood Control Permit Section, 825 East Third Street, San Bernardino, CA 92415-0835.

In accordance with permit requirements, the undersigned does hereby represent to the San Bernardino County Flood Control District and the County of San Bernardino the following policy or policies to _____ fully complies with the following
(name of insured)
Flood Control District insurance requirements.

- **PUBLIC LIABLITY AND PROPERTY DAMAGE** – The limits of liability in the Public Liability and Property Damage policy or policies shall not be less than $1,000,000 combined single limit.

| Type of Insurance | Company & Policy No. | Exp. Date | Limits of Liability |
|---|---|---|---|

- **ENDORSEMENT NAMING ADDITIONAL INSURED** – Both ***San Bernardino County Flood Control District*** AND ***County of San Bernardino*** are hereby named as additional insured for the purpose of **Permit No. P-_____** inclusion herein of any person or organization as an additional insured shall not affect any right which such person or organization would have as a claimant if not so included.

  This insurance shall be primary insurance with respects to the San Bernardino County Flood Control District and County of San Bernardino.

- **30-DAY WRITTEN NOTICE OF CANCELLATION, 10-DAY FOR NON-PAYMENT -** Policy shall state that 30-days prior written notice of cancellation, change or expiration and 10-days for non-payment shall be given to the San Bernardino County Flood Control District, Flood Control Permit Section, 825 East Third Street, San Bernardino, CA 92415-0835.

Insurance Company: _____

By: _____ _____
Insurance Company Authorized Agent (Signature) Date

Agent's Address: _____ Agent's Phone: _____

_____

Permit No.
File

Rev. 6/11

| FOR DEPARTMENT USE ONLY | | | | |
|---|---|---|---|---|
| *Date Received* | *Amount Received* | *Amount Due* | *Date Complete* | *Notification No.* |
| | *$* | *$* | | |

STATE OF CALIFORNIA

DEPARTMENT OF FISH AND WILDLIFE

# NOTIFICATION OF LAKE OR STREAMBED ALTERATION

**Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.**

## 1. APPLICANT PROPOSING PROJECT

| | | | |
|---|---|---|---|
| Name | | | |
| Business/Agency | | | |
| Street Address | | | |
| City, State, Zip | | | |
| Telephone | | Fax | |
| Email | | | |

## 2. CONTACT PERSON (*Complete only if different from applicant*)

| | | | |
|---|---|---|---|
| Name | | | |
| Street Address | | | |
| City, State, Zip | | | |
| Telephone | | Fax | |
| Email | | | |

## 3. PROPERTY OWNER (*Complete only if different from applicant*)

| | | | |
|---|---|---|---|
| Name | | | |
| Street Address | | | |
| City, State, Zip | | | |
| Telephone | | Fax | |
| Email | | | |

## 4. PROJECT NAME AND AGREEMENT TERM

| | | | | |
|---|---|---|---|---|
| A. Project Name | | | | |
| B. Agreement Term Requested | ☐ Regular (*5 years or less*)<br>☐ Long-term (*greater than 5 years)* | | | |
| C. Project Term | | D. Seasonal Work Period | | E. Number of Work Days |
| Beginning (*year*) | Ending (*year*) | Start Date (*month/day*) | End Date (*month/day*) | |
| | | | | |

## 5. AGREEMENT TYPE

| Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment. | |
|---|---|
| A. | ☐ Standard *(Most construction projects, excluding the categories listed below)* |
| B. | ☐ Gravel/Sand/Rock Extraction (*Attachment A*) *Mine I.D. Number:* _____ |
| C. | ☐ Timber Harvesting (*Attachment B*) THP *Number:* _____ |
| D. | ☐ Water Diversion/Extraction/Impoundment (*Attachment C*) *SWRCB Number:* _____ |
| E. | ☐ Routine Maintenance (*Attachment D*) |
| F. | ☐ CDFW Fisheries Restoration Grant Program (FRGP) *FRGP Contract Number*_____ |
| G. | ☐ Master |
| H. | ☐ Master Timber Harvesting |

## 6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: The Department may not process this notification until the correct fee has been received.***

| | A. Project | B. Project Cost | C. Project Fee |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | | D. Base Fee *(if applicable)* | |
| | | **E. TOTAL FEE ENCLOSED** | |

## 7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☐ Yes (*Provide the information below*) ☐ No

Applicant: _____ Notification Number: _____ Date: _____

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☐ No ☐ Yes (*Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.*)

☐ *Continued on additional page(s)*

**8. PROJECT LOCATION**

| A. Address or description of project location.<br>(*Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway*) |
|---|
| ☐ *Continued on additional page(s)* |

| B. River, stream, or lake affected by the project. | |
|---|---|
| C. What water body is the river, stream, or lake tributary to? | |
| D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts? | ☐ Yes ☐ No ☐ Unknown |
| E. County | |

| F. USGS 7.5 Minute Quad Map Name | G. Township | H. Range | I. Section | J. ¼ Section |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

☐ *Continued on additional page(s)*

| K. Meridian (*check one*) | ☐ Humboldt ☐ Mt. Diablo ☐ San Bernardino |
|---|---|

| L. Assessor's Parcel Number(s) |
|---|
| ☐ *Continued on additional page(s)* |

M. Coordinates (*If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*

| | | | |
|---|---|---|---|
| Latitude/Longitude | *Latitude:* | *Longitude:* | |
| | ☐ Degrees/Minutes/Seconds | ☐ Decimal Degrees | ☐ Decimal Minutes |
| UTM | *Easting:* | *Northing:* | ☐ Zone 10 ☐ Zone 11 |
| Datum used for Latitude/Longitude or UTM | ☐ NAD 27 | ☐ NAD 83 or WGS 84 | |

**9. PROJECT CATEGORY AND WORK TYPE** *(Check each box that applies)*

| PROJECT CATEGORY | NEW CONSTRUCTION | REPLACE EXISTING STRUCTURE | REPAIR/MAINTAIN EXISTING STRUCTURE |
|---|---|---|---|
| Bank stabilization – bioengineering/recontouring | ☐ | ☐ | ☐ |
| Bank stabilization – rip-rap/retaining wall/gabion | ☐ | ☐ | ☐ |
| Boat dock/pier | ☐ | ☐ | ☐ |
| Boat ramp | ☐ | ☐ | ☐ |
| Bridge | ☐ | ☐ | ☐ |
| Channel clearing/vegetation management | ☐ | ☐ | ☐ |
| Culvert | ☐ | ☐ | ☐ |
| Debris basin | ☐ | ☐ | ☐ |
| Dam | ☐ | ☐ | ☐ |
| Diversion structure – weir or pump intake | ☐ | ☐ | ☐ |
| Filling of wetland, river, stream, or lake | ☐ | ☐ | ☐ |
| Geotechnical survey | ☐ | ☐ | ☐ |
| Habitat enhancement – revegetation/mitigation | ☐ | ☐ | ☐ |
| Levee | ☐ | ☐ | ☐ |
| Low water crossing | ☐ | ☐ | ☐ |
| Road/trail | ☐ | ☐ | ☐ |
| Sediment removal – pond, stream, or marina | ☐ | ☐ | ☐ |
| Storm drain outfall structure | ☐ | ☐ | ☐ |
| Temporary stream crossing | ☐ | ☐ | ☐ |
| Utility crossing : Horizontal Directional Drilling | ☐ | ☐ | ☐ |
| Jack/bore | ☐ | ☐ | ☐ |
| Open trench | ☐ | ☐ | ☐ |
| **Other** *(specify)*: | ☐ | ☐ | ☐ |

**10. PROJECT DESCRIPTION**

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

☐ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

☐ *Continued on additional page(s)*

| | |
|---|---|
| C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B). | ☐ Yes ☐ No (*Skip to box 11*) |
| D. Will the proposed project require work in the wetted portion of the channel? | ☐ Yes (*Enclose a plan to divert water around work site*)<br>☐ No |

**11. PROJECT IMPACTS**

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

☐ *Continued on additional page(s)*

B. Will the project affect any vegetation? ☐ Yes (*Complete the tables below*) ☐ No

| Vegetation Type | Temporary Impact | Permanent Impact |
|---|---|---|
| | Linear feet: _____<br>Total area: _____ | Linear feet: _____<br>Total area: _____ |
| | Linear feet: _____<br>Total area: _____ | Linear feet: _____<br>Total area: _____ |

| Tree Species | Number of Trees to be Removed | Trunk Diameter (range) |
|---|---|---|
| | | |
| | | |
| | | |

☐ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☐ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

☐ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

☐ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☐ Yes (*Enclose the biological study*) ☐ No

*Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.*

F. Has a hydrological study been completed for the project or project site?

☐ Yes (*Enclose the hydrological study*) ☐ No

*Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.*

**12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES**

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

☐ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

☐ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

☐ *Continued on additional page(s)*

**13. PERMITS**

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. _____ ☐ Applied ☐ Issued

B. _____ ☐ Applied ☐ Issued

C. _____ ☐ Applied ☐ Issued

D. Unknown whether ☐ local, ☐ state, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☐ *Continued on additional page(s)*

**14. ENVIRONMENTAL REVIEW**

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

☐ Yes (*Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each*)

☐ No (*Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared*)

| | | |
|---|---|---|
| ☐ Notice of Exemption | ☐ Mitigated Negative Declaration | ☐ NEPA document (*type*): _____ |
| ☐ Initial Study | ☐ Environmental Impact Report | ☐ CESA document (*type*): _____ |
| ☐ Negative Declaration | ☐ Notice of Determination *(Enclose)* | ☐ ESA document (*type*): _____ |
| ☐ THP/ NTMP | ☐ Mitigation, Monitoring, Reporting Plan | |

| | | | |
|---|---|---|---|
| B. State Clearinghouse Number (*if applicable*) | | | |
| C. Has a CEQA lead agency been determined? | ☐ Yes (*Complete boxes D, E, and F*) | ☐ No (*Skip to box 14.G*) | |
| D. CEQA Lead Agency | | | |
| E. Contact Person | | F. Telephone Number | |

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

☐ *Continued on additional page(s)*

H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?

☐ Yes (*Enclose proof of payment*) ☐ No (*Briefly explain below the reason a filing fee has not been paid)*

*Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.*

**15. SITE INSPECTION**

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☐ I request the Department to first contact (*insert name*) _____ at (*insert telephone number*) _____ to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

**16. DIGITAL FORMAT**

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☐ Yes (Please enclose the information via digital media with the completed notification form)

☐ No

**17. SIGNATURE**

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

_____ _____

Signature of Applicant or Applicant's Authorized Representative Date

_____

Print Name

# Appendix B

USACE Requirements

# Nationwide Permit 6

## Survey Activities

Federal Register / Vol. 77, No. 34 / February 21, 2012

**Effective Date: March 19, 2012**

**Expiration Date: March 18, 2017**

**Survey Activities.** Survey activities, such as core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, sample plots or transects for wetland delineations, and historic resources surveys. For the purposes of this NWP, the term "exploratory trenching" means mechanical land clearing of the upper soil profile to expose bedrock or substrate, for the purpose of mapping or sampling the exposed material. The area in which the exploratory trench is dug must be restored to its pre-construction elevation upon completion of the work and must not drain a water of the United States. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. This NWP authorizes the construction of temporary pads provided the discharge does not exceed 1/10-acre in waters of the U.S. Discharges and structures associated with the recovery of historic resources are not authorized by this NWP. Drilling and the discharge of excavated material from test wells for oil and gas exploration are not authorized by this NWP; the plugging of such wells is authorized. Fill placed for roads and other similar activities is not authorized by this NWP. The NWP does not authorize any permanent structures. The discharge of drilling mud and cuttings may require a permit under Section 402 of the Clean Water Act. (Sections 10 and 404)

**Nationwide Permit General Conditions**

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP.

**1. Navigation.**

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

**2. Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

**3. Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

**4. Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

**5. Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

**6. Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

**7. Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

**8. Adverse Effects from Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

**9. Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and stormwater management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

**10. Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

**11. Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

**12. Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

**13. Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

**14. Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

**15. Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

**16. Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

**17. Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

**18. Endangered Species.**

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non- Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their World Wide Web pages at *http://www.fws.gov/* or *http://www.fws.gov/ipac* and *http://www.noaa.gov/fisheries.html* respectively.

**19. Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

**20. Historic Properties.** (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic

properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

**21. Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

**22. Designated Critical Resource Waters.** Critical resource waters include NOAA-managed marine sanctuaries and marine monuments and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

**23. Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site)

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-

responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

**24. Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

**25. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

**26. Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

**27. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

**28. Use of Multiple Nationwide Permits.** The use of more than one NWP for a single andcomplete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

**29. Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

**30. Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; an

(c) The signature of the permittee certifying the completion of the work and mitigation.

**31. Pre-Construction Notification.** (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification. The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification. The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination.

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the lossof greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

**Further Information**

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

# Appendix C

RWQCB Requirements

# Attachment A

## 2012 Notification Procedures and Requirements for Certified Nationwide Permits

**Notification Requirements:**

*(In the following discussion, a "Pre-construction Notification" (PCN) is the document submitted to the Corps; a "notification" is the document submitted to the State Water Board and Regional Water Board.)*

Applicants for the 2012 certified Nationwide Permits (NWPs) are required to submit notification to the State Water Resources Control Board (State Water Board) and Regional Water Quality Control Board (Regional Water Board) as directed below.

Applicants enrolling under NWPs 5, 6, 11, 12, 20, 22, 28, 32, and 36 are required to submit a signed notification and fees. Applicants enrolling under NWPs 1, 4, 9, and 10 are not required to submit a notification or fees to the State Water Board or a Regional Water Board. The fact that an applicant does not need to submit a notification or pay a fee does not relieve the applicant from adhering to all other conditions of this Certification. Failure to comply with the conditions listed in this Certification may subject a permittee to administrative and/or judicial enforcement.

**Notification Procedures and Instructions:**

The notification shall be submitted on the 2012 Certified Nationwide Permit Notification Form, which is provided below.

The signed notification shall be received by the appropriate Regional Water Board, with a copy to the State Water Board, not less than 45 days before any activity which may result in a discharge is commenced. To avoid project delays, the applicant should submit the notification as early as possible.

Note that projects requiring compensatory mitigation or which may affect federal or state endangered or listed species do not qualify for CEQA exemptions, and are thus would not meet the conditions of this certification. In this case, an application for an individual certification should be submitted to the appropriate Regional Water Board or, if the project may discharge to the jurisdiction of more than one Regional Water Board, then the application should be submitted to the State Water Board.

**Response to Notifications:**

The Regional Water Board is responsible for responding to a notification. Response to notifications will be either a Notice of Exclusion (NOE), which informs the applicant that the proposed activity is not qualified for enrollment under this certification, or a Notice of Applicability (NOA), informing the applicant that the proposed activity is qualified for this certification. A NOE may be rescinded and a NOA may be issued upon receipt of additional information requested by Regional Water Board staff.

**Timing:**

If the applicant does not receive a NOE or NOA from the Regional Water Board within 45 days of the date of receipt of the signed notification, the applicant may assume that the project meets the conditions of certification and may proceed with the project under the conditions of the NWPs and this certification. In no case may the project commence before the appropriate fee is paid.

## Instructions for Completion of the 2012 Certified Nationwide Permits Notification Form

Notifications and the appropriate fee shall be submitted to the 401 Program Manager for the affected Regional Water Board, and a copy of the notification shall be submitted to State Water Board's Division of Water Quality, 401 Certification Program Manager. Addresses and web site information are provided in the *2012 Certified Nationwide Permit Notification Form*. A copy of this form follows these instructions.

Forms may also be obtained by contacting the staff of the applicable Regional Water Board.

Fees may be changed at any time. To determine the correct fee, consult the "Dredge and Fill Fee Calculator" under "Resources for Applicants" at: http://www.waterboards.ca.gov/water_issues/programs/cwa401, or contact the Regional Water Board staff. Please attach the fee check to the first page of the signed notification form.

**(a) Provide the name, address, telephone number and, if available, e-mail address** of:

1) the applicant; and
2) the applicant's agent (if an agent is submitting the notification).

All regulatory actions, including waivers of action, by any federal agencies must be disclosed in Items (b) and (c).

**(b) Provide complete identification of all federal licenses/permits** being sought for or applying to the proposed activity, including the:

1) federal agency;
2) type (e. g., Nationwide Permit Number); and
3) file number(s) assigned by the federal agency(ies), if available.

For each permit identified in (b) above, provide complete copies of either:

1) the application(s) for federal license(s)/permit(s) being sought for the activity; or
2) if no federal applications are required, any notification(s) concerning the proposed activity issued by the federal agency(ies); or
3) if no federal notification is issued, any correspondence between the applicant and the federal agency(ies) describing or discussing the proposed activity.

**(c) Copies of any final and signed federal permits, licenses, and agreements.**

1) Provide copies of any final and signed federal, licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity.
2) If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included.
3) If no application, notification, correspondence, or other document must be exchanged between the applicant and federal agency(ies) prior to the start of the activity, the notification to the State Water Board and appropriate Regional Water Board shall include a written statement to this effect. (Note: Certification is denied for any activity requiring the issuance or renewal of more than one federal license or permit; see Condition 7 of the certification).

**(d) Provide final copies of all state permits** being sought for or applying to the proposed activity, as directed for federal permits in (c) above.

**(e) Provide final copies of all local permits** being sought for or applying to the proposed activity, as directed for federal permits in (c) above.

**(f) Provide a copy of any draft or final CEQA document(s), if available, prepared for this activity.** Staff may request copies of all CEQA documents if needed to evaluate the project and its compliance with the terms of this Certification.

**(g) Provide a description of your project.** This should include a full, technically accurate description, including the purpose and final goal, of the entire activity (Cal. Code Regs., tit. 23, § 3831(e)) or project (Pub. Resources Code, § 21065), including:

1) address (including city and county), assessor's parcel number and, if available, the longitude and latitude of the project site;
2) a map of appropriate scale and detail to show the project area, key project features, and location of the project in relation to identifying landmarks (e.g., roads, towns, other significant named features);
3) name(s) and hydrologic unit(s) of any receiving water body(ies) that may receive a discharge;
4) type(s) of receiving water body(ies) (e. g., stream channel, lake/reservoir, ocean/estuary/bay, or wetland). For each water body type reported here, provide the total estimated quantity of waters of the United States and the types of discharge material(s) that may cause a temporary impact (or minor permanent impact, in the case of NWP 36) to waters. The estimated quantity of waters to be adversely impacted by any discharge shall be reported in acres and, for channels, shorelines, riparian corridors, and other linear habitat, linear feet. Cubic yards of dredged for fill material shall be reported for all impacts. Significant adverse impacts under this order are not permitted;
5) any delineation report submitted to the Corps for stream, wetland, or other aquatic resources that would be impacted by the proposed activity or project;
6) the total size (in acres), length (in feet) where appropriate, type, and description of the entire project area, including areas outside of jurisdictional waters of the United States;
7) a brief list/description, including estimated adverse impacts of any projects implemented by the project applicant within the last five years or planned for implementation by the applicant within the next five years that are in any way related to the proposed activity or

that may impact the same receiving water body(ies) as the proposed activity. For purpose of this item, the water body extends to a named source or stream segment identified in the relevant Regional Water Quality Control Plan (Basin Plan);

8) A description of any steps that have been or will be taken to avoid or minimize loss of or significant adverse impacts to beneficial uses of waters of the state, including on-site restoration of the project area; and
9) a discussion of any potential cumulative impacts.

**(h) The applicant or authorized agent must sign the document.** The notification must be signed by the applicant or the applicant's agent (if an agent is submitting the notification). The notification must include a statement that the submitted information is complete and accurate. ***The State Water Board is unable to process electronically signed notifications at this time. Notifications bearing the original signature of the applicant or applicant's agent must be submitted as paper forms until further notice.***

**Table 1 - 2012 Comparison of Corps and 401 Certification Notification Requirements for Certified Nationwide Permits**

| NWP No. | Nationwide Permit Description | Corps Pre-construction Notification (PCN) Requirements | 401 Certification Notification Requirements |
|---|---|---|---|
| **1** | **Aids to Navigation** | No PCN Required. | No Notification Required. |
| **4** | **Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities** | No PCN required. | No Notification Required. |
| **5** | **Scientific Measurement Devices** | No PCN required. | **Notification Required.** |
| **6** | **Survey Activities** | No PCN Required. | **Notification Required.** |
| **9** | **Structures in Fleeting and Anchorage Areas** | No PCN required. | No Notification Required. |
| **10** | **Mooring Buoys** | No PCN required. | No Notification Required. |
| **11** | **Temporary Recreational Structures** | No PCN required (except to reservoir managers at Corps Reservoirs). | **Notification Required.** |
| **12** | **Utility Line Activities** | PCN required under certain conditions. | **Notification Required.** |
| **20** | **Response Operations for Oil and Hazardous Substances** | No PCN required. | **Notification Required.** |
| **22** | **Removal of Vessels** | No PCN except for historic structures and operations in Special Aquatic Sites. | **Notification Required.** |
| **28** | **Modification of Existing Marinas** | No PCN required. | **Notification Required.** |
| **32** | **Completed Enforcement Actions** | No PCN Required. | **Notification Required.** |
| **36** | **Boat Ramps** | PCN Required. | **Notification Required.** |

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# 2012 Certified Nationwide Permit Notification Form

**TO COMPLY WITH THE TERMS OF**
**GENERAL WATER QUALITY CERTIFICATION OF 2012 NATIONWIDE PERMITS**
**ORDER NUMBER SB12002GN**

**A SIGNED NOTIFICATION MUST BE RECEIVED BY THE STATE WATER BOARD AND THE APPROPRIATE REGIONAL WATER BOARD NO LESS THAN 45 DAYS BEFORE ANY PROJECT ACTIVITY**

This application is for coverage under Order No. SB12002GN for Nationwide Permit:

**Mark only one item**

| | |
|---|---|
| Scientific Measurement Devices | NWP 5 ☐ |
| Survey Activities | NWP 6 ☐ |
| Temporary Recreational Structures | NWP 11 ☐ |
| Utility Line Activities | NWP 12 ☐ |
| Response Operations for Oil and Hazardous Substances | NWP 20 ☐ |
| Removal of Vessels | NWP 22 ☐ |
| Modification of Existing Marinas | NWP 28 ☐ |
| Completed Enforcement Actions | NWP 32 ☐ |
| Boat Ramps | NWP 36 ☐ |

**Important Note**: The applicant listed shall be the party responsible for compliance with the Clean Water Act, California Water Code, applicable Water Quality Control Plan, and 401 Certification Conditions and is typically the property/facility owner. The authorized agent is the individual or team that is authorized by the applicant to provide information to the Regional Water Board on behalf of the applicant (responsible party).

| **(a) Applicant Identification** | | | |
|---|---|---|---|
| Name and Title of Applicant | | | |
| Applicant Mailing Address | | | |
| City | County | State | Zip |
| Email | FAX | Phone (office)<br>Phone (cell) | |

**→FEE CHECK: Attach fee check here, payable to State Water Resources Control Board.**

| **(a) Continued** Applicant Authorized Agent Name | | | |
|---|---|---|---|
| Authorized Agent Title and Affiliation | | | |
| Agent Mailing Address | | | |
| City | County | State | Zip |
| Email | FAX | Phone (office)<br>Phone (cell) | |

| **(b) – (c) – (d) – (e)Other Permits/Licenses/Agreements/Plans (attach copies to this notification as described in the instructions)** |
|---|
| (b) & (c) Federal (Type and Permit/License Number) |
| |
| (d) State (Type and Permit/License/Agreement Number) |
| |
| (e) Other County, City, etc. (Type and Permit/License Number) |
| |
| Other Required Documents or Plans (for example SWPPP) |
| |

| **(f) CEQA** | |
|---|---|
| CEQA Notice of Exemption (exemption name and number) | |
| Notice of Completion or Notice Availability | |
| Attach draft or final CEQA Notice of Exemption, Notice of Completion or Notice of Availability.<br>Staff may request copes of all CEQA documents if needed to evaluate the project. | |

| (g) Full Project Description and Location | | |
|---|---|---|
| Project Name | | |
| 1. Site Location/Address | | |
| Nearest Cross Street(s) if applicable | | |
| County | Total size of Site (acres) | Assessor's Parcel Number |

2. Provide latitude/longitude for the approximate center of discharge area; for linear projects, provide coordinates for each end of project in degrees/minutes/seconds (DMS) to the nearest ½ second.

DMS: N. Latitude Deg._____Min._____Sec._____
W. Longitude Deg._____Min._____Sec._____
N. Latitude Deg._____Min._____Sec._____
W. Longitude Deg._____Min._____Sec._____

Attach a map of at least 1:24000 (1" = 2000') detail of the proposed discharge site (e.g., USGS 7.5 minute topographic map) and **pre-project photos**.

Provide detailed directions to project location, include identifying landmarks (roads, towns, or other identifying land marks).

**Project Description**

**Total size and detailed description of the entire project** including areas outside of jurisdictional waters of the United States. A full, technically accurate description, including the purpose and final goal, of the entire activity (Cal. Code Regs., tit. 23, § 3831(e)) or project (Pub. Resources Code, § 21065).

| Proposed project start date | Expected date of completion |
|---|---|
| | |

| (g) (3) Hydrologic Information (From the Regional Water Board Basin Plan) | |
|---|---|
| **Receiving Water(s)** | |
| **Hydrologic Unit(s)** | |

| (g) (4) Project Impacts (Fill)* | | | |
|---|---|---|---|
| **Waterbody Type** | Acres** | Linear Feet | Cubic Yards |
| *Lake* | | | |
| *Ocean* | | | |
| *Riparian Zone* | | | |
| *Stream Channel* | | | |
| *Vernal Pool* | | | |
| *Wetland* | | | |

* The quantity of waters to be adversely impacted.by any discharge shall be reported in acres for wetland, vernal pool; and in linear feet and acres for channels, streambed/streambank, shorelines and riparian corridors. Cubic yards shall also be reported for all impacts.
** Provide acres to three decimal places (e.g., 0.006).

| (g) (4) Project Impacts (Dredge*/Excavation)* | | | |
|---|---|---|---|
| **Waterbody Type** | Acres** | Linear Feet | Cubic Yards |
| *Lake* | | | |
| *Ocean* | | | |
| *Riparian Zone* | | | |
| *Stream Channel* | | | |
| *Vernal Pool* | | | |
| *Wetland* | | | |

* The quantity of waters to be adversely impacted.by any discharge shall be reported in acres for wetland, vernal pool; and in linear feet and acres for channels, streambed/streambank, shorelines and riparian corridors.
** Provide acres to three decimal places (e.g., 0.006).

**(g) (5)(6)** Report the total size (in acres), length (in feet) where appropriate, type, and description of the entire project area, including areas outside of jurisdictional waters of the United States. Attach delineation report as submitted to Corps of Engineers, if required.

| (g) (7) Previous Projects |
| --- |
| Provide a brief list/description, including estimated adverse impacts of any projects implemented by the project applicant within the last five years or planned for implementation by the applicant within the next five years that are in any way related to the proposed activity or that may impact the same receiving water body(ies) as the proposed activity. For purpose of this item, **the water body extends to a named source or stream segment identified in the relevant Regional Water Quality Control Plan (Basin Plan)**. |
| **(g) (8) (9) Avoidance, Minimization and Cumulative Impacts** |
| Describe any steps that have been taken or will be taken to avoid or minimize loss of or significant adverse impacts to beneficial uses of waters of the state, including on-site restoration of the project area. Include a discussion of any potential cumulative impacts. |

Reminders:

1. This Notification must be signed and received no less than 45 days before any activity commences which may result in a discharge.
2. Upon receipt of a signed Notification, the Regional Water Board will either respond with a Notice of Exclusion (NOE) which informs the applicant that the proposed activity is not qualified for coverage or a Notice of Availability (NOA) informing the applicant that the proposed activity is qualified for coverage.
3. The project may not proceed until the appropriate permit fee is received by the Regional Water Board.
4. The appropriate fee is located on the fee calculator at: http://www.waterboards.ca.gov/water_issues/programs/cwa401/#resources
5. Water Boards addresses and phone numbers are located at: http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/staffdirectory.pdf
6. If the applicant does not receive an NOE or an NOA from the Regional Water Board within 45 days of the date of receipt of the Notification, the applicant may assume that the project meets the conditions of certification and may proceed with the project under the conditions of the NWP and Order number SB12002GN.
7. **References in the form to attached documents must include the name of the document, the page number and paragraph number.**

**STATEMENT OF AUTHORIZATION** (Required when applicant is designating an authorized agent )

I hereby authorize _____ to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____
PRINT NAME OF APPLICANT (NOT THE AUTHORIZED AGENT)

_____
SIGNATURE OF APPLICANT (NOT THE AUTHORIZED AGENT)

_____
DATE

Application is hereby made for a permit to authorize the work described in this application. I certify, under penalty of perjury, that this application is complete and accurate to the best of my knowledge. I further certify that I possess the authority to undertake the work described herein, or am acting as the duly authorized agent of the applicant. In addition, I certify property owner responsibility and liability for compliance with permit conditions issued for this project for compliance with any future authorization or amendments thereto.

_____
PRINT NAME AND TITLE OF APPLICANT (OR AGENT)

_____ _____
SIGNATURE OF APPLICANT (OR AGENT) DATE

_____
PRINT NAME AND TITLE OF LANDOWNER (OR AGENT)

**For Staff Use ONLY**

| | | |
|---|---|---|
| **WDID Number** | **Regional Board Office** | **Date Notification Received** |
| **File Number** | **Check Amount** | **Check #** |

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CALIFORNIA
# Water Boards

STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

**P.O. Box 100, Sacramento, CA 95812-0100**
**www.waterboards.ca.gov**

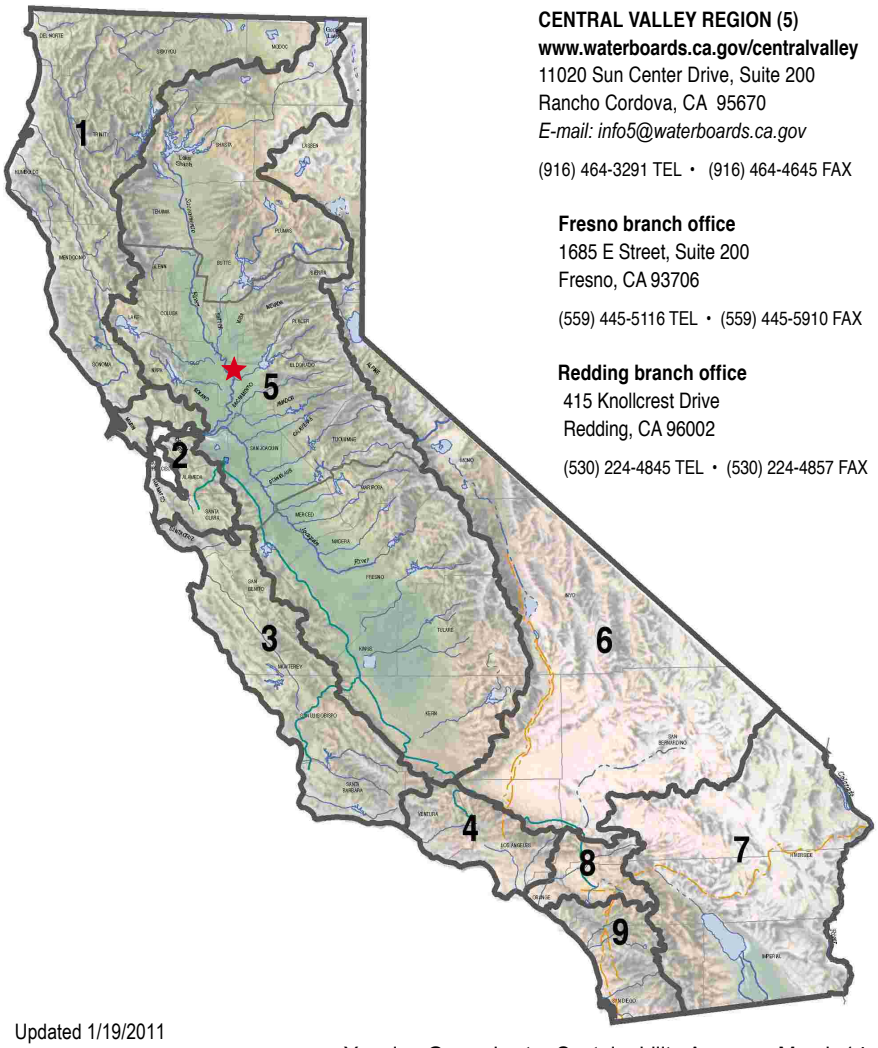
**Office of Public Affairs:** **(916) 341-5254**
**Office of Legislative Affairs:** **(916) 341-5251**
**Office of the Ombudsman** **(916) 341-5254**

**Water Quality information: (916) 341-5455**
**Water Rights information: (916) 341-5300**
**Financial Assistance information: (916) 341-5700**

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

**NORTH COAST REGION (1)**
**www.waterboards.ca.gov/northcoast**
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403
*E-mail: info1@waterboards.ca.gov*
(707) 576-2220 TEL • (707) 523-0135 FAX

**SAN FRANCISCO BAY REGION (2)**
**www.waterboards.ca.gov/sanfranciscobay**
1515 Clay Street, Suite 1400
Oakland, CA 94612
*E-mail: info2@waterboards.ca.gov*
(510) 622-2300 TEL • (510) 622-2460 FAX




**CENTRAL COAST REGION (3)**
**www.waterboards.ca.gov/centralcoast**
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401
*E-mail: info3@waterboards.ca.gov*
(805) 549-3147 TEL • (805) 543-0397 FAX

**LOS ANGELES REGION (4)**
**www.waterboards.ca.gov/losangeles**
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
*E-mail: info4@waterboards.ca.gov*
(213) 576-6600 TEL • (213) 576-6640 FAX

**CENTRAL VALLEY REGION (5)**
**www.waterboards.ca.gov/centralvalley**
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670
*E-mail: info5@waterboards.ca.gov*
(916) 464-3291 TEL • (916) 464-4645 FAX

**Fresno branch office**
1685 E Street, Suite 200
Fresno, CA 93706
(559) 445-5116 TEL • (559) 445-5910 FAX

**Redding branch office**
415 Knollcrest Drive
Redding, CA 96002
(530) 224-4845 TEL • (530) 224-4857 FAX

**LAHONTAN REGION (6)**
**www.waterboards.ca.gov/lahontan**
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150
*E-mail: info6@waterboards.ca.gov*
(530) 542-5400 TEL • (530) 544-2271 FAX

**Victorville branch office**
14440 Civic Drive, Suite 200
Victorville, CA 92392
(760) 241-6583 TEL • (760) 241-7308 FAX

**COLORADO RIVER BASIN REGION (7)**
**www.waterboards.ca.gov/coloradoriver**
73-720 Fred Waring Dr., Suite 100
Palm Desert, CA 92260
*E-mail: info7@waterboards.ca.gov*
(760) 346-7491 TEL • (760) 341-6820 FAX

**SANTA ANA REGION (8)**
**www.waterboards.ca.gov/santaana**
3737 Main Street, Suite 500
Riverside, CA 92501-3339
*E-mail: info8@waterboards.ca.gov*
(951) 782-4130 TEL • (951) 781-6288 FAX

**SAN DIEGO REGION (9)**
**www.waterboards.ca.gov/sandiego**
9174 Sky Park Court, Suite 100
San Diego, CA 92123
*E-mail: info9@waterboards.ca.gov*
(858) 467-2952 TEL • (858) 571-6972 FAX

★ **State Water Resources Control Board** (Headquarters)
1001 I Street, Sacramento, CA 95814

State of California
Edmund G. Brown Jr., Governor

California Environmental Protection Agency
Linda S. Adams, Acting Secretary

State Water Resources Control Board
Charles R. Hoppin, Chair

Updated 1/19/2011

APR 19 2012

Colonel William J. Leady, P.E.
District Commander
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, CA 95814-2922

Dear Colonel Leady:

**CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION OF 2012 NATIONWIDE PERMITS**

The previous U.S. Army Corps of Engineers (Corps) Nationwide Permits (NWPs) became effective on March 19, 2007, and expired on March 18, 2012.

In your letter of February 23, 2011, the State Water Resources Control Board (State Water Board) was informed of the notification in the Federal Register regarding proposed NWPs for 2012. (76 Fed. Reg. 9174-01 (Feb. 16, 2011).) The State Water Board subsequently received notice of the final NWPs on February 21, 2012. (77 Fed. Reg. 10184-01 (Feb. 21, 2012).) This notice served as the Corps' complete application for a water quality certification (certification). In your letter of February 29, 2012, you requested that the State Water Board review the newly issued NWPs and determine whether to certify, certify with conditions, or deny certification pursuant to Clean Water Act section 401 (33 U.S.C. § 1341).

In addition to the Corps' notice in the Federal Register, the State Water Board also posted notice of the Corps' application for certification of the NWPs on our 401 Program web page at: http://www.waterboards.ca.gov/water_issues/programs/ cwa401/notices.shtml on February 27, 2012, for a 45 day noticing period which ended on April 12, 2012.

State Water Board staff reviewed the newly issued NWPs, considered comments received, and determined whether to certify, certify with conditions, or deny certification for each of the NWPs. California's certification decision is required within 60 days, according to the notice in the Federal Register; i.e., by Monday, April 23, 2012.

For this action, the State Water Board is Lead Agency for the purposes of compliance with the California Environmental Quality Act (CEQA) and is required to analyze the environmental impacts and make a determination for each NWP. In considering this task and the timeframe

allowed, the State Water Board elects to issue certifications for those NWPs covering activities that are categorically exempt from CEQA at this time.

As authorized by the State Water Board, I am issuing a certification for 13 of the 50 NWPs on this basis. The enclosed certification identifies those NWPs and the associated conditions. I request that you notify the State Water Board if any of these conditions do not comport with your regulations in title 33, sections 325.4 and 330.4 of the Code of Federal Regulations. In addition, the Corps has the right to petition the State Water Board for reconsideration of this certification in accordance with California Code of Regulations, title 23, section 3867 et seq.

If you would like to discuss these matters further, please contact Ken Harris, Assistant Deputy Director, Division of Water Quality, at (916) 341-5500 (kharris@waterboards.ca.gov), or Vicky Whitney, Deputy Director, Division of Water Quality, at (916) 341-5568 (vwhitney@waterboards.ca.gov).

Sincerely,

Thomas Howard
Executive Director

Enclosures (1): Water Quality Certification Order

cc: see next page

APR 19 2012

cc: Ms. Jane Hicks
Chief, Regulatory Branch
San Francisco District
US Army Corps of Engineers
1455 Market Street
San Francisco, CA 94103-1398

Mr. Dave Castanon
Chief, Regulatory Branch
Los Angeles District, Ventura Field Office
U.S. Army Corps of Engineers
Department of the Army
2151 Alessandro Drive, Suite 110
Ventura, CA 93001

Mr. Wade Eakle
Regulatory Program Manager
South Pacific Division
US Army Corps of Engineers
San Francisco, CA
1455 Market Street
San Francisco, CA 94103-1398

Ms. Lisa M. Gibson
Senior Project Manager
Regulatory Division, California Delta Branch
U.S. Army Corps of Engineers
1325 J Street, Room 1350
Sacramento, CA 95814-2922

Mr. Jason A. Brush
Chief, Wetlands Regulatory Office (WTR-8)
U.S. Environmental Protection Agency,
Region 9
75 Hawthorne Street
San Francisco, CA 94105

Ms. Miriam Barcellona Ingenito
Deputy Secretary for Environmental Policy
California Environmental Protection Agency
1001 I Street, 25th Floor
Sacramento, CA 95814

Mr. Chris Potter
Wetland Coordinator
Natural Resources Agency
1416 Ninth Street
Sacramento, CA 95814

Mr. Larry Week
Chief, Watershed Restoration Branch
Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

Ms. Jane Hicks
Chief, Regulatory Section
San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, CA 94105-2197

Ms. Diane K. Noda
Field Supervisor
U.S. Fish & Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Ms. Susan Moore
Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Mr. Jim Bartel
Field Supervisor
U.S. Fish and Wildlife Service
6010 Hidden Valley Rd
Carlsbad, CA 92011

Ms. April Evans
ES Secretary
California/Nevada Operations Office
U.S. Fish & Wildlife Service
2800 Cottage Way, RM W2606
Sacramento, CA 95825-1846

cc: Continued (see next page)

APR 19 2012

cc: Continued

cc: Mr. Chris Yates
Assistant Regional Administrator
Protected Resources
NOAA National Marine Fisheries Service
501 West Ocean Blvd. Su. 4200
Long Beach, CA 90802-4213

Ms. Catherine E. Kuhlman
Executive Officer
North Coast Regional
Water Quality Control Board
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

Mr. Bruce H. Wolfe
Executive Officer
San Francisco Bay Regional
Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Mr. Roger Briggs
Executive Officer
Central Coast Regional
Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401

Mr. Sam Unger
Executive Officer
Los Angeles Regional
Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Ms. Pamela Creedon
Executive Officer
Central Valley Regional
Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

Mr. Harold J. Singer
Executive Officer
Lahontan Regional
Water Quality Control Board
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Mr. Robert E. Perdue
Executive Officer
Colorado Basin Regional
Water Quality Control Board
73-720 Fred Waring Dr., Suite 100
Palm Desert, CA 92260

Mr. Kurt Berchtold
Executive Officer
Santa Ana Regional
Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501-3339

Mr. David W. Gibson
Executive Officer
Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

# CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION OF U.S. ARMY CORPS OF ENGINEERS 2012 NATIONWIDE PERMITS

**PROJECT:** U.S. Army Corps of Engineers 2012 Nationwide Permits

**APPLICANT:** Colonel William Leady, P.E.
District Commander
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, CA 95814-2922

This Certification responds to your request on behalf of U.S. Army Corps of Engineers for the 2012 Nationwide Permits.

**ACTION:**

- ☐ Order for Standard Certification
- ☑ Order for Technically Conditioned Certification
- ☐ Order for Denial of Certification
- ☐ Order for Waiver of Waste Discharge Requirements

Pursuant to title 23, section 3838 of the California Code of Regulations, the Executive Director hereby makes the following Clean Water Act (CWA) Section 401 Water Quality Certification (Certification) determination for the U.S. Army Corps of Engineers' (Corps) Nationwide Permits (NWP) which became effective on March 19, 2012, and which will expire on March 18, 2017.

## A. CERTIFICATION:

Commencing on the date of this certification, the 13 NWPs listed in Table A are hereby granted certification subject to the Conditions and the Notification Requirements described below. The activities authorized by these 13 NWPs are exempt from California Environmental Quality Act (CEQA) review since their activities should not have a significant effect on the environment, either individually or cumulatively. Because these 13 NWPs are exempt from CEQA, for purposes of the following conditions, the term "project" means "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Cal. Code Regs., tit. 14, § 15378.)

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## TABLE A Certified Nationwide Permits

| NWP No. | Nationwide Permit Description | Decision | Title 14 of the California Code of Regulations Section/Exemption |
|---|---|---|---|
| 1 | **Aids to Navigation:** Allows the placement of USCG-approved navigational aids. | Certify subject to conditions | §15304 /Minor Alterations to Land; and §15311 /Accessory Structures |
| 4 | **Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities:** Allows fish and wildlife harvesting devices and activities. | Certify subject to conditions | §15304 /Minor Alterations to Land |
| 5 | **Scientific Measurement Devices:** Allows the placement of scientific gages, recording devices, water quality testing and improvement devices, and similar structures; allows the construction of weirs and flumes constructed primarily to record water quantity and velocity. | Certify subject to conditions and notification requirements | §15306 /Information Collection |
| 6 | **Survey Activities:** Allows core sampling, seismic exploration, and plugging of exploration bore holes. | Certify subject to conditions and notification requirements | §15304 /Minor Alterations to Land |
| 9 | **Structures in Fleeting and Anchorage Areas:** Allows placement of structures to facilitate mooring of vessels within anchorage areas established by the USCG. | Certify subject to conditions | §15301 /Existing facilities; and §15304 /Minor Alterations to Land |
| 10 | **Mooring Buoys:** Allows non-commercial, single-boat mooring buoys. | Certify subject to conditions | §15304 /Minor Alterations to Land |
| 11 | **Temporary Recreational Structures:** Allows the temporary placement of buoys, markers, small floating docks, and similar structures placed during special water events. | Certify subject to conditions and notification requirements | §15304 /Minor Alterations to Land |
| 12 | **Utility Line Activities:** Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities. | Certify subject to conditions and notification requirements | §15301 Existing Facilities; and §15304 /Minor Alterations to Land. |

**TABLE A (Continued) Certified Nationwide Permits**

| NWP No. | Nationwide Permit Description | Decision | Title 14 of the California Code of Regulations Section/Exemption |
|---|---|---|---|
| 20 | **Response Operations for Oil and Hazardous Substances:** Allows cleanup of oil and hazardous substances provided the work activity is done in accordance with federal regulations and any existing State contingency plans, and has the concurrence of the federal Regional Response Team. | Certify subject to conditions and notification requirements | §15307 /Actions by Regulatory Agencies for Protection of Natural Resources; §15308/ Action by Regulatory Agencies for Protection of the Environment; and §15330/Minor Actions to Prevent, Minimize, Stabilize, Mitigate or Eliminate the Release or Threat of Release of Hazardous Waste or Hazardous Substances |
| 22 | **Removal of Vessels**: Allows minor discharges of fill in connection with removal of disabled or abandoned vessels or manmade obstructions to navigation. This NWP does not authorize maintenance dredging, shoal removal, or river snagging. | Certify subject to conditions | §15301 /Existing Facilities; and §15303/ New Construction or Conversion of Small Structures |
| 28 | **Modifications of Existing Marinas**: Allows the reconfiguration of existing dock space in an authorized marina. No dredging or expansion of any kind would be permitted. | Certify subject to conditions and notification requirements | §15301 /Existing Facilities; and §15303/ New Construction or Conversion of Small Structures |
| 32 | **Completed Enforcement Actions**: Allows any structure, work, or discharge that is in compliance with a final federal court decision, consent decree, or settlement agreement resulting from a federal enforcement violation action under Section 404 or Section 10. | Certify subject to conditions and notification requirements | §15321 / Enforcement Action by Regulatory Agencies |
| 36 | **Boat Ramps:** Activities required for the construction of boat ramps, | Certify subject to conditions and notification requirements | §15303 /New Construction or Conversion of Small Structures; and §15304 /Minor Alterations to Land |

**CONDITIONS:**

**1. Subject to Review:** This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to the Water Code, section 13330, and the California Code of Regulations (Cal. Code Regs.), title 23, section 3867 and following.

**2. Hydroelectric Facilities Requiring a Federal Energy Regulatory Commission** (FERC) **License:** This Certification action is not intended and shall not be construed to apply to any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent Certification application was filed pursuant to Cal. Code Regs., title 23, section 3855, subdivision (b), and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

**3. Fees:** This Certification is conditioned upon total payment of any fee required under California Code Regulations, title 23, section 3830 et seq., and owed by the applicant.

**4. Porter-Cologne Water Quality Control Act:** All activities shall comply with all requirements of California's *Porter-Cologne Water Quality Control Act* (Wat. Code, §13000, et seq.) and applicable State or Regional Water Quality Control Plans.

**5. Unenforceable Conditions:** If any conditions are found to be invalid or unenforceable, certification for all activities to which that condition applies is denied.

**6. Water Diversion and Use:** Certification is denied for any activity involving a new or modified diversion or impoundment of water, unless the State Water Resources Control Board (State Water Board) has already approved a water rights permit, or such diversion or impoundment is solely for the purpose of drainage or flood control.

**7. Other Federal Permits and Licenses:** This Certification action is not intended and shall not be construed to apply to any discharge from any activity requiring the issuance or amendment of any other federal license or permit, including enrollment under two or more NWPs.

**8. Endangered Species:** Certification is denied for any project that would result in the taking of any candidate, threatened, or endangered species or any other violation of the federal Endangered Species Act (16 U.S.C. §1531, et seq.) and the California Endangered Species Act (Fish and G. Code, §2050, et seq.).

**9. Compensatory Mitigation:** No project that requires compensatory mitigation is eligible for enrollment under this certification.

**10. Hazardous Waste Sites:** Certification is denied for any project located on a site which is included on any list compiled pursuant to section 65962.5 of the Government Code (i.e., "Cortese List").

**11. Enforcement:**

a) In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state law. For purposes of

§401(d) of the CWA, the applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.

b) In response to a suspected violation of any condition of this Certification, the State Water Board or a Regional Water Quality Control Board (Regional Water Board) may require the holder of any permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including cost, of the reports shall be a reasonable relationship to the need for the reports and the benefits to be obtained from the report.

c) In response to any violation of the conditions of this Certification, the State Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.

**12. NWP 4 – Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities:** No activities that could be permitted under NWP 48 - Commercial Shellfish Aquaculture Activities, shall be permitted under this certification of NWP 4.

**13. NWP 6 – Survey Activities:** No survey activities involving directional drilling which may cause a discharge of drilling fluids, compounds, or "muds" due to ground fractures (i.e., "frac-outs") to waters of the state are permitted under this certification of NWP 6.

**14. NWP 12 – Utility Line Activities:** Because of the number, geographic scale, and variety of potential environmental impacts that are possible under NWP 12, permanent impacts due to any activities under this certification of NWP 12 are prohibited. Routine utility line construction and maintenance activities in waters of the state are permitted when the proposed activity qualifies for a CEQA exemption, and when all of the following conditions are met:

***a. Location Restrictions***

Lake Tahoe Basin: Any project work occurring in the Lake Tahoe Basin is prohibited.

Multiple Regional Water Boards: Any project which may discharge to the jurisdiction of more than one Regional Water Board is prohibited.

***b. Overall Project Size Restrictions***

Total Area: The total ground disturbance of any project is limited to a maximum of 5 acres.

Total Length: The total utility line length of any project is limited to a maximum of 5 miles.

***c. Restrictions on Project Impacts to Waters of the State***

Area: Not more than one-half (½) acre of temporary impacts to waters of the state are permitted under this certification for any project.

Length: Not more than a total of 400 linear feet of temporary impacts to waters of the state for any project is permitted under this certification.

Project footprint: Maintenance of existing facilities which replaces but does not increase the size or impact of the existing facility is permitted, if the impact area and length requirements above are observed.

Duration: Temporary impacts permitted by this certification shall be as short as practicable, but in no case more than 90 days, during the construction phase of the project. The construction phase commences with the first activity involving the movement of earth or the discharge of dredged or fill material (e.g., site grading). Site restoration activities for temporary impacts to waters of the state must be completed as soon as possible after completion of construction, and in no case shall conclude more than 30 days after of the completion of construction activities.

***d. Permitting Restrictions***

Stacking: For any project subject to this certification, the project may not receive more than one NWP 12.

Rivers and Harbor Act Section 10: Projects requiring a permit under section 10 of the federal Rivers and Harbors act are prohibited.

***e. In-Waters Work Restrictions***

Work Sites: Placement of work areas, including pull sites, laydown yards and staging areas, in waters of the state is prohibited.

Hydrology: Applicants excavating with any water of the state shall, upon completion of construction, restore hydrologic functions of the site to comport with the requirements of the applicable water quality control plan (Basin Plan)..

Construction activity shall not result in the draining of any water of the state, including wetlands. This may be accomplished through the use of clay blocks, bentonite, or other suitable material (as approved by the Regional Water Boards) to seal the trench.

Trenching: Trenching across streams with flowing water is prohibited.

Directional Drilling: Utility line activities involving directional drilling are prohibited to avoid potential impacts from the discharge of drilling fluids, compounds, or "muds" due to ground fractures (i.e., "frac-outs") to any waters of the state.

Overhead Crossings: Construction, replacement, or maintenance of overhead utility lines (e.g., telephone or electric lines) spanning any water of the state is permitted when such spans require no more than minor trimming of existing vegetation at the site. Any span which removes or substantially alters existing mature riparian trees is prohibited.

Hardscape: Installation of any new or expanded stream channel or bank armor, including: riprap; concrete channel liners; geotextile liners; in-stream armor over or surrounding a utility line or pipes; or, similar artificial structural components placed to prevent channel or bank erosion or movement is prohibited.

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***f. Construction Activity Restrictions***

Topsoil: For any excavation, including utility line trenches, during construction, the top 6 to 12 inches of topsoil shall be removed and stockpiled separately. Following installation of the utility line(s), the topsoil shall be replaced and seeded with native vegetation.

Forested Wetlands: Land clearing of forested wetlands or riparian areas for installation or maintenance of utility lines is prohibited.

Roads: New road construction is prohibited. Maintenance of utility line access roads under this NWP shall be confined to the previously existing road prism. Grading of throughcut roads, including any road having a running surface lower than the surrounding terrain on both sides of the road, is prohibited.

Facilities: Construction or expansion of substations is prohibited. Construction of any new intake or outfall structure is prohibited. Construction, replacement, or expansion of facilities in any ocean, bay, tidal waters or the shores thereof is prohibited.

**15. NWP 36 - Boat Ramps:** NWP 36 is certified for projects meeting all of the following requirements:

a) A waiver from the District Engineer allowing the project to exceed the 20 foot width or 50 cubic yard limits stated in NWP 36 shall disqualify the project or activity from this certification. Activities that proceed under NWP 36 with a waiver from the District Engineer are required to obtain an individual 401 water quality certification.

b) b. Boat ramps installed under this NWP may not excavate into banks to a depth greater than the depths of the material used to construct the ramp itself.

c) c. Any material excavated to prepare a site for placement of the permitted fill material must be properly disposed of in an upland area. The disposal area must be located at a sufficient distance away from flowing or standing water such that the excavated material does not erode or move in any way into any water of the state. The disposal area shall be identified in the required pre-construction notification.

d) d. No construction requiring the construction of cofferdams or other dewatering structures for the purpose of installing materials such as concrete ramps below existing water lines is permitted.

e) e. To prevent the release of uncured cement or cement components into water, use of concrete in areas where ramps may be submerged before the concrete is fully cured is prohibited.

f) f. Use of this certification of NWP 36 is prohibited in the Lake Tahoe Basin, Little Truckee or Truckee River watersheds.

**16. Waivers by the Corps:** Any waiver of the Corps' NWP conditions or regional conditions for a proposed project shall disqualify that project from enrollment under this certification.

**17. Tahoe Basin:** Any activity under this certification is prohibited if it occurs within the 100-year floodplain of the Little Truckee or Truckee River watersheds. Any such discharge is prohibited by the Water Quality Control Plan for the Lahontan Region.

**NOTIFICATION REQUIREMENTS:** Applicants are required to submit notification to the Regional Water Board and State Water Board as directed in Attachment A, *2012 Notification Procedures for Certified Nationwide Permits*. For all other NWPs, application for an individual certification is required, regardless of the Corps' PCN requirements.

**B. DENIAL WITHOUT PREJUDICE:**

Table B presents the remaining 37 NWPs for which State Water Board staff proposes denial of certification without prejudice. These NWPs are: 2, 3, 7, 8, 13, 14, 15, 16, 17, 18, 19, 21, 23, 24, 25, 27, 29, 30, 31, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50 and the new NWPs 51 and 52. These NWPs have a wide breadth and scope of activities such that their potential direct, indirect, and cumulative impacts could reasonably invalidate their exemption from CEQA. CWA Section 401 certification of projects authorized by these 37 NWPs will be considered on an individual, project-specific basis. Any of these 37 NWPs may be considered by the State Water Board for certification in the future.

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**TABLE B Nationwide Permits Denied Certification Without Prejudice**

| NWP No. | Nationwide Permit Description | NWP No. | Nationwide Permit Description |
|---|---|---|---|
| 2 | Structures in Artificial Canals | 33 | Temporary Construction, Access and Dewatering |
| 3 | Maintenance | 34 | Cranberry Production Operations |
| 7 | Outfall Structures and Associated Intake Structures | 35 | Maintenance Dredging of Existing Basins |
| 8 | Oil and Gas Structures on the Outer Continental Shelf | 37 | Emergency Watershed Protection and Rehabilitation |
| 13 | Bank Stabilization | 38 | Cleanup of Hazardous and Toxic Waste |
| 14 | Linear Transportation Projects | 39 | Commercial and Institutional Developments |
| 15 | U.S. Coast Guard Approved | 40 | Agricultural Activities |
| 16 | Return Water from Upland Contained Disposal Areas | 41 | Reshaping Existing Drainage Ditches |
| 17 | Hydropower Projects | 42 | Recreational Facilities |
| 18 | Minor Discharges | 43 | Stormwater Management Facilities |
| 19 | Minor Dredging | 44 | Mining Activities |
| 21 | Surface Coal Mining Activities | 45 | Repair of Uplands Damaged by Discrete Events |
| 23 | Approved Categorical Exclusions | 46 | Discharges in Ditches |
| 24 | Indian Tribe or State Administered Section 404 Programs | 47 | RESERVED - Not Applicable |
| 25 | Structural Discharges | 48 | Commercial Shellfish Aquaculture Activities |
| 26 | RESERVED – not applicable | 49 | Coal Remining Activities |
| 27 | Aquatic Habitat Restoration, | 50 | Underground Coal Mining Activities |
| 29 | Residential Developments | 51 | Land-Based Renewable Energy Generation Facilities. |
| 30 | Moist Soil Management for Wildlife | 52 | Water-Based Renewable Energy Generation Pilot Projects. |
| 31 | Maintenance of Existing Flood Control Facilities | | |

**C. CEQA:**

The state's certification of the Corps' NWPs is a discretionary action that is subject to the environmental review requirements of the California Environmental Quality Act (CEQA). (Pub. Resources Code, § 21000 et seq.) For the certification of the NWPs, the State Water Board is the public agency required to determine whether its issuance of a certification will result in a significant effect on the environment. "A significant effect on the environment" means a substantial adverse change in the physical conditions which exist in the area affected by a proposed project.

The CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) contain a listing of categories of projects which have been determined not to have a significant effect on the environment. (Pub. Resources Code, § 21084.) In order to complete the environmental review required to issue this certification within the Corps' mandated sixty-day review period, the State Water Board may only issue a conditional certification for those NWPs that clearly fit within one or more categorical exemptions.

The State Water Board finds that the NWPs authorized by this certification, when implemented in a manner consistent with the terms of the NWP and all conditions set forth herein, do not result in a significant effect on the environment. As described in Table A, each of the NWPs certified by the State Water Board qualifies for one or more categorical exemptions.

Additionally, these categorical exemptions do not apply when certain exceptions occur. (Cal. Code Regs., tit., 14, § 15300.2.) In cases where a project may fall under an exception to the CEQA categorical exemptions, the project is not eligible for coverage pursuant to this certification. In these cases, the applicant will need to apply for an individual water quality certification. Some of the CEQA exceptions are explicitly stated as a condition to this certification (e.g., Condition 10).

State and Regional Water Board staff shall verify that proposed projects under the 2012 NWPs are CEQA exempt by reviewing the information submitted in the applicant's notification. If it is determined that the proposed project activities are not exempt, then this certification shall not apply.

There are, however, four 2012 NWPs that do not require notification to the State or Regional Water Board:

1. Aids to Navigation;
4. Fish and Wildlife Harvesting, enhancement, and attraction devices and activities;
9. Structures in Fleeting and Anchorage areas; and,
10. Mooring Buoys.

The State Water Board finds that the applicant's notification information is not necessary to determine whether activities covered by any of these four NWPs qualify for the listed CEQA exemptions in Table A above.

The 2012 NWPs 1, 9 and 10 were reissued unmodified by the Corps. The routine placement or maintenance of navigational aids, buoys, moorings and structures in anchorage areas will not cause a significant environmental effect when implemented in accordance with the NWP and certification conditions. In addition, existing statutes and regulations governing those activities (e.g., the California Harbors and Navigation Code, the federal Rivers and Harbors Act, etc.)

ensure minimal environmental impacts from these activities. Therefore, notification is not needed to verify qualification for the CEQA exemption. The State Water Board finds that activities authorized by these three NWPs will not cause any significant environmental effect, including to "sensitive environments" or due to "unusual circumstances" (Cal. Code Regs., tit. 14, §15300.2, subds.(a) & (c).).

The 2012 NWP 4 was reissued unmodified by the Corps. The routine placement of devices such as crab pots and duck blinds, activities such as clam digging, and deployment of open water fish concentrators such as "sea kites" will not cause a significant environmental effect when implemented in accordance with the certification conditions. In addition, existing statutes and regulations governing those activities ensure minimal environmental impacts from those activities. Therefore, notification is not needed to verify qualification for the exemption. The State Water Board finds that the activities authorized by NWP 4 will not cause any significant environmental effect, including to "sensitive environments" or due to "unusual circumstances" (Cal. Code Regs., tit. 14, §15300.2, subds.(a) & (c).).

For those NWPs that are not being certified, Staff notes that CEQA only applies to a public agency's discretionary approval of projects. Consequently, the rejection or disapproval of a project is not subject to CEQA. (Pub. Resources Code, § 21080, subd. (b)(5).). Therefore, CEQA does not apply to any NWP not authorized pursuant to this certification.

Thomas Howard
Executive Director
State Water Resources Control Board

4/19/2012
Date

Attachments:
Attachment A: *2012 Notification Procedures for Certified Nationwide Permits*

# Appendix D

Detailed Contractor Cost Estimate

| Yucaipa Project | |
|---|---|
| **Date** | 11/28/2016, revised 11/29/2016 |
| **Proposal Number** | 2010R1 |
| **Proposal Prepared For** | Ed Lin |
| **Client** | Todd Groundwater |
| **Client Address** | 2490 mariner Square Loop, Suite 215, Alameda, CA 94501 |
| **Project Location** | Multi Site Project in Yucaipa Area |
| **Project Power** | No power |
| **Payment Terms** | NET30 - bill on a time and materials basis for onsite work. Work day 8 hours onsite time. After 8 hours time and a half applies. |
| **Delivery Schedule** | Site setups on Tuesdays. Site demobilization on Monday's. Additional weekly site visit on Thursday's |
| **Project Description** | Supply labor and materials to: dig 30 foot x 30 foot x 5 foot deep basin, install Basin tree, connect basin tree to manifold, connect manifold to source of water, connect tank to back flow preventer (provided by others) Fill basin with water, fill tank with water. Monitor in flow of water on first day. Return to site and demob equipment after 13 days of operation (scheduled Monday's). Fill in basin and restore surface to match. Each location to be protected by temporary free standing fence. |

Thank you for the opportunity to provide the following proposal for your project. The following assumptions were made during the preparation of this proposal.

## The Client shall complete the following tasks:

1. Provide access to each site. Terrain shall be graded to allow travel by pickup trucks and large delivery trucks
2. Supply and install back flow preventer at nearest fire hydrant to each basin locations
3. Pay for water used during tests
4. Obtain any required permits from city, county or state agencies
5. Create field data sheets for documentation of water meter readings and pressure gauge readings

## Drewelow shall complete the following tasks:

1. Dig basin
2. Setup basin tree, manifold and tank (tank is optional item, used only if we can not maintain a continuous connection to fire hydrant
3. Run pipeline from back flow preventer to manifold or tank (setup is site specific. Use of tank is site specific)
4. Fill basin with water to 3 feet deep.
5. Open manifold valves and allow float valves to automatically maintain water level.
6. Monitor operation of equipment and collect data from flow meters.
7. Visit site - second site visit each week to check operation of equipment and to collect data.

If you have any questions regarding this proposal please contact me at your leisure.

**David Drewelow**
**Drewelow Remediation Equipment, Inc.**
**Office: (760) 546-6456 Cell: (760) 715-8912**

## PRE FIELD WORK TASKS

| Description | Units | Unit Cost | Extended Cost |
|---|---|---|---|
| Engineer - visit sites prior to start of work. Prepare work plans for each site. Design basin tree and manifold. Test equipment with fire hydrant. | 20 | $185.00 | $3,700.00 |
| Mileage | 180 | $1.10 | $198.00 |
| Travel time | 4 | $75.00 | $300.00 |
| Administrative Specialist | 24 | $75.00 | $1,800.00 |
| Specialist 3 - test equipment. | 6 | $85.00 | $510.00 |
| **Total** | | | **$6,508.00** |

## First Site - Mobilization, Setup and Startup - billed per location for up to 2 week rental period per location. Fire hydrant water source within 1000 feet of location.

| Description | Units | Unit Cost | Extended Cost |
|---|---|---|---|
| Mileage | 180 | $1.10 | $198.00 |
| Travel time | 6 | $75.00 | $450.00 |
| Engineer | 8 | $165.00 | $1,320.00 |
| Specialist 3 | 8 | $95.00 | $760.00 |
| Rental Equipment - manifold - equipped with hand valves and flow meters | 1 | $700.00 | $700.00 |
| Rental Equipment - basin tree with (3) float valves | 1 | $850.00 | $850.00 |
| Rental Equipment - telemetry system - calls out on high and low water alarms | 1 | $250.00 | $250.00 |
| Rental Equipment - fire hose - 3 inch fire hose | 20 | $25.00 | $500.00 |
| Sub contractor - general contractor - dig hole, setup pipeline from fire hydrant | 1 | $3,827.20 | $3,827.20 |
| Sub contractor - temporary fence company - setup up to 50 foot x 50 foot square fence around hole and equipment | 1 | $226.00 | $226.00 |
| Sub contractor - portable restroom | 1 | $280.00 | $280.00 |
| Sub total | | | $9,361.20 |
| Sales Tax | | 9.00% | $207.00 |
| **Total** | | | **$9,568.20** |

## Site Visit

| Description | Units | Unit Cost | Extended Cost |
|---|---|---|---|
| Mileage | 180 | $1.10 | $198.00 |
| Travel time | 4 | $75.00 | $300.00 |
| Specialist 3 | 2 | $85.00 | $170.00 |
| **Total** | | | **$668.00** |

## Site Demobilization

| Description | Units | Unit Cost | Extended Cost |
|---|---|---|---|
| Mileage | 180 | $1.10 | $198.00 |
| Travel time | 6 | $75.00 | $450.00 |
| Engineer | 8 | $165.00 | $1,320.00 |
| Specialist 3 | 8 | $85.00 | $680.00 |
| Sub contraction - general contractor - to refill hole and restore site | 1 | $3,827.20 | $3,827.20 |
| Sub contractor - temporary fence company - remove fence | 1 | $150.00 | $150.00 |
| **Total** | | | **$6,625.20** |

## Move Equipment from Existing Site to the Next Site - Mobilization, Setup and Startup - billed per location for up to 2 week rental period per location - Fire hydrant water source within 1000 feet of location.

| Description | Units | Unit Cost | Extended Cost |
|---|---|---|---|
| Mileage | 180 | $1.10 | $198.00 |
| Travel time | 6 | $75.00 | $450.00 |
| Engineer | 8 | $165.00 | $1,320.00 |
| Specialist 3 | 8 | $85.00 | $680.00 |
| Rental Equipment - manifold - equipped with pressure regulator, pressure gauges, hand valves and flow meters | 1 | $700.00 | $700.00 |
| Rental Equipment - basin tree - equipped with float valves and switches | 1 | $850.00 | $850.00 |
| Rental Equipment - telemetry system - calls out on high and low water alarms | 1 | $250.00 | $250.00 |
| Rental Equipment - fire hose - 3 inch fire hose | 20 | $50.00 | $1,000.00 |
| Sub contractor - general contractor - dig hole, setup pipeline from fire hydrant | 1 | $3,827.20 | $3,827.20 |
| Sub contractor - temporary fence company - move fence from existing site to next site | 1 | $712.50 | $712.50 |
| Sub contractor - portable restroom | 1 | $280.00 | $280.00 |
| Sub total | | | $10,267.70 |
| Sales Tax | | 9.00% | $344.45 |
| **Total** | | | **$10,612.15** |

## List Price Schedule for Rental Items - *Cost per week*

| Description | Extended Cost |
|---|---|
| Manifold | $350.00 |
| Basin Tree - equipped with 3 float valves | $425.00 |
| Telemetry System - sends text and email measure when alarm occurs. Cellular system. Solar powered. | $125.00 |
| Fire hose - cost per week per 50 foot section of 3 inch fire hose | $25.00 |
| Traffic ramps to protect fire hose at road crossings - $20 per week per two foot section of heavy duty traffic ramp, rating 25,000lbs/tire | $20.00 |
| 21,000 gallon closed top steel roll off tank - estimated delivery $640, estimated pickup charge $640, estimated cost to more tank between site $640. These charges are per location for event. | $367.50 |

## Total Preliminary Cost

| Description | Units | Unit Cost | Extended Cost |
|---|---|---|---|
| Setup first two sites | 2 | $9,568.20 | $19,136.40 |
| Site visit | 14 | $668.00 | $9,352.00 |
| Move equipment from existing site to the next site | 11 | $10,612.15 | $116,733.63 |
| Site demobilization | 13 | $6,625.20 | $86,127.60 |
| **Total preliminary cost** | | | **$231,349.63** |

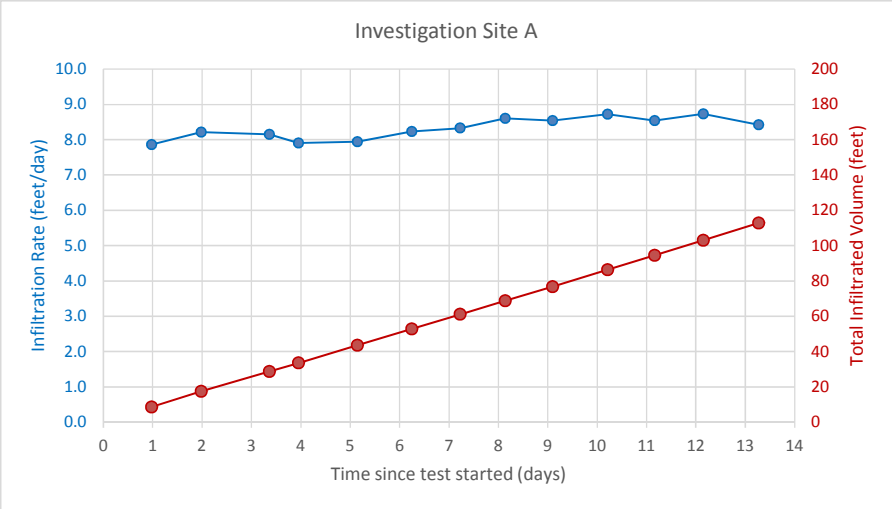
# Appendix E

Example Infiltration Test Field Data Sheet

## Appendix C. Example Infiltration Test Field Data Sheet

| Test Basin Dimensions | | |
|---|---|---|
| Length: | 30.0 | ft |
| Width: | 30.0 | ft |
| Area: | 900 | $ft^2$ |
| Depth: | 5 | ft |

| Date and Time | Time Elapsed | Time Incremental | Hydrant Flowmeter Reading | Hydrant Flowmeter Total | | Hydrant Flowmeter Incremental | | Ponded Water Level | Incremental Vertical Infiltration Rate | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| | days | days | 100x cubic feet | cubic feet | vertical feet | cubic feet | vertical feet | feet | feet/day | |
| 6/6/2016 11:08 | | | 0.00 | | | | | 0.0 | | Just started, dry basin ~28' x 30' (~5' deep) |
| 6/7/2016 10:30 | 0.97 | 0.97 | 77.91 | 7,791 | 8.7 | 7,791 | 8.7 | 1.0 | 7.86 | Wetted base = ~2/3 |
| 6/8/2016 10:40 | 1.98 | 1.01 | 158.67 | 15,867 | 17.6 | 8,076 | 9.0 | 1.7 | 8.22 | Wetted base = ~3/4 |
| 6/9/2016 19:50 | 3.36 | 1.38 | 259.13 | 25,913 | 28.8 | 10,046 | 11.2 | 1.6 | 8.15 | Wetted base = ~3/4 |
| 6/10/2016 9:53 | 3.95 | 0.59 | 302.60 | 30,260 | 33.6 | 4,347 | 4.8 | 1.8 | 7.91 | |
| 6/11/2016 14:33 | 5.14 | 1.19 | 392.53 | 39,253 | 43.6 | 8,993 | 10.0 | 2.3 | 7.95 | |
| 6/12/2016 17:04 | 6.25 | 1.10 | 476.19 | 47,619 | 52.9 | 8,366 | 9.3 | 2.5 | 8.23 | |
| 6/13/2016 16:33 | 7.23 | 0.98 | 550.45 | 55,045 | 61.2 | 7,426 | 8.3 | 2.6 | 8.33 | Wheel-measured wetted area: 29' x 31' |
| 6/14/2016 14:27 | 8.14 | 0.91 | 619.31 | 61,931 | 68.8 | 6,886 | 7.7 | 2.4 | 8.60 | |
| 6/15/2016 13:28 | 9.10 | 0.96 | 691.22 | 69,122 | 76.8 | 7,191 | 8.0 | 2.2 | 8.54 | |
| 6/16/2016 16:11 | 10.21 | 1.11 | 777.74 | 77,774 | 86.4 | 8,652 | 9.6 | 2.1 | 8.73 | |
| 6/17/2016 14:58 | 11.16 | 0.95 | 851.63 | 85,163 | 94.6 | 7,389 | 8.2 | 2.2 | 8.54 | |
| 6/18/2016 14:37 | 12.15 | 0.99 | 928.16 | 92,816 | 103.1 | 7,653 | 8.5 | 2.1 | 8.73 | |
| 6/19/2016 17:34 | 13.27 | 1.12 | 1015.12 | 101,512 | 112.8 | 8,696 | 9.7 | 2.3 | 8.43 | |



# Appendix F

## Investigation Site Photos


TODD GROUNDWATER

**Site Photos**
**Wilson Creek**
**Basins (EX-1)**

TODD GROUNDWATER

**Site Photos**
**Oak Glen Creek**
**Basins (EX-2)**

TODD GROUNDWATER

**Site Photos**
**Wilson Creek III**
**(EX-3)**

TODD GROUNDWATER

**Site Photos**
**Wildwood Creek Basin**
**(EX-4)**

TODD GROUNDWATER

**Site Photos**
**Yucaipa Creek at California St**
**(EX-5)**

TODD GROUNDWATER

**Site Photos**
**Yucaipa Creek**
**at 7th Place**
**(EX-6)**


TODD GROUNDWATER

**Site Photos**
**10th Street and Avenue E**
**(EX-7)**

TODD GROUNDWATER

**Site Photos**
**Oak Glen Creek**
**Western Heights**
**(EX-9)**


TODD GROUNDWATER

**Site Photos**
**Garden Air Creek**
**(EX-11)**

TODD GROUNDWATER

**Site Photos**
**Chapman Heights Basin**

TODD GROUNDWATER

**Site Photos**
**Tennessee Street Basins**

TODD GROUNDWATER

**Site Photos**
**Dunlap Channel**

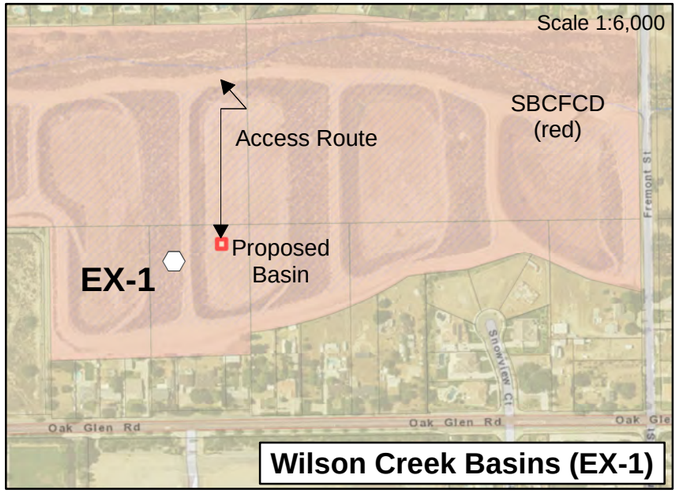
# Exhibit "B"

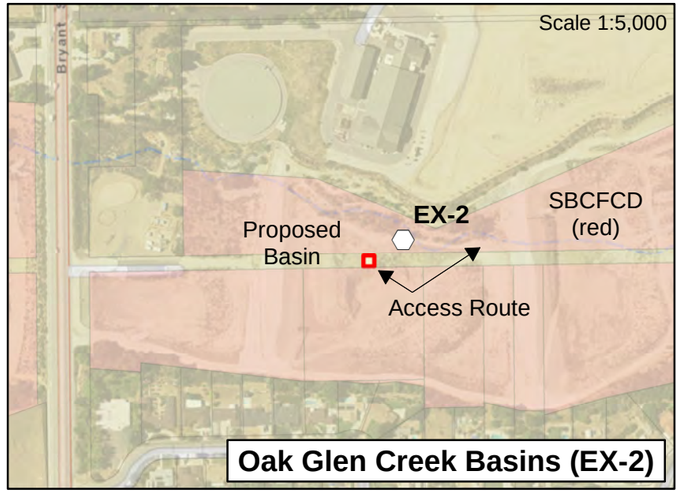
## Site Locations: Table 1 and Figures 1 and 2

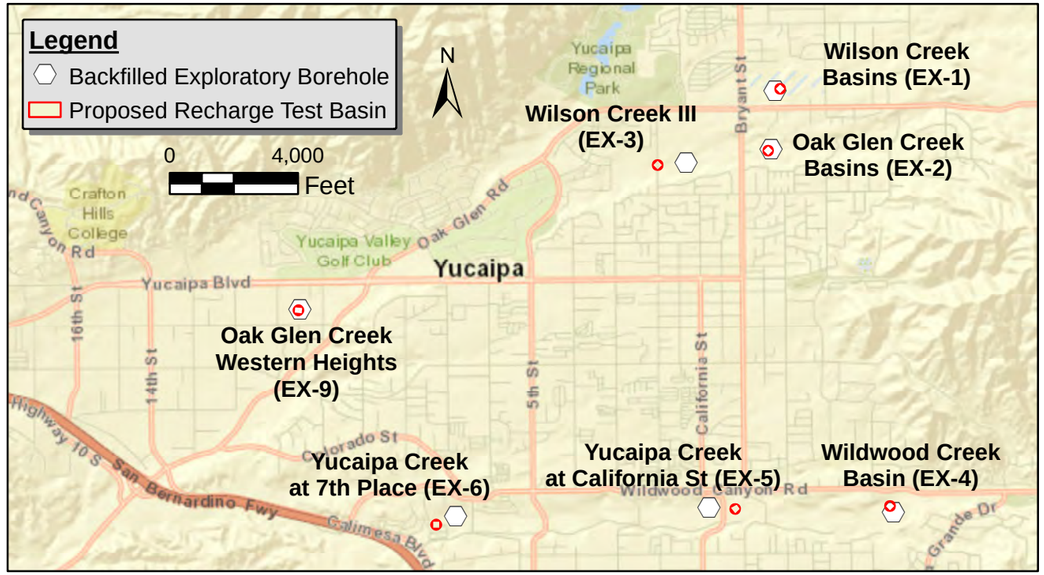
## Table 1. Investigation Site Information Summary

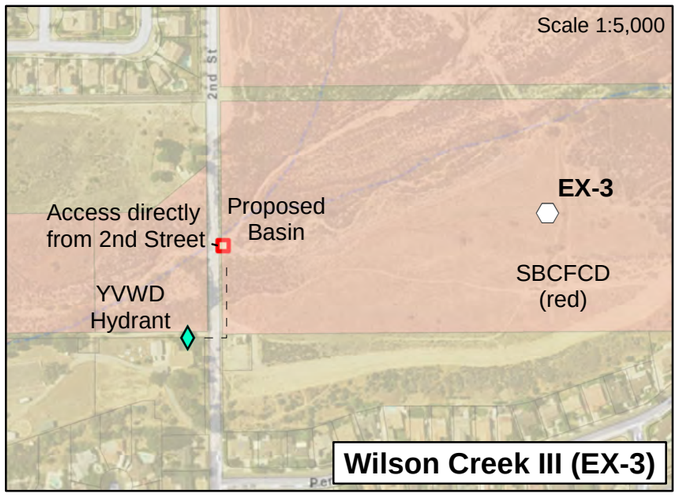
| Investigation Site | Owner | APN | Longitude[1] | Latatitude[1] | USGS 7.5' Quad | TRS and 1/4 Section (San Bernardino) | SBCFCD Permit? | Proposed Test Basin (30' x 30' x 5') | Preferred Water Source | Water Type | Location | Directions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SBCFCD Permit Sites (shown on Figure 1)** | | | | | | | | | | | | |
| Wilson Creek Basins (EX-1) | SBCFCD | 032-105-227 | -117.030388 | 34.050074 | Yucaipa | 1S/1W-30N | Yes | Existing Basin | SWP water - Valley WD | Imported SWP | Wilson Creek Basins | Heading east on Oak Glen road, take left and head north on Fremont Street, take left into Wilson Creek Basins; site is 500 feet north of Oak Glen Road b/t Fremont St and Bryant St; third basin west of Fremont St |
| Oak Glen Creek Basins (EX-2) | SBCFCD | 032-131-112 | -117.031687 | 34.044786 | Yucaipa | 1S/1W-31D | Yes | Existing Basin | YVWD hydrant[2] | Potable | Oak Glen Creek Basins | Enter Eucalyptus Street off Bryant Street; second basin from Bryant Street |
| Wilson Creek III/Unnamed (EX-3) | SBCFCD | 030-319-104 | -117.043084 | 34.043645 | Yucaipa | 1S/2W-36F | Yes | New Temp Basin | YVWD hydrant[2] | Potable | 2nd Street between Oak Glen Road and Persimmon Avenue | Head south on 2nd St off Oak Glen Road. Site is approximately 1,500 feet south at low elevation point on east side of road; downstream of Potato Creek Flood Control Basin |
| Wildwood Creek Basins (EX-4) | SBCFCD | 124-227-103 | -117.019497 | 34.014224 | Yucaipa | 2S/1W-7H | Yes | Existing Basin | City of Yucaipa irrigation (50 gpm) | Potable | Wildwood Creek Basin | South of Wildwood Canyon Road, approximately 0.5 miles west of intersection with Mesa Grande Drive |
| Yucaipa Creek at California St (EX-5) | SBCFCD | 124-204-116 | -117.035441 | 34.014101 | Yucaipa | 2S/2W-12H | Yes | Existing Channel | SMWC hydrant | Potable | Yucaipa Creek | Approxiamtely 350 feet upstream (east) of California Street overpass, north of equestrian facility |
| Yucaipa Creek at 7th Place (EX-6) | SBCFCD | 031-819-236 | -117.066233 | 34.012990 | Yucaipa | 2S/2W-11E | Yes | Existing Channel | SMWC hydrant | Potable | Yucaipa Creek | From Calimesa Blvd turn onto Avenue G and head north, take first left on unnamed street. Site is in channel approximately 250 northeast of where 7th Place would cross channel |
| Oak Glen Creek (EX-9) | SBCFCD | 031-801-328 | -117.078137 | 34.032730 | Yucaipa | 2S/2W-3C | Yes | Existing Channel | YVWD hydrant[2] | Potable | Oak Glen Creek | 150 feet downstream of 10th Street overpass, approximately 400 feet south of Yucaipa Blvd |
| **Non-SBCFCD Permit Sites (shown on Figure 2)** | | | | | | | | | | | | |
| Tennessee Street Basins | City of Yucaipa | 029-940-118 | -117.105400 | 34.034243 | Yucaipa | 1S/2W-32R | No | Existing Basin | YVWD hydrant[2] | Potable | Tennessee Street Basins | 150 feet north of Tennessee Street, 700 feet west of 16th Street |
| Chapman Heights Basins | City of Yucaipa | 029-932-105 | -117.091417 | 34.037674 | Yucaipa | 1S/2W-33K | No | New Temp Basin | YVWD hydrant[2] | Potable | Chapman Heights Basin | 300 feet north/northeast or intersection between Chapman Height Road and 13th Street |
| Dunlap Channel | City of Yucaipa | 030-103-207 | -117.096351 | 34.030611 | Yucaipa | 2S/2W-4C | No | Existing Channel | WHWC hydrant | Potable | Dunlap Channel | 100 feet north of 14th Street and 280 feet east of Avenue D |
| 10th St and Avenue E (EX-7) | South Mountain Water Company | 031-806-107 | -117.079571 | 34.025065 | Yucaipa | 2S/2W-3L | No | New Temp Basin | YVWD hydrant[2] | Potable | unnamed local drainage | 100 feet east of 10th street, between Avenue E and Washington Drive |
| "Garden Air Creek" (EX-10) | Private Property | NA | -117.016678 | 34.002332 | El Casco | 2S/1W-18A | No | New Temp Basin | SMWC hydrant | Potable | off east end of Holmes Way, 0.26 miles east of Holmes Street | Head east on Holmes Way off Holmes Street, proposed location is approximately 120 feet southeast of end of road on undeveloped land |
| "Garden Air Creek" (EX-11) | Private Property | NA | -117.033741 | 33.996675 | El Casco | 2S/1W-17D | No | New Temp Basin | SMWC hydrant | Potable | Bryant St, 700 feet south of Green Tree Circle | Head south on Bryant St, proposed location is 700 feet south of Green Tree Circle, 200 feet east off Bryant Street on undeveloped land |

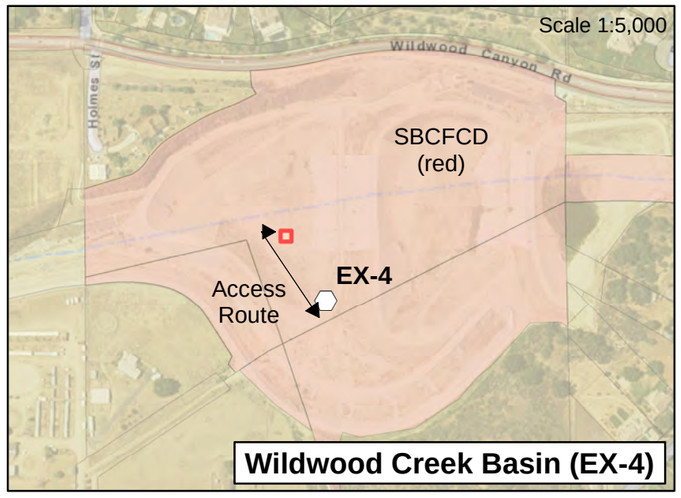
Notes:
NA = Not available
SBCFCD - San Bernardino County Flood Control District
YVWD - Yucaipa Valley Water District
WHWC - Western Heights Water Company
SMWC - South Mesa Water Company
1 - North America Datum 1983
2 - Preferred source is YVWD hydrant. If unavailable, alternative water source will be used requiring onsite water storage.



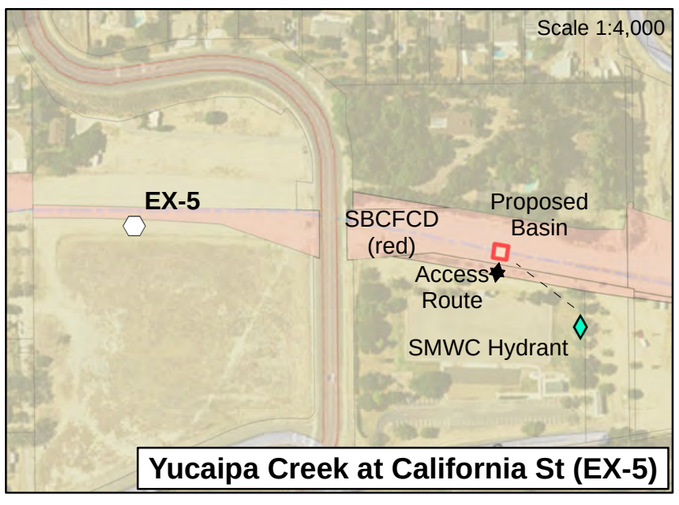



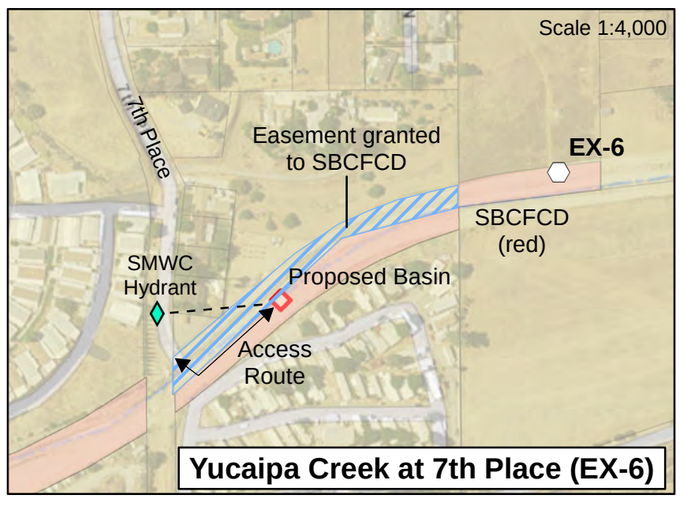



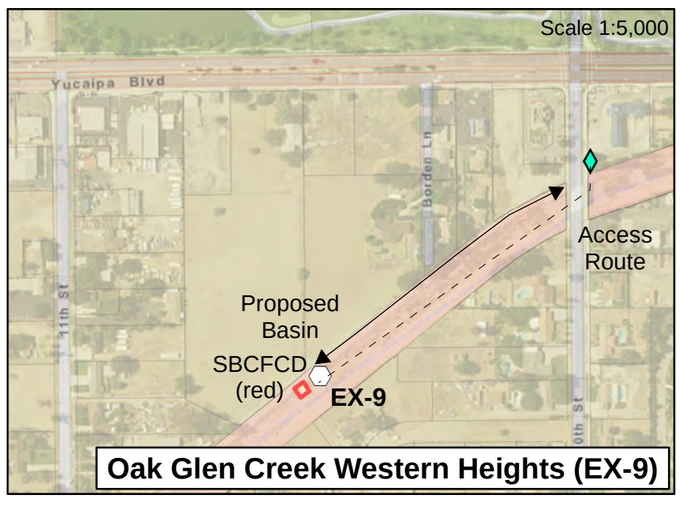




| Site | Owner | SBCFCD Permit | Proposed Test Basin | Preferred Water Source | Water Type |
|---|---|---|---|---|---|
| Wilson Creek Basins (EX-1) | SBCFCD | Yes | Existing Basin (30'x30'x5') | SWP water | Imported SWP |
| Oak Glen Creek Basins (EX-2) | SBCFCD | Yes | Existing Basin (30'x30'x10') | YVWD Hydrant[1] | Potable |
| Wilson Creek III (EX-3) | SBCFCD | Yes | New Temp Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| Wildwood Creek Basins (EX-4) | SBCFCD | Yes | Existing Basin (30'x30'x5') | City of Yucaipa Irrigation | Potable |
| Yucaipa Creek at California St (EX-5) | SBCFCD | Yes | Existing Channel (30'x30'x5') | SMWC hydrant | Potable |
| Yucaipa Creek at 7th Place (EX-6) | SBCFCD | Yes | Existing Channel (30'x30'x5') | SMWC hydrant | Potable |
| Oak Glen Creek (EX-9) | SBCFCD | Yes | Existing Channel (30'x30'x5') | YVWD Hydrant[1] | Potable |

1- To be determined. Preferred source is YVWD hydrant. If unavailable, alternative water source will be used requiring onsite water storage
SBCFCD = San Bernardino County Flood Control District
SMWC = South Mesa Water Company
YVWD = Yucaipa Valley Water District

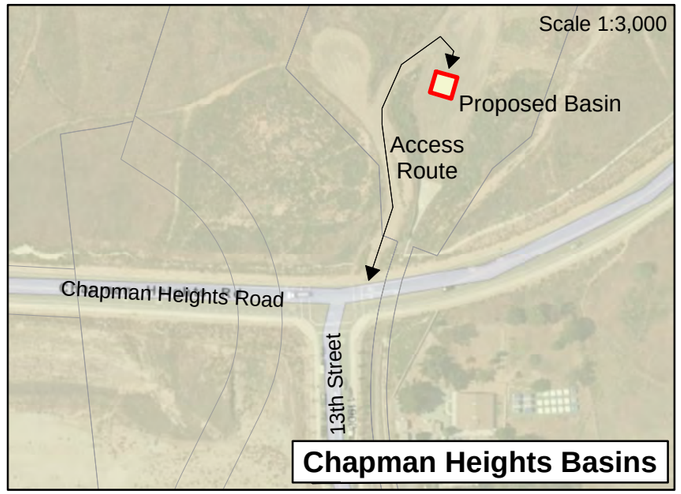


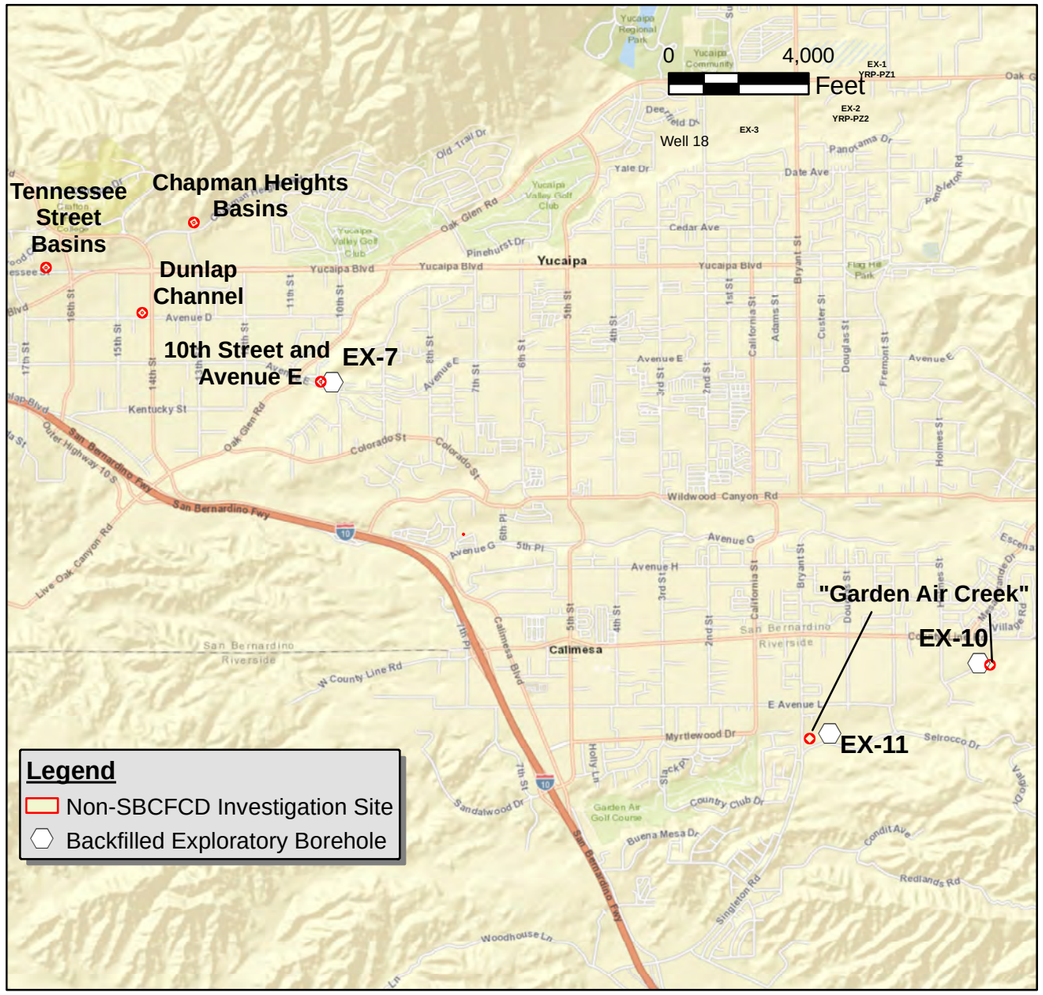



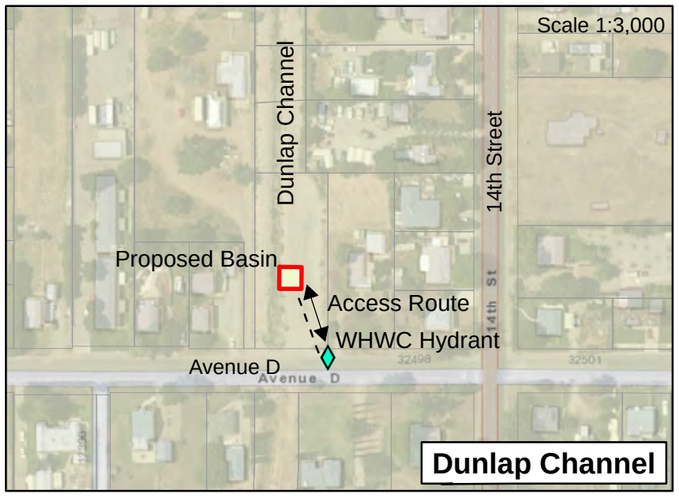



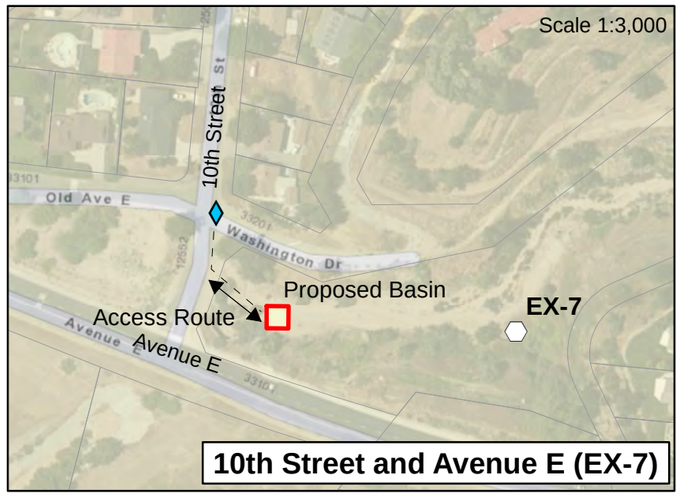

TODD GROUNDWATER

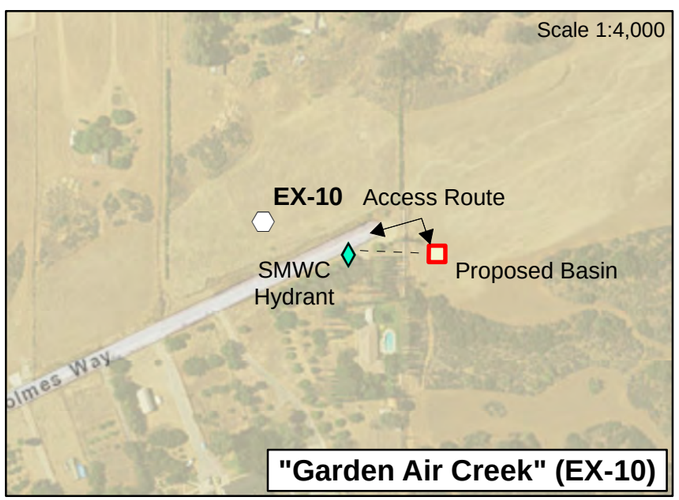
**Figure 1**
**Seven SBCFCD Recharge Testing Sites**

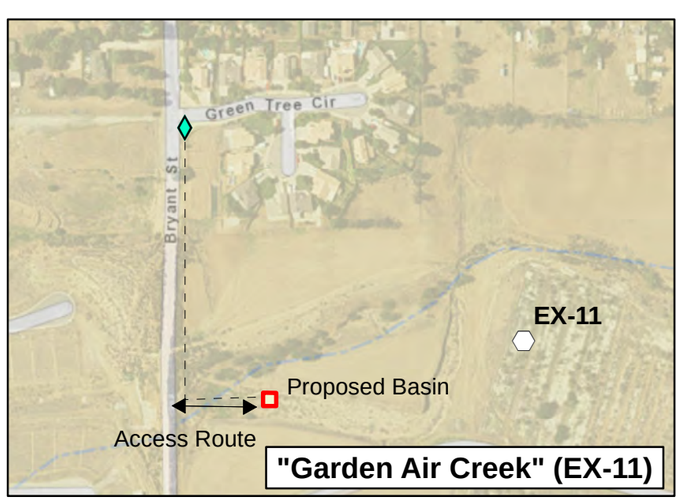




| Site | Owner | SBCFCD Permit | Proposed Test Basin | Preferred Water Source | Water Type |
|---|---|---|---|---|---|
| Tennesse Street Basins | City of Yucaipa | No | Existing Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| Chapman Heights Basins | City of Yucaipa | No | New Temp Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| Dunlap Channel | City of Yucaipa | No | Existing Channel (30'x30'x5') | WHWC hydrant | Potable |
| 10th Street and Avenue E (EX-7) | South Mountain Water Company | No | New Temp Basin (30'x30'x5') | YVWD Hydrant[1] | Potable |
| "Garden Air Creek" (EX-10) | Private Property | No | New Temp Basin (30'x30'x5') | SMWC hydrant | Potable |
| "Garden Air Creek" (EX-11) | Private Property | No | New Temp Basin (30'x30'x5') | SMWC hydrant | Potable |

Notes:
1- Preferred source is YVWD hydrant. If unavailable, alternative water source will be used requiring onsite water storage
SBCFCD = San Bernardino County Flood Control District
SMWC = South Mesa Water Company
WHWC = Western Heights Water Company
YVWD = Yucaipa Valley Water District

TODD GROUNDWATER

**Figure 2**
**Six non-SBCFCD Recharge Testing Sites**

Exhibit “C”

Table 2. Site and Hydrant Specifications, Distances, and Elevations

| ***Table 2*** | | | | | |
|---|---|---|---|---|---|
| **Site ID** | **Water Source** | **Approximate Elevation of Hydrant, ft** | **Approximate Elevation of Proposed Test Basin, ft** | **Pressure at Hydrant, psi** | **Approximate Distance from Hydrant to Site, ft** |
| Oak Glen Creek Basins (EX-2) | YVWD Hydrant | 2,770 | 2,752 | 115 | 1,450 |
| Wilson Creek III (EX-3) | YVWD Hydrant | 2,610 | 2,605 | Currently out of service | 315 |
| Wildwood Creek Basins (EX-4) - Using City of Yucaipa Irrigation Line (50 gpm) | SMWC Hydrant | 2,728 | 2,728 | 130 | 3,000 |
| Yucaipa Creek at California St (EX-5) | SMWC Hydrant | 2,575 | 2,560 | 110 | 375 |
| Yucaipa Creek at 7th Place (EX-6) | SMWC Hydrant | 2,310 | 2,305 | 54 | 400 |
| Oak Glen Creek - Western Heights (EX-9) | YVWD Hydrant | 2,220 | 2,175 | 104 | 1,350 |
| Tennessee Street Basins | YVWD Hydrant | 2,215 | 2,150 | 110 | 700 |
| Chapman Heights Basins | YVWD Hydrant | 2,188 | 2,193 | 115 | 730 |
| Dunlap Channel | WHWC Hydrant | 2,091 | 2,085 | 70 | 125 |
| 10th St and Avenue E (EX-7) | YVWD Hydrant | 2,180 | 2,175 | 120 | 225 |
| "Garden Air Creek" (EX-10) | SMWC Hydrant | 2,789 | 2,795 | TBD | 250 |
| "Garden Air Creek" (EX-11) | SMWC Hydrant | 2,597 | 2,550 | TBD | 750 |

# Exhibit "D"

## District's Standard Agreement for Consulting Services

# CONSULTING SERVICES AGREEMENT

This Consulting Services Agreement ("Agreement") is entered into to be effective as of _____, 201__ ("Effective Date") by and between the following parties (sometimes referred to herein individually as "Party" and collectively as "Parties"): San Bernardino Valley Municipal Water District, a water district organized and incorporated under the California Municipal Water District Law of 1911 ("District"); and [_____] ("Consultant"). Consultant agrees to furnish certain professional architectural and engineering services to District, upon the following terms:

**JOB NAME:** [PROJECT NAME]

**JOB NUMBER:** [PROJECT NUMBER]

1. Term. The term ("Term") of this Agreement shall commence on the Effective Date and shall automatically terminate upon earlier of _____, or the successful completion of Services, unless earlier terminated.

2. Consulting Services and Responsibilities. During the term of this Agreement, Consultant shall provide _____ consulting services to the District, which shall include those services and activities specifically identified in the Consultant's proposal for the Project, or such other services requested by District, each of which is attached to this Agreement as Exhibit "A", and by this reference incorporated herein ("Services"). All Services provided under this Agreement shall be performed in a manner consistent with current industry standards by individuals who possess the proper skill and knowledge necessary to effectively complete the Services. The performance of all Services and obligations hereunder shall be made in accordance with all federal, state and local laws, rules, regulations or ordinances applicable to the Services or obligations.

3. Additional Services. In the event additional services, which are not specifically included in Exhibit "A", are desired or needed, Consultant shall identify and describe such additional services, including costs, schedule for completion and seek the written approval of District ("Additional Services"). The compensation paid to Consultant for such Additional Services shall be mutually agreed upon in writing by the Parties prior to the performance of the Additional Services. Consultant shall be solely responsible for the costs and expenses associated with any Additional Services, including Additional Services already performed, that have not been specifically agreed upon in writing by Consultant and District. As used in this Agreement, the term "Services" shall include Additional Services.

4. Compensation and Expenses.

4.1 Compensation. As compensation for the Services to be rendered by Consultant, District shall pay Consultant an amount based on the time and materials incurred by Consultant, inclusive of sub-consultants and miscellaneous expenses ("Compensation"), which amount shall not exceed [COST in WORDS] ( $[XXX.XX] ) ("Maximum Fee"). Consultant

acknowledges and agrees that in no event shall Consultant receive or have a claim of any kind for any payment in excess of the Maximum Fee for any work, including Additional Services, performed under this Agreement, unless such amount exceeding the Maximum Fee is specifically approved in writing by District.

4.2 Invoices. Each month Services are rendered, Consultant shall deliver an invoice to District, for work actually performed, which shall include, at a minimum: (i) the project name; (ii) District's job number; (iii) Consultant's point of contact for billing questions; (iv) basis of billing; (v) total contract value; (vi) total billing to date; (vii) amount remaining in contract; and (viii) estimated percentage of completion at time of billing. Attached to each invoice, Consultant shall also include a monthly summary of work actually performed during the billing period. Provided there is no dispute with the invoice, District shall pay Consultant within thirty (30) days of receiving the invoice. In the event District disputes an invoice, District shall provide a written explanation of the dispute to Consultant within thirty (30) days of receiving the invoice. District and Consultant shall cooperate to resolve any disputed amount. District shall not be penalized for any reasonable dispute and shall not be obligated to pay any amount in dispute until a dispute has been resolved.

4.3 Expenses. District shall pre-approve in writing each reasonable and necessary expense that Consultant intends to seek reimbursement for, which expenses are directly related to the performance of the Services. If pre-approved, such expenses for reasonable and necessary travel, lodging, or miscellaneous expenses incurred in the performance of this Agreement will be reimbursed to Consultant in accordance with District's general reimbursement policy. Consultant shall submit an invoice of all incurred expenses accompanied by adequate supporting documentation or transaction receipts. Invoices that fail to include reasonable supporting documentation or receipts will not be honored and District will have no obligation of any kind to reimburse Consultant for such expenses.

5. Project Data. Consultant shall be exclusively responsible for obtaining from the appropriate sources, persons or third parties, all data and information necessary for the proper, timely and complete performance and satisfaction of the Services.

6. Work Product; Confidential Information.

6.1 Work Product. Consultant shall provide to District, and such other consultants approved by District, all work product, works in progress or other deliverables developed from or associated with the Services or the Project. Upon completion of the Services, Consultant shall provide one reproducible physical copy and one electronic copy of all final work products described in Exhibit "A", in such forms acceptable to District. Consultant acknowledges that all work performed or prepared for District by Consultant hereunder, including without limitation all data, reports, models, working notes, drawings, designs, improvements, trademarks, patents, copyrights (whether or not registered or patentable) and specifications developed or prepared by Consultant in connection with, or related to such Services shall become the sole and exclusive property of District, unless specifically otherwise agreed upon in writing by District and Consultant. Consultant hereby unconditionally assigns, transfers and conveys to District all rights,

interests and claims of any kind related thereto, including copyright. Consultant shall promptly disclose such work product to District and, at the District's expense, perform all actions reasonably requested by District (whether during or after the Term) to establish and confirm such ownership (including, without limitation, executing any necessary assignments, consents, powers of attorney and other instruments).

6.2 Confidential Information. Consultant acknowledges that during the Term it may receive or have access to certain information, observations and data (including, but not limited to, trade secrets, designs, ideas, products, research, software, and financial data) concerning the business or affairs of District ("Confidential Information") which is, and shall remain the property of District. Consultant shall take all reasonably appropriate steps to safeguard Confidential Information and to protect it against disclosure, misuse, espionage, loss and theft. Consultant agrees that it shall not disclose to any unauthorized person or use for its own purposes any Confidential Information without the prior written consent of District, unless and to the extent that the Confidential Information becomes generally known to and available for use by the public other than as a result of Consultant's acts or omissions. Consultant shall deliver to District at the termination or expiration of the Term, or at any other time District may request, all memoranda, notes, plans, records, reports, computers and computer records, printouts and software and other documents and data (and copies thereof) embodying or relating to the Confidential Information, work product (as discussed in 6.1) or the business of District, which Consultant may then possess or have under its control. Neither party shall be liable for disclosure or use of Confidential Information which: (a) was known by the receiving party at the time of disclosure due to circumstances unrelated to this Agreement; (b) is generally available to the public without breach of this Agreement; (c) is disclosed with the prior written approval of the disclosing party; or (d) is required to be released by applicable law or court order (provided that Disclosing Party is given prompt written notice thereof and is allowed to exhaust all reasonable legal remedies to maintain the confidentiality of the information).

7. Records. All records, documents or other instruments evidencing all labor costs, payroll costs or other expenses incurred in connection with Consultant's performance of the Services shall be kept in a manner consistent with industry standards and practices and made available to District upon written request. Retention of the records contemplated by this Section 7 shall be retained for a period of no less than four (4) years from the date of final billing or termination of this Agreement, whichever shall first occur.

Consultant further agrees to maintain all design calculations and final work product on file in legible and readily accessible form. A copy of such material shall be available to District, at District's sole cost and expense, and the originals of such materials and items, including any additions, amendments or modification thereto shall not be destroyed by Consultant unless Consultant fails to object to such destruction upon District providing Consultant with sixty (60) days advance written notice, indicating that such material is scheduled to be destroyed.

8. Relations with Construction Contractor. Consultant shall not directly or indirectly communicate with or consult with any construction contractor utilized in the Project, except in the presence of or with the specific written consent of the District.

9. Independent Contractor.

9.1 Status. The Parties hereby acknowledge that in rendering the Services provided hereunder, Consultant shall be deemed to be an independent contractor and shall not be deemed in any way an agent, partner or joint venturer of the District. Consultant acknowledges and agrees that, as an independent contractor, it is solely responsible for the payment of any and all taxes and/or assessments imposed on account of payment to Consultant or the performance of Services by Consultant pursuant to this Agreement.

9.2 Agency Restrictions. Consultant understands and agrees that Consultant shall not represent itself to third parties to be the agent, employee, partner or joint venturer of the District. Furthermore, Consultant shall not make any statements on behalf of or otherwise purporting to bind the District in any contract or otherwise related agreement. Consultant further agrees and acknowledges that Consultant does not have the authority to and shall not sign any contract on behalf of the District or any of its subsidiaries or affiliates. Consultant shall not obligate the District or any of its subsidiaries or affiliates to do any other act that would bind the District or any of its subsidiaries or affiliates in any manner.

10. Further Assurances. Consultant shall furnish District with any documents or records that the District reasonably believes necessary to properly and timely carry out the Consultant's Services. District shall first tender written notice to Consultant regarding any documents or records that it reasonably believes necessary to properly carry out Consultant's Services. Consultant shall then have ten (10) days from the receipt of such notice to provide the District with the requested documents or records.

11. Abandonment or Termination. Agreement may be terminated by either Party upon ten (10) days written notice. In the event the Project is terminated or abandoned before completion of the Services, all Services of Consultant shall immediately terminate. In the event of termination or abandonment, Consultant shall be compensated for the Services in proportion to the amount of work actually completed as of the termination date or date of abandonment. Notwithstanding the foregoing, in the event of telephone notification to stop work, no further work shall be performed on any portion of the Project pending receipt of the written notification. The continuation of work after telephone notification to stop work, shall be at Consultant's sole cost and expense, without the right to seek any form of reimbursement.

12. Indemnification. Consultant shall indemnify, defend and hold harmless the District and its agents, officers, directors and assigns, from and against any and all claims, damages, loss and expense, including attorneys' fees, awards, fines, penalties, judgments or appeals arising out of or related to the performance of the Services, breach of this Agreement, any misrepresentations or any other claim arising out of or related to this Agreement. Consultant's indemnification obligations contained in this Section 12 shall extend to all acts or omissions of its officers, employees, agents or representatives.

The indemnification responsibility of Consultant, with respect to the Services shall exist and continue regardless of the extent to which District may have reviewed and approved the Services performed by Consultant, except that Consultant shall not be responsible for claims attributable to the Services in any case in which the claim is attributable to a decision made by District with respect to which Consultant and District have specifically agreed in writing that District shall be the responsible party.

13. Liability and Insurance. Consultant shall assume responsibility and liability for any damage, loss or injury of any kind or nature whatsoever to any person or property, to the extent such damage, loss or injury was caused by or resulting from an error, omission or negligent or willful act caused by Consultant, its officers, directors, employees, agents or representatives in connection with the performance of the Services under this Agreement.

Consultant shall, at its sole cost and expense, maintain in effect at all times during the performance of the Services, the greater of: (i) the coverage and limits of insurance described herein; or (ii) such coverage and limits as is generally determined to be the general industry standards, which coverage shall be maintained with an insurance company licensed to do business in California and having a minimum A.M. Best rating of A-IX, or better, and under forms of policies satisfactory to District.

Consultant shall, at its sole cost and expense, procure and maintain in effect for the Term the following insurance policies, and to the extent permitted, naming District as an additional insured: (i) professional liability insurance, with policy limits of no less than $1,000,000 (combined single limit per claim and annual aggregate); (ii) workers' compensation insurance, in such amounts and coverage as required by law, and employer's liability insurance policy of at least $1,000,000 per occurrence; (iii) general liability insurance policy of at least $1,000,000 per occurrence, and in the aggregate $2,000,000; and (iv) automobile liability, or equivalent form, with a combined single limit of no less than $1,000,000 per occurrence; such insurance shall include coverage for non-owned and hired automobiles and owned. The workers' compensation policy must include a waiver of Consultant's right to recover from other endorsements.

Certificates evidencing such coverage and adding District as additional insured, where permitted, shall be delivered to District prior to the commencement of the Services by Consultant under this Agreement. Such insurance shall provide no cancellation unless thirty (30) days' prior notice of such cancellation is given to District or ten (10) days notice in the event of cancellation for non-payment of premium. Consultant agrees to timely pay the premiums as required and use its best efforts to maintain said insurance in effect for a period of at least two (2) years after completion of the Services under this Agreement.

14. Representations and Warranties. Each Party individually represents and warrants the following:

a. Each Party is duly organized, validly existing and in good standing under the laws of the state of formation or incorporation and has all requisite power and authority to conduct the business with which it conducts and proposes to conduct;

b. All action on the part of each Party necessary for the authorization, execution, delivery, and performance of this Agreement, and the consummation of the transactions contemplated herein, has been properly taken and obtained in compliance with applicable law;

c. Each Party has not entered into nor will either enter into any agreement (whether written or oral) in conflict with this Agreement or which would prevent a Party from performing its obligations under this Agreement; and

d. Each Party has the contacts and expertise, and will reasonably allocate its financial and time resources on a reasonable best efforts basis to enable it to perform its obligations hereunder.

15. Miscellaneous.

15.1 Entire Agreement. This Agreement constitutes the entire agreement between the Parties and supersedes any prior understandings, agreements, or representations by or between the Parties, written or oral, to the extent they have related in any way to the subject matter hereof.

15.2 No Third-Party Beneficiaries. This Agreement shall not confer any rights or remedies upon any person or entity other than the Parties and their respective successors and permitted assigns.

15.3 Succession. This Agreement shall be binding upon and inure to the benefit of the Parties named herein and their respective successors and permitted assigns.

15.4 Headings. The section headings contained in this Agreement are inserted for convenience only and shall not affect in any way the meaning or interpretation of this Agreement.

15.5 Notices. All notices, requests, demands, claims, and other communications hereunder will be in writing. Any notice, request, demand, claim, or other communication hereunder shall be deemed duly given two (2) business days after it is sent by registered or certified mail, return receipt requested, postage prepaid, and addressed to the intended recipient as set forth below:

If to District: San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408
Attn: _____
Telephone: (909) 387-9253

If to Consultant: _____
_____
_____

Attn: _____
Telephone: _____

15.6 Governing Law; Venue. This Agreement shall be governed by and construed in accordance with the domestic laws of the State of California without giving effect to any choice or conflict of law provision or rule (whether of the State of California or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than the State of California. Venue for any suit, action or proceeding shall exist exclusively in the courts having jurisdiction over the County of San Bernardino.

15.7 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original but all of which together will constitute one and the same instrument.

15.8 Waivers. No waiver by any Party of any default, misrepresentation, or breach of warranty or covenant hereunder, whether intentional or not, shall be deemed to extend to any prior or subsequent default, misrepresentation, or breach of warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent occurrence.

15.9 Amendment. Except as expressly provided otherwise herein, this Agreement may not be amended without the express written consent of both Parties.

15.10 Severability. Any term or provision of this Agreement that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions hereof or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction.

15.11 Release of Information and Advertising. Consultant shall not, without the prior written consent of District, make any news release or other public disclosure regarding this Project.

15.12 Construction. The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement. Any reference to any federal, state, local, or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise. The word "including" shall mean including without limitation.

15.13 Attorneys' Fees. If any legal action is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees, reasonable expert witness fees, costs, and necessary disbursements in addition to any other relief to which that party may be entitled.

**IN WITNESS WHEREOF**, the Parties hereby execute this Agreement on the date first written above.

**DISTRICT:**

**San Bernardino Valley Municipal Water District, a water district organized and incorporated under the California Municipal Water District Law of 1911**

By: _____

Name: _____
*(type)*

Its: _____
*(type)*

**CONSULTANT:**

[_____]

By: _____

Name: _____
*(type)*

Its: _____
*(type)*

**EXHIBIT "A"**

*[Insert Project Proposal and Identification of Services]*

**Groundwater Sustainability Plan - Anticipated Costs**
*USGS Groundwater Model - $598,800 (Valley District)*
*Infiltration Work Plan - $67,264 (Previously Paid)*

| | Total Cost | Requested Grant Funds | Local Share | Previously Paid | Balance |
|---|---|---|---|---|---|
| **Water Purveyors** | | | | | |
| ***GSA Cost Sharing - 75%*** | | | | | |
| South Mesa Water Company (18.75%) | $142,471 | ($85,482) | $56,988 | ($5,530) | $51,459 |
| South Mountain Water Company (18.75%) | $142,471 | ($85,482) | $56,988 | $0 | $56,988 |
| Western Heights Water Company (18.75%) | $142,471 | ($85,482) | $56,988 | ($5,212) | $51,776 |
| Yucaipa Valley Water District (18.75%) | $142,471 | ($85,482) | $56,988 | ($15,564) | $41,424 |
| **Sum** | $569,883 | ($341,930) | $227,953 | ($26,306) | $201,647 |
| | | | | | |
| **Municipalities and Regionals** | | | | | |
| ***GSA Cost Sharing - 25%*** | | | | | |
| City of Calimesa (5%) | $37,992 | ($22,795) | $15,197 | $0 | $15,197 |
| City of Redlands (5%) | $37,992 | ($22,795) | $15,197 | $0 | $15,197 |
| City of Yucaipa (5%) | $37,992 | ($22,795) | $15,197 | ($6,235) | $8,961 |
| San Bernardino Valley MWD (5%) | $37,992 | ($22,795) | $15,197 | ($29,933) | ($14,736) |
| San Bernardino Valley MWD - USGS Model (100%) | $598,800 | ($359,280) | $239,520 | - | $239,520 |
| San Gorgonio Pass Water Agency (5%) | $37,992 | ($22,795) | $15,197 | ($4,790) | $10,407 |
| **Sum** | $788,761 | ($473,257) | $315,504 | ($40,958) | $274,547 |
| | | | | | |
| **TOTAL** | **$1,358,644** | **($815,186)** | **$543,458** | **($67,264)** | **$476,194** |

***Note:*** **A cost share reduction from 50% to 40% is being requested.**

Task

| | | Task | Total | Grant | Local Share | Previously Paid | Balance | SMWC (18.75%) | SMWC (18.75%) | WHWC (18.75%) | YVWD (18.75%) | Calimesa (5%) | Redlands (5%) | Yucaipa (5%) | Valley (5%) | SGPWA (5%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Budget Category A** | | | | | | | | | | | | | | | | |
| | 14 | Grant Administration | 20,000 | (12,000) | 8,000 | 0 | $8,000 | $1,500 | $1,500 | $1,500 | $1,500 | $400 | $400 | $400 | $400 | $400 |
| | | **Subtotal Budget Category A** | **$20,000** | **($12,000)** | **$8,000** | **$0** | **$8,000** | **$1,500** | **$1,500** | **$1,500** | **$1,500** | **$400** | **$400** | **$400** | **$400** | **$400** |
| **Budget Category B** | | | | | | | | | | | | | | | | |
| | 1 | USGS Groundwater Model **(Valley District)** | 598,800 | (359,280) | 239,520 | 0 | $239,520 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $239,520 | $0 |
| | 2 | Current and Historic Groundwater Conditions | 20,000 | (12,000) | 8,000 | 0 | $8,000 | $1,500 | $1,500 | $1,500 | $1,500 | $400 | $400 | $400 | $400 | $400 |
| | 3 | Plan Area Including Land Use | 60,000 | (36,000) | 24,000 | 0 | $24,000 | $4,500 | $4,500 | $4,500 | $4,500 | $1,200 | $1,200 | $1,200 | $1,200 | $1,200 |
| | 4 | Water Budget and Sustainable Yield | 18,000 | (10,800) | 7,200 | 0 | $7,200 | $1,350 | $1,350 | $1,350 | $1,350 | $360 | $360 | $360 | $360 | $360 |
| | 5 | Define Management Areas | 12,480 | (7,488) | 4,992 | 0 | $4,992 | $936 | $936 | $936 | $936 | $250 | $250 | $250 | $250 | $250 |
| | 6 | Define Undesirable Results, Minimum Thresholds, Measurable Objectives | 30,000 | (18,000) | 12,000 | 0 | $12,000 | $2,250 | $2,250 | $2,250 | $2,250 | $600 | $600 | $600 | $600 | $600 |
| | 7 | Identify Projects and Management Actions to Achieve Sustainability | 30,000 | (18,000) | 12,000 | 0 | $12,000 | $2,250 | $2,250 | $2,250 | $2,250 | $600 | $600 | $600 | $600 | $600 |
| | 8 | Infiltration Testing | 367,264 | (220,358) | 146,906 | 0 | $146,906 | $27,545 | $27,545 | $27,545 | $27,545 | $7,345 | $7,345 | $7,345 | $7,345 | $7,345 |
| | | Infiltration Testing (Previously Paid Amount) | | | | (67,264) | (67,264) | ($5,530) | $0 | ($5,212) | ($15,564) | $0 | $0 | ($6,235) | ($29,933) | ($4,790) |
| | 9 | Define Plan Implementation Actions | 17,000 | (10,200) | 6,800 | 0 | $6,800 | $1,275 | $1,275 | $1,275 | $1,275 | $340 | $340 | $340 | $340 | $340 |
| | 10 | Describe Existing and Planned Monitoring Network | 6,000 | (3,600) | 2,400 | 0 | $2,400 | $450 | $450 | $450 | $450 | $120 | $120 | $120 | $120 | $120 |
| | 11 | Develop Framework for Data Management System | 3,500 | (2,100) | 1,400 | 0 | $1,400 | $263 | $263 | $263 | $263 | $70 | $70 | $70 | $70 | $70 |
| | 12 | Draft and Final GSP | 30,000 | (18,000) | 12,000 | 0 | $12,000 | $2,250 | $2,250 | $2,250 | $2,250 | $600 | $600 | $600 | $600 | $600 |
| | 13 | GSP Submittal to DWR for Review and Approval | 600 | (360) | 240 | 0 | $240 | $45 | $45 | $45 | $45 | $12 | $12 | $12 | $12 | $12 |
| | | **Subtotal Budget Category B** | **$1,193,644** | **($716,186)** | **$477,458** | **($67,264)** | **$410,194** | **$39,084** | **$44,613** | **$39,401** | **$29,049** | **$11,897** | **$11,897** | **$5,661** | **$221,484** | **$7,107** |
| **Budget Category C** | | | | | | | | | | | | | | | | |
| | 15 | Establish Governance of GSA | 20,000 | (12,000) | 8,000 | 0 | $8,000 | $1,500 | $1,500 | $1,500 | $1,500 | $400 | $400 | $400 | $400 | $400 |
| | 16 | Develop and Implement Coordinated Outreach Plan | 100,000 | (60,000) | 40,000 | 0 | $40,000 | $7,500 | $7,500 | $7,500 | $7,500 | $2,000 | $2,000 | $2,000 | $2,000 | $2,000 |
| | 17 | Technical Advisory Committee | 25,000 | (15,000) | 10,000 | 0 | $10,000 | $1,875 | $1,875 | $1,875 | $1,875 | $500 | $500 | $500 | $500 | $500 |
| | | **Subtotal Budget Category C** | **$145,000** | **($87,000)** | **$58,000** | **$0** | **$58,000** | **$10,875** | **$10,875** | **$10,875** | **$10,875** | **$2,900** | **$2,900** | **$2,900** | **$2,900** | **$2,900** |
| **Budget Category D** | | | | | | | | | | | | | | | | |
| | | | 0 | 0 | 0 | 0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| | | **Subtotal Budget Category D** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |
| **TOTAL** | | | **$1,358,644** | **($815,186)** | **$543,457.60** | **($67,264)** | **$476,194** | **$51,459** | **$56,988** | **$51,776** | **$41,424** | **$15,197** | **$15,197** | **$8,961** | **$224,784** | **$10,407** |

TODD GROUNDWATER

January 17, 2018

Aaron Jones
Assistant Engineer
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

**Re: Proposal: Infiltration Testing Implementation for Thirteen Sites in Yucaipa Basin Area, Yucaipa Basin Recharge Study**

Dear Mr. Jones:

San Bernardino Valley Municipal Water District (Valley District) and its partner water agencies and water retailers are taking the necessary and appropriate steps to manage water supply conjunctively across the Yucaipa Basin Area. The successful completion of field-scale infiltration testing at thirteen potential recharge sites is a critical step for developing a managed aquifer recharge (MAR) program using State Water Project (SWP) water, local storm runoff, and recycled water supplies to satisfy basin management objectives. Information collected from infiltration testing will allow Valley District to prioritize potential sites, estimate long-term groundwater banking potential, and support concept-level design of future recharge facilities.

Todd Groundwater, in partnership with Drewelow Remediation Equipment, Inc. (DRE), is pleased to submit this proposal to support Valley District in implementing the field infiltration testing Work Plan to determine the infiltration capacity of vadose zone sediments underlying the thirteen proposed sites. Our proposed scope of work leverages the knowledge gained from developing the Work Plan with Valley District staff, which included in-field assessment of site access, physical constraints, and the preferred water source(s) for each location. Additionally, from conversations with San Bernardino County Flood Control District (SBCFCD) staff and review of environmental permit requirements, we are aware of the field management standards expected at each site.

Our proposal carefully considers key test implementation factors, including (1) a pre-construction meeting and project status meetings with Valley District and SBCFCD staff to review and refine (if needed) testing schedules and procedures, (2) optimal test

sequencing to reduce overall field time and, in turn, minimize labor, material, and equipment rental costs, (3) a robust, automated manifold and basin-tree system to maintain required flow and test basin water levels and provide real-time alerts to project personnel via telemetry, and (4) appropriate traffic controls and site security fencing to ensure public safety for the duration of the project.

The proposed Todd Groundwater-DRE team combines decades of experience in recharge feasibility evaluation and installation and operation of field data acquisition and telemetry systems. Our company profiles are included in the Appendix to this proposal. I am also pleased to offer Edwin Lin as Project Manager. He is an accomplished quantitative hydrogeologist with a specialty in MAR projects. He has recently completed similar field-infiltration tests for the Mojave Water Agency and Santa Clara Valley Water District. He has carefully considered the needs of Valley District and developed an appropriate scope of work that will ensure successful execution of the Work Plan and collection of essential data for reliable estimation of site recharge capacity. David Drewelow, Vice President of DRE, will construct the water conveyance and flow control systems and supervise all field construction and monitoring activities. David has over 25 years of experience in design, installation, and operation of environmental monitoring and remediation systems and designed the custom manifold and basin-tree system specified in the Work Plan. DRE is conveniently located in Escondido, CA, a relatively short driving distance to the Yucaipa Basin Area.

On behalf of the team, I appreciate the opportunity to assist Valley District with high-quality hydrogeologic and field engineering consulting. Recognizing the importance of sustainable groundwater resources for the Yucaipa Basin Area, we would be proud to contribute to the future expansion of your regional conjunctive use program.

Thank you,

Phyllis D. Stanin

Phyllis Stanin, PG, CHG CEG
Vice President

## Table of Contents



**Attachments**

## Project Understanding

The San Bernardino Valley Municipal Water District (Valley District) and its partner agencies and water retailers are preparing to manage its groundwater resources conjunctively with State Water Project (SWP) water, and increase basin recharge with enhanced natural storm runoff and recycled water to meet future demands while maintaining independence during periods of water shortages. To-date, Valley District has completed preliminary subsurface investigations and prepared a Work Plan to conduct field-scale infiltration testing at thirteen potential recharge sites across the Yucaipa Basin Area (Basin).

The Work Plan was developed to determine the infiltration capacity of vadose zone sediments underlying the proposed recharge areas. Infiltration testing is a critical step in evaluation of site recharge feasibility. Specifically, field-scale infiltration testing will help determine whether a proposed area can accommodate recharged water at a sufficient rate to provide measurable benefits to groundwater levels and water quality. Estimated infiltration rates can be combined with other hydrogeologic information (e.g., subsurface stratigraphy, fault mapping, groundwater levels, and water quality data) to prioritize potential sites, estimate long-term groundwater banking potential, and support preliminary design of recharge facilities. Additionally, infiltration rates can be used to evaluate the impacts (benefits) of various MAR projects scenarios on groundwater storage and basin perennial yield (using the basin-wide USGS MODFLOW model) and estimate subsurface recharge flowpaths to assess groundwater quality changes and recovery efficiency.

## Project Approach

The proposed scope of work to implement the Work Plan has been divided into four tasks, details of which are presented below.

### Task 1 – Pre-Field Planning

#### Task 1.1. Schedule and Attend Pre-Construction Meeting

Following receipt of notice-to-proceed and prior to mobilization of equipment for infiltration testing, we will schedule and participate in a pre-construction meeting with Valley District and SBCFCD staff and other project team members. During the pre-construction meeting, we will (1) confirm site access for heavy machinery, (2) delineate test basin excavation limits and dimensions, (3) confirm preferred water source, pressure, and anticipated delivery rates, and (4) review procedures for test basin construction, soils management requirements, conveyance and instrument setup, and site security fencing and traffic control.

#### Task 1.2. Refine Site-Specific Work Plans

Key findings from the pre-construction meeting will be used to refine the approach and procedures identified in the Work Plan to accommodate site-specific conditions prior to field

mobilization. Sites will be prioritized and a sequence of testing will be finalized based on site prioritization by Valley District, intra-site proximity, and source water type and availability. To consolidate equipment requirements and minimize rental costs, sites requiring a water tank should be grouped and conducted at the end of the field program.

### Task 1.3. Construct and Test Manifold and Basin Tree Systems

Prior to formal field mobilization, DRE will construct the automated flow control system described in Scope of Services and Section 1.6 and shown on Figure 3 of the Work Plan (including the manifold and basin tree and associated valves and switches) and test the equipment on a water hydrant identified as water source for infiltration testing. This will allow for modifications to be made prior to field mobilization to ensure the system provides the automated flow and water level control and alert functions as specified in the Work Plan.

## Task 2 – Perform Infiltration Testing at Thirteen Sites

As required in the Work Plan, we will provide all services and equipment necessary to complete proposed infiltration testing at each of the thirteen sites, following procedures described in the infiltration test methodology, site security and fencing, and traffic control and signage sections of the Work Plan (Sections 1.2 through 1.4) and summarized in the Scope of Services. Costs assume excavation of a 30-foot x 30-foot x 5-foot deep test basin with approximate 1:1 vertical-to-horizontal slope, management of soils to ensure compliance with SBCFCD and other regulatory agency requirements, and installation of all test equipment and site monitoring components to ensure reliable collection of critical field data. Site security fencing and traffic ramps and appropriate traffic control signage will be provided to ensure public safety at each site.

**Example: Infiltration Test in Alto Subarea, Mojave Water Agency (manual flow control and water level monitoring)**

The water conveyance and flow control system designed by Todd Groundwater and DRE described in Section 1.6 and illustrated on Figure 3 of the Work Plan would be installed at each site. As described in the Work Plan, the proposed system provides the following operational advantages:

- Automatically control of flow rates with three manifolds and float valves to provide a high range of discharge rates to match variable infiltration rates during testing and from site-to-site.
- The incorporation of a pressure regulator setting and hand valves to accommodate variable pressure from different water sources.

- Built-in telemetry and sensors to provide real-time notifications of (a) low-water pressure from the water source or (b) exceedances of low-water and high-water level thresholds in the test basin.
- Redundancy of flow meters at the hydrant connection and on the final discharge piping ensures that volumes entering the pit are reliably tracked.

**Example: Infiltration Test at Ford Ponds Santa Clara Valley Water District**

All field activities would be conducted to ensure minimal disturbance to native vegetation and minimize soil erosion along channel banks and follow site management practices described in Section 1.9 of the Work Plan.

In order to minimize labor and equipment costs and ensure an efficient work flow, we propose to implement the recommended test sequencing described in Section 3.1 – Fieldwork Schedule of the Work Plan (use of two infiltration systems simultaneously at two sites staggered one-week apart). Costs assume site visits by field personnel twice a week (once on Mondays during routine site mobilization and demobilization and once on Thursdays) to monitor the flow control system and record flowmeter readings and basin water levels.

Examination of the use of three infiltration test systems (versus two systems) indicate that there would be minimal savings in labor and equipment costs with increased field management challenges. Accordingly, cost estimates and schedules are presented for an approach using two infiltration systems.

At the completion of infiltration testing, each test basin would be backfilled with the excavated material, and the site would be returned to its original, pre-disturbed grade. It is assumed that formal compaction and compaction testing is not required.

### Task 3 – Draft and Final Reports

Results of the infiltration testing program will be documented in a Draft Report provided to Valley District for review; comments will be incorporated into a Final Report. The report will document all key field activities, results, and findings. Tables and charts of collected field data and calculated instantaneous and average vertical infiltration rates for each test will be included. The report will provide conclusions on the feasibility of recharging water at each site based on infiltration test results and lithologic logs of nearby exploratory wells (if applicable). Suitable locations for siting spreading basins at each site will be described along with recommendations for next implementation steps. Comments received will be incorporated into a Final Report, which will be submitted to Valley District. All report files will be submitted in the latest Adobe Acrobat PDF and Microsoft Word formats.

In addition, all electronic spreadsheet files of data collected in the field will be submitted to Valley District in the latest version of Microsoft Excel. GIS maps and associated shapefiles of construction boundaries and excavation sites will be submitted in ArcGIS v10.

### Task 4 – Project Management

This task will cover project administration and communication between Todd Groundwater, DRE, Valley District staff, SBVFCD staff, and other project partners for the duration of the project. Costs include time by Todd Groundwater to review progress billings by DRE to confirm accounting and billing for time and materials used to conduct infiltration testing work at each site is accurate.

Five (5) progress conference calls are included to keep Valley District informed of completed activities, preliminary results, and planned field activities. Additionally, two (2) in-person status meetings are included to discuss preliminary findings, proposed testing modifications, and steps needed to ensure site and water access at subsequent test sites. While the timing of the status meetings can be modified, the first status meeting is proposed following the completion of testing at Site 2, and a second status meeting is proposed following completion of testing at Site 6.

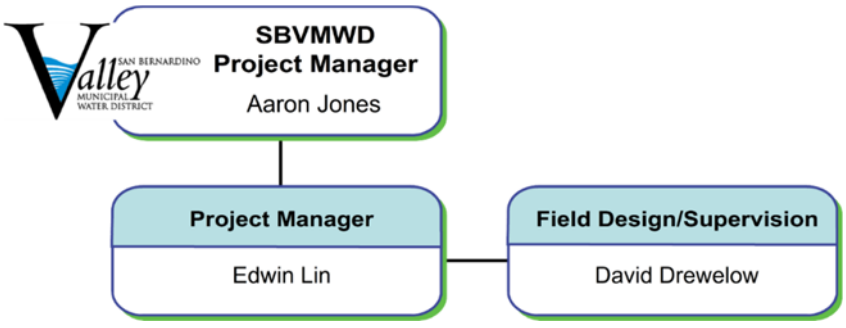
## Project Team

Todd Groundwater offers a strong technical team qualified to successfully implement the infiltration testing Work Plan. Our team is experienced in several key areas that will benefit this project including:

- Technical expertise with all phases of recharge feasibility evaluation
- Design, installation, and supervision of multi-day field data collection programs
- Innovative and critical thinking for problem solving

A project organization chart is presented below, followed by a description of the team member's role and relevant experience. A resume for each team member is presented in the Appendix.

### Project Organization Chart



**Project Manager/Lead Hydrogeologist**

**Edwin Lin, PG, CHG**

Edwin Lin, Principal Hydrogeologist at Todd Groundwater, has 20 years of experience in groundwater basin management, including evaluation of the technical feasibility, water level/quality impacts, and regulatory compliance of managed aquifer recharge projects involving local stormwater, imported water, and recycled water. Mr. Lin has extensive experience in designing and implementing subsurface field investigations for MAR employing a variety of drilling methods for monitoring well installation, soil hydraulic and geochemical testing, and groundwater quality sampling and analysis. In addition to hands-on field experience, he is skilled in GIS database development and spatial analysis, groundwater flow modeling, evaluation of geochemical interactions, and application of advanced environmental statistics.

Edwin has recently designed and supervised multi-day pilot infiltration testing with the Mojave Water Agency and Santa Clara Valley Water District. He has also served as Project Manager and/or Lead Hydrogeologist for recharge feasibility investigations for numerous agencies, including Coachella Valley Water District, Mojave Water Agency, and Western Municipal Water District. Through these projects, Edwin has developed a comprehensive understanding of the key technical components critical to successful recharge projects.

As Project Manager and Lead Hydrogeologist, Mr. Lin will be responsible for coordinating/communicating with District staff and DRE to ensure that project milestones are met and to confirm that consultant efforts are completed within negotiated budgets. He will lead all hydrogeologic aspects of the project and will direct and ensure that the all components of each Task Order meet the District's project objectives.

Edwin is known for his attention to detail technically and administratively. Mr. Lin is currently leading a multi-phase study for the Mojave Water Agency. The goals of the study are to assess the feasibility of recharging State Water Project (SWP) water in off-river surface spreading basins within the western Alto Subarea of the Upper Mojave River Groundwater Basin (Basin). To-date, Edwin has designed and supervised the first phase of field investigations, which included over 5 miles of surface geophysical surveying and field-scale infiltration testing complemented by borehole infiltration tests. Results indicate that near-surface soils at three target recharge sites are relatively permeable and generally suitable for recharge through surface spreading basins. Average vertical infiltration rates calculated from field-scale infiltration tests range from 1.6 to 11.1 feet/day. The project is proceeding to the second phase of investigation with drilling, installation, and groundwater quality sampling of two sonic-drilled monitoring wells in the area with the highest infiltration potential and evaluation of geochemical (leaching) properties of vadose zone sediments.

Edwin has also led field programs to assess recharge feasibility in the Seaside Basin for the Monterey Regional Water Pollution Control Agency. Field activities have included exploratory drilling and monitoring and injection well installation using a variety of drilling methods, characterization of vadose zone sediments for hydraulic and geochemical leaching, percolation testing, water level mounding assessment, and geotechnical evaluation of liquefaction risk.

**Field Design/Supervision**
**David Drewelow**

David Drewelow, Vice President of Drewelow Remediation Equipment, Inc. (DRE), has over 25 years of experience in the design, installation, startup, and operations and maintenance of environmental remediation and groundwater treatment systems, as well as environmental and water well drilling. David has worked on hundreds of projects for industrial, municipal, and private clients throughout California. His expertise includes the design and application of electrical test equipment, water and air vapor conveyance systems, motors, pumps, temperature sensors and switches, pressure sensors and switches, valve actuators, and telemetry systems. He has developed standard operating procedures for numerous engineered field systems to ensure accurate and repeatable monitoring, data collection, and equipment maintenance.

As Field Design and Supervision Lead, Mr. Drewelow will be responsible for coordinating and implementing the field-scale infiltration tests. He will be the primary communications contact for all field crews (including subcontractors for earthwork, temporary fencing, traffic control, and optional water tanks) and will be responsible for ensuring efficient field mobilization, test pit excavation, operations setup, monitoring, and final cleanup and restoration at each site. He will be subcontracting Engineering and Environmental Construction (Huntington Beach, CA) for all earthwork activities, who he has worked with successfully on other projects. He will report to the Project Manager on project status, including completed and planned field activities.

## Project Schedule

A proposed project schedule is shown in Table 1. Todd Groundwater can begin this project upon receipt of a notice-to-proceed and anticipates that the project can be completed within a 20-week (4.5-month) timeframe assuming immediate initiation of the project, timely scheduling of the pre-construction meeting and identification of water sources, confirmation of site management requirements by SBCFCD and other regulatory permitting agencies, and receipt of comments by Valley District and partner agencies on the Draft Report.

We anticipate Task 1 (Pre-Field Planning) will take approximately 2 weeks to complete.

The implementation of the infiltration tests is based on the recommended approach described in Section 3.1 (Fieldwork Schedule) of the Work Plan. Such an approach involves performing initial site preparation and test initiation at two sites, staggered one week apart. Site demobilization, preparation, and test initiation would occur on Mondays of each week. Under this scenario, site preparation and test initiation at Site 1 would occur on Monday of the first week (Week 1). This would be followed by site preparation and test initiation at Site 2 in Week 2. At the beginning of Week 3, testing would be completed at Site 1, and equipment and materials would be moved from Site 1 to Site 3, where testing would begin the same week. At the beginning of Week 4, testing would be completed at Site 2, and equipment and materials from Site 2 would be moved to Site 4, where testing would begin the same week. This process would be repeated a-needed to complete infiltration testing at the thirteen sites. Given this staggered approach, the number of weeks to complete proposed infiltration testing is equal to the number of investigation sites plus one week (or 14 weeks).

The proposed field schedule provides the following advantages: (1) the contractor is on a fixed weekly schedule for excavation, equipment mobilization/demobilization and monitoring activities, and (2) materials and labor (including fire hose, manifolds, basin trees, fencing, and traffic ramps/signage) are required for exactly two sites for the project at any given time.

The draft report would be prepared and submitted to Valley District within 2 weeks of the completion of final testing. The final report would be prepared and submitted one week after receipt of all agency comments.

## Table 1. Project Schedule

| Month | March | | | | April | | | | May | | | | June | | | | | July | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Week | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Dates (Mon - Sun) | Mar 5-11 | Mar 12-18 | Mar 19-25 | Mar 26-Apr 1 | Apr 2-8 | Apr 9-15 | Apr 16-22 | Apr 23-29 | Apr 30-May 6 | May 7-13 | May 14-20 | May 21-27 | May 28-Jun 3 | Jun 4-10 | Jun 11-17 | Jun 18-24 | Jun 25-Jul 1 | Jul 2-8 | Jul 9-15 | Jul 16-22 |
| Notice-to-Proceed ♦ | | | | | | | | | | | | | | | | | | | | |
| **Task 1. Pre-Field Planning** | | | | | | | | | | | | | | | | | | | | |
| 1.1. Pre-Construction Meeting ♦ | | | | | | | | | | | | | | | | | | | | |
| 1.2. Refine Work Plans | | | | | | | | | | | | | | | | | | | | |
| 1.3. Construct and Test System ♦ | | | | | | | | | | | | | | | | | | | | |
| **Task 2. Infiltration Testing** | | | | | | | | | | | | | | | | | | | | |
| ***Infiltration System 1*** | | | | | | | | | | | | | | | | | | | | |
| Site 1 | | | | | | | | | | | | | | | | | | | | |
| Site 3 | | | | | | | | | | | | | | | | | | | | |
| Site 5 | | | | | | | | | | | | | | | | | | | | |
| Site 7 | | | | | | | | | | | | | | | | | | | | |
| Site 9 | | | | | | | | | | | | | | | | | | | | |
| Site 11 | | | | | | | | | | | | | | | | | | | | |
| Site 13 | | | | | | | | | | | | | | | | | | | | |
| ***Infiltration System 2*** | | | | | | | | | | | | | | | | | | | | |
| Site 2 | | | | | | | | | | | | | | | | | | | | |
| Site 4 | | | | | | | | | | | | | | | | | | | | |
| Site 6 | | | | | | | | | | | | | | | | | | | | |
| Site 8 | | | | | | | | | | | | | | | | | | | | |
| Site 10 | | | | | | | | | | | | | | | | | | | | |
| Site 12 | | | | | | | | | | | | | | | | | | | | |
| **Task 3. Draft and Final Reports** | | | | | | | | | | | | | | | | | | | | |
| 3.1. Prepare Draft Report | | | | | | | | | | | | | | | | | | | | |
| *Agency Review* | | | | | | | | | | | | | | | | | | | | |
| 3.2. Prepare Final Report | | | | | | | | | | | | | | | | | | | | |
| **Task 4. Project Management** | | | | | | | | | | | | | | | | | | | | |
| Progress Meeting 1 | | | | | | ♦ | | | | | | | | | | | | | | |
| Progress Meeting 2 | | | | | | | | | | ♦ | | | | | | | | | | |

= Site Preparation (Excavation/Fencing/Equipping/Start Fill)
= Infiltration Testing (Process Monitoring/Data Collection)
= Infiltration Testing End (Site Demobilization and Restoration/Equipment Transfer to Next Site [if applicable])

## Cost Estimate

**Table 2** shows the proposed fixed-price cost for performing infiltration testing at the thirteen sites with costs broken down by task for Todd Groundwater and DRE labor, equipment, rental fees, subcontractor labor, other direct costs (e.g., travel costs), and subcontractor markup. Costs for contractor excavation, fencing, installation and intra-site moving of water conveyance equipment and materials, weekly monitoring of operation and collection of field data, site demobilization, and intra-site movement of equipment are included. Engineering costs for pre-field coordination, project management, data analysis and reporting are also included.

Total estimated costs for the project is $259,300, including a 3 percent project contingency. The costs for an optional water tank rental for up to three sites is an additional $3,846.

Costs for Task 2 total $221,893, reflecting a cost of field activities for infiltration testing at approximately $17,069 per site.

# Table 2. Project Budget and Schedule of Fees

| Hourly Rates | TODD GROUNDWATER (TODD) | | | | | | | DREWELOW REMEDIATION EQUIPMENT, INC. (DRE) | | | | | | | | | | | | | | 5% | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Principal Hydrogeo. $220 | GIS Analyst / Graphics $115 | Todd Labor Hours | Todd Total Labor | 2% Comm. Fee | Todd Admin $105 | Other Direct Costs | Senior Engineer $185 | Specialist Level 3 $95 | Specialist Level 2 $90 | Specialist Admin $85 | Travel Time $80 | DRE Labor Hours | DRE Total Labor | Infiltr. System Rental Costs | Subcntcr Earthwork Costs | Subcntcr Fencing Costs | Subcntcr Porta-Potty Costs | Subcntcr Traff. Ramp Costs | Subcntcr Traff. Sign Costs | Optnl. Water Tank Costs | Other Direct Costs | Todd Subconsultant Markup | Total Costs |
| **Task 1: Pre-Field Planning** | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1. Schedule and Attend Pre-Construction Meeting | 8 | | 8 | $ 1,760 | $ 35 | | $ 300 | 8 | | | | | 8 | $ 1,480 | | | | | | | | $ 198 | $ 84 | $ 3,857 |
| 1.2 Refine Site-Specific Work Plans | 6 | | 6 | $ 1,320 | $ 26 | | | 6 | | | | | 6 | $ 1,110 | | | | | | | | | $ 56 | $ 2,512 |
| 1.3. Construct and Test Manifold and Basin Tree Systems | | | 0 | $ - | $ - | | | 6 | | | 30 | 4 | 40 | $ 3,980 | | | | | | | | | $ 199 | $ 4,179 |
| **Task 1 Estimated Cost** | **14** | **0** | **14** | **$ 3,080** | **$ 62** | **$ -** | **$ 300** | **20** | **0** | **0** | **30** | **4** | **54** | **$ 6,570** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ 198** | **$ 338** | **$ 10,548** |
| **Task 2: Perform Infiltration Testing at Thirteen Sites** | | | | | | | | | | | | | | | | | | | | | | | |
| Mobilization and Testing (Sites 1 and 2) | 16 | | 16 | $ 3,520 | $ 70 | | $ 600 | 16 | 16 | | | 20 | 52 | $ 6,080 | $ 8,174 | $ 8,598 | $ 700 | $ 560 | $ 2,000 | $ 600 | | $ 396 | $ 1,355 | $ 32,654 |
| Site Visit (weekly Thursday; 14 times) | | | 0 | $ - | $ - | | | | | 28 | | 84 | 112 | $ 9,240 | | | | | | | | $ 2,772 | $ 601 | $ 12,613 |
| Intra-Site Demobe/Mobe and Testing (Sites 3-13; 11 times) | | | 0 | $ - | $ - | | | 88 | | 176 | | 88 | 352 | $ 39,160 | $ 44,957 | $ 47,289 | $ 7,838 | $ 3,080 | $ 4,000 | $ 3,300 | | $ 2,178 | $ 7,590 | $ 159,392 |
| Final Site Demobilizations (2 times) | | | 0 | $ - | $ - | | | 16 | | 32 | | 16 | 64 | $ 7,120 | | $ 8,598 | $ 300 | | | | | $ 396 | $ 821 | $ 17,235 |
| **Task 2 Estimated Cost** | **16** | **0** | **16** | **$ 3,520** | **$ 70** | **$ -** | **$ 600** | **120** | **16** | **236** | **0** | **208** | **580** | **$ 61,600** | **$ 53,131** | **$ 64,485** | **$ 8,838** | **$ 3,640** | **$ 6,000** | **$ 3,900** | **$ -** | **$ 5,742** | **$ 10,367** | **$ 221,893** |
| **Task 3: Prepare Draft and Final Reports** | | | | | | | | | | | | | | | | | | | | | | | |
| Draft Report | 20 | 8 | 28 | $ 5,320 | $ 106 | | | 8 | | | | | 8 | $ 1,480 | | | | | | | | | $ 74 | $ 6,980 |
| Final Report | 4 | | 4 | $ 880 | $ 18 | | | | | | | | 0 | $ - | | | | | | | | | $ - | $ 898 |
| **Task 3 Estimated Cost** | **24** | **8** | **32** | **$ 6,200** | **$ 124** | **$ -** | **$ -** | **8** | **0** | **0** | **0** | **0** | **8** | **$ 1,480** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ 74** | **$ 7,878** |
| **Task 4: Project Management** | | | | | | | | | | | | | | | | | | | | | | | |
| Conference Calls, Budget Tracking, and Invoicing | 10 | | 10 | $ 2,200 | $ 44 | $ 210 | | 6 | | | | | 6 | $ 1,110 | | | | | | | | | $ 56 | $ 3,620 |
| Status Meeting 1 | 8 | | 8 | $ 1,760 | $ 35 | | $ 400 | 6 | | | | 4 | 10 | $ 1,430 | | | | | | | | $ 198 | $ 81 | $ 3,905 |
| Status Meeting 2 | 8 | | 8 | $ 1,760 | $ 35 | | $ 400 | 6 | | | | 4 | 10 | $ 1,430 | | | | | | | | $ 198 | $ 81 | $ 3,905 |
| **Task 4 Estimated Cost** | **26** | **0** | **26** | **$ 5,720** | **$ 114** | **$ 210** | **$ 800** | **18** | **0** | **0** | **0** | **8** | **26** | **$ 3,970** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ 396** | **$ 218** | **$ 11,429** |
| **Total Project Estimated Cost** | **80** | **8** | **88** | **$ 18,520** | **$ 370** | **$ 210** | **$ 1,700** | **166** | **16** | **236** | **30** | **220** | **668** | **$ 73,620** | **$ 53,131** | **$ 64,485** | **$ 8,838** | **$ 3,640** | **$ 6,000** | **$ 3,900** | **$ -** | **$ 6,336** | **$ 10,997** | **$ 251,747** |
| **3 Percent Project Contingency** | | | | | | | | | | | | | | | | | | | | | | | | **$ 7,552** |
| **Total Project Estimated Cost (with Contingency)** | | | | | | | | | | | | | | | | | | | | | | | | **$ 259,300** |
| **OPTIONAL WATER STORAGE TANK (assume 3 sites)** | | | | | | | | | | | | | | | | | | | | | | | |
| Water Tank Delivery, Intra-Site Move, and Final Pickup | | | | | | | | | | | | | | | | | | | | | $ 3,663 | | $ 183 | $ 3,846 |

Notes:

1 – Infiltration System costs includes rental costs for a two-week period for the manifold ($700), basin tree with float switches and valves ($850), telemetry system ($250) and 1,000 feet of 3-inch fire hose ($500; unit cost of $25 per 50-foot section), plus 9% tax.

2 – Traffic ramps to protect fire hose at road crossings estimated at 50 feet per site based on nearest fire hydrant for up to 6 sites (Wilson Creek III, Yucaipa Creek at 7th Place, Chapman Heights Basin, and 10th Street and Avenue E, and two additional sites). One-third of the costs are apportioned into "Sites 1 and 2" and the remaining are apportioned into Sites 3 through 13. Sites rate is $20 per week per two-foot section of heavy duty traffic ramp, rating of 25,000 pounds per tire.

3 – Water tank (21,000 gallon closed steel roll off tank) rental cost equals $367.50 rental fee for two weeks plus delivery, intra-site move, and final pickup charges of $640 per event

4 – The following items have not been included in the cost estimate:

- Cost for test water
- Water meter rental fee
- City, county, and state permit fees

## References

***TODD GROUNDWATER***

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***DREWELOW REMEDIATION EQUIPMENT, INC.***

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# Appendix

# Company Profiles and Resumes

# Appendix

## *About Our Firms*


Todd Groundwater specializes in the planning, development, management, and protection of surface water and groundwater resources**.** We are an employee-owned and California registered Small Business Enterprise (SBE) and Women-owned Business Enterprise (WBE) certified by the Women's Business Enterprise National Council (WBENC) among other agencies. We are located in the City of Alameda in the San Francisco Bay Area. Since 1978, we have provided consulting services for the full range of groundwater and related surface water issues. Todd Groundwater was founded by Dr. David Keith Todd, who was the author of the widely used textbook, *Groundwater Hydrology*.

Our staff is composed of thirteen professionals and two support staff. We maintain a small, specialized staff focused on groundwater services to our clients. Our professional staff members have advanced degrees in civil engineering, geology, hydrogeology, geochemistry, geography, and environmental sciences. All of our geologists and engineers are professionally registered in California (and other states), and most of our geologists are also certified hydrogeologists and engineering geologists. With an average staff tenure exceeding ten years, we provide our clients with reliable and consistent service from a cohesive team.

Todd Groundwater has extensive experience in aquifer recharge and recovery projects throughout California, including conjunctive use and water banking; recycled water recharge; infiltration testing at recharge sites; well siting, design, drilling, and testing; conceptual and mathematical modeling; water quality monitoring and protection; successful grant funding support; CEQA and NEPA studies; and permitting. Our managed aquifer recharge (MAR) projects make use of all sources of water including local runoff, imported, and recycled water. Many of our managed aquifer recharge projects are located in Southern California, where conjunctive use of local, imported, and recycled water has been conducted for decades. We are currently working with the Metropolitan Water District of Southern California (MET) and Los Angeles County Sanitation Districts (LACSD) assessing recharge and recovery of advanced treated recycled water in the San Gabriel Basin. For another project, we are working with LACSD and the Water Replenishment District of Southern California (WRD) evaluating increased water recharge in the Montebello Forebay Spreading Grounds. We are also currently providing on-call hydrogeologic services to Rancho California Water District (RCWD) and the Santa Clara Valley Water District (SCVWD) evaluating water recharge operations in their respective groundwater basins. Detailed project descriptions for selected projects are provided in the Project Abstracts section of this proposal.

# Drewelow Remediation Equipment, Inc.

**A Minority Woman Owned, Certified Small Business Since 1993**

Company Profile: Drewelow Remediation Equipment, Inc. is a certified small business enterprise, headquartered in Escondido, Ca. Our corporate focus is the supply and operation of soil and groundwater remediation equipment and services to other industries with similar engineering and equipment needs. We specialize in supplying best in class equipment and services that efficiently remove source contamination from soil and ground water. We have operated continuously since 1993, providing quality products and services to government agencies, major oil corporations, environmental consulting firms and private companies. Our fleet of vapor extraction equipment has successfully removed subsurface contamination resulting in numerous site closures.

**Corporate Certifications:**

California Certified Small Business Enterprise
California Contractors License C-61
County of LA – MBE/WBE certified

**Employee Certifications;**

40 hour Hazwoper trained
LPS Trained
First Aid CPR
Forklift Operator
Lock Out / Tag Out Training

**Remediation Equipment Rentals:**

| | | |
|---|---|---|
| Electric Catalytic Oxidizers | Blower packages | Thermal / Catalytic oxidizers |
| High vacuum blower packages | Air sparging units | Water storage systems |
| Groundwater treatment systems | Dual phase units | Water Aeration systems |
| Pump and treat systems | Water filtration systems | Pump skid |
| Vapor phase carbon vessels | Transfer pump packages | Tempoary pipeline systems |
| Liquid phase carbon vessels | Data Acquisition systems | Remote Telemetry systems |

We offer a large selection of rental equipment available in a wide variety of power configurations, footprints and flow rates. Project conditions, source contamination and client objectives are very important to us. We welcome the opportunity to work with our clients during the design stage to ensure the best possible equipment is mobilized to the project location.

**Field Services:**

| | |
|---|---|
| Equipment mobilization / demobilization | Short term pilot studies |
| Thermal oxidizer trouble shooting | Long term pilot studies |
| Electric Catalytic oxidizer trouble shooting | Thermal oxidizer repair |
| Blower package trouble shooting | Electric catalytic oxidizer repair |
| Equipment refurbishing | Thermal oxidizer startups |
| Equipment safety field inspections | Electric catalytic oxidizer startups |

**Contact Information:**

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www.dre-equip.com

# Edwin H. Lin, PG, CHG

Principal Hydrogeologist

## EDUCATION

MS, Groundwater Hydrology, Flinders University (Australia), 2006
BS, Geological and Environmental Sciences, Stanford University, 1998

## REGISTRATIONS

Professional Geologist California, No. 8312
Certified Hydrogeologist California, No. 907

## PROFESSIONAL SUMMARY

Mr. Lin has 20 years of experience in groundwater basin management, including managed aquifer recharge (MAR) evaluations, basin conceptual model development, and water supply exploration. Mr. Lin has published papers on well clogging mechanisms and pre-treatment options for Aquifer Storage and Recovery (ASR) in cooperation with the Australian Commonwealth Scientific and Industrial Research Organisation. Mr. Lin has also been responsible for the design and construction of municipal water supply and monitoring wells using a variety of drilling methods, and analysis of aquifer pumping tests. He is skilled in Geographical Information Systems (GIS), database development, geochemical analyses, and application of advanced environmental statistics. A few recent projects are described below demonstrating Mr. Lin's expertise with emphasis on MAR projects.

*Ford Pond Infiltration Tests for Indirect Potable Reuse Study, Santa Clara Valley Water District*
Since 2016, Todd Groundwater has conducted hydrogeologic investigations to evaluate the recharge feasibility and soil infiltration capacity of multiple sites across the Santa Clara Valley Subbasin for SCVWD's Indirect Potable Reuse (IPR) program. Field investigations have included cone penetration soundings (CPTs), installation of nested monitoring wells, field-scale infiltration testing, laboratory soil permeability and leaching analysis, groundwater quality sampling, and geochemical modeling for metals dissolution potential. As Project Hydrogeologist, Mr. Lin designed and implemented two 10-day concurrent percolation tests at the Ford Ponds Site and adjoining county-owned property. Mr. Lin directed the construction of two test basins (with 15 to 30 feet in sidewall length) and installation of flow control and water level monitoring equipment. Results showed that vadose zone sediments at the Ford Ponds Site and adjacent County-owned parcel have favorable surface recharge potential with rates exceeding 10 feet/day. While long-term infiltration rates are expected to be lower, test results combined with subsurface lithologies indicate that the existing Ford Pond alone may be sufficient to recharge target recycled water delivery rates (4,200 AFY); however, multiple ponds would provide more flexibility for maintenance and drying.

Managed Aquifer Recharge Feasibility Study, Western *Alto Subarea, Upper Mojave River Basin, Mojave Water Agency*

The Mojave Water Agency (MWA) is evaluating the feasibility of recharging State Water Project (SWP) water in off-river surface spreading basins within the western Alto Subarea of the Upper Mojave River Groundwater Basin (Basin). A successful managed aquifer recharge (MAR) project in the region would increase MWA's capacity to store and recover SWP water and provide future long-term replenishment of the Regional Aquifer. Since 2016, Todd Groundwater has been assisting MWA with field investigations to characterize the subsurface stratigraphy and infiltration potential of the vadose zone, which extends down to 550 feet below ground surface. As Project Manager, Mr. Lin designed and supervised the first phase of field investigations, which included regional surface geophysical surveys and field-scale infiltration testing complemented by borehole infiltration tests. Infiltration tests were conducted at three sites by MWA staff under direction of Todd Groundwater, with test basin geometries ranging from approximately 600 to 1,800 $ft^2$. Tests were conducted from 15 to 21 days. Results indicated that near-surface soils at all three sites are relatively permeable and generally suitable for recharge through surface spreading basins. Average vertical infiltration rates were 1.6, 4.3, and 11.1 ft/day for the three sites. The project is proceeding to the second phase of investigation with drilling, installation, and groundwater quality sampling of two sonic-drilled monitoring wells, evaluation of geochemical (leaching) properties of selected vadose zone sediments, and borehole instrumentation to track the vadose zone wetting front during future pilot-scale infiltration tests.

*Managed Aquifer Recharge Feasibility Studies for Mid-Valley and CVWD Palm Desert Areas, and Groundwater Replenishment Expansion Evaluation of the Thomas E. Levy (TEL) Facility, Coachella Valley Water District*

As Project Manager/Lead Hydrogeologist for three independent CVWD managed aquifer recharge feasibility studies, Mr. Lin reviewed CVWD's domestic pumping and recharge operations to assess the feasibility of expanding groundwater replenishment through surface spreading of Colorado River water in the West and East Whitewater River Subbasin Areas of Benefit. For these studies, Mr. Lin obtained pertinent data from CVWD to characterize lithologic, groundwater production, groundwater level, and water quality conditions across 60 mi2 of CVWD's service area. Mr. Lin oversaw the construction of three local-scale MODFLOW/MT3D groundwater flow and solute transport models used to simulate future groundwater level and water quality impacts from proposed recharge. Results indicated that desired recharge amounts could be accommodated in the Mid Valley and Palm Desert and provide long-term water level and water quality benefits for nitrate and chromium-6. CVWD is currently moving forward with environmental planning and final facility design at the Palm Desert site. Results of the TEL study indicated that future District recharge, pumping and drain operations could be optimized to maximize groundwater storage, recovery effectiveness, and water quality.

*Pure Water Monterey Phase 1 and 2 Injection Well Facilities Design and Construction, Monterey One Water*

The Monterey Peninsula Pure Water Monterey (PWM) Project involves the recharge of 3,500 AFY of advanced treated recycled water into the Seaside Groundwater Basin. Todd Groundwater has completed detailed hydrogeologic assessments over several years with emphasis on the evaluation of target aquifers, recharge methods, and injection and recovery sites. Mr. Lin serves as manager of the project's field programs, which to-date has included the installation of the project's first deep injection well and initial monitoring wells. Field activities have included sediment core analysis for hydraulic and geochemical assessment, geochemical assessment of recycled water and groundwater compatibility, and regional groundwater quality monitoring. Mr. Lin has evaluated recharge impacts to satisfy project EIR requirements, prepared 60%, 90%, and 100% design submittals of well drawings and technical specifications for two phases of construction (including the installation, development, equipping, and performance testing of two deep injection wells, a vadose zone injection well, and seven monitoring well clusters), and is managing and coordinating the drilling and installation of all deep injection, vadose zone, and monitoring wells. Additionally, Mr. Lin is working with project water reclamation to establish water treatment goals and civil engineers to ensure conveyance pipelines can accommodate peak recycled water deliveries to injection well facilities.

*Recharge Site Characterization for Recharge Feasibility, Western Municipal Water District*

As Project Hydrogeologist, Mr. Lin designed and supervised a hydrogeologic field investigation to characterize the suitability of five separate sites in the Arlington Basin for managed aquifer recharge of surface reservoir water. Subsurface characterization methods included Cone Penetration Testing (CPT), hollow-stem auger drilling, double-ring infiltrometer tests, and lab analyses for hydraulic and geotechnical properties. Mr. Lin performed analytical mounding analyses to estimate the recharge potential of each site. Investigation results, including geotechnical analyses performed by subcontractor Ninyo & Moore, indicated that an enhanced recharge project at each of the five sites was feasible. Sites were ranked according to the most favorable hydrogeologic conditions for recharge and conceptual designs were developed for one site.

*Groundwater Basin Conceptual Models, Feasibility Study, and Groundwater Management Plan, Mojave Water Agency (MWA) and Bighorn-Desert View Water Agency*

As Project Hydrogeologist, Mr. Lin developed basin conceptual models and evaluated water supply and demand conditions to evaluate the feasibility of managed aquifer recharge (MAR) with State Water Project water in three High Desert basins. As part of the study, Mr. Lin helped design a geophysical surveying program, including 20,000 feet of multi-array electrical resistivity and 35 time-domain electromagnetic surveys, to confirm vadose zone lithology and fault locations. Findings indicated a MAR project would benefit communities in the Ames Valley basin. Mr. Lin assisted MWA and the local water agency in preparing environmental review documents and implementing a feasibility study to characterize the preferred MAR site. A feasibility study was completed, involving the drilling and installation of monitoring wells, aquifer testing, water quality analysis, and core analysis of vadose zone samples to evaluate the infiltration potential of the target recharge location. Mr. Lin helped to construct

a MODFLOW groundwater flow model used to predict groundwater mounding and recharge flowpaths. The model demonstrated the feasibility of enhanced recharge and identified downgradient wells that would intercept and benefit from enhanced recharge. Mr. Lin also assisted with modifying a multi-agency pumping agreement and basin groundwater management plan, forming the basis for sustainable groundwater management of the basin.

*Evaluation of Groundwater Recharge, Stonegate Development, Scotts Valley Water District*
As project geologist, Mr. Lin estimated groundwater recharge impacts of a proposed 18-acre, commercial/residential development located in Scotts Valley, Santa Cruz County. Mr. Lin quantified onsite groundwater recharge under pre- and post-development conditions using a soil-moisture water balance methodology and water demand estimates. He conducted field percolation tests and assisted in the design of a subsurface stormwater detention/recharge facility capable of infiltrating onsite runoff and reducing offsite peak discharge rates. Findings showed that incorporation of the detention/recharge facility in the proposed development plans was technically feasible, with a net positive impact to groundwater recharge. The project is built and operating successfully.

# Drewelow Remediation Equipment, Inc.

**A Minority Woman Owned, Certified Small Business Since 1993**


## David S. Drewelow

1523 Sterling Court
Encinitas, CA 92024
Phone: 760-546-6456
Fax: 760-546-6476
Mobile: (760) 715-8912
Email: david@dre-equip.com
www.dre-equip.com


**Vice President/Petroleum Engineer – Drewelow Remediation Equipment, Inc – Escondido, CA – 10/93 to present**

Provide engineering and contracting service for the selection, installation, startup, routine O&M, trouble shooting and repair of vapor extraction and groundwater treatment equipment. Supply rental thermal oxidizers, rental blower packages, rental pump and treat equipment and activated carbon equipment. Supply new remediation equipment. Performed routine O&M at remediation sites throughout Southern California for commercial, industrial and Department of Defense projects. Have made hundreds of site visits to trouble shoot and repair remediation equipment. Extensive experiences in the use of electrical test equipment to trouble shoot and repair complicated motor control circuits, temperature feedback circuits, 0 – 5 volts circuits, 4 – 20 ma circuits and 120-volt control circuits. Supply and install blowers, motors, pumps, temperature sensors and switches, pressure sensors and switches, 4 – 20 ma valve actuators, motor starters, etc. Design and manufacture blower packages and gas / liquid separators, water systems with high level alarms, pump down or pump up operations and remote telemetry systems.

**Senior Engineer – Vapor Extraction Technology – San Clemente, CA – 9/92 to 9/93**

Responsible for the design, installation, operation, maintenence and monitoring of vapor extraction systems (VES). Installed thirteen VES's of various types in 1993. Managed the operation and monitoring of seventeen sites throughout Southern California, resulting in two site closures and significant reductions of soil and groundwater contamination at the remaining sites. Developed a maintenence program for remediation equipment, which resulted in a marked increase in equipment reliability and uptime. Carried out all major modification and repairs to remediation equipment. Highly skilled in VES optimization to reduce cleanup time and to cut utility cost. Designed and manufacture vapor extraction equipment.

**Hydrogeologist / Engineer – Hargis + Associates – La Jolla, CA – 8/91 to 8/92**

Responsible for the operation, maintenance and monitoring of an electrical oxidizers and free product removal system. Developed standard operating procedures (SOP) to ensure accurate and repeatable monitoring, data collection and equipment maintenence. Trained staff in SOP's. Wrote quarterly progress reports for remediation projects. Wrote phase 1, phase 2 and remedial action reports. Supervised the drilling and installation of monitoring wells, soil borings and vapor extraction wells. Collected soil samples and groundwater samples and completed COC's. Created water level contour maps, lithology logs, geologic cross sections and iso contour maps.

**Driller – Layne Environment – Long Beach, CA – 9/89 to 7/91**

Operated mud rotary, air rotary, casing hammer and hollow stem auger drilling equipment. Drilled and completed wells for environmental, geotechnical and water supply projects. Operated soil-sampling equipment (SPT, split spoon and Shelby tubes). Installed drilled and complete over 500 wells.

### Education / Licenses / Certificates

BS Petroleum Engineering, University of Texas at Austin, 1987
8 Hour OSHA supervisor training, 1994
40 Hour OSHA training per 29 CFR 1910.120/T8 CCR 5192, 1991 last update June 1999
California Contractors License D21 – Machinery and pumps, 1996

# Summary of Selected Recent Projects

**Remediation Systems, U.S. Department of Defense, Barstow, CA**
For the past 10 years, DRE has supplied and operated remediation equipment for several projects managed by the U.S. Department of Defense. Most recently, DRE has been hired to design, install, and operate a remediation project for U.S. Marines Corp Logistics Base located in Barstow, CA. Project startup is planned for Fall/Winter 2018 with an estimated project duration of 8 to 10 years.
*Project Reference: Mr. Arthur Gunther, Project Geologist, Tetra Tech EC, Inc.*

**Remediation Systems Installation and Operations, Associates Environmental, Los Angeles, CA**
DRE has provided ongoing field engineering services for projects managed by Associates Environmental. Project responsibilities include the installation and repair of methane gas gathering system, water pipelines and gas / liquid separators, and automatic pump down operations.
*Project Reference: Mike Buckantz, President, Associates Environmental*

**Remediation Supply and Systems, County of San Diego, San Diego, CA**
DRE is currently suppling and operating a dual phase soil/groundwater remediation system for the County of San Diego. Equipment is used to extract and remove groundwater and soil gas that is contaminated with gasoline from the subsurface. DRE supervised earthwork contractor to excavate for placement of treatment compounds, pipelines, and associated remediation infrastructure.
*Project Reference: Thomas J Ryan, Department Manager, Pipeline and Process Engineering, AECOM*

**Private Remediation Projects, Environmental Navigation Services (ENS), San Diego, CA**
DRE has been assisting with design and providing equipment and operations and maintenance services for multiple remediation systems managed by ENS over the past six years.
*Project Reference: Jay Jones, Owner/President, Environmental Navigation Services*

| | |
|---|---|
| **From:** | Edwin Lin |
| **To:** | Aaron Jones |
| **Cc:** | David Drewelow |
| **Subject:** | Follow-up to questions concerning Yucaipa Recharge Testing Implementation |
| **Date:** | Thursday, February 8, 2018 5:19:05 PM |
| **Attachments:** | Todd Groundwater Yucaipa Recahrge Testing - Table 2 Project Budget and Schedule of Fees (revised February 8, 2018).pdf |

Hi Aaron,
I'm writing to follow up our discussion on Monday. Specifically, you had questions about the following items:

1. The data collection process, frequency of data recording, and overall field supervision
2. the feasibility of breaking down one test site and setting up at the new test site on the same day

1. With respect to data collection system and frequency, the proposed infiltration system includes flowmeter readings tied to the telemetry system, so that real-time instantaneous and totalized flowmeter readings are accessible 24/7. However, the system does not include real-time test basin water levels tied to the telemetry system. While the water levels in the test basins will be controlled within a relatively tight range (+/- 2 feet), we do see a value in having real-time and recorded measurements of water levels to confirm system functionality and to allow for more precise calculation of vertical infiltration rates on a daily basis. David Drewelow has reviewed the changes needed to upgrade the telemetry system to incorporate flowmeter and water level readings and recording of data with a datalogger. The increase in costs for the telemetry upgrade is $780 per test site (or $10,647 for thirteen sites with Todd Groundwater 5% markup) and is recommended for addition to the field program.

2. With respect to site-to-site mobilization/demobilization days, I spoke with David Drewelow, and we are comfortable with the proposed costs to perform the earthwork and moving of equipment in one work day. Our costs include field crews being onsite as long as needed to ensure the infiltration system is properly functioning (even if that goes into Tuesday). Using two field crews, the work flow on Mondays would be as follows (1) in the morning, excavate the test basin at the new site and de-mobe equipment at the completed site (and move equipment to the new site with timing it to coincide with completion of excavation at new site), and (2) in the afternoon, fill in test basin at completed site and return site to pre-disturbed grade, and start the test at the new site.

   We acknowledge that unforeseen conditions/delays could occur at a particular site that could lead to additional work. This could be due to one of the following reasons: (1) difficult excavating conditions, (2) site access issues, (3) increased traffic control measures/requirements, or (4) significant increased hose length from preferred water source to recharge site. For these reasons, I propose to add 10 hours of labor (and travel costs) for Todd Groundwater under Task 2: Intra-Site Demobe/Mobe and Testing (Sites 3-13; 11 times). This covers an additional site visit to supervise the first site-to-site mobilization/demobilization. Additionally, we recommend increasing the overall project contingency from the currently proposed 3 percent up to 5 percent.

I've attached a revised cost table that incorporates the items above. As you can see, total estimated

costs for the project are $278,290, including the 5 percent project contingency. This is an increase of $18,990 compared to our original proposal. The added components of the project provide more detailed data collection (test basin water level telemetry) and additional field crew and supervision time to account for unforeseen conditions/delays during site-to-site mobilization/demobilization days.

Please let me know if you have any questions or would like to discuss anything. I'm available anytime tomorrow (if I'm not in the office, I can be reached on my cell phone at 415-828-2457). I would also be happy to incorporate the revised cost table in a revised proposal if you need that before your meeting on Wednesday.

Thanks,
Ed

*Edwin Lin, PG, CHg*
Principal Hydrogeologist

TODD GROUNDWATER

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Alameda, CA 94501
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www.toddgroundwater.com

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# Table 2. Project Budget and Schedule of Fees (revised February 8, 2018)

| | TODD GROUNDWATER (TODD) | | | | | | | DREWELOW REMEDIATION EQUIPMENT, INC. (DRE) | | | | | | | | | | | | | | 5% | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hourly Rates | Principal Hydrogeo. $220 | GIS Analyst / Graphics $115 | Todd Labor Hours | Todd Total Labor | 2% Comm. Fee | Todd Admin $105 | Other Direct Costs | Senior Engineer $185 | Specialist Level 3 $95 | Specialist Level 2 $90 | Specialist Admin $85 | Travel Time $80 | DRE Labor Hours | DRE Total Labor | Infiltr. System Rental Costs | Subcntcr Earthwork Costs | Subcntcr Fencing Costs | Subcntcr Porta-Potty Costs | Subcntcr Traff. Ramp Costs | Subcntcr Traff. Sign Costs | Optnl. Water Tank Costs | Other Direct Costs | Todd Subconsultant Markup | Total Costs |
| **Task 1: Pre-Field Planning** | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1. Schedule and Attend Pre-Construction Meeting | 8 | | 8 | $ 1,760 | $ 35 | | $ 300 | 8 | | | | | 8 | $ 1,480 | | | | | | | | $ 198 | $ 84 | $ 3,857 |
| 1.2 Refine Site-Specific Work Plans | 6 | | 6 | $ 1,320 | $ 26 | | | 6 | | | | | 6 | $ 1,110 | | | | | | | | | $ 56 | $ 2,512 |
| 1.3. Construct and Test Manifold and Basin Tree Systems | | | 0 | $ - | $ - | | | 6 | | | 30 | 4 | 40 | $ 3,980 | | | | | | | | | $ 199 | $ 4,179 |
| **Task 1 Estimated Cost** | **14** | **0** | **14** | **$ 3,080** | **$ 62** | **$ -** | **$ 300** | **20** | **0** | **0** | **30** | **4** | **54** | **$ 6,570** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ 198** | **$ 338** | **$ 10,548** |
| **Task 2: Perform Infiltration Testing at Thirteen Sites** | | | | | | | | | | | | | | | | | | | | | | | |
| Mobilization and Testing (Sites 1 and 2) | 16 | | 16 | $ 3,520 | $ 70 | | $ 600 | 16 | 16 | | | 20 | 52 | $ 6,080 | $ 8,174 | $ 8,598 | $ 700 | $ 560 | $ 2,000 | $ 600 | | $ 396 | $ 1,355 | $ 32,654 |
| Site Visit (weekly Thursday; 14 times) | | | 0 | $ - | $ - | | | | | 28 | | 84 | 112 | $ 9,240 | | | | | | | | $ 2,772 | $ 601 | $ 12,613 |
| Intra-Site Demobe/Mobe and Testing (Sites 3-13; 11 times) | 10 | | 10 | $ 2,200 | $ 44 | | $ 400 | 88 | | 176 | | 88 | 352 | $ 39,160 | $ 44,957 | $ 47,289 | $ 7,838 | $ 3,080 | $ 4,000 | $ 3,300 | | $ 2,178 | $ 7,590 | $ 162,036 |
| Final Site Demobilizations (2 times) | | | 0 | $ - | $ - | | | 16 | | 32 | | 16 | 64 | $ 7,120 | | $ 8,598 | $ 300 | | | | | $ 396 | $ 821 | $ 17,235 |
| Telemetry upgrade (includes real-time flow and water level access and datalogging (13 sites) | | | 0 | $ - | $ - | | | | | | | | 0 | | $ 10,140 | | | | | | | | $ 507 | $ 10,647 |
| **Task 2 Estimated Cost** | **26** | **0** | **26** | **$ 5,720** | **$ 114** | **$ -** | **$ 1,000** | **120** | **16** | **236** | **0** | **208** | **580** | **$ 61,600** | **$ 63,271** | **$ 64,485** | **$ 8,838** | **$ 3,640** | **$ 6,000** | **$ 3,900** | **$ -** | **$ 5,742** | **$ 10,874** | **$ 235,184** |
| **Task 3: Prepare Draft and Final Reports** | | | | | | | | | | | | | | | | | | | | | | | |
| Draft Report | 20 | 8 | 28 | $ 5,320 | $ 106 | | | 8 | | | | | 8 | $ 1,480 | | | | | | | | | $ 74 | $ 6,980 |
| Final Report | 4 | | 4 | $ 880 | $ 18 | | | | | | | | 0 | $ - | | | | | | | | | $ - | $ 898 |
| **Task 3 Estimated Cost** | **24** | **8** | **32** | **$ 6,200** | **$ 124** | **$ -** | **$ -** | **8** | **0** | **0** | **0** | **0** | **8** | **$ 1,480** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ 74** | **$ 7,878** |
| **Task 4: Project Management** | | | | | | | | | | | | | | | | | | | | | | | |
| Conference Calls, Budget Tracking, and Invoicing | 10 | | 10 | $ 2,200 | $ 44 | $ 210 | | 6 | | | | | 6 | $ 1,110 | | | | | | | | | $ 56 | $ 3,620 |
| Status Meeting 1 | 8 | | 8 | $ 1,760 | $ 35 | | $ 400 | 6 | | | | 4 | 10 | $ 1,430 | | | | | | | | $ 198 | $ 81 | $ 3,905 |
| Status Meeting 2 | 8 | | 8 | $ 1,760 | $ 35 | | $ 400 | 6 | | | | 4 | 10 | $ 1,430 | | | | | | | | $ 198 | $ 81 | $ 3,905 |
| **Task 4 Estimated Cost** | **26** | **0** | **26** | **$ 5,720** | **$ 114** | **$ 210** | **$ 800** | **18** | **0** | **0** | **0** | **8** | **26** | **$ 3,970** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ 396** | **$ 218** | **$ 11,429** |
| **Total Project Estimated Cost** | **90** | **8** | **98** | **$ 20,720** | **$ 414** | **$ 210** | **$ 2,100** | **166** | **16** | **236** | **30** | **220** | **668** | **$ 73,620** | **$ 63,271** | **$ 64,485** | **$ 8,838** | **$ 3,640** | **$ 6,000** | **$ 3,900** | **$ -** | **$ 6,336** | **$ 11,504** | **$ 265,038** |
| **5 Percent Project Contingency** | | | | | | | | | | | | | | | | | | | | | | | | **$ 13,252** |
| **Total Project Estimated Cost (with Contingency)** | | | | | | | | | | | | | | | | | | | | | | | | **$ 278,290** |
| **OPTIONAL WATER STORAGE TANK (assume 3 sites)** | | | | | | | | | | | | | | | | | | | | | | | |
| Water Tank Delivery, Intra-Site Move, and Final Pickup | | | | | | | | | | | | | | | | | | | | | $ 3,663 | | $ 183 | $ 3,846 |

Notes:

1 – Infiltration System costs includes rental costs for a two-week period for the manifold ($700), basin tree with float switches and valves ($850), telemetry system ($250) and 1,000 feet of 3-inch fire hose ($500; unit cost of $25 per 50-foot section), plus 9% tax.

2 – Traffic ramps to protect fire hose at road crossings estimated at 50 feet per site based on nearest fire hydrant for up to 6 sites (Wilson Creek III, Yucaipa Creek at 7th Place, Chapman Heights Basin, and 10th Street and Avenue E, and two additional sites). One-third of the costs are apportioned into "Sites 1 and 2" and the remaining are apportioned into Sites 3 through 13. Sites rate is $20 per week per two-foot section of heavy duty traffic ramp, rating of 25,000 pounds per tire.

3 – Water tank (21,000 gallon closed steel roll off tank) rental cost equals $367.50 rental fee for two weeks plus delivery, intra-site move, and final pickup charges of $640 per event

4 – The following items have not been included in the cost estimate:

- Cost for test water
- Water meter rental fee
- City, county, and state permit fees

GEOSCIENCE

40 Years

January 17, 2017

Aaron Jones
Assistant Engineer
San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way
San Bernardino, CA 92408

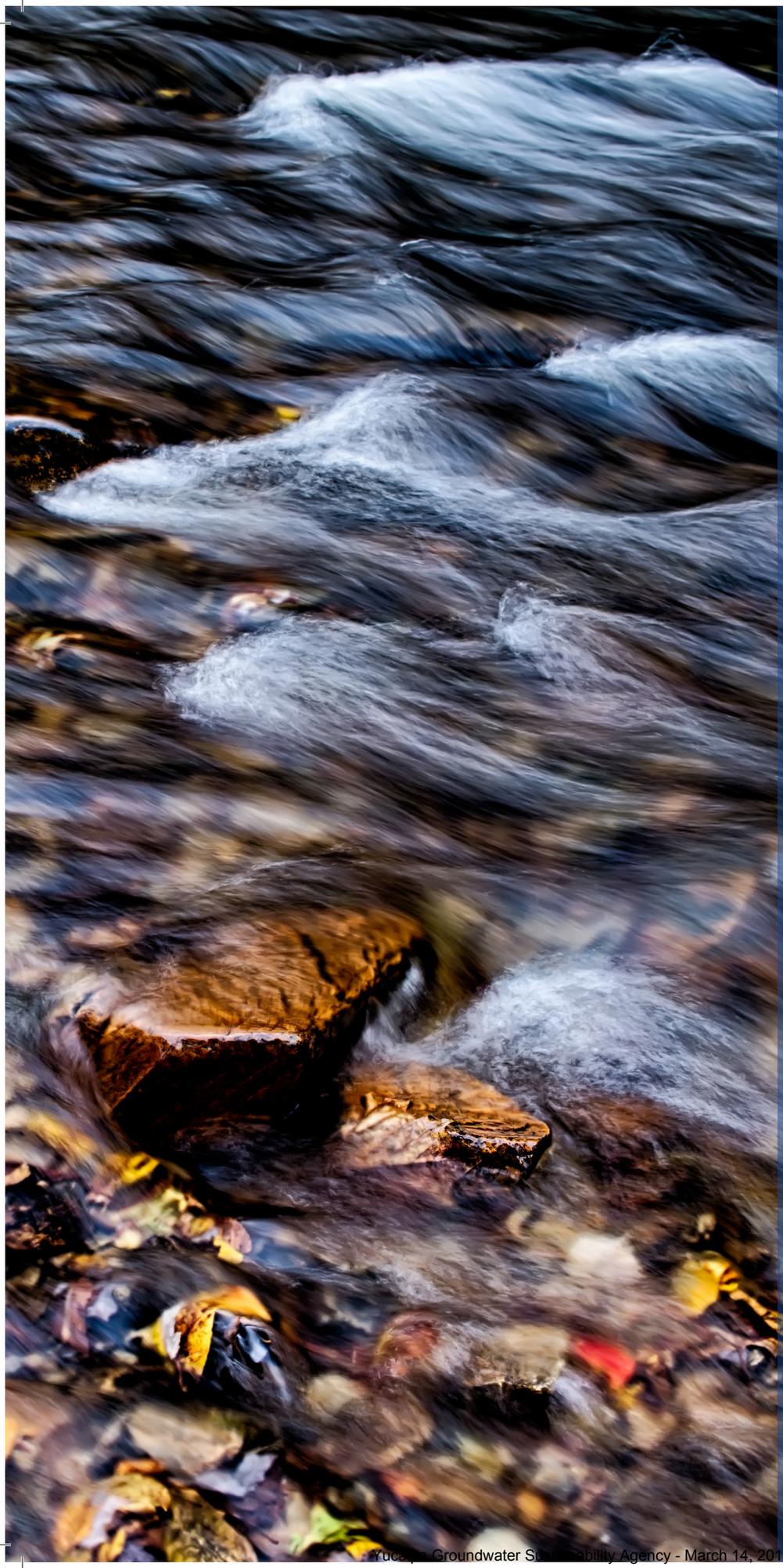
RE: Request for Proposals—Infiltration Testing Implementation for Thirteen Sites in Yucaipa Basin Area

Dear Aaron,

Please see the attached proposals to provide Infiltration Testing Implementation for the 13 sites in the Yucaipa Basin. Per your request we have provided four hard copies and an electronic copy submitted via email. Additionally our fee will remain fixed and valid for 60 days from the date of this proposal. If you have any questions, please feel free to contact me at (909) 451-6650, or via email at bvillalobos@gssiwater.com.

Regards,

Brian Villalobos
Principal



# Request for Proposal:

## Infiltration Testing Implementation for Thirteen Sites in Yucaipa Basin Area

## Yucaipa Basin Recharge Study

Prepared For:

San Bernardino Valley Municipal Water District

January 15, 2018

GEOSCIENCE

40th Anniversary

GEOSCIENCE Support Services, Inc.
PO Box 220
Claremont, CA 91711
P. 909.451.6650
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# Project Understanding

The Yucaipa Groundwater subbasin is located in the southeastern portion of San Bernardino Valley and covers approximately 39 square miles in and around the City of Yucaipa. According to past studies and the most recent published Department of Water Resources Bulletin 118, the Yucaipa subbasin has experienced historic overdraft. Valley District, Yucaipa Valley Municipal Water District (Yucaipa District), City of Yucaipa, San Bernardino County Flood Control District (SBCFCD), South Mesa Water Company and Western Heights Water Company are cooperating to increase groundwater supplies and reduce reliance on imported water. To do that, the partner agencies are assessing methods to use captured storm water and recycled water to recharge groundwater supplies via surface spreading basins at locations determined as potential recharge sites.

The current project is a necessary first-step to determine the size and location of the recharge facilities. The primary goal of the current RFP is to provide an accurate range of the saturated hydrologic conductivity through percolation testing at each site, which will then be used to model the full-scale percolation capacity. A total of 13 sites have been previously identified to conduct percolation testing. The sites are located primarily on land owned by SBCFCD (seven sites), with additional sites located on land owned by the City of Yucaipa (three sites), South Mesa (Mesa) Water Company (one site), and private property (two sites). Sites that are located in stream channels will require permitting from SBCFCD, California Department Fish and Wildlife, US Army Corps of Engineers, and the Regional Water Quality Control Board. It is our understanding that permit applications are not a part of the scope of this RFP, however, if selected we will need to be aware of, and comply with permit requirements including BMPs for runoff and other regulations.

Percolation testing is anticipated to last 14 days at each test site, not including site preparation and restoration. However, actual test time should be based on the progression of test data. All equipment onsite will be automated wherever possible and monitored periodically. Additionally, traffic control, security fencing, and signage will be required for public safety and to prevent vandalism.

Once the data is collected and compiled, our team will begin the analysis and prepare a final report with recommendations.

## Why GEOSCIENCE?

- **Experience working with SBVMWD and project stakeholders—** Understand needs and requirements to efficiently complete the project
- **Our team completed the sustainable yield calculation for the basin and the basin model—**Our familiarity with the basin hydrogeology will help provide accurate data to make future decisions
- **Groundwater Consulting Focus—** At GEOSCIENCE, we do one thing, groundwater resource consulting. Our in-depth focus will help provide detailed analyses that reflect basin conditions

# Project Needs

We have carefully considered the work plan provided in the RFP, past data, and our experience at the site and with other projects. In providing our proposal we have identified several key issues that are discussed below. Additionally we have prepared and provided cost estimates for two options. The first closely follows the work plan presented in the RFP,and the second provides an option for a containerized infiltration basin that can potentially reduce costs, streamline project permitting, and provide more accurate data than a 30' by 30' infiltration basin.

## Containerized Infiltration Basins: Alternative to Excavated Pits

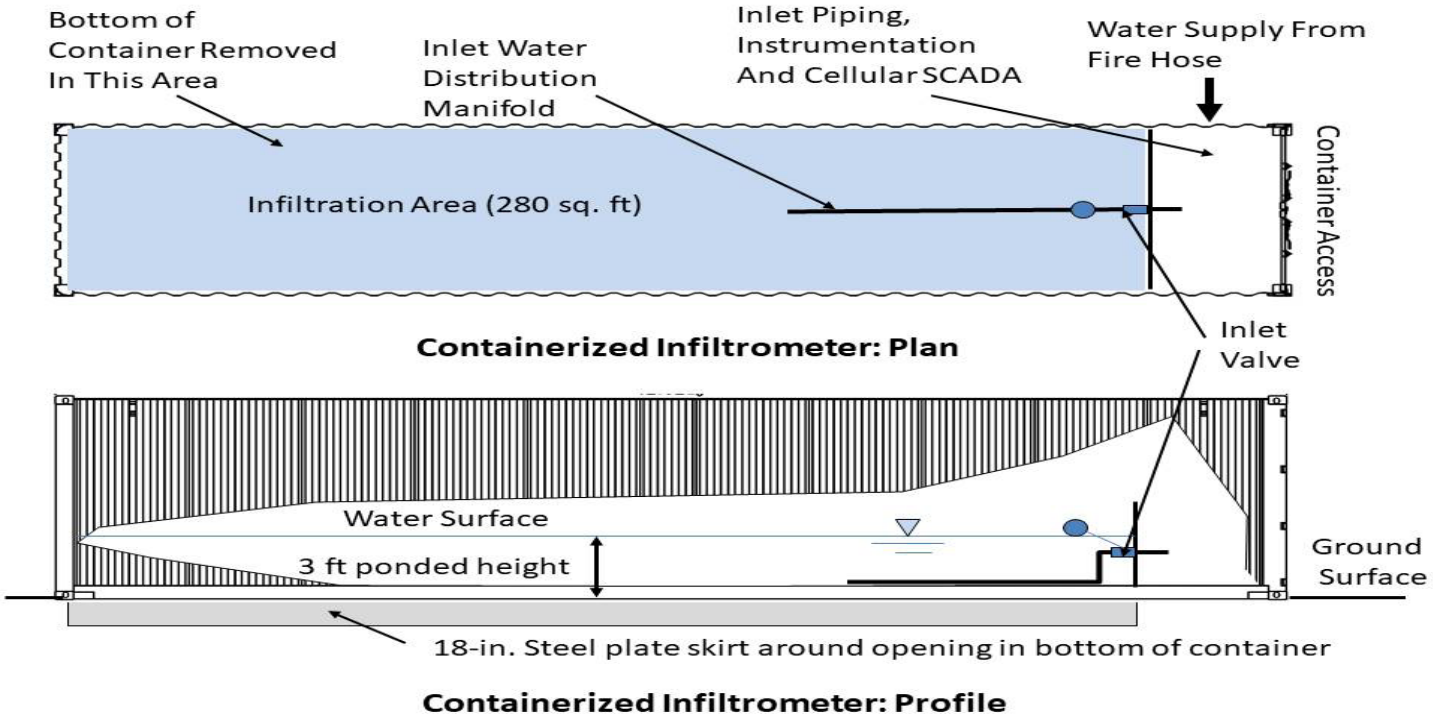
We have carefully considered the challenges that excavating 13, 30 x30 ft temporary pits poses on site security, permitting and the overall logistics of your project. In our costs, we have included an alternative line item for a containerized infiltrometer in lieu of using excavated pits for determining infiltration rates. With this approach, a 40 ft x 8 ft shipping container would be modified and used as a stand-alone infiltration basin (See inset diagram). The bottom would be removed from the container, and a continuous skirt would be welded around the base of the container protruding down approximately 18 in. The container would be set directly over the test site, which would eliminate the need for excavation. The container would be set at each site using either a crane or large forklift, and a 4 in. by 18 in. deep trench would be made either by hand or using a powered trencher to accommodate the skirt.

With this alternative, each container would have an infiltration footprint of approximately 280 square feet (36 ft x 8 ft). The online instrumentation, cellular SCADA, and all water inlet controls to the basin would be mounted in the container, and the container itself would pond water above the test area. Water would be supplied from the hydrant to a connection in the side of the container. Up to three containers could be set at a site providing 840 sq. ft of percolation area—nearly the size of a 30 x 30 ft. pit. If multiple containers are used at a site, containers could be spaced at any distance apart to obtain a more representative estimate of percolation rates, particularly in sites with varying conditions. This approach has the advantage of:

1. A lower overall project cost
2. Potentially more representative data at each percolation site using multiple basins spaced apart
3. Potentially more streamlined with respect to obtaining and complying with all permits needed for the project, and
4. Lower risk of vandalism

## Stockpile Soil Permitting and Safety

There is a lot of uncertainty surrounding the needed BMPs for each site and associated public safety concerns. Specifically, placing unconsolidated soil either around the infiltration pond, or above the storm channel banks




**Alternate Approach**

The image above illustrates an optional approach that if utilized, could reduce permitting, lower construction costs, reduce the risk of vandalism, and potentially provide more representative data. Additionally, the system can be reused and easily transported to additional test sites.

can create a significant safety hazard should a heavy rain event occur. Also there may be substantial time and costs required to design and obtain approval for BMPs at each site.

## Water Supply

The majority of locations have water available through local fire hydrants or other means. Initial percolation rates will be high for most locations which means that sufficient water supply needs to be available to ensure that testing is not delayed. In the case, that water supply is limited, reducing basin area should be considered to avoid delays in reaching a steady-state percolation. Most sites are in proximity to fire hydrants and should water be unavailable or not easily conveyed to the site, a temporary, elevated construction water tank may be used. We have included costs for elevated storage tanks as an option in our proposed fee.

## Accurately Measuring Percolation Rates

One of the most critical aspects of this testing is obtaining accurate flow measurement, particularly in low flow ranges. To reliably estimate saturated hydraulic conductivity, the steady state percolation rates must be accurately measured. On the high-low fill cycles of these basins, if the low-flow measurement is inaccurate, due to an oversized or poor-quality instrument, the percolation capacity of these sites may be substantially under- or overestimated. In our approach, we propose a design that uses a separate high-range and low-range flow meter, consisting of magnetic flow meters that have a 0.5% full scale accuracy. A switch between flow meters will be manually made when the flow rate into the basin flow falls out of acceptable range for the meter. Water pressure will be regulated back so that there is not a rapid—and short lived—flow burst, which can also introduce substantial errors in flow measurement to otherwise accurate meters.

## Real-time, Web-Based Data Collection

We propose collecting data from the testing site using a Cellular SCADA system, which will upload data to a web-based interface. Online instrumentation will include; High-Range and Low-Range Magnetic flow meter, ultrasonic indicator for basin level, and Inlet Water Pressure to Basin.

Data from field instruments will be collected on a real-time basis (one-minute averaged data points) from four instrument locations using a cellular communication link. A satellite connection is also available in the event that cellular service is not available. Should water pressure drop at the site—indicating line failure or potential vandalism— the system will send an alarm and text alert. This instrumentation will be housed in a NEMA 4 enclosure and will be powered by a 24-V power supply with a solar charger.

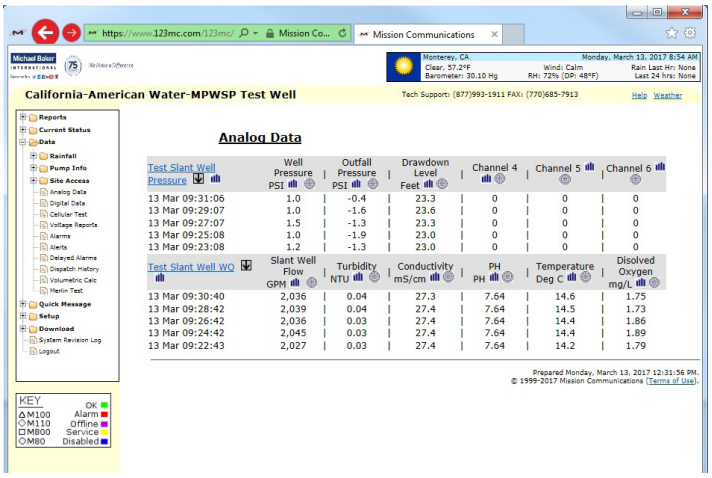
This system will enable remote monitoring of testing at each location, which will minimize the time required at the site. During the course of testing at a site, data will be downloaded and checked daily to verify the success of testing and to minimize lost time in the event that problems arise. An example of the data collection system interface is provided below.

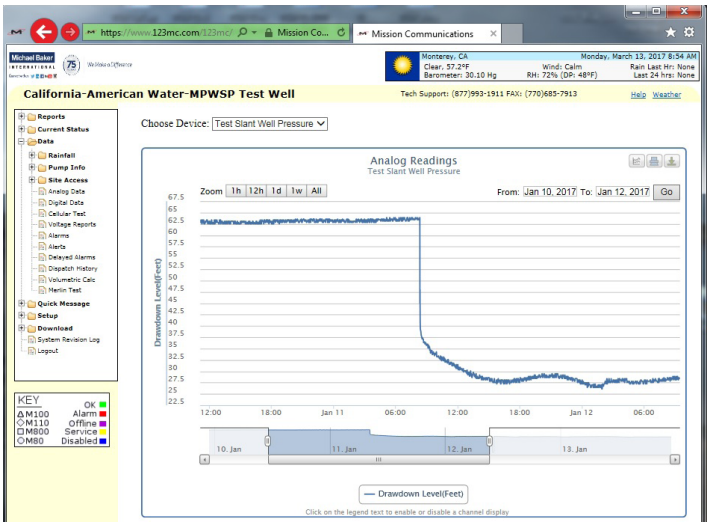
## Site Security

Because each test site will be in operation for 14 days and largely unattended, except for periodic site visits, preventing unauthorized access will be a concern. To minimize the risk of flood that may occur from vandalism or from equipment failure (e.g. inlet float valves not closing), our design includes a Solenoid operated shutoff valve located at the hydrant, which is activated through a Wi-Fi connection based on low line pressure or high basin level. All instrumentation used for testing will be located in a secure NEMA enclosure within the site security fencing.

## Permit Compliance

As previously discussed, permits from several agencies will be required to complete the project. We understand that our scope of work does not include assistance with permitting. Over the course of testing we will ensure compliance with applicable permit conditions and requirements including, run-off, dust control, site restoration and other permit conditions.




**Data Collection System**

The images above illustrate the web-based data collection system that we propose to use on this project. It will enable real-time control and monitoring from any Internet connection.

# Project Approach

Based on our past experience in the subbasin, past project work, and review of the RFP and associated work plan, we have developed an approach that provides an efficient and robust evaluation of infiltration rates at each site.

## 1.0 Develop Project Work Plan

### 1.1 Project Kickoff Meeting

We will conduct a meeting with project team members and partner agencies to review the scope of work, any new data acquired, and review project schedules and critical path items. We also recommend performing a brief site review immediately, or shortly before the project kickoff meeting to confirm site conditions and refine work plans and access routes if necessary.

### 1.2 Finalize Facilities Design and Develop Process and Instrumentation Diagram

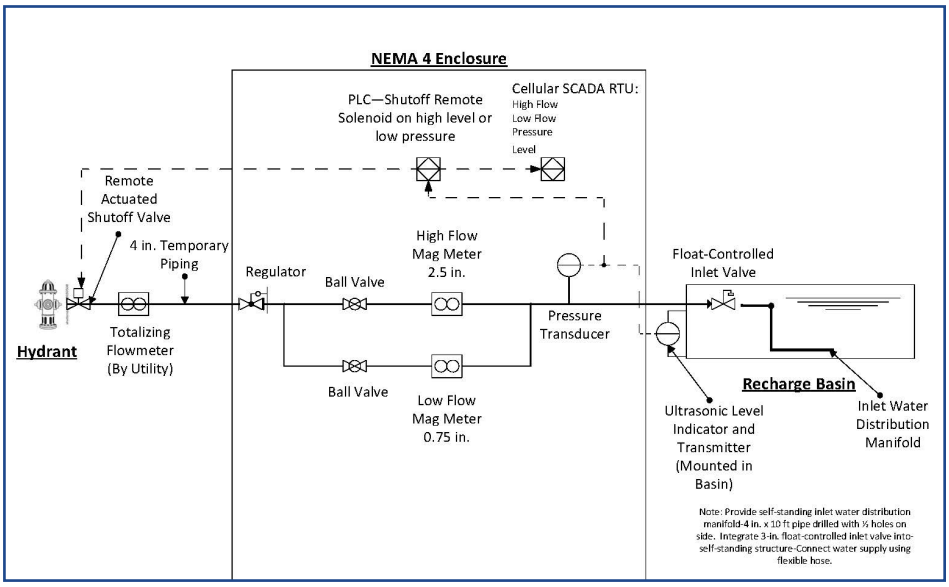
A final design for the basin inlet along with all needed water conveyance and instrumentation will be provided to the contractor. We will develop a process and instrumentation diagram calling out line sizes, materials and connection types to use as a basis for fabricating the water inlet manifolds, flow, level and pressure instrumentation, remote valve shutoff at fire hydrant and SCADA data acquisition. For purposes of preparing costs for this RFP, a preliminary P&ID has already been developed for this project (See Inset Figure Below) we anticipate that this will serve all sites that have pressured flow connections. Some modification will be required if testing is conducted using an onsite water storage tank.

### 1.3 Develop Detailed Site Plan for 13 Sites

Prior to equipment mobilization for field testing a project work plan will be prepared detailing the site specific

**Proposed Process Diagram**

The diagram below illustrates our proposed instrumentation. This method will simplify the instrumentation needed, and allow for automated operation and remote control.



arrangement including the proposed basin, proposed soil stockpile locations, piping, traffic control, and site safety features in plan form. The draft work plan will contain site specific BMPs for soil excavation, stockpiling, and protection of channels, and any facilities at each site. The work plan will be submitted for initial review to the project team.

## 1.4 Progress Meeting and Finalization of Work Plan

After receipt of work plan comments, we recommend a progress meeting to discuss comments and/or other site considerations presented by the project team before finalizing the draft work plan. The final draft work plan will be submitted to SBCFCD for their review, comment, and approval followed by the final work plan which will address and incorporate any comments provided by SBCFCD. The final work plan will be submitted to the project team and SBCFCD as a part of the permitting process.

## 1.5 Project Management and Permit Support

Project Management tasks will include four face-to-face meetings(1 site visit/kick-off meeting, 2 draft workplan progress meeting, and 1 pre-construction meetings with Valley District, SBCFCD, and the subcontractor, and 1 meeting to present the final results of the testing after submission of the draft summary report).

The kick-off meeting will be combined with site visits to review logistical issues for the testing, establish chain of command for site reporting, have initial discussion on proposed site lay-outs for the testing, and discuss any opportunities for coordination with local staff from participating agencies for field monitoring activities. The purpose and content of the draft work plan meeting is discussed above. Finally, after submission of the draft report summarizing the project findings, we will present the findings to the project team and discuss any comments prior to preparing a final report.

Also, draft results from infiltration testing at each basin will be provided to the project team followed by a teleconference to discuss the results and any issues that may have arisen during the testing period at each basin. Due to the many sites and generally open access to sites, any unforeseen issues or interferences at the test sites will be immediately reported to project manager with a summary correspondence sent to the project team for action as appropriate.

## Task 1.0 Deliverables

We understand that the Task 1 deliverables will include the following:

- P&ID of water conveyance, instrumentation and control
- Draft (100%) and Final Pilot Recharge Test and Monitoring Plan Final Plan that includes detailed site plans and BMPs for each site.
- Electronic Files to be provided in required format at the completion of the task. 1.1

# Task 2.0 Infiltration Testing at 13 Sites

## 2.1 Fabrication of Needed Equipment

Once our work plan has been finalized, our subcontractors will begin planning for field work by finalizing site access and water source locations with Valley District staff and other affected parties. Other Equipment Subcontractors (Intuitech Inc. and Southland Water Technologies LLC) will begin fabricating the needed instrumentation and inlet facilities needed for excavated pit testing. If the, containerized infiltration basin option is chosen, then fabrication would also include converting the containers and installing piping and instrumentation within the container. We will coordinate with the contractor and oversee these activities.

## 2.2 Conduct Infiltration Testing and 13 Sites

IO Environmental will begin by mobilizing all equipment to the site. For alternative A using excavated pits per your RFP, We will begin digging 30-foot by 30-foot test basins with a 1:1 sloped wall where possible. If site conditions do not permit, a smaller test basin will be constructed per the work plan.

For our proposed alternative B, containerized infiltrometers will be set at the site using either a crane or forklift depending on conditions. Excavation is minimal for this alternative and there is no anticipated soil storage.

For alternative A, excavated material will be stored at each site according to the site plan and using the BMP requirements for each site. Excavated soils may be temporarily stored adjacent to test basin on channel banks. Where possible and allowed, we will use excavated materials to create a shallow berm around the test basin. We will then set up water conveyance, flow control system, backflow prevent, solar generator, and basin source water manifold. If onsite water is unavailable, we will set up a water tank and pump.

Once the basin is constructed, the subcontractor will conduct an initial test of the installation to verify that instruments are operating properly and the water conveyance system is sound. Once pre-startup tests are complete, and the system is recording data, testing will begin by filling the basin at an initially high rate.
When testing is completed, IO Environmental staff will demobilize equipment once the basins have completely drained and to return the site to pre-test conditions. IO will then transport equipment to the next location.

Because the site will be largely unattended, site safety and security will be a concern. We will install site fencing and signage to deter vandalism and theft. Additionally, the control system will be automated and monitored remotely. Alarm triggers will be set on either low line pressure or high water level in the basin and the system will notify us so we can respond as necessary.

## 2.3 Data Download and Testing Oversight

Flowrates and levels in the percolation ponds will be remotely monitored during testing so that we can keep a close watch on the infiltration rate trend. With a daily check on percolation rates from the web-based SCADA portal, we will be able to better anticipate the end of testing and provide instruction to the sub-contractor to prepare for de-mobilization and moving to the next site.

During the initial startup on the first day, we will have one of our field staff onsite to address any unforeseen issues. We have budgeted effort for our field technicians to check in on the site once per week to confirm that the equipment is operating properly perform a QC check by measuring level in the pond and cross checking SCADA data against local totalizers on the magnetic flow meters and the totalizer on the hydrant meter. We have also budgeted for the contractor to be on site 1-time during each of the 13 tests as a contingency for unforeseen conditions and/or equipment maintenance.

## 2.4 Data Compilation Analysis and Reporting

We will prepare a comprehensive final report that documents the field data, test results, and data analyses for each site. The report will provide an analysis and recommendations for long-term percolation rates for each site. We will submit an electronic copy of the draft report and three (3) hard copies plus an electronic copy (pdf file) of the final report.

## Task 2.0- Deliverables

We understand the Task 2 deliverables will include:

- Labor and equipment necessary to conduct the field recharge test developed in the above task to
- achieve a recharge rate in feet per day
- Analysis of data (including site specific recharge curve for each selected site)
- Preparation of a final report presenting the results, limitations and recommendations


# Organizational Chart

**Stakeholders**

**Yucaipa Valley Water District**
**City of Yucaipa**
**San Bernardino Co. Flood Control Dist.**

San Bernardino Valley Municipal Water District

Brian Villalobos, PG, CHG, CEG
Project Manager

Dennis Williams, PG, CHG, PhD
Technical Advisor

Mark Williams, PE, PhD
Design Lead

Chris Coppinger, PG, CHG
Assistant Project Manager

**Implement Recharge Testing**

John Gonzales *(IO Environmental)*
Construction Superintendent

Logan Wicks, MS, GIT
Field Data Collection

**Data Analysis**

Johnson, PG, CHG, PhD
Principal Modeler

Lauren Wicks, MS, PG
Staff Hydrogeologist

Mark Williams, PE, PhD
SCADA/Telemetry (Optional)

# Other Information

## Containerized Infiltration Basin

As discussed in the previous section, using a containerized infiltration basin can provide several benefits.

### Lower Project Cost

By using a containerized basin, Valley District can greatly reduce site grading and eliminate substantial construction costs. Also instrumentation setup is practically eliminated as each basin, instrumentation, and control system are self contained.

### More Representative Data at Each Site

With using three containers at a site, Valley District can position the basins in multiple configurations and locations at a given site. This will allow the District to obtain more representative percolation data, ultimately leading to more accurate and thorough recommendations.

### Streamlined Permitting and Compliance

Permitting and compliance would likely be easier as the area disturbed would be much less. Additionally, the required BMPs and safety issues associated with grading and stockpiling unconsolidated soil within and near a grading channel can greatly affect the permitting compliance requirements and schedule. The containerized system practically eliminates the grading onsite, reducing eliminating the unknowns and costs associated with the permit compliance, developing BMPs, and grading.

### Lower Risk of Vandalism

Because the system is self contained any vandalism would be limited to the container's exterior. Expensive components and instrumentation will be locked safely inside.

# Fee Schedule

The following pages contain our proposed fee for the scope of work detailed in the RFP (Alternate A). We have also provided a fee for a containerized infiltration system (Alternate B).

## Cost Proposal for Professional Hydrogeological Services Related to the Yucaipa Basin Recharge Study
## Alternative A: Excavated Basins

| Task | | Description | GEOSCIENCE Support Services, Inc. | | | | | | | | | | Sub-Contractor Cost [2] | TOTAL PROJECT COST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Principal Engineer/Geohydrologist | Senior Geohydrologist | Project Geohydrologist | Staff Geohydrologist | CAD/GIS | Clerical | Total Hours | Labor Cost | Reimbursable Expenses [1] | Total GEOSCIENCE Cost | | |
| | | *Hourly Rate:* | $250 | $205 | $165 | $125 | $110 | $95 | | | | | | |
| **1.0** | **Develop Project Work Plan** | | | | | | | | | | | | | |
| | 1.1 | Project Kickoff Meeting and Site Reconnaissance | 4 | | 10 | | | | 14 | $ 2,650 | | $ 2,650 | | $ 2,650 |
| | 1.2 | Finalize Facilities Design and Develop Process and Instrumentation Diagram | 8 | | | 8 | 16 | | 32 | $ 4,760 | | $ 4,760 | | $ 4,760 |
| | 1.3 | Develop Detailed Site Plan for 13 Sites | 2 | 4 | 16 | 32 | 40 | | 94 | $ 12,360 | | $ 12,360 | | $ 12,360 |
| | 1.4 | Progress Meeting and Finalization of Work Plan | 4 | 4 | 8 | 16 | 8 | | 40 | $ 6,020 | | $ 6,020 | | $ 6,020 |
| | 1.5 | Project Management and Permit Support | 32 | 12 | 50 | 32 | | | 126 | $ 22,710 | | $ 22,710 | | $ 22,710 |
| | | *Task 1.0 Subtotal* | 50 | 20 | 84 | 88 | 64 | 0 | 306 | $ 48,500 | $ - | $ 48,500 | $ - | $ 48,500 |
| **2.0** | **Infiltration Testing at 13 Sites** | | | | | | | | | | | | | |
| | 2.1 | Fabrication of Needed Equipment | 16 | | | 8 | | | 24 | $ 5,000 | | $ 5,000 | $ 46,558 | $ 51,558 |
| | 2.2 | Conduct Infiltration Testing at 13 Sites | | 8 | 24 | 130 | | | 162 | $ 21,850 | $ 1,950 | $ 23,800 | $ 268,593 | $ 292,393 |
| | 2.3 | Data Downloads and Testing Oversight | 4 | 4 | 16 | 52 | | | 76 | $ 10,960 | | $ 10,960 | | $ 10,960 |
| | 2.4 | Data Compilation, Analysis, and Reporting | 4 | 6 | 16 | 50 | 16 | 4 | 96 | $ 13,260 | $ 500 | $ 13,760 | | $ 13,760 |
| | | *Task 2.0 Subtotal* | 24 | 18 | 56 | 240 | 16 | 4 | 358 | $ 51,070 | $ 2,450 | $ 53,520 | $ 315,151 | $ 368,671 |
| | | **TOTAL HOURS AND COST:** | **74** | **38** | **140** | **328** | **80** | **4** | **664** | **$ 99,570** | **$ 2,450** | **$ 102,020** | **$ 315,151** | **$ 417,171** |

[1] Reimbursable expenses include mileage and report reproduction.

[2] **Subcontractor Costs for IO Environmental & Infrastructure, Inc.:**

Subcontractor Cost Summary: Conduct Testing at 13 Sites (Alternative A - Excavated Basins)

| Item No. | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Contractor site reconnaissance survey | Hrs. | 6 | $ 115 | $ 690 |
| 2 | (i) Mobilize equipment to site; (ii) excavate 30' x 30' x 5' test pit with 1:1 sloped walls and place loose material in temporary locations with BMP measures as required by permits; (iii) install water supply piping, inlet manifold and instrumentation; (iv) install traffic control measures; (v) provide equipment check, startup and begin basin filling | Ea. | 1 | $ 11,068 | $ 11,068 |
| 3 | Fencing Subcontractor to install and remove fence at site | Ea. | 1 | $ 550 | $ 550 |
| 4 | (i) Demobilize equipment at site; (ii) fill in excavated pit and restore site per permit requirements | Ea. | 1 | $ 7,663 | $ 7,663 |
| 5 | Allowance for one contractor site visits during 2-week test | Hrs. | 6 | $ 115 | $ 690 |
| | **Total Cost Per Site** | | | | **$ 20,661** |

Subcontractor Materials and Equipment Cost Summary (Alternative A - Excavated Basins)

| Item No. | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Totalizing flow meter installed at Hydrant | Ea. | - | | By Utility |
| 2 | Fabricate Self-standing water inlet assembly with Float-activated shutoff Valve and 10 ft water distribution manifolds | Ea. | 1 | $ 2,409 | $ 2,409 |
| 3 | Site water conveyance equipment: 1000 ft of 3" temporary hose/pipe and misc. valves and fittings | Ea. | 1 | $ 9,625 | $ 9,625 |
| 4 | Provide site instrumentation, control and remote data collection system that includes:(i) high-flow and low-flow battery powered magnetic flow meters with totalizer and local display; (ii) line pressure transmitter; (iii) ultrasonic level indicator; (iv) pressure regulator and isolation valves and manifold; (v) telemetry programming that sends text alert based on low line pressure or high-water level in basin | Ea. | 1 | $ 22,050 | $ 22,050 |
| 5 | Provide cellular SCADA RTU for collecting flow, pressure and level data: NEMA enclosure--includes 1-year subscription for web-hosted data collection and download interface | Ea. | 1 | $ 5,280 | $ 5,280 |
| 6 | Rental of 200 Lineal ft of security fencing with gate for site | Months | 10 | $ 358 | $ 3,575 |
| 7 | Rental of Traffic control signage and water line crossing ramps for vehicle access and outhouse facilities | Months | 10 | $ 362 | $ 3,619 |
| 8 | Rental of temporary 21,000 gal water supply tank **(OPTIONAL)** | Week | - | $ 1,200 | - |
| | **Total Equipment Cost** | | | | **$ 46,558** |

## Cost Proposal for Professional Hydrogeological Services Related to the Yucaipa Basin Recharge Study
## Alternative B: Containerized Infiltrometer

| Task | | Description | GEOSCIENCE Support Services, Inc. | | | | | | | | | Sub-Contractor Cost [2] | TOTAL PROJECT COST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Principal Hydrologist | Senior Geohydrologist | Project Geohydrologist | Staff Geohydrologist | Graphics | Clerical | Total Hours | Labor Cost | Reimbursable Expenses [1] | Total GEOSCIENCE Cost | |
| | | ***Hourly Rate:*** | **$250** | **$205** | **$165** | **$125** | **$110** | **$95** | | | | | |
| **1.0** | **Develop Project Work Plan** | | | | | | | | | | | | |
| | 1.1 | Project Kickoff Meeting and Site Reconnaissance | 4 | | 10 | | | | 14 | $ 2,650 | | $ 2,650 | | **$ 2,650** |
| | 1.2 | Finalize Facilities Design and Develop Process and Instrumentation Diagram | 8 | | | 8 | 16 | | 32 | $ 4,760 | | $ 4,760 | | **$ 4,760** |
| | 1.3 | Develop Detailed Site Plan for 13 Sites | 2 | 4 | 16 | 32 | 40 | | 94 | $ 12,360 | | $ 12,360 | | **$ 12,360** |
| | 1.4 | Progress Meeting and Finalization of Work Plan | 4 | 4 | 8 | 16 | 8 | | 40 | $ 6,020 | | $ 6,020 | | **$ 6,020** |
| | 1.5 | Project Management and Permit Support | 32 | 12 | 40 | 28 | | | 112 | $ 20,560 | | $ 20,560 | | **$ 20,560** |
| | | *Task 1.0 Subtotal* | 50 | 20 | 74 | 84 | 64 | 0 | 292 | $ 46,350 | $ - | $ 46,350 | $ - | **$ 46,350** |
| **2.0** | **Infiltration Testing at 13 Sites** | | | | | | | | | | | | | |
| | 2.1 | Fabrication of Needed Equipment | 16 | | | 8 | | | 24 | $ 5,000 | | $ 5,000 | $ 120,280 | **$ 125,280** |
| | 2.2 | Conduct Infiltration Testing at 13 Sites | | 8 | 24 | 130 | | | 162 | $ 21,850 | $ 1,950 | $ 23,800 | $ 142,207 | **$ 166,007** |
| | 2.3 | Data Downloads and Testing Oversight | 4 | 4 | 16 | 52 | | | 76 | $ 10,960 | | $ 10,960 | | **$ 10,960** |
| | 2.4 | Data Compilation, Analysis, and Reporting | 4 | 6 | 16 | 50 | 16 | 4 | 96 | $ 13,260 | $ 500 | $ 13,760 | | **$ 13,760** |
| | | *Task 2.0 Subtotal* | 24 | 18 | 56 | 240 | 16 | 4 | 358 | $ 51,070 | $ 2,450 | $ 53,520 | $ 262,487 | **$ 316,007** |
| | | **TOTAL HOURS AND COST:** | **74** | **38** | **130** | **324** | **80** | **4** | **650** | **$ 97,420** | **$ 2,450** | **$ 99,870** | **$ 262,487** | **$ 362,357** |

[1] Reimbursable expenses include mileage and report reproduction.

[2] **Subcontractor Costs for IO Environmental & Infrastructure, Inc.:**

Subcontractor Cost Summary: Conduct Testing at 13 Sites (Alternative B - Containerized Infiltrometer)

| Item No. | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Contractor site reconnaissance survey | Hrs. | 6 | $ 115 | $ 690 |
| 2 | (i) Mobilize equipment including 3 containers to site; (ii) trench for three (3) container skirts and place three (3) container with crane or forklift; (iii) install water supply piping, inlet manifold and instrumentation; (iv) install traffic control measures; (v) provide equipment check, startup and begin basin filling | Ea. | 1 | $ 5,480 | $ 5,480 |
| 3 | Fencing Subcontractor to install and remove fence at site | Ea. | 1 | $ 550 | $ 550 |
| 4 | (i) Demobilize equipment at site; (ii) restore ground in vicinity of container | Ea. | 1 | $ 3,529 | $ 3,529 |
| 5 | Allowance for one contractor site visits during 2-week test | Hrs. | 6 | $ 115 | $ 690 |
| | **Total Cost Per Site (Assumes 1 Container)** | | | | **$ 10,939** |

Subcontractor Materials and Equipment Cost Summary (Alternative B - Containerized Infiltrometer)

| Item No. | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Totalizing flow meter installed at Hydrant | Ea. | - | | By Utility |
| 2 | Site water conveyance equipment: 1000 ft of 3" temporary hose/pipe and misc. valves and fittings | Ea. | 1 | $ 9,625 | $ 9,625 |
| 3 | Provide three (3) 40 ft x 8 ft shipping containers modified for infiltration testing and equipped with water inlet, instrumentat | Ea. | 3 | $ 31,779 | $ 95,336 |
| 4 | Provide cellular SCADA RTU for collecting flow, pressure and level data: NEMA enclosure--includes 1-year subscription for web-hosted data collection and download interface | Ea. | 3 | $ 3,900 | $ 11,700 |
| 5 | Rental of Traffic control signage and water line crossing ramps for vehicle access and outhouse facilities | Months | 10 | $ 362 | $ 3,619 |
| 6 | Rental of temporary 21,000 gal water supply tank **(OPTIONAL)** | Week | - | $ 1,200 | - |
| | **Total Equipment Cost** | | | | **$ 120,280** |

# Appendix

## Firm Qualifications

Groundwater modeling, studies, full-service water well design and rehabilitation, and recycled water projects are day-to-day parts of our business at GEOSCIENCE. For 40 years, we have gained worldwide recognition for accurate and thorough groundwater models and studies, and efficient well designs that optimize production, and minimize maintenance costs. We have been involved in pioneering studies and projects involving indirect potable reuse with both surface spreading basins as well as injection wells. We have developed models to calculate recycled water contribution, as well as retention times in compliance with the regulations in multiple basins throughout Southern California. To date, we have completed more than 2,000 groundwater studies, and designed and/or rehabilitated more than 1,000 water wells.

GEOSCIENCE is a privately owned, California Corporation, and has been in operation since its inception in 1978. All of our projects are directed by Dr. Dennis Williams, PG, CHG. Dr. Williams has a doctorate in groundwater hydrology and more than 47 years of groundwater and water well experience. In the past few years alone, we have completed several projects and studies in the Yucaipa Basin and more than 29 for SBVMWD. Because GEOSCIENCE has been in continuous operation for the past 40 years, we are financially stable and capable of performing groundwater modeling, studies, and new well design, rehabilitation, recycled water projects, and well construction management. We are located in the City of La Verne and are a certified Small Business by the State of California.

## GEOSCIENCE by the Numbers

**29+**

**The number of groundwater studies and reports that GEOSCIENCE has completed for San Bernardina Valley Municipal Water District**

**40 years**

**GEOSCIENCE has 40 years of groundwater recharge analysis and study experience**

**2,000+**

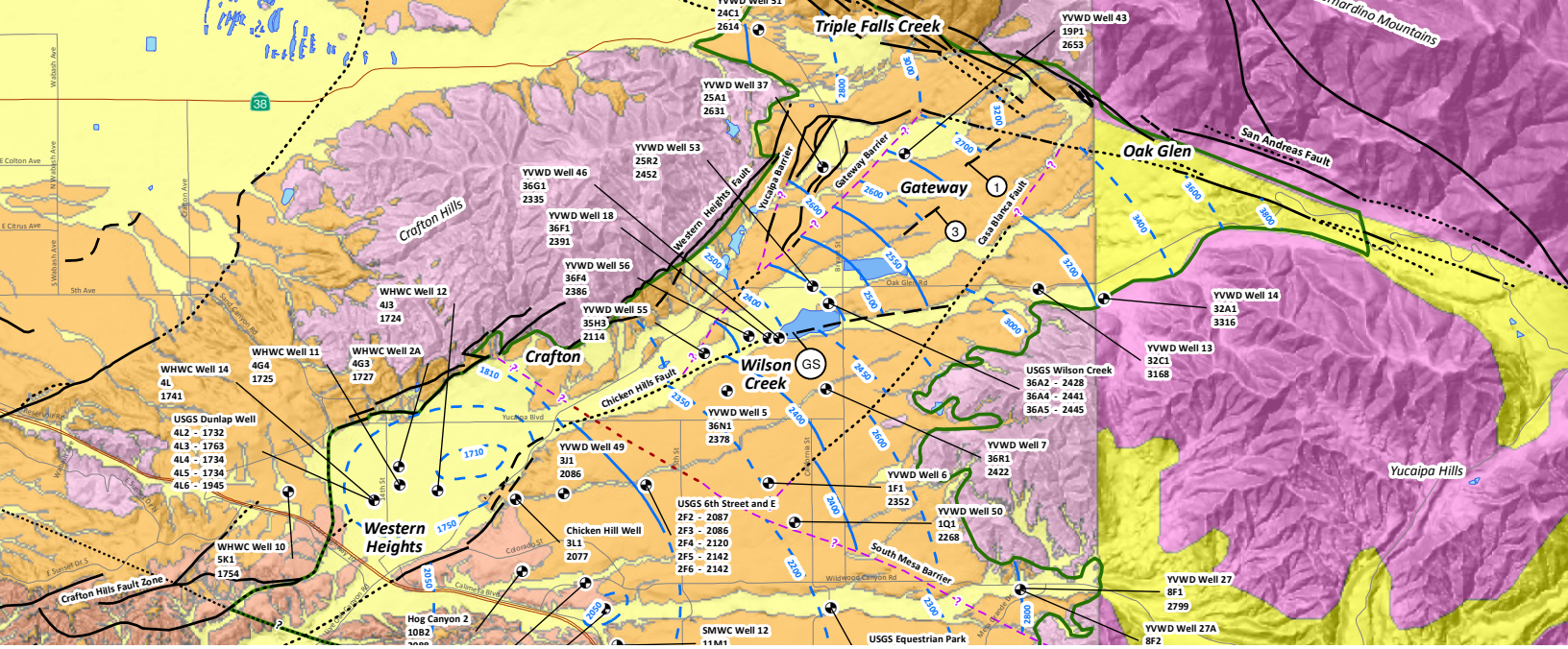
**The number of groundwater models and studies GEOSCIENCE has completed including for the Yucaipa Groundwater Basin**

**30**

**Staff and professionals available to support your project.**



GEOSCIENCE Groundwater Consultants




# Recent Project Experience

## San Bernardino Valley Municipal Water District Usable Capacity and Safe Yield for the Yucaipa Basin Area

### San Bernardino County, CA

Our team helped determine both the usable capacity and the maximum sustainable yield for a series of groundwater basins within the Yucaipa Basin area, located in Yucaipa, California. The first stage of the project included background research, data collection, and review. We then developed a layered base map to visually display project results. Once the base map was developed, previously delineated subbasin boundaries were reevaluated in light of more recent data.

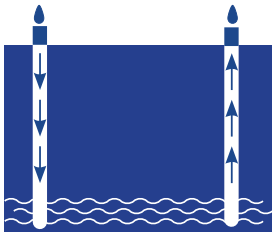
Following this step, the geology and hydrology of the project area were characterized using data amassed in the project's initial stage. The usable storage capacity of each newly-delineated subbasin was then determined by reviewing driller's log data. After the usable storage capacity determinations were completed, sustainable yields were calculated for each subbasin using a water balance technique. At the conclusion of the project, we prepared a report containing the project's results, which was presented to the client during project meetings.

### Project Data

**Client:** San Bernardino Valley Municipal Water District
**Client Contact:** Bob Tincher, Engineering and Planning Mgr.
**Address:** 380 East Vanderbuild Way, San Bernardino, CA 92408
**Phone:** (909) 387-9215
**Email:** bobt@sbvmwd.com
**Project Date:** 2012-2013

**Relevancy to your project**

- Sustainable Yield
- Usable Capacity
- Multiple Stakeholders
- Build Consensus
- Groundwater Sustainability



**Same Groundwater Basin**

The data collected and analyzed for this project will subsequently be used to update usable capacity and safe yield estimates. Our familiarity with the current data and can help SBVMWD develop accurate estimates that reflect actual basin conditions.



GEOSCIENCE Groundwater Consultants

## Rancho California Water District Groundwater Recharge Program - Indirect Potable Reuse Preliminary Design

Temecula, CA

GEOSCIENCE is currently conducting a ground water recharge program as part of the District's Indirect Potable Reuse (IPR) Preliminary Design Activities Project. The program's goal is to recharge the groundwater basin with 5,000 acre ft per year (AFY) of treated recycled water implemented in two phases. Results from the investigation will help determine if recharging 3,000 AFY of available recycled water at the Lower Valle de los Caballos spreading ponds (Phase I) is feasible.

The calculated recharge capacity of the Lower VDC ponds will then be used to determine the conceptual design for the Phase II injection well field(s) to provide and additional 2,000 AFY for ground water recharge. Specific tasks include:

- Developing overall work plans for pilot recharge test, tracer testing, soil aquifer treatment (SAT) pilot testing, monitoring, and data collection
- Developing technical plans and specifications and constructing/installing a nested monitoring well and all appurtenant measuring devices, lysimeters, SAT test basin, and pilot recharge basin
- Performing pilot recharge tests and measuring wetting front downward movement
- Performing field tracer testing to measure ground water seepage velocities
- Performing SAT pilot testing
- Developing a focused ground water model for the Lower VDC Recharge basin area
- Evaluating the impact of treatment on the amount of recycled water that may be recharged
- Analyzing data and preparing a ground water recharge program summary report.

### Project Data

**Client:** Rancho California Water District
**Client Contact:** Rich Ottolini, Water Operations Manager
**Address:** 42135 Winchester Road, Temecula, CA 92590
**Phone:** (951) 296-6900
**Email:** otolinir@ranchowater.com
**Project Date:** 2014 - Present

**Team Members Assigned:**

**Relevancy to your project**

- Percolation analysis
- Update groundwater model

**Similar Project Elements**

Portions of this project, specifically percolation pond construction, data collection, and infiltration analysis are the same as what would be required on this project. Lessons learned from this project will help improve project efficiency and provide more accurate data that represents actual basin conditions and helps SBVMWD make better planning decisions.



GEOSCIENCE Groundwater Consultants

## San Bernardino Valley Municipal Water District Yucaipa Valley Recharge Investigation

Yucaipa, CA

Our team conducted a hydrogeologic investigation of seven areas in Yucaipa Valley for potential surface spreading or injection operations. The assessment included drilling 10 exploratory boreholes and constructing three monitoring wells in existing flood/recharge basins. The final report ranked the sites for recharge potential and provided suggestions to enhance recharge capabilities in the existing flood/recharge basins.

The Yucaipa Groundwater Basin has been studied extensively since the 1970s by the USGS and consultants working for the Yucaipa Valley Water District (YVWD) and Valley District. Prior to this project, our team re-evaluated sub-basin boundaries within the basin. Subsequently, we re-calculated the long-term sustainable yield for each sub-basin using the updated sub-basin boundaries. We also determined groundwater in storage and usable storage capacity for each sub-basin for the years 2005 through 2014. The calculation provided baseline data to evaluate the effectiveness of long-term groundwater management in the sub-basins and accounts for surface water spreading operations.

### Project Data

**Client:** San Bernardino Valley Municipal Water District
**Client Contact:** Bob Tincher, Engineering and Planning Mgr.
**Address:** 380 East Vanderbuild Way, San Bernardino, CA 92408
**Phone:** (909) 387-9215
**Email:** bobt@sbvmwd.com
**Project Date:** 2014

**Team Members Assigned:**

**Relevancy to your project**

- Percolation analysis
- Update groundwater model
- Same Basin



GEOSCIENCE Groundwater Consultants

## San Bernardino Valley Municipal Water District Upper Santa Ana River Integrated Model

### San Bernardino and Riverside Counties, CA

The Santa Ana River (SAR) watershed is the largest in Southern California and home to some of the fastest population growth in the country. The communities in the upper watershed from the 7 Oaks Dam upstream to the Prado Dam downstream rely on groundwater for much of their water supply. Currently there are several groundwater basins in the area, multiple water districts, and nine separate groundwater and watershed models—making it difficult to identify current conditions and potential impacts that planned projects could have on groundwater and the watershed as a whole.

San Bernardino Valley Municipal Water District formed a joint effort with Riverside Public Utilities, Western Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, the U.S. Geological Survey, the California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service. This joint effort will develop a combined model for the Santa Ana River that will help determine baseline hydrological conditions and the potential effects of proposed projects on the Santa Ana River and groundwater levels for the entire upper watershed.

The goals of the project will be to:

- Calculate and estimate surface water percolation and groundwater recharge.
- Develop a tool to help riparian habitat and endangered species protection efforts
- Identify any perennial rising or shallow groundwater locations and how these areas might be affected by current and proposed projects
- Enhance the Habitat Conservation Plan baseline condition to include both streamflow and groundwater levels
- Develop a better understanding of how current projects (i.e. groundwater operations in the various basins, etc.) impact flow in the Santa Ana River and groundwater levels
- Predict how proposed projects and mitigation measures addressed in the HCP will impact flow in the Santa Ana River and groundwater levels in the area

Currently, our team is using the existing groundwater and surface water models to develop an integrated watershed model. The resulting Upper SAR Integrated Model (or Integrated SAR Model), will be used to determine what factors may contribute to declines SAR flows, and assess cumulative effects on SAR surface flows and groundwater levels from approved, outstanding, and proposed projects, including Upper SAR Habitat Conservation Plan Covered Activities.

### Project Data

**Client:** San Bernardino Valley Municipal Water District
**Client Contact:** Bob Tincher, Engineering and Planning Mgr.
**Address:** 380 East Vanderbuild Way, San Bernardino, CA 92408
**Phone: (909) 387-9215**
**Email: bobt@sbvmwd.com**
**Project Date: Ongoing**

**Relevancy to your project**

- Same Stakeholders
- Same Basin
- Assessing surface water infiltration and groundwater recharge

*"They are one of, if not the, top firms that we work with."*

*"Extremely responsive to project requirements and adhering to schedules"*

*"I have the highest degree of confidence in their work. The quality of the work product exceeds my expectations."*

**- Bob Tincher, Manager of Engineering and Planning**
**San Bernardino Valley Municipal Water District**



GEOSCIENCE Groundwater Consultants

# Resumes

## Brian Villalobos, PG, CHG, CEG
Project Manager

**Years of Experience:** 28
**Years with GEOSCIENCE:** 9

**Education:**
BS, Geology, California State University, Los Angeles

**Professional Registrations:**
California Professional Geologist (No. 4153)

Certified California Hydrogeologist (No. 794)

California Certified Engineering Geologist (No. 1298)

**What Brian brings to the project...**

- Brian has worked heavily on projects within the Yucaipa Basin, including multiple groundwater models and recharge studies. Additionally, he helped identify potential recharge locations within the basin
- 28+ years of groundwater resource studies and reports including conjunctive use and storage infiltration calculations
- Specializes in groundwater recharge and water reuse

**28+**
Years of groundwater modeling and well experience

Brian has more than 28 years of professional experience in geohydrology and environmental geology throughout the Southern California region. His specific areas of expertise are in hydrogeologic investigations to support groundwater recharge, sustainability, safe yield, and indirect potable reuse. He has studied and modeled the Yucaipa Groundwater Basin including, determining usable capacity and safe yield, evaluating recycled water and stormwater use for recharge, and identifying potential recharge locations.

### Selected Project Experience

**San Bernardino Valley Municipal Water District and Partners: Determination of the Usable Capacity and Safe Yield for each Sub-basin within the Yucaipa Basin Area**
Brian led efforts to reevaluate sub-basin boundaries in the Yucaipa Groundwater Basin to assess the "safe yield" and storage capacity of each sub-basin. He developed a watershed model of the Yucaipa Valley to determine water balance terms previously not calculated. The "safe yield' was calculated using three separate methods to validate values and compared to historical calculations performed by other parties.

**Yucaipa Valley Water District: Recycled Water Use Evaluation using the Gateway Sub-basin Focused Groundwater Model**
Brian managed efforts to develop a geologic and hydrologic conceptual model and a groundwater flow and solute transport model for a 10 square mile area of the Gateway sub-basin and portions of five additional sub-basins. The model is being used to evaluate potential movement of recycled water from the Wilson Creek Spreading Basin.

**San Bernardino County: Active Recharge Project from Tributaries of the Santa Ana River**
Brian led our team to develop a watershed model to estimate potential stormwater capture from 13 tributary Creeks to the Santa Ana River in the San Bernardino Valley. The project included preparing conceptual designs for stormwater capture facilities and estimating potential new conservation water added to the ground water system from urban run-off capture.

**San Bernardino Valley Municipal Water District: Recharge Investigation of the Yucaipa Groundwater Basin**
Brian led efforts to complete a hydrogeologic investigation at eleven potential sites within the Yucaipa Groundwater Basin for potential artificial recharge. Recommendations for subsequent phases of investigation were provided for each site.

### Riverside County: Hydrogeologic Evaluation of the Riverside Aquifer Storage and Recovery Project

Brian identified available Santa Ana River surface flows to use in On-Channel and Off-Channel recharge basins and evaluated recharge impacts on the ground water surface.

### Riverside County: Evaluation of Potential Locations for Ground Water Recharge at the East and West Dam Sites, Diamond Valley Lake

Brian assessed water quality and water level trends and other considerations to evaluate impacts from proposed recharge scenarios.

### City of Banning: 2010 Urban Water Management Plan

Brian prepared the City of Banning 2010 Urban Water Management Plan (UWMP) to comply with the Urban Water Management Planning Act requiring urban water suppliers to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple-dry years. Amendments to the UWMPA since the 2005 UWMPA include the Water Conservation Act of 2009 or 20x2020 Plan, to reduce per capita water use by 20% by December 31, 2020.

### City of Moreno Valley: Ground Water Basin Assessment for the Box Springs Mutual Water Company Service Area Rezoning

Brian helped evaluate available long-term water supplies from the San Jacinto Ground Water Basin to support future City development plans.

### City of Banning: Update of Safe Yield Estimates for the Banning Ground Water Storage Unit

Brian assessed current data and re-evaluated safe yield estimates for the ground water basin as a potential source of water supply for a proposed future development.

### City of Oceanside/RMS: Mission Basin Model Update and Evaluation of Indirect Potable Reuse

Brian developed a geologic and hydrologic conceptual model and a groundwater flow and solute transport model for a 22 square mile area covering the entire Mission Groundwater Basin near Oceanside California. The model is being used to evaluate potential movement of recycled water from the Wilson Creek Spreading Basin.

### Olivenhain Municipal Water District: Groundwater Supply and Brine Management Program

Olivenhain Municipal Water District (OMWD) relies almost entirely on imported water from the California and Colorado Aqueducts. To reduce independence on imported water, Brian is leading our team's efforts to determine the safe yield and increment water available in the San Dieguito basin; and determine locations for well fields, treatment facilities, pipelines, and brine discharge facilities. Currently our team is collection data, completing a hydrological investigation and updating the current groundwater model. We are also developing preliminary well designs, recommending brine management activities, supporting community outreach, and completing desk-top environmental reviews.

# Mark Williams, PhD, PE
## Technical QA/QC Lead / Optional SCADA/Telemetry Systems

**Years of Experience:** 20
**Years with GEOSCIENCE:** 5

**Education:**
BS, Geology, University of Colorado, Boulder

MS, Civil Engineering, University of Southern California

PHD, Civil Engineering, University of California

**Professional Registrations:**
California Professional Civil Engineer (No. 68138)

**What Mark brings to the project...**

- SCADA and Telemetry System expertise—help provide accurate data while reducing costs
- Research & Development and process design—help trouble-shoot and identify solutions
- Quality Assurance/Quality Control focus—receive a quality project minimizing re-work and potential change-orders
- Daily interaction with staff on all projects—help keep project schedule and budget on-track

**20+**
Water quality publications and studies authored by Mark including studies on salt and nitrate in groundwater

**20+**
Years of experience

For more than 20 years, Mark has focused on municipal water quality. Mark has served in various capacities in numerous studies focusing on water quality investigations and oversees the Quality Assurance procedures and practices for all of GEOSCIENCE's water quality investigations. Mark served as an Engineer for eight years in the Water Quality Division of the Metropolitan Water District of Southern California, where he was involved in Metropolitan's Desalination Research Innovation Partnership to manage inland desalination, and worked on a range of water quality projects including studies on nitrates, NDMA, perchlorate, and bromate in municipal water supplies.

Marks experience in SCADA and telemetry systems can help develop a system that minimizes costs and improves reliability and accuracy.

### Selected Project Experience

**San Bernardino Valley Municipal Water District: Impacts of Imported Water on Basin Objectives**
Mark established the impact of recharging east-branch State Project water on salinity basin objectives in the San Bernardino area.

**Rancho California Water District: VDC Recharge Basin Pilot Testing**
Mark helped RCWD complete recharge facility pilot testing to comply with health department permits. He conducted tracer testing and virus removal testing to determine ground water residence times and log-removal credit for artificial recharge basins.

**Rancho California Water District: Lower VDC Recharge Test Plan**
Mark helped develop a preliminary test plant for recycled water recharge in the lower VDC area. He also developed tracer testing procedures to establish horizontal and vertical ground water travel times.

**Metropolitan Water District: Seasonal Water Quality Effects of State Project Water on disinfection By-Products**
Mark evaluated the seasonal effects of water quality on forming chlorine by-products in organics in east-branch state project water and Colorado River Water imported water supplies.

**Shallow Ground Water Quality in the Vicinity of Mills Treatment Plant**
Mark provided technical support and expert opinion in litigation on shallow groundwater and impacts from nearby septic tanks based on levels of endocrine disrupting compounds found in groundwater.

# Dennis Williams, PhD, PG, CHG
## Technical Advisor

**Years of Experience:** 45+
**Years with GEOSCIENCE:** 39

**Education:**
BS, Geology, University of Redlands

MS, Groundwater Hydrology, New Mexico Institute of Mining and Technology

PHD, Hydrology, New Mexico Institute of Mining and Technology

**Professional Registrations:**
California Professional Geologist (No. 461)

**Certified California Hydrogeologist (No. 139)**

**Certified Groundwater Hydrogeologist (American Institute of Hydrogeology, No. 355)**

### What Dennis brings to the project...

- Worldwide reputation in well design—provide new ideas and perspectives
- Experience with all injection well barriers in Southern California—help identify solutions
- Experienced Technical problem solver—help maximize well performance
- Daily interaction with staff on well projects—help keep project schedule and budget on-track

**50+**
Dennis has authored more than 50 publications

**45+**
Years of experience supporting groundwater modeling and well design

Dennis Williams, is the founder and president of GEOSCIENCE. He has 47 years of experience in ground water hydrology and has directed more than 2,000 hydrogeologic investigations and groundwater models, and overseen design and construction for more than 1,000 deep large-scale water supply wells. Dennis has been a consultant to the United Nations and several foreign governments, is a research professor at the University of Southern California's Civil and Environmental Engineering Department, and has taught graduate level courses in hydrogeology and ground water modeling since 1980. He has authored more than 50 publications on ground water and wells and was the principal author of the Handbook of Ground Water Development (John Wiley & Sons, 1990), chief reviewer for the American Society of Civil Engineers (ASCE) Hydraulics of Wells (2014), and author of Ch 13 (Slant Wells) in the book Intakes and Outfalls for SWRO Desalination Facilities (Springer 2015).

Dennis has been on the forefront of groundwater sustainability for the past 47 years and has helped develop some of the methods and studies used to determine sustainable yield and water budgets. His depth of experience will help our team identify and address key issues in the final GSP to provide the county and stakeholders within the San Luis Rey Valley a clear road-map to sustainably manage groundwater resources.

### Selected Project Experience

**San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model**
Dennis is providing executive oversight to our team in an effort to use existing groundwater and surface water models to develop an integrated watershed model for the upper Santa Ana River. The resulting Upper SAR Integrated Model (or Integrated SAR Model), will be used to determine what factors may contribute to declines SAR flows, and assess cumulative effects on SAR surface flows and groundwater levels. This is a multi-agency effort and includes Riverside Public Utilities and surrounding water districts.

**San Bernardino Valley Municipal Water District: Bunker Hill Basin Conjunctive Use Project**
Dennis was the Principal-in-Charge for an evaluation to determine optimal extraction well locations and evaluate proposed spreading grounds. Our team determined locations, and potential well capacities.

**Yucaipa Valley Water District: Recycled Water Use Evaluation using the Gateway Sub-basin Focused Groundwater Model**
Dennis served as the Principal-in-Charge for the construction of a groundwater model used to predict the impacts of recycled water spreading on groundwater quality and to downstream municipal wells.



GEOSCIENCE Groundwater Consultants

# Chris Coppinger, PG, CHG
## Assistant Project Manager

**Years of Experience:** 12
**Years with GEOSCIENCE:** 11

**Education:**
BS, Geology, College of William & Mary

**Professional Registrations:**
California Professional Geologist (No. 9093)
Certified California Hydrogeologist (No. 1040)

**Status:**
Full-time employee

### What Chris brings to the project...

- Construction supervision experience—increase project efficiency
- Experience with supply, injection, water banking, and monitoring wells—identify and resolve issues
- Experience on projects with multiple locations—help manage schedule and budget and identify project efficiencies

**39**
The number of clients Chris has worked with to design and install groundwater injection and supply wells

**60**
The number of separate locations Chris has supervised on a single project

Chris has 12 years of professional experience in groundwater consulting for numerous municipal and private clients. His expertise includes ground water basin evaluations, siting investigations, and artificial recharge and conjunctive use studies. He also manages a number of construction oversight activities including coordinating with project stakeholders. Chris' experience with artificial recharge and studies will help our team obtain accurate data needed to conduct the infiltration analysis.

### Selected Project Experience

#### City of Riverside: Well Rehabilitation and Groundwater Monitoring Program

Chris managed efforts to compile and review historical well data for 60 potable water supply wells owned and operated by the city. The project developed a well ranking system to prioritize well rehabilitation and repair. To complete the assessment, Chris reviewed video surveys, driller's logs, construction information, historical pumping, performance, ground water elevations, and past rehabilitation/ redevelopment measures. Chris helped develop a priority ranking matrix for well rehabilitations/replacement that included the well's estimated remaining useful life , and estimated rehabilitation costs over five, ten and twenty years. At the conclusion of the review Chris developed presentations and attended project workshops to present and discuss findings to key project personnel.

#### City of Riverside: 2015 Well Rehabilitation

Upon completion of the Well Rehabilitation and Groundwater Monitoring Program, the city selected 4 wells for rehabilitation. Chris led efforts to, repair, rehabilitate, and return to service, a well drilled in 1927. He also provided recommendations to modify existing technical specifications to allow needed repairs, and oversaw field inspection during repair. All wells were successfully rehabilitated with two achieving major increases in efficiency.

#### California Water Service Company: Groundwater Supply Study

Chris developed a strategy to maximize groundwater production to fully utilize pumping allotment across two adjudicated basins. He compiled and reviewed historical pumping and water level data in district wells, and located data from other nearby wells. Chris then developed rehabilitation schedules, long term average flow rates, and provided areas to target for future well siting.

### Confidential Client: Deep Completion Monitoring Well Network

Chris worked closely with Orange County Water District and California Division of Oil Gas and Geothermal Resources to site, drill, and install deep (up to 1,400 ft) monitoring wells. The wells are currently monitored quarterly to determine if water-flood injection stimulated oil production is affecting groundwater gradient and quality in the upper aquifers.

### Alamitos Barrier Improvement Project – Los Angeles / Orange Counties, CA, Orange County Water District

This project will construct 17 new injection wells, four (4) nested monitoring wells, and two (2) piezometers. The injection wells will serve to increase the capacity and effectiveness of the existing seawater barrier system. Chris maintained effective control of project scope, schedule, and budget while providing construction management services.

### City of Banning: Rehabilitation of Well NP-1

Chris reviewed and evaluated video survey, production and pumping performance, hydrographs, water quality data, and side wall scraping results for Well NP 1. He helped prepare technical rehabilitation specifications that included well casing and screen cleaning by brushing, dispersing agent application, airlifting and swabbing, pumping and surging, aquifer pump tests, flowmeter survey, post-development video survey, and final well disinfection.

### City of Tustin: Rehabilitation of 17th Street Well No. 4

Chris performed field inspection during pre- and post-redevelopment video surveys, mechanical redevelopment steps, and well performance tests. Rehabilitation efforts included initial cleaning of well casing and screen by brushing, airlifting and swabbing, pumping and surging, step drawdown and constant rate pumping tests, and chemical treatment. He also helped develop methodology for locating sand producing zones and provided field inspection during patching.

### Southern California Edison: Rehabilitation of Quarry Seawater Source Wells and Cottonwood Area Wells, Santa Catalina Island

Chris reviewed data necessary to develop detailed technical specifications for well rehabilitation, including review of downhole video surveys to determine the physical condition and types of encrustation visible on the intake areas (i.e., screen interval) for each well. He provided contractor bid support for the well rehabilitation work, which included answering contractor requests for information, and providing support for interaction between client and contractor. Chris also performed field inspection services during the rehabilitation process, which included cleaning of well casing and screen by brushing, application of biocide and dispersing agents, airlifting and swabbing, pumping and surging, aquifer pump tests, post-development video survey, and final well disinfection. At the conclusion of the project, Chris helped prepare draft and final summary reports.

### Mojave Water Agency: Regional Recharge and Recovery Project (R-Cubed)

Chris provided technical support, design and construction management services during the installation of extraction wells drilled along the Mojave river. He also analyzed pumping tests and interference between wells.

### Big Bear Area Regional Wastewater Agency: Bear Valley Ground Water Replenishment Study

Chris helped collect water quality samples for sulfur hexafluoride (SF6) analysis used for seepage velocity calculations in the spreading basin test site.

### Beaumont Cherry Valley Water District: Noble Creek Artificial Recharge Facility

Chris performed well construction supervision for tasks such as bore-hole drilling, geophysical logging, installation of cement seal, casing inspection and installation, filter pack installation, air lift and swabbing, pump development, and down-hole video logging. He also performed various pump tests analyses and water quality sampling.

# Johnson Yeh, PhD, PG, CHG
## Principal Modeler

**Years of Experience:** 27
**Years with GEOSCIENCE:** 26

**Education:**
BS, Geology, National Taiwan University

MS, Geology, National Taiwan University

PhD, Sedimentology, University of Southern California

**Professional Registrations:**
California Professional Geologist (No. 6371)

Certified California Hydrogeologist (No. 422

**What Johnson brings to the project...**

- Extensive groundwater modeling experience—will accurately perform the analysis with sufficient detail to inform future decisions
- Experienced with the Yucaipa Groundwater Basin—more accurate and thorough analysis that takes existing basin conditions into account
- Understands how to combine multiple models and data sources—provide a clear picture of the current groundwater conditions and allow for accurate predictions and estimates

**26**
Years of groundwater modeling experience

For more than 26 years, Johnson has managed ground water modeling efforts, hydrogeologic investigations, ground water basin and water quality studies, and artificial recharge projects. He performs detailed statistical analysis of various types of data and has been the lead modeler on many high profile projects—in fact, he was instrumental in helping to resolve one of the larges groundwater rights cases in California, and developed models that helped a nearby water district to successfully avoided costly litigation. Johnson teaches a graduate level ground water modeling class at the University of Southern California and his experience and knowledge will provide detailed and thorough analyses that help inform future strategies and projects.

### Selected Project Experience

**San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model**
Johnson is leading our team in an effort to use existing groundwater and surface water models to develop an integrated watershed model for the upper Santa Ana River. The resulting Upper SAR Integrated Model (or Integrated SAR Model), will be used to determine what factors may contribute to declines SAR flows, and assess cumulative effects on SAR surface flows and groundwater levels.

**Yucaipa Valley Water District: Recycled Water Use Evaluation using the Gateway Sub-basin Focused Groundwater Model**
Johnson was the senior modeler overseeing the construction of a groundwater model used to predict the impacts of recycled water spreading on groundwater quality and to downstream municipal wells.

**San Bernardino Valley Municipal Water District: Remediation Strategies for Ground Water Contamination**
Johnson was the project manager and lead ground water modeler to refine previous USGS models to better understand, analyze, and evaluate remediation alternatives related to ground water contamination problems.

**Rancho California Water District: Integrated Water Resources Plan**
Johnson led efforts to determine the natural safe yield from the Murrieta-Temecula Ground Water Basin and developed groundwater flow models to determine recharge capabilities from surface and imported water supplies.

**Western Municipal Water District: Impact of Recharge on Contaminant Plumes and Modeling**
Johnson was the project manager and lead ground water modeler to assess and model the area around the Riverside-Corona Feeder, to show the potential future impact of an initial operation scenario on the ground water levels and ground water quality in the San Bernardino Basin Area.

### Jurupa Community Services District: Chino Basin Artificial Recharge Evaluation

Johnson led modeling efforts to modify a previously established groundwater flow model of the Chino Basin to incorporate solute transport and assess the impact of artificial recharge operations planned by the Chino Basin Watermaster on Nitrate and TDS concentrations in the southern Chino Basin.

### Rancho California Water District: Surface and Ground Water Model of the Murrieta-Temecula Ground Water Basin

Johnson was the lead modeler to create an Integrated Ground Water and Streamflow Model of RCWD. Johnson worked with a technical panel that included, RCWD, USGS, U.S. Marines, Camp Pendleton, Stetson Engineers, Santa Margarita Watermaster, and GEOSCIENCE. The technical was formed to avoid litigation between RCWD and the Camp Pendleton Marine Base. Johnson is responsible for preparation of the model and analysis of the results.

### Santa Ana Watershed Project Authority: Chino Desalter System Projects

Johnson developed a detailed analysis of the Chino Ground Water Basin that included a three-dimensional numerical ground water flow model (MODFLOW). A separate analysis was also conducted to assess potential water quality changes in project and existing wells as a result of the project.

# Lauren Wicks, MS, PG
## Staff Hydrogeologist

**Years of Experience:** 6
**Years with GEOSCIENCE:** 5

**Education:**
BS, Geology, Cal Poly Pomona

BS, Integrated Earth Studies, Cal Poly Pomona

MS, Hydrology, University of Idaho

**Professional Registrations:**
California Professional Geologist (No. 9531)

**What Lauren brings to the project...**

- Experience supporting groundwater models, sustainable yield studies, and calculating water budgets—help provide more accurate and thorough models and studies to inform options
- Detail oriented—help provide accurate data and high-quality deliverables

Lauren has experience with groundwater and environmental investigations performed for numerous municipalities, state agencies, and private clients throughout the Southern California region. She performs groundwater flow and transport modeling, hydrogeologic investigations, groundwater basin and water quality studies, artificial recharge projects, and has experience in GIS mapping, watershed management, database development and management. Lauren also supports our team by developing accurate and complete written reports and documents, and by performing quality reviews on data.

### Selected Project Experience

**San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model**
Lauren is working with our team to use existing groundwater and surface water models to develop an integrated watershed model for the upper Santa Ana River. The resulting Upper SAR Integrated Model (or Integrated SAR Model), will be used to determine what factors may contribute to declines SAR flows, and assess cumulative effects on SAR surface flows and groundwater levels.

**San Bernardino Municipal Water District: Joint Groundwater Model for the Rialto-Colton Groundwater Basin**
Lauren prepared a technical memorandum comparing previous groundwater models of the Rialto-Colton area and identifying the strengths and weaknesses of each and helped with subsequent reports regarding model construction and calibration. She helped compile a well database with locations, construction information, lithologic information and water level/water quality data availability. Support for modeling and reporting activities, and assisted with the preparation of technical memoranda summarizing model construction, calibration, and predictive scenarios.

**Rancho California Water District: Surface and Ground Water Model of the Murrieta-Temecula Ground Water Basin**
Lauren helped evaluate and report on a systematic model update and refinement process.

**Riverside Public Utilities: North Orange Well Field Evaluation, Well Siting, and Non-Potable Water Supply Assessment**
Lauren helped interpret model results and prepared a technical memorandum summarizing the impacts of new potable and non-potable wells on the current North Orange well field wells.

**Chino Basin Desalter Authority: Chino Basin Ground Water Model Update**
Lauren helped refine the Chino Basin Ground Water Model to evaluate impacts from proposed CDA wells. She also compiled data, updated model files, created model datasets, and calibrated the groundwater model.

**Western Municipal Water District: TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins**
Lauren helped create a lumped-parameter model to meet monitoring and reporting requirements of the groundwater basins and assess compliance under various scenarios. She also helped prepare various technical memorandums throughout the modeling process.

**East Valley Water District: Wastewater Reclamation Plant Engineering Report**
Lauren helped produce technical memorandums summarizing the predicted impacts of recharging recycled water at various recharge sites as part of the proposed Sterling Natural Resource Center. The analysis included determining the amount of underflow available as diluent water, and calculating travel times for recycled water recharge and recycled water contribution at nearby production wells.

**Rancho California Water District: Santa margarita River Watershed Groundwater Model Runs & Evaluation**
Lauren helped conduct GSFLOW, soluble transport, and sustainable yield model runs to prepare a groundwater model plan.

# Logan Wicks, MS, GIT
## Field Data Collection

**Years of Experience:** 8
**Years with GEOSCIENCE:** 3

**Education:**
BS, Geology, Cal Poly Pomona

BS, Biology, Cal Poly Pomona

MS Geology, Cal Poly Pomona

**Status:**
Full-time employee

**What Logan brings to the project...**

- Experience and familiarity with groundwater studies and field data collection—help provide more accurate and thorough models and studies

Logan has more than eight years of professional experience on groundwater and well investigations for numerous municipal and private clients. His experience includes ground water quality evaluations, well siting investigations, and remediation water supply studies. He also manages a number of well drilling and rehabilitation activities, including supervision and coordination with drilling contractors, clients, and regulatory agencies, well design and construction, well development, and aquifer pumping test analyses.

### Selected Project Experience

**Rancho California Water District: Well Constructions**
Logan helped complete an annual assessment of ground surface movement and aquifer compression and rebound using extensometer, global positioning system, and production data. He was the lead hydrogeologist responsible for all onsite well deconstruction inspections and replacement well construction including full time inspection of conductor borehole drilling, conductor casing install, pilot borehole drilling, geophysical logging, and casing install for three new wells. He helped design, and oversaw installation and development for the replacement wells.

**West Valley Water District: Sentinel Well 1 Construction**
Logan performed site field supervision, field work, on site supervision during reaming, caliper logging, casing installation, and assisted with NPDES discharge requirements.

**Imperial Irrigation District: Monitoring Wells 1 & 2**
Logan provided onsite well construction inspections and data analysis. He helped develop the final well design, pump design and water quality analysis.

**Orange County Water District: Los Alamitos Barrier Improvement Project**
Logan was part of a team of hydrogeologists responsible for full time inspection of conductor borehole drilling, conductor casing install, pilot borehole drilling, geophysical logging, and casing install of Injection wells and Monitoring wells. 17 Injection wells, 4 clustered Monitoring wells and 2 Piezometers make up the project. Responsible for contacting OCWD, Jensen Drilling and Mahaffey while drilling.

**West Valley Water District: Quarterly Depth Specific Sampling**
Logan procured and developed depth specific Snap Samplers in three (3) WVWD Wells. He then provided on site supervision for depth specific sampling and water quality analysis.

**City of South Pasadena: Rehabilitation of Wilson Well #2**
Logan reviewed and evaluated video survey, production and pumping performance, hydrographs, water quality data, and side wall scraping results for Wilson Well #2. He helped prepare technical specifications for well rehabilitation, which included: cleaning of well casing and screen by brushing, applying dispersing agents, airlifting and swabbing, pumping and surging, aquifer pump tests, flowmeter survey, post-development video survey, and final well disinfection.

**Angus Petroleum: Angus Monitoring Well Continuous Water Quality Data Sheet**
Logan helped create the Angus Monitoring Well Continuous Water Quality Data Sheet for in house collection, compilation and evaluation of all Angus Petroleum Monitoring Well Water Quality Data. He also communicates with DOGGRs, addresses their comments and helps compete final reports.

**City of Huntington Beach: Well 1 Replacement**
Logan performed well destruction and replacement for the City of Huntington Beach. He supported design efforts for well casing, screen, filter pack, and annular seal. During construction, he attended field meetings and worked with the contractor to inspect conductor bore hole drilling, casing installation, and the sanitary seal. He also sampled and logged soil cuttings, inspected aquifer zone testing for yield and water quality, and performed mechanical grading analyses. Once constructed, Logan inspected final development by pumping and surging and aquifer pumping tests.

# John Gonzales
## Site Superintendent (IO Environmental)

**Years of Experience:** 21
**Years with Current Firm:** 2

**Registration:**
California State Contractor's License C-21

Excavation 49 CFR192 Subpart N/195 Subpart G

Competent Person Certified – Frame System, Trenching and Excavation

**Status:**
Full-time employee

**What John brings to the project...**

- Experience managing complex construction projects involving environmental compliance, regulatory agency oversight, and multiple field sites—help obtain accurate data and meet permitting requirements

John has more than 20 years of professional experience managing complex construction operations for a range of military, municipal and commercial clients. His experience includes project scheduling, budget tracking, subcontractor management, and equipment operation and maintenance. He has managed numerous excavation and earthwork projects in Southern California, and is familiar with applicable permitting, regulations, and safety requirements. His experience on environmental remediation projects gives him and in-depth understanding of monitoring equipment installation and its impact on accurate data collection. Additionally, John is certified for heavy equipment operation including backhoe, loader, excavator, forklift, and aerial lift.

## Selected Project Experience

### Pilot Study of Organochlorine-Contaminated Soil, Marine Corps Base Camp Pendleton
John served as Site Superintendent on a pilot study to evaluate innovative remediation alternatives to treat OCP-contaminated soil. This work was conducted as part of a federal facilities agreement (FFA) with oversight from regulatory agencies including US Environmental Protection Agency, California Department of Toxic Substances Control, California Regional Water Quality Control Board San Diego Region, California Air Resources Board, and San Diego County Department of Environmental Health.

This project required felling and chipping more than 1,500 mature eucalyptus trees, removing and chipping stumps and root balls, constructing a soil treatment pad, excavating and staging 6,000 CY of contaminated soil, performing a pilot study using innovative VEG methods, and transporting and disposing 5,770 CY of soil as Cal-hazardous waste.

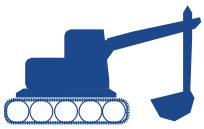
### TOR Metro, San Diego, CA
John oversaw efforts to install and fill 102 chimney boreholes with graphite. He also oversaw installation of 102 pairs of sheet pile that were embedded to a depth of 46 feet below ground surface. John provided health and safety oversight confirming that all workers were appropriately trained and that work was conducted according to the project Health and Safety Plan. He oversaw site preparation activities, conducted subsurface utility clearance, completed entry pit excavation, conducted trenching, segregation, and disposal of excavated materials. John also constructed security fencing, parking and a staging area to safely store materials, staged lighting for night operations, and coordinated work crews.

### Tesoro Vinvale Terminal Facility (Former BP Facility), Long Beach, CA
Since October of 2015, IOEI has installed More than 1700 linear feet of above ground 2" to 8" steel welded conveyance piping and more than 2000 liner feet of below ground 2" to 6" diameter PVC piping . They also installed more than 8000 linear feet of 1" to 1.5 inch sPVC air sparge piping. As the Site Superintendent, John supervised the installation of more than 21 well boxes ranging from 24" to 48". Our team modified the natural gas service and installed new pressure regulators and seismic valves for new FlamOx 2 and FlamOx 4 Catalyic Oxidizers.

The construction effort included saw cutting more than 7000 liner feet of 4" to 14" thick asphalt, removing more than 500 tons of asphalt, and hand excavating more than 500 cubic yards of impacted soil.

### Airport Storm Channel Access Road, Orange County Flood Control District
John oversaw construction efforts to improve the access road and airport storm channel for the Orange County Flood Control District. This project required site work, installing temporary fencing and temporary gates, transition railing, concrete barriers, and decomposed granite according to approved project plans and specifications.

**Experience with Complex Projects**



Environmental remediation projects often involve very precise grading requirements and complex instrumentation. John's experience is ideal for this project since his attention to detail and experience with instrumentation will help our team obtain accurate and reliable data—helping to provide recommendations that accurately reflect geological conditions



GEOSCIENCE Groundwater Consultants


GEOSCIENCE
40th
Anniversary

February 2, 2016

Aaron Jones
Assistant Engineer
San Bernardino Valley Municipal Water District
380 E Vanderbilt Way
San Bernardino, CA 92408

**RE: Infiltration Testing Implementation for Thirteen Sites in Yucaipa Basin Area**

Dear Mr. Jones,

Thank you for contacting us regarding our proposal; included with this letter are the additional information and schedules that you requested. Below are the clarifications that you requested:

## Question 1:

Can you please provide us more detailed specs on the containers (i.e. what is the material, size of containers side walls)?

## Response to Question 1:

The proposed containerized infiltrometer would be based on a standard shipping container that measures 40 ft. long by 8 ft wide and 8-1/2 high. These containers are constructed of corrugated, sheet-steel walls and roof and contain beam supports for the floor. Our proposed design would involve removing 35 ft of the floor and installing a sheet steel rectangular ring with a 35 ft x 8 ft footprint and protruding 18 in. from the bottom of the container around this 35 ft x 8ft opening in the bottom of the container.

Water would be ponded approximately 3 ft inside the container with the front of the container and two of the sides of the container serving as water-tight basin walls. A 4 ft-high by 8-ft wide steel plate would be welded along the inside towards the back doors of the container to complete the water-tight internal basin. There would be approximately 5 ft standing room inside the back doors of the container where the instrumentation, piping and basin inlet valves would be located. All equipment would be contained within the container and there would only be a water connection flange on the outside of the container

### Question 2:

In addition, has this approach been utilized elsewhere by Geoscience?

### Response to Question 2:

We have conducted testing using a similar Infiltrometer approach; however it was not integrated into a container as proposed for your project. The testing used a 20 ft x 20 ft square Infiltrometer constructed of sheet steel and was keyed into the ground in a similar fashion as the proposed units. A slightly deeper ponded water height was used in this testing and the design worked very well yielding good data. This work was done for Rancho California Water District as part of the Upper VDC recharge project. With multiple sites and the possibility of security breaches, enclosing the infiltrometer was deemed prudent this

### Question 3:

Is there a significant impact to having no side wall infiltration?

### Response to Question 3:

As the water is ponded in an excavated basin, flow is induced horizontally into the banks of the pond, which will result in an initial higher percolation rate due to lateral percolation. With the containerized Infiltrometer approach, lateral percolation will be less as the Infiltrometer will be keyed into the underlying material.

There is a benefit to minimizing the lateral percolation that occurs from side wall infiltration as our goal in this testing is to obtain accurate estimates of the saturated vertical hydraulic conductivity at each site. If lateral percolation is much higher relative to vertical percolation at a given site, then there is a potential to overestimate percolation rates.

### Question 4:

Is there a benefit to excavating down a certain depth to remove the top layer of soil (e.g. the proposed test basin of 30x30x5), that is, is it more representative to an actual basin?

### Response to Question 4:

The depth of the alluvial channel fill may be as much as 60 feet. The materials are a mixture of silt, sand, and gravel which are generally stratified. In some cases removing material to five feet would put the footprint in more permeable materials. In others, we would need to remove up to 15 feet of materials. In others, gravel and sand is at ground surface. For the purposes of determining an overall vertical infiltration rate for long-term recharge, removing five feet of materials will likely not result in a significant improvement in the overall infiltration rate.

### Question 5:

If the containers are metal is there a possibility of metals leaching out?

### Response to Question 5:

We would apply a water-tight coating--similar to a bed-liner--to the internal surfaces in the container that contact water. Given that water is chlorinated and contains oxygen, we do not see a risk of leaching metals out of any steel surfaces that may inferentially become exposed to water.

### Question 6:

Also, is the plan to clear vegetation in the footprint of the boxed containers o only to trench for the sidewalls where the containers would sit?

### Response to Question 6:

We would propose taking this on a site-specific basis. Ideally, no clearing would be required; however some grubbing might be needed if there is dense vegetation. We would try to minimize this as much as possible and, if needed, try to do this by hand rather than bring equipment into the site.

If you have any additional questions, please feel free to contact me at (909) 451-6650, or via email at bvillalobos@geoscience-water.com.

Regards,

Brian Villalobos, PG, CHG, CEG
Project Manager

**Table 1a**

## Cost Proposal for Professional Hydrogeological Services Related to the Yucaipa Basin Recharge Study
## Alternative A: Excavated Basins

| Task | | Description | GEOSCIENCE Support Services, Inc. | | | | | | | | | | Sub-Contractor Cost [2] | TOTAL PROJECT COST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Senior Engineer | Senior Geohydrologist | Project Geohydrologist | Staff Geohydrologist | Graphics | Clerical | Total Hours | Labor Cost | Reimbursable Expenses [1] | Total GEOSCIENCE Cost | | |
| | | *Hourly Rate:* | $250 | $205 | $165 | $125 | $110 | $95 | | | | | | |
| **1.0** | **Develop Project Work Plan** | | | | | | | | | | | | | |
| | 1.1 | Project Kickoff Meeting and Site Reconnaissance | 4 | | 10 | | | | 14 | $ 2,650 | | $ 2,650 | | $ 2,650 |
| | 1.2 | Finalize Facilities Design and Develop Process and Instrumentation Diagram | 8 | | | 8 | 16 | | 32 | $ 4,760 | | $ 4,760 | | $ 4,760 |
| | 1.3 | Develop Detailed Site Plan for 13 Sites | 2 | 4 | 16 | 32 | 40 | | 94 | $ 12,360 | | $ 12,360 | | $ 12,360 |
| | 1.4 | Progress Meeting and Finalization of Work Plan | 4 | 4 | 8 | 16 | 8 | | 40 | $ 6,020 | | $ 6,020 | | $ 6,020 |
| | 1.5 | Project Management and Permit Support | 32 | 12 | 50 | 32 | | | 126 | $ 22,710 | | $ 22,710 | | $ 22,710 |
| | | *Task 1.0 Subtotal* | 50 | 20 | 84 | 88 | 64 | 0 | 306 | $ 48,500 | $ - | $ 48,500 | $ - | $ 48,500 |
| **2.0** | **Infiltration Testing at 13 Sites** | | | | | | | | | | | | | |
| | 2.1 | Fabrication of Needed Equipment | 16 | | | 8 | | | 24 | $ 5,000 | | $ 5,000 | $ 69,184 | $ 74,184 |
| | 2.2 | Conduct Infiltration Testing at 13 Sites | | 8 | 16 | 100 | | | 124 | $ 16,780 | $ 1,950 | $ 18,730 | $ 268,593 | $ 287,323 |
| | 2.3 | Data Downloads and Testing Oversight | 4 | 4 | 16 | 52 | | | 76 | $ 10,960 | | $ 10,960 | | $ 10,960 |
| | 2.4 | Data Compilation, Analysis, and Reporting | 4 | 6 | 16 | 50 | 16 | 4 | 96 | $ 13,260 | $ 500 | $ 13,760 | | $ 13,760 |
| | | *Task 2.0 Subtotal* | 24 | 18 | 48 | 210 | 16 | 4 | 320 | $ 46,000 | $ 2,450 | $ 48,450 | $ 337,777 | $ 386,227 |
| | | **TOTAL HOURS AND COST:** | **74** | **38** | **132** | **298** | **80** | **4** | **626** | **$ 94,500** | **$ 2,450** | **$ 96,950** | **$ 337,777** | **$ 434,727** |

[1] Reimbursable expenses include mileage and report reproduction.

[2] **Subconsultant Costs for IO Environmental & Infrastructure, Inc.:**

Subcontractor Cost Summary: Conduct Testing at 13 Sites **with two sites simultaneously** (Alternative A - Excavated Basins)

| Item No | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Contractor site reconnaissance survey | Hrs. | 6 | $ 115 | $ 690 |
| 2 | (i) Mobilize equipment to site; (ii) excavate 30' x 30' x 5' test pit with 1:1 sloped walls and place loose material in temporary locations with BMP measures as required by permits; (iii) install water supply piping, inlet manifold and instrumentation; (iv) install traffic control measures; (v) provide equipment check, startup and begin basin filling | Ea. | 1 | $ 11,068 | $ 11,068 |
| 3 | Fencing Subcontractor to install and remove fence at site | Ea. | 1 | $ 550 | $ 550 |
| 4 | (i) Demobilize equipment at site; (ii) fill in excavated pit and restore site per permit requirements | Ea. | 1 | $ 7,663 | $ 7,663 |
| 5 | Allowance for one contractor site visits during 2-week test | Hrs. | 6 | $ 115 | $ 690 |
| | **Total Cost Per Site** | | | | **$ 20,661** |

Subcontractor Materials and Equipment Cost Summary (Alternative A - Excavated Basins)

| Item No | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Totalizing flow meter installed at Hydrant | Ea. | - | | By Utility |
| 2 | Fabricate Self-standing water inlet assembly with Float-activated shutoff Valve and 10 ft water distribution manifolds | Ea. | 2 | $ 2,409 | $ 4,818 |
| 3 | Site water conveyance equipment: 1000 ft of 3" temporary hose/pipe and misc. valves and fittings | Ea. | 2 | $ 9,625 | $ 19,250 |
| 4 | Provide site instrumentation, control and remote data collection system that includes:(i) high-flow and low-flow battery powered magnetic flow meters with totalizer and local display; (ii) line pressure transmitter; (iii) ultrasonic level indicator; (iv) pressure regulator and isolation valves and manifold; (v) telemetry programming that sends text alert based on low line pressure or high-water level in basin | Ea. | 2 | $ 16,500 | $ 33,000 |
| 5 | Provide cellular SCADA RTU for collecting flow, pressure and level data: NEMA enclosure--includes 1-year subscription for web-hosted data collection and download interface | Ea. | 2 | $ 3,900 | $ 7,800 |
| 6 | Rental of 200 Lineal ft of security fencing with gate for site | Months | 6 | $ 358 | $ 2,145 |
| 7 | Rental of Traffic control signage and water line crossing ramps for vehicle access and outhouse facilities | Months | 6 | $ 362 | $ 2,171 |
| 8 | Rental of temporary 21,000 gal water supply tank **(OPTIONAL)** | Week | - | $ 1,200 | - |
| | **Total Equipment Cost** | | | | **$ 69,184** |

**Cost Proposal for Professional Hydrogeological Services Related to the Yucaipa Basin Recharge Study**
**Alternative B: Containerized Infiltrometer**

| Task | Description | GEOSCIENCE Support Services, Inc. | | | | | | | | | | Sub-Contractor Cost [2] | TOTAL PROJECT COST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Principal Engineer/Geo-hydrologist | Senior Geohydrologist | Project Geohydrologist | Staff Geohydrologist | CAD/GIS | Clerical | Total Hours | Labor Cost | Reimbursable Expenses [1] | Total GEOSCIENCE Cost | | |
| | *Hourly Rate:* | $250 | $205 | $165 | $125 | $110 | $95 | | | | | | |
| **1.0** | **Develop Project Work Plan** | | | | | | | | | | | | |
| | 1.1 Project Kickoff Meeting and Site Reconnaissance | 4 | | 10 | | | | 14 | $ 2,650 | | $ 2,650 | | $ 2,650 |
| | 1.2 Finalize Facilities Design and Develop Process and Instrumentation Diagram | 8 | | | 8 | 16 | | 32 | $ 4,760 | | $ 4,760 | | $ 4,760 |
| | 1.3 Develop Detailed Site Plan for 13 Sites | 2 | 4 | 16 | 32 | 40 | | 94 | $ 12,360 | | $ 12,360 | | $ 12,360 |
| | 1.4 Progress Meeting and Finalization of Work Plan | 4 | 4 | 8 | 16 | 8 | | 40 | $ 6,020 | | $ 6,020 | | $ 6,020 |
| | 1.5 Project Management and Permit Support | 32 | 12 | 40 | 28 | | | 112 | $ 20,560 | | $ 20,560 | | $ 20,560 |
| | *Task 1.0 Subtotal* | 50 | 20 | 74 | 84 | 64 | 0 | 292 | $ 46,350 | $ - | $ 46,350 | $ - | $ 46,350 |
| **2.0** | **Infiltration Testing at 13 Sites** | | | | | | | | | | | | |
| | 2.1 Fabrication of Needed Equipment | 16 | | | 8 | | | 24 | $ 5,000 | | $ 5,000 | $ 147,421 | $ 152,421 |
| | 2.2 Conduct Infiltration Testing at 13 Sites | | 8 | 16 | 100 | | | 124 | $ 16,780 | $ 1,950 | $ 18,730 | $ 142,207 | $ 160,937 |
| | 2.3 Data Downloads and Testing Oversight | 4 | 4 | 16 | 52 | | | 76 | $ 10,960 | | $ 10,960 | | $ 10,960 |
| | 2.4 Data Compilation, Analysis, and Reporting | 4 | 6 | 16 | 50 | 16 | 4 | 96 | $ 13,260 | $ 500 | $ 13,760 | | $ 13,760 |
| | *Task 2.0 Subtotal* | 24 | 18 | 48 | 210 | 16 | 4 | 320 | $ 46,000 | $ 2,450 | $ 48,450 | $ 289,628 | $ 338,078 |
| | **TOTAL HOURS AND COST:** | **74** | **38** | **122** | **294** | **80** | **4** | **612** | **$ 92,350** | **$ 2,450** | **$ 94,800** | **$ 289,628** | **$ 384,428** |

[1] Reimbursable expenses include mileage and report reproduction.

[2] **Subcontractor Costs for IO Environmental & Infrastructure, Inc.:**

Subcontractor Cost Summary: Conduct Testing at 13 Sites with two sites simultaneously (Alternative B - Containerized Infiltrometer)

| Item No. | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Contractor site reconnaissance survey | Hrs. | 6 | $ 115 | $ 690 |
| 2 | (i) Mobilize equipment including 4 containers to site; (ii) trench for four (4) container skirts and place four (4) container with crane or forklift; (iii) install water supply piping, inlet manifold and instrumentation; (iv) install traffic control measures; (v) provide equipment check, startup and begin basin filling | Ea. | 1 | $ 5,480 | $ 5,480 |
| 3 | Fencing Subcontractor to install and remove fence at site | Ea. | 1 | $ 550 | $ 550 |
| 4 | (i) Demobilize equipment at site; (ii) restore ground in vicinity of container | Ea. | 1 | $ 3,529 | $ 3,529 |
| 5 | Allowance for one contractor site visits during 2-week test | Hrs. | 6 | $ 115 | $ 690 |
| | **Total Cost Per Site (Assumes 2 Containers per Site)** | | | | **$ 10,939** |

Subcontractor Materials and Equipment Cost Summary (Alternative B - Containerized Infiltrometer)

| Item No | Description | Units | Qty. | Unit Costs | Extended Cost |
|---|---|---|---|---|---|
| 1 | Totalizing flow meter installed at Hydrant | Ea. | - | | By Utility |
| 2 | Site water conveyance equipment: 1000 ft of 3" temporary hose/pipe and misc. valves and fittings | Ea. | 2 | $ 9,625 | $ 19,250 |
| 3 | Provide four (4) 40 ft x 8 ft shipping containers modified for infiltration testing and equipped with water inlet, instrumentation, control and remote data collection system that includes: (i) Inlet piping and float-actuated control valve; (ii)high-flow and low-flow battery powered magnetic flow meters with totalizer and local display; (iii) line pressure transmitter; (iv) ultrasonic level indicator; (v) pressure regulator and isolation valves and manifold; (vi) telemetry programming that sends text alert based on low line pressure or high-water level in basin | Ea. | 4 | $ 28,600 | $ 114,400 |
| 4 | Provide cellular SCADA RTU for collecting flow, pressure and level data: NEMA enclosure--includes 1-year subscription for web-hosted data collection and download interface | Ea. | 4 | $ 2,900 | $ 11,600 |
| 5 | Rental of Traffic control signage and water line crossing ramps for vehicle access and outhouse facilities | Months | 6 | $ 362 | $ 2,171 |
| 6 | Rental of temporary 21,000 gal water supply tank (OPTIONAL) | Week | - | $ 1,200 | - |
| | **Total Equipment Cost** | | | | **$ 147,421** |

San Bernardino Valley Municipal Water District

# INFILTRATION TESTING IMPLEMENTATION FOR THIRTEEN SITES WITH TWO SITES TESTED SIMULTANEOUSLY IN THE YUCAIPA BASIN AREA

## Yucaipa Basin Recharge Study

## PROJECT SCHEDULE - Alternative A

| Task | | Description | Mar-18 | Apr-18 | May-18 | Jun-18 | Jul-18 | Aug-18 | Sep-18 | Oct-18 | Nov-18 | Dec-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | |
| 1.1 | | Project Kick-Off Meeting | | | | | | | | | | |
| 1.2 | | Finlaize Facilities Design and Develop Process and Instrumentation Diagram | | | | | | | | | | |
| 1.3 | | Prepare Detailed Site Plan for 13 Sites (submit for review) | | | | | | | | | | |
| 1.4 | | Progress Meeting and Finalization of Workplan | | | | | | | | | | |
| 1.5 | | Project Management and Permit Suport | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 2.1 | a | Fabrication of Needed Equipment (Instrumentation only) | | | | | | | | | | |
| 2.2 | | Conduct Infiltration Testing at 13 Sites (assumes 3-weeks for set-up, testing, and tear-down per site) | | | | | | | | | | |
| 2.3 | | Data Down Load and Testing Oversight | | | | | | | | | | |
| 2.4 | | Data Compilation Analysis and Draft and Final Report | | | | | | | | | | |

## PROJECT SCHEDULE - Alternative B

| Task | | Description | Mar-18 | Apr-18 | May-18 | Jun-18 | Jul-18 | Aug-18 | Sep-18 | Oct-18 | Nov-18 | Dec-18 | Jan-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | |
| 1.1 | | Project Kick-Off Meeting | | | | | | | | | | | |
| 1.2 | | Finlaize Facilities Design and Develop Process and Instrumentation Diagram | | | | | | | | | | | |
| 1.3 | | Prepare Detailed Site Plan for 13 Sites (submit for review) | | | | | | | | | | | |
| 1.4 | | Progress Meeting and Finalization of Workplan | | | | | | | | | | | |
| 1.5 | | Project Management and Permit Suport | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | |
| 2.1 | b | Fabrication of Needed Equipment - Optional Contanainer System | | | | | | | | | | | |
| 2.2 | | Conduct Infiltration Testing at 13 Sites (assumes 3-weeks for set-up, testing, and tear-down per site) | | | | | | | | | | | |
| 2.3 | | Data Down Load and Testing Oversight | | | | | | | | | | | |
| 2.4 | | Data Compilation Analysis and Draft and Final Report | | | | | | | | | | | |

**GEOSCIENCE Working Period**
Client Review
Winter Hiatus if Required
**Deliverable Date**

**Meeting / Workshop**