ATASCADERO BASIN
Groundwater
Sustainability Agency

Executive Committee Meeting Agenda

Meeting Date: Wednesday, December 18, 2024

Meeting Time: 4:00 p.m.

Meeting Location: Templeton CSD Board Meeting Room
206 5th Street
Templeton, California 93465

Virtual Attendance:
https://us06web.zoom.us/j/88570390169?pwd=0ulAOVb44M4kaz8wREjA1huia8w1Yr.1

Meeting ID: 885 7039 0169
Passcode: 732298

1. Call to Order

2. Roll Call: Chairperson Navid Fardanesh
Vice Chairperson Susan Funk
Secretary Rob Rossi
Committee Member Debbie Arnold
Committee Member John Hamon
Committee Member Grigger Jones
Non-Voting Committee Member Tom Mora

3. Pledge of Allegiance

4. Order of Business
Executive Committee members may request to change the order of business.

5. Introductions

6. General Public Comments
The Executive Committee invites members of the public to address the committee on any subject that is within the purview of the committee and that is not on today's agenda. Comments shall be limited to three minutes.

7. Consent Agenda
The following items are considered routine and non-controversial by staff and may be approved by one motion if no member of the Executive Committee wishes an item removed. If discussion is desired, the item may be removed from the Consent Agenda by an Executive Committee member and will be considered separately. Questions or clarification

may be made by the Executive Committee members without removal from the Consent Agenda. Individual items on the Consent Agenda are approved by the same vote that approves the Consent Agenda unless an item is pulled for separate consideration. Members of the public may comment on the Consent Agenda items.

a. Minutes – March 20, 2024

8. Old Business:

9. New Business:
   a. Contract Award for Preparation of the WY 2024 Annual Report
   b. Future Meetings:
      - February 12, 2025, 4:00 p.m. – review draft annual report, appoint Executive Committee Officers
      - March 19, 2025, 4:00 p.m. – approve annual report

10. Informational Items

11. Adjournment

ATASCADERO BASIN
Groundwater
Sustainability Agency

TO: Executive Committee

FROM: GSA Staff/ John Neil, Atascadero Mutual Water Company

DATE: December 18, 2024

SUBJECT: Agenda Item 7.a, Executive Committee Meeting Minutes

RECOMMENDED ACTION:
Approve the Executive Committee meeting minutes for the meeting held on March 20, 2024.

MEETING MINUTES:
The Executive Committee (Committee) of the Atascadero Basin Groundwater Sustainability Agency (GSA) was held at the Templeton Community Services District board room and via teleconference on Wednesday, March 20, 2024, at 4:30 p.m.

Item 1 – Call to Order: Chairperson Fardanesh called the meeting to order at 4:30 p.m.

Item 2 – Roll Call: Present in person at the Committee meeting were Voting Members John Peschong (alternate) County of San Luis Obispo, Sharon Rodin (alternate) Paso Robles City Council, Grigger Jones, Navid Fardanesh, and Susan Funk. A quorum (minimum of 4 voting representatives) of the Committee was established. Non-voting member Tom Mora was absent.

Item 3 – Pledge of Allegiance: Chairperson Fardanesh lead the attendees in the Pledge of Allegiance.

Item 4 – Order of Business: The Committee Members reviewed the order of the meeting's agenda and confirmed to conduct the meeting as presented in the agenda.

Item 5 - Introductions: The attendees listed below were noted.

Templeton Community Services District Jeff Briltz	GEI Consultants Mike Cornelius (via Zoom)
Atascadero Mutual Water Company John Neil	

Item 6 – General Public Comments: Chairperson Fardanesh opened public comment and, seeing none, closed public comment.

Item 7 – Consent Agenda:

- Motion to approve: Grigger Jones
- Second: John Peschong

Agenda Item 7.a: January 3, 2024, Meeting Minutes – The Executive Committee reviewed the minutes from the January 3, 2024, meeting.

> *A motion was made by Member Jones to approve the minutes. Member Peschong provided a second. Voice Vote of Voting Members: Ayes - Jones, Peschong, Rodin, Fardanesh. Nays – none. Motion carried.*

Item 8 – Old Business: None

Item 9 – New Business

Vice Chairperson, Susan Funk, joined the meeting.

Agenda Item 9.a: Atascadero Basin GSP Evaluation Status:
The Atascadero Basin GSA submitted a Groundwater Sustainability Plan to the DWR in January 2022. One of the obligations of SGMA is that DWR evaluate the GSP within 2 years of its submittal. The GSA received letter on January 31, 2024, stating the DWR had not reviewed the Atascadero Basin GSP because it is prioritizing review of basins it considers to be medium- or high-priority (the DWR considers the Atascadero Basin to be low priority). The Atascadero Basin GSP demonstrates that the basin is healthy and that it is being managed in an adaptive management format, addressing issues as they come up. Last year was indicative of how the basin replenishes and refills itself every year, especially in wet years.

Questions: none

Public Comment: none

Agenda Item 9. b: Filing of Annual Report with the Department of Water Resources:
GSA staff informed the Executive Committee that a draft of annual report for the water year ending September 30, 2023, was posted to the Atascadero Basin GSA web portal. After the required 15-day review period is over, staff will respond to any comments and then upload the annual report to the DWR portal. Staff is recommending that the Executive Committee adopt Resolution 2024-01 approving submittal of the Water Year 2023 Annual Report to DWR prior to the deadline of April 1, 2024.

GEI presented slides summarizing basin conditions over the reporting period:

- Atmospheric Rivers - The location and intensity of atmospheric river event were shown. Last winter was the 3rd wettest year on record. The term for storms is now coined as Atmospheric River, so all atmospheric rivers are being analyzed for water content and duration.

- Statewide Precipitation comparison between December 1, 2022 and March 31, 2023 – the variability of climate in California and highlights the benefit of the GSA's use of adaptive management in the basin. The Atascadero Basin was at 40% of normal in December, but by March 2023, it was at 200% of normal.

- Annual Change in Groundwater Storage Table – significant change groundwater storage in 2023 (>15,000 AF) in comparison to 2017-2022

- Groundwater Hydrographs – minimum groundwater levels are well above target levels in the basin

Questions:

Are these annual reports required or voluntary since we did not have to comply with SGMA? No. Since the Atascadero Basin GSA submitted a GSP, SGMA requires that an annual report be filed with the DWR even though the basin is considered low priority.

Should expect costs to prepare the annual report each year? Yes. However, the Atascadero Basin Annual Report is a fairly easy one to prepare compared to other basins. Other basins have more wells, more issues, and projects and management actions. Much of the report will not change from year to year. Other components of the report will require updating hydrographs, storage estimates, etc.

Public Comment: none

A motion was made to adopt Resolution 2024-01 approving the Annual Report for water year ending September 30, 2023, by Member Jones. Member Funk provided second. Voice Vote of Voting Members: Ayes - Jones, Funk, Peschong, Rodin, Fardanesh. Nays – none. Motion carried.

Agenda Item 9.c: Next Meeting – Staff recommended the next meeting be in the Fall 2024 unless changes in the basin.

Item 10 - Informational Items: none

Item 11 – Adjournment: There being no further business to discuss, Chairperson Fardanesh adjourned the meeting at 4:57 p.m.

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Rob Rossi, Secretary

ATASCADERO BASIN
Groundwater
Sustainability Agency

TO: Executive Committee

FROM: GSA Staff/ John Neil, Atascadero Mutual Water Company

DATE: December 18, 2024

SUBJECT: Agenda Item 9.a, Contract Award for Preparation of the WY 2024 Annual Report

RECOMMENDED ACTION:

Adopt Resolution 2024-02 authorizing Atascadero Mutual Water Company to enter into an agreement with the consulting team of GEI Consultants, GSI Water Solutions, and Confluence Engineering to prepare the Annual Report for water year ending September 30, 2024 (WY 2024).

DISCUSSION:

Groundwater Sustainability Agencies (GSAs) are required to prepare annual reports before April 1 of each year following submittal of their Groundwater Sustainability Plan (GSP) to the Department of Water Resources (DWR). The DWR reviews annual reports to ensure conformance with Sustainable Groundwater Management Act regulations and the sustainability goals identified in the GSP.

Staff sent requests for proposals for preparation of the annual report for WY2024 to five consulting firms that have experience with preparation of GSPs in and around San Luis Obispo County (see Attachment B). The only respondent to the request was the consulting team of GEI Consultants, GSI Water Solutions, and Confluence Engineering (see Attachment C).

The annual report includes data and information used in the development of the GSP update to reflect the most recent hydrologic data, and maps representing current conditions with narrative describing the progress made toward implementing the GSP. Previous years' annual reports were prepared by the consulting team of GEI Consultants and GSI Water Solutions.

FISCAL IMPACT:

See Attachment D for the consulting team's fee proposal for preparation of the annual report. AMWC will invoice the GSA participants on a pro-rata basis as described in the MOA and summarized below.

Participant	MOA Cost Allocation	Particpant Cost
AMWC	43%	$21,393
Atascadero City	1%	$497
Paso Robles City	22%	$10,945
SLOCO	16%	$7,960
Small Systems	1%	$497
TCSD	17%	$8,457
TOTAL	**100%**	**$49,749**

ATTACHMENTS:

A. Resolution 2024-02
B. Request for Proposal
C. Annual Report & GSP 5-year Update Preparation Proposal
D. Annual Report Cost Proposal

RESOLUTION 2024-02

AUTHORIZING ATASCADERO MUTUAL WATER COMPANY TO ENTER AN AGREEMENT WITH THE CONSULTING TEAM OF GEI CONSULTANTS, GSI WATER SOLUTIONS, AND CONFLUENCE ENGINEERING TO PREPARE THE ANNUAL REPORT FOR WATER YEAR ENDING SEPTEMBER 30, 2024

WHEREAS in August 2014, the California Legislature passed, and in September 2014 the Governor signed, legislation creating the Sustainable Groundwater Management Act ("SGMA") "to provide local groundwater sustainability agencies with the authority and technical and financial assistance necessary to sustainably manage groundwater" (Wat. Code, § 10720, (d)); and

WHEREAS SGMA requires sustainable management through the development of groundwater sustainability plans ("GSPs"), which can be a single plan developed by one or more groundwater sustainability agency ("GSA") or multiple coordinated plans within a basin or subbasin (Wat. Code, § 10727); and

WHEREAS the Atascadero Basin GSA Executive Committee approved submittal of a GSP for the Atascadero Basin (3-004.11 Salinas Valley Atascadero Area) to the Department of Water Resourced (DWR) on January 19, 2022; and

WHEREAS the Atascadero Basin GSA submitted the GSP for the Atascadero Basin to the DWR on January 30, 2022; and

WHEREAS GSAs are required to prepare annual reports before April 1 of each year following submittal of their GSP to the DWR; and

WHEREAS GSA staff requested proposals from five consulting firms that have experience with preparation of GSPs in and around San Luis Obispo County, and the consulting team of GEI Consultants, GSI Water Solutions, and Confluence Engineering was found to be the most responsive.

NOW, THEREFORE, BE IT RESOLVED that the Executive Committee of the Atascadero Basin GSA hereby authorizes Atascadero Mutual Water Company to enter an agreement with the consulting team of GEI Consultants, GSI Water Solutions, and Confluence Engineering to prepare the Annual Report for water year ending September 30, 2024 (WY 2024).

PASSED AND ADOPTED at a meeting of the Executive Committee of the Atascadero Basin GSA on December 18, 2024, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

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Navid Fardanesh, Chairperson

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Secretary's Certification

I, Rob Rossi, Secretary of the Atascadero Basin GSA Executive Committee, do hereby certify that the foregoing Resolution is a true and correct copy entered into the Minutes of the Meeting of December 18, 2024, at which time a quorum was present, and no motion to amend or rescind the above resolution was made.

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Rob Rossi, Secretary

5005 EL CAMINO REAL • P.O. BOX 6075 • ATASCADERO, CA 93423 • (805) 466-2428

Atascadero Mutual Water Company

ESTABLISHED 1913

ATASCADERO BASIN GROUNDWATER SUSTAINABILITY AGENCY
REQUEST FOR PROPOSALS
GROUNDWATER TECHNICAL ASSISTANCE

Release Date: October 4, 2024
Due Date: October 25, 2024
Submit to: John B. Neil, PE
jneil@amwc.us
General Manager
Atascadero Mutual Water Co.

PURPOSE

Atascadero Mutual Water Company (AMWC) is seeking a qualified consultant to prepare annual reports and provide other technical assistance with the implementation of the Groundwater Sustainability Plan (GSP) developed for the Atascadero Area Groundwater Sub-basin of the Salinas Valley Basin, Basin No. 3-004.11 as identified by the California Department of Water Resources ("DWR") in its Bulletin 118 ("Atascadero Basin").

The consultant selected shall have sufficient resources to complete the annual report required under the Sustainable Groundwater Management Act ("SGMA") for the Atascadero Basin for water year ending September 30, 2024, and submit the report to the DWR on or before the April 1, 2025, deadline.

BACKGROUND

The County of San Luis Obispo, Templeton Community Service District, City of Atascadero, City of Paso Robles, Atascadero Mutual Water Company, and others have entered into a memorandum of agreement creating a groundwater sustainability agency (GSA) for the Atascadero Basin in accordance with the SGMA to prepare a groundwater sustainability plan GSP for the Atascadero Basin. The Atascadero Basin is governed by a 5-member Executive Committee.

In May 2018, the DWR designated the Atascadero Basin as a very low priority basin and therefore the basin was no longer subject to SGMA requirements. However, the GSA Executive Committee decided that it would continue to proactively manage the groundwater resources in the Atascadero Basin and move forward with the development of a GSP. The GSP was adopted by the Executive Committee on January 19, 2022. The GSP was submitted for review to the DWR and posted to the SGMA Portal. The DWR has not completed its review of the GSP as of the date of this request for proposal.

More information on the Atascadero Basin can be found at www.atascaderobasin.com.

SUBMITTAL REQUIREMENTS

Consultants interested in preparing annual reports and providing other technical assistance with the implementation of the Atascadero Basin GSP are required to submit a Proposal which includes elements in the format prescribed below. AMWC will rank qualified consultants based on the following criteria: relevant technical experience, knowledge of local issues and conditions, and pertinent professional certifications and credentials. The costs for preparing and submitting a Proposal are entirely the responsibility of the firm submitting the Proposal and shall not be charged to AMWC, nor any other Atascadero Basin GSA members.

A. Proposal Cover Letter and Page Limits:
The preferred format of consultant's Proposal submission is a cover letter addressed to John B. Neil, General Manager, Atascadero Mutual Water Company, jneil@amwc.us. The cover letter may not exceed six (6) single-sided standard sized (8 ½" by 11") pages. The page limit does not apply to any attachments, table of contents, cover pages or resumes of key personnel within the appendices.

B. Cover Letter Submittal Contents:
1. Summary - Provide a summary of the firm's RPF submission contents, emphasizing qualifications and capabilities of the consultant. The summary should indicate an understanding of the SGMA, relevant work experience within the community, relevant capabilities of staff, and related work experience.

2. Office Location - Please indicate the location(s) of your firm's office(s) from which your staff will stage work. AMWC desires to limit excessive travel time and related travel expenses.

3. Relevant Technical Experience - Please indicate the qualifications, expertise, and relevant experience of your firm related to well drilling including procuring and directing well drillers, siting monitoring wells, resolving onsite issues with property owners, developing maintenance plans or standard operating procedures (SOP's), developing cost estimates and/or opinions of probable costs, and determining specifications for the procurement of monitoring equipment both for both remote data recording and in-person applications. Please describe additional general technical capabilities or service such as project management, civil engineering, groundwater modeling, groundwater statistics, hydrogeologic data analysis, and groundwater quality analysis.

4. Knowledge of Local Issues and Conditions - Please provide some insights into the local area and the challenges faced. Has the consulting firm worked previously in the area? For what GSA and in what capacity?

5. Professional Certifications and Credentials - Please provide any pertinent licenses or certifications of key personnel such as professional registrations, or other pertinent certifications, certificates, or credentials.

6. Signature and Contact Information - The cover letter shall be signed by the firm's Project Manager and an official authorized to negotiate and contractually bind the firm to perform the requested services. The Project Manager shall be the main contact with AMWC for technical and contractually related issues and shall be responsible for the direction of day-to-day progress on specific project assignments. Please provide the telephone number, email, and office location of the Project Manager. By signing the cover letter, the firm understands that all submittals attached thereto are a matter of public record and subject to disclosure. The firm also consents to AMWC staff contacting agency or client references provided by client for reference projects.

7. Appendices (Does not Count towards page limit):
    a. Resumes of Key Personnel - A brief resume for each of the proposed key personnel focusing on relevant experience and proposed role. A graphic depicting the team structure, role of key individuals, and area of expertise is desirable.

    b. Reference Projects - A list of similar reference projects that the proposed key personnel have completed in the last five years. Include only projects for which proposed key personnel played a key role. Firms are encouraged to list agency or client contacts as references for projects.

8. Other Required Submittals
    a. Conflict of Interest - Firms shall disclose any financial, business or other relationships with the any members of the Atascadero Basin GSA, its agents or employees. A potential conflict of interest may include existing agreements or contracts with members of the GSA. An existing agreement may not automatically constitute a conflict of interest or a competitive advantage. The Firm should also list current clients who may have a financial interest in the outcome of the Project.

    b. Insurance - As required by AMWC:

i. General Liability Insurance on an occurrence-based policy, including contractual liability with a combined single limit in the minimum amount of $2,000,000; and
ii. Automobile Liability Insurance with a combined single limit in the minimum amount of $1,000,000; and
iii. Professional Liability Insurance on an occurrence-based policy with an aggregate limit in the minimum amount of $1,000,000; and
iv. Workers' Compensation Insurance as required by law; and
v. Listing AMWC and the Atascadero Basin GSA as additionally insured on the insurance certificate.

c. Fee Proposal – Consultant shall provide a not-to-exceed fee proposal for preparing the annual report for the water year ending September 30, 2024.

d. Schedule of Rates and Fees – Consultants shall provide a Schedule of Rates and Fees to be used for issuing task orders for work other than the annual report.

9. Submitting and Statement of Qualifications - Responses must be received by AMWC no later than **4:00 p.m. on Friday, October 25, 2024**. Proposals received after this time will be rejected. A response constitutes a single PDF file containing the signed response as outlined above.

   Responses should be sent via email to:
   John B. Neil, P.E.
   General Manager
   Atascadero Mutual Water Company
   jneil@amwc.us

10. Submitting Questions - General and technical questions regarding this RFP may be directed to John Neil, General Manager, Atascadero Mutual Water Company, via email at jneil@amwc.us.

11. Selection Schedule - AMWC will endeavor to follow the consultant selection schedule listed below:

Release RFP	October 4, 2024
Proposals Due	October 25, 2024
Notice of Award	November 11, 2024

12. Evaluation Process - AMWC staff will review the firm's submittals for completeness, responsiveness, clarity, and content. Each submittal will be reviewed to determine if it

meets the proposal requirements contained in Cover Letter Submittal Contents. Staff may find the submittal "unresponsive" and reject any submittal if incomplete or contains irregularities. AWMC will then assemble a selection committee which will evaluate firm submittals. The evaluation of the written qualifications will be based on the criteria shown below. Aside from the evaluation process described herein, firms or their representatives are strictly prohibited from attempting to influence the outcome of the selection by contacting selection committee members.

QUALIFICATIONS EVALUATION WORKSHEET
Firm _____

WRITTEN QUALIFICATIONS Weight Score (0-10)

Weighing Factors
A. Firm Profile and Overall Capabilities - 3.0
B. Key Personnel - 3.0
C. Similar Reference Projects - 3.0
D. Knowledge of Local Conditions & Concerns - 1.0

TOTAL SCORE (100 POINT MAXIMUM) _____

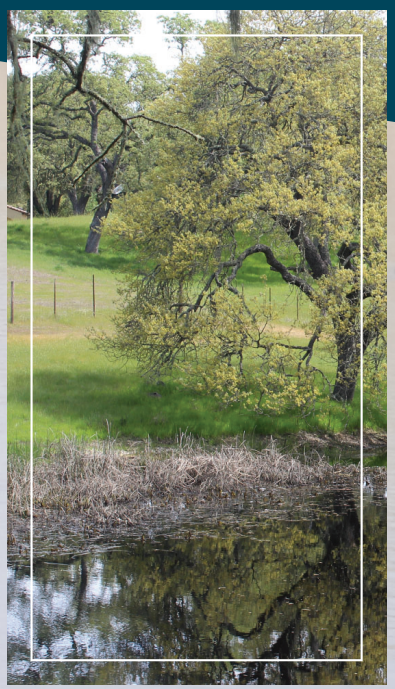
EVALUATOR DATE _____

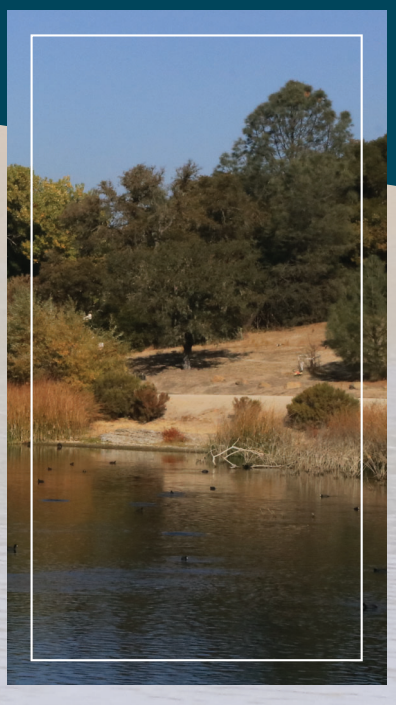
GEI Consultants

Groundwater Technical Assistance

Proposal prepared for: Atascadero Mutual Water Company

October 25, 2024





Contents

COVER LETTER

October 25, 2024

Submitted via email to: John B. Neil/jneil@amwc.us

Mr. John B. Neil, P.E.
General Manager
Atascadero Mutual Water Company

Subject: Proposal for Groundwater Technical Assistance

Dear Mr. Neil:

GEI Consultants, Inc. (GEI) has reviewed the Request for Proposal (RFP) issued by Atascadero Mutual Water Company (AMWC) to provide Groundwater Technical Assistance and prepared our submittal in accordance with the requirements in the RFP.

GEI understands that AMWC is seeking a qualified consultant or consulting team to prepare annual reports and provide other technical assistance with the implementation of the Groundwater Sustainability Plan (GSP) that has been developed for the Atascadero Area Groundwater Sub-basin.

GEI is a full-service consulting firm with over 1,600 staff including multidisciplinary expertise in 56 offices across the United States (U.S.) and Canada with over 240 staff in its 6 offices in California. GEI's California offices provide a wide range of services, including groundwater sustainability planning and project implementation, geologic and hydrogeologic investigations, well design and construction, and managed aquifer recharge plans and projects.

For almost 20 years GEI has worked with local partners in San Luis Obispo County to provide water and groundwater management consulting services to our clients on the Central Coast. For this project GEI has teamed with **GSI Water Solutions Inc.** and **Confluence Engineering Solutions Inc**. (collectively referred to as the GEI Team) to support the Atascadero GSA, prepare annual reports, prepare the 5-year GSP Evaluation when due, and provide other technical services supporting the implementation of the Atascadero Area GSP including the GSP 5-Year Evaluation.

GSI Water Solutions, Inc. (GSI) is a specialized hydrogeologic consulting firm founded in 2000 with a focus on the sustainable management of groundwater resources. GSI's hydrogeologists and water resources consultants are experts in groundwater management and supply planning under the Sustainable Groundwater Management Act (SGMA) and have worked extensively along the Central Coast and specifically within San Luis Obispo County. GSI is an employee-owned firm with offices in Morro Bay and Santa Barbara, California, as well as Portland, Corvallis, and Bend, Oregon.

Confluence Engineering Solutions, Inc. (Confluence ES) is a water resource engineering and hydrogeology consulting firm dedicated to helping people and organizations identify and develop sustainable water solutions. Confluence ES understands the value of bringing people together to create more powerful opportunities than one individual or organization can develop alone. We are focused on collaborating with water, wastewater, and recycled water utilities, groundwater sustainability agencies (GSAs), agricultural water users, and domestic well owners to develop reliable, resilient water supplies and systems. We can effectively communicate with multiple stakeholders and build consensus toward solving complex water resource challenges.

Our project staff working on this from these three firms have worked together collaboratively to prepare the 2022 Atascadero Subbasin GSP and the Water Year 2022 and 2023 Annual Reports. Based on our SGMA experience and our additional experience in the Atascadero Basin. The GEI Team is uniquely qualified, and has sufficient resources to continue to provide a comprehensive range of groundwater management, hydrogeologic support and groundwater model expertise in the Atascadero Subbasin to meet the requirements identified in the RFP.

By selecting this GEI Team, the AMWC and the Atascadero Subbasin GSA will benefit from our:

- **In Depth Local Knowledge –** Based on nearly two decades of groundwater work in San Luis Obispo County and the Atascadero Groundwater Subbasin including the preparation of the GSP and Annual Groundwater Reports.
- **Comprehensive Sustainable Groundwater Management Act Expertise –** All three Team members have extensive experience supporting local agencies in the preparation of GSP's, the preparation of annual reports, as well as the implementation of projects and management actions such as monitoring well installations to comply with GSP regulations.
- **Comprehensive Hydrogeologic Expertise –** Our team of hydrogeologists and engineers have a wide range of experience in the preparation of hydrogeologic assessments including data collection and analysis, groundwater modeling, agricultural water management, water quality analyses, and civil engineering capabilities to support groundwater recharge and recovery projects.

SUMMARY

Comprehensive SGMA Expertise

GEI has extensive experience with SGMA having been involved in every phase of its development; through supporting DWR in SGMA outreach and development of Best Management Practices guidance, development of SGMA databases such as the SGMA portal and groundwater basin data management systems, in addition to GSP development, and finally GSP implementation for GSAs.

The GEI Team helped develop more than35 GSPs in 39 groundwater basins in California and is currently assisting with annual reporting in over 10 basins. GEI staff have worked to develop all facets of the GSPs, including development of hydrogeologic conceptual models, water budgets, administrative structures, monitoring networks, groundwater models, and projects and management actions. In SanLuis Obispo County GEI Team members have provided SGMA support in the Atascadero Subbasin, Paso Robles Subbasin, and the San Luis Obispo Valley Basin, so we are familiar with county-wide and North County SGMA activities.

In addition to developing GSPs, GEI has worked on numerous projects within many of the groundwater basins of California that support sustainable groundwater management and understanding of basin hydrology. These include groundwater studies, water resource planning, modeling, and recharge projects.

OFFICE LOCATION

GEI's services for this on-call contract will be provided from our Sacramento area office in Rancho Cordova and our Bakersfield office (as needed). GEI has been providing services to the Central Coast since 2008. During this time GEI has actively managed travel time and expenses to limit project costs. During COVID, virtual meeting technology greatly improved, which reduced the amount of travel time needed to support these projects. While our GEI project manager is located in Sacramento, our teaming partners GSI and Confluence ES are located in Morro Bay and Los Oso respectively so we do have representatives from our team located within San Luis Obispo County to meet the project needs that may arise. While we anticipate continuing to use virtual meetings as appropriate, Mr. Cornelius is available at any time to attend meetings in person.

RELEVANT TECHNICAL EXPERIENCE

We have included our Teams technical experience in this section followed by Table 1 that presents the qualifications of our proposed staff.

Monitoring Well Planning, Design, and Construction

The GEI Team has extensive experience in the planning, design, and construction of groundwater monitoring wells. A key part of SGMA implementation activities include filling data gaps in monitoring networks.

The GEI Team has extensive experience in selection of land for construction of the monitoring wells by first understanding the hydrogeologic conditions (types of soils present and potential drilling depths to select the

appropriate type of drilling method). Acquisition of land may take months to years. The easiest option is usually to drill on GSA owned property. When this is not an option we have the experience to select properties with suitable access for drilling, then meet with landowners to provide details of the drilling, and provide a finished product with monitoring frequency recommendations to gain entitlements for the wells and long term access agreements. If a land transfer is necessary, land surveyors will be required to develop the documentation. Our team's understanding of the local hydrogeology, landowner outreach and potential accessibility issues will serve to ensure successful acquisition of land access agreements. In the event one or more locations are not viable due to inaccessibility, our team will work with GSA staff to determine alternative locations and proceed with acquiring access and installing the wells in the alternative location(s).

Prior to the land acquisition, the sites should be reviewed for releases of contaminants (GeoTracker) and to develop CEQA documentation (usually just a Categorical Exemption). Once the land has been acquired bid documents are prepared to solicit contractors to perform the work. We are experienced with all varieties of drilling methods to best specify the approach that will be successful with the lowest cost. Grant-funded projects must maintain documentation proving that the work has been bid competitively, and we are familiar with the administration of this type.

Construction oversight is required to confirm that the work was performed in accordance with the specification and to create as-built documentation required by the state. Our staff have provided this construction oversight on hundreds of monitoring wells.

Civil Design Services

GEI's civil design services support diverse client sectors including state and municipal water agencies, electric utilities, developers, industrial and institutional owners, and others. Project types vary, including water conveyance, dams, and dam related structures, levees, canals, pipelines, pumping stations, storage facilities and wastewater systems. We use proven methods of coordination and collaboration with strict management of quality, value, schedule and cost. Our engineering and design services range from planning and permitting through preliminary and detailed design to construction and commissioning.

Water Quality Analyses

Our GEI Team members possess a wealth of expertise in water resources planning, focusing extensively on maximizing the beneficial uses of water supplies. Our team members comprehensive skill sets, and deep understanding of water resources issues are a valuable asset in developing practical solutions that align with the goals of water agencies that integrate current technologies and regulatory requirements ensuring sustainable water management practices and effective compliance strategies.

Hydrogeologic Servies

The GEI Team has outstanding qualifications and extensive experience to assist the Atascadero Basin GSA with the services identified in the RFQ with our demonstrated local and statewide hydrogeologic experience.

This includes decades of experience in hydrogeologic assessments working with local agencies for development of Groundwater Management Plans, Integrated Regional Water Management Plans, development and implementation of GSPs, analysis of surface water and groundwater interactions, groundwater recharge areas, groundwater monitoring networks, and installation of monitoring wells to fill data gaps.

The GEI Team brings statewide experience supporting DWR in their statewide AEM program with compilation of well logs, water levels water quality and downhole geophysical information. GEI fully understands the AEM survey data and results, having been one of the team of subconsultants assisting DWR in this project.

The GEI Team also specializes in the integrated hydrologic models (e.g., IWFM, IGSM (pre-cursor to IWFM), GSFLOW, MODFLOW) and other tools used to support a wide variety of projects, such as groundwater banking and recharge projects, demand and supply analysis, water budget, groundwater-surface water interactions, groundwater sustainability, and project impact assessments.

Data and Information Management

GEI has a team of system architects, engineers, programmers, database administrators, Geographic Information System (GIS) analysts, web designers, and information technology specialists to deliver innovative information management solutions for engineering and scientific challenges. GEI has become a nationally recognized provider for engineering and scientific information management services and one of the top consulting companies in the U.S. for the development of water resources and environmental information management systems. GEI provides the knowledge, experience, and project delivery capabilities to customize a solution for a client's needs. We are able to provide objective and strategic insights into meeting clients' day-to-day and more complex information management needs. We develop small- and large-scale information management and decision support systems, providing the following services.

- Online Reporting and System Development
- Web Mapping and Data Visualization
- Data Management
- Decision Support System Development
- Scientific and Engineering Software Development
- Geographic Information System (GIS) Development

TABLE 1: RELEVANT EXPERIENCE MATRIX

Team Personnel ● Role	Company	Location	Years of Experience	Service Area – Related Relevant Experience				
				Groundwater Experience in the Atascadero Groundwater Subbasin	Related SGMA Experience	Hydrogeologic Analysis	Groundwater Modeling and Analytical Analysis	Monitoring Well Installations
Mike Cornelius, PG ● Project Manager	GEI	Rancho Cordova	35	◆	◆	◆	◆	
Chris Petersen, PG, CHg ● Principal-in-Charge	GEI	Rancho Cordova	34		◆	◆	◆	◆
John Woodling, PG, CEG, CHg ● Technical Reviewer	GEI	Rancho Cordova	44	◆	◆	◆	◆	◆
Trevor Kent ● Geologist	GEI	Rancho Cordova	8	◆	◆	◆	◆	◆
Sean Storey, GIT ● Geologist	GEI	Rancho Cordova	8	◆	◆	◆	◆	◆
Pauline Espinoza, GIT ● Geologist	GEI	Rancho Cordova	4		◆		◆	
Charlie Lay, ● Information Management	GEI	Rancho Cordova	11	◆	◆			
Nate Page, PG, CHg ● Senior Hydrologist	Confluence ES	Los Osos	19	◆	◆	◆	◆	◆
Dan Heimel, PE ● Technical Reviewer	Confluence ES	Los Osos	20		◆	◆		
Dave O'Rourke, PG, CHg, PE ● Principal Hydrogeologist	GSI	Morro Bay	35	◆	◆	◆	◆	◆
Julie Garofalo, PG, CHg ● Hydrogeologist	GSI	Morro Bay	12	◆	◆	◆	◆	◆
Ailco Wolf, PG, CHg ● Hydrogeologist	GSI	Morro Bay	24	◆	◆	◆		◆
Andy Lapostole, GIT ● Hydrogeologist	GSI	Morro Bay	10	◆	◆	◆		◆

KNOWLEDGE OF LOCAL ISSUES AND CONDITIONS

The members of the GEI Team have been working the Atascadero Subbasin and the Paso Robles Subbasin for two decades.

Relevant Projects:

- **Paso Robles Groundwater Management Plan (GMP)-** Prior to the Sustainable Groundwater Management Act, our team members prepared the Paso Robles Groundwater Management Plan. At that time, the Atascadero Subarea (as described in the GMP) was part of the Paso Robles groundwater subbasin. The GMP supported the development of information specific to the Atascadero Area which would later become the Atascadero Subbasin.
- **Atascadero Basin Boundary Modification** – this resulted in the Atascadero Subbasin being separated from the Critically overdrafted Paso Robles Subbasin, and eventually being reassigned by DWR to a very low priority basin. Prior to this determination, the GEI Team members had prepared a grant application to support the development of the Groundwater Sustainability Plan. After the Basin Boundary Modification and reclassification of the Atascadero subbasin to a very low priority designation, the leaders in the Atascadero Subbasin decided to continue to proactively manage the water resources of the Subbasin and prepare a GSP
- **Atascadero Basin GSP**- The preparation of the Atascadero Basin GSP was impacted by the COVID which modified how projects, especially public outreach and coordination would be conducted. The GEI Team continued to prepare the GSP and moved to virtual meetings to support public outreach and engagement. Once in-person meetings were re-established, our team used a combination of representation in- person and virtual to conduct public meetings. GEI has an extensive Information management group that provided support to the Atascadero Basin.com website and the Atascadero Basin Groundwater Communication Portal (GCP). The Atascadero Basin GCP was used to meeting the communication, outreach, and engagement requirements of SGMA. GEI successfully uploaded the GSP to the DWR SGMA portal prior to the January 31, 2022, deadline. To date, DWR has not completed is review of the GSP.
- **Atascadero Basin Groundwater Model Update** – GSI developed an updated Basin-specific integrated surface water/groundwater model for the Atascadero Basin. The work included refining the hydrogeologic conceptual model, including building a detailed 3-D geologic model of the Basin using Leapfrog® Works. The project team incorporated the Leapfrog® geologic framework into MODFLOW aquifer layering scheme. To integrate surface water components into the groundwater model, the project team made use of the recently available 270x270-meter gridded Basin Characterization Model (BCM), which is a California statewide surface water balance model developed by the U.S. Geological Survey. The innovative use of incorporating BCM data into a groundwater model has provided a much more cost-effective way to integrate surface water and groundwater on a monthly timeframe than other more common means of integrating surface water with separate watershed models like HSPF or GSFLOW. The BCM data as input to the groundwater model provided excellent flow calibration at the Salinas River USGS stream gage data. This model will likely be updated to extend the hydrologic period and then used to support the GSP 5-year Evaluation.
- **Atascadero Basin GSP Annual Reports –** Our GEI Team continued to work together on the preparation of the Water Year 2021, 2022, and 2023 Annual Reports which were successfully uploaded to the DWR SGMA portal prior to the April 1st deadlines. To date, DWR has not reviewed the GSP Annual Reports.
- **Atascadero Basin Groundwater Communications Portal -** As part of the Atascadero Basin GSP development effort, GEI developed the Atascadero Basin Groundwater Communication Portal (GCP) to help meet the SGMA communication and engagement requirements. It was used to post events and automatically invite interested parties. Stakeholders can register with the GCP to stay informed

about events related to program/project development and to receive updates if event details change. The system automates the stakeholder outreach process and documentation and can be customized for specific outreach and communication needs.

- **Well Design, Drilling, Construction and Testing of New Municipal Production Well for AMWC** – GSI developed well specifications, assisted with drilling contractor selection, provided oversight of drilling and well construction and performed well testing for a new AMWC production well. The well was designed with 316-stainless steel casing and a glass bead filter pack to optimize hydraulic communication with the aquifer, prolong service life and minimize the likelihood of bacterial contamination.
- **Paso Robles Subbasin 5-Year GSP Evaluation –** Building on their experience from writing the first four SGMA Annual Reports, GSI was selected to complete the required 5-Year GSP Evaluation for the Paso Robles Subbasin. This effort includes reporting of new data informing the Hydrogeologic Conceptual Model, update of groundwater conditions, monitoring networks, projects and management actions, GSA Authorities and Enforcement, Stakeholder Outreach, and discussion of potential GSP Amendments. This evaluation is currently under way and will be delivered to DWR in January 2025.
- **Templeton CSD Well Services Support. Platz Deep Well Rehab**. GSI performed field investigation to assess the condition of the Platz deep well, which began producing significant volumes of sand and water with elevated turbidity when production rates were elevated. GSI recommended a video inspection, and that diagnostic well testing be performed prior to the pumping equipment being removed reviewed field records of the well installation that suggest that mechanical development with dual-swab and airlifting techniques was not performed following completion of well construction as specified. Technical specifications for this work were developed, and the work is currently scheduled for fall 2024.

Professional Certifications and Credentials

Table 1 above includes the professional certifications and credentials for the staff listed.

Mike Cornelius, P.G., will serve as the GEI Project Manager and Chris Petersen, P.G., C.Hg., will serve as the Principal-in-Charge for this contract. Please contact our Project Manager, Mike Cornelius at 916 631.4500 or mcornelius@geiconsultants.com, if you have questions about our proposal.

Sincerely,

GEI Consultants, Inc.

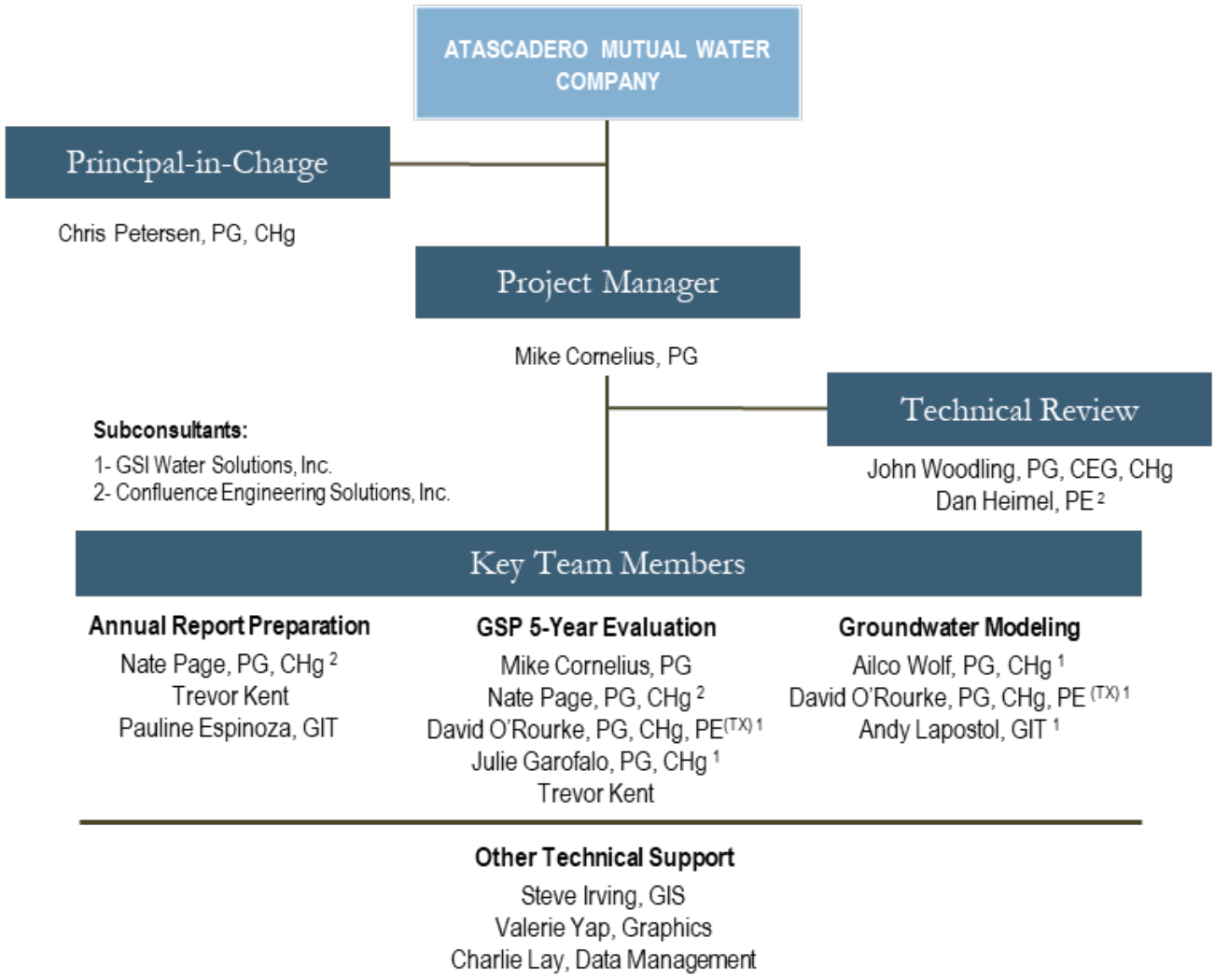
Mike Cornelius, P.G.
Project Manager

Chris Petersen, P.G., C.Hg..
Principal-in-Charge

APPENDIX A – RESUMES OF KEY PERSONNEL

The GEI Team is assembled from key staff from GEI, GSI, and Confluence ES that are highly skilled and experienced working in the Atascadero Subbasin and working on similar projects throughout San Luis Obispo County and statewide. This team provides expertise and knowledge to address all service areas identified under the RFQ. Our organizational chart shown below shows the proposed team members along with staff identified to provide support for each service area. Resumes for our key staff are included in this appendix.

PROJECT TEAM ORGANIZATION



Michael J. Cornelius, P.G.
Vice President and Principal Geologist

resume

Michael Cornelius is principal geologist in GEI's Sacramento office and has 35 years of experience in water resources management in California. His experience includes conducting and managing groundwater management, integrated regional water management (IRWMP), and flood management projects.

Mr. Cornelius has been working in San Luis Obispo County for over 18 years on groundwater management projects, IRWMP's and grant applications. He has been working in the Paso Robles Groundwater Basin since 2006.

Mr. Cornelius will serve as the project manager for this project. He serves as project manager or provides senior level review for groundwater and water management studies for GEI.

EDUCATION
M.S., Civil Engineering, California State University, Sacramento
B.S., Geology, University of California, Davis

EXPERIENCE IN THE INDUSTRY
35 years

EXPERIENCE WITH GEI
20 years

REGISTRATIONS AND LICENSES
Professional Geologist, CA No. 6222

PROJECT EXPERIENCE

Relevant Experience in San Luis Obispo County

Atascadero Subbasin Groundwater Sustainability Plan, Atascadero Mutual Water Company, CA. Currently serving as the project manager for the preparation of a Groundwater Sustainability Plan (GSP) to meet the requirements of the SGMA. Efforts to date have included assisting in the successful preparation of a Basin Boundary Modification application to DWR to form the Atascadero Area Subbasin from the Paso Robles Subbasin, and providing support in the formation of the Atascadero Area Subbasin Groundwater Sustainability Agency. Led the preparation of a successful Proposition 1 Groundwater Sustainability Grant to support the development of the GSP. Since the submittal of the GSP in 2022, he has continued to support GEP implementation in the basin including the preparation of three GSP Annual Reports.

Groundwater Banking Feasibility Study, County of San Luis Obispo, CA. Project Manager responsible for the preparation of this study to determine the feasibility of banking surplus State Water Project water in the Paso Robles Groundwater Basin in northern San Luis Obispo County. The initial project focus was to identify the technical (hydrogeologic and engineering) constraints which may limit water banking opportunities. Environmental considerations, groundwater management, and potential project partners and funding sources were identified. The project included a significant stakeholder involvement component that includes numerous presentations the Groundwater Banking Subcommittee of the Water Resources Advisory Committee.

Paso Robles Groundwater Basin Regional Groundwater Management Plan, City of Paso Robles, CA. Served as the project manager for the preparation of the Paso Robles Groundwater Basin Regional Groundwater Management Plan (Plan), which was completed in 2011. The preparation of the Plan was led by the by the City of Paso Robles and the San Luis Obispo County Flood Control and Water

Conservation District (District) in coordination with the Groundwater Advisory Committee (GAC), which included stakeholder and other interested parties in the Basin, including agricultural, municipal, and rural groundwater interests.

Paso Robles Subbasin Groundwater Sustainability Plan, City of Paso Robles, CA. Serving as a member of the consulting team, GEI provided technical and information management support for the development of a GSP. Mr. Cornelius lead GEI efforts which included the development of hydrogeologic conceptual model and the groundwater conditions sections of the Groundwater Sustainability Plan (GSP). GEI also supported the development of the Communication and Engagement Plan (C&E Plan) and deployment of the Paso Robles Groundwater Communications Portal (GCP) to support the implementation of the C&E Plan.

San Luis Obispo Creek Valley Groundwater Basin Groundwater Sustainability Plan, San Luis Obispo County, California. Mr. Cornelius is leading GEI's efforts (as a subconsultant to Water Systems Consulting, Inc) on this project which includes developing web-based tools to support SGMA compliance. These include a communication and outreach tool called the Groundwater Communication Portal (GCP) to support the communication and engagement activities and documentation of the implementation of the Communication and Engagement Plan as required by SGMA. GEI is also developing a San Luis Obispo County-Wide Data Management System to collect, store, manage, and present all the data needed to meet the SGMA requirement. Mr. Cornelius also provides technical and policy support to the project.

San Luis Obispo County IRWM Plan Update, San Luis Obispo County Flood Control and Water Conservation District, CA. Served as the project manager of the consulting team responsible for the preparation of the San Luis Obispo County IRWM Plan Update. The Plan Update incorporated additional information developed since the completion of the San Luis Obispo County 2007 IRWM Plan, and will comply with the new State's IRWM Guidelines. The stakeholder outreach process is expanded compared to the 2007 Plan to include more subregional input as well as input from DACs and NGOs. The Plan Update is being directed by the Regional Water Management Group, with coordination with the Water Resources Advisory Committee. The Plan Update was completed and adopted August 2014 in time to support the Region's 2014 Drought Grant Application.

Sustainable Groundwater Management Program Support, California Department of Water Resources, Statewide, CA. Currently responsible for managing the GEI-lead consulting team to provide support to the SGMP for the 2015 to 2022 period. In this role, was responsible of the overall project delivery and coordination of the consulting team with SGMP. Worked works closely with DWR staff and consulting team staff to develop program policies and procedures to support the development and implementation of the DWR SGMA-related responsibilities.

Christian E. Petersen, P.G., C.Hg.
Senior Hydrogeologist

resume

Christian Petersen has 34 years of experience providing groundwater technical expertise for large interdisciplinary water resources investigations and planning efforts, many of which involve conjunctive use. He has broad experience in the planning, design, and optimization of groundwater recharge techniques, an important element of most conjunctive use programs. He has assisted numerous clients in obtaining state and federal funding assistance for the development of conjunctive use programs throughout California and in New Mexico. Key to the success of every groundwater management planning effort is building trust and reaching consensus among project stakeholders, including the regulatory community. Mr. Petersen has demonstrated success in this environment, resulting in projects that meet water supply needs while protecting the environment.

EDUCATION
M.S., Hydrology, University of Arizona
B.S., Geology, California State University, San Jose
A.S., General Education, Modesto Junior College

EXPERIENCE IN THE INDUSTRY
34 years

EXPERIENCE WITH GEI
9 years

REGISTRATIONS AND LICENSES
Professional Geologist, CA No. 6189
Certified Hydrogeologist, CA No. 463

PROJECT EXPERIENCE

Farmington Groundwater Recharge Program, U.S. Army Corps of Engineers (USACE) Sacramento District (Federal Partner) and Stockton East Water District (Local Sponsor), San Joaquin County, CA. Project Manager on the Farmington Groundwater Recharge Program being sponsored by Stockton East Water District with funding assistance provided by the USACE. Recent studies recognize that severe groundwater overdraft conditions exist in the eastern San Joaquin County. This program helps reduce the overdraft by directing surface water and flooding parcels leased from local farmers. Led a team of scientists, engineers and outreach professions to increase local interest, select optimal recharge locations, and perform demonstration scale recharge testing. This program also has the ancillary benefits of reducing salinity intrusion caused by severe groundwater overdraft in the basin and restoring seasonal habitat that is currently lacking in the area. Designed and oversaw construction of numerous monitoring wells for this program.

Emergency Water Supply Study, Mountain House Community Services District (District), Mountain House, CA. Project Manager for a reconnaissance-level alternatives evaluation and fatal flaw analysis to help the District identify and develop a viable emergency water supply. A total of 12 options were reviewed, prioritized, and cost estimates and implementation recommendations provided for top ranking alternatives. GEI developed and applied evaluation criteria for scoring and ranking the 12 alternatives considered. Detailed hydrogeologic cross sections were then developed to further evaluated the feasibility of both groundwater production and storage considering both water quality and geologic constraints. GEI concluded that both groundwater production and storage via aquifer storage and recovery (ASR) appear to be feasible, but warrant further investigation before committing to the planning, design and construction of water supply facilities. GEI provided recommendations for the implementation of a field exploratory program for collection of field data required to support facility design following completion of the field program.

Groundwater Sustainability Program Support, California Department of Water Resources (DWR), Statewide, CA.. Part of the leadership team for GEI in providing assistance to DWR in the development and implementation of the Groundwater Sustainability Program recently formed to implement the Sustainable Groundwater Management Act of 2014 (SGMA). Under this contract, GEI is providing technical consulting services to DWR in the development of new policy and regulations for basin boundary adjustments and groundwater sustainability plans. Invovled in development of white papers and numerous stakeholder meetings designed to provide stakeholder input in the development of new regulations. Also involved in the development of graphics used in presentations and information guides designed to help stakeholders understand complex groundwater concept. Currently serving as GEI's task manager for assisting DWR with the development of best management practices (BMPs).

Statewide Aerial Electromagnetic (AEM) Survey, DWR, Statewide, CA. Task Order Manager for DWR's statewide AEM survery of all high and medium priority groundwater basins. Leading a team of scientists involved in the compilation, review and mapping of well log, water level and water quality information used in planning flight lines and interpretation of AEM data. Also assisting with development of public outreach flyers and breifing material including fact sheets for each of the basins surveyed.

Long Term Water Supply Reliability Study for the Stockton East Water District (SEWD) Water Treatment Plant, SEWD, Stockton, CA. Project Manager and Technical Reviewer for this project, which was sponsored by SEWD, the City of Stockton, Cal Water and San Joaquin County. The purpose of this project was to evaluate and quantify the availability of water from the eastern San Joaquin County drainages, which could potentially be diverted and used as supply for the SEWD Water Treatment Plant. Potential sources of supply evaluated for this study included agricultural conservation, recharge and banking of surplus flows in non-peak periods to be extracted and used to meet peak demands, and transfers from other water users in the region. This study included evaluation of water rights held by SEWD and existing or potentially new contracts between SEWD and other water users in the region. This study did not include the evaluation of flood flows in excess of SEWD's current water rights.

Central Valley Salinity Prioritization and Optimization Study, Central Valley Salinity Coalition, CA. Project Manager for evaluation of groundwater recharge impacts on groundwater quality and implications for salinity management in the Central Valley of California. This work is being completed in close coordination with diverse group of stakeholders.

Support with Soil Moisture Monitoring in the Sierra Nevada Mountains, Comprehensive Flood Management Services, DWR, CA. Reviewer in the development of a work plan and strategy to deploy soil moisture probes at a number of locations throughout the Sierra Nevada Mountains. The purpose of this project is the improve runoff forecasts as part of State of California's comprehensive flood management program.

ASR Well Study and Design, SEWD, San Joaquin County, CA. Principal-in-Charge for an evaluation of groundwater from five existing production well and potable water from a river water treatment plant for an ASR operation. Tasks include preparation of plans and specifications for a new ASR well and the conveyance system to/from the potable water transmission pipeline plus assistance with bidding from qualified construction contractors; permits from the County, California Regional Quality Control Board, and California Division of Drinking Water; grant funding, and environmental compliance.

John K. Woodling, P.G., C.HG., C.E.G
Senior Consultant

resume

John Woodling is a seasoned water resources professional with over 30 years of experience. He specializes in water resource planning and management, groundwater management, advocacy, organizational management and development, and collaborative problem solving. Mr. Woodling is a proven leader, innovator, and strategic thinker, and a skilled facilitator and coalition builder who integrates science, policy, and people for positive outcomes. Before joining GEI, Mr. Woodling spent 11 years leading two joint powers agencies in the Sacramento Area. As Executive Director of the Sacramento Groundwater Authority (SGA) he oversaw the management of the groundwater resources underlying northern Sacramento County. At the Regional Water Authority, he helped 21 municipal water suppliers collaborate on a variety of programs to integrate their efforts to provide water to the region's two million people.

PROJECT EXPEREINCE

South Yuba County Regional Water/Wastewater Project, Yuba County, CA. Supporting Yuba County Water, the City of Wheatland, and Olivehurst Public Utilities District (OPUD) in the development and financing of wastewater and water improvements that will benefit economic development in the County. Facilitate coordination of multiple agencies, engineering design teams, and environmental documentation teams. Developed grant application for State Water Board funding for a regional wastewater pipeline to connect Wheatland to the OPUD WWTP. Working with landowners, developers, and tribal interests to build consensus and funding support for the project.

Strategic Plan, Calaveras County Water District (CCWD), Calaveras County, CA. Facilitated and developed CCWD's five-year strategic plan (SP26+) during the pandemic requiring remote and hybrid in person meetings. This District endured nine General Managers over a 20-year span and was seeking a facilitator that could better align the Board and Executive Team to envision their future as well as work collaboratively for implementation. CCWD's services include for water, wastewater, and hydropower services. The Strategic Planning process involved surveys, interviews, and three public Board workshops. The Plan, which included mission, vision, values, and priority objectives for the agency was unanimously approved by the Board and supported by management and rank-and-file staff.

Re-establish the Mendocino County Water Agency, Mendocino County, CA. Working closely with county staff and the Board of Supervisors, led a strategic planning and organizational development effort to re-establish the MCWA as a leader in strategic water planning for the County. Conducted a survey and interviews to seek input form more than 100 stakeholders across the county, including local water suppliers, tribal interests, environmental interests, business interests, agricultural interests, and others. Conduced a series of workshops to

EDUCATION
M.S. Hydrogeology, University of California, Davis
B.S., Geology, Whittier College

EXPERIENCE IN THE INDUSTRY
37 years

EXPERIENCE WITH GEI
4 years

REGISTRATIONS AND LICENSES
Professional Geologist, CA No. 5004
Certified Hydrogeologist, CA No. 9
Certified Engineering Geologist, CA No.1678

CERTIFICATIONS
Certificate, Conflict Resolution, UC Davis Extension

PROFESSIONAL AFFILIATIONS
Association of California Water Agencies – Chair of the Groundwater Committee, Member of the Board of Directors, former Member of the State Legislative Committee, Emissary Award 2018
National Water Resources Association – Member, Groundwater Task Force
Frequent speaker at conferences sponsored by ACWA, Water Education Foundation, Groundwater Resources Association, American Water Works Association, and American Water Resources Association
Advisory Board member for Maven's Notebook, California Water Library and Groundwater Exchange

GEI Consultants

identify priorities for the Agency. Developed a staffing and organizational plan and identified potential funding source.

South American Subbasin Groundwater Sustainability Plan, Sacramento County, CA. Oversaw technical work to develop the GSP for the subbasin, covering much of the southern part of Sacramento County. Coordinated with five other Groundwater Sustainability Agencies in completing the work and achieving adoption by the GSA Boards. Managed nearly $2M grant from CA Department of Water Resources to complete the work. Successfully developed a groundwater regulatory fee under Proposition 218 process to fund implementation of the plan.

North American Groundwater Subbasin Groundwater Sustainability Plan, Sacramento Groundwater Authority, Sacramento, Placer and Sutter Counties, CA. Managed the Sacramento Groundwater Authority GSA and coordinated the efforts of five groundwater sustainability agencies in Sacramento, Placer and Sutter Counties to develop a scope of work and funding agreements to complete a single groundwater sustainability plan for the North American Subbasin. Successfully applied for $1M grant from DWR to complete the work.

Sustainable Groundwater Management Act (SGMA), Sacramento Groundwater Authority and Association of California Water Agencies, Statewide, CA. Key stakeholder in development of the Sustainable Groundwater Management Act of 2014 (SGMA) and implementing regulations. Provided technical assistance in drafting to the legislation's co-author. Lobbied for key amendments at the end of the legislative session, including the language providing for alternative plans. As Chair of the Practitioner Advisory Panel, coordinated input from groundwater managers to DWR in development of regulations and guidance. As Chair of the ACWA Groundwater Committee, coordinated input to the regulations and convened an ongoing dialogue between water agencies and the staff and management of DWR and the State Water Resources Control Board.

Local Agency Management, Regional Water Authority, Sacramento Groundwater Authority, and Sacramento Central Groundwater Authority, Sacramento, CA. As Chief Executive of three joint powers agencies, oversaw the full range of public agency formation and management functions, including strategic planning, budgeting, audits, contracting, Brown Act compliance, Board training, FPPC compliance, development of policies and procedures, CalPERS administration, and staff management.

Evaluation of Subsidence in Groundwater Sustainability Plans, California Department of Water Resources (DWR), Division of Flood Management. Evaluated all Groundwater Sustainability Plans (GSP) for critically overdrafted basins submitted to DWR in 2020. Summarized the extent to which the responsible groundwater sustainability agencies considered the effects of groundwater extraction induced land subsidence on flood protection and flood control facilities.

American River Basin Integrated Regional Water Management Plan (IRWMP), Regional Water Authority, Sacramento, CA. Oversaw the development of the IRWMP for the American River Basin, covering most of Sacramento County and the valley portion of Placer County, including development of an online portal for tracking of project status. Facilitated multiple meetings of a stakeholder advisory group to update the plan in 2018 to comply with new state requirements. Coordinated the integration of a separately developed Stormwater Resource Plan into the IRWM Plan to ensure eligibility for state stormwater funding.

Sacramento Region Drought Response, Regional Water Authority, Sacramento, CA. In response to the Drought Emergency in 2014, and facing historically low storage in Folsom Reservoir, developed a regional proposal for short-term drought response actions that included upgrades to surface water diversion facilities to operate at low river stages, additional groundwater wells, and booster stations and interties between neighboring agencies to facilitate the movement of available water around the region. Acquired and managed $10M of state Proposition 84 funding to implement the projects through 2014 and 2015.

Regional Water Efficiency Program, Regional Water Authority, Sacramento, CA. Developed and maintained a regional water efficiency and water conservation public outreach program among 20 participating urban water suppliers. Conducted market research through telephone surveys and focus groups and designed outreach campaigns for print, radio, television and social media. Programs won a number of awards from public relations associations as well as the U.S. EPA WaterSense award.

Trevor Kent
Staff Geologist

resume

Trevor Kent has nine years of experience in the water resources industry focusing on groundwater planning, conjunctive use including aquifer storage and recovery systems, groundwater and stormwater management, the Sustainable Groundwater Management Act (SGMA), production and monitoring well construction, and geologic analysis. Mr. Kent is experienced in project management and implementation including grant-funded projects.

EDUCATION
B.S., Earth Science, California Polytechnic State University, San Luis Obispo

EXPERIENCE IN THE INDUSTRY
9 years

EXPERIENCE WITH GEI
7 years

CERTIFICATIONS
OSHA 40 HAZWOPER

PROJECT EXPERIENCE

Groundwater Sustainability Plan, Atascadero Mutual Water Company, Atascadero, CA. Project Geologist. Assisted with the development of a groundwater sustainability plan (GSP) for the Atascadero Groundwater Basin. Developed sustainable management criteria for the basin including minimum thresholds and measurable objectives to guide groundwater management. Sustainable management criteria were developed based on public input and hydrogeologic conditions in the basin. Assessment of hydrogeologic conditions include groundwater storage, groundwater elevations and flow gradients, groundwater quality, subsidence, groundwater dependent ecosystems, and the ability of the basin to maintain adequate supply to meet future demand. Development of the sustainable management criteria were completed to meet regulatory requirements of the Sustainable Groundwater Management Act.

Monitoring Network Design and Construction, Santa Rosa Plain Groundwater Sustainability Agency, Sonoma County, CA. Project Manager for the monitoring network design and construction project to address groundwater monitoring network data gaps identified in the Santa Rosa Plain Groundwater Sustainability Plan within the Santa Rosa Plain Groundwater Subbasin. Work includes all pre-construction support such as well siting based on geologic conditions and existing monitoring network, well permitting, specification development, bid support and contractor selection. The project will result in the construction of three nested multi-level monitoring wells to track changes in groundwater levels and two shallow monitoring wells to monitor interconnected surface water and groundwater. GEI will oversee the construction and development of said wells.

Groundwater Monitoring Wells Construction, Sacramento Groundwater Authority, North American Subbasin, CA. Project Manager overseeing the construction of groundwater monitoring wells to support implementation of the North American Subbasin Groundwater Sustainability Plan and address monitoring network data gaps identified in the plan. Work includes support for well siting and permitting, specification development, and bidding support. The project will result in the construction of eight monitoring wells, three being deep nested multi-level monitoring wells for groundwater levels monitoring and five shallow monitoring wells to monitor groundwater dependent ecosystems and surface water depletion. The project was

funded through a grant for the California Department of Water Resources (DWR) and supported budget tracking and development of quarterly reports as required under the grant.

Exploratory Drilling and Monitoring Well Construction, City of Roseville (City), Roseville, CA. Project Geologist. Oversaw an exploratory drilling program for the City with the purpose of identifying optimal locations for future ASR wells. Exploratory boreholes were drilled at eight locations identified throughout the City with monitoring wells constructed at six of these locations. Characterized encountered lithologic material to identify the extent and location of local aquifers and site suitability for monitoring well construction. Assisted with monitoring well design and oversaw well construction. Conducted water quality sampling following well completion and analyzed water quality and lithologic data to help the City identify the most suitable sites for future ASR wells. Project culminated in a well completion report to be submitted to the DWR documenting the details of construction and sampling for each well.

Enhanced Monitoring Program Groundwater Well Installation, Sonoma County Water Agency, Sonoma County, CA. Project Manager of a monitoring well construction project for Sonoma County Water Agency to enhance groundwater monitoring networks for the Petaluma Valley Groundwater Basin, Santa Rosa Plain Groundwater Subbasin, and the Sonoma Valley Groundwater Basin for the purposes of groundwater monitoring under SGMA. Developed technical specifications for exploratory drilling and well construction along with assisting Sonoma County Water Agency in the bidding process and contractor selection. Future tasks include oversight of the exploratory drilling and well construction along with development of a Well Completion Report for submittal to DWR. Manage project budget and deadlines for compliance with grant funding and work with Sonoma County Water Agency to meet budgetary concerns.

Ukiah Valley Groundwater Basin GSP Support, Larry Walker and Associates, Ukiah, CA. Project Geologist. Oversaw the development of a hydrogeologic conceptual model (HCM) and data management system (DMS) for the Ukiah Valley Groundwater Basin. Tasks were completed for the purpose of developing a GSP to meet requirements of the SGMA. Development of the HCM included textural and lithologic cross sections, textural analysis of the basin for hydrogeologic modeling, assessment of water supplies (surface and groundwater), and identification of data gaps in the region along with future studies to address these gaps. The HCM was developed to establish the flow and uses of groundwater and water resources in the Basin based on technical studies and input from the community and the Basin Technical Advisory Committee and GSP Review Board. An Access based DMS was developed in conjunction with the HCM to house data used to develop the HCM and GSP as well as a repository for future data collected under SGMA.

Big Valley Groundwater Basin GSP, Modoc County, CA. Project Geologist. Assists with the development of cross-sections and geological data review for the development of a HCM of the groundwater basin to satisfy GSP requirements under SGMA. Three cross-sections are under development for the basin to illustrate the subsurface geology, depositional environment, and principal aquifers of the basin. Cross-sections are being developed using basin borehole data, maps of surficial geology, existing geologic studies, and field investigations of geologic outcrops. The HCM takes into consideration recharge into the basin from uplands area outside of the basin boundary. Geologic data review and cross-section development assesses potential hydrogeologic connectivity with regions outside of the basin.

GSP Support Services, West Placer County GSA, West Placer County, CA. Project Geologist. Assist in data collection and scientific studies in support of the development of a GSP for the West Placer GSA as part of the North American Subbasin. Includes groundwater sampling and water quality analysis, groundwater level monitoring and contour development, and surface water monitoring and gauging for groundwater/surface water interaction studies. Data collection and analysis serve to satisfy requirements of SGMA and further understanding of the hydrogeologic system of the subbasin.

Sean Michael Storey, G.I.T.
Geologist

resume

Sean Storey has eight years of experience working in the industry for hydrogeological endeavors. He has experience across California includes working with public and private agencies in the following subbasins: Eastern San Joaquin, Tracy, Santa Rosa Plain, Sonoma Valley, Petaluma Valley, Atascadero, Kern, North American, Butte, Sutter, Colusa, Glenn, Martis Valley, Paso Robles, Santa Ynez, Kern, Big Valley, and more. He has designed monitoring networks as well as hydrogeologic conceptual models for GSPs approved by DWR by interpreting hydrogeologic conditions for groundwater management and identifying data gaps in their existing systems. Mr. Storey has managed the construction and design of ASR Supply wells and dozens of monitoring wells, as well as rehabilitation and destruction of older public supply and industrial water wells. He has experience with all aspects of new water well constructions from grant proposals, preliminary site assessments, drilling and lithologic logging, construction design and field oversight, well development, and water transfer accounting and watermaster reporting.

EDUCATION
B.S., Geology, California State University Sonoma
A.S., Natural Sciences, Sierra Community College

EXPERIENCE IN THE INDUSTRY
8 years

EXPERIENCE WITH GEI
8 years

REGISTRATIONS AND LICENSES
Geologist-in-Training, CA No. 812

CERTIFICATIONS
AED/First Aid Certified

PROJECT EXPERIENCE

Paso Robles Subbasin GSP Development, City of Paso Robles, Paso Robles, CA. Geologist. Hydrogeologic conceptual modelling for the subbasin. Developed Groundwater Monitoring Networks, assessed local geology for cross section analysis, Groundwater contouring for the major aquifers in the subbasin.

San Joaquin Annual Groundwater Reporting, San Joaquin County Public Works Department, San Joaquin County, CA. Geologist. Redevelopment of the groundwater monitoring network while maintaining historic reporting requirements over the span of six years. Creation of new comprehensive monitoring network shared across multiple counties and groundwater sustainability agencies, approximate base of groundwater cross sections, and representative hydrographs of wells throughout the East San Joaquin Subbasins.

Tracy Subbasin GSP Development, City of Tracy, Eastern San Joaquin County, CA. Geologist. Developed Groundwater Monitoring Networks, assessed local geology for cross section analysis, Groundwater contouring for the major aquifers in the subbasin, assisted with permitting and applications for new monitoring well installation, coordination with neighboring subbasins to agree on shared groundwater data.

Tracy Subbasin TSS Well Design and Construction, City of Tracy, CA. Geologist. Assisted with the development of 5 potential well locations across the subbasin to fill data gaps for the Tracy GSP. Analyzed nearby well logs, water quality analyses, geologic maps, APN parcel data, etc. to determine potential sites for multi clustered monitoring wells to capture data from all major aquifers. Construction currently on-going.

Occidental Road Aquifer Storage and Recovery (ASR) Well, Santa Rosa, CA. Geologist. Drilling oversight and lithologic logging of pilot hole, well materials inspection and construction oversight.

Ella Way Aquifer Storage and Recovery (ASR) Well, Citrus Heights, CA. Geologist. Preliminary design, exploratory drilling of pilot hole, final design, and construction of well casing and appurtenances, development of well and water quality sampling.

La Sierra Aquifer Storage and Recovery (ASR) Well, Carmichael, CA. Geologist. Preliminary design and reporting, exploratory drilling of pilot hole, development of well and on-site management.

Walker Street Well, Orland, CA. Geologist. Preliminary site assessment and hydrogeologic investigations, preliminary well design, management of exploratory drilling of pilot hole and lithologic logging of sediments, construction oversight, final design, and development of well, and title-22 water quality sampling of source water for public supply.

Butte Subbasin GSP Development, Butte County, CA. Geologist. Assembled groundwater wells with high density data history to assist in the development of a monitoring network for the GSP, and to identify potential data gaps and future monitoring well construction locations.

Exploratory Drilling and Monitoring Well Construction, Sonoma County Water Agency, Santa Rosa, Petaluma and Sonoma Valleys, Santa Rosa, Cotati, Rohnert Park, Petaluma, and Sonoma, CA. Geologist. Assist with oversight of an exploratory drilling program for the Sonoma County Water Agency with the purpose of filling data gaps in the monitoring networks with the construction of multiple nested monitoring wells. Exploratory boreholes were drilled at strategic locations identified throughout the three subbasins with nested monitoring wells constructed across these locations. Characterized encountered lithologic material to identify the extent and location of local aquifers and site suitability for monitoring well construction. Assisted with monitoring well design and oversaw well construction.

City of Orland Municipal Supply Well Design and Construction, California Department of Water Resources, Orland, CA. Geologist. Preliminary site assessment, preliminary well design, construction oversight, and development of a municipal supply well for the City of Orland as part of the Department of Water Resources drought response. Assessed current municipal wells for lithology and spacing to allow for the well to achieve maximum yield as a supplemental water source for the city. Oversaw design of production well, drinking water source assessment, preliminary site assessment, on-site construction oversight, and water quality development.

East Porterville Municipal Supply Well Construction, California Department of Water Resources, Porterville, CA. Geologist. Preliminary site assessment and construction oversight of a municipal supply well for the City of Porterville as part of the Department of Water Resources drought response. Served as the on-site geologist during drilling and construction of the well to ensure the completion was to specifications. Assessed well construction materials in relation to well design, installation of filter pack, bentonite seals, and sanitary seals, and

Dunnigan Wastewater Treatment Facility – Replacement Monitoring Well Construction and Design, Dunnigan, CA. Geologist. Designed replacement monitoring wells for locations that accurately capture the potential contaminant zones of the unlined wastewater treatment ponds due to chronic lowering of groundwater levels regionally, which have caused the original three wells to go dry. On-site drilling and construction oversight, and coordination with client and contractors.

Martis Valley Groundwater Management Plan and Modeling Study and Annual Reports, Truckee, CA. Geologist. Modeling Technician. Analyzed groundwater measurements throughout the valley and created hydrographs highlighting areas of sustainability and areas in need of improvement, as well as GIS mapping of Groundwater wells and groundwater contours for analysis of groundwater pumping and recharge.

Ella Way ASR Well Design, Construction and Development, Citrus Heights, CA. Geologist. Oversaw drilling of pilot hole, logging of sediments and identification of boundary between Merten and Valley Springs formations. Designed ASR capabilities of well using SiLi silica beads as filter pack with proper sieve analysis for retaining formation with maximum water velocity through screened casing. Oversaw construction and coordination of contractors and staffing for 24-hour oversight.

Pauline Espinoza, G.I.T.
Staff Professional

resume

Pauline Espinoza is a staff geologist in GEI's Sacramento office who is experienced in geologic and hydrogeologic field work. Ms. Espinosa experience with geologic field exploration includes oversight for the construction of both monitoring-wells and municipal wells (aquifer storage and recovery [ASR] capable) in Lassen, Modoc, Sacramento, Placer, Yolo, Sonoma, and Los Angeles Counties. Field oversight of ASR well construction. Soil logging to ASTM standards. Over 2,000 feet of rock core logging in Ely, Nevada, water quality sampling of groundwater, and municipal well rehabilitation and destruction.

Ms. Espinoza's experience with planning for sustainable groundwater management include preparing background documentation such as well permits, discharge permits, and drinking water source assessments. ASR investigations and feasibility studies. Groundwater sustainability plan (GSP) development, annual reporting, and implementation for local agencies within the greater Sacramento region

EDUCATION
B.A., Earth Science, Sonoma State University

EXPERIENCE IN THE INDUSTRY
4.5 years

EXPERIENCE WITH GEI
4.5 years

REGISTRATIONS/LICENSES
Geologist-in-Training, CA No.1780

TRAINING/CERTIFICATIONS
Red Cross - Adult First Aid/CPR
Issued: 12/12/2022
Expires: 12/12/2024

PROFESSIONAL ASSOCIATIONS
Groundwater Resources Association of California (Member 2020-present)

PROJECT EXPERIENCE

Leo J. Vander Lans Inland Injection Well, City of Long Beach, Long Beach, CA. Field Staff. Assisted in the development of specifications for well construction. Acted as Field Staff during 24-hour drilling operations. Provided oversight of conductor casing installation, pilot-borehole drilling, borehole deviation surveys, and isolation aquifer zone testing. Performed on-site soil analysis and color identification.

La Sierra Well, Carmichael Water District, Carmichael, CA. Primary Field Staff. Assisted in the development of specifications for well construction. Completed Well Permit Application. Acted as Primary Field Staff during conductor casing installation, pilot borehole drilling, on-site soil classification and analysis, directional borehole survey, isolation zone testing and water quality sampling, filter pack installation, well construction, installation of sanitary seal, and test pumping activities.

Two ASR Wells, Carmichael Water District, Carmichael, CA. Field Staff. Conducted background research for water quality, groundwater levels, local geology, aquifer characteristics, and historic contamination for two new ASR wells. Co-author for preliminary well design report. Completed Well Permit Application and Drinking Water Source Assessment for both wells.

ASR Monitoring Well Construction, City of Roseville, Roseville, CA. Field Staff. Provided field oversight of multi-completion monitoring well during pilot borehole drilling, well construction, and filter pack installation. Operated pump for well development and water quality sampling, using a Horbia U-52 Multimeter. Alongside project manager, assisted with writing final well design and the Well Completion Report.

ASR Feasibility Study, City of Davis, Davis, CA. Field Staff. Purged multi-completion well, monitored field parameters during purging, and

collected groundwater samples. Sampling included field filtering and arsenic speciation sampling. Samples were submitted to a state-certified laboratory under a standard chain-of-custody protocol for analyses. Preparation and submittal of soil samples to laboratory for analysis.

Santa Rosa Plain Emergency Well Design and Constructions Support, Sonoma County Water Agency, Sebastopol, CA. Field Staff. Provided field oversight during destruction of well. Field activities included tremie pipe installation, cement grout pour, and backfill. Ensuring that contractors followed destruction specifications.

GSP Development, North American Subbasin, Sacramento Groundwater Authority, RD 1001 Groundwater Sustainability Agency (GSA), South Sutter Water District GSA, Sutter County GSA, West Placer GSA, Sacramento, CA. Field Staff. Created long-term and short-term hydrographs for over 200 California Statewide Groundwater Elevation Monitoring wells, used to understand interactions between upper and lower aquifers in the subbasin. Used ArcMap to create location maps for nested and clustered wells, maps showing head-direction of water levels at nested or clustered sites, and maps showing locations of all wells obtaining long-term water surface elevation data. Determined sustainable management criteria such as Measurable Objectives and Management Thresholds for representative monitoring wells by analyzing historic groundwater levels.

Support the GSP 2022 Annual Report, North American Subbasin, Sacramento, Sutter, Yuba, and Placer Counties, CA. Field Staff. Updated all California Department of Water Resources, Sustainable Groundwater Management Act (SGMA) representative well hydrographs for water year 2022 using the North American data management system (DMS). Assisted with upload of Spring 2022 and Fall 2022 measurements for all SGMA representative wells to SGMA portal. Provided support in annual report drafting and writing.

Support the GSP 2023 Annual Report, North American Subbasin, Sacramento, Sutter, Yuba, and Placer Counties, CA. Field Staff. Assisted with upload of Spring 2023 and Fall 2023 measurements for all SGMA representative wells to SGMA portal. Assisted with collection and processing of pumping data, groundwater level data, and water quality data. Provided support in creation of annual report figures, tables, drafting, and writing.

GSP Development, Tracy Subbasin, City of Tracy, Tracy, CA. Field Staff. Created hydrographs for long-term, nested, and clustered well sites. Used ArcMap to create location map for all wells used in hydrographs. Researched and selected data in order to create plots portraying surface water/groundwater relationships and subsidence in the subbasin. Determined sustainable management criteria such as Measurable Objectives and Management Thresholds for representative monitoring wells by analyzing historic groundwater levels.

GSP 2022 Annual Report, Tracy Subbasin; City of Tracy, CA. Field Staff. Updated all SGMA representative well hydrographs for water year 2022 using the Tracy DMS. Assisted with upload of Spring 2022 and Fall 2022 measurements for all SGMA representative wells to SGMA portal. Provided support in annual report drafting and writing.

GSP 2023 Annual Report, Tracy Subbasin, City of Tracy, CA. Field Staff. Assisted with upload of Spring 2023 and Fall 2023 measurements for all SGMA representative wells to the SGMA portal. Assisted with collection and processing of pumping data, groundwater level data, and water quality data. Provided support in creation of annual report figures, tables, drafting, and writing.

GSP Development for the Butte, Vina, and Wyandotte Creek Subbasins, Butte County Department of Water Resources, Butte County, CA. Field Staff. Assisted with formatting PowerPoint presentation for public meeting. Downloaded and queried water quality data from Envirostor and Groundwater Ambient Monitoring and Assessment Groundwater for all subbasins. Also assisted with minor changes to maps using ArcGIS.

Big Valley Implementation of GSP and GSP Development, Big Valley, Lassen, and Modoc County Groundwater Sustainability Agency, Modoc, Lassen Counties, CA. Field Staff. Monitoring well construction and installation oversight and on-site bore hole soil analysis. Collected water level samples for newly constructed monitoring wells and created hydrographs for local existing monitoring wells. Assisted with final well designs alongside project manager. Created maps in ArcGIS portraying water quality constituents.

Soi (Charlie) Lay
Senior Software Developer

resume

With 16 years of experience in the area of software development, Charlie Lay is proficient in leading and implementing applications from designing to production. With many successful applications launched, they are still widely in use through out the entire state of California. Mr. Lay has and not limited, of knowledges and skill sets to create application infrustructure for various engineer needs. Ranging from GIS tools, to field data collection, mobile apps, web applications, and database structure design.

EDUCATION
B.S., Computer Science, California State University, Sacramento

EXPERIENCE IN THE INDUSTRY
16 years

EXPERIENCE WITH GEI
11 years

PROJECT EXPERIENCE

Sustainable Groundwater Management Program, California Department of Water Resources, Statewide, CA. The client needs a portal for local agencies to submit their Basin Boundary Modification Request, Adjudicated Basin Annual Water Usage Report, Groundwater Sustainability Agency (GSA) formation, and Groundwater Sustainability Plan. Lead in designing the project infrastructures -- designed the infrastructure in such a way for future modules to easily extended in the system. In parts of the GSA formation, a GIS Shapefile processing is needed to calculate overlaps between GSAs. Implemented the solution along with a notification system to notify all parties that are involved with the overlaps.

Flood Emergency Response Program (Phase II), California Department of Water Resources, Statewide, CA. The client needs a system to manage their flood and drought emergencies.

- **Flood Emergency Management System (FEMS).** From emergency calls to emergency response team formation to executive incidents reports. Lead in redesigning a new system from their old Flood Operation Center Issue System (FOCIS) to FEMS. Reverse engineer their FOCIS database structure and create a standard relational database. Optimize user interface intuitions for searching against a hierarchy agency data structure.
- **Drought Emergency Management System.** Like FEMS, but with an advancing planning extension. With the extension in place, the system improved their report preparation by reducing monthly advancing planning report preparation to just a single click of a button.

Dry Water Supply System, California Department of Water Resources, Statewide, CA. Design and create a dry well report system. The system has the ability to import various data and project it into the GIS Map application. Create complex queries to generate analysis reports for the entire system.

Levee E-GIS Development, U.S. Army Corps of Engineers - Sacramento District, Sacramento, CA. Create web service requests to communicate with a GIS application based on provided coordinates. Translate business logics for various data sets with web services to fulfill the requests for retrieving local levee agencies contacts, location,

floodplain, best-available map data for 100, 200, and 500 years, levee flood protection zone, encroachment data, borehole, and erosion data. Design an algorithm to rank keywords search to provide the top suggested keywords. Create search results export in various formats: KMZ, Shape File, and CSV.

Development of Levee Inspection System Tool, U.S. Army Corps of Engineers - Sacramento District, Sacramento, CA. Design, implement and integrate the user login system, and the quality control system into the existing Encroachment Permit system. Enhance the encroachment location visualization by adding a Google Map to show the location information.

CVSALTS. A tool to allow users to publish documents and collect public comments.

PREMCOR Communication Portal. Create a tool to allow users to create events, documents, and collect interested party information.

Levee Investigation Tool, GEI Consultants. Create a desktop application utilizing Microsoft Access with Visual Basic. Enhance GPS accuracy/liability by optimizing the GPS device communication implementation. Create a web portal/service to eliminate the open database connectivity configurations which ease up the application deployment.

Field Collection Mobile Application, GEI Consultants. Build two Apple iOS applications for Construction/Manhole field data collections that communicates with in house web services. Create a web portal to provide data exports and PDF reports.

SPK LIS Supplement, GEI Consultants. Design and create an extension to the C# .NET desktop application, SPK LIS Supplement tool, to extract GEO data in the form of KMZ, Shape file, or CSV.

Stephen G. Irving
Senior GIS Analyst

resume

Stephen Irving is a highly skilled Senior GIS Analyst based in GEI's Sacramento office, with a focus on water resources, environmental planning and design projects. Mr. Irving's expertise lies in GIS-based data management, spatial analysis, data visualization, and cartography. His experience encompasses a diverse range of projects, including Federal Energy Regulatory Commission (FERC) relicensing, watershed assessments and environmental planning/design projects in California and the Western United States encompassing Integrated Regional Water Management Plan (IRWMP), Groundwater Management Plan (GMP), Groundwater Sustainability Plan (GSP), California Environmental Quality Act/National Environmental Policy Act (CEQA/NEPA) and permitting efforts. He excels at collaborating with engineers, biologists, and fostering strong working relationships with diverse clients and agencies. Additionally, Mr. Irving provides valuable support for hydraulic modeling and demonstrates proficiency in managing spatial data libraries, GIS standards, as well as ArcGIS Online data, groups and field mapping efforts. Dedicated to delivering high-quality results, Mr. Irving is well positioned to contribute significantly to impactful projects in a GIS Analyst role.

EDUCATION
B.A., Philosophy, University of Colorado

EXPERIENCE IN THE INDUSTRY
22 years

EXPERIENCE WITH GEI
6 years

PROJECT EXPERIENCE

GSP, Tracy Groundwater Subbasin, San Joaquin County Public Works Tracy, CA. GIS Analyst supporting the assessment of hydrogeologic conditions, development geologic sections, groundwater levels, groundwater flow directions, water quality and the development of a groundwater monitoring program. GIS work involves the data preparation/creation, spatial analyses, and cartographic product development.

Sacramento Central Groundwater Authority (SCGA), County of Sacramento, Sacramento County, CA. GIS Lead supporting SCGA Groundwater Sustainability Agency (GSA) land use-based per parcel groundwater fee assessment. Obtained and reclassified National Agricultural Statistics Service cropland data layer rasters to SCGA fee classes. Topologically corrected Sacramento County parcel data to remove overlaps. Updated and topologically corrected urban water purveyor boundaries and aligned to parcel data. Classified parcels by purveyor active/inactive or unserved areas. Assigned land use codes to unserved parcels and tabulated results for use in groundwater consumption fee assessment by the County for SCGA GSA.

Atascadero GSP, Atascadero Mutual Water Company, San Luis Obispo County, CA. Analyzed well, geologic, landcover and hydrologic data to examine and cross-check California Department of Water Resources (DWR) Natural Communities Naturally Associated with Groundwater data set. Located, georeferenced and digitized historical geologic figures. Prepared figures and associated data for initial GSP submittal and supported figure updates for annual reports.

Kern County Subbasin Groundwater GSP, County of Kern, Kern County, CA. GIS Analyst. Developed topologically correct member agency data set for entire subbasin. Created and managed database of representative monitoring wells for GSP area. Developed groundwater surfaces and regional contours of indicator threshold values. Prepared figures and data deliverables for the sustainability plan. Supported groundwater modeling and geologic mapping efforts.

GMP, Regional Water Authority (RWA), Sacramento, CA. GIS Analyst. Developed GIS data and figures for multiple annual updates to RWA GMP. Researched, documented and analyzed data supporting planning efforts including groundwater surface interpolations, water system infrastructure, ownership and land use practices, among others. Collaborated with client to develop detailed exhibits containing clear and consistent thematic presentation.

Yolo Bypass/Cache Slough (YBCS) Master Plan and Programmatic Section 408 Environmental Support, DWR, Yolo and Solano Counties, CA. Lead GIS assisting with development of the YBCS Master Plan and Programmatic Section 408 permission. Designed and developed spatial database, analysis and cartographic support defining and detailing a common ecosystem baseline and accounting system to support comprehensive tracking of project and operations and maintenance impacts and mitigation, advance mitigation, conservation, and ecological uplift and support CEQA/NEPA compliance and permitting for biological and cultural resources.

Delta Conveyance Project Aquatic Resources Delineation, DWR, Sacramento-San Joaquin Delta, CA. GIS Lead on 2020 update to Delta Conveyance Project wetland delineation. Coordinated three-team delineation effort for almost 1,600 acres in under three months. Worked closely with environmental team staff to ensure proper delineation. Developed quality assurance/quality control procedures to ensure acceptance and approval of final deliverable. Prepared over 550 figures depicting results. Final product was accepted and approved by permitting agencies.

Tulare Lake Flooding, DWR, San Joaquin Valley, CA. GIS Analyst. Cartographic and modeling support for historical Tulare Lakebed flooding resulting from above average Sierra snowpack. Developed initial elevation based incremental flood pool atlas and digital elevation model (DEM) preprocessing for height above the nearest drainage (HAND) model inputs. Post processed HEC2D (Hydrologic Engineering Center) and HAND model outputs for cartographic display and prepared mapbooks of model runs with regular production updates.

Sacramento-San Joaquin Delta Natural Flows Study, DWR, Sacramento, CA. GIS Analyst. Reconstructed pre-development San Joaquin Valley floor using historical maps and subsidence data to develop HEC-RAS (River Analysis System) cross-sections to model historical water surface profiles. Reconstructed decadal development of Central Valley irrigated lands (1850-1920). Acreages and areal extents were interpolated from two historical maps and decadal agricultural survey acreages using iterative automated python optimization routines.

CalSim 3.0 Modeling Support, DWR, Sacramento, CA. GIS Analyst. Assessed data for pre-processing of model inputs and construction and maintenance of a fully geo-referenced geoschematic of the model. Developed model input from National Hydrography Dataset, U.S. Census, DWR land/water use, Farmland Mapping and Monitoring, PRISM precipitation, and USGS DEMs. Demonstrated schematic using ArcScene and on-the-fly visualization.

Central Valley Flood Management Planning Program, DWR, Various Locations, CA. GIS Analyst. Developed GIS standards, style guide, spatial data requirements, objectives, and benchmarks prior to project initiation and supported a wide variety of geospatial analyses. Performed complex spatial analysis to associate floodplain depths with structure locations to support HEC-FDA (Flood Damage Reduction Analysis) modeling. Supported data and mapping components of Urban Levee Evaluations/Non-Urban Levee Evaluations program.

State Water Project (SWP) FERC Relicensing Support, DWR, CA. GIS Analyst. Developed GIS standards and style guide for southern SWP FERC relicensing effort for use by multiple agencies and contractors. Developed exiting facilities database and ownership database. Normalized, and consolidated field land cover and recreation surveys into deliverable data sets.

Valerie Febre Yap
Visual Communications Specialist

resume

Valerie Febre Yap is a graphic designer in GEI's Sacramento office. She has 31 years of graphic design and marketing experience. She applies her design skills to multi-page layouts, components for web-based applications and client deliverables, and various types of infographics. She has several years of experience working with engineers to design marketing material such as proposals, brochures, and advertisements. Ms. Yap is proficient in Microsoft Office, Adobe Acrobat, InDesign, Illustrator, Lightroom, Photoshop, Premiere, and Wordpress. She is a Presentation Designer. She is experienced with Electronic Document Accessibility and PDF Remediation.

PROJECT EXPERIENCE

Ad and Flyer Layout and Accessibility Compliance, California Natural Resources Agency, Oroville, CA. Provide layout and accessibility compliance for public meeting announcements.

Forecast-Informed Reservoir Operations/Managed Aquifer Operations Poster, California Department of Water Resources (DWR), Sacramento, CA. Provided design, illustration, layout and print coordination for conference poster.

Tick Identification Card, GEI Consultants, Sacramento, CA. Provided design and layout for a print and digital "card" for field staff to use as a quick reference.

Two Rivers Trail Signs, City of Sacramento, Sacramento, CA. Provided design, layout and print coordination for public notification signs for trail renovation.

Environmental Newsletter, GEI Consultants Environmental Group, Sacramento, CA. Created new design and layout and prepared files for electronic distribution to colleagues and clients.

California Infrastructure Symposium 2024 Collateral, GEI Consultants, Sacramento, CA. Provided design, layout, and print coordination of the program advertisement, standup banners, posters, and company services brochure. Provided the multimedia presentation. Created an event brand and brand mark keeping all collateral cohesive and easily identifiable.

"That Dam Game!" Board Game Collaboration, U.S. Army Corp of Engineers, Yuba Water Agency, Sacramento, CA. Provided design, layout, and production collaboration and coordination for a board game developed to teach dam stakeholders ways to collaborate to prepare their watershed (along with affected communities and ecology) for optimal outcomes through various climate scenarios.

Kern County Subbasin Logo, Kern County Subbasin Groundwater Sustainability Agencies, Kern County, CA. Provided design, illustration, layout, and file preparation of the subbasin logo.

Flood Risk Flyer, California DWR, Statewide, CA. Provided design, layout, and file preparation for electronic distribution.

EDUCATION
B.A., Art History, University of California, Berkeley

EXPERIENCE IN THE INDUSTRY
31 years

EXPERIENCE WITH GEI
6 years

CERTIFICATIONS
Part 107 Certified Drone Pilot

GEI Consultants

Photo Mockups, California DWR, Sacramento, CA. Provided photo mockups showing how new equipment will look when once installed by merging and manipulating existing photographs of the locations and equipment.

Water Supply Resiliency Study and Postcard, Donner Summit Public Utility District, Truckee, CA. Provided design and layout of the Water Supply Resiliency Study as well as design, layout and print and mail coordination of the postcard requesting public comment.

Groundwater Festival Ad, Water Replenishment District (WRD), Long Beach, CA. Provided illustration, design, and layout of program festival ad.

Artificial Intelligence-Machine Learning Brochure, GEI Consultants, Sacramento, CA. Provided design, layout, and print coordination for artificial intelligence-machine learning services brochure.

2024 Species Survey Calendar, GEI Consultants, Sacramento, CA. Provided design, layout, and print coordination services to produce the Species Survey calendar for the GEI Environmental Group to share with colleagues and clients.

AEM Survey Fact Sheets, California DWR, Statewide, CA. Provided design and layout for fact sheet series.

Strategic Plan, City of Oakley, Oakley, CA. Provided design and layout assistance of Strategic Plan. Provided photography documenting the acceptance of the Plan by Oakley City Council.

Cache Creek Invasive Species Mapping, Cache Creek, Woodland, CA. Flew drone to photograph banks of Cache Creek to locate and map invasive species along a 10-mile span. Processed images using Adobe Lightroom. Compiled map of photographs and flight paths using Google Earth Pro.

Leo J. Vander Lans Injection Well, WRD, San Luis Obispo, CA. Provided photography to document project progress using hand-held and drone cameras.

WRD Accessibility Compliance for Report and PowerPoint Presentation, California Natural Resources Agency, Oroville, CA. Provided design, layout, illustration and accessibility for the Oroville Dam Citizens Advisory Commission Report and PowerPoint Presentations.

Drought Contingency Plan, Western Municipal Water District, Riverside, CA. Provided design and illustration for document development.

Re-establish Mendocino County Water Agency, County of Mendocino, Mendocino, CA. Assisted with developing PowerPoint presentation.

Manufactured Gas Plant Conference Event Planning Assistance, GEI Consultants, Sacramento, CA Updated and maintained conference website using Wordpress. Provided design, layout and illustration services for the event. Provided event photography services during 2.5-day event.

Tracy Subbasin Wordpress Website Development. Tracy Subbasin Groundwater Sustainability Agency, Tracy, CA. Developed organization and layout of Wordpress website integrating use with that of the Tracy Subbasin Groundwater Communications Portal.

Flood Maintenance Office Environmental Support Branch Presentation, California DWR, Statewide, CA. Provided design, layout and illustration services for the overview presentation of the Environmental Support Branch.

Flood Emergency Operations Manual, California DWR, Statewide, CA. Provided layout and editing of the manual in compliance with Federal and State accessibility laws.

Dan Heimel, PE, MS

Confluence Engineering Solutions

TITLE: PRESIDENT/PRINCIPAL ENGINEER

Education: Master of Science Degree, Civil & Environmental Engineering, California Polytechnic State University, San Luis Obispo, CA; Bachelor of Science Degree, Environmental Science, Chemistry Minor, Chico State University, Chico, CA

License & Certifications: Professional Civil Engineer #C80762, CA; D4 Water Operator #28472, CA; T2 Water Operator #26014, CA

Affiliations: President, Central Coast Branch of Groundwater Resources Association (GRA); Past President, Central Coast Chapter of WateReuse

Qualifications

Dan Heimel is a licensed Professional Engineer (PE) with a Master of Science in Civil and Environmental Engineering and over 20 years' experience demonstrating expertise in water supply, resiliency, and reliability planning; water, wastewater, and recycled water program management; utility engineering, operations, and regulatory compliance support; regional, multi-agency water supply and infrastructure collaboration facilitation; and groundwater management. He is a Central Coast water resource specialist who has focused his career toward facilitating collaboration amongst water utilities to develop reliable, resilient surface and groundwater water supplies to combat climate change, unprecedented drought conditions, seawater intrusion and other critical water resource challenges.

Professional Experience

Oct 2021 - Present: President/Principal Engineer, Confluence Engineering Solutions, Inc. (ConfluenceES)
Apr 2010 - Oct 2021: Vice President/Principal Engineer, Water Systems Consulting, Inc. (WSC)
Jul 2005 - Jul 2009: Water Quality Specialist and Consultant, City of Redwood City
Jun 2002 - Jul 2005: Engineering Technician, Alameda County Water District

Relevant Project Experience

Executive Director, Santa Ynez Basin Eastern Management Area Groundwater Sustainability Agency, Santa Barabara County, CA: Executive Director facilitating implementation of the Santa Ynez River Valley Groundwater Basin – Eastern Management Area (EMA) Groundwater Sustainability Plan. This role includes program management of the Sustainable Groundwater Management Act (SGMA) Implementation Grant work plan for the EMA, coordinating the activities of the EMA groundwater sustainability agency (GSA), facilitation of EMA GSA meetings, administration of EMA GSA budget and finances, and maintaining the EMA GSA website.

Program Manager, Recycled Water Program Implementation, City of Morro Bay, CA: Program Manager for the City of Morro Bay's $40 million Indirect Potable Reuse (IPR) recycled water program to develop a 1 MGD advanced treatment system and injection well network to treat and inject advanced purified recycled water into the Morro Groundwater Basin to increase recharge, prevent seawater intrusion and reduce nitrate contamination. This project will provide the City with a local, reliable, resilient source of water supply that provides water security and reduces its reliance on Sacramento-San Joaquin Delta imports.

Program Manager, Central Coast Blue, City of Pismo Beach, CA: Program Manager for the planning phases of the $93 million recycled water program to capture and treat wastewater from the Cities of Arroyo Grande, Grover Beach and

Pismo Beach for injection into the Santa Maria Groundwater Basin to prevent seawater intrusion and bolster local water supply resilience. Oversaw the multidisciplinary team that supported project implementation including the engineering design team and hydrogeologic, environmental, and property acquisition consultants. Coordinated with staff, elected officials, the general public, and all stakeholder agencies on this critical regional recycled water program.

Executive Director, Los Osos Basin Management Committee, Los Osos, CA: Executive Director facilitating implementation of the Los Osos Basin Plan, management of the annual monitoring program and development of Annual Monitoring Reports for the Los Osos Groundwater Basin to develop a sustainable water supply and prevent seawater intrusion for the community of Los Osos. Coordinate the activities of the BMC, including facilitation of BMC Meetings, development and maintenance of BMC budget and finances. Lead the BMC parties in the development of a Strategic Implementation Plan to build consensus and align focus of staff and financial resources. Completed an updated evaluation of the Sustainable Yield for the Los Osos Basin and achieved unanimous approval of an updated Sustainable Yield estimate for the basin.

Project Manager, Northern Cities Management Area Technical Group, County of San Luis Obispo, CA: Project Manager for the cities of Arroyo Grande, Grover Beach and Pismo Beach, as well as the Oceano Community Services District (collectively the Northern Cities Management Area Technical Group or NCMA TG). Assisted the NCMA TG with conjunctive management of their Santa Maria Groundwater Basin and surface water supplies (Lopez Reservoir and State Water Project) to prevent seawater intrusion. Facilitated monthly NCMA Technical Group meetings to coordinate the water resources management efforts in unprecedented drought conditions. Developed numerous decision support tools to assist the agencies in making informed water resource management decisions. Led the development of two NCMA Technical Group Strategic Plans to better improve water supply reliability and resilience in the region.

Project Manager, Regional Water Infrastructure Resiliency Plan, County of San Luis Obispo, CA: Project Manager for the development of a regional water supply plan to assist in identifying and addressing potential water supply reliability and infrastructure resiliency risks for the County of San Luis Obispo and forty partnering water utilities. Assisted the District, Countywide Water Action Team and partnering water utilities in identifying and addressing potential water supply resiliency risks. Performed assessments to identify the agency water supplies potentially vulnerable to extended drought, infrastructure failure, natural disaster, changing requirements, water rights challenges, and other factors. Identified and designed multiple initiatives to improve water supply resiliency and reliability by providing access to additional water supply sources, more reliable water supply sources and/or enhanced conjunctive use opportunities, through intertie and/or transfer/exchange agreements.

Principal Engineer, Master Water Report, County of San Luis Obispo, CA: Water Utility liaison and stakeholder outreach lead for development of the Master Water Report and Data and Information Management System for San Luis Obispo County. Leading outreach to over 40 SLO County Water Utilities, Stakeholder Groups and Governing Boards. Developed updated resiliency evaluation methodology to assist the County in determining how to invest its resources to improve regional water supply reliability and resiliency.

Project Manager, Cayucos Sustainable Water Project, Cayucos, CA: Project Manager for the planning and site selection for the Cayucos Sustainable Water Project, a new greenfield wastewater treatment and recycled water facility to provide a future potable reuse recycled water source for the community of Cayucos. Lead preliminary engineering, siting and treatment process alternatives analysis and technical components of the EIR.

Project Engineer, Coastal Branch Capacity Assessment, San Luis Obispo County Flood Control and Water Conservation District, CA: Project Engineer for development and calibration of the GIS-based hydraulic model for the Coastal Branch, Chorro Valley and Lopez Pipelines and assessment of opportunities to increase State Water Project (SWP) deliveries to SWP subcontractors. Facilitated multiple SWP workshops to review future demand estimates. Identified a potential Chorro Valley pipeline hydraulic anomaly resulting in low pressure at key locations during low demand periods. Revealed impactful ways to increase SWP subcontractor deliveries, especially to those upstream of the energy dissipation valve pressure control structure.

Nate Page, PG, CHG

Confluence Engineering Solutions

TITLE: SENIOR HYDROGEOLOGIST

Education: Master of Science Degree, Hydrogeophysics, Colorado State University, Fort Collins, CO; Bachelor of Science Degree, Geology, St. Lawrence University, Canton, NY

License & Certifications: Professional Geologist, CA & UT; Certified Hydrogeologist, CA

Affiliations: Member, Central Coast Branch of Groundwater Resources Association (GRA)

Qualifications

Nate Page is a licensed Professional Geologist and Certified Hydrogeologist with 19 years of experience supporting his clients with sustainably managing their water resources. He has experience in hydrogeology, hydrology, and GIS analysis, focusing on groundwater sustainability, analysis of groundwater basins, and management of water resources. Nate has qualifying experience in surface water/groundwater interaction and Groundwater Dependent Ecosystem (GDE) studies, Sustainable Groundwater Management Act (SGMA) and development/implementation of Groundwater Sustainability Plans (GSP), well siting/design/installation, aquifer testing and analysis, and 3D modeling and development of groundwater model grids.

Professional Experience

August 2024 – Current: Senior Hydrogeologist, Confluence Engineering Solutions, Inc.
November 2015 – August 2024: Supervising Hydrogeologist, GSI Water Solutions, Inc.
July 2011 – September 2015: Project Hydrogeologist, HydroGeo, Inc.
June 2009 – June 2011: Project Hydrogeologist, Whetstone Associates, Inc.
May 2008 – August 2008: Land Surveyor, Telesto Solutions Incorporated
May 2006 – July 2007: Geologist, Ross Environmental Associates
2004 – 2006: Land Surveyor, Abandoned Mine Land Inspector, Nelson Engineering
May 2003 – September 2003: Hydrology Technician, Bridger Teton National Forest

Relevant Project Experience

Lead Analyst and Co-Author, Annual Report Preparation for the Atascadero Basin GSP, County of San Luis Obispo, CA: Provided analysis and reporting of water use, groundwater levels, and change in groundwater in storage in support of developing the Annual Reports for the Atascadero Basin. These reports present an overview of groundwater extractions, surface water use, groundwater elevation trends, changes in groundwater storage, and progress towards basin sustainability over the previous water year.

Project Manager, Atascadero Basin Groundwater Model Update, Atascadero Basin Groundwater Sustainability Agency, San Luis Obispo County, CA: Managed the development of an updated, Basin-specific integrated surface water/groundwater model for the Atascadero Basin. This involved refining the hydrogeologic conceptual model and constructing a detailed 3-D geologic model of the Basin using Leapfrog® Works. The project team integrated the Leapfrog® geologic framework into the MODFLOW aquifer layering scheme. To incorporate surface water components into the groundwater model, the team utilized the recently available 270x270-meter gridded Basin Characterization Model (BCM), a California statewide surface water balance model developed by the U.S. Geological Survey. This innovative approach of using BCM data in a groundwater model proved to be a more cost-effective method for

integrating surface water and groundwater on a monthly basis compared to other common methods like HSPF or GSFLOW. The BCM data provided excellent flow calibration with the Salinas River USGS stream gage data.

Lead Analyst, Author, Groundwater Sustainability Plan Development including Interconnected Surface Water Assessment, Atascadero Subbasin, Atascadero, CA: Drafted the basin setting/hydrogeologic conceptual model, groundwater conditions, water budget, and monitoring network sections for the GSP of the Atascadero Subbasin. During the GSP development, an analysis was conducted on interconnected surface water and groundwater using water level data from various alluvial wells along the Salinas River, comparing them to adjacent thalweg elevations and "live stream" survey data. This analysis, along with a comprehensive GDE assessment by another team on the project, was vital for understanding the interconnected surface water/groundwater system in the Basin. Its purpose is to serve as a robust foundation for developing a coupled surface water/groundwater model to determine the rate or volume of surface water depletions caused by groundwater pumping.

Project Manager, Lead Analyst, Author, Annual Report Preparation for the Paso Robles Subbasin GSP, County of San Luis Obispo, CA: Acted as project manager, lead analyst, and primary author for the Water Year 2019 through 2023 annual reports for the Paso Robles Basin GSP. These reports offer a comprehensive overview of groundwater extractions, surface water use, groundwater elevation trends, changes in groundwater storage, and progress towards basin sustainability over the previous water year. They are mandated by the Sustainable Groundwater Management Act (SGMA).

Technical Support, Annual Report Preparation for the San Luis Obispo Basin GSP, County of San Luis Obispo, CA: Offered technical support in developing the Annual Reports for the San Luis Obispo Basin. These reports present an overview of groundwater extractions, surface water use, groundwater elevation trends, changes in groundwater storage, and progress towards basin sustainability over the previous water year.

Project Manager, Northern Cities Management Area Quarterly Groundwater Monitoring and Annual Reporting, Cities of Arroyo Grande, Grover Beach, Pismo Beach, and Oceano Community Services District, CA: Supervised the project team in preparing annual monitoring reports and conducting quarterly groundwater sampling and reporting for the Northern Cities Management Area (NCMA) technical group. These annual reports are created in accordance with the Stipulation and Judgment After Trial for the Santa Maria Groundwater Basin Adjudication. The Annual Report evaluates the hydrogeologic conditions for the NCMA based on data collected throughout the calendar year.

Technical Support, Groundwater Sustainability Plan Development, Santa Ynez River Valley Groundwater Basin, Eastern Management Area (EMA), Santa Barbara County, CA: Assisted in developing the GSP for the EMA of the Santa Ynez River Valley Groundwater Basin. The effort involved developing the basin water budget, working closely with the groundwater model development team, completing the GDE analysis and assessment of interconnected surface water, and helping develop sustainable management criteria. Another key associated task was creating a 3D geologic model of the EMA for visualization purposes and as grid input for the basin groundwater model.

Technical Support, Groundwater Sustainability Plan Development, San Antonio Creek Valley Groundwater Basin, Santa Barbara County, CA: Assisted in developing the GSP for the San Antonio Creek Valley Groundwater Basin. The effort involved developing the basin water budget, working closely with the groundwater model development team, completing the GDE analysis and assessment of interconnected surface water, and helping develop sustainable management criteria. NDVI was used to assess historical health of the Barka Slough (a sensitive GDE wetland area) and to develop related sustainable management criteria.

Dave O'Rourke PG, PE, CHG

Principal Hydrogeologist

EXPERIENCE

30+ years

EDUCATION

MS, Environmental Systems Engineering, Humboldt State University

BA, Geology, University of California, Santa Barbara

REGISTRATIONS

Professional Geologist, California

Certified Hydrogeologist, California

Professional Geologist, Texas

Professional Engineer, Texas

QUALIFICATIONS

- Experienced in groundwater availability modeling and basin characterization
- Knowledgeable about surface water groundwater interaction
- Proficient in MODFLOW, SWMM, and HEC Series of models
- Experienced in aquifer testing
- Experienced in field data collection

Dave has more than 30 years of experience managing water resources projects in California, Texas, and the Midwest. His technical expertise includes extensive experience in regional groundwater modeling for water supply evaluation, groundwater/surface water interaction, surface water hydrology, hydraulic modeling, and engineering analysis, with basin analysis, aquifer characterization, yield analysis, aquifer storage and recovery (ASR), collector well yield analysis, wellfield design, construction dewatering, and all aspects of hydrogeologic field investigations. Before joining GSI, he worked on the development of a groundwater regulatory framework in Texas. Dave is part of GSI's team of groundwater specialists that addresses the complex issues arising from California's Sustainable Groundwater Management Act (SGMA).

REPRESENTATIVE PROJECTS

Northern Cities Management Area Quarterly Groundwater Monitoring and Annual Reporting, Cities of Arroyo Grande, Grover Beach, and Pismo Beach, and Oceano Community Services District, California. Dave provides technical support and guidance for the development of annual monitoring reports and quarterly groundwater sampling and reporting for the Northern Cities Management Area (NCMA) technical group. The annual reports are prepared pursuant to the requirements of the Stipulation and Judgment After Trial for the Santa Maria Groundwater Basin Adjudication. The Annual Report provides an assessment of hydrologic conditions for the NCMA based on data collected during the calendar year of record.

Annual Report Preparation for the San Luis Obispo Basin Groundwater Sustainability Plan (GSP), County of San Luis Obispo, California. Dave serves as project manager for the annual reporting for the San Luis Obispo Groundwater Basin GSP. The annual report provides an overview of groundwater extractions, surface water use, groundwater elevation trends, change of groundwater in storage, and progress towards basin sustainability which occurred over the prior water year. The Water Year 2021 Annual Report was completed under a compressed schedule very shortly after the submission of the GSP and addressed two years of data that had been collected since the start of the GSP process. Dave has since led the development of the annual report for Water Year 2022 and will develop the Water Year 2023 annual report in 2024.

Annual Report Preparation for the Paso Robles Subbasin GSP, City of Paso Robles, California. Dave provided technical support for the development of the Water Years 2020 and 2021 Annual Reports for the Paso Robles Subbasin. The annual reports provide an overview of groundwater extractions, surface water use, groundwater elevation trends, change of groundwater in storage, and progress towards basin sustainability which occurred over the prior water year. GSI has delivered each of these annual reports on time and under budget.

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Dave O'Rourke, PG, PE, CHG

Principal Hydrogeologist

Hydrogeologic Technical Support, Northern Cities Management Area (NCMA), San Luis Obispo County, California. Dave performed various technical support tasks for the NCMA Technical Group, including data review and compilation, groundwater model review, and stakeholder interaction.

Sustainable Groundwater Planning, County of San Luis Obispo, California. Dave served as the lead technical consultant providing hydrogeologic technical analysis during the development of the Groundwater Sustainability Plan (GSP) for the San Luis Obispo Groundwater Basin. This is a high-priority basin with significant agricultural land use. Dave led the groundwater modeling effort, developing a transient integrated surface water-groundwater model using the public domain modeling platform GSFLOW. He led the effort to collect and organize hydrogeologic data, including cross sections, hydrographs, groundwater elevation maps, and water quality, and made numerous presentations at public meetings, making complex technical information accessible to the general public. He led the effort to develop Sustainable Management Criteria (minimum thresholds and measurable objectives) and worked with basin stakeholders during public meetings and workshops to achieve consensus on goals presented in the GSP, working with the committee to achieve sustainability in the Basin by 2042.

Emergency Supply Water Supply Alternatives Study, Phase 2.2, Calleguas Municipal Water District (Calleguas MWD), Thousand Oaks, California. Calleguas MWD developed a Water Supply Alternatives Study to evaluate a range of potential projects that could be implemented to provide supply redundancy and critical infrastructure in the event of an imported water emergency outage. Projects under consideration included aquifer storage and recovery (ASR) expansion, development of additional groundwater supplies, increasing groundwater pumping, indirect potable reuse (IPR), managed aquifer recharge (MAR), projects related to desalters, and other projects. Dave provided hydrogeologic support to evaluate estimated yield, effects on aquifer groundwater levels, infrastructure needs, permitting requirements, potential for seismic resiliency, timeframe, benefits, and risks and vulnerabilities of project included in the study.

Groundwater Modeling and Groundwater Management Plan (GWMP) Update, Goleta Water District, Goleta, California. Goleta Water District's GWMP recommends 5-year updates to comply with state-funded groundwater grants. Dave provided groundwater modeling and technical support for the 2022–2023 update. GSI's work included assessing current groundwater levels, groundwater quality, pumping rates, and groundwater storage, and making modifications to groundwater operating plans and any other necessary updates to comply with state law.

Groundwater and Surface Water Monitoring in Support of GSP Implementation, Cuyama Groundwater Basin, Santa Barbara County, California. Dave was manager for GSI's efforts to support the implementation of GSP activities as a subconsultant to Woodward Curran. Dave led the efforts to expand the groundwater monitoring network in the Basin, selecting among various candidate wells for inclusion in the network, and outfitting the wells with continuous monitoring equipment. Dave worked with the U.S. Geological Survey (USGS) to install two new stream gage stations on the Cuyama River in the Basin and select optimal locations, and he worked with the Basin administrators to implement this new addition to the Basin monitoring networks.

San Luis Obispo Basin Characterization, County of San Luis Obispo, California. Dave collected and summarized all available geologic and hydrogeologic data describing the San Luis Obispo Valley Groundwater Basin. He generated cross sections, hydrographs, and water level maps, and summarized all aquifer test data available from stakeholders. Dave led a program to perform pumping tests on third-party private wells and installation of new monitoring wells. He then summarized all data in a technical report.

Julie Garofalo PG, CHG

Managing Hydrogeologist

EXPERIENCE

12 years

EDUCATION

MS, Geology, California State University, Sacramento

BS, Geology, University of California, Davis

REGISTRATIONS

Professional Geologist, California (#9385)

Certified Hydrogeologist, California (#1076)

QUALIFICATIONS

- Expertise in well siting, permitting, design and construction oversight
- Vast experience with over 70 production well and monitoring well installations
- Knowledgeable in direct mud rotary, reverse circulation, sonic and air rotary drilling techniques
- Specializes in hydrogeologic evaluation with over 100 property assessments

Julie has 12 years of experience providing hydrogeologic consulting services to municipalities and agricultural entities throughout California. She prepares geologic and hydrogeologic conceptual models to support both groundwater resource development and Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plans (GSPs). She has conducted over 100 hydrogeologic assessments of properties to determine the suitability and long-term sustainability of the underlying groundwater resource for the intended land use. Her vast experience includes siting, permitting, design and construction oversight services for over 100 exploratory test hole, monitoring well and production well drilling projects using mud rotary, reverse circulation, air rotary and sonic drilling techniques in alluvial basins and hard-rock environments. Julie is experienced in conducting well performance and pumping efficiency testing, and water quality analysis to determine the useful remaining service life of wells and to provide recommendations for well maintenance, rehabilitation or replacement to support water supply and capital improvement planning projects.

REPRESENTATIVE PROJECTS

Annual Report Preparation for the San Luis Obispo Subbasin GSP, County of San Luis Obispo, California. Julie provided technical support for the development of the Water Year 2023 annual report for the San Luis Obispo Subbasin. The annual report provides an overview of groundwater extractions, surface water use, groundwater elevation trends, annual change of groundwater in storage, and progress towards basin sustainability.

Annual Report Preparation for the Paso Robles Subbasin GSP, County of San Luis Obispo, California. Julie contributed to technical review of the Water Year 2023 annual report for the Paso Robles Subbasin GSP. The annual report provides an overview of groundwater extractions, surface water use, groundwater elevation trends, annual change of groundwater in storage, and progress towards basin sustainability that occurred over the prior water year.

Annual Report Preparation for the Carpinteria Groundwater Basin GSP, Carpinteria Groundwater Sustainability Agency, California. Julie provided technical support for the development of Water Years 2021 through 2023 annual report for the Carpinteria Groundwater Basin. The annual report provides an overview of groundwater extractions, surface water use, groundwater elevation trends, annual changes of groundwater in storage, and progress towards basin sustainability which occurred over three water years.

Volpi Riparian Test Well, Templeton Community Services District, Paso Robles, California. Julie implemented a study to investigate the presence of shallow groundwater (underflow) on the property, evaluate whether the groundwater is in hydraulic connection with an unnamed tributary of the Salinas River underflow and, if shallow groundwater is present, to determine whether the available underflow can sustain a minimum production of two (2) gallons per minute (gpm). To accomplish

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these objectives, Julie provided oversight of an exploratory drilling on the property that penetrated Recent-aged alluvium.

Platz #4 Deep Well Rehabilitation, Templeton Community Services District, Paso Robles, California. TCSD reported that one of their lead wells suddenly produced groundwater with high turbidity and sand production, resulting in the well being removed from service. Julie conducted well assessment and testing and developed a detailed workplan for the rehabilitation of the Platz #4 Deep Well. She is currently overseeing the contractor's well rehabilitation efforts, including maintaining detailed records of development activities, sand production during swab/airlifting and test pumping, groundwater levels, pumping rates, field water quality parameters, relative turbidity of pumped groundwater, and other pertinent details. GSI will provide a technical memo that summarizes the post-rehabilitation well and aquifer testing and effectiveness of the rehab effort.

Platz River Well Replacement, Templeton Community Services District, Paso Robles, California. Julie is helping provide well siting recommendations and technical specifications for the replacement of the Platz River Well. GSI has previously worked with the District to understand the well siting constraints on the project site in relation to hydrogeologic conditions and proximity to the Salinas River and associated issues with groundwater under the direct influence of surface water.

(The projects below were completed before Julie joined GSI.)

Municipal Test Wells, Alleghany County Water District, Sierra County, California. Julie provided hydrogeologic consulting services for the design, construction, and testing of two municipal test wells for a District that has supplied municipal water solely from local springs since the 1800s. The State-funded project included: test-hole exploration, mud rotary drilling to set conductor casings in alluvial sediments, air hammer drilling through consolidated rock formations, and construction and testing of two municipal test wells to demonstrate water capacity and quality of local undeveloped consolidated rock formations.

Well Assessment and Modification, California American Water Company, Sacramento County, California. As the hydrogeologist on this project, Julie provided design services and construction oversight for the installation of a casing patch for a municipal well. The casing patch successfully reduced turbidity and particulate matter and allowed the GAC filters to effectively treat for Perchloroethylene (PCE) contamination.

Leona Valley Groundwater Supply Study, California Water Service Company, Los Angeles County, California. Julie provided a hydrogeologic assessment and well siting study to assess the feasibility of expansion of California Water Service Company's local groundwater supply to provide system reliability and redundancy and reduce their dependency on purchased treated surface water. Julie reviewed available well records, water quality data, production potential, groundwater elevations, and geology to determine the most optimal well sites to achieve the highest capacity to meet the minimum system capacity goal, while taking into consideration fluoride and nitrate contamination within Leona Valley's aquifer system. The well siting resulted in a well producing approximately 180 gpm, above the Cal Water's production objective of 75 gpm.

Well BK 224-01 Construction, California Water Service Company, Bakersfield, California. Water quality data and assessment of production capability following isolated aquifer zone testing were used to design an 875-foot-deep municipal well. Julie provided oversight during borehole reaming and well construction. Field inspection included preparing a lithologic log, geophysical data interpretation, measuring drilling fluid properties, inspecting well casing and materials, and witnessing construction. Her team provided 24-hour inspection services during the construction of Well BK 224-01. The well met all project objectives and produces sand-free water at the design capacity of 2,500 gpm, with a 24-hour specific capacity of 109 gpm/foot of drawdown.

Ailco Wolf PG, CHG

Supervising Hydrogeologist

EXPERIENCE

24 years

EDUCATION

MS, Hydrogeology, University of Arizona – Tucson

BS, Geology, Pitzer College

REGISTRATIONS

Professional Geologist: California

Certified Hydrogeologist: California

QUALIFICATIONS

- Experience in watershed modeling, and groundwater and transport modeling, salt balance modeling, and developing lithological models
- Expertise in basin evaluations
- Expertise in water resource management
- Experience in well design, construction oversight, and maintenance
- Expertise in characterization of contaminant plumes
- Experience in aquifer recharge pilot testing
- Expertise in water quality sampling and analysis of lab results

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Ailco has 24 years of experience in groundwater supply and basin management for clients throughout California. His expertise includes supply development with recycled water, stormwater capture, and artificial recharge projects. An experienced groundwater modeler, Ailco has conducted numerous aquifer and basin-wide studies to determine available groundwater supply by developing groundwater and watershed models to resolve groundwater and groundwater/surface water interaction issues in collaboration with involved stakeholders. Ailco is part of GSI's team of groundwater specialists that addresses the complex issues arising from California's Sustainable Groundwater Management Act (SGMA).

REPRESENTATIVE PROJECTS

Atascadero Basin Groundwater Model Update and Monitoring Network Improvements, Atascadero Mutual Water Company (AMWC), Atascadero, California. Ailco is leading an effort to help AMWC develop an updated Basin-specific integrated surface water/groundwater model. Work has included refining the hydrogeologic conceptual model, including building a detailed 3-D geologic model of the Basin using Leapfrog® Works. Ailco incorporated the Leapfrog® geologic framework into MODFLOW aquifer layering scheme. To integrate surface water components into the groundwater model, Ailco made use of the recently available 270x270-meter gridded Basin Characterization Model (BCM), which is a California statewide surface water balance model developed by the U.S. Geological Survey. The BCM data set is a monthly historical dataset from 1896 through 2022 and has incorporated many climate change models up to future year of 2099. The innovative use of incorporating BCM data into a groundwater model has provided a much more cost-effective way to integrate surface water and groundwater on a monthly timeframe than other more common means of integrating surface water with separate watershed models like HSPF or GSFLOW. The BCM data as input to the groundwater model provided excellent flow calibration at the Salinas River USGS steam gage.

Groundwater Sustainability Plan (GSP) Development and Modeling under SGMA, Santa Clarita Valley Water Agency (SCV Water), Santa Clarita Valley, California. Ailco conducted groundwater modeling in support of the development of the GSP for the Santa Clara River Groundwater Basin East Subbasin in Santa Clarita. Ailco applied a multi-layer numerical groundwater flow model using the MODFLOW-USG software to provide flexible gridding to support the technical evaluations required by SGMA rules for GSP development. His work included model construction, water budget analyses, assessments of whether the basin is currently in a long-term sustainable condition, and derivation of quantitative criteria for evaluating future basin conditions.

Groundwater Modeling for the Arroyo Grande Subbasin, County of San Luis Obispo, California. Ailco led the groundwater modeling effort for the Arroyo Grande Subbasin GSP as a subconsultant to an engineering firm. He developed a transient integrated surface water/groundwater model using the public domain modeling platform GSFLOW. Additionally, in collaboration with GSI, RTI International dynamically linked the GSFLOW model to a reservoir operations model (MODSIM) to simulate future Lopez

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Lake Dam releases based on GSFLOW modeled surface flows from contributing watersheds. The Arroyo Grande Subbasin model was extended to the coastal Santa Maria River Valley Groundwater Basin (SMRVGB) to simulate stream flow in the Arroyo Grande Creek to the ocean by repurposing the existing SMRVGB SEAWAT model. The coastal Arroyo Grande Model simulates the groundwater/surface water interactions on a daily time scale from Lopez Dam to the ocean and was qualitatively calibrated to a recently completed synoptic surface water flow study. The integrated model addresses climate change assessments to provide predictive scenarios and water budgets for SGMA's Sustainable Management Criteria (minimum thresholds and measurable objectives) to achieve sustainability in the Basin by 2042.

GSP Development and Modeling, Eastern Management Area Groundwater Sustainability Agency (GSA), Santa Ynez, California. Ailco led groundwater modeling efforts to support the development of a GSP for this GSA. The model helped the project team address complex issues in this basin, including potential interconnection of basin aquifers with the Santa Ynez River, complex structural geology and boundaries to flow, assessing underflow to downstream subbasins, and balancing water supply needs of various stakeholders (farmers, ranchers, grape growers, tribal governments, domestic water users).

Groundwater Model Conversion, SCV Water, Santa Clarita Valley, California. During the early stages of GSP development, Ailco helped convert SCV Water's existing basin groundwater flow model from the European MicroFEM groundwater modeling software into the USGS MODFLOW suite of groundwater modeling software. Ailco converted the model into the MODFLOW-USG flexible gridding version of MODFLOW, developed a Quadtree grid in key areas of interest, confirmed that the simulated values of each component of the water budget were volumetrically the same in the new MODFLOW-USG simulation as in the original MicroFEM model, and confirmed that calibration statistics were still within accepted industry standards for calibration of groundwater flow models.

Spreading Basin Recharge Feasibility Analysis, SCV Water, Santa Clarita Valley, California. Ailco used the MODFLOW-USG groundwater flow model of the local groundwater basin to evaluate the operational feasibility of using spreading basins to recharge imported water supplies into the surficial alluvial aquifer system at a site near Castaic Lake, where SCV Water takes deliveries of its imported water supplies from the State Water Project. Ailco first refined the model grid at the recharge site, incorporated subsurface geophysical data beneath the site to account for the newly refined mapping of the thickness of the alluvial aquifer and the depth of underlying bedrock, and checked the refined model's calibration against historical groundwater level data. Ailco then constructed a multi-decadal simulation of time-varying recharge in specific months during the years when sufficient imported supplies are available for recharge. Ailco used the simulation results to examine whether the target recharge rates would be feasible or would potentially cause flooding in the area. Ailco then examined the model's estimates of how the recharge program might affect the time-varying rates of groundwater/surface water exchange rates to a nearby ephemeral creek (Castaic Creek), including for several sub-reaches of the entire length of the creek.

Groundwater Modeling to Support GSP Development, San Luis Obispo County, San Luis Obispo, California. Ailco was the lead modeler for GSI's efforts to support the development of the GSP for the San Luis Obispo Valley Groundwater Basin. Ailco used the fully integrated USGS GSFLOW model to represent the complete watershed simulating the surface water, vadose zone, and groundwater/surface water interactions of the basin. The model results were used to assess strategies for achieving groundwater sustainability. The integrated model addresses climate change assessments to provide predictive scenarios and water budgets for SGMA's Sustainable Management Criteria (minimum thresholds and measurable objectives) to achieve sustainability in the Basin by 2042.

Groundwater Flow Model for Lower Morro Bay Basin, City of Morro Bay, California. Ailco served as lead modeler to update and refine an existing model groundwater model in support of proposed indirect potable reuse (IPR) project. The model was used to assess basin management strategies for injecting recycled water and determine residence time and feasible injection well locations in the City's groundwater basin. The City's IPR program enhances water supply, mitigate sea water intrusion, reduces dependance on imported water, and improves water quality in this coastal basin.

Andres Lapostol GIT

Managing Hydrogeologist

EXPERIENCE

10 years

EDUCATION

BS, Geologic Sciences, University of California – Santa Barbara

REGISTRATIONS

Geologist in Training, California

QUALIFICATIONS

- Groundwater modeling experience
- Groundwater sampling and reporting
- Experienced in well drilling and subcontractor oversight
- SGMA studies and GSP development
- Aquifer testing and analysis
- Experienced in field data collection
- Proficient in Microsoft Office, Groundwater Vistas, and ArcGIS
- Proficient in Spanish

GSI Water Solutions, Inc.

Andy has 10 years of experience in the consulting industry. His focus areas include hydrogeology and geology, data management, groundwater modeling, and data and spatial analysis specifically related to groundwater sustainability, groundwater basin analysis, and water resource management. Andy's work experience includes groundwater model development and refinement, Sustainable Groundwater Management Act (SGMA) studies, groundwater sustainability plan (GSP) development and annual reporting, and indirect potable reuse (IPR) studies. Andy is experienced in groundwater and soil sampling, groundwater monitoring, drilling and subcontractor oversight, lithologic logging, and writing technical reports. He provides essential support to project managers in GSI's California offices.

REPRESENTATIVE PROJECTS

Atascadero Basin Groundwater Model Update and Monitoring Network Improvements, Atascadero Mutual Water Company (AMWC), Atascadero, California. Andy is providing technical support to help AMWC develop an updated Basin-specific groundwater model and make subsequent improvements to the Atascadero Basin monitoring network. Work has included refining the hydrogeologic conceptual model, including building a 3-D geologic model of the Basin using Leapfrog® Works. Andy is supporting efforts to develop a MODFLOW aquifer layering scheme and preliminary groundwater flow model grid, generate groundwater model inputs, and calibrate the model. The model will be used for predictive model runs and to make improvements to the surface water and shallow groundwater monitoring programs in the Basin.

Groundwater Modeling and GSP Development Support, Eastern Management Area GSA, Santa Ynez, California. Andy provided hydrogeologic and groundwater modeling support for the development of a GSP for this GSA. There are a number of complex issues in this basin that must be resolved, including analyzing potential interconnection of basin aquifers with the Santa Ynez River, evaluating complex structural geology and boundaries to flow, assessing underflow to downstream subbasins, and balancing water supply needs of various stakeholders (farmers, ranchers, grape growers, tribal governments, and domestic water users). Andy provided essential support in the development and calibration of a basinwide groundwater model using Groundwater Vistas modeling software. Andy was also responsible for synthesizing, organizing, and maintaining an authoritative well and water level database for the Eastern Management Area of the Santa Ynez Basin. He used the database to create groundwater elevation contour maps, hydrographs, and other visual tools to identify and draw conclusions about groundwater level trends, surface water supply, and sustainable yield. He also contributed to the development of a basinwide water budget by compiling and analyzing data related to historical land use and reported pumping.

Groundwater Model 2022 Update, Santa Clarita Valley Water Agency (SCV Water), Santa Clarita, California. Andy is providing technical support for this effort to update and refine the Santa Clarita Valley Groundwater Flow Model, a regional model developed to support the preparation of the GSP for the Santa Clara River Valley East Subbasin. Andy is helping to update the model with new data that has been obtained

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since the model was first developed, including more than two years of water use records and groundwater level measurements, new groundwater elevation survey data, LiDAR survey data of streambed elevations, and new streamflow data. This updated model will be used to support SCV Water's ongoing water supply resiliency study.

Groundwater Modeling Analyses of Effects of Climate Change on Groundwater Levels, City of Spokane, Washington. Andy is helping to conduct a groundwater modeling analysis of the potential effects of climate change on groundwater levels at each of the City of Spokane's eight well station facilities. These well stations provide the sole source of municipal water supply to customers in the City's water service area. Andy supported the conversion of the city's groundwater flow model from MicroFEM to MODFLOW-USG groundwater flow modeling software, and helped develop several demand and pumping distribution scenarios under future climate projections. Andy has used these predictive models as a foundation for additional modeling analyses, including particle-tracking and evaluation of groundwater/surface water interaction, which have supported the City of Spokane in their drought-resiliency planning efforts.

San Luis Obispo Valley (Edna) Groundwater Basin Characterization, San Luis Obispo County Flood Control and Water Conservation District, California. This basin characterization will provide a foundation for future SGMA efforts by the County and local stakeholders, as well as serve as the basis for developing a groundwater model. Work includes compiling available hydrogeologic data, developing a comprehensive database, analyzing geologic cross sections, conducting aquifer tests, monitoring streamflow infiltration, and overseeing monitoring well installation. For this project, Andy gathered and interpreted a wide range of lithologic and well construction data to create a series of geologic cross sections that cover the entire expanse of the San Luis Obispo Valley Groundwater Basin. He also used geographic information system (GIS) software to visualize relevant geologic data and design maps and figures.

Adjudicated Groundwater Basin Annual Report Preparation, Northern Cities Management Area Technical Group, Santa Maria Groundwater Basin, San Luis Obispo County, California. Andy provides technical support for the preparation and submittal of the Court-mandated annual reports for the Northern Cities Management Area (the Cities of Pismo Beach, Arroyo Grande, and Grover Beach, and the Oceano Community Services District). Andy plans and conducts quarterly groundwater sampling events that provide water level, water quality, and transducer data at key sentry wells in the Northern Cities area to assess potential seawater intrusion. He is also responsible for writing quarterly monitoring reports, which summarize the current status of the groundwater table and analyze various trends in water level and water quality data.

Fringe Area Basin Characterization, San Luis Obispo County Flood Control and Water Conservation District, San Luis Obispo County, California. This project involves the hydrogeologic characterization of five geographically distinct areas that are within the Santa Maria Groundwater Basin boundaries defined by the California Department of Water Resources (DWR), but were not included in the adjudicated basin area and thus are subject to SGMA requirements. For each fringe area, GSI generated calculations of groundwater flow direction, Darcy groundwater flow quantities, well construction details, aquifer test results, and irrigated acreage. Andy gathered and interpreted a wide range of raw lithologic data to help develop geologic cross sections that contribute to GSI's understanding of the extent of hydraulic communication between the fringe areas and the adjudicated basin. He also analyzed geologic and land use data in GIS and produced the proposed basin boundary modifications for each fringe area.

Emergency Supply Water Supply Alternatives Study, Phase 2.2, Calleguas Municipal Water District (Calleguas MWD), Thousand Oaks, California. Calleguas MWD developed a Water Supply Alternatives Study to evaluate range of potential projects that could be implemented to provide supply redundancy and critical infrastructure in the event of an imported water emergency outage. Projects under consideration included ASR expansion, development of additional groundwater supplies, increasing groundwater pumping, IPR, projects related to desalters, and more. As a subconsultant to Kennedy Jenks, GSI provided hydrogeologic support to evaluate estimated yield, infrastructure needs, permitting requirements, potential for seismic resiliency, timeframe, benefits, and risks and vulnerabilities of project included in the study. Andy provided hydrogeologic technical support for this effort.

APPENDIX B – REFERENCE PROJECTS

Client Contact

JOHN NEIL
General Manager

805.464.5351
jneil@amwc.us

Service Dates

2015-2024

Project Fee

$959,123

Key Team Members

Mike Cornelius, Project Manager
Trevor Kent, Project Geologist
Nate Page, Senior Hydrogeologist (Confluence EC)
Dave O'Rourke, Principal Hydrogeologist (GSI)

Atascadero Subbasin Groundwater Sustainability Plan Development and Implementation Support

Atascadero Mutual Water Company

The GEI Team members have been providing support the Atascadero Basin support for compliance with the SGMA since 2015. This included assisting in the successful preparation of a Basin Boundary Modification application to DWR to form the Atascadero Area Subbasin from the critically overdrafted Paso Robles Subbasin and providing support in the formation of the Atascadero Area Subbasin Groundwater Sustainability Agency. The GEI Team prepared of a successful Proposition 1 Groundwater Sustainability Grant to support the development of the 2020 GSP. As part of this effort, GEI developed the Atascadero Basin Groundwater Communication Portal (GCP) to facilitate and document the communication and engagement activities required during the development and adoption of the GSP. The Atascadero Basin GCP has continued to be used to support the implementation of the GSP including continued outreach activities during the development of three GSP Annual Reports.

Client Contact

COURTNEY HOWARD
Water Resources Division Manager

805.781.1016
choward@co.slo.ca.us

Service Dates

2012-2014

Project Fee

$700,000

Key Team Members

Mike Cornelius, Project Manager

Integrated Regional Water Management Plan (IRWMP) Update

San Luis Obispo County Flood Control and Water Conservation District (SLOCFCWC)

This IRWMP update is one of the foundational documents guiding water management in San Luis Obispo County. Preparation included participation from most of the agencies that will be involved in the MWR update. Future IRWMP updates will be supported by the local agency data stored in the proposed MWR DMS.

The 2014 San Luis Obispo County IRWMP identified water management challenges facing the County and provided a framework for more than 20 agencies to work together to address these issues for a more sustainable water management future. The IRWMP was built on successful collaboration, incorporated regional planning studies and data, addressed highest priority data gaps and planning needs, established eligibility for future implementation grant funding, and included 15 high priority projects addressing such needs as land and livestock management, stormwater low impact development and drainage improvements, on-farm water management, critical water system improvements, nitrate removal, recycled water distribution, and drought relief.

Client Contact

COURTNEY HOWARD
Water Resources Division Manager

805.781.1016
choward@co.slo.ca.us

Service Dates

2006-2008

Project Fee

$205,000

Key Team Members

Mike Cornelius, Project Manager
Richard Shatz, Senior Hydrogeologist

Paso Robles Groundwater Basin Water Banking Feasibility Study

San Luis Obispo County Flood Control and Water Conservation District

GEI led a consulting team in preparation of the Paso Robles Groundwater Basin Water Banking Feasibility Study for SLOFCWCD. The San Luis Obispo County Integrated Regional Water Management Plan considered this a high-priority project with much potential because the County has a currently unused State Water Project Table A supply of about 20,000 acre-feet, and the Coastal Branch of the California State Water Project (SWP) enters the County adjacent to the Paso Robles Groundwater Basin (Basin) which could be used for water banking.

The Feasibility Study was led by the District in coordination with the Groundwater Banking Subcommittee (GBSC) of the Water Resources Advisory Committee (WRAC). Additional stakeholders invited to participate include the North County Water Forum, the Shandon Advisory Committee, the Creston Advisory Body, and County State Water Subcontractors.

This Feasibility Study included three alternatives including a baseline condition (no recharge or recovery), recharge only scenario, and recharge and recovery (groundwater banking) scenario at three different locations in the Basin. The potential benefits of a water bank may include:

- Improving local groundwater conditions within the Basin.
- Increasing dry-year water supply reliability for local water users and possibly the residents of the County and the Central Coast.
- Improving local groundwater quality in the Basin.
- Providing greater flexibility of water resources management in the County and the Central Coast.
- Reducing the County's dependence on imported water supplies in below-normal years.

Client Contact

JEFF BRILTZ
General Manager

805.434.4900
jbriltz@templetoncsd.org

Service Dates

May 2024-Ongoing

Project Fee

$23,000

Well Services Support -Platz Deep Well Rehab

Templeton Community Services District

GSI performed field investigation to assess the condition of the Platz deep well, which began producing significant volumes of sand and water with elevated turbidity when production rates were elevated. GSI recommended a video inspection, and that diagnostic well testing be performed prior to the pumping equipment being removed. A one-hour baseline well test while measuring flow rate, turbidity, water levels, and sand production using a Rossum sand tester in line with the discharge plumbing. The well produced significant sand throughout the duration of the test. Inspection of the material collected from the Rossum sand tester suggested residual drilling fluids may still be present in the well. In addition to sand production, the well has water quality issues with elevated arsenic and manganese. A video survey was performed. Heavy encrustation and iron buildup were observed on the removed pump column. During the video survey, 11 feet of sediment was observed in the bottom of the well. Moderate to severe plugging of the upper well screen interval was observed. There were no visible holes or obvious failures in the well casing or screen. GSI reviewed field records of the well

Key Team Members

Julie Garofalo, Project Manager (GSI)

installation that suggest that mechanical development with dual-swab and airlifting techniques was not performed following completion of well construction as specified.

Based on observations during the test pumping and video survey, GSI believes the possible source of the sand production may be formation material (i.e., fine sand) entering the well screen in a location where there is a void or shift in the gravel pack surrounding the screen. GSI developed a targeted technical workplan to rehabilitate the well using air burst technology to settle any voids in the gravel pack, chemical treatment to break down any residual drilling fluids, physical swabbing to bring any mud or fine sediment into the well and pumping to remove materials from the well. After the rehab work, GSI will also supervise flow profiling and depth-specific water quality sampling, followed by aquifer testing, video logging, and well disinfection. Technical specifications for this work were developed, and the work is currently scheduled for fall 2024.

APPENDIX C – CONFLICT OF INTEREST

GEI does not have any financial, business, or other relationship with the AMWC that may have an impact upon the outcome of this contract or the AMWC project. We are not aware of any current clients who may have a financial interest in the outcome of this contract or any AMWC construction project that will follow.

APPENDIX D – INSURANCE

Prior to execution of a contract for services, GEI will provide the AMWC and Atascadero Basin GSA with the required minimum insurance coverage stated in the Request for Qualifications (RFQ). Below is a summary of our standard insurance coverage that exceeds the requirements provided in the RFQ. We also understand that the AMWC and Atascadero Basin GSA will be listed as an additional insured on the insurance certificate.

- General Liability: $5,000,000 per occurrence for bodily injury, personal injury and property damage. $5,000,000 aggregate.
- Automobile Liability: $2,000,000 per accident for bodily injury and property damage.
- Worker's Compensation: Will be furnished in accordance with the Statutory Requirements of the State of California and shall include Employers' Liability insurance with a limit of $1,000,000 for each accident.
- Professional Liability: $10,000,000 per occurrence.

APPENDIX E – FEE PROPOSAL

We have prepared our Fee Proposal and submitted it via a separate email to AMWC.

APPENDIX F – SCHEDULE OF RATES AND FEES

FEE SCHEDULE AND PAYMENT TERMS

GEI Consultants

FEE SCHEDULE

Personnel Category	*Hourly Billing Rate* $ per hour
Staff Professional – Grade 1	$ 147
Staff Professional – Grade 2	$ 162
Project Professional – Grade 3	$ 177
Project Professional – Grade 4	$ 199
Senior Professional – Grade 5	$ 235
Senior Professional – Grade 6	$ 267
Senior Professional – Grade 7	$ 318
Senior Consultant – Grade 8	$ 356
Senior Consultant – Grade 9	$ 434
Senior Principal – Grade 10	$ 434
Senior Drafter and Designer	$ 177
Drafter / Designer and Senior Technician	$ 162
Field Professional	$ 133
Technician, Word Processor, Administrative Staff	$ 132
Office Aide	$ 103

These rates are billed for both regular and overtime hours in all categories.

Rates will increase up to 5% annually, at GEI's option, for all contracts that extend into the next calendar year. Rates for Deposition and Testimony are increased 1.5 times.

OTHER PROJECT COSTS

Subconsultants, Subcontractors and Other Project Expenses - All costs for subconsultants, subcontractors and other project expenses will be billed at cost plus a 5% service charge. Examples of such expenses ordinarily charged to projects are subcontractors; subconsultants: chemical laboratory charges; rented or leased field and laboratory equipment; outside printing and reproduction; communications and mailing charges; reproduction expenses; shipping costs for samples and equipment; disposal of samples; rental vehicles; fares for travel on public carriers; special fees for insurance certificates, permits, licenses, etc.; fees for restoration of paving or land due to field exploration, etc.; state and local sales and use taxes and state taxes on GEI fees. The 5% service charge will not apply to GEI-owned equipment and vehicles or in-house reproduction expenses.

Field and Laboratory Equipment Billing Rates – GEI-owned field and laboratory equipment such as pumps, sampling equipment, monitoring instrumentation, field density equipment, portable gas chromatographs, etc. will be billed at a daily, weekly, or monthly rate, as needed for the project. Expendable supplies are billed at a unit rate.

Transportation and Subsistence - Automobile expenses for GEI or employee owned cars will be charged at the rate per mile set by the Internal Revenue Service for tax purposes plus tolls and parking charges or at a day rate negotiated for each project. When required for a project, four-wheel drive vehicles owned by GEI or the employees will be billed at a daily rate appropriate for those vehicles. Per diem living costs for personnel on assignment away from their home office will be negotiated for each project.

PAYMENT TERMS

Invoices will be submitted monthly or upon completion of a specified scope of service, as described in the accompanying contract (proposal, project, or agreement document that is signed and dated by GEI and CLIENT).

Payment is due upon receipt of the invoice. Interest will accrue at the rate of 1% of the invoice amount per month, for amounts that remain unpaid more than 30 days after the invoice date. All payments will be made by either check or electronic transfer to the address specified by GEI and will include reference to GEI's invoice number.

2024 GSI Fee Schedule

Labor Category	Hourly Rate
Technical Professionals	
Principal	$250 – $360
Supervising	$210 – $310
Managing	$170 – $230
Consulting	$150 – $190
Project	$140 – $170
Staff	$120 – $160
Other Services	
GIS/Graphics/Database	$130 – $185
Editor/Documents	$130 – $155
Administration	$95 – $125

The hourly rate for trial preparation and expert witness testimony is 1.5 times the standard billing rate shown above.

Expenses

- **Mileage**: IRS authorized rate/mile plus 10 percent markup
- **Direct expenses and outside services**: Cost plus 10 percent markup
- **Enterprise GIS**: $100 per month for the duration of use

2025 Rate Schedule

Confluence Engineering Solutions

Classification	Billing Rate ($/hour)
Principal Engineer	$240
Senior Engineer/Hydrogeologist	$230
Project Engineer	$180
Associate Engineer	$155
Assistant Engineer	$145
Engineering Assistant	$130

Direct expenses (e.g. travel, mileage (per IRS Rates), delivery/copy services, subconsultant services) will be invoiced with a 10% processing fee.

Confluence Engineering Solutions, Inc. reserves the right to revise our standard billing rates on an annual basis and personnel classifications may be added as necessary.

Cover Letter

October 25, 2024

Consulting Engineers and Scientists

Submitted via email to: John B. Neil/jneil@amwc.us

Mr. John B. Neil, P.E.
General Manager
Atascadero Mutual Water Company

Subject: Cost Proposal for Groundwater Technical Assistance

Dear Mr. Neil:

The GEI Team which includes **GEI Consultants, Inc.**, **GSI Water Solutions Inc.** and **Confluence Engineering Solutions Inc**. is pleased to submit this cost proposal separately from our proposal to support the preparation of the Water Year 2024 GSP Annual Report. The scope of work and cost proposal is based on our experience preparing the three prior Atascadero Subbasin Annual Reports.

Sincerely,

GEI Consultants, Inc.

Michael Cornelius, P.G
Project Manager

Chris Petersen, P.G., C.Hg.
Principal-in-Charge

GEI Consultants, Inc.
11010 White Rock Road, Suite 200, Rancho Cordova, CA 95670
916.631.4500 Fax 916.631.4501

SCOPE

The GEI Team shall work with AMWC and the Atascadero Basin GSP Executive Committee (Executive Committee) to prepare the Water Year 2024 Annual Report, in accordance with the Sustainable Groundwater Management Act (SGMA) and Groundwater Sustainability Plan (GSP) Regulations (§ 356.2. Annual Reports). Pursuant to the California Department of Water Resources (DWR) regulations, a GSP Annual Report must be submitted to DWR by April 1 of each year following the adoption of the GSP.

This is the fourth GSP Annual Report for the Atascadero Basin. The Water Year 2024 Annual Report shall be of similar format and content as the prior annual reports and cover the period October 1, 2023 through September 30, 2024. This cost proposal includes the scope of work, schedule, and estimated budget to prepare and submit the Water Year 2024 Annual Report.

TASK 1. PROJECT MANAGEMENT

The GEI Team shall coordinate with AMWC during the preparation of the Annual Report and provide monthly invoices and progress reports to track progress.

TASK 2. COORDINATION WITH EXECUTIVE COMMITTEE

The GEI Team shall meet with the Atascadero Basin Executive Committee to support the development and approval of the Water Year 2024 GSP Annual Report and provide ongoing support to AMWC and the Executive Committee during 2025. We anticipate two meetings with the Executive Committee during the development of the Annual Report to:

- Review the Admin draft and prepare release of the public draft for review
- Present the final draft for approval by the Executive Committee prior to upload to the DWR portal

During the remaining portion of 2025 the GEI Team suggests up to two additional Atascadero Basin Executive Committee meetings during 2025 as needed to support ongoing SGMA activities including updates regarding the WY 2025 Annual Report and planning for the 5- Year update which would be needed to be submitted to DWR by January 2027.

TASK 3. ANNUAL REPORT PREPARATION

The GEI Team shall work with AMWC and Atascadero Basin Executive Committee members to prepare the Water Year 2024 Annual Report, which shall contain a compilation and analysis of data in the basin from the previous water year and a summary of GSP implementation progress. The GEI Team will be responsible for assembling and packaging the information providing updates to the annual report. Some of the specific tasks include:

TASK 3.1 DATA COMPILATION AND ANALYSIS

The GEI Team will generate data requests for groundwater elevation data, groundwater production data, imported surface water, precipitation data, land use spatial data, and satellite-based evapotranspiration data from the appropriate entities for the Water Year 2024 period. These data will be analyzed along with publicly available groundwater quality and Interferometric Synthetic Aperture Radar (InSAR) datasets to produce:

- Groundwater Elevation Contours Maps for each Principal Aquifer (Spring and Fall 2024).
- Groundwater Extraction Quantification by water use sector.

- Quantification of Surface Water used or available for use.
- Quantification of Total Water Use by water use sector.
- Groundwater Elevation Change Maps for each Principal Aquifer.
- Estimate of Change in Groundwater in Storage for each Principal Aquifer.

TASK 3.2 REPORT PREPARATION

The GEI Team shall work with AMWC and Atascadero Basin Executive Committee members to prepare an Administrative Draft, a Public Draft, and Final Report. Preparation of the Administrative Draft and Public Draft shall be followed with periods of GSP Executive Committee review and public review, respectively.

- The public draft of the Annual Report will be posted on the Atascadero Basin Groundwater Communication Portal for a 30-day public review period.
- Comments from the Executive Committee and the public shall be reviewed and considered for inclusion in the Final Report.

TASK 4. REPORT SUBMITTAL TO DWR

The GEI Team shall submit the Atascadero Basin GSP - Water Year 2024 Annual Report to DWR via the SGMA portal by March 31, 2025 and will upload the Fall 2024 water level monitoring network data as required. The GEI Team will coordinate this effort with AMWC as needed.

SCHEDULE

The draft project schedule assumes a December 2, 2024 start date. The work will begin upon full execution of this Task Order by AMWC and continue through December 2025 to accommodate the fall and summer meetings with the Atascadero Basin Executive Committee. The estimated completion dates for the deliverables described in this Task Order are shown in Table 1.

TABLE 1. TASK COMPLETION SCHEDULE

Tasks	Deliverables	Estimated Completion / Deliverable Date
Task 1	• Monthly invoices and progress reports	Ongoing through project duration estimated to be December 2025

Task 2	• Meeting planning and support materials to support Executive Committee Meetings:
	  ○ Presentation of draft Annual Report to Atascadero Basin Executive Committee
	  ○ Presentation of Final Annual Report to Atascadero Basin Executive Committee
	  ○ Participation in up to two additional Executive Committee Meetings as needed
		Week of February 17, 2025
		
		Week of February 17, 2025
		
		Summer and Fall of 2025

Task 3	• Draft Atascadero Basin GSP Annual Report • Final Atascadero Basin GSP Annual Report	Week of February 4, 2025 Week of March 17, 2025
Task 4	• Upload Atascadero Basin GSP Annual Report to DWR SGMA Portal	By March 31, 2025

ESTIMATED LEVEL OF EFFORT

The GEI Team estimated level of effort for preparing the Water Year 2024 Annual Report is provided below. Our GEI Team members have worked on Atascadero Basin GSP and all three Annual Reports and are very familiar with the Atascadero Subbasin and thus, can work efficiently. The 2024 rate sheets for the GEI Team members are used to estimate the budget below in Table 2.

TABLE 2: ITEMIZED TASK SCHEDULE

Task Number/Name	GEI		Confluence ES		GSI		TOTAL		
	Labor Hours	Total Costs	Labor Hours	Total Costs	Labor Hours	Total Costs	Labor Hours	5% markup on subs	Total Costs
Task 1- Project Management	10	$ 2,514	4	$ 940	2	$ 600	**16**	**$ 77**	**$ 4,131**
Task 2 - Coordination with Executive Committee	8	$ 2,848	14	$ 3,438	4	$ 1,200	**26**	**$ 232**	**$ 7,718**
Task 3- Annual Report Preparation	80	$ 18,736	47	$ 15,037	2	$ 600	**129**	**$ 782**	**$ 35,154**
Task 4- Report Submittal to DWR	10	$ 2,200	3	$ 520	0	$ -	**13**	**$ 26**	**$ 2,746**
Total Hours	**108**		**68**		**8**		**184**		
Total Costs		**$ 26,298**		**$ 19,934**		**$ 2,400**			**$ 49,749**

2024 RATE SHEETS

FEE SCHEDULE AND PAYMENT TERMS

GEI Consultants

FEE SCHEDULE

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GSI Water Solutions, Inc.

2024 GSI Fee Schedule

Labor Category	Hourly Rate
Technical Professionals	
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Supervising	$210 – $310
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GIS/Graphics/Database	$130 – $185
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Administration	$95 – $125

The hourly rate for trial preparation and expert witness testimony is 1.5 times the standard billing rate shown above.

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- **Mileage**: IRS authorized rate/mile plus 10 percent markup
- **Direct expenses and outside services**: Cost plus 10 percent markup
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2025 Rate Schedule

Confluence Engineering Solutions

Classification	Billing Rate ($/hour)
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Engineering Assistant	$130

Direct expenses (e.g. travel, mileage (per IRS Rates), delivery/copy services, subconsultant services) will be invoiced with a 10% processing fee.

Confluence Engineering Solutions, Inc. reserves the right to revise our standard billing rates on an annual basis and personnel classifications may be added as necessary.