Paso Basin Cooperative Committee

NOTICE IS HEREBY GIVEN that the Paso Basin Cooperative Committee will hold a Regular Meeting at **4:00 P.M. on Wednesday, October 23, 2019** at the City of Paso Robles Council Chambers (1000 Spring St., Paso Robles, CA 93446).

NOTE: The Paso Basin Cooperative Committee reserves the right to limit each speaker to three (3) minutes per subject or topic. In compliance with the Americans with Disabilities Act, all possible accommodations will be made for individuals with disabilities so they may attend and participate in meetings.

John Hamon, Treasurer, City of Paso Robles
Joe Parent, Vice Chairperson, San Miguel CSD
John Peschong, Chairperson, County of SLO
Matt Turrentine, Secretary, Shandon-San Juan WD

Steve Martin, Alternate, City of Paso Robles
Kelly Dodds, Alternate, San Miguel CSD
Debbie Arnold, Alternate, County of SLO
Kevin Peck, Alternate, Shandon-San Juan WD

Agenda
October 23, 2019

1. **Call to order**
2. **Pledge of Allegiance**
3. **Roll call**
4. **Public Comment – items not on Agenda**
5. **Approval of August 21, 2019 Meeting Minutes**
6. **Consider recommended Consultant for First Annual Report development and related contract consistent with MOA Section 6.3**
7. **Committee Member Comments –** Committee members may make brief comments, provide status updates, or communicate with other members, staff, or the public regarding non-agenda topics
8. **Upcoming meeting(s)**
    a. Special Meeting – November 20, 2019
9. **Future Items**
10. **Adjourn**

Paso Basin Cooperative Committee
Minutes (DRAFT)
August 21st, 2019

The following members or alternates were present:

John Peschong, Chairperson, County of San Luis Obispo
Kelly Dodds, Alternate Member, San Miguel CSD
Matt Turrentine, Secretary, Shandon-San Juan WD
John Hamon, Treasurer, City of Paso Robles

1. Call to Order **2. Pledge of Allegiance** **3. Roll call**	Chairperson Peschong: calls the meeting to order at 4:00 p.m. Chairperson Peschong: leads the Pledge of Allegiance. County Staff, Angela Ruberto: calls roll.
4. Public Comment – items not on Agenda	*Meeting Audio: Item start ~ 00:00:50* Chairperson Peschong: opens the floor for public comment. Greg Grewal: comments on footnotes for items in the GSP, specifically for the safe yield. County Staff, Ray Dienzo: informs Committee and the public about Paso Basin Aerial Groundwater Management Study in mid-October, consisting of a helicopter carrying equipment to gather information about the basin; directs Committee towards brochures and website for additional information. Chairperson Peschong: asks for additional public comments, seeing none, brings the item back to the Committee.
5. Approval of July 24, 2019 Meeting Minutes	*Meeting Audio: Item start ~ 00:3:35* Audio from the July 24, 2019, Paso Basin Cooperative Committee Meeting is available at: www.slocounty.ca.gov/pasobasin Chairperson Peschong: opens discussion for Agenda Item 5 – Approval of July 24, 2019 Cooperative Committee Meeting Minutes; asks for comments from the Committee, and then from the public; there are none. **Motion by:** Member Hamon **Second by:** Alternate Member Dodds **Motion:** The Committee moves to approve the July 24, 2019 Meeting Minutes.

Members	Ayes	Noes	Abstain	Recuse
John Peschong (Chairperson)	X			
Kelly Dodds (Alternate Member)	X			
Matt Turrentine (Secretary/Clerk)	X			
John Hamon (Treasurer)	X			

6. Receive Draft Scope of Work and approach to Consultant Selection Process for First Annual Report development and consider recommending that the GSAs approve a budget increase in an amount not-to-exceed $100,000

Meeting Audio: Item start ~ 00:4:03

San Miguel CSD Staff, Blaine Reely: states that the first annual report is a requirement of SGMA that will document changes in basin conditions from the time the GSP is submitted through April 1, 2020.

Member Hamon: asks if there would be any grant reimbursement funds for these costs.

City Staff, Dick McKinley: replies that grant funds only cover costs for developing the GSP; annual reports will not likely be eligible for reimbursement.

Chairperson Peschong: asks for questions or comments from the Committee, seeing none, opens public comment, seeing none, closes public comment and brings it back to the Committee.

Motion by: Member Hamon
Second by: Secretary Turrentine
Motion: The Committee moves to recommend the GSAs approve a budget increase in an amount not-to-exceed $100,000 for the first Annual Report.

Members	Ayes	Noes	Abstain	Recuse
John Peschong (Chairperson)	X			
Kelly Dodds (Alternate Member)	X			
Matt Turrentine (Secretary/Clerk)	X			
John Hamon (Treasurer)	X			

7. Presentation on Compiled Paso Basin GSP – Public Draft

Meeting Audio: Item start ~ 00:06:41

Meeting presentation and materials for Agenda Item #7 are available at: www.slocounty.ca.gov/pasobasin

Montgomery & Associates, Derrik Williams: provides a presentation on the Compiled Paso Basin GSP – Public Draft.

City Staff, Dick McKinley: (during slide #4 of the presentation) speaks to the variety and nature of the comments being received on the Draft Chapters.

Montgomery & Associates, Derrik Williams: adds that all public comments will be reviewed and considered by GSA staff and Committee Members; continues with presentation.

Chairperson Peschong: asks for questions or comments from the Committee.

Member Hamon: comments on footnoting data and asks if citations are being included in the Plan.

	Montgomery & Associates, Derrik Williams: responds that all technical reports used in the GSP are cited in-text and in the reference sheet, adding the groundwater model and sustainable yield are discussed in an appendix. Chairperson Peschong: opens the floor for public comment. Greg Grewal, George Tracy, Cody Ferguson, Robin Chapman, Steve Lohr, Jerry Reaugh, and Jerry Lohr: speak. Chairperson Peschong: asks for additional public comment, seeing none, closes public comment and brings it back to the Committee. Chairperson Peschong: states that the Committee reads every public comment; offers help to anyone having trouble commenting online; directs the public to PasoGCP.com for commenting; reiterates that the compiled Draft GSP is released and ready for public comment until September 29th. County Staff, Angela Ruberto: comments that the GSP will be available in a disk or hard copy at most North County libraries. Chairperson Peschong: adds that Templeton residents could use the libraries in Atascadero or Paso Robles to view a hard copy of the Draft Plan.
8. Committee Member Comments – Committee members may make brief comments, provide status updates, or communicate with other members, staff, or the public regarding non-agenda topics	*Meeting Audio: Item start ~ 54:40:00* Chairperson Peschong: opens the floor for any additional committee member comments; there are none.
9. Upcoming meeting(s) a. Regular Meeting - October 23, 2019 b. Special Meeting – November 20, 2019	Next Meeting: Regular Meeting set for Wednesday, October 23, 2019 at 4:00PM, Location: Paso Robles - City Council Chamber. Special Meeting set for Wednesday, November 20, 2019 at 4:00 PM, Location: Paso Robles – City Council Chamber.

10. Future Items	Chairperson Peschong: asks for any future items to be brought before the Committee; there are none
11. Adjourn	Chairperson Peschong: adjourns the meeting.

I, Matt Turrentine, Secretary to the Paso Basin Cooperative Committee, do hereby certify that the foregoing is a fair statement of the proceedings of the meeting held on August 21, 2019, by the Paso Basin Cooperative Committee.

Matt Turrentine, Secretary of the Paso Basin Cooperative Committee.
Drafted by: Joey Steil and Angela Ruberto, County of San Luis Obispo

PASO BASIN COOPERATIVE COMMITTEE
October 23, 2019

Agenda Item #6 – Consider recommended Consultant for First Annual Report development and related contract consistent with MOA Section 6.3

RECOMMENDATION

It is recommended that the Paso Basin Cooperative Committee (Committee) confirm the GSA staff recommendation to contract with GSI Water Solutions, Inc. (GSI), and forward said confirmed recommendation to the City of Paso Robles for its award of the related contract, consistent with MOA Section 6.3, for First Annual Report development.

PREPARED BY

Dick McKinley, City of Paso Robles

BACKGROUND

On August 21, 2019, the Committee received the Draft Scope of Work and approach to Consultant Selection Process for development of the First Annual Report and recommended that the GSAs approve a budget increase for their percentage share of an amount not-to-exceed $100,000. The City of Paso Robles published the Request for Proposals (RFP) and received proposals from three (3) consultants including Montgomery & Associates, GSI and Provost & Pritchard by the October 3, 2019 submittal deadline. The RFP, as well as the consultant proposals received, are available at the City of Paso Robles' website: http://www.prcity.com/government/rfp-rfq-bids.asp

A staff (of the GSAs) working group reviewed and evaluated proposals based on, but not limited to, responsiveness to the RRFP, project approach, successful completion of similar projects, qualifications of personnel, and cost. Based on these criteria, the staff working group recommends GSI as the recommended qualified consultant for the First Annual Report development.

The GSA staff working group recommends the Committee consider the attached proposal, confirm the recommendation, and forward on to the City of Paso Robles, consistent with MOA Section 6.3 and subject to budget ratification from each GSA to fund the effort.

Fiscal Impact:

The Committee recommended that the GSAs approve a budget increase for their percentage share of an amount not-to-exceed $100,000 at their August 21, 2019 meeting. Subject to budget ratification by each of the GSAs and pending finalization of a contract with the selected GSP Consultant, this effort is estimated to cost $80,875 through April 2020. The Paso Basin Cooperative Committee Annual Budget is intended to be cost shared among the MOA signatories (GSAs).

Attachments:

1. GSI Proposal

* * *

PROPOSAL

First Annual Report for the Paso Robles Sub-basin Groundwater Sustainability Plan

Presented to the City of Paso Robles

OCTOBER 2019

Submitted by:

GSI Water Solutions, Inc.
5855 Capistrano Avenue, Suite C
Atascadero, CA 93422
805.460.4622

GSI Water Solutions, Inc.

Section 1
Cover Letter

October 3, 2019

Dick McKinley, Public Works Director
City of Paso Robles – City Hall
1000 Spring Street
Paso Robles, CA 93446

Re: Request for Proposals (RFP) for First Annual Report for the Paso Robles Sub-basin Groundwater Sustainability Plan (GSP)

Dear Mr. McKinley:

GSI Water Solutions, Inc. (GSI), is pleased to present our proposal to help the City of Paso Robles (City) and its Groundwater Sustainability Agency (GSA) partners develop the first annual report for the Paso Robles Sub-basin (Basin) GSP. We have been closely involved in GSP development in an advisory role since the beginning of the process, and will be able to leverage this familiarity and first-hand knowledge to ensure on-time delivery and compliance with state regulations. Here is what we bring to the table as your partner:

- **A streamlined project delivery.** Because of our ongoing advisory involvement in the GSP process, our team is highly knowledgeable of the specifics of the Paso Robles Basin GSP and the needs and issues of each GSA. This will enable our team to work effectively and efficiently with stakeholders, helping to keep the project on track to meet tight deadlines.
- **The ability to foster collaboration and consensus.** We have earned a reputation for drawing independent, evidence-based conclusions to help all parties come together in a collaborative, cooperative manner. This has helped us build trust and credibility with members of the GSAs. Our unbiased approach allows us to work effectively with stakeholders, facilitate timely reviews and decision-making, and help stakeholders find common ground to build consensus.
- **Considerable experience helping clients comply with the Sustainable Groundwater Management Act (SGMA).** We are leading a number of GSP development efforts and serve as technical advisors to several more. We understand what the California Department of Water Resources (DWR) is looking for in an annual report and will be able to leverage this experience to set the template for the reporting structure.
- **Unmatched knowledge of groundwater management challenges in the Basin.** Our proposed project manager, Paul Sorensen, has been living and working in the Basin for his entire career. Paul has authored foundational technical documents that have served as the basis for GSP development. He and our other GSI staff are deeply familiar with issues in the Basin and groundwater conditions.

GSI is a specialized hydrogeologic consulting firm founded in 2000 to help water providers and agricultural interests develop and manage groundwater resources. The firm is an S corporation that is 100 percent employee-owned through an Employee Stock Ownership Plan. We take pride in our fiscal responsibility; our company's financial stability is managed under the careful eye of our financial controller, who is a firm principal with years of accounting experience. Our firm has experienced steady growth over the past 19 years, and we are investing in our people and technology to support continued managed growth and serve our clients' needs. The firm was founded by 3 hydrogeologists 19 years ago (including project team member Jeff Barry); today GSI has 61 employees with offices in Atascadero and Santa Barbara, California, and Portland, Bend, and Corvallis, Oregon.

SGMA requires the GSAs that represent the critically overdrafted Basin submit a GSP by January 31, 2020, outlining steps for achieving sustainability within 20 years. To measure the effectiveness of the plan and demonstrate to DWR that the Basin is on track to manage groundwater sustainably, the GSA will need to compile data and prepare annual reports that summarize the results of monitoring efforts, document changes in groundwater supplies, tabulate basinwide groundwater use, and track the effectiveness of GSP implementation efforts. The City, on behalf of the GSAs, is looking for a consultant to help with the development of its first annual report, which will need to be approved by the GSAs and submitted to DWR by March 31, 2020.

Developing a report that accomplishes these requirements in less than 6 months, to be published a mere 2 months after the GSP itself is submitted, will require the support of a consultant that is not only highly knowledgeable of the technical and hydrogeologic considerations of the plan, but also able to establish trust and credibility among the diverse group of stakeholders that will have input into the report presentation and conclusions. GSI brings both of these elements: deep familiarity with the plan and the Basin, and a reputation for high-quality work with the ability to listen to and address the complex needs of the GSAs.

Thank you for your consideration of our proposal. This proposal is valid for 90 days. We look forward to the opportunity to support this project for the Basin. Please do not hesitate to contact me with questions.

Sincerely,
GSI Water Solutions, Inc.

Paul A. Sorensen
Principal Water Resources Consultant

805.460.4621
psorensen@gsiws.com
5855 Capistrano Avenue, Suite C
Atascadero, CA 93422

Section 2

Qualifications, Approach, and Scope of Work

Experience Providing SGMA-Related Services

GSI is a specialized groundwater and water resources consulting firm that helps clients develop and manage groundwater supplies to ensure long-term sustainability and reliability. Our groundwater experts have been working in the Basin for decades, bring a wealth of experience in groundwater management projects in the Basin, and have been heavily involved in GSP development both in the Basin and elsewhere in southern California.

We are immersed in the details of the Basin's GSP, and we understand what is needed to develop an annual report template that meets DWR requirements and provides an effective yardstick for measuring the success of plan implementation over time. Our highly skilled hydrogeologists and water resources consultants are experts in groundwater management and supply planning, specifically as it relates to SGMA compliance. Currently, we are working on a number of GSP development and SGMA-related projects, including GSP development for the Atascadero Basin GSA, San Antonio Basin GSA, Santa Ynez River Valley Basin Eastern Management Area GSA, Santa Clarita Valley GSA, Kaweah Sub-basin GSAs, and Cuyama Basin GSA. This work includes evaluating the complexities of water in the subsurface, developing water budgets that can achieve sustainability, identifying potential undesirable results, effectively communicating with basin stakeholders on technical matters and helping to identify commonalities that set the stage for a collaborative process, and identifying and implementing practical solutions to achieve sustainability goals. Our SGMA experience includes the following projects:

	Hydrogeologic assessments	Groundwater management planning	Groundwater modeling and water budgets	Data management systems	Groundwater/ surface water interaction	Stakeholder engagement	GSA support/GSP preparation
Expertise and Input to the Paso Robles Basin GSP, Shandon-San Juan Water District and Estrella-El Pomar-Creston Water District ▪ San Luis Obispo County, CA	●	●	●		●	●	●
Hydrogeological Characterization and GSP Preparation, Atascadero Basin GSA ▪ Atascadero, CA	●	●	●		●	●	●
Hydrogeological Characterization and GSP Preparation, Cuyama Basin GSA ▪ Santa Barbara and San Luis Obispo County, CA	●	●			●		●
GSP Development, Santa Ynez River Valley Eastern Management Area GSA ▪ Santa Barbara County, CA	●	●	●	●	●	●	●
GSP Development, San Antonio Basin GSA ▪ Santa Barbara County, CA	●	●	●	●	●	●	●
GSP Development, Santa Clarita Valley GSA ▪ Santa Clarita, CA	●	●	●	●	●	●	●
SGMA Basin Boundary Modification, Santa Clarita Valley GSA ▪ Santa Clarita, CA	●	●				●	●
SGMA Support for GSA Formation, Santa Clarita Valley GSA ▪ Santa Clarita, CA						●	●
Hydrogeological Characterization and GSP Preparation, Fox Canyon Groundwater Management Agency ▪ Ventura, CA	●	●	●			●	●
SGMA/GSP Preparation, Mid-Kaweah and Greater Kaweah GSAs ▪ Tulare, CA	●	●	●		●	●	●
SGMA Basin Boundary Modification, Atascadero Mutual Water Company and Templeton Community Services District ▪ Atascadero, CA	●	●				●	●
SGMA Basin Boundary Modification for the Santa Maria Groundwater Basin, County of San Luis Obispo, CA	●	●				●	●

Project Descriptions for Annual Reporting Projects and GSPs

In addition to SGMA-specific projects, GSI's experts have worked on numerous annual reporting projects. The following projects speak to GSI's ability to deliver a comprehensive annual report that meets DWR requirements.

Adjudicated Groundwater Basin Annual Report Preparation

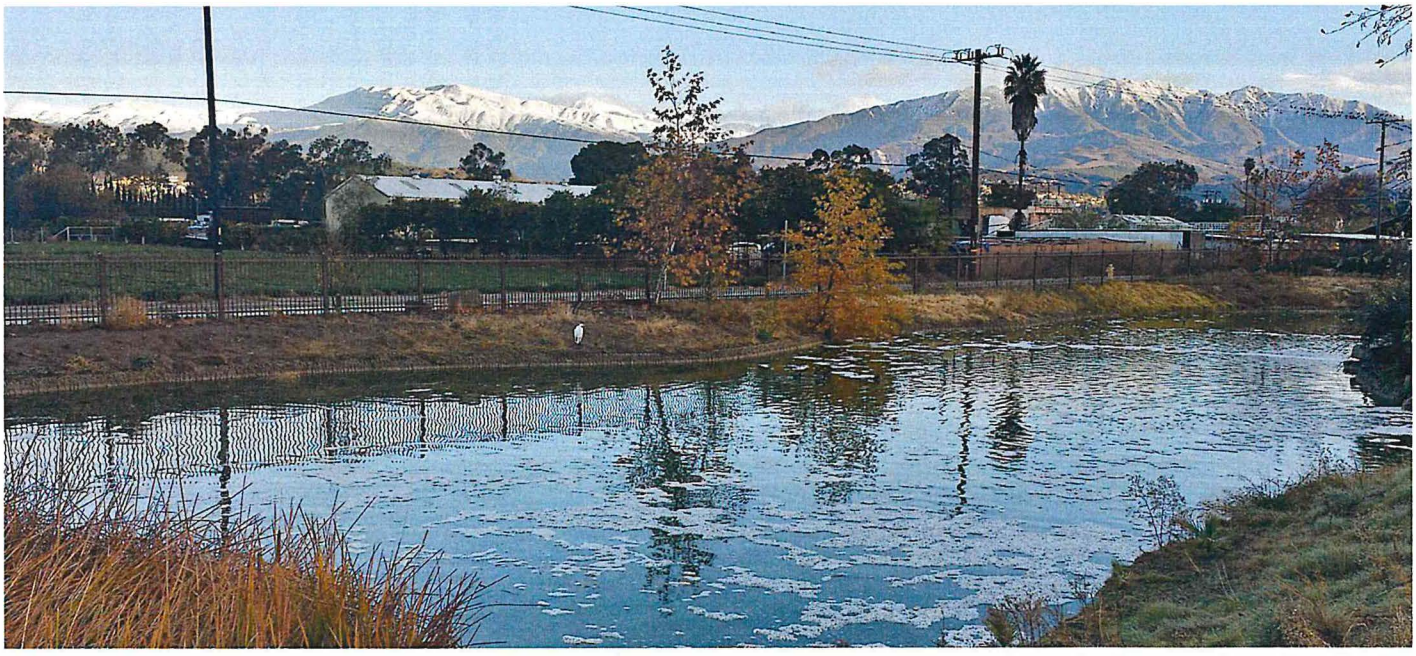
Northern Cities Management Area (NCMA), Santa Maria River Valley Groundwater Basin, San Luis Obispo County, California

GSI manages the preparation and submittal of the court-mandated annual reports for the Northern Cities Management Area of the Santa Maria River Valley Groundwater Basin—which represents the Cities of Pismo Beach, Arroyo Grande, and Grover Beach, and the Oceano Community Services District. Tasks include sampling and monitoring key sentry wells in the Northern Cities area to assess potential seawater intrusion and providing technical support and report preparation of quarterly and annual reporting required by the Superior Court and by DWR as a result of the Santa Maria Basin adjudication.

Groundwater Monitoring and Reporting

Santa Paula Water Recycling Facility, City of Santa Paula, California

For more than a decade, GSI team member Tim Nicely has helped guide the City of Santa Paula to support compliance with groundwater monitoring and reporting requirements provided by the California Regional Water Quality Control Board. This has involved design of water recycling facility percolation ponds and installation of a network of dedicated groundwater monitoring wells and water level transducers. To confirm that the project does not adversely affect groundwater quality of the Santa Paula groundwater basin, we have conducted monthly groundwater sampling and prepared quarterly and annual monitoring reports on behalf of the City, presenting groundwater elevation contours and historical water quality data in compliance with permit requirements.



Santa Paula Water Recycling Facility

California Valley Solar Ranch Annual Report

High Plains Ranch II, LLC, San Luis Obispo County, California

GSI staff members Paul Sorensen and Tim Nicely prepared annual operations-phase groundwater monitoring reports for the California Valley Solar Ranch, a 250-megawatt photovoltaic power plant in eastern San Luis Obispo County. The project's conditional use permit stipulated the preparation of a groundwater monitoring and reporting plan with annual reporting of groundwater conditions. GSI collected all required data and developed the reports—which detailed groundwater levels, water quality, and pumping monitoring results—and analyzed trends in groundwater levels to determine whether project pumping resulted in declines of 5 feet or more below the baseline trend at nearby private monitoring wells.

Expertise and Input to the Paso Robles Basin GSP

Shandon-San Juan Water District (SSJWD) and Estrella-El Pomar-Creston Water District (EPCWD), San Luis Obispo County, California

On behalf of the two agricultural water districts in the Paso Robles Sub-basin, GSI's Paul Sorensen provides technical expertise and assistance in support of the preparation of the basinwide GSP. Paul acts as an extension of staff for the SSJWD, which is one of four GSAs in the Basin, representing the district in a working group of staff members from the four GSAs that provides guidance to the GSP consultant team regarding the development of the GSP. In his role with the districts, Paul has reviewed and assisted in the writing of all chapters and components of the GSP, and participates in GSP staff meetings.

GSP Development

San Luis Obispo Valley Basin, San Luis Obispo County, California

GSI is a lead member of the consultant team helping to develop the GSP for the San Luis Obispo Basin. GSI's primary role is to develop the technical aspects of the GSP, including characterizing basin conditions, developing a coupled groundwater and surface water model, assessing surface water and groundwater interconnections, developing water budgets, assisting in the development of sustainable management criteria, and identifying undesirable results. GSI is also communicating technical information to stakeholders to ensure that the hydrogeologic details and the nuances of the SGMA process are well understood by all parties.

GSP Development

San Antonio Basin GSA, Santa Barbara County, California

GSI is helping the San Antonio Basin GSA prepare a GSP for this predominantly agricultural basin. The GSI team is using data and information recently developed by U.S. Geological Survey (USGS) to characterize groundwater conditions in the basin and reduce the cost of preparing the GSP. We are working with USGS to use its groundwater model to develop water budgets and assess various groundwater management alternatives intended to recover groundwater to sustainable levels. GSI is also supporting stakeholder outreach efforts.

Project Approach

Section 356.2 of the SGMA emergency regulations outlines the specific requirements of the annual report, which must be submitted to DWR by April 1 of each year following adoption of the GSP. With the intended adoption and subsequent submittal of the Paso Robles Basin GSP by January 31, 2020, the first annual report for the Basin is due by April 1, 2020. The regulations require that the annual report be based on the preceding water year (a water year covers the period from October 1 to September 30); thus the 2020 annual report for the Basin would, by regulation, report on data from October 1, 2018, through September 30, 2019. Because this is the first annual report, the data for this report will include all new data from the end of the period of record of the GSP. The period of record of the Paso Robles Basin GSP for estimates of groundwater extractions and groundwater in storage is through 2016; water level data for illustration of long-term water elevation changes (hydrographs) is through October 2017.

DWR requires that the annual report describe the effectiveness of GSP implementation. One of the means by which the GSAs can measure effectiveness and demonstrate to DWR that the plan is on track to achieve sustainability is through the compilation of data and information that summarize the results of the monitoring efforts, document changes in groundwater supplies, tabulate basinwide groundwater use, and document progress toward meeting interim milestones and (ultimately) basin sustainability. Given the limited amount of new data that will have become available since adoption of the GSP and the lack of time to implement the GSP, we envision that this first annual report will not have a lot of information on meeting sustainability goals and instead will focus primarily on observed water level trends and groundwater storage changes since the GSP was developed.

For more than 30 years, Paul Sorensen, GSI's project manager for this proposed work effort, has lived and worked in the Basin. He has not only witnessed the changes in the Basin over that period and understands how and why the changes have happened, but also has documented those changes through numerous investigations and studies and has worked with the local water agencies, government entities, stakeholders, and landowners to help manage groundwater resources. Since joining GSI and opening our firm's North County office in April 2016, Paul and GSI staff have continued to dedicate efforts to San Luis Obispo County water supply issues. For the past year and a half, Paul has participated at the GSA staff level on behalf of the Shandon-San Juan GSA, assisting with the development and preparation of the Paso Robles Basin GSP.

Compiling the most recent data, assessing the effectiveness of the beginning of the implementation plan, and preparing the first annual report is an extension of work that Paul and the entire GSI team has already been performing in support of the GSP. Our group, based in the North County and experienced with the preparation of annual reports for a multitude of clients, will bring a familiarity and efficiency to the process. This familiarity allows us a head start in the process as we continue our established procedures for gathering and managing data, preparing annual reports, and providing technical expertise to the basin GSAs. At the same time, the GSI team is committed to finding ways to improve data collection and analysis and will engage the GSAs to ensure the ongoing collection and reporting of meaningful data.

Scope of Work

GSI developed the following scope of work based on the requirements in the RFP, the requirements as outlined in the SGMA Emergency Regulations, and our experience preparing various other annual reports to meet DWR and other agency standards.

Task 1 – GSP Review and Data Compilation

A public draft of the GSP is currently out for review and comment and, by the time of the anticipated Notice to Proceed (NTP) on November 6 (approximately), the consultant team led by Montgomery & Associates will be in the final stages of incorporating comments and publishing the final GSP. Although GSI was thoroughly involved with the data development and GSP preparation throughout the process, we will review the GSP and compile a complete list of data needs.

All of the historical data in the GSP is compiled in an Access® database developed by GEI Consultants, Inc., a subconsultant to Montgomery & Associates. We will obtain the database files and begin the process of updating the requisite data sets for the annual report. The data sources are varied and will require extensive coordination and cooperation from a wide variety of agencies and entities. This task can often take longer than anticipated because cooperation is dependent on others and somewhat out of control of the consultant, but, with GSI's knowledge and relationships of the stakeholders, our familiarity with the data, and our local team of investigators, we anticipate that this task can be accomplished quickly and efficiently.

Task 2 – Data Analysis and Representation

Several discrete data sets are required to be included in the annual report, including the following:

- Groundwater elevation data (for each principal aquifer)
- Groundwater extractions and use
- Surface water supply use
- Total water use
- Change in groundwater in storage
- Precipitation

Task 2.1 Groundwater Elevation Data. Groundwater elevation data are collected and compiled through the County of San Luis Obispo Groundwater Level Monitoring Program, operated by the San Luis Obispo County (County) Public Works Department with data collected twice a year (typically in April and October). We are aware of the program, the County's database, and, importantly, the confidential nature of much of the data. We are also fully aware of the difference in the number of monitoring wells in the County water level database and the Plan monitoring network.

For purposes of preparing water level contour maps of each of the principal aquifers (Paso Robles Formation Aquifer and the Alluvial Aquifer), the entire County water level database can be used, as long as no individual data or data points are shown that would conflict with confidentiality agreements. For this first annual report, water level contour maps for each aquifer will be prepared representing groundwater conditions in October 2017, April 2018, October 2018, April 2019, and October 2019.

The Plan monitoring network includes hydrographs for 22 monitoring wells, which is a subset of the County monitoring program consisting of wells whose owners have agreed to allow their data to be made public. Each of the hydrographs presented in the GSP (Appendix D) will be updated with data through October 2019.

Task 2.2 Groundwater Extractions. Groundwater extraction data is compiled and represented in the GSP through 2016. These data will be updated, including the estimates of extractions and general locations, the water use by sector, and methodology of measurement. The raw historical data related to extraction volumes are, presumably, captured in the Access database. However, it may be necessary to obtain the groundwater flow model that was refined by Montgomery & Associates to extract some of the information, such as general spatial distribution of extractions. The model will be neither run nor updated, but will be used solely for the purpose of extracting and viewing some of the input values and information. Updated groundwater extraction information will be estimated using crop coverage information derived from satellite imagery and water use factors used in the groundwater model. To the extent possible, we will follow the same methodology used by Montgomery & Associates in the GSP. We will prepare estimates of groundwater use by sector and method of measurement, and will provide a map showing general locations and volumes of extraction.

Task 2.3 Surface Water Supply. The regulations require that a description of surface water supplies be incorporated into the report. Use of surface water in the Basin is relatively small and limited to a very few sources. These data will be compiled, described, and incorporated into the total basin water use data compilation and descriptions (Task 2.4)

Task 2.4 Total Water Use. We will compile and present total basin water use information, including water sector, water source type, method of measurement, and a relative representation of accuracy of the measurement methodology (DWR standards in other annual report submittals that we are familiar with require qualitative judgments such as "high," "medium," and "low").

Task 2.5 Change in Groundwater in Storage. Calculations of changes in groundwater in storage in each of the principal aquifers as presented in the GSP were performed through use of the groundwater flow model. To perform similar calculations for the first annual report would require updating the model, which is neither planned nor advised. An alternative standard method for calculating changes in groundwater in storage from one year to another is to create water level contour maps for each year of interest (Task 2.1) and calculate the volume changes between years. An ArcGIS® tool will be used to compute the volume difference between the initial groundwater surface and the following year's water surface. By applying a storativity factor (for the semi-confined Paso Robles Formation) or specific yield (for the unconfined alluvial aquifer) value, we can compute a change in the volume of water present in each aquifer. It is not necessary to know the total volume of groundwater in storage; it is the storage change (positive or negative) from year to year that we want to know. The following is the step-by-step process we intend to apply to estimate change in storage in both the alluvial aquifer and Paso Robles aquifer:

1. Create a water level contour map for October 2017 using groundwater level elevation data from the basinwide monitoring program and Surfer® contouring and 3D surface mapping software. We will use professional judgment to adjust contours in places that do not make sense. Our team has already done this and compared the contour map with the contour map created by Montgomery & Associates for the GSP (Figure 5-4 of the GSP); the maps match well.
2. Import the Surfer file into ArcGIS and adjust the contoured water level elevation surface to fit the boundaries of the Basin.
3. Repeat steps 1 and 2 for October 2018 water level data.
4. Using ArcGIS, compute the difference in the water surface elevation between October 2017 and October 2018 water level data and compute the volume of saturated aquifer that has changed between the two years.
5. Review the specific yield (for the alluvial aquifer) and storage coefficient (for the Paso Robles aquifer) provided by the GSAs to assess representativeness. In our opinion, an average value may be suitable for this computation because the water levels measured in wells represent an integrated average water level, as (1) the wells are screened across multiple zones, and (2) there are no laterally continuous confining layers; shallow and deep water bearing zones are interconnected.
6. Multiply the specific yield or storage coefficient values by the volume calculated in Step 4. This is the change in groundwater in storage between October 2017 and October 2018.
7. Calculate the change in storage between October 2018 and October 2019 water level data by repeating the preceding steps.
8. Determine whether this makes technical sense and identify where the biggest changes (plus or minus) are occurring.

This task is a relatively straightforward effort because the water level contour maps will be prepared as part of Task 2.1 and the storativity value will be provided to our team. It would be possible without a substantial amount of additional effort to look at change in storage in specific areas, such as the area around Shandon or the severely depleted area near Estrella.

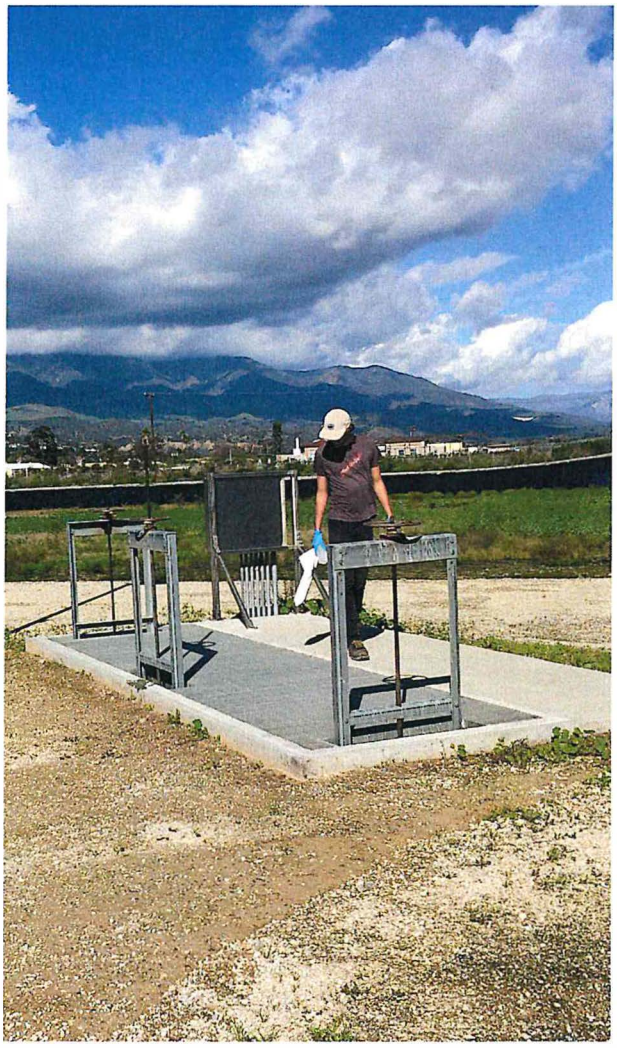
Note that the resulting calculated change in storage values may be quite different from the values that would otherwise be calculated as a model output because the methodologies are quite different and the averaged storativity value may or may not be fully representative of conditions throughout the Basin, both laterally and vertically. It is clear from the RFP that this difference in methodologies is recognized and anticipated because of the requirements to prepare a groundwater storage sensitivity analysis as an appendix to the report.

Task 3 - Report Preparation, including Plan Implementation Progress

The overall purpose of the annual report is to update and use the compiled data to assess the progress that the basin GSAs and various stakeholders are making towards the ultimate goal of basin sustainability. The results of the data analysis will be evaluated and compared with the goals of the GSP implementation plan, then described in the annual report to demonstrate to DWR the efforts of the GSAs and the effectiveness of GSP implementation. Because this annual report will be submitted two months after the submittal of the GSP, it will not have much information on meeting sustainability goals or achieving sustainability and instead will focus primarily on observed water level trends and groundwater storage changes since the GSP was developed.

Building off of our experience with the preparation and submittal of numerous annual reports, the general outline of the necessary components of the annual report structure described in the SGMA Emergency Regulations, and the required elements outlined in the RFP, GSI will prepare an initial administrative draft report for the GSA staff. The report will be based on data collected and the analysis performed as described above, on other data that may become available, and on ongoing discussions with the GSA staff. The general organization of the report is expected to be the following:

- Executive Summary
- Introduction
- Basin Description (brief recapture of GSP description)
- Groundwater Conditions
  - » Groundwater Monitoring Network
  - » Groundwater Elevations, including water level contour maps and updated hydrographs (Task 2.1)
  - » Change in Groundwater in Storage (Task 2.5)
- Water Supply and Demand (Tasks 2.2, 2.3, and 2.4)
- Progress Towards Basin Sustainability
- Summary, Conclusions, and Recommendations
- Appendices
  - » A. Groundwater Monitoring Program Well Information
  - » B. Hydrographs
  - » C. Precipitation
  - » D. Streamflow Data
  - » E. Groundwater in Storage Calculation and Specific Yield/Storage Coefficient Discussion
  - » F. Groundwater in Storage Sensitivity Analysis
  - » G. Water Budget Data



Deliverables include the following:

- Administrative draft report, for review and approval by the GSA staff
- Draft report, for review by the Paso Basin Cooperative Committee and the public
- Final report

Task 4 – Report Submittal

Following final approval of the annual report by the GSAs and the Paso Basin Cooperative Committee, GSI will submit the report to DWR in accordance with the department's requirements. Those requirements have not yet been announced, but we assume that they will be similar to the annual reports for adjudicated basins that have been in place for several years. We are familiar with the SGMA reporting process and template on the DWR portal for adjudication basins, and have submitted several adjudicated basin annual reports to DWR.

Task 5 – Meetings

A list of anticipated meetings is provided in the RFP. GSI has budgeted for the following meetings:

- GSA staff meetings (5), including the kickoff meeting
- Public workshop on the draft report
- Paso Basin Cooperative Committee meetings (2)

Task 6 – Project Management and Administration

Our approach to managing this project will include the following key elements:

- **High-caliber local expertise.** The key individuals identified for this project, including Paul Sorensen, Jeff Barry, and Nate Page, live and work in San Luis Obispo County. With our office in Atascadero, we can effectively apply our time and resources to the effort at hand. Our team members are registered professional geologists with extensive local expertise. They will oversee and provide the resources for the collection of high-quality, reliable data, evaluate the acquired data, and develop conclusions and recommendations based on their expertise and local knowledge.
- **Timely results.** Submittal of the annual report has a firm deadline, which means that all project deliverable deadlines must be met, without fail. We are confident that we are able to commit resources to accomplish all tasks in a timely manner and deliver accurate data and a meaningful analysis that meet the GSAs' needs.
- **Quality control.** We stake our reputation on the quality of our work. We rely on rigorous quality assurance/quality control procedures, including principal-level oversight and approval of all work products, to ensure meaningful and accurate data collection and reporting.
- **Data protection.** Our team members will use our existing information technology systems to store, back up, and protect the basin database. At this time, before the data are transitioned to the county-wide data management system, the basin database is housed in an Access database.

We understand that the annual report must be completed efficiently in order to complete it within our budget. We also understand that there are limited funds to complete this work, so it is imperative that we stay on track with scope, schedule, and budget to avoid surprises. To achieve this objective, we are proposing a small and focused team led by Paul Sorensen, backed up by Jeff Barry as an alternate. Paul will be responsible for assuring that our work is completed within budget and on schedule. Paul will rely on financial performance information provided by GSI's accounting group and will inform the City (and GSAs) on a regular basis regarding the status of scope, schedule, and budget.

GSI's proven project management approach is built on clear and frequent communication with our clients. As such, the team will maintain close communications with GSA staff. We have been fortunate to develop a close working relationship with all members of the GSA staff working group and fully intend to continue that rapport.

Task 7 – Annual Report Follow-up (Optional)

This optional task includes preparing one round of revisions to the annual report to address DWR questions and comments. Our budget for this task also includes up to two GSA staff meetings. If authorized, the work would be performed in accordance with our schedule of fees associated with the annual report project.

Project Scope and Budget Assumptions:

- GSAs will provide timely assistance in providing the following data:
  - » Water levels for March and October 2017, 2018, and 2019
  - » Groundwater production data for San Miguel Community Services District, County Service Area 16, and the City of Paso Robles for 2017, 2018, and 2019
  - » Pesticide report files and land-use data from the Agricultural Commissioner's office that will enable estimation of irrigation demand for 2018 and 2019
- Montgomery & Associates will collaborate with our team and provide:
  - » GIS shapefiles for the following:
    - » Basin boundaries and boundaries of the alluvial aquifer
    - » Well locations (pumping wells and monitoring wells)
  - » Electronic Excel® files and graphs for water levels through 2017
  - » Estimates of lateral and vertical storage coefficients (if available)
  - » Assumptions used by Montgomery & Associates to produce change in storage estimates in GSP (to check for consistency)

Our scope includes:

- Five GSA staff meetings, including the kickoff meeting, lasting 2 hours each
- Public workshop on the draft report
- Two Paso Basin Cooperative Committee meetings lasting 2 hours each
- One set of revisions to administrative draft report
- One set of revisions to public draft report
- One set of minor revisions to final annual report

Section 3
Staffing

The following key team members will be responsible for the on-time, on-budget delivery of project deliverables. Please see Appendix A for detailed resumes with project descriptions and references.

Paul Sorensen, PG, CEG, CHG
Principal Water Resources Consultant
Atascadero, California

ROLE
Project Manager

EXPERIENCE
30+ years

EDUCATION
MA, Geology;
BS, Geological Sciences

For more than 30 years, Paul has lived and worked in the Basin. He has not only witnessed the changes in the Basin over that period and understands how and why the changes have transpired, but has also documented those changes through numerous investigations and studies, and has worked with the local water agencies, government entities, stakeholders, and landowners to help manage groundwater resources. Since joining GSI and opening the firm's North County office in April 2016, Paul has continued to dedicate his efforts to addressing San Luis Obispo County water supply issues. For the past year and a half, Paul has participated at the GSA staff level on behalf of the Shandon-San Juan GSA to assist with the development and preparation of the Paso Robles Basin GSP. To compile the most recent data, assess the effectiveness of the beginning of the implementation plan, and prepare the first annual report is an extension of work that Paul and the entire GSI staff have already been performing. Paul's considerable technical expertise includes sustainable groundwater management, regional groundwater basin analyses, perennial yield and basinwide water balance calculations, groundwater quality studies, aquifer test analyses, and production well and monitoring well design and construction.

For this project, Paul will be responsible for overall project management and project administration, and will serve as the primary point of contact. He will provide oversight and guidance to the project team for all tasks described in our scope of work.

Nate Page, PG
Consulting Hydrogeologist
Atascadero, California

ROLE
Data Analyst and Technical Lead

EXPERIENCE
12 years

EDUCATION
MS, Hydrogeophysics;
BS, Geology

Nate's expertise includes aspects of hydrogeology and geographic information system (GIS) analysis, specifically related to groundwater supply development, groundwater basin analysis, and water resource management. He is experienced in analyzing regional groundwater basins and conducting groundwater quality studies, developing salt and nutrient management plans, supporting GSP development, conducting surface water/groundwater studies, and calculating perennial yield and basin water balance components. Nate has expertise in aquifer testing and analysis, data analysis, and numerical modeling, as well as groundwater and surface water sampling, QA/QC of laboratory water quality data, and water quality database management. He provides essential support for the development of technical memorandums, reports, GSP chapters, and other documents and has periodically assisted Paul with technical groundwater issues in the Basin. Nate also has experience in 3D geological modeling and land surveying.

For this project, Nate will serve as technical lead and data analyst for all tasks described in our scope of work. He will work closely under Paul's guidance to ensure that deliverables meet quality, budget, and schedule expectations.

Jeff Barry, RG, LHG

Principal Hydrogeologist
Atascadero, California

ROLE
Alternate Project Manager

EXPERIENCE
30+ years

EDUCATION
MS, Hydrogeology/ Hydrology;
BS, Resource Management

Jeff is a hydrogeologist with more than three decades of experience conducting groundwater resource development projects and groundwater management programs in California and the Pacific Northwest. Jeff has considerable hands-on knowledge regarding SGMA, having provided SGMA support to a number of GSAs and water purveyors. This work has involved consulting services for GSA formation, grant writing, GDE analysis, and successful boundary modification requests to DWR. Currently, he is managing GSP development for Santa Clarita Valley GSA, the San Antonio Basin GSA, and the Eastern Management Area GSA for the Santa Ynez Basin. He also has helped San Luis Obispo County with several SGMA-related projects and helped to develop its groundwater offset program (water allocation program) to guide the County and landowners on how to mitigate or offset additional groundwater use in the Paso Robles Sub-basin without causing additional water level declines. He has been involved in reviewing various chapters of the Paso Robles Basin GSP and has offered technical input in support of Paul Sorensen. He is a founding principal at GSI.

For this project, Jeff will serve as an alternate to Paul and provide back-up project manager support as needed.

Tim Nicely, PG, CHG

Supervising Hydrogeologist
Santa Barbara, California

ROLE
Alternate Data Analyst and Technical Lead

EXPERIENCE
20 years

EDUCATION
BS, Soil Science

Tim works with clients throughout California to manage valuable water resources. His expertise includes all aspects of hydrogeology and geology, specifically related to groundwater supply, groundwater basin analysis, and water resource management. Tim's experience includes GSP development, regional groundwater basin evaluations, groundwater quality studies, calculating perennial yield and basin water balance components, among other hydrogeologic specialties. Tim has worked extensively with Paul Sorensen in the past on a range of groundwater investigations in the Paso Robles and Atascadero Basins, and is very familiar with the hydrogeology in the region.

For this project, Tim will serve as an alternate to Nate and provide back-up technical support as needed.

Section 4
Fee Proposal and Schedule

Fee Proposal

Table 1 presents a task-by-task breakdown of our proposed budget for all required services. Also presented is a separate line item for the optional scope item (Task 7, Annual Report Follow-up). No expenses for travel, lodging, or meals are included in our cost proposal.

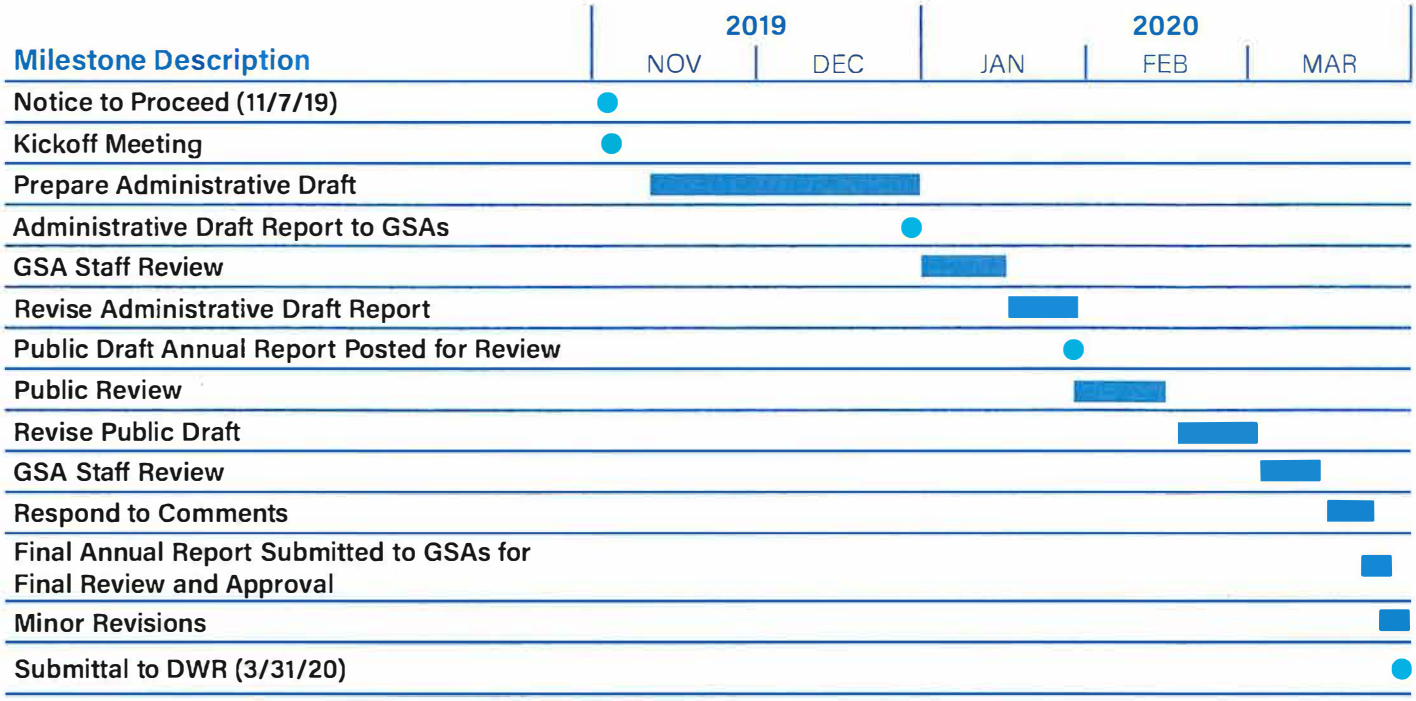
Project Tasks	Labor Hours	Labor Cost	Outside Services	Direct Expenses	Total
Task 1 - GSP Review and Data Compilation	98	$13,490	$0	$0	$13,490
Task 2 - Data Analysis and Representation	204	$29,320	$0	$0	$29,320
Task 3 - Report Preparation	186	$28,160	$0	$0	$28,160
Task 4 - Report Submittal	3	$585	$0	$0	$585
Task 5 - Meetings	32	$6,800	$0	$0	$6,800
Task 6 - Project Management and Administration	12	$2,520	$0	$0	$2,520
Project Totals	**535**	**$80,875**	**$0**	**$0**	**$80,875**

Task 7 - Annual Report Follow-up (Optional)

This includes preparing one round of revisions to the annual report to address DWR questions and comments. The fee for this optional task is $7,180 (assumes 40 labor hours).

Schedule

Meeting your schedule is a top priority for the GSI team. The schedule is extremely tight; the GSI team and GSA staff must adhere to the project milestones. The following schedule outlines a way to submit the final deliverable by March 31, 2109; however, we anticipate working with the GSA staff as an initial task to modify and finalize these dates. We will adhere to the final schedule through close management of the team and communication and coordination with the GSA project manager and GSA members. Should any schedule deviation occur, the GSI team will address it immediately and propose a solution to the GSA project manager.



Section 5
Contract Terms

GSI would like the opportunity to discuss a change to the terms and conditions presented in the Professional Services Agreement included in the RFP. We noted an inconsistency in the payment window. Exhibit B lists it has 45 days; Section 2.b. Compensation identifies 30 days. As such, we kindly request the following change:

Exhibit B: Schedule of Charges/Payments

Consultant will invoice City on a monthly cycle and allow ~~**forty-five (45)**~~ **thirty (30)** days to receive payment.

Reason for this requested change: To match payment terms in Section 2.b. Compensation.

We accept all other terms and conditions.

Section 6
References

Atascadero Mutual Water Company (AMWC)

GSI has worked with AMWC on a number of projects, including the Atascadero Basin GSP (described in Section 2 of this proposal), as well as the Atascadero Basin Boundary Modification Request, which entailed a detailed investigation to formally define groundwater basin boundaries through extensive geologic and hydrogeologic mapping and analysis, and well log review.

Reference: John Neil, General Manager, 805.466.2428, jneil@amwc.us

Templeton Community Services District (TCSD)

GSI has worked with TCSD on a number of projects, including the Atascadero Basin GSP (described in Section 2 of this proposal), as well as the Atascadero Basin Boundary Modification Request, described in the previous reference. GSI personnel have also supported a number of other projects, including the Bonita Well Replacement and the Creekside Ranch Nacimiento Water Project Recharge and Recovery Project.

Reference: Jeff Briltz, General Manager, 805.434.4900, jbriltz@templetoncsd.org

County of San Luis Obispo

GSI has helped the County on a number of projects since 2015, including GSP development for the San Luis Obispo Valley Groundwater Basin; hydrogeologic characterizations of the Santa Maria Groundwater Basin and the San Luis Obispo Valley Groundwater Basin; and a basin boundary modification request for the fringe areas of the Santa Maria Groundwater Basin.

Reference: Courtney Howard, Senior Water Resources Engineer, 805.781.1016, choward@co.slo.ca.us

City of Pismo Beach

GSI is responsible for the preparation and submittal of annual reports on behalf of the NCMA, which represents the City of Pismo Beach. This project is detailed in Section 2.

Reference: Ben Fine, Director of Public Works/City Engineer, 805.773.7037, bfine@pismobeach.org

Oceano Community Services District

GSI is responsible for the preparation and submittal of annual reports on behalf of the NCMA, which represents Oceano Community Services District. This project is detailed in Section 2.

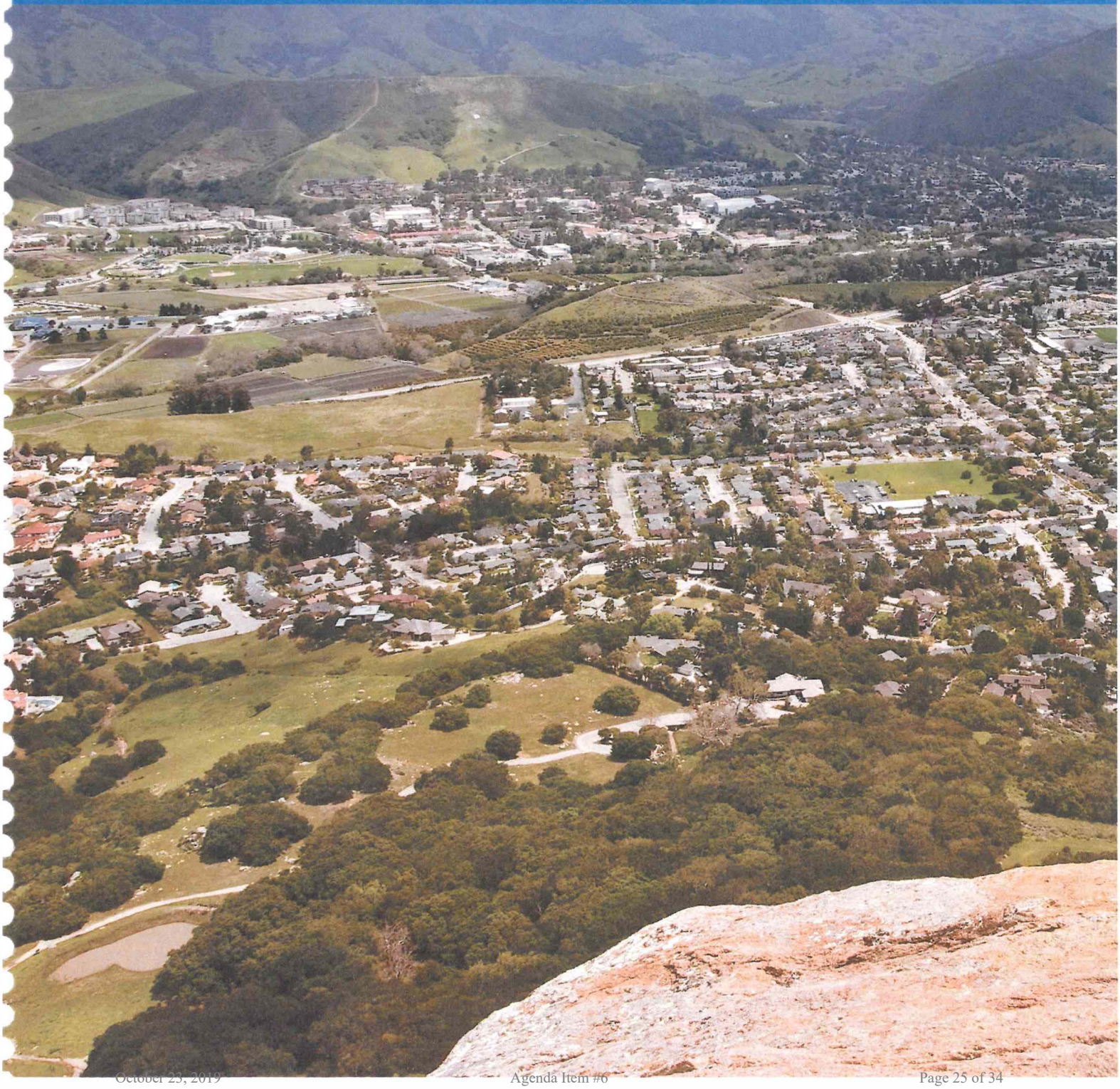
Reference: Paavo Ogren, General Manager, 805.481.6836, paavo@oceanocsd.org

Section 7
Disclosures

An Oregon client of GSI filed a complaint regarding a well project on December 21, 2018. GSI is working with our insurance carrier, attorneys, and subject matter experts to resolve the complaint with the client.

GSI has had no other legal conflicts since its founding.

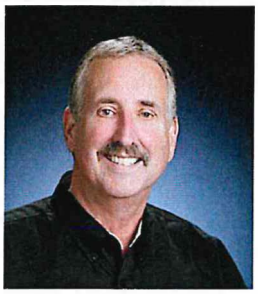
APPENDIX A
Resumes



GSI Water Solutions, Inc.

Paul Sorensen, PG, CEG, CHG

Principal Water Resources Consultant



Paul has more than 30 years of experience managing projects related to hydrogeology and geology with specific expertise in groundwater supply, basin analysis, and water resource management. His technical expertise includes regional groundwater basin analyses, perennial yield and basinwide water balance calculations, groundwater quality studies, aquifer test analyses, and water well and monitoring well design and construction.

EDUCATION

MA, Geology, University of California, Santa Barbara

BS, Geological Sciences, University of Washington

PROFESSIONAL REGISTRATIONS

Professional Geologist: California

Certified Engineering Geologist: California

Certified Hydrogeologist: California

DISTINGUISHING QUALIFICATIONS

- ✓ Expertise in western U.S. water resource issues: supply, quality, and management
- ✓ Expertise in assessment of groundwater basin yield, water quality, natural recharge, and sustainability
- ✓ Experience in well design, construction, and maintenance
- ✓ Experience in groundwater exploration, development, and management
- ✓ Expertise in basinwide numerical modeling

REFERENCES

- **John Neil**, Atascadero Mutual Water Company, 805.466.2428, jneil@amwc.us. Projects: Atascadero Basin Groundwater Sustainability Plan (GSP); Atascadero Basin Boundary Modification Request
- **Jeff Briltz**, Templeton Community Services District, 805.434.4900, jbriltz@templetoncsd.org. Projects: Atascadero Basin GSP, Atascadero Basin Boundary Modification Request, Bonita Well Replacement, Creekside Ranch Nacimiento Water Project Recharge and Recovery Project.

REPRESENTATIVE PROJECTS

Staff Extension Services and Hydrogeologic Expertise and Input to the Paso Robles Basin GSP, Shandon-San Juan Water District (SSJWD) and Estrella-El Pomar-Creston Water District (EPCWD), San Luis Obispo County, California. On behalf of the two agricultural water districts in the Paso Robles Basin (Basin), Paul provides technical expertise and assistance in support of the preparation of a basinwide GSP. Paul acts as an extension of staff for the SSJWD, which is one four GSAs in the Basin, representing the district in a working group of staff members from the four GSAs that provides guidance to the GSP consultant team regarding the development of the GSP. In his role with the districts, Paul has reviewed and assisted in the writing of all chapters and components of the GSP.

Adjudicated Groundwater Basin Annual Report Preparation, Northern Cities Management Area Technical Group, Santa Maria Groundwater Basin, San Luis Obispo County, California. Paul manages the preparation and submittal of the Court-mandated annual reports for the Northern Cities Management Area (composed of the Cities of Pismo Beach, Arroyo Grande, and Grover Beach, and the Oceano Community Services District). Tasks include sampling and monitoring key sentry wells in the Northern Cities area to assess potential seawater intrusion, and technical support and report preparation of quarterly and annual reporting required by the Superior Court as a result of the Santa Maria Basin litigation solution.

Preparation of Annual Reports, Hydrogeologic Support and Planning for Water Supply, SunPower, San Luis Obispo County, California. Paul managed hydrogeologic services for the California Valley Solar Ranch (CVSR) project to construct a 250-megawatt photovoltaic solar generation facility and associated connection tie line. The facility includes solar arrays that covers nearly 2,000 acres in the Carrizo Plain. Water supply facilities for the project include a 271,000-gallon water tank for water supply and fire safety, onsite septic system and leach field, a reverse osmosis (RO) water treatment facility to provide treated potable water, and 1.5 acres of evaporation brine ponds to dispose of RO reject water. All water for the project is groundwater; additional onsite and offsite supplies are being developed to supplement existing wells. Paul managed hydrogeologic support to meet the County's conditions of permit approval, including preparation of the Water Supply Contingency Plan, Groundwater Monitoring and Reporting Plan, Drought Water Management Plan, and Annual Reports to document compliance with permit conditions.

Groundwater Sustainability Agency (GSA) Formation and Groundwater Sustainability Plan (GSP) Preparation, Atascadero Basin, Templeton Community Services District (TCSD), Atascadero Mutual Water Company (AMWC), Atascadero, San Luis Obispo County, California. Working with a public agency, mutual water company, and municipality, Paul provided the key technical analyses and support during creation of the GSA and led the technical work to formally define the basin boundaries and management area. He now is leading the technical efforts for the preparation of the GSP for the Atascadero Area Sub-basin. The work includes developing the geologic and hydrogeologic framework of the basin, compiling and calculating the water budget (basin water balance), and working with the GSA and California Department of Water Resources (DWR) to ensure a compelling, defensible GSP.

Paul Sorensen, PG, CEG, CHG
Principal Water Resources Consultant

Basin Modification and Delineation/Definition of the Atascadero Subbasin, Templeton CSD, AMWC, San Luis Obispo, California. Paul directed a detailed geologic and hydrogeologic investigation to formally define the boundaries of a groundwater basin through extensive geologic and hydrogeologic mapping and analysis and well log review. Working with DWR in advance of the issuance of the basin boundary modification regulations, he prepared a technical report and attendant maps to formally and successfully modify and redefine the DWR Bulletin 118 basin boundaries and worked with the clients to submit the request to DWR.

Groundwater Basin Key Well Index Analysis, County of San Luis Obispo Public Works Department, San Luis Obispo County, California. As the responsible agency for programs such as the California Statewide Groundwater Elevation Monitoring (CASGEM) and the Sustainable Groundwater Management Act (SGMA), the County of San Luis Obispo Public Works Department needed to establish a representative well index for each of the San Luis Obispo County's (County's) five medium- or high-priority basins. Paul managed the effort on behalf of GSI to evaluate the County's water elevation monitoring program, establish data collection criteria and analytical techniques to be used to understand and present the groundwater conditions and changes in groundwater supplies, and document and effectively communicate information related to aquifer conditions and threats to groundwater supplies. The result of the work was to select key representative wells within each basin that efficiently represent the relative health of each basin, without compromising the confidentiality of the well owners.

SGMA Support Services, Mid-Kaweah GSA, Tulare, California. As a sub-consultant to GEI Consultants, GSI provided SGMA support services to the Mid-Kaweah GSA. Paul supervised and oversaw GSI's efforts, which included coordination with and outreach to other GSAs in the Kaweah Sub-basin to develop a framework for agreement regarding data and analysis techniques for assessing groundwater elevation, groundwater extraction, surface water supply, total water use, change in storage, water budget, and sustainable yield. GSI identified data needed for SGMA GSP compliance and provided additional data collection and performed sub-basinwide groundwater modeling services to provide predictive scenarios and future water budgets. GSI then conducted a sustainability analysis, consisting of a basin characterization, water budget, and identification of strategies for achieving groundwater sustainability, and provided a review of the draft Mid-Kaweah GSA-GSP outline.

Fringe Area Basin Characterization, San Luis Obispo County Flood Control and Water Conservation District, San Luis Obispo County, California. Paul is the project principal for a characterization of the fringe areas of the Santa Maria Groundwater Basin. The project involves the hydrogeologic characterization of five geographically distinct areas that are within 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 management 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. GSI developed geologic cross sections to understand the extent of hydraulic communication between the fringe areas and the adjudicated basin. As a result of these efforts, scientific Basin Boundary Modification Application requests were submitted to formally exclude three of the fringe areas from the Santa Maria Basin as non-basins, and to designate the two other areas as separate sub-basins. Four of the five requests were subsequently approved by DWR.

Characterization and Planning Activities, San Luis Obispo Valley (Edna) Groundwater Basin, San Luis Obispo County Flood Control and Water Conservation District, San Luis Obispo County, California. Paul was the project principal for the San Luis Obispo Valley Groundwater Basin Characterization project that provided a foundation for future SGMA efforts by the County, City of San Luis Obispo, and local stakeholders, as well as served as the basis for development of a groundwater model. The effort included compilation of available hydrogeologic data into a comprehensive database; analysis of geologic cross sections, aquifer tests, streamflow infiltration, and enhanced recharge areas; and monitoring well installation. Paul is now the principal SGMA advisor with the project team for the preparation and development of the basinwide GSP.

GSI Water Solutions, Inc.

Nate Page, PG
Consulting Hydrogeologist

EDUCATION

MS, Hydrogeophysics, Colorado State University

BS, Geology, St. Lawrence University

PROFESSIONAL REGISTRATIONS

Professional Geologist (California and Utah)

DISTINGUISHING QUALIFICATIONS

- ✓ Groundwater supply development and water resource management
- ✓ Groundwater basin analyses
- ✓ Sustainable Groundwater Management Act (SGMA) studies and GSP preparation
- ✓ Aquifer testing and analysis
- ✓ GIS spatial analysis and 3D geologic modeling
- ✓ Water quality database management

Nate has 12 years of experience working with clients to manage water resources. His expertise includes aspects of hydrogeology and geographic information system (GIS) analysis, specifically related to groundwater supply development, groundwater basin analysis, and water resource management. He is experienced in analyzing regional groundwater basins and conducting groundwater quality studies, developing salt and nutrient management plans, supporting groundwater sustainability plan (GSP) development, conducting surface water/groundwater studies, and calculating perennial yield and basin water balance components. Nate has expertise in aquifer testing and analysis, data analysis, and numerical modeling, as well as groundwater and surface water sampling, quality control of laboratory water quality data, and water quality database management. He provides essential support for the development of technical memorandums, reports, GSP chapters, and other documents.

REFERENCES

- **John Neil**, Atascadero Mutual Water Company, 805.466.2428, jneil@amwc.us. Projects: Atascadero Basin GSP; Atascadero Basin Boundary Modification Request
- **Jeff Briltz**, Templeton Community Services District, 805.434.4900, jbriltz@templetoncsd.org. Projects: Atascadero Basin GSP, Atascadero Basin Boundary Modification Request

REPRESENTATIVE PROJECTS

Staff Extension Services and Hydrogeologic Expertise and Input to the Paso Robles Basin GSP, Shandon-San Juan Water District (SSJWD) and Estrella-El Pomar-Creston Water District (EPCWD), San Luis Obispo County, California. Nate has assisted with GSI's role as technical expert in support of the preparation of a basinwide GSP on behalf of the two agricultural water districts in the Paso Robles Basin (Basin). GSI staff acted as an extension of staff for the SSJWD, which is one of four GSAs in the Basin, representing the district in a working group of staff members from the four GSAs that provides guidance to the GSP consultant team regarding the development of the GSP.

Northern Cities Management Area Annual Monitoring Reports, Cities of Arroyo Grande, Grover Beach, Pismo, and Oceano Community Services District, California. Nate has prepared the annual monitoring report for the Northern Cities Management Area (NCMA) technical group. The reports are prepared pursuant to the requirements of the Stipulation and Judgment After Trial for the Santa Maria Groundwater Basin Adjudication. The annual reports provides an assessment of hydrologic conditions for the NCMA based on data collected during the calendar year of record.

Santa Paula Water Recycling Facility Groundwater Modeling and Monitoring, Santa Paula, Ventura County. Nate was part of the project team that supported all aspects of planning, monitoring well installation, well development, installation of required groundwater level transducers, hydrogeologic assessment, impacts analysis, and required reporting related to the discharge of effluent to on-site percolation ponds.

Groundwater Sustainability Plan Development, San Luis Obispo Basin, San Luis Obispo, California. Nate is part of the project team supporting the development of the GSP for the San Luis Obispo Basin. The GSP development is a coordinated effort with Water Systems Consultants. Nate has generated a 3D geological model of the basin and is assisting in development of the basin groundwater model.

Groundwater Basin Boundary Modification, Heritage Ranch Community Services District, Lake Nacimiento, California. Nate led the preparation of a successful basin boundary modification request to exclude Heritage Ranch Community Services District from the Paso Robles Basin based on scientific external boundary modification. The modification request included preparation of a technical report, correspondence and meetings with California Department of Water Resources (DWR) staff, and preparation of addendum materials.

San Luis Obispo Basin Characterization, County of San Luis Obispo, California. Nate was part of the project team that collected and summarized all available geologic and hydrogeologic data describing the San Luis Obispo Valley Groundwater Basin. GSI generated cross sections, hydrographs, and water level maps, and summarized all aquifer test data available from stakeholders.

Nate Page, PG
Consulting Hydrogeologist

Groundwater Sustainability Plan Development, Atascadero Subbasin, Atascadero, California. Nate is the lead analyst and author for GSI's effort to develop GSP for the Atascadero Subbasin. The GSP development is a coordinated effort with GEI Consultants. Currently, GSI is leading the coordinated effort to develop the Hydrogeologic Conceptual Model and Groundwater Conditions chapters of the GSP.

Santa Maria Groundwater Basin Fringe Area Boundary Modification, County of San Luis Obispo, California. Nate was part of the project team that completed characterization of five "fringe areas" in the Santa Maria Groundwater Basin to determine whether San Luis Obispo County should pursue the SGMA basin boundary modification process with the California Department of Water Resources.

Groundwater Basin Boundary Modifications, Castaic Lake Water Agency (CLWA), Santa Clarita Valley, California. GSI helped CLWA identify the type and location of groundwater basin boundary adjustments to meet SGMA regulations for boundary modification. Nate provided groundwater level and quality data research and analysis, GIS analysis, and figure production.

Fringe Area Basin Characterization, San Luis Obispo County Flood Control and Water Conservation District, San Luis Obispo County, California. Nate is part of the project team working to characterize the fringe areas of the Santa Maria Groundwater Basin. The project involves the hydrogeologic characterization of five geographically distinct areas that are within basin boundaries defined by DWR, but were not included in the adjudicated basin area and thus are subject to SGMA management 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. GSI developed geologic cross sections to understand the extent of hydraulic communication between the fringe areas and the adjudicated basin. If determined necessary based on the results of the characterization, the project will involve the preparation of a basin boundary modification request to DWR.

Groundwater Basin Key Well Index Analysis and Data Gap Analysis, San Luis Obispo County, Public Works Department, California. As the responsible agency for programs such as the California Statewide Groundwater Elevation Monitoring (CASGEM) and SGMA, the Public Works Department needed to establish a representative well index for each of the County's five medium- or high-priority basins. Nate supported GSI's effort to evaluate the County's water elevation monitoring program, establish data collection criteria and analytical techniques to be used to understand and present the groundwater conditions and changes in groundwater supplies, document and effectively communicate information related to aquifer conditions and threats to groundwater supplies, and to evaluate data gaps in the monitoring network.

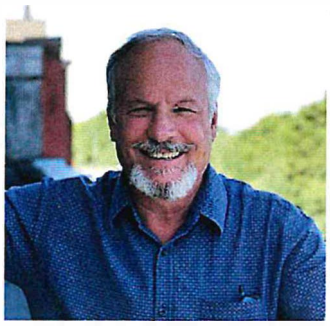
Historical Water Use Studies, Various Clients, California. Nate has prepared several historical water use studies for private clients interested in establishing a record of historical water usage. These studies are used to sustain agricultural operations, help plan for the future, and bolster property values.

Desalination Intake Wells Hydrogeologic Evaluation, City of Morro Bay, California. Nate was a key member of the project team conducting a hydrogeologic evaluation of the existing Morro Bay desalination wells. Nate provided field oversight for instrumentation and coordination with City personnel for several long-term pumping tests and water quality sample collection. Nate also performed data reduction, including tidal response corrections, and aquifer testing analysis.

Desalination Subsurface Intake and Indirect Potable Reuse Feasibility Study, City of Santa Barbara, California. Nate was part of the project team conducting a study to evaluate the feasibility of several subsurface intake technologies that could be alternatives to the City's existing direct ocean intake for the desalination plant. Alternatives evaluated included conventional wells, slant wells, collector wells, beach infiltration galleries, seawater infiltration galleries, and directionally drilled wells. The study estimated yield, spacing, number of facilities required, and evaluated water quality and potential impacts. In addition, Nate helped to determine whether it is feasible to store highly treated wastewater within Santa Barbara's production aquifers through infiltration basins and injection wells, as part of an indirect potable reuse feasibility study.

GSI Water Solutions, Inc.

Jeff Barry
Principal Hydrogeologist



Jeff has 34 years of experience conducting groundwater resource development projects and groundwater management programs in California and the Pacific Northwest. He brings substantial expertise in aquifer characterization, production well design and rehabilitation, groundwater monitoring, groundwater/surface water interaction assessment, and aquifer storage and recovery (ASR). Jeff helps clients navigate the complexities of California's Sustainable Groundwater Management Act (SGMA), and is managing the development of a number of groundwater sustainability plans (GSPs). He is a recognized leader in the development and sustainable operation of ASR projects and aquifer recharge projects in the U.S. and Korea. Throughout his career, he has managed multi-disciplinary projects that have included critical analysis of a range of data types, successful coordination and negotiation with multiple stakeholders, communicating complex technical information to decision makers, and working within budgetary and timeline constraints. He is a founding principal at GSI.

EDUCATION

MS, Hydrogeology/ Hydrology, University of Nevada at Reno

BS, Resource Management, Humboldt State University

PROFESSIONAL REGISTRATIONS

Registered Geologist: Oregon

Licensed Geologist/ Hydrogeologist: Washington

Certified Water Rights Examiner: Oregon

DISTINGUISHING QUALIFICATIONS

- ✓ More than 30 years of experience conducting water resources investigations
- ✓ Experienced with development of groundwater management plans and performing safe yield assessments
- ✓ Experienced with monitoring program and groundwater management plan development and implementation
- ✓ Strong working knowledge of state and federal regulatory programs relating to groundwater/surface water influence and water quality protection

REFERENCES

- **Willy Cunha**, Shandon-San Juan Water District, 805.674.0788, willy.ssjwd@gmail.com. Projects: Staff Extension Services and Hydrogeologic Expertise and Input to the Paso Robles Basin GSP
- **Matt Young**, County of Santa Barbara, 805.568.3546, mcyoung@co.santa-barbara.ca.us. Projects: Eastern Management Area GSP Development

REPRESENTATIVE PROJECTS

Staff Extension Services and Hydrogeologic Expertise and Input to the Paso Robles Basin GSP, Shandon-San Juan Water District (SSJWD) and Estrella-El Pomar-Creston Water District (EPCWD), Paso Robles Basin, California. Jeff is providing technical support to two agricultural water districts during development of the GSP for the Basin. His role is to review work being done by the GSP consultant and provide input on technical aspects of the plan to help make the plan successful and represent, in particular, agricultural groundwater users in the basin.

Groundwater Sustainability Plan, Santa Clarita Valley Groundwater Sustainability Agency (GSA), California, Jeff is responsible for managing a project to develop a GSP for the upper Santa Clara River Basin. He has assembled a team of experts who have been working in the basin for decades. The project includes development of a basin-wide data management system, development of a hydrogeologic conceptual model, development of sustainability criteria, development of projects and management programs, and preparation of the GSP. A significant technical element of the project includes characterization of the interaction between groundwater and surface water and assessment of groundwater-dependent ecosystems. Jeff is also supporting stakeholder outreach efforts and conducting workshops on various SGMA and GSP topics.

Groundwater Sustainability Plan, Eastern Management Area GSA, Santa Ynez, California, Jeff is managing the development of a GSP for this GSA. There are a number of complex issues in this basin that must be resolved, including potential interconnection of basin aquifers with the Santa Ynez River, complex structural geology and boundaries to flow, assessing underflow to downstream sub-basins, and balancing water supply needs of various stakeholders (farmers, ranchers, grape growers, Tribes, domestic water users).

Groundwater Sustainability Plan, San Antonio Basin Groundwater Sustainability Agency, California. Jeff is managing the development of the GSP for the GSA that represents this predominantly agricultural basin. Jeff's team is using data and information recently developed by the U.S. Geological Survey (USGS) to characterize groundwater conditions in the basin and reduce the cost of developing the plan. He is working with the USGS to utilize its groundwater model to develop water budgets and assess various groundwater management alternatives intended to recover groundwater levels to sustainable levels.

Groundwater Development Project (GDAP), Los Angeles Department of Water and Power (LADWP), Los Angeles, California. Jeff is technical lead for GSI on a team that is conducting a multi-year project to do a range of water supply planning and investigation work in the LA Basin with the overall goal of increasing local groundwater supplies and increasing storage. GSI's role on the project is to provide planning, design, and field support for the installation of pumping wells, indirect potable reuse (IPR) injection wells, and ASR wells. Jeff will also provide SGMA support. This will be a joint project with the Water Replenishment District of Southern California (WRD).

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Jeff Barry
Principal Hydrogeologist

Basin Modification and Delineation/Definition of the Atascadero Subbasin, Templeton CSD, Atascadero Mutual Water Company (AMWC), San Luis Obispo, California. Jeff assisted with developing a detailed geologic and hydrogeologic investigation to formally define the boundaries of a groundwater basin through extensive geologic and hydrogeologic mapping and analysis and well log review. The boundary modification request, based on scientific evidence, was one of the few successful scientific applications approved by DWR. In a related matter, Jeff provided expert witness testimony on behalf of the CSD and AMWC in support of their efforts to define the sub-basin as separate from the overall Paso Robles groundwater basin.

Basin Characterization and Boundary Modification, Santa Maria Basin Fringe Areas, County of San Luis Obispo, California. Jeff is providing senior review for a hydrogeologic characterization project in a number of basin fringe areas in the Santa Maria Groundwater Basin. These areas are predominantly farmed. If appropriate, the team will prepare and submit a basin boundary modification request to DWR.

SGMA Support Services, Castaic Lake Water Agency, California. Jeff provided strategic assistance to water providers in the upper Santa Clara River Basin regarding a range of SGMA issues. His consultation included providing support during GSA formation, development of Proposition 1 grant applications for projects supporting GSP development and implementation, and preparation of a work plan for completion of a GSP.

Groundwater Management Plan, Goleta Water District, Goleta, California. Jeff is project manager for updating the District's groundwater management plan. District supplies of imported and stored water are severely curtailed as a result of drought conditions. The District has had to rely nearly 100 percent on the local groundwater basin for meeting water demands. Key elements of the plan will include development of a pumping plan for drought and non-drought conditions, optimizing the injection program to refill the basin when water is available for recharge, preparation of a salt and nutrient management plan, and developing recommendations for capital improvements for facilities that improve the groundwater supply.

Groundwater Supply Investigation, Confidential Client, San Joaquin Valley, California. Jeff is project manager for an investigation to determine whether there are adequate supplies of groundwater to irrigate up to 8,000 acres in the southwestern San Joaquin Valley. The analysis included application of a SkyTem time-domain electromagnetic aerial geophysical survey to identify potentially productive areas both within the alluvium and within the underlying bedrock units. Based on that information, GSI identified locations for drilling zonal test wells to obtain yield and water quality data. Zonal test wells consisted of drilling mud rotary boreholes to as deep as 1,000 feet, conducting borehole geophysics, installing 30 feet of perforated casing, installing temporary seals and filter pack, developing the zone, conducting pumping tests, and collecting water samples. This was repeated up to 7 times in each borehole. The testing provided information about the aquifer units that produced the largest quantities of suitable quality water. GSI also evaluated the sustainable yield of the aquifer by conducting a detailed recharge analysis.

Basin Boundary Modification, Upper Santa Clara River Basin, California. Jeff managed a project for Castaic Lake Water Agency to request a scientific basin modification request to DWR. Geologic maps, groundwater level data, and a basinwide groundwater model were used as evidence for the request. DWR approved the basin boundary modification and updated the Bulletin 118 basin boundary maps.

Recharge Feasibility Assessment, Newhall County Water District, California. Jeff is senior reviewer for a project designed to investigate the operational feasibility of recharging reclaimed water and captured stormwater into a surficial alluvial aquifer at two sites along the Santa Clara River in the Santa Clarita Valley of southern California. The alluvial aquifer is an important source of groundwater supply to the valley, yet some alluvial production wells cannot meet production targets during years of below-normal rainfall and natural groundwater recharge. GSI evaluated the hydrogeology at several potential sites and is conducting numerical model simulations to evaluate the feasibility of proposed recharge volumes and monthly operating schedules, the amount of diluent water (native groundwater) available for mixing with the recharged water, and the potential to recharge stormwater flows diverted from the river. Retention times also are being evaluated with the model to determine pathogen removal credits and the effect on nearby drinking water wells.

Tim Nicely, PG, CHG

Supervising Hydrogeologist

Tim has 20 years of experience working with clients throughout California to manage valuable water resources. His expertise includes all aspects of hydrogeology and geology, specifically related to groundwater supply, groundwater basin analysis, and water resource management. Tim's experience includes managing and strategizing projects related to analyzing regional groundwater basins and groundwater quality studies in support of sustainable groundwater management, surface water/groundwater studies, calculating perennial yield and basin water balance components, designing and overseeing construction of wellfields and monitoring wells, designing pumping tests and analyzing data, evaluating aquifer recharge options, and groundwater modeling.

EDUCATION

BS, Soil Science, California Polytechnic State University

PROFESSIONAL REGISTRATIONS

Professional Geologist: California

Certified Hydrogeologist: California

DISTINGUISHING QUALIFICATIONS

- ✓ Expertise in water resource management
- ✓ Sustainable Groundwater Management Act (SGMA) studies and GSP preparation
- ✓ Expertise in assessment of groundwater basin yield, water quality, natural recharge, and sustainability
- ✓ Experience in well design, construction oversight, and maintenance
- ✓ Experience in groundwater monitoring and developing groundwater models
- ✓ Experience conducting desalination feasibility studies

REFERENCES

- **Mark Larsen**, Kaweah Delta Water Conservation District, 559.747.5601, mlarsen@kdwcd.org. Project: Hydrogeologic Characterization of the Kaweah Sub-basin
- **Craig Peterson**, Attorney, 818.716.2611, cpetersen@polarisnet.net. Project: Hydrogeologic Services for the Yerba Buena Water Company

REPRESENTATIVE PROJECTS

SGMA Support Services, Mid-Kaweah Groundwater Sustainability Agency (GSA) and Greater Kaweah GSA, Tulare and Kings County, California. Tim served as the lead hydrogeologist to provide SGMA support services within the critically over-drafted Kaweah Sub-basin. Tim served as project manager for GSI's efforts, under contract with GEI Consultants to develop a groundwater sustainability plan (GSP) for SGMA compliance. The GSP effort included coordination with and outreach to other GSAs in the Kaweah Sub-basin to develop a framework for agreement regarding data and analysis techniques for assessing groundwater elevation, groundwater extraction, surface water supply, total water use, change in storage, water budget, and sustainable yield. GSI conducted a sustainability analysis, including compilation of available data, to conduct a complete basin characterization, water budget, and developed strategies for achieving groundwater sustainability.

Basin Modification and Delineation/Definition of the Atascadero Subbasin, Templeton Community Services District and Atascadero Mutual Water Company, San Luis Obispo County, California. Tim was a key member providing key technical analyses and support of a detailed geologic and hydrogeologic investigation to formally define the boundaries of a groundwater basin through extensive geologic and hydrogeologic mapping and analysis and well log review. Working with California Department of Water Resources (DWR) in advance of the issuance of the basin boundary modification regulations, Tim helped prepare a technical report and attendant maps to formally modify and redefine the DWR Bulletin 118 basin boundaries and worked with the clients to submit the request to DWR. The submittal, based on scientific evidence, was one of the few successful scientific applications approved by DWR. This new Atascadero sub-basin is enabling the two utilities to manage their groundwater resources within a definable boundary.

Atascadero Groundwater Basin Investigation, Atascadero Mutual Water Company, Atascadero, California. Tim compiled, located, and interpreted thousands of well completion reports, well drillers logs, and fault location databases for the creation of a comprehensive structural model of the Atascadero Groundwater Basin. Tim created well location maps, cross section location maps, geologic and hydrogeologic cross sections, water level contour maps, and water level hydrographs to aid in the determination of the degree of connection between the Atascadero Groundwater Basin and the Paso Robles Groundwater Basin.

Groundwater Flow Investigation, Atascadero Mutual Water Company, Atascadero, California. Tim assisted in the development of a groundwater flow and solute transport model to evaluate the local impacts of recharging water from Lake Nacimiento into percolation ponds adjacent to the Salinas River on unconfined and confined groundwater levels.

Small-Scale Groundwater Flow and Solute Transport Modeling, Atascadero Mutual Water Company and Templeton Community Services District, San Luis Obispo County, California. Tim has been involved in multiple projects involving the evaluation of different scenarios of recharge in percolation ponds, their impacts on groundwater storage and groundwater quality, and the stream-aquifer interaction of the Salinas River and the channel alluvium. The projects included the collection and analysis of new and historical data (e.g., from aquifer tests,

Tim Nicely, PG, CHG
Supervising Hydrogeologist

boring logs, water levels, river flows), coordination with the local water providers, and evaluation of different recharge scenarios.

- **Atascadero Mutual Water Company**: Tim provided estimates of the unconfined and confined aquifer hydraulic properties for a numerical model in support of an aquifer recharge and recovery program to recharge up to 5.4 million gallons per day (mgd) of imported surface water from the Nacimiento Water Project (NWP). Tim performed slug tests and pumping tests in the area of proposed percolation pond and wells percolation near the Salinas River. The model was used to design an optimal well field layout that would maximize the recovery of the recharged project water

- **Templeton Community Services District (CSD).** Tim provided support for the creation of a transient groundwater flow and solute transport model to evaluate downstream water quality impacts of recharging wastewater effluent and Nacimiento Water Project water in existing and proposed percolation ponds in the Salinas River alluvium.

San Miguel Ranch Environmental Impact Report, Water Resources Section, San Luis Obispo County, California. Tim compiled all available water and oil well logs for completion of a geologic model for preparation of geologic setting report to determine the sufficiency of water supply and report preparation.

Adjudicated Groundwater Basin Annual Report Preparation, Northern Cities Management Area Technical Group, Santa Maria Groundwater Basin, San Luis Obispo County, California. Tim has served as the technical lead for the preparation and submittal of the Court-mandated annual reports for the Northern Cities Management Area (composed of the Cities of Pismo Beach, Arroyo Grande, and Grover Beach, and the Oceano CSD). Tim manages tasks including sampling and monitoring of key sentry wells in the Northern Cities area to assess potential seawater intrusion, and technical support and report preparation of quarterly and annual reporting required by the Superior Court as a result of the Santa Maria Basin litigation solution.

Hydrogeologic Support and Planning for Water Supply, SunPower, San Luis Obispo County, California. Tim was a key member of the team that provided water for the California Valley Solar Ranch), a 250-megawatt) photovoltaic solar generation facility. All water for the project is groundwater. Paul provided hydrogeologic support to meet the County's conditions of permit approval, including preparation of the Groundwater Monitoring and Reporting Plan. Tim assisted SunPower and Bechtel (construction contractor) in developing new water supply sources to meet the 3-year construction water demand.

Municipal and Agricultural Well Installation Clients throughout San Luis Obispo, Ventura, Monterey and Los Angeles Counties, California. Tim has developed well designs, created plans and specifications, managed staff, and performed field observation related to dozens of small- and large-diameter water supply wells throughout California. Tim has managed well design and installation projects for wells as deep as 1,000 feet. Work has included contractor observation of drilling, lithologic sample collection and logging, evaluation of downhole geophysical data, depth-specific zone water-quality testing including step and constant rate flow testing, and zone well. All work has been performed in accordance with well specifications and state and industry standards.

Aquifer Characterization and Hydrogeologic Assessment, Cold Canyon Landfill, San Luis Obispo County, California. Tim designed and performed several multi-well aquifer tests to define the hydrogeology of the area beneath the landfill, the pumping capacity of the existing wells at the landfill, their current use, the effects of increased use of groundwater related to the proposed expansion of the landfill, and interference effects from adjacent wells.

Wastewater Treatment Facility Discharge Study, Nipomo Community Services District, San Luis Obispo County, California. Tim coordinated and performed all field activities related to the determination of saturated hydraulic conductivities and groundwater mounding issues related to the expansion of a water treatment facility. Tim compiled all data for construction of a numerical groundwater model.

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