

AMENDMENT TO AGREEMENT

Tulare County Agreement Number 28398 is amended on _____ day of _____ 2018, between the COUNTY OF TULARE, referred to as COUNTY, and GEI Consulting Inc., a California Corporation, referred to as CONSULTANT, with reference to the following:

- A. WHEREAS, on December 8, 2015 Tulare County Agreement No. 27442 with the California Department of Water Resources was approved in the amount of \$500,000 for the Prop 1 Sustainable Groundwater Management Planning Grant.
- B. WHEREAS, on November 14, 2017 Tulare County Agreement No. 28398 with the CONSULTANT was executed in the amount of \$166,226 for the Kaweah Sub-basin Sustainable Groundwater Management activities expired on August 31, 2018.
- C. WHEREAS, additional outreach activities have been identified by the Kaweah Sub-basin Management team.
- D. WHEREAS, grant funding is available to cover the additional outreach activities.
- E. WHEREAS, additional time is needed to perform the additional outreach activities.

ACCORDINGLY, IT IS AGREED:

- 1. Effective _____, 2018, EXHIBIT A and EXHIBIT B of Tulare County Agreement No. 28398 are hereby substituted with the EXHIBIT A and EXHIBIT B dated August 2018 and attached hereto.
- 2. Effective _____, 2018, the TERM of Tulare County Agreement No. 28398 is extended to December 31, 2018.
- 3. Except as amended above, all other terms and conditions of said agreement shall remain in full force and effect.

THE PARTIES, having read and considered the above provisions, indicate their agreement by their authorized signatures below.

COUNTY OF TULARE

Date: _____

BY _____
Chairman, Board of Supervisors

ATTEST: Michael C. Spata
County Administrative Officer/
Clerk of the Board of Supervisors

By: _____
Deputy Clerk

Date: _____

GEI CONSULTS INC

BY 
Title VICE PRESIDENT

Date: _____

BY Michelle R. Kicker
Title Senior Professional


APPROVED AS TO FORM:
COUNTY COUNSEL
By  8/28/18
Deputy 2018.12.10

Exhibit A- August 2018

This Scope of Work (SOW) addresses Task 2 and 3 of the County’s Proposition 1 Sustainable Groundwater Planning (SGMP) Grant Workplan for the Kaweah Sub-Basin:

Task 2 – GSP Development

Task 2.5: Development of Coordination Agreement

Task 3- GSP Development

Task 3.1: Prepare Tools Summarizing and Assessing the Historical Groundwater and Surface Water Rights/Supplies

Task 3.2: Prepare Exhibits Identifying the Historical Land Uses and Crop Patterns

Task 3.3: Conduct Flow Modeling and Calculate Historical Water Consumptive Use

Task 3.4: Develop Subbasin-Wide Water Budget

Task 3.5: Prepare Subbasin-Wide Sustainable Groundwater Yield Report

Task 3.6: Develop Subbasin-Wide Groundwater Sustainability Monitoring Plan

Task 3.7: Outreach

The work conducted under this SOW will be consistent with the SGMP Grant Workplan and will support partial completion of several Kaweah Sub-Basin SGMA coordination tasks as shown below.

Kaweah Sub-Basin Coordination Task	SGMP Grant Tasks included in GEI SOW
Task 1: Data Management System	Task 3.1
Task 2: Numerical Modeling	Task 3.1 - 3.4
Task 3: Sub-Basin Wide GSP Support / Coordination	
Task 3.1: Basin Setting	Task 3.1 - 3.5
Task 3.2: Sustainability Goals and Undesirable Results	Task 2.5
Task 3.3: Monitoring Plan Framework and Coordination	Task 3.6
Task 3.4: Min. Thresholds, Measurable Objectives, and Adaptive Management	n/a
Task 3.5: Water Supply Accounting	n/a
Task 3.6: Projects, Management Actions, and Adaptive Management	n/a
Task 3.7: Outreach	Task 1
Task 4: Project Management	n/a
Task 5: GSP Grant Application	n/a

Scope of Services

The following SOW is presented in reference to the SGMP Grant Workplan task numeration and description. Additional details are added to better define work efforts, deliverables and relations to the

Kaweah Sub-Basin Coordination Tasks (Coordination Task).

SGMP Grant Task 2 – GSP Development

Task 2.5: Development of Coordination Agreement

Develop process for coordination among GSAs by utilizing the engagement and outreach processes outlined in the Engagement Plan. Each subbasin will convene their GSAs and discuss GSP development with their stakeholders, and other interested parties. GSAs and Subbasin stakeholders will identify the best means for establishing criteria for evaluating data, methodologies, and assumptions used in GSP. The GSAs and other Subbasin stakeholders will also assess the best processes for coordinating GSPs with local land use planning and ordinance development as needed. Additionally, develop subbasin-wide Coordination Agreement and GSP template For Kaweah Subbasin, this task includes identifying the preference for a single GSP with multiple chapters or multiple, coordinated GSPs based on the available data and meetings between GSAs and basin stakeholders. Likewise, the Kaweah Subbasin shall assess through this task whether interim activities are needed and feasible to maintain groundwater sustainability.

COORDINATION TASK 3.2: SUSTAINABILITY GOALS AND UNDESIRABLE RESULTS

The Coordination Agreement will require coordination of key basin planning and management activities. This includes elements of Coordination Tasks 3.2 through 3.6 listed above. The GEI SOW will utilize SGMP Grant funds to support Coordination Task 3.2: Sustainability Goals and Undesirable Results. Specifically, SGMP Grant funds will be used to develop a Kaweah Sub-Basin framework for sustainability goals and undesirable results, which can be utilized by each Kaweah Sub-Basin GSA to develop consistent GSP level sustainability goals and thresholds for undesirable results. This will ensure that sustainability goals are consistent and not conflicting across the sub-basin.

GEI DELIVERABLES:

- Kaweah Sub-Basin Sustainability Goals Technical Memorandum

ESTIMATED COST:

- \$17,000. This represents 43-percent of the estimated budget for completion of the Kaweah Sub-Basin sustainability goals and undesirable results framework and coordination. A separate SOW will be developed for the remaining effort.

SGMP Grant Task 3 – Data Collection and Aggregation

Task 3.1: Prepare Tools Summarizing and Assessing the Historical Groundwater and Surface Water Rights/Supplies

To understand the subbasins' water availability, research and compilation of the available data will be identified. For Kaweah Subbasin this task includes assessing the District's historical data, assessing relevance of that data, and obtaining data to fill any gaps.

COORDINATION TASK 1: DATA MANAGEMENT SYSTEM.

SGMP Grant Task 3.1 directly supports the development of a Data Management System (DMS) that will function as a data storage, analysis, visualization, and reporting tool for groundwater-related information within the Kaweah Sub-Basin. The DMS will store and display information from previous, ongoing, and

future groundwater studies and monitoring programs and will protect against the loss of invaluable data. Additional data that will be incorporated into the DMS includes groundwater elevations as well as other relevant monitoring and modeling/analysis data required to assess the potential undesirable results, as specified by SGMA. It also facilitates direct production of tables, charts, and graphs needed for GSP reporting and analysis.

GEI DELIVERABLES:

- Functional DMS platform for the Kaweah Sub-Basin, including access protocols for each GSA.

ESTIMATED COST:

- \$30,000. This represents 60-percent of the estimated budget for completion of the Kaweah Sub-Basin DMS. A separate SOW will be developed for the remaining effort.

Task 3.2: *Prepare Exhibits Identifying the Historical Land Uses and Crop Patterns*

This task will include assessing historical land use and cropping patterns for the purpose of understanding historical crop water demands. Data can include, but is not limited to, DWR crop surveys, Tulare County Agriculture Commissioner data, and individual irrigation district surveys.

Task 3.3: *Conduct Flow Modeling and Calculate Historical Water Consumptive Use*

For Kaweah Subbasin, this task will assess whether an additional modeling run (based on the 2003 ModFlow) will provide necessary data for the Kaweah Subbasin GSP(s). Additional data for ModFlow will be developed by each GSA, with the updated model and new modeling runs funded through the subbasin-wide coordination efforts.

Task 3.4: *Develop Subbasin-Wide Water Budget*

A subbasin-wide water budget will be prepared for the Kaweah, Tule and a portion of the Kings Subbasin. Information gathered and assessed in Tasks 3.1- 3.3 will be used to create the water budgets and will determine the available water for each Public Agency.

Task 3.5: *Prepare Subbasin-Wide Sustainable Groundwater Yield Report*

Prepare a Tule Subbasin-Wide Sustainable Groundwater Yield report that will utilize the data prepared in Tasks 3.1-3.4. In addition, determine, using historical average data, the available water supplies available for the entire Tule Subbasin that can consistently be utilized by each Tule Subbasin GSA for preparation of their Groundwater Sustainability Plan. The report will include the elements of a GSA Plan under CWC Section 10727.2 including subbasin-wide evaluations of Historical data, groundwater levels (baseline levels proposed), groundwater quality, land subsidence (existing data), surface water rights and supplies, groundwater use, water demands, exhibits, and map of recharge areas. The Subbasin Sustainable Groundwater Yield along with surface water supplies will provide the data for groundwater sustainability as monitored over five (5) year periods during the 20-year horizon.

COORDINATION TASK 3.1: BASIN SETTING

Collectively, SGMP Grant Tasks 3.2 through 3.5 will support development of the Kaweah Sub-Basin Basin Setting. The basin setting will be developed to support the development of GSP level basin settings and to ensure that each GSA utilizes consistent and compatible data and methods in the development of

their GSPs. The basin setting will include the following major components:

- **Hydrogeologic Conceptual Model & Groundwater Conditions**
 - Identification of principal aquifers and aquitards
 - Geologic map and cross-sections
 - Groundwater-level contour maps
 - Groundwater electrical conductance contour maps
 - Change in storage maps for two periods
 - Electrical conductance cross-sections
 - Map of land subsidence
 - Map of recharge/discharge areas
 - Map of interconnected surface water systems
 - Other (per regulations).
- **Water Accounting Framework**
- **Water Budget & Sustainable Yield**
- **Consideration of Management Areas**

The deliverables listed below for the basin setting and water budget will be prepared under the direction of Tim Nicely (GSI Water Solutions, Inc.), a registered Professional Geologist.

GEI DELIVERABLES:

- Kaweah Sub-Basin Basin Setting Technical Memorandum
- Kaweah Sub-Basin Water Budget and Sustainable Yield Technical Memorandum

ESTIMATED COST:

- \$100,000. This represents 67-percent of the estimated budget for completion of a full basin setting for the Kaweah Sub-Basin. A separate SOW will be developed for the remaining effort.

Task 3.6: *Develop Subbasin-Wide Groundwater Sustainability Monitoring Plan*

To meet the measurable objectives of groundwater sustainability, a long term monitoring plan to collect data and monitor the Tule Subbasin will be developed. The monitoring plan will include:

- *Identification of a groundwater monitoring network by identifying the location of monitoring wells. The development of the network will involve analyzing whether existing wells can be used (sufficient well data and properly located) or whether new monitoring wells may need to be constructed.*
- *Identification of a land subsidence monitoring program, utilizing existing land subsidence monitoring stations and proposing additional monitoring stations*
- *Development of a database for assistance in organizing and collecting monitoring data for Tule Subbasin*
- *Provide a Summary of the requirements of the Annual Report summarizing monitoring results and identification of the entity responsible for the monitoring (Tule Subbasin-Wide monitoring or individual GSA monitoring)*

COORDINATION TASK 3.3: MONITORING PLAN FRAMEWORK AND COORDINATION

The SGMP Grant Task 3.6 will support development of Kaweah Sub-Basin wide monitoring plan

framework that includes objectives, monitoring protocols, and data reporting requirements. Specifically, SGMP Grant funds will be used to develop the sub-basin wide Monitoring Plan Framework will clearly describe the monitoring objectives of the basin to ensure adequate coverage of sustainability indicators. The Monitoring Plan Framework includes the following components:

- Monitoring Network Objectives
- Monitoring Rationales
- Groundwater Level Monitoring Network
- Groundwater Storage Monitoring Network
- Degraded Water Quality Monitoring Network
- Land Subsidence Monitoring Network
- Depletions of Interconnected Surface Water Monitoring Network
- Monitoring Network Improvement Plan

GEI DELIVERABLES:

- Kaweah Sub-Basin Monitoring Plan Framework Technical Memorandum

ESTIMATED COST:

- \$19,226. This represents 48-percent of the estimated budget for completion of the Kaweah Sub-Basin sustainability goals and undesirable results framework and coordination. A separate SOW will be developed for the remaining effort.

COORDINATION TASK 3.7: PUBLIC OUTREACH

The Center for Collaborative Policy has been assisting the Kaweah Sub-Basin coordinate the establishment of the GSAs, development of a Coordination Agreement, and development of a Memorandum of Understanding (MOU) between the GSAs for joint management of this workplan. This work is being funded through several State funding opportunities being administered by Tulare County.

Each Sub-Basin GSA has an established Advisory Stakeholder Committee, and through committee activities and other outreach efforts, interested parties, stakeholders and the general public will be kept informed as to Sub-Basin coordination and GSP development. Also, GSA websites are being built, the DMS described Task 1 will incorporate a means of information access for the public, and a Sub-Basin wide Advisory Committee may be formed if called for in a Coordination Agreement. The DMS, at present, does not include information on communications and engagement activities for the Sub-Basin or the individual GSAs.

Both SGMA and the GSP Regulations require stakeholder engagement. Effective stakeholder engagement can lead to improved outcomes and broader support for GSPs, as interested parties are allowed active input to the decision-making process. Outreach continues throughout GSP development and implementation. The purpose of the Kaweah Sub-Basin Groundwater Communications Portal (“Kaweah GCP”) is to coordinate this outreach for all three GSAs: East Kaweah GSA, Greater Kaweah GSA, and Mid-Kaweah GSA.

The Kaweah GCP will be a web-based tool designed to streamline the stakeholder engagement process among the three Kaweah GSAs. The tool will track engagement efforts including reporting features to support the communications sections of the Kaweah Sub-Basin GSPs. The tool will initially be hosted on GEI’s servers, where it will remain active for the duration of the MSA. This task will cover the preliminary development of the GCP for the Kaweah Sub-Basin. Preliminary development is defined as

Exhibit A- August 2018

creation of a web portal at a custom URL where stakeholders can choose to register as an interested party for any of the three Kaweah Sub-Basin GSAs. Functions of the portal will include a home page with links to each GSA website, an event calendar with an administrative login (determined by the Sub-Basin Management Team) for creation and management of events, and one-click email notifications to inform interested parties about upcoming events.

Additionally, this task covers creation of individual, filtered calendar views for each of the three Kaweah GSAs to display on their respective websites. If necessary, GEI will work with the Sub-Basin Management Team to refine the services and effort needed to complete this item.

GEI DELIVERABLES:

- **Kaweah Sub-Basin Groundwater Communication Portal (GCP).** One sub-basin portal plus three individual calendar views for the three Kaweah Sub-Basin GSA websites. Portal to be initially populated with the following:
 - Existing stakeholder data provided by the GSAs
 - Previous meeting dates and materials supporting GSA formation and GSP development provided by the Sub-Basin Management Team
 - Known upcoming meeting dates and materials through August 2018 provided by the Sub-Basin Management Team
- **GCP User Guide.** Explanation of the tool and its components designed to help users better understand the portal and its functionality. User guide text and layout will be designed to be reader-friendly in language and content

ESTIMATED COST:

This Scope of Work is for the amount of \$18,000. This budget estimate is based on our current understanding of the scope and schedule requirements. A budget with labor rates and total hours is provided below. If the Management Team determines that additional tasks or effort is required to meet its needs, then GEI will work with the Management Team to revise this scope and budget as appropriate.

Shared Kaweah Sub-basin Level Tasks		<i>Estimated Costs</i>	<i>COUNTY Contribution to CCP</i>	<i>COUNTY Contribution to GEI</i>	<i>Remaining Cost</i>
Task 1	Data Management System	\$50,000		\$30,000	\$20,000
	<i>DSM coordination and maintenance activities</i>				
Task 2	Numerical Modeling	\$275,000			\$275,000
	<i>Update, refinement and expansion of existing MODFLOW model</i>				
Task 3	Basin Setting	\$150,000		\$100,000	\$50,000
	<i>Refinement and expansion of the WRI basin characterization</i>				
Task 4	Sustainability Goal and Undesirable Results	\$40,000		\$17,000	\$23,000
	<i>Develop basin level narratives and coordination of GSA level products</i>				
Task 5	Monitoring Network	\$40,000		\$19,226	\$20,774
	<i>Identify basin level objectives and needs and coordinate GSA level products</i>				
Task 6	Min Thresholds, Measurable Objectives, & Interim Milestones	\$20,000			\$20,000
	<i>Coordinate GSA level products</i>				
Task 7	Water Supply Accounting	\$40,000			\$40,000
	<i>Develop basin level accounting framework and coordinate GSA level products</i>				
Task 8	Projects, Management Actions, and Adaptive Management	\$15,000			\$15,000
	<i>Coordinate GSA level products</i>				
Task 9	Outreach / GSA Development - CCP	\$27,704	\$9,704	\$18,000	\$0
	<i>Per Stressed Basins Grant SOW</i>				
Task 10	Project Management	\$75,000			\$75,000
	<i>Includes meetings and coordination and QA/QC</i>				
Task 11	GSP Grant Application	\$30,000			\$30,000
Total Estimated Costs: Contributions from Tulare County Grant:			\$9,704	\$184,226	
Remaining Estimated Costs:		\$762,704			\$568,774