

12-11-19

**AMENDMENT NO. 1 TO THE
AGREEMENT FOR SERVICES OF INDEPENDENT CONTRACTOR WITH GSI WATER SOLUTIONS,
INC. (BC NO. 19-182)**

Pursuant to Paragraph 25 of the Agreement for Services of Independent Contractor (hereinafter AGREEMENT) entered into on February 12, 2019, as BC No.19-182, between the Santa Barbara County Water Agency (hereafter COUNTY), and GSI Water Solutions, Inc., having its principal place of business at 418 Chapala Street, STE F, Santa Barbara, CA 93101 (hereafter CONTRACTOR), the COUNTY and CONTRACTOR amend the AGREEMENT as follows:

1. Exhibit A, Statement of Work is hereby amended to include:

Work as described in the attached Statement of Work from CONTRACTOR, attached as **EXHIBIT A1**, incorporated by this reference.

2. Exhibit B, paragraph A and B is hereby amended to read:

A. For CONTRACTOR services to be rendered under this Agreement, CONTRACTOR shall be paid a total contract amount, including cost reimbursements, not to exceed **\$1,176,785**.

B. Extra Work required to complete the project may be authorized only if CONTRACTOR receives written approval by the County's designated representative as identified in Paragraph 1 of the Agreement at the same rate per unit as defined in Attachment B1. The total amount of contingency fund is 10% of the agreement amount or **\$117,679**.

In all other respects, the AGREEMENT remains unchanged and in full effect.

IN WITNESS WHEREOF, the parties have executed this Agreement to be effective on the date executed by COUNTY.

ATTEST:

Mona Miyasato
County Executive Officer
Ex Officio Clerk of Board of
Directors of the Santa Barbara
County Water Agency

**SANTA BARBARA COUNTY WATER
AGENCY:**

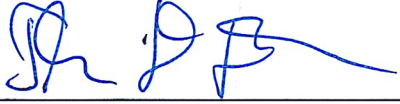
By: Sheik Alabuenena
Deputy Clerk

By: Gregg Hart
Gregg Hart, Chair, Board of
Directors

Date: 2-25-20

RECOMMENDED FOR APPROVAL:

Scott D. McGolpin
Public Works Director

By: 
Deputy

CONTRACTOR:
GSI Water Solutions, Inc.

By: 
Authorized Representative

Name: JEFF BARRY

Title: PRINCIPAL

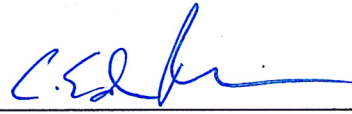
APPROVED AS TO FORM:

Michael C. Ghizzoni
County Counsel

By: 
Deputy County Counsel

APPROVED AS TO ACCOUNTING FORM:

Betsy M. Schaffer, CPA
Auditor-Controller

By: 
Deputy

APPROVED AS TO FORM:

Ray Aromatorio, ARM, AIC
Risk Manager

By: 
Risk Management

EXHIBIT A1
STATEMENT OF WORK



Water Solutions, Inc.

December 6, 2019

Matt Young
Santa Barbara County Water Agency
130 E. Victoria Street, Ste. 200
Santa Barbara, CA 93101

Subject: Scope and Budget: SkyTEM geophysical survey for Santa Ynez Valley EMA Groundwater Basin

Dear Matt,

We are pleased to present this scope of work and cost estimate for conducting a geophysical investigation in the Eastern Management Area (EMA) of the Santa Ynez River Valley Groundwater Basin (Basin). This scope of work includes both aerial (SkyTEM) and ground-based geophysics throughout a large portion of the EMA. This scope of work amends an earlier proposal for these services that was presented as an optional task in GSI's Groundwater Sustainability Plan (GSP) scope of work. This revised SkyTEM scope has been developed to address data gaps identified during development of the Hydrogeologic Conceptual Model for the GSP.

SkyTEM is specialty company that performs the airborne electromagnetic (AEM) survey from a helicopter. The term SkyTEM is also commonly used to describe the technology for the AEM survey. The SkyTEM company has completed numerous projects in California; most recently in the Paso Robles Basin, Monterey County, Indian Wells, and Central Valley. The information derived from the SkyTEM work has improved the understanding of subsurface conditions and groundwater occurrence, particularly in areas where there are few wells that can be used to observe the subsurface geology in a particular area. The technology provides a large amount of information over a large area in a relatively short period of time. The proposed SkyTEM scope of work for the EMA is intended to provide information about the geology, locations of faults and folds, thickness of principal aquifers, and geologic controls on groundwater movement in portions of the EMA where there is little available information. In addition, the SkyTEM data will help our team interpret the hydraulic connection between the EMA and CMA as well as between the EMA and the San Antonio basin farther to the west.

This scope of work includes coordination, analysis, and interpretation by GSI Water Solutions (GSI), with the support of Ramboll as a subconsultant. Ramboll has been involved in many SkyTEM investigations in California and will provide the interpretation of the raw AEM data generated by SkyTEM, the company who will fly the helicopter and geophysical array.

GSI's scope and budget includes hiring Ramboll to assist with data interpretation. The scope and costs for the SkyTEM company to perform the helicopter-based SkyTEM survey have been developed and are included as an attachment. We understand that the SkyTEM company will be contracted directly with the County.

Our scope of work includes the following tasks:

1. Aerial geophysics,
2. Ground-based geophysics,
3. Updating of the Hydrogeologic Conceptual Model, and
4. Reporting

Each scope item is described in the following section.

Scope of Work

Task 1 – Aerial Geophysics

GSI will coordinate the flight line planning with Ramboll, Santa Barbara County, and the EMA GSA based on the working 3D model of the groundwater basin being created by GSI. This flight line planning will include consideration of:

- Existing and in-progress geological cross sections,
- Surficial geological maps,
- Well lithology,
- Groundwater elevations,
- Groundwater quality, and
- Downhole geophysical logs.

To increase the reliability of the acquired SkyTEM data, flight lines will be selected to maximize our understanding of the geologic materials to a depth of about 1,000 feet below ground in areas where well log data are not available. Generally, these areas are the upland portion of the basin including:

1. Western portion of the basin adjacent the border with the San Antonio Groundwater Basin,
2. Northern portion of the basin, and
3. Eastern portion of the basin generally north of Lake Cachuma.

The flight lines will avoid inhabited buildings and areas where interference with the geophysical methods are possible including large metallic structures, fences, power lines and grape trellises. The AEM flight plans will determine line direction, spacing, system configuration, and measurement cycle, with the input from Ramboll. The lines will tentatively be spaced approximately 800 feet apart and will total as many as ~600 miles of total flight lines. The flights will likely be flown in a northeast – southwest direction. Two individual flight lines will extend from the northern portion of the basin in uplands to the southern extend Basin near the Santa Ynez River.

The approximate extent of the flight lines included in the SkyTEM survey are presented on Figure 1 along with supplemental ground-based geophysical investigations (discussed below).

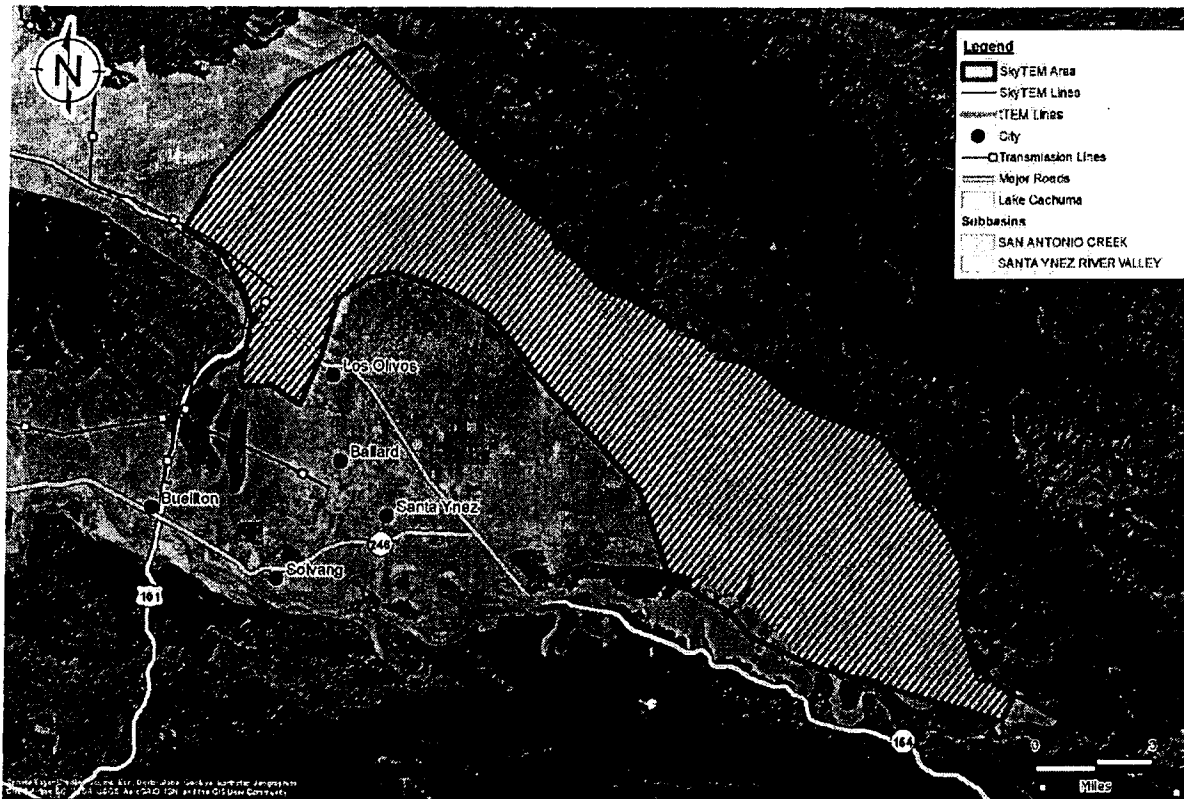


Figure 1. Proposed Extent of SkyTEM and tTEM Geophysical Surveys

GSI staff will conduct the flight line planning in coordination with Ramboll. Outreach to landowners will be important so that they know what to expect and can plan for when the helicopter will be overhead (approximately 500 feet above ground). We have assumed that the County and GSA staff will conduct all public outreach to gain permission for accessing properties and to inform the public about the aerial surveys.

Once the flight lines have been determined, the flight plan will be provided to SkyTEM, who will perform then the survey over the course of approximately five (5) days. GSI staff will observe the beginning of the flight operations.

Following completion of the survey, Ramboll will acquire the data and perform the processing and “inversion” of the acquired data in collaboration with GSI including all appropriate Quality Control and Quality Assurance (Qa/Qc). Qa/Qc will include correlating the SkyTEM data with information derived from existing downhole geophysical logs (e-logs) and well completion logs for oil wells and production wells located along the flight paths.

Deliverable: flight line planning memorandum and SkyTEM data approval memorandum.

Task 2 – Ground-based Geophysics

To better define the geometry and properties of the connection between the alluvial geologic materials and the remainder of the Basin within the Santa Ynez River channel, Ramboll will conduct a ground-based geophysical survey. To this end, the planned electrical resistivity tomographic (ERT) method will be utilized, which is a method useful in areas where infrastructure and man-made installations preclude the use of SkyTEM. A total of 4 miles of ERM survey will be performed.

Within the Santa Ynez River channel, the configuration and properties of the Santa Ynez River alluvium will be determined using a suite of geophysical tools referred to as tTEM towed behind an ATV. This survey will include as many as 11.5 miles of tTEM as shown on Figure 1, which will include multiple tracks in two directions. These methods will provide a high degree of resolution of the configuration of the alluvial materials to a depth of as much as 150 to 200 feet below ground.

GSI staff will coordinate and observe the surveys, which will be performed by Ramboll staff.

Deliverable: results of the ERM and tTEM investigations.

Task 3 – Updating of the Hydrogeologic Conceptual Model

Based on the aerial (SkyTEM) and ground-based (ERM and tTEM) surveys, the hydrologic conceptual model being developed for the GSP will be updated. The results will be imported into GSI's 3D geological model of the Basin (in Leapfrog) in collaboration with Ramboll.

Deliverable: Updated Leapfrog 3D model of the geologic units within the Basin; maps and illustrations presenting the geophysical data.

Task 4 – Reporting

The results of the survey will be presented in a summary report and an updated 3D visualization of the Basin. The results will be presented at a meeting with SB County and the EMA GSA.

Budget and Schedule

The table below presents the estimated budget for the project.

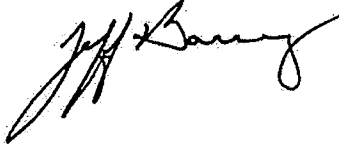
Project Budget					
Description	Labor Hours	Labor Cost	Outside Services	Direct Expenses	Total
Task 1 – Aerial Geophysics	58	\$12,420	\$68,250	\$116	\$80,786
Task 2 – Ground-based Geophysics	36	\$8,100	\$43,050	\$155	\$51,305
Task 3 – Updating HCM with GSI	121	\$24,030	\$15,750	\$0	\$39,780
Task 4 – Report and Deliverables	82	\$15,720	\$21,000	\$58	\$36,778
Project Totals	297	\$60,270	\$148,050	\$329	\$208,649

We propose to complete this work on a time and materials basis in accordance with our existing agreement with Santa Barbara County.

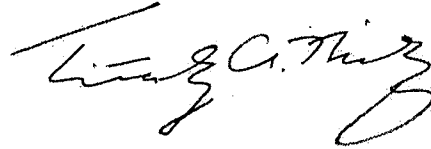
The schedule for completing the work will depend on helicopter availability and the time required to do stakeholder outreach and notification. We will work with the County to develop an acceptable schedule for completing the work.

Please feel free to contact me if you have any questions.

Thank you,
GSI Water Solutions, Inc.



Jeff Barry
Project Manager



Tim Nicely, PG, CHg
Senior Hydrogeologist

Attachments