

## RESOLUTION NO. 2025-04

**A RESOLUTION OF THE BOARD OF THE SPOKANE AQUIFER JOINT BOARD, SPOKANE COUNTY, WASHINGTON, AUTHORIZING THE EXECUTION OF A PERSONAL SERVICES AGREEMENT WITH GSI WATER SOLUTIONS, INC FOR SAJB WELLHEAD PROTECTION GROUNDWATER FLOW MODEL UPDATE AND CLIMATE CHANGE ANALYSIS; AND OTHER MATTERS PROPERLY RELATING THERETO**

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SPOKANE AQUIFER JOINT BOARD, OF SPOKANE COUNTY, WASHINGTON, as follows:

**WHEREAS**, the Spokane Aquifer Joint Board ("SAJB") has been created for the Spokane County Region by action of the respective Boards of Directors and/or authorized representatives of the municipal corporations involved pursuant to RCW 39.34, known as the Washington Interlocal Cooperation Act; and

**WHEREAS**, the members of the SAJB executed an agreement forming the Joint Board ("the Agreement"), which provides rules for the process the Board follows in conducting its business, including the entering into and execution of agreements; and

**WHEREAS**, the Board of SAJB revised Resolution No. 95-01 on October 25, 2001, which provides that a simple majority of the eligible voting Board Members must vote on major decisions, including the execution of Agreements; and

**WHEREAS**, the Board entered into an agreement with GSI Water Solutions, INC to conduct a Wellhead Protection Groundwater Flow Model Update and Climate Change Analysis on January 25<sup>th</sup>, 2024 via Resolution 2024-05, attached hereto as Exhibit A; and,

**WHEREAS**, extenuating circumstances disallowed the completion of the project within the agreed upon timeframe, and the original agreement expired on December 1, 2024; and,

**WHEREAS**, the Board finds it necessary to extend the original agreement with amendments to ensure the successful completion of the Groundwater Flow Model Update and Climate Change Analysis; and,

**WHEREAS**, the amended action schedule and fee schedule is attached hereto as Exhibit B, and,

NOW, THEREFORE, BE IT FURTHER RESOLVED by the Board of the Spokane Aquifer Joint Board as follows:

Section 1: The Board hereby approves the execution of this Agreement with the GSI Water Solutions, Inc, generally in the form of Exhibit A and Exhibit B, affixed hereto and incorporated herein by this reference, and authorizes and directs the appropriate officials of the Board to execute said agreement.

Section 2: This Resolution shall become effective upon its adoption and execution by the appropriate officers of SAJB.

**ADOPTED** BY THE BOARD OF THE SPOKANE AQUIFER JOINT BOARD, SPOKANE COUNTY, WASHINGTON, AT A REGULAR OPEN PUBLIC MEETING THEREOF this 23<sup>rd</sup> day of JANUARY 2025.

SPOKANE AQUIFER JOINT BOARD

\_\_\_\_\_  
Jeremy Jenkins, President

ATTEST:

\_\_\_\_\_  
Todd Henry, Secretary

**CERTIFICATION**

I the undersigned, Secretary of the Board of Spokane Aquifer Joint Board, of Spokane County, Washington, hereby certify that a simple majority of the eligible voting Board Members of the SAJB voted in favor of this Resolution.

\_\_\_\_\_  
Secretary

\*\*\*\*\*

**CERTIFICATION**

I, the undersigned, Secretary of the Board of Spokane Aquifer Joint Board, of Spokane County, Washington, hereby certify that the foregoing Resolution is a full, true and correct copy of a Resolution duly adopted at a regular meeting of the Board of Directors of said Board, duly and regularly held at the regular meeting place thereof held on January 23, 2025 of which meeting all members of said Board had due notice and at which a majority thereof were present; and that at said meeting said Resolution was adopted by the following vote:

AYES, and in favor thereof, Directors:

NAYS, Directors:

ABSENT, Directors:

ABSTAIN, Directors:

I further certify that I have carefully compared the same with the original Resolution on file and of record in my office; that said Resolution is a full, true, and correct copy of the original Resolution adopted at said meeting; and that said Resolution has not been amended, modified or rescinded since the date of its adoption, and is now in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the official seal of the Board on January 23, 2025.

\_\_\_\_\_  
Secretary

## RESOLUTION NO. 2024-05

**A RESOLUTION OF THE BOARD OF THE SPOKANE AQUIFER JOINT BOARD, SPOKANE COUNTY, WASHINGTON, AUTHORIZING THE EXECUTION OF A PERSONAL SERVICES AGREEMENT WITH GSI WATER SOLUTIONS, INC FOR SAJB WELLHEAD PROTECTION GROUNDWATER FLOW MODEL UPDATE AND CLIMATE CHANGE ANALYSIS; AND OTHER MATTERS PROPERLY RELATING THERETO**

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SPOKANE AQUIFER JOINT BOARD, OF SPOKANE COUNTY, WASHINGTON, as follows:

**WHEREAS**, the Spokane Aquifer Joint Board ("SAJB") has been created for the Spokane County Region by action of the respective Boards of Directors and/or authorized representatives of the municipal corporations involved pursuant to RCW 39.34, known as the Washington Interlocal Cooperation Act; and

**WHEREAS**, the members of the SAJB executed an agreement forming the Joint Board ("the Agreement"), which provides rules for the process the Board follows in conducting its business, including the entering into and execution of agreements; and

**WHEREAS**, the Board of SAJB revised Resolution No. 95-01 on October 25, 2001, which provides that a simple majority of the eligible voting Board Members must vote on major decisions, including the execution of Agreements; and

**WHEREAS**, the Board wishes to enter into this Agreement to conduct a Wellhead Protection Groundwater Flow Model Update and Climate Change Analysis.

NOW, THEREFORE, BE IT FURTHER RESOLVED by the Board of the Spokane Aquifer Joint Board as follows:

Section 1: The Board hereby approves the execution of this Agreement with ~~the~~ GSI Water Solutions, Inc, generally in the form of Attachment "A", affixed hereto and incorporated herein by this reference, and authorizes and directs the appropriate officials of the Board to execute said agreement.

Section 2: This Resolution shall become effective upon its adoption and execution by the appropriate officers of SAJB.

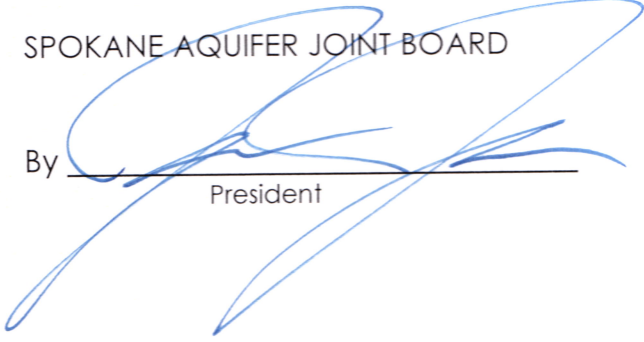


**ADOPTED** BY THE BOARD OF THE SPOKANE AQUIFER JOINT BOARD, SPOKANE COUNTY, WASHINGTON, AT A REGULAR OPEN PUBLIC MEETING THEREOF this 25<sup>th</sup> day of January 2024.

SPOKANE AQUIFER JOINT BOARD

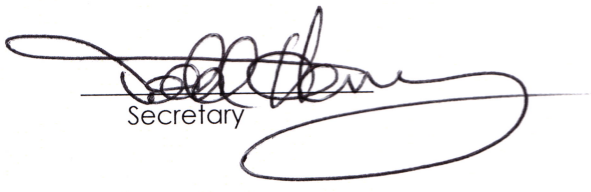
By

\_\_\_\_\_  
President



ATTEST:

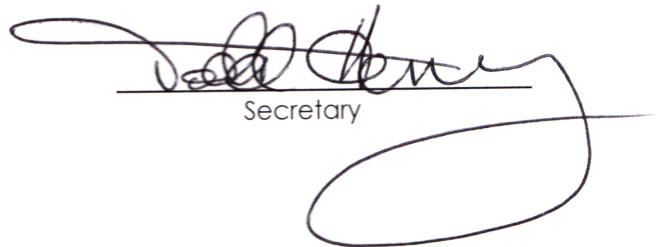
\_\_\_\_\_  
Secretary



**CERTIFICATION**

I the undersigned, Secretary of the Board of Spokane Aquifer Joint Board, of Spokane County, Washington, hereby certify that a simple majority of the eligible voting Board Members of the SAJB voted in favor of this Resolution.

\_\_\_\_\_  
Secretary



\*\*\*\*\*

**CERTIFICATION**

I, the undersigned, Secretary of the Board of Spokane Aquifer Joint Board, of Spokane County, Washington, hereby certify that the foregoing Resolution is a full, true and correct copy of a Resolution duly adopted at a regular meeting of the Board of Directors of said Board, duly and regularly held at the regular meeting place thereof held on January 25, 2024 of which meeting all members of said Board had due notice and at which a majority thereof were present; and that at said meeting said Resolution was adopted by the following vote:

AYES, and in favor thereof, Directors: 12

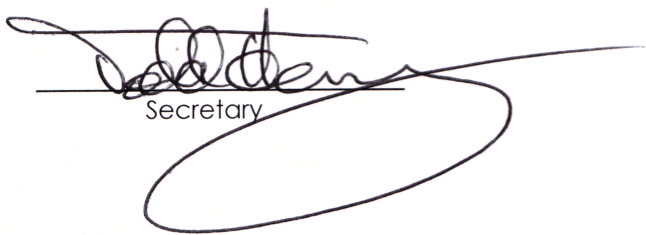
NAYS, Directors: 0

ABSENT, Directors:

ABSTAIN, Directors:

I further certify that I have carefully compared the same with the original Resolution on file and of record in my office; that said Resolution is a full, true, and correct copy of the original Resolution adopted at said meeting; and that said Resolution has not been amended, modified or rescinded since the date of its adoption, and is now in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the official seal of the Board on January 25th, 2024.

  
Secretary

**EXHIBIT "A"**  
**SPOKANE AQUIFER JOINT BOARD and GSI WATER SOLUTIONS, INC.**  
**WELLHEAD PROTECTION GROUNDWATER FLOW MODEL UPDATE**  
**& CLIMATE-CHANGE ANALYSIS**

**PREFACE**

The Spokane Aquifer Joint Board (SAJB), a volunteer board consisting of representatives of the municipal and business entities that comprise SAJB, as part of its Wellhead Protection Program is in need of a **Wellhead Protection Groundwater Flow Model Update and Climate Change Analysis**.

**PARTIES**

The parties to this Agreement are SAJB and GSI Water Solutions, Inc. (GSI), Contractor. The parties agree that GSI is an independent Contractor and is not an employee, servant, or agent of SAJB.

**PERIOD OF AGREEMENT AND TERMINATION**

March 1, 2024, through December 1, 2024. This agreement may be extended by execution of a letter of agreement outlining the terms of the extension.

Either party may terminate this Agreement with thirty (30) days written notice to the other party. If Contractor initiates termination, it is agreed Contractor will reasonably attempt to facilitate completion of Contractor's obligations under the Scope of Work attached hereto by the person or firm chosen by SAJB to replace Contractor to minimize the adverse effect on SAJB and its members resulting from termination and at no additional cost to SAJB. Upon termination by either party, the SAJB shall promptly pay Contractor for services rendered and expenses incurred to the date of the termination notice. Services rendered and expenses incurred after the date of notice, but prior to the effective date of termination will only be paid with prior approval of SAJB. The Contractor shall provide SAJB with all reports or other work product acquired or developed by Contractor prior to the effective date of termination.

**SCOPE OF SERVICES**

Tasks 1 through 5 and Deliverables set forth below, constitute the scope of the Contractor's work for SAJB under this Agreement. Performance of the Tasks shall be done in conformance with the timelines established by SAJB and Contractor shall provide SAJB with a final presentation of the Deliverables.

**COMPENSATION**

Total compensation and reimbursement for Tasks 1 through 5 and Deliverables, detailed below, are not to exceed \$85,000 without prior written authorization. Payment will be based on Contractor's billings received by the SAJB prior to the regular monthly meeting. The SAJB shall process each invoice for payment within 30 days of receipt.



## Scope of Work and Fee Estimate

**To:** Jeremy Jenkins, Spokane Aquifer Joint Board

**From:** John Porcello, LHG, GSI Water Solutions, Inc.

**Date:** December 20, 2023

**RE:** SAJB Wellhead Protection Groundwater Flow Model Update and Climate-Change Analysis

GSI Water Solutions, Inc. (GSI), is pleased to provide this scope of work and fee estimate for (1) updating the groundwater flow model that is used by the Spokane Aquifer Joint Board (SAJB) for wellhead protection (WHP) planning, and (2) using the updated model to delineate updated capture zones (wellhead protection areas, WHPAs) for groundwater supply wells owned and operated by SAJB members. SAJB is funding this work to meet the following objectives:

- Update the WHPAs to account for the current network of SAJB member groundwater supply wells.
- Conduct an analysis of the effects of future growth and climate change on groundwater levels at each SAJB member well, given that many wells are shallow with little room to maintain current yields if groundwater levels decline in the future.
- Before conducting these studies, update the groundwater flow to incorporate new hydrogeologic data and provide enhanced modeling capabilities for the WHP delineation work and the climate-change analysis.

Following are discussions of the project approach, the scope of work, the project team conducting the work, the estimated cost, and an estimated schedule for completing the project.

### Project Approach

The project will be conducted by first updating the SAJB's three-dimensional numerical groundwater flow model of the Spokane Valley—Rathdrum Prairie (SVRP) Aquifer to incorporate hydrogeologic and water supply well data that have become available since the SAJB members' WHPAs were last delineated during the late 1990s. Additionally, the simulations will be conducted using the MODFLOW-USG numerical modeling software, which is a widely used and highly advanced version of the U.S. Geological Survey's MODFLOW family of groundwater models. MODFLOW-USG is a widely-accepted and publicly available software capable of simulating regional and local-scale groundwater flow and groundwater/surface water interactions using advanced techniques for creating flexible spatial grids, routing water in streams, and simulating the spatial and temporal variability in the exchanges of water between an aquifer system and surface water bodies that overlie or adjoin an aquifer system. The MODFLOW-USG software provides significant enhancements that are not available in the SAJB's current groundwater modeling software (MicroFEM, which is European software that was used during the mid-1990s to construct the City's existing model and delineate WHPAs).

On behalf of the City of Spokane, GSI converted the model of the SVRP Aquifer into MODFLOW-USG during 2023 and conducted regional-scale calibration to USGS-published groundwater levels across the SVRP Aquifer and



subregional-scale calibration to past estimates developed by various researchers of the rates of groundwater/surface water exchanges along multiple reaches of the Spokane River during summer-season low-flow conditions in the river. This new model used the Groundwater Vistas (GV) commercial graphical user interface as the platform for managing the model construction and conversion process, and GV continues to be used by GSI for visualizing, managing, and conducting model simulations on behalf of the City of Spokane, in part because of its robust capabilities in creating flexible grids for MODFLOW-USG that can be turned on and off and revised as needed to accommodate specific simulation needs.

Accordingly, this project will be conducted using MODFLOW-USG and GV. The model grid created by the City will be refined as appropriate at and near SAJB-member wells, to provide local-scale focus at each SAJB-member well to support the WHPA delineations and climate-change analyses for each of these wells. GSI will work with each SAJB member to ensure that existing and known future wells are included at the correct locations and depths in the model, and to develop the pumping details needed for the model simulations. After completing these activities, GSI will develop simulations of future climate-change projections to evaluate the potential effects of different future climates and changing municipal demands on groundwater levels at SAJB-member wells. GSI conducted climate-change analyses for the City of Spokane in 2023, in which GSI simulated future climate-driven changes in (1) Spokane River flows at Post Falls, (2) inflows from tributaries adjoining the aquifer, and (3) seasonal patterns and magnitudes of municipal water demand inside the City of Spokane's water service area. The climate scenarios were obtained from an online data portal called The Climate Toolbox, which is accessible at <https://climatetoolbox.org/>. This data portal contains climate and streamflow projections that have been locally downscaled by the research community and compiled into a geospatial viewer to facilitate data retrieval and analysis at specific locations of interest. The Climate Toolbox provides historical and future projected precipitation and streamflow values on a monthly and seasonal basis, including future projections for two different greenhouse gas (GHG) emissions scenarios and for time frames extending out to the year 2099. For the City of Spokane, GSI focused on the 2070-2099 time frame for the climate-change simulations. For the simulations to be conducted for the SAJB-member wells, GSI will use the projections from The Climate Toolbox that were simulated by the City of Spokane for that same three-decade period.

The results of the multiple climate-change analyses will be reviewed, and one of these model simulations will be selected by SAJB and GSI for use in updating the WHPAs for each SAJB-member pumping well in support of SAJB's wellhead protection program. The approach for selecting pumping rates and conducting the WHPA delineations will be similar to the original 1990s-era delineations but will focus on developing time-related capture zones that are 1, 5, and 10 years in duration, to be consistent with source water approval requirements contained in Washington Administrative Code (WAC) 246-290-130. If needed, GSI will also conduct up to one additional time-related delineation for wells where SAJB members wish to examine an alternate time period (as was conducted during the 1990s using "importance factors" that reflected a municipal water provider's method and timeframes for responding to a well being taken temporarily offline if a contamination event were to occur).

Separate reports will be prepared to document the WHPA delineation update work and to document the climate-change analysis. The scope of work for this project is presented below.

## Scope of Work

The project will be conducted under the following five primary tasks:

- **Task 1:** Data gathering and review
- **Task 2:** Model simulations
- **Task 3:** Presentation of results
- **Task 4:** WHPA update report
- **Task 5:** Climate-change analysis report



## Task 1 – Data Gathering and Review

GSI will send an email to each SAJB member requesting specific information to support the model update and the WHPA and climate-change analyses. Data to be requested will include:

- A complete list of existing and known planned water supply wells.
- The coordinate for each well (in Washington State Plane coordinates).
- The depths of the top and bottom of the open interval (i.e., the slotted or screened interval).
- The pumping rates to simulate in the model, including whether a different set of pumping rates should be used for WHPA delineation purposes (e.g., sustained pumping at the annual amount specified in the water right [the Qa amount]) versus the climate-change analyses (which will use a monthly variation in pumping that is based on past operations of specific wells and/or future demand projections of well usage and seasonal pumping needs).
- For wells where an additional WHPA delineation (beyond the 1-, 5-, and 10-year WHPAs) is required, the time-period that is desired (which may also include decision variables such as those used in the past to develop importance factors for the original WHPA delineations).

GSI's project manager (John Porcello, LHG) will also remotely attend an SAJB meeting once the project is under contract, to serve as a kickoff meeting to review these data needs and next steps on the project.

## Task 2 – Model Simulations

GSI will conduct the following sequence of groundwater flow modeling activities:

- **Gridding.** A new grid will be designed that provides high resolution around each SAJB member well, using the Quadtree gridding method in MODFLOW-USG. The grid will have the same vertical layering (8 layers) as currently exists in the version of the MODFLOW-USG model developed in 2023 by the City of Spokane.
- **Pumping Specifications.** Pumping rates will be programmed for the 10-year simulation period. GSI anticipates that as many as three separate rates may be used for various simulations as follows:
  - Current baseline conditions
  - Future pumping for the climate-change analyses
  - Future pumping for WHPA delineation
- **Run the climate-change simulations, and conduct quality-control checks.** GSI anticipates running 7 different model simulations for the climate-change analysis: a single baseline simulation of current/recent historical conditions, and six simulations that evaluate two future scenarios for global greenhouse gas (GHG) emissions and three climate-change possibilities under each GHG emissions scenario.<sup>1</sup>
- **Extract and plot up the climate-change-based changes in future groundwater elevations.** GSI will extract the water level simulation results for each SAJB-member well and identify the modeled range of water level changes that could occur during the summer months at each well. Results will initially be presented to each SAJB member separately from the other SAJB members. The results will be provided for each well owned by the SAJB member.
- **Select the climate-change scenario and pumping rates to simulate for WHPA delineation.** GSI will consult with the SAJB as a whole to decide on which of the 6 future climates to simulate for the purposes of conducting WHPA delineations. This decision affects the natural hydrology that is simulated in the groundwater flow model, not the pumping program at individual wells. GSI will confirm with each SAJB member the pumping rates to use at each well for WHPA delineation purposes.

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<sup>1</sup> The two future GHG emissions scenarios are known as Representative Concentration Pathway (RCP) 4.5 and RCP 8.5. The Climate Toolbox presents climate-change data for both pathways and for a range of future climates under each pathway.

- **Run the WHPA simulation.** This is a two-step process. First, GSI will run the MODFLOW-USG model for 10 years to compute groundwater elevations and groundwater budgets, which are needed by the particle-tracking routine that is used to delineate WHPAs. The second step consists of using separate particle-tracking software (mod-PATH3DU) to trace imaginary particles backwards in time from each well, for time periods lasting 1, 5, and 10 years. Particle-tracking will also be conducted for up to one alternate time period according to SAJB member interests. (This alternate time period can vary in length from well to well and from one SAJB member to another.) Multiple particles will be initiated in a circular pattern around each well, including potentially at multiple depths (for wells that have long open intervals and/or that span multiple layers in the model).
- **Compile and provide WHPAs to each SAJB member.** GSI will compile shapefiles in geographic information system (GIS) format of the particle traces for all wells, and for each of the delineation time periods. For each SAJB member, separate shapefiles will be provided for each specific time period, and each shapefile will present the particle traces for all wells in aggregate. Separate shapefiles will be provided for the 1, 5, and 10-year aggregate group of capture zones for a given SAJB member, as well as separate shapefiles for alternate time periods (if any) that are evaluated for that SAJB member. The prior delineations (which were provided to GSI in June 2020 by City of Spokane personnel) also will be displayed.
- **Prepare WHPA map for all SAJB member wells combined.** GSI will compile the 10-year WHPA delineations for all SAJB member wells into a map that is color-coded by SAJB member.

### Task 3 – Presentation of Results

Before delivering reports that document the project work, GSI will develop a presentation and attend an SAJB meeting in person to present the project results. The climate-change portion of the presentation will focus on the groundwater level changes that are projected for the latter part of the 21<sup>st</sup> century, as well as potential changes in the magnitudes of Spokane River gains and losses in various sub-reaches of the river system between Post Falls and downtown Spokane.

GSI will also discuss the contents of the two reports and review draft outlines with the SAJB members at the meeting.

### Task 4 – WHPA Update Report

GSI will prepare a report documenting the WHPA update work. The report will include a description of the MODFLOW-USG groundwater flow model and will describe the delineation process (including the rationale for the choice of pumping rates at each SAJB member well). A single map displaying the aggregate combined capture zones (the map described under Task 2) will be included in the report.

GSI will provide a draft report for review by SAJB. After reviewing and revising the report in response to SAJB review comments, GSI will issue a final report stamped by a Washington licensed hydrogeologist (LHG) or licensed geologist (LG).

### Task 5 – Climate-Change Analysis Report

GSI will prepare a report documenting the climate-change analysis of potential future groundwater level changes at each SAJB-member well. The report will provide summary-level discussions of the methodology, results, and conclusions from the analysis, with attachments that describe the water demand scenarios and climate-change factors used in the model simulations.

GSI will provide a draft report for review by SAJB. After reviewing and revising the report in response to SAJB review comments, GSI will issue a final report stamped by a Washington licensed hydrogeologist (LHG) or licensed geologist (LG).



## Project Team

The project will be managed by John Porcello, LHG, who has been the lead developer of the groundwater flow models used since the mid-1990s by the SAJB and the City of Spokane for this basin and applied the model during development of the basin’s groundwater sustainability plan (GPS). John will also serve as the lead modeler, supported by Andy Lapostol, who assisted John with developing the existing MODFLOW-USG model for the City of Spokane and applying that model to climate-change analysis for the City. John and Andy will be assisted by Dan Kegley, who will provide internal review and periodic support through his knowledge of current and historical water usage and the water-resource and water-supply planning activities and needs in the region.

## Fee Estimate

Our team’s proposed fee to complete the project is \$85,000. A breakdown of labor hours and costs is provided in the following table.

Tasks	Labor Hours	Labor Cost	Outside Services	Direct Expenses	Total
Task 1 – Data Gathering and Review	39	\$9,000	\$0	\$0	\$9,000
Task 2 – Model Simulations	211	\$44,000	\$0	\$0	\$44,000
Task 3 – Presentation of Results	27	\$6,100	\$0	\$900	\$7,000
Task 4 – WHPA Update Report	67	\$15,000	\$0	\$0	\$15,000
Task 5 – Climate-Change Analysis Report	48	\$10,000	\$0	\$0	\$10,000
<b>Project Totals</b>	<b>392</b>	<b>\$84,100</b>	<b>\$0</b>	<b>\$900</b>	<b>\$85,000</b>

Work will be conducted on a time-and-materials basis for an amount not to exceed \$85,000. If GSI and the SAJB decide at a future time that services are necessary beyond those described in this scope or beyond the level of effort corresponding to this budget request, then GSI will notify you of the need for additional funding and will not exceed the authorized budget without first obtaining your written approval to proceed.

GSI’s standard billing rate schedule for calendar year 2024 is provided in Attachment A; these rates are effective through December 31, 2024 and are subject to change after that date.

## Schedule

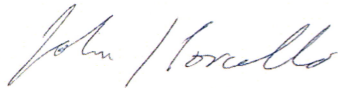
The following anticipated project schedule provides an estimate for the durations and time frames under which GSI currently anticipates conducting its work. This schedule assumes that the contract will be finalized on or before March 31, 2024. A revised version of this schedule can be provided at a later date if the contract is finalized after March 31, 2024.

	March 31, 2024	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Assumed notice to proceed and contracting	●									
Task 1 – Data Gathering and Review										
Task 2 – Model Simulations										
Task 3 – Presentation of Results										
Task 4 – WHPA Update Report										
Task 5 – Climate-Change Analysis Report										

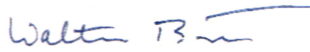
Date 1-12-2024

Date 1-12-2024

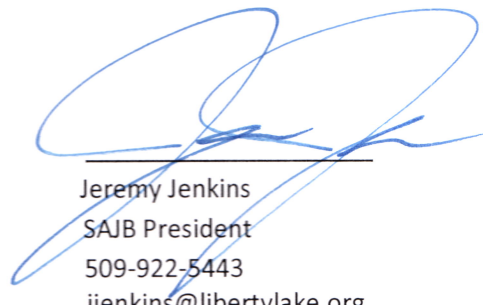
Date 1/31/24



John J. Porcello, LHG  
 Project Manager,  
 Principal Groundwater Hydrologist  
 (971) 200-8523  
 jporcello@gsiws.com



Walter C. Burt, LHG  
 Principal  
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Jeremy Jenkins  
 SAJB President  
 509-922-5443  
 jjenkins@libertylake.org



## 2024 GSI Fee Schedule

Labor Category	Hourly Rate
<b>Technical Professionals</b>	
Principal	\$200 - \$280
Supervising	\$190 - \$235
Managing	\$170 - \$200
Consulting	\$150 - \$185
Project	\$135 - \$165
Staff	\$110 - \$150
<b>Other Services</b>	
GIS/Graphics/Database	\$120 - \$175
Editor/Documents	\$120 - \$145
Administration	\$85 - \$120

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

### Expenses

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



## Amendment #1: Scope of Work and Fee Estimate

**To:** Meagan Hayes, Program Manager, Spokane Aquifer Joint Board

**From:** John Porcello, LHG, GSI Water Solutions, Inc.

**Date:** January 17, 2025

**RE:** SAJB Wellhead Protection Update and Climate-Change Analysis

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This memorandum presents an update/amendment to the scope of work, schedule, and fees for the Spokane Aquifer Joint Board (SAJB) Wellhead Protection Update and Climate-Change Analysis project, which GSI Water Solutions, Inc. (GSI), is conducting at this time. The original scope of work and fee estimate was presented in a GSI memorandum to SAJB dated December 20, 2023. As described in that memorandum, the project is being conducted to (1) update the groundwater flow model that is used by SAJB for wellhead protection planning, and (2) to delineate updated capture zones (wellhead protection areas, WHPAs) for groundwater supply wells owned and operated by SAJB members. This addendum modifies the original scope of work as follows:

- Provides a status update of progress as of the end of 2024.
- Provides an updated schedule for completing each project task.
- Provides updated billing rates (for 2025) and an updated budget estimate for completion of the project.

### Status Update

The definitions of the project tasks are unchanged from the original scope of work and are as follows:

- **Task 1:** Data gathering and review
- **Task 2:** Model simulations
- **Task 3:** Presentation of results
- **Task 4:** WHPA update report
- **Task 5:** Climate-change analysis report

As of December 31, 2024, Task 1 was 100 percent complete, and Task 2 was just getting underway (at less than 1 percent complete). Work on Tasks 3, 4, and 5 has not yet begun.

### Updated Schedule

The original schedule anticipated a date of December 31, 2024, for completion of the entire project. However, delays occurred during 2024 in the form of longer-than-anticipated time periods (1) for GSI to receive data from SAJB members and (2) for SAJB to obtain grant funding from the Washington Department of Health (DOH). The data gathering process is complete as of the end of December 2024. The table below shows our proposed

**AMENDMENT #1:  
SCOPE OF WORK AND FEE ESTIMATE: SAJB WELLHEAD PROTECTION UPDATE AND CLIMATE-CHANGE ANALYSIS**

schedule for the remaining work activities, which involves completing the model simulations this spring, giving SAJB a presentation of the results at its last meeting (in May) before the SAJB’s summer break, and providing review-draft versions of the two project reports in the late summer/early fall (in time for SAJB members return from the break). GSI will publish final, stamped versions of both reports in the fall when directed by SAJB.

	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	June-Sept 2025	Oct-Dec 2025
<b>Task 1 – Data Gathering and Review</b>								
<b>Task 2 – Model Simulations</b>								
<b>Task 3 – Presentation of Results</b>								
<b>Task 4 – WHPA Update Report</b>							(a)	(b)
<b>Task 5 – Climate-Change Analysis Report</b>							(a)	(b)

Notes:

(a) Draft report to be submitted in August or September 2025.

(b) Final report to be submitted to SAJB on or before 12/31/2025 (date to be determined by SAJB).

## Updated Billing Rates and Budget Estimate

GSI’s standard billing rate schedule for calendar year 2025 is provided in Attachment A; these rates are effective through December 31, 2025, and are subject to change after that date. Work will continue to be conducted on a time-and-materials basis.

GSI’s estimated fee to complete the project is now estimated to be \$89,000 rather than the original \$85,000 estimate listed in the December 2023 scope and fee estimate. GSI requests a \$4,000 increase in the original budget, to bring the total authorized fee to \$89,000. The higher cost is due to (1) higher-than-anticipated costs incurred on Task 1 during 2024 (\$10,000 versus the original \$9,000 estimate) and (2) small adjustments to billing rates for project staff. If GSI and the SAJB decide at a future time that services are necessary beyond those described in the original scope or this amendment—or beyond the level of effort corresponding to this budget request—then GSI will notify SAJB of the need for additional funding and will not exceed the authorized budget without first obtaining SAJB’s written approval to proceed.

GSI thanks you for your consideration of this amendment and looks forward to continuing to work with the SAJB on this project.

Sincerely,  
GSI Water Solutions, Inc.



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Principal Groundwater Hydrologist  
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**Attachment A**

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**2025 Fee Schedule (GSI Water Solutions, Inc.)**



## 2025 GSI Fee Schedule

Labor Category	Hourly Rate
<b>Technical Professionals</b>	
Principal	\$205 – \$280
Supervising	\$195 – \$235
Managing	\$170 – \$200
Consulting	\$155 – \$185
Project	\$135 – \$170
Staff	\$115 – \$150
<b>Other Services</b>	
GIS/Graphics/Database	\$120 – \$175
Editor/Documents	\$120 – \$145
Administration	\$90 – \$125

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

### Expenses

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