

**AMENDMENT NO. 3  
NAPA COUNTY AGREEMENT NO. 210015B (NCGSA)**

**PROFESSIONAL SERVICES AGREEMENT**

**THIS AMENDMENT NO. 3 OF NAPA COUNTY AGREEMENT NO 210015B** is made and entered into as of this \_\_\_\_ day of \_\_\_\_\_, 2024 by and between the Napa County Groundwater Sustainability Agency and its Board of Directors, hereinafter referred to as "NCGSA", and LUHDORFF & SCALMANINI CONSULTING ENGINEERS, a corporation, whose mailing address is 500 First Street, Woodland, CA 95695, hereinafter referred to as "CONTRACTOR";

**RECITALS**

**WHEREAS**, NCGSA and CONTRACTOR entered into Napa County Agreement No. 210015B (the "Agreement") on June 9, 2020 to obtain specialized services for the preparation of a Groundwater Sustainability Plan, participation in stakeholder outreach, development of an integrated hydrologic model, installation of groundwater monitoring wells, collection and management of groundwater data, reporting of groundwater conditions; and

**WHEREAS**, on September 28, 2021, NCGSA and CONTRACTOR amended the Agreement to increase the maximum compensation allowable under this Agreement to add services to support the timely development of a GSP for the Napa Valley Sub-basin; specifically, adding support for stakeholder engagement & outreach, GSP development, additional work on an Integrated Hydrologic Model as well as revision of the Groundwater Ordinance and Water Availability Analysis; and

**WHEREAS**, on October 18, 2022, NCGSA and CONTRACTOR amended the Agreement to increase the maximum compensation allowable under this Agreement to add services for support for NCGSA Technical Advisory Group, well construction monitoring, ongoing monitoring support including surface water/groundwater facilities and support NCGSA with well owner agreements for new and/or ongoing participation in GSP monitoring program; and

**WHEREAS**, NCGSA and CONTRACTOR now wish to amend the Agreement to increase the maximum compensation allowable under this Agreement to add services for continued support for NCGSA Technical Advisory Group, implementation of (3) new GSP Workplans, Water Year 2024 Annual Report, water conservation pilot sites development, groundwater data management, Napa Valley Integrated Hydrologic Model refinement, ongoing monitoring support including surface water/groundwater facilities as well as amend the terms of the Agreement.

**TERMS**

**NOW, THEREFORE**, NCGSA and CONTRACTOR amend Agreement No. 210015B as follows:

1. Paragraph 2 is hereby amended to read in full as follows:

2. **Scope of Services.** CONTRACTOR shall provide NCGSA those services set forth in Exhibit "A-3" attached hereto.
2. Paragraph 3(c) is amended as follows:
  3. **Compensation.**
    - c. **Maximum Amount.** Notwithstanding subparagraphs (a) and (b), the maximum payments under this Agreement shall be a total of Six Million Six Hundred Twenty Thousand Five Hundred and Eleven Dollars (\$6,620,511) for professional services provided, however, that such amounts shall not be construed as guaranteed sums, and compensation shall be based upon services actually rendered. Of this total compensation amount, Two Million Six Hundred Fifty Thousand Six Hundred and Eighty-Five Dollars (\$2,650,685) accounts for the additional services to be provided pursuant Exhibit "A-3".
  3. Except as provided herein, the terms and provisions of the Agreement shall remain in full force and effect.

**IN WITNESS WHEREOF**, this Amendment No. 3 to the Agreement was executed by the parties hereto as of the date first above written.

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

By: Will Halligan  
WILL HALLIGAN, President

By: Scott Lewis  
SCOTT LEWIS, Vice President

"CONTRACTOR"

NAPA COUNTY GROUNDWATER SUSTAINABILITY AGENCY

By \_\_\_\_\_  
JOELLE GALLAGHER, Chair  
NCGSA Board of Directors

"NCGSA"

<p>APPROVED AS TO FORM Office of County Counsel</p> <p>By: Chris R.Y. Apallas Deputy County Counsel</p> <p>Date: March 27, 2024 Doc. 111422_3</p>	<p>APPROVED BY THE NAPA COUNTY GROUNDWATER SUSTAINABILITY AGENCY BOARD OF DIRECTORS</p> <p>Date: _____ Processed By: _____ Deputy Clerk of the Board</p>	<p>ATTEST: NEHA HOSKINS Clerk of the Board of Directors</p> <p>By: _____</p>
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**Exhibit A-3 (February 29, 2024)**  
**Luhdorff & Scalmanini, Consulting Engineers Scope of Work Amendment**

This Scope of Work Amendment (Amendment) describes tasks associated with Luhdorff & Scalmanini, Consulting Engineers (LSCE's) continued work to support Napa County and the Napa County Groundwater Sustainability Agency's (NCGSA's) ongoing compliance with the Sustainable Groundwater Management Act (SGMA) and implementation of the Groundwater Sustainability Plan (GSP) for the Napa Valley Subbasin, which was submitted in January 2022. LSCE is joined by two consulting firms, Stillwater Sciences and ERA Economics, to provide the services necessary for GSP implementation. This Amendment includes additional efforts required to implement actions described in the GSP along with other activities related to groundwater management throughout the County for the period January 1, 2024 through June 30, 2025.

The original scope of services for GSP implementation had 14 tasks and was amended to 33 tasks in October 2022. Thirteen of these tasks have been completed, including Tasks 3, 4, 7, 8, 9, 10, 11, 12, 15, 22, 26, 29, and 33. Twenty tasks are continuing; five new tasks (Tasks 34 through 38) have been added for additional GSP implementation purposes.

This Amendment includes amended tasks previously included in the Scope of Work for July 1, 2020 through June 30, 2023, which have evolved during the GSP development and early GSP implementation, have not yet been completed, or where similar efforts will continue through June 30, 2025. This Amendment also includes new tasks to support the NCGSA with implementation of the GSP and other future tasks related to groundwater management throughout the County through June 30, 2025. Because of the changes to the level of effort and scope of tasks undertaken during the development of the GSP and subsequent efforts associated with early stages of implementation of the GSP, and unforeseen needs related to addressing new State-mandated well permitting requirements, some budget from previously scoped tasks was allocated to other tasks to complete necessary work that was not anticipated or included in the previous Scope of Work (see also comments in Table 1).

**Table 1** below lists the tasks in the October 2022 Scope of Work and the budget available to complete the tasks identified at that time. As of December 31, 2023, **\$153,259** (Table 1) remained on the contract for GSP implementation services. The remaining budget under the 2022 Scope of Work would be used to cover services identified in this scope and budget Amendment, including 20 ongoing and five new tasks (Tasks 34 through 38).

Amended tasks in this Amendment are described below. All other tasks from the original Scope of Work and those not described in this Amendment have been completed. The work efforts described for tasks in this Amendment include only those items of each task remaining to be completed. The budget amounts indicated for the tasks in this Amendment include the total budget necessary to complete the amended or new tasks described in the Scope of Work below. Some optional tasks are also described.

The estimated budget for January 1, 2024 through June 30, 2024 is **\$932,277**, and the estimated budget for July 1, 2024 through June 30, 2025 is **\$1,542,440**. The total estimated budget is **\$2,474,717** (see summary **Table 2**, following task descriptions). The estimated cost for optional tasks is **\$329,227**. In consideration of the residual budget of **\$153,259** shown in **Table 1**, the requested amendment for GSP implementation technical services includes **\$2,803,944** for core and optional tasks minus the residual budget for a total of **\$2,650,685**.

### Task 1 – Project Management and Administration

Assist Napa County (County) and NCGSA with the administration of GSP implementation work, including managing LSCE technical staff and coordinating with LSCE Team subconsultants to complete work timely. Also assist with preparation of progress reports detailing work completed during reporting period for grants as applicable.

#### Deliverables:

- Assist with Draft and Final Grant Completion Reports

The estimated cost to complete the amended Task 1 for January 1 through June 30, 2024 is **\$10,160**. Estimated cost to complete Task 1 for July 1 through June 30, 2025 is **\$20,320**.

### Task 2 – Stakeholder Engagement/Outreach

Assist Napa County with stakeholder engagement and outreach as part of efforts to implement the GSP for the Napa Valley Subbasin. Provide meeting materials and presentations related to tasks that LSCE undertakes as part of GSP implementation. Presentations may occur through in-person attendance at meetings or by remote attendance during video conference meetings. Stakeholder and other outreach-related meetings are anticipated to include groups or individuals. Examples of the types of stakeholders include Napa Valley Grapegrowers Association, Winegrowers of Napa County, Napa County Farm Bureau, Napa Valley Vintners Association, California Department of Fish and Wildlife, National Marine Fisheries Services, Save Napa Valley Foundation, and California Sustainable Winegrowing Alliance. Assist in the preparation of public outreach materials including newsletters and other County communications.

#### Deliverables:

- Presentation materials developed for meetings

The estimated cost to complete amended Task 2 for January 1 through June 30, 2024 is **\$52,640**. Estimated cost to complete Task 2 for July 1, 2024 through June 30, 2025 is **\$84,960**.

### Task 5 – DMS and Data Products

The Data Management System (DMS) previously developed by LSCE will be maintained and enhanced to allow for improved data visualization capabilities (tabular summaries, maps, and other graphical displays) and data transparency. Upgrades to data visualizations will be performed in collaboration with the County/NCGSA to support improvements in DMS capabilities for users and public transparency related to water resources monitoring and conditions. Data visualizations will continue to be integrated with County or NCGSA websites, as determined appropriate. This task will continue maintenance and management of the DMS in accordance with the GSP and as required by SGMA and will involve automation of key processes for generating output and other products to support required GSP annual reporting and submittal of GSP monitoring data to the SGMA Monitoring Network Module twice each year in accordance with DWR requirements.

#### Deliverables:

- Periodic updates to DMS data visualizations including maps, hydrographs, and tables summarizing data on water resources conditions in the County as currently included on existing websites maintained by Napa County or the NCGSA.

The estimated cost to complete amended Task 5 for January 1 through June 30, 2024 is **\$10,360**. Estimated cost to complete Task 5 for July 1, 2024 through June 30, 2025 is **\$19,960**.

### Task 6 -- Monitoring/Assessment

Prepare and submit final installation and instrumentation reports, including the submittal of Well Completion Reports, to Napa County for transmittal to DWR.

#### Deliverables:

- Final Monitoring Well Designs
- As-Built Monitoring Well Drawings
- Well Completion Reports
- Water Quality Sampling Results

The estimated cost to complete amended Task 6 for January 1 through June 30, 2024 is \$10,840.

### Task 13 – Grant Proposal Support

At the direction of County or NCGSA staff, LSCE will provide support for one or more grant proposals developed by the County or NCGSA for funding to support groundwater monitoring, GSP implementation in the Napa Valley Subbasin, and related efforts. This scope assumes County or NCGSA staff will support proposal development through outreach and coordination with project collaborators to receive input on proposal scope and budget and letters of support, as appropriate.

#### Deliverables:

- Provide support for preparing draft and final grant proposal scope of work and cost estimate

The estimated cost to complete amended Task 13 for January 1 through June 30, 2024 is \$14,960. Estimated cost to complete Task 13 for July 1, 2024 through June 30, 2025 is \$14,960.

### Task 14 – On-call Services and Meetings

Assist County or NCGSA staff with SGMA implementation related activities and outreach activities. This task includes frequent (approximately weekly) County and technical team meetings to ensure close coordination of GSP implementation efforts. The task will include providing continued assistance to County and NCGSA staff on an as-needed basis related to maintaining and implementing groundwater monitoring activities, including coordination with well owners and other monitoring entities for incorporation of wells into County and NCGSA monitoring programs as indicated in the GSP or otherwise determined to be beneficial to monitoring or understanding of groundwater conditions in the County. LSCE will provide support to the County or NCGSA staff on communications with DWR, public stakeholders, and other entities. Support may also include public outreach, additional updates to the Board of Supervisors and the NCGSA, and other meetings for various purposes, as needed. Examples of other meeting participants under this task include Napa County Resource Conservation District, Napa County Flood Control and Water Conservation District, Napa Green, State Water Resources Control Board, Regional Water Quality Control Board, and University of California Davis – Center for Watershed Sciences.

The estimated cost to complete amended Task 14 for January 1 through June 30, 2024 is \$42,480. Estimated cost to complete Task 14 for July 1, 2024 through June 30, 2025 is \$63,720.

### Task 16 – Napa Valley GSP Monitoring Implementation (FY 2023-2024)

Building on the training of NCGSA and County staff on monitoring activities provided by LSCE to date, Task 16 assumes that NCGSA or other monitoring entities will be conducting all of the groundwater level monitoring activities detailed in the Napa Valley Subbasin GSP during the period July 1, 2023, through June 30, 2024, with LSCE providing advisory and data management support during these monitoring activities. LSCE will conduct groundwater quality monitoring for the 26 dedicated dual-completion monitoring wells with the NCGSA conducting and/or coordinating all other water quality sampling field efforts. Support to be

performed by LSCE as part of this task includes water quality sampling of select wells and QA/QC of newly obtained monitoring data, as well as assisting NCGSA with coordinating monitoring activities between entities (where applicable), conducting field data collection, and obtaining detailed site information. For Task 16, the County or NCGSA staff will collect all groundwater level and surface water quality and stage data and LSCE will coordinate with County or NCGSA staff on monitoring implementation and provide general support.

Deliverables:

- Updated monitoring data in the DMS.

#### **Groundwater Elevation Monitoring: Coordination and Support**

LSCE will provide support to NCGSA during coordination and completion of groundwater level monitoring activities, including during NCGSA's manual measurements and automated monitoring instrumentation download and maintenance work at all instrumented sites. This task assumes that NCGSA will conduct all groundwater level monitoring field work. LSCE will provide training and support to NCGSA staff relating to field data collection efforts. Additional LSCE support in QA/QC of monitoring data, barometric compensation of water level data, and integration of monitoring data in the DMS, as needed.

#### **Groundwater Quality Monitoring: Coordination and Support**

LSCE will conduct one groundwater quality sampling event at each of the 26 existing dedicated nested monitoring wells within the Subbasin. LSCE will assist NCGSA in coordinating water quality monitoring activities with other entities and will also provide training and support to NCGSA in conducting water quality sampling of other wells (as applicable). Additional LSCE support will be provided in QA/QC of monitoring data and integration of data in the DMS.

#### **Surface Water Quality and Stage Monitoring: Coordination and Support**

LSCE will provide support to NCGSA during completion of surface water quality and stage monitoring activities at designated sites, including during NCGSA's automated stage and temperature monitoring instrumentation download and maintenance work at all stream stage monitoring sites operated by the NCGSA. This task assumes that NCGSA will conduct all stream stage and water quality monitoring field work. LSCE will provide training and support to NCGSA staff relating to field data collection efforts. Additional LSCE support in QA/QC of monitoring data, barometric compensation of stage data, and integration of monitoring data in the DMS, as needed.

#### **Surface Water Stage Monitoring Installation**

LSCE will install and survey stream stage monitoring gages adjacent to eight existing new monitoring well sites. This task includes conducting field reconnaissance of gage sites and conducting field work to establish and install stream stage monitoring gages, including instrumentation with automatic stage and temperature monitoring equipment. Additionally, LSCE will conduct relative elevation surveying of the gages using surveyed elevations at nearby monitoring wells to establish elevation datums for relating stream stage data to groundwater level data. This task assumes NCGSA will lead efforts to secure access at all of the sites.

The estimated cost to complete Task 16 for January 1, 2024 through June 30, 2024 is \$74,692.

#### **Task 17 – Napa Valley GSP Monitoring Implementation (FY 2024-2025)**

Task 17 assumes that NCGSA or other monitoring entities will be conducting all of the groundwater level monitoring activities detailed in the Napa Valley Subbasin GSP during the period July 1, 2024 through June 30, 2025 with LSCE providing advisory and data management support during these monitoring activities. LSCE will conduct groundwater quality monitoring for the 26 dedicated dual-completion monitoring wells with the NCGSA conducting and/or coordinating all other water quality sampling field efforts. Support to be performed by LSCE as part of this task includes water quality sampling of select wells and QA/QC of newly obtained monitoring data, as well as assisting NCGSA with coordinating monitoring activities between entities (where applicable), conducting field data collection, and obtaining detailed site information. For Task 17, the County or NCGSA staff will collect all groundwater level and surface water quality and stage data and LSCE

will coordinate with County or NCGSA staff on monitoring implementation and provide general support.

#### **Groundwater Elevation Monitoring: Coordination and Support**

LSCE will provide support to NCGSA during coordination and completion of groundwater level monitoring activities, including during NCGSA's manual measurements and automated monitoring instrumentation download and maintenance work at all instrumented sites. This task assumes that NCGSA will conduct all groundwater level monitoring field work. LSCE will provide training and support to NCGSA staff relating to field data collection efforts. Additional LSCE support in QA/QC of monitoring data, barometric compensation of water level data, and integration of monitoring data in the DMS, as needed.

#### **Groundwater Quality Monitoring: Coordination and Support**

LSCE will conduct one groundwater quality sampling event at each of the 26 existing dedicated nested monitoring wells within the Subbasin. LSCE will assist NCGSA in coordinating water quality monitoring activities with other entities and will also provide training and support to NCGSA in conducting water quality sampling of other wells (as applicable). Additional LSCE support will be provided in QA/QC of monitoring data and integration of data in the DMS.

#### **Surface Water Quality and Stage Monitoring: Coordination and Support**

LSCE will provide support to NCGSA during completion of surface water quality and stage monitoring activities at designated sites, including during NCGSA's automated stage and temperature monitoring instrumentation download and maintenance work at all stream stage monitoring sites operated by the NCGSA. This task assumes that NCGSA will conduct all stream stage and water quality monitoring field work. LSCE will provide training and support to NCGSA staff relating to field data collection efforts. Additional LSCE support in QA/QC of monitoring data, barometric compensation of stage data, and integration of monitoring data in the DMS, as needed.

Deliverables:

- Updated monitoring data in the DMS.

The estimated cost to complete Task 17 for July 1, 2024 through June 30, 2025 is **\$52,768**.

#### **Task 17A – Additional Groundwater Level and ISW Monitoring Site Installation (OPTIONAL)**

Task 17A is an optional task for installation of additional groundwater level and ISW monitoring facilities to support GSP implementation. Additional monitoring sites for consideration may include Napa River at Calistoga, Bale Slough at Highway 29, York Creek, and Bear Creek as well as other potential sites of interest. The task includes designing and overseeing construction of two nested wells at each monitoring site with associated groundwater sampling, surveying, and automated groundwater level instrumentation. As part of this task, LSCE will also install a stream stage monitoring gage adjacent to each monitoring well site with automated stage and temperature monitoring instrumentation. The task includes support during acquisition of well permits and other required regulatory submittals necessary for completion of the task and all subcontractor and material costs related to the monitoring well and stream gage installation. This task assumes that LSCE will provide services relating to the monitoring well and stream gage construction and NCGSA will acquire any necessary access agreements.

Deliverables:

- Final Monitoring Well Designs
- As-Built Monitoring Well Drawings
- Well Completion Reports
- Water Quality Sampling Results

The estimated cost for Task 17A depends on the number of monitoring sites and is as follows (additional sites

reduce the total estimated cost by leveraging drilling contractor mobilization fees). The estimated cost for two additional sites is **\$124,742**.

#### **Task 18 – Evaluation of Hydrologic Data/Sustainability Indicators**

Task 18 focuses on ongoing hydrologic data processing, analysis, conditions tracking and providing information to the TAG for review and input. Actual meeting time with the TAG is covered under Task 25.

##### **Task 18.1 – Evaluation of Hydrologic Data**

LSCE will evaluate and provide water resources monitoring and other data to the NCGSA periodically (up to twice a year) for review and additional input related to conditions, trends, and findings relative to Subbasin groundwater and interconnected surface water conditions.

LSCE will perform analyses and receive feedback from the NCGSA based on review of the data during formulation of potential groundwater management actions. Based on the analyses of conditions, including input from the NCGSA, this task will include identification of additional monitoring needs to be addressed during the development of the four new groundwater resource management workplans related to groundwater dependent ecosystems (GDEs)/interconnected surface water (ISW), water conservation, groundwater pumping reduction, and stormwater resources management described in the GSP as part of implementation activities.

##### **Deliverables:**

- Periodic (up to twice a year) summaries of monitoring data

The estimated cost to complete Task 18.1 for January 1 through June 30, 2024 is **\$13,196**. Estimated cost to complete Task 18.1 for July 1, 2024 through June 30, 2025 is **\$18,936**.

##### **Task 18.2 – Monitoring Networks and Identifying and Addressing Data Gaps**

LSCE will conduct ongoing assessment of the monitoring network and identification of data gaps in coordination with input provided by the TAG. This task will include incorporation of additional input from the TAG on monitoring needs anticipated to occur during the development of the new workplans outlined in the GSP and other input on monitoring data gaps described in the GSP or identified during GSP implementation. Key results from assessment of the monitoring networks and addressing of data gaps will be discussed and documented in workplans or GSP annual reports, as appropriate.

The estimated cost to complete Task 18.2 for January 1 through June 30, 2024 is **\$6,048**. Estimated cost to complete Task 18.2 for July 1, 2024 through June 30, 2025 is **\$11,056**.

##### **Task 18.3 – SMC and Potential Triggers, Exceedances and Recommended Actions**

LSCE will review monitoring data in relation to sustainable management criteria (SMC) detailed in the GSP, including triggers and minimum thresholds. LSCE will evaluate conditions that may approach or exceed triggers and/or SMC as outlined in the GSP and will coordinate with the TAG in identifying and recommending management actions in response to conditions, including triggers or SMC exceedances. Key recommendations developed during Task 18.3 and any follow-up actions will be summarized as part of annual reporting.

The estimated cost to complete Task 18.3 for January 1 through June 30, 2024 is **\$8,600**. Estimated cost to complete Task 18.3 for July 1, 2024 through June 30, 2025 is **\$17,200**.

#### **Task 19 – Interconnected Surface Water and GDEs Workplan**

The GSP identified the need to develop a workplan to guide the continued evaluation of data gaps related to the relationships between groundwater, interconnected surface waters (ISW), and groundwater dependent ecosystems (GDEs) (GSP Sections 5 and 11). The Workplan will leverage existing plans and knowledge about Subbasin conditions to provide a roadmap to address data gaps and improve understanding of groundwater conditions in relation to ISW and GDEs. With input from the TAG and relevant agencies, the Workplan will

refine monitoring and analytical approaches implemented for the purpose of evaluating the effect of groundwater conditions on ISW and GDEs. The Workplan will also incorporate data quality objectives, monitoring protocols, and quality control/quality assurance procedures for workplan activities, which may include biological field assessments, stream habitat investigations, and evaluations of GDE species. LSCE with teaming partner Stillwater Sciences (Stillwater) completed the draft ISW and GDEs Workplan with input from the TAG and local, state, and federal agencies such as the Napa County Resource Conservation District, California Department of Fish and Wildlife, National Marine Fisheries Services, University of California at Davis- Center for Watershed Sciences, Institute for Conservation Advocacy Research and Education, Friends of Napa River, and others. Task 19 during winter/spring 2024 is to complete the ISW and GDEs Workplan, including reviewing and addressing comments submitted on the Workplan and preparing the final Workplan.

Deliverables:

- Final ISW and GDEs Workplan

The estimated cost to complete Task 19 for January 1 through June 30, 2024 is **\$23,056**.

### **Task 20 – Water Conservation Workplan**

During GSP development, the Groundwater Sustainability Plan Advisory Committee (GSPAC) Workgroup (subgroup of full GSPAC) described the significant conservation measures that have occurred over the years by Napa County vineyard and winery operations. The Workgroup also conveyed the opportunity to advance conservation measures based on newer tools and technologies. The costs to advance conservation measures, including a reduction in groundwater pumping, depend on the approach to initiate a large-scale, comprehensive, and methodical program to advance agricultural water management and irrigation practices and winery water management and reuse practices. Although the Workplan emphasizes vineyard and winery water conservation, the Workplan also considers measures to achieve water conservation efforts by other groundwater users.

LSCE with teaming partner ERA Economics (ERA) completed the draft Water Conservation Workplan with input from the TAG and local, state, and federal agencies such as the Napa County Resource Conservation District, California Department of Fish and Wildlife, National Marine Fisheries Services, Napa Valley Grapegrowers, Winegrowers of Napa County, Napa County Farm Bureau, Napa Green, Napa Valley Vintners Association, Friends of Napa River, Save Napa Valley Foundation, and others. Task 20 during winter/spring 2024 is to complete the ISW and GDEs Workplan, including reviewing and addressing comments submitted on the Workplan and preparing the final Workplan.

Deliverables:

- Final Water Conservation Workplan

The estimated cost to complete Task 20 for January 1 through June 30, 2024 is **\$16,476**.

### **Task 21 – Groundwater Pumping Reduction Workplan**

The GSP describes pumping reductions, supported by the GSPAC, as a direct means of reducing the impacts of groundwater pumping on interconnected surface water and groundwater supply in the Subbasin. The GSP Section 11 summarizes the planned management action involving groundwater pumping reductions. Efforts to initiate pumping reduction could occur through increased water conservation practices on a Subbasin scale coordinated with the Water Conservation Plan. Additionally, the Groundwater Pumping Reduction Workplan will describe operational and logistical details, including how groundwater pumping reductions could occur and be measured, tracked, and reported.

While meters can provide information on the volume produced where installed at a specified location, meters would not account for all groundwater use (e.g., groundwater consumption by crops can and does occur via direct groundwater uptake rather than groundwater applied to crops). Other technologies are

described in the Workplan, such as satellite imagery and analysis which allows for a comprehensive assessment of overall groundwater use.

The development of the Groundwater Pumping Reduction Workplan occurred in coordination with the TAG and with incorporation of outreach to and coordination with vineyard industry leaders. The draft Workplan summarizes the results of key tasks and recommends methods to track and quantify groundwater pumping reduction at a basin-wide scale.

LSCE with teaming partner ERA completed the draft Groundwater Pumping Reduction Workplan with input from the TAG and local, state, and federal agencies such as the Napa County Resource Conservation District, California Department of Fish and Wildlife, National Marine Fisheries Services, Napa Valley Grapegrowers, Winegrowers of Napa County, Napa County Farm Bureau, Napa Green, Napa Valley Vintners Association, Institute for Conservation Advocacy Research and Education, Friends of Napa River, Save Napa Valley Foundation, and others. Task 21 during winter/spring 2024 is to complete the ISW and GDEs Workplan, including reviewing and addressing comments submitted on the Workplan and preparing the final Workplan.

Deliverables:

- Final Groundwater Pumping Reduction Workplan

The estimated cost to complete Task 21 for January 1 through June 30, 2024 is \$28,856.

#### Task 23 – Water Year 2023 Required GSP Annual Report

This task includes data acquisition, analysis, and development of an Annual Report (Report) to meet the requirements of SGMA and the GSP Regulations, including annual groundwater extraction estimates, estimates of surface water supply used or available for use, in-lieu use (e.g., wastewater and stormwater reuse), total water year water use, and change in groundwater storage for the Napa Valley Subbasin. The Report will also summarize additional data collection and analysis performed to fill data gaps and improve the quantitative basis for sustainable management criteria, including potential effects on streamflow due to groundwater conditions in the Napa Valley Subbasin. The Report will also document the status of ongoing actions by the County to implement SGMA and the recommendations contained in the 2022 Napa Valley Subbasin GSP. This task includes providing spatial datasets and updated content for the WICC website (or similar), based on information presented in the Annual Report. This task includes a presentation of Annual Report findings to the NCGSA.

Deliverables:

- Draft Annual Report presented to TAG and NCGSA in March 2024
- Final Annual Report submitted to DWR by April 1, 2024

Work on the Report began in Fall 2023. The estimated cost to complete Task 23 during the period January 1 through June 30, 2024 is \$60,404.

#### Task 24 – Water Year 2024 Required GSP Annual Report

This task includes data acquisition, analysis, and development of an Annual Report (Report) to meet the requirements of SGMA and the GSP Regulations, including annual groundwater extraction estimates, estimates of surface water supply used or available for use, in-lieu use (e.g., wastewater and stormwater reuse), total water year water use, and change in groundwater storage for the Napa Valley Subbasin. The Report will also summarize additional data collection and analysis performed to fill data gaps and improve the quantitative basis for sustainable management criteria, including potential effects on streamflow due to groundwater conditions in the Napa Valley Subbasin. The Report will also document the status of ongoing actions by the County to implement SGMA and the recommendations contained in the 2022 Napa Valley Subbasin GSP. This task includes providing spatial datasets and updated content for the WICC website (or similar), based on information presented in the Annual Report. This task includes a presentation of Annual Report findings to the NCGSA.

Deliverables:

- Draft Annual Report submitted in February 2025
- Final Annual Report submitted in March 2025

The estimated cost to complete Task 24 during the period from July 1, 2024 through June 30, 2025 is **\$86,496**.

**Task 25 – Technical Advisory Group Coordination/Technical Support**

This task involves support to the NCGSA and TAG and attendance at the approximately monthly meetings with additional special meetings as needed. This task involves preparing briefing materials/draft information for the NCGSA and TAG in advance of these meetings.

As requested by NCGSA staff, this task may also include support to the NCGSA for community stakeholder meetings (e.g., non-scientist stakeholders, community members, elected officials, and policy makers).

Deliverables:

- Meeting presentation materials and other meeting support materials
- TAG meeting attendance

The estimated cost to complete Task 25 for January 1 through June 30, 2024 is **\$59,840**. Estimated cost to complete Task 25 for July 1, 2024 through June 30, 2025 is **\$107,120**.

**Task 27 – Napa Valley Integrated Hydrologic Model Refinement (FY 2023-2024)**

**Task 27.1 – Stream Properties**

Updates to stream properties are largely complete. Channel geometry has been updated based on Lidar datasets. The stream network will undergo final refinements and QA/QC.

The estimated cost to complete Task 27.2 is **\$5,840**.

**Task 27.2 – Model Platform Updates**

Based on recommendations from the TAG, LSCE will develop recommendations to the USGS for updates to the numerical model platform to include soil moisture storage. This will include meetings to communicate needs and (if needed) beta testing.

The estimated cost to complete Task 27.3 is **\$22,282**.

**Task 27.3 – Communication of Model Refinements**

Present updated information regarding stream and numerical model platform updates to the TAG.

Total estimated cost for this task is **\$7,040**.

Deliverables:

- Presentation to the TAG regarding model refinements completed during FY 2023-2024.

**Task 28 – Napa Valley Integrated Hydrologic Model Refinement (FY 2024-2025)**

**Task 28.1 – Input Refinements**

NVIHM will be updated to refine representation of Subbasin geology, groundwater extraction wells (based on Napa County 2023 well inventory), and evapotranspiration. Also, model inputs will be updated to incorporate soil moisture storage based on updates to the One-Water model platform.

The estimated cost to complete Task 28.1 is **\$41,832**.

**Task 28.2 – Upper Watershed Model Refinements**

Based on ongoing work conducted on the BCM by developers, it is anticipated that additional information and refinements will be required to better account for upper watershed contributions to the Napa Valley Subbasin.

The estimated cost to complete Task 28.2 is **\$18,420**.

### **Task 28.3 – Refinement of Model Calibration**

Calibrate to reflect new data from continued GSP monitoring and implementation efforts and global refinements conducted to the model. Important considerations for focused refinement of the model calibration include the following:

- Geologic refinements
- BCM model refinements for the Upper Watershed

The estimated cost to complete Task 28.3 is **\$33,264**.

### **Task 28.4 – Documentation of Model Refinements**

Produce a Technical Memorandum of updates to the NVIHM. Present updated information to the Technical Advisory Group.

Deliverables:

- Summary Technical Memorandum documenting model refinements completed during FY 2024-2025.

The estimated cost to complete Task 28.4 is **\$29,880**.

## **Task 30 – Napa Valley Integrated Hydrologic Model Scenarios/Application (FY 2023-2024)**

### **Task 30.1 – Annual Report Support**

Export data required for annual reports and creation of charts and graphs.

The estimated cost to complete Task 30.1 **\$7,992**.

### **Task 30.2 – Develop Pumping Reduction Scenarios**

Based on results from the Groundwater Pumping Reduction Workplan and input from the TAG, the technical team will develop three pumping reduction scenarios. These scenarios will be developed and implemented in the NVIHM to explore the impact pumping reduction may have on sustainability indicators, sustainable management criteria, and productivity within the Subbasin.

The estimated cost to complete Task 30.2 **\$7,560**.

### **Task 30.3 – Recharge Scenarios**

Based on results from the technical memo of Potential Recharge Areas (Task 22.2) up to three feasible recharge scenarios will be developed and implemented in the NVIHM. Model results will assess groundwater level changes, interconnected surface water changes, and effects to modeled sustainability indicators.

The estimated cost to complete Task 30.3 is **\$7,560**.

### **Task 30.4 – Climate Change Approach Refinements**

The technical team will evaluate the best management practices and begin evaluating approaches to incorporate climate change into the NVIHM. This work will begin in FY 2023-2024 with a review of methods and communication with the TAG. A substantial amount of the work is expected to be implemented in FY 2024-2025.

The estimated cost to complete Task 30.4 **\$2,450**.

### **Task 30.5 – As-Requested Modeling Scenarios**

It is anticipated that multiple scenarios may be requested based on ongoing work conducted in the Subbasin. The technical team will assess and prepare up to three scenarios within the NVIHM based on questions that arise from the ongoing work and not already covered by other tasks.

Perform modeling scenarios as requested. This may include localized groundwater pumping reductions, climate change, and/or potential project scenarios (e.g., recharge).

Deliverables:

- Summary of model updates and scenario development and results completed to support workplan implementation or other management action implementation.

The estimated cost to complete Task 30.5 is **\$33,212**.

#### Task 31 – Napa Valley Integrated Hydrologic Model Scenarios/Application (FY 2024-2025)

##### **Task 31.1 – Annual Report Support**

Export data required for annual reports and creation of charts and graphs.

The estimated cost to complete Task 31.1 is **\$9,852**.

##### **Task 31.2 – Climate Change Scenarios**

The best practices will be followed to incorporate climate change projections within the NVIHM. Five climate scenarios will be developed to provide a range of possible futures including wet, dry, and variable intensity scenarios. Climate scenarios will be developed based on new data and approaches that may become available from DWR or other agencies prior to the FY 2024-2025 period and/or local input from the TAG.

The estimated cost to complete Task 31.2 is **\$47,768**.

##### **Task 31.3 – As-Requested Modeling Scenarios**

It is anticipated that multiple scenarios may be requested based on ongoing work conducted in the Subbasin. The technical team will assess and prepare up to three scenarios within the NVIHM based on questions that arise from the ongoing work.

Deliverables:

- Summary of model updates and scenario development and results completed to support ongoing groundwater management activities.

The estimated cost to complete Task 31.3 is **\$48,548**.

#### Task 32 – Drought and Water Shortage Task Force – Technical Support (Dry Well Potential and Other)

Attend Drought and Water Shortage Task Force Meetings and provide technical support to NCGSA. Technical support includes identifying areas of potential dry well occurrence and support to develop Dry Well Mitigation Program.

The estimated cost to complete Task 32 is **\$6,096**.

#### Task 34 – Well Inventory Support

Coordinate with and provide support to County as needed for comprehensive countywide well inventory. Utilize inventory on other GSP implementation-related tasks.

The estimated cost to complete Task 34 is **\$8,552**.

#### Task 35 – ISW/GDE Workplan Implementation

This task includes implementation for the ISW and GDEs Workplan from April 2024 through June 2025. This budget therefore only includes a portion of the tasks outlined in the Workplan. Details of the surveys are provided in the ISW and GDEs Workplan. The surveys are planned to occur at up to six intensive survey sites. Terrestrial surveys of special-status plants and birds will begin in 2025 when surveys can be conducted in early spring. This study prioritizes advancing the California Environmental Flows Framework and thus focuses on implementing surveys tied to aquatic habitat during 2024. The biological and topographic surveys and data analysis are included below. Each field subtask includes budget for field preparation, QA/QC of the field data, and data analysis.

This scope assumes the Napa County RCD will complete intensive fish monitoring and fish habitat surveys, stream flow connectivity surveys and observations at the expanded Stream Watch sites. The Napa County RCD will also support other tasks, including assisting on topographic, freshwater shrimp, and GDE surveys. Additionally, the Napa County RCD will assist with access permissions to the sites.

#### **Task 35.1.1 – Site Reconnaissance and Access Coordination**

The project management team will conduct a two-day reconnaissance visit to each of the intensive survey sites to assess field conditions and delineate the extent of the study reach at each site. The site visit will include representatives from LSCE, Napa County, and Napa County RCD. This task also includes coordinating with the Napa County RCD to get permission to access the study sites.

The estimated cost to complete Task 35.1.1 for January 1 through June 30, 2024 is \$37,873. The estimated cost to complete Task 35.1.1 for July 1, 2024 through June 30, 2025 is \$5,884.

#### **Task 35.1.2 – GDE Vegetation Monitoring and Special-Status Plant Surveys**

Vegetation monitoring will be performed in spring/summer 2024 and 2025 within a portion of each intensive monitoring site assessment reach. The vegetation assessment area will be selected to include groundwater dependent vegetation communities, special-status plants, and sensitive natural communities using up to four plots or transects for each of the six monitoring sites. These data will be used to assess the accuracy of remote sensing measurements of GDE health and will be compared with local groundwater data to assess how groundwater changes might be affecting terrestrial GDEs.

Because project setup will likely occur in April 2024 at the earliest, the targeted special status plant surveys will occur at all sites in Spring 2025. These data will be collected for future inclusion in the 2027 GSP Update. Where applicable, previous surveys may supplement or be used in lieu of additional surveys.

The 2024 vegetation health surveys and the 2025 special-status plant surveys will be staffed by two Stillwater Scientists and one employee from the Napa County RCD (for training). Subsequent surveys will be staffed by one scientist from Stillwater and one from the Napa County RCD.

##### **Deliverables:**

- Survey results for inclusion in the Technical Memorandum summarizing 2024 results for all surveys (see Task 35.3).

The estimated cost to complete Task 35.1.2 for January 1 through June 30, 2024 is \$27,783. The estimated cost to complete Task 35.1.2 for July 1, 2024 through June 30, 2025 is \$10,955.

#### **Task 35.1.3 – Aquatic Wildlife**

Stillwater Sciences will conduct an eDNA sampling campaign and up to two visual encounter surveys in 2024 for listed wildlife species at each site identified as having suitable habitat. Suitable habitat for aquatic wildlife will be assessed during the reconnaissance survey (Task 35.1.1) in combination with publicly available wildlife data (CNDDDB and research-grade observation on iNaturalist). Sites without suitable habitat will not be evaluated as part of this analysis. Sites will be evaluated during the reconnaissance visit and costs to assess additional sites are included in the contingency task (Task 35A). Up to two surveys will be conducted at the Calistoga Site to identify California Freshwater Shrimp habitat and usage in 2024. Napa County RCD staff will accompany Stillwater staff on the surveys.

##### **Deliverables:**

- Survey results for inclusion in the Technical Memorandum summarizing 2024 results for all surveys (see Task 35.3).

The estimated cost to complete Task 35.1.3 for January 1 through June 30, 2024 is \$21,644. The estimated cost to complete Task 35.1.3 for July 1, 2024 through June 30, 2025 is \$15,181.

#### **Task 35.1.4 – Terrestrial Wildlife (Bird) Surveys**

Terrestrial wildlife surveys will be assessed using remote sensing and field assessment of GDE health coupled with a test deployment of acoustic bird loggers at three of the sites. One acoustic logger will be deployed at six of the survey sites in 2025 to determine usage at each site. Supplemental bird surveys will occur during the nesting season. Counts of each species observed at intensive monitoring sites will be recorded to provide an estimate of species richness and use of the site (including nesting). The study includes one field survey by June 2025. Budget for additional bird surveys is included in the optional contingency task.

Deliverables:

- Survey results for inclusion in the Technical Memorandum summarizing the results for all surveys (see Task 35.3).

The estimated cost to complete Task 35.1.4 for July 1, 2024 through June 30, 2025 is \$23,835.

### **Task 35.1.5 – Topographic Surveys and Hydraulic Models**

To help determine the amount of habitat available for different species at a series of flows at each site, Stillwater Sciences with the help of the Napa County RCD will survey up to 2000 linear feet of stream channel at intensive sites to supplement topography of submerged areas in the 2018 lidar. The topographic data will be merged with the lidar data to facilitate 2-D hydraulic modeling of a range of wet-season and dry-season baseflows. This task assumes the topographic surveys will be led by Stillwater with the support of the Napa County RCD. The budget assumes surveys will occur at five of the six sites and require eight days of field work. The contingency budget (Task O1) includes costs if the surveys require two days per site and if the Napa County RCD is unable to assist with surveys.

Deliverables:

- Survey results for inclusion in the Technical Memorandum summarizing the results for all surveys (see Task 35.3).

The estimated cost to complete Task 35.1.5 for July 1, 2024 through June 30, 2025 is \$69,157.

### **Task 35.2 – California Environmental Flows Framework (CEFF)**

Based on the data collected as part of Task 35.1.1, Stillwater Sciences and LSCE will complete Sections A and B of CEFF for the Napa Valley Subbasin with a focus on flows influenced by groundwater extraction. Some of these tasks were completed as part of the ISW and GDEs Workplan development including CEFF Section A steps 1b (site prioritization) and Step 3. The budget includes completion of the majority of Sections A and B in 2024 and 2025. Further analysis and finalization of a CEFF technical report would occur after June 2025 in a subsequent contract.

Deliverables:

- Draft CEFF documentation for CEFF Sections A and B.

The estimated cost to complete Task 35.2 for July 1, 2024 through June 30, 2025 is \$100,712.

### **Task 35.3 – Technical Memorandum for the 2024 Annual Report**

Stillwater Sciences with LSCE will summarize the 2024 survey results in a Technical Memorandum for inclusion in the 2025 GSP Annual Report. The memorandum will include results from the surveys and summarize results to date. Technical memoranda and reports for 2025 and beyond will be completed in a subsequent contract.

Deliverables:

- Technical Memorandum summarizing survey results and 2-D hydraulic modeling.

The estimated cost to complete Task 35.3 for July 1, 2024 through June 30, 2025 is \$35,432.

### **Task 35.4 – Meetings and Outreach**

This task is for biweekly check-ins with LSCE, coordination meetings with Napa County, coordination meetings with Napa County RCD every two months, and time for preparation for TAG meetings and drafting Staff Reports. Additionally, this task includes preparation for and presentation at up to three outreach meetings.

Deliverables:

- Meeting presentations and Staff Reports (as applicable).

The estimated cost to complete Task 35.4 for January 1 through June 30, 2024 is **\$60,117**. Estimated cost to complete Task 35.4 for July 1, 2024 through June 30, 2025 is **\$81,473**.

### **Task 35.5 – Grant Application Support**

Stillwater to support Napa County with preparing grant applications to help fund implementation of the ISW and GDEs Workplan.

The estimated cost to complete Task 35.5 for January 1 through June 30, 2024 is **\$6,272**. The estimated cost to complete Task 35.5 for July 1, 2024 through June 30, 2025 is **\$14,356**.

### **Task 35.6 – Project Management**

This task is for project management, including scheduling, internal team management, coordination with Napa County and Napa County RCD.

The estimated cost to complete Task 35.6 for January 1 through June 30, 2024 is **\$15,955**. The estimated cost to complete Task 35.6 for July 1, 2024 through June 30, 2025 is **\$31,423**.

#### **Optional Tasks for ISW and GDEs Workplan Implementation**

The tasks outlined below include contingency for monitoring support based on changes to the ISW and GDEs Workplan during public comment and changes to labor estimates during the Reconnaissance Site Visit in 2024 and tasks that may be implemented in the event of additional funding from outside sources.

#### **Task 35A – ISW and GDEs Workplan Implementation: Monitoring Support Contingency (OPTIONAL)**

To fill in staffing gaps or other survey complications, this scope sets aside a contingency to support potential staffing gaps or conflicts and in case additional surveys may be needed. This contingency task includes additional funds if the topographic surveys require additional time due to difficult survey conditions or access issues or if Task 35.1.1 reveals that costs could include additional field support or data analysis.

The estimated cost for Task 35A for optional monitoring support through June 30, 2025 is **\$72,380**.

#### **Task 35B – ISE and GDEs Workplan Implementation: Additional Surveys (OPTIONAL)**

This task includes tasks that were spread out or delayed pending potential pursuit of grants, including deployment of Audio Moth devices in 2024 and 2025, three birds surveys per year at each site, and additional aquatic wildlife surveys in 2024 and 2025. In addition, this task includes completion of the Relative Elevation Model.

Deliverables:

- Survey results as applicable.

The estimated cost for Task 35B for additional surveys through June 30, 2025 is **\$132,105**.

### **Task 36 – Water Conservation and Groundwater Pumping Reduction Workplans Implementation**

#### **Task 36.1 – Outreach and Education Material Development, TAG Meetings, Public Workshops, Implementation Partner Collaboration, and Project Management**

ERA will manage the scope, schedule, and deliverables specified in the following tasks over the implementation period from January 2024 through June 2025 (LSCE outreach and meeting time covered

under other tasks). This includes preparing outreach materials and preparing for and participating in public workshops, as well as regularly scheduled technical meetings. Outreach and education material development, TAG meetings, public workshops, and implementation partner collaboration and meetings will include:

- ERA will prepare for and participate in up to 9 TAG meetings and up to 70 weekly coordination meetings with Client staff, and/or consult with Client staff by informal telephone calls and conference calls to limit coordination time and cost. It is anticipated that these meetings would be used to present interim results to the Client and TAG to receive initial feedback, and to discuss progress on GPR and WC Workplan implementation. TAG meetings will be held in person and Client coordination meeting will be held virtually to limit travel time and cost. TAG meeting preparation includes staff report development as well as presentation materials.
- ERA will support Client with public meetings and outreach for Workplan implementation. This includes preparing for and participating in up to three (3) additional public workshops to be held in person or remotely, as determined by Client.
- ERA will work with Client to conduct additional stakeholder outreach and implementation partner meetings. This includes up to 18 (approximately monthly) coordination meetings, to be held virtually, with Client partners, including but not limited to, local certification programs (e.g., Napa Green) and local businesses interested in participating in program development. ERA will prepare for and participate in outreach and implementation meetings.
- ERA will prepare outreach and educational materials for Client. Materials include up to 6 social media posts summarizing key Workplan implementation actions, to be defined in consultation with Client. This also includes up to 4 newsletters summarizing Workplan implementation, to be defined in consultation with Client. ERA will support Client with other as-needed requests to respond to stakeholder inquiries or develop supplemental outreach materials.
- ERA will work with Client to define potential partners and study areas for implementation of the project/program. This may include but is not limited to defining specific business for a certification program or specific areas/partners for a benchmarking program. If a test area (or areas) is identified, it will be used to inform implementation of test/initial programs for all subsequent technical tasks.

The budget for this task includes meeting participation and limited materials development (e.g., Staff Reports). Technical analysis effort that is required to support materials development is budgeted in subsequent technical tasks. This task also includes internal project coordination, administration, monthly invoicing, and project management.

Deliverables:

- If requested, meeting summary notes provided electronically via email. PowerPoint slides for TAG meetings covering presentations with the accompanying TAG Staff Reports. Public workshop presentation materials, social media posts, and newsletter materials as defined under Task 36.1.

The estimated cost to complete Task 36.1 for January 1 through June 30, 2024 is **\$37,613**. Estimated cost to complete Task 36.1 for July 1, 2024 through June 30, 2025 is **\$30,912**.

### **Task 36.2 – Conduct Cost-Effectiveness Analysis of Demand Management and GSP Supply Augmentation Project Opportunities**

The WC and GPR Workplans defined demand management activities for GSP implementation. The GSP also includes two potential projects to augment water supply: expanding recycled water and additional aquifer recharge. Under this task, ERA and LSCE will work with Client to evaluate the cost of the supply augmentation

options, prepare an economic cost-effectiveness analysis, and establish if (and if so at what scale) potential projects are cost-effective to include in the portfolio of GSP implementation activities. This analysis of supply augmentation options was requested by multiple stakeholders at the December 2023 Workplan public workshops.

While the GPR Workplan evaluates the cost-effectiveness of adoption of voluntary water conservation practices (demand management actions), this task will expand that analysis by evaluating supply augmentation potential and comparing these options on a consistent cost basis. Since project costs have not been fully developed, ERA will work with Client and LSCE to apply existing data, define preliminary project operations, estimate project costs, and generate a reconnaissance-level assessment of the GSP projects. The technical subtasks will include:

- ERA will work with Client to define the additional recharge and expanded recycled water project alternatives. This will include a reconnaissance-level overview of project operations, scale, and location.
- ERA and Client will define up to three (3) project alternatives that may include but are not limited to different recharge project locations, operations (e.g., reverse tile drain systems or on farm rainwater capture and retention), and scale. It is anticipated that project configurations will be presented at one or more TAG meetings (see Task 36.1).
- ERA will conduct outreach to stakeholders and interested parties for potential projects. This may include outreach and meetings with NapaSan in addition to meeting with growers/managers to evaluate project options and cost (e.g., for tile drain system management). Document findings in an internal field note format and update project costs and operations as appropriate.
- Prepare an economic analysis of the costs and physical benefits of alternative actions. Client will assist with defining project benefits and cost. ERA will define project capital, operating, borrowing, and maintenance and replacement costs for each project. Physical benefits will include annual expected water supply over a representative historical hydrology to be defined in consultation with Client. Since projects are intended to meet GSP objectives, it is anticipated that benefits would be evaluated relative to the period when the ISW is most sensitive to groundwater extraction and other stressors (e.g., climate). Prepare analysis for each project and project alternative.
- ERA will apply project cost components and benefits and calculate life-cycle costs for each project and alternative using appropriate financial methods.
- Apply the life-cycle project costs and incorporate demand management costs (as calculated in the Workplans) to develop a consistent cost comparison across projects and demand management actions. This will support evaluation of whether supply augmentation projects are cost-effective relative to demand management actions specified in the Workplans (and if so at what scale) and can be used to rank/screen potential projects and demand management actions.
- A critical component of effective projects and management actions to support GSP implementation and Subbasin SGMA compliance is the effect on sustainability indicators, including ISW/GDE. ERA will work with Client and other technical consultants (e.g., LSCE and Stillwater Sciences) to evaluate project capacity to protect and enhance ISW conditions. It is anticipated that these considerations will be included in addition to the cost-effectiveness criteria for ranking/screening project and demand management alternatives.
- Document findings in a concise technical report that describes the project alternatives, life-cycle costs, cost-effectiveness, and other factors that affect the feasibility and cost of project

implementation. It is anticipated that a summary of the results will be presented to the TAG at one or more meetings.

Deliverables:

- Report as described under Task 36.2.

The estimated cost to complete Task 36.2 for July 1, 2024 through June 30, 2025 is **\$95,078**.

### **Task 36.3 – Incentive Program for Voluntary Adoption of Water Conservation Practices**

Using the list of High-Priority Water Conservation Practices as defined in the GPR Workplan, ERA will develop options for, and work with Client and LSCE to select a preferred incentive program to encourage voluntary adoption of water conservation practices. This task includes:

- Evaluate alternative incentive structures including but not limited to cost-share programs, tiered rates, and in-kind services to incentivize the adoption of water conservation practices.
- Work with stakeholders to determine preferences and NCGSA staff to determine feasibility of implementation of alternative incentives. Conduct stakeholder interviews and outreach to inform program development in consultation with Client. This will include meetings with local organizations and businesses to inform development of incentives. Outreach will identify current constraints to practice adoption, which will inform incentive development. ERA will document outreach findings in internal notes and use feedback to refine the incentive program.
- Determine the appropriate incentive and level of benefit for each High-Priority Water Conservation Practice. Determine eligibility and process for receiving incentive benefits. Document findings and recommendations, including levels of incentives and process. As appropriate, identify potential partnerships for additional cost-share opportunities and/or outreach capacity to inform stakeholders of the incentive program.
- Prepare a concise technical memorandum documenting options for incentive structures and the preferred/recommended incentive structure. It is anticipated that results will be presented at one or more TAG meetings.
- Results of this Task 36.3 analysis will be used to inform subsequent technical tasks and steps for workplan implementation (e.g., incentives will support the voluntary certification program options).

Deliverables:

- Technical memorandum describing the program, incentives, levels of benefits for each High-Priority Water Conservation Practice, as well as eligibility, and process for receiving benefits.

The estimated cost to complete Task 36.3 for January 1 through June 30, 2024 is **\$49,092**. Estimated cost to complete Task 36.3 for July 1, 2024 through June 30, 2025 is **\$21,287**.

### **Task 36.4 – Develop and Implement Voluntary Certification Program**

Certification programs are a method to define and verify compliance with selected water conservation practices. In coordination with Client and regional partners (e.g., local certification programs or other entities capable of developing a certification program), ERA will determine the minimum criteria for a vineyard/winery certification program's membership to be eligible to receive incentive benefits for participation in the certification program as conceptualized in the GPR Workplan. It is anticipated that the NCGSA and one or more third party certifiers would be responsible for full program implementation. ERA will assist in program development and work across partners to develop and implement the program. Tasks include:

- ERA will define the water conservation practices to be included in the certification program, working in consultation with Client and other local partners. Determine the minimum criteria to be eligible for certification. This includes but is not limited to, specific water conservation practices, timeline for implementation, level of implementation (e.g., minimum distribution uniformity (DU) score and similar metrics), data reporting requirements, and any incentives for participation.
- ERA will work with Client to define certification program verification, data sharing, and compliance. Verification is critical for program implementation and will include the process for auditing/checking/verifying that certified entities are complying with program requirements, and thus generating anticipated water conservation benefits. This will additionally include defining requirements for data sharing/reporting (e.g., water use / meter data) to ensure compliance and support program development. Any data sharing will be evaluated for appropriate confidentiality provisions.
- Conduct stakeholder interviews and outreach to inform program development. This includes scheduled meetings with Client and other third-party certification programs. This may include assisting NCGSA with soliciting technical support services to support certification program development.
- Prepare a concise technical memorandum documenting program implementation including but not limited to practices, audit, certifiers, incentives, and other program rules. This task includes working with Client and partners to implement the certification program. It is anticipated that initial program development will be targeted to a test area/areas. Implementation includes assisting Client with developing educational and outreach materials to support awareness, TAG presentations, public workshops, and additional outreach (see Task 36.1).

Deliverables:

- Technical memorandum describing program rules and implementation as described under Task 36.4.

The estimated cost to complete Task 36.4 for January 1 through June 30, 2024 is **\$28,155**. Estimated cost to complete Task 36.4 for July 1, 2024 through June 30, 2025 is **\$91,728**.

### **Task 36.5 – Develop and Implement Benchmarking Program**

Benchmarking programs provide water users with anonymized data regarding their water use and how it compares to a basket of peers. Working with Client and stakeholders, ERA will develop a benchmarking program as conceptualized in the GPR Workplan. Refinements may include incorporation of additional data (e.g., geospatial or other attributes used to classify different types of water user groups). The initial benchmarking program will be developed for two different classes of water users: agricultural water users (e.g., vineyards) and rural residential water users. ERA will work with stakeholders to make the benchmarking program most useful and effective. Tasks include:

- ERA will work with Client and interested parties to identify vineyards and rural residential water users that would be willing to participate in and provide feedback on a test/initial benchmarking program. Conduct outreach and interviews to inform initial program development. Document findings in an internal field note format.
- Conduct analysis to establish the benchmarking program for vineyards and rural residential water users. This includes but is not limited to evaluating and classifying water users based on statistical methods and establishing baseline water use for the benchmarking program. ERA will work with Client to assemble required data and apply appropriate statistical methods to evaluate current and historical water use, and recommend baseline use rates in addition to variation in those rates across

user types and other factors (e.g., weather conditions). Define and document baseline water use, water use data reporting needs, water user peer groups, and the reporting system that will be provided to benchmarking program participants.

- ERA will prepare analysis and prepare formatted monthly benchmarking reports, to be sent to program participants.
- ERA will hold monthly check-ins with program participants to learn about which components of the benchmarking program are beneficial, which areas need improvement, and what additional information would be useful. Examples include the cadence of benchmarking reports, how data align with on-the-ground knowledge, and what additional insights or alerts (e.g., incoming weather alerts) would be useful in a test/initial program.
- Develop a process for analyzing water use data to evaluate program performance. This will include evaluating vineyard and rural residential water use for individuals that elect to participate in the program.
- Document findings and recommendations for a scaled benchmarking program in a concise technical memorandum. It is anticipated that program development and implementation will be presented at one or more TAG meetings.

Deliverables:

  - Technical memorandum summarizing findings and recommendations as described in Task 36.5. Formatted benchmarking reports as described in Task 36.5.

The estimated cost to complete Task 36.5 for January 1 through June 30, 2024 is **\$31,514**. Estimated cost to complete Task 36.5 for July 1, 2024 through June 30, 2025 is **\$87,933**.

### **Task 36.6 – Develop and Implement Messaging and Alert System**

In coordination with Client, ERA will research the implementation of a messaging and alert system that can be used to provide behavioral nudges, reminders, and other helpful alerts. Nudge systems have proven effective and are incorporated into the GPR Workplan. It is anticipated that the messaging and alert system would be integrated with other water conservation tasks (e.g., benchmarking) and therefore this task includes only messaging system research and development assistance. Tasks include:

- Research and compare alternative messaging systems including features to segment by user group (e.g., municipal/domestic, industrial, winery, vineyard), track open/interaction rates, send messages with alternative media as chosen by the user (e.g., text, email), and costs. Document opportunities to measure program performance by identifying water users with data (or willing to provide water use data) that can be tracked over time.
- Conduct stakeholder interviews and outreach to inform system development. Document findings in internal notes.
- Summarize alternatives and prepare recommendations for Client in a concise technical memorandum. Work with Client to select and implement a preferred alternative. Implementation includes application of the system and working with Client to send notifications, plus following up with stakeholders and evaluating program performance.

Deliverables:

- Messaging system implementation assistance and technical memorandum as described under Task 36.6.

The estimated cost to complete Task 36.6 for January 1 through June 30, 2024 is **\$23,752**. The estimated cost

to complete Task 36.6 for July 1, 2024 through June 30, 2025 is \$8,675.

### **Task 36.7 – Support Other Technical Services and Rate Study**

In coordination with Client and its other consultants, ERA will support the team developing the rate study to ensure that it is consistent with the GPR Workplan implementation (see prior Tasks) and its incentive-based policies. As requested and agreed to with Client, ERA will provide technical support to Client on the rate study, integration with WC and GPR Workplan implementation, and other matters related to GSP implementation. This may include coordinating with Client on the GPR implementation program's intersection with the Water Availability Analysis as appropriate.

Deliverables:

- Technical memorandum, meeting notes as requested, and participate in technical team meetings.

The estimated cost to complete Task 36.7 for January 1 through June 30, 2024 is \$32,025. The estimated cost to complete Task 36.7 for July 1, 2024 through June 30, 2025 is \$6,585.

### **Task 37 – Water Conservation Pilot Sites**

A Pilot Sites Program for vineyards and wineries is underway to accomplish two overarching objectives: 1) to refine estimates of vineyard and winery water use in the Napa Valley and 2) to share, collaborate, and contribute information about management practices, lessons learned, and building climate resiliency.

Napa Valley vineyards and wineries have a history of implementing water conservation measures, evaluating new water conservation methods, identifying approaches to achieve climate resiliency, and advancing water and soil management practices.

Through engagement with stakeholders, including the Napa County Farm Bureau, Napa Valley Grapegrowers, Winegrowers of Napa County, individual vineyard managers, and others, the NCGSA understands a wide range of water conservation and data collection methods and technologies are used in the Valley, tailored to achieve specific vineyard and winery management and sustainability objectives.

The NCGSA is seeking vineyard and winery managers or operators at the leading edge of water management and stewardship efforts with an interest in:

1. sharing information with others about the benefits they have experienced from changes in practices;
2. participating as a pilot site to highlight the benefits of adopting different practices for the viticulture and winemaking industry as well as basin-wide sustainability objectives; and
3. contributing information that helps to refine the understanding of total water use in Napa Valley and aid ground truthing of watershed-scale remotely sensed data.

For each field/vineyard/winery, the information shared will be compiled with information from other volunteered pilot sites to show the range of techniques and measurements being implemented and the benefits realized. Location-specific data will be used in the NVIHM to help improve water use estimates throughout the Napa Valley.

Task 37 supports Napa County's communications with interested growers and wineries, including meetings to provide more information about the program objectives and utilization of field data. This task also supports compiling and synthesizing data gathered from participants. This task also includes coordinating with the Pilot Program participants on outreach and education to others about water management and best management practices.

The estimated cost to complete Task 37 for January 1 through June 30, 2024 is \$24,972. The estimated cost to complete Task 37 for July 1, 2024 through June 30, 2025 is \$20,128.

### **Task 38 – Water Dashboard Development for Standardized Data Management**

The complementary WC and GPR Workplans provide the NCGSA and its stakeholders with a roadmap for

voluntary actions to achieve reductions in groundwater pumping in the Napa Valley Subbasin in accordance with the GSP and to comply with SGMA. After developing the WC and GPR Workplans, the next step is to implement the Workplans according to the defined implementation schedule.

A key component of WC and GPR Workplan implementation is measuring water use. Water use for development and redevelopment of vineyards in the Millikin-Sarco Tulecay Subarea (MST) is subject to water use limitations and reporting requirements. However, there is no standardized method for Napa County to collect, verify, and analyze water use data. This inefficiency increases NCGSA costs because important water use data are not readily available (or is not collected). Similarly, growers incur costs to collect, manage, and report data that are managed in disparate systems and subject to reporting error. Improving water management tracking provides benefits to the Napa Valley Subbasin, reduces costs for growers, and reduces costs for Napa County.

Under Task 38, ERA will implement its software, TAPP H2O (TAPP), to support the development and implementation of a water management tracking system for Napa County. TAPP is currently being used in the Midwest by groundwater management districts and their growers to track and report water use under allocation management. TAPP's earliest users are entering their fifth year using the application, covering several thousand acres of Midwest farmland.

This task has an anticipated timeline of 12 months. A targeted test program with a subset of growers/users to test TAPP implementation may be established for an area to be defined in consultation with Client and stakeholders.

#### **TAPP H2O NCGSA Dashboard**

TAPP water accounting software and mobile application will be applied for the NCGSA for collecting groundwater pumping data and tracking usage. TAPP is a water accounting software that automates meter readings (without requiring telemetry or other expensive in-field equipment) and shows users how much water they have used relative to water rights, allocations, or other water use limitations. TAPP has a mobile application used for taking meter readings in the field and a web-based software dashboard for users to track their water usage against targets or limitations (e.g., an allocation).

A TAPP dashboard will be developed for the NCGSA to query water metrics and run custom reports. TAPP development will include:

- Develop reports of individual and aggregated water use by TAPP users in the NCGSA. Work with NCGSA to develop desired reporting format (e.g., PDF, CSV, other data formats), reporting interval, metrics, and appropriate level of aggregation. Implement NCGSA reporting requirements, water use limitations, data, and allocation tracking in TAPP. Provide example reports for NCGSA.
- Work with NCGSA to determine desired features for a customized TAPP dashboard. This may include integration with other, existing county data and reporting systems. Prepare a concise scoping document illustrating dashboard features. Develop and implement the NCGSA dashboard that is consistent with the reporting format, interval, metrics, and aggregation defined by NCGSA.
- Train NCGSA on dashboard use and reporting and support rollout of the dashboard.

#### **TAPP H2O Implementation**

Rollout TAPP to growers in the NCGSA for tracking of groundwater pumping and water use reporting. This will include customer onboarding, technical demonstrations, adding and verifying water use limitation data, ongoing QA/QC of meter readings and reports, and other technical support. Implementation includes:

- Customer onboarding will include well registration, account management, and TAPP identification labels for meters. Customer information will be integrated into TAPP, including contact information, meter numbers, field identifiers, and allocation/ water right identifiers. Water tracking/allocation data will be added for each customer including wells, meters, and acreage data.

- Provide ongoing customer technical support for TAPP software use, meter readings, and water use reports. Review meter readings and water use reports. Provide ongoing general technical support, including inquiries from customers both by phone and by email.
- Prepare marketing materials and technical information for NCGSA and TAPP customers. This will include flyers and email materials about TAPP and water measurement and conservation practices in the NCGSA. Technical demonstrations may be held (in person or remotely) to show users how to use the mobile application to take meter readings, and how to use the online dashboard to track water usage against set limits. Assist NCGSA with making other technical information available to stakeholders.
- Work with NCGSA to define and implement the TAPP customer responsibility for annual subscription payments and any cost sharing. As requested, support NCGSA rate study development related to any TAPP development and incentive payments. The customer subscription cost is \$100 per meter per year. The NCGSA may pay for some number of subscriptions (or share of subscriptions) upfront and/or offer reimbursements for growers after they purchase a subscription. The budget presented in this scope does not assume any cost-share arrangement, and that customers will pay for subscriptions separately at a cost of \$100 per meter per year.

*Deliverables:*

- Example dashboard report. Draft dashboard example and training. TAPP customer implementation and mobile applications for users that sign up for subscriptions.

The estimated cost to complete Task 38 for July 1, 2024 through June 30, 2025 is \$50,000.

#### Summary of Estimated Costs

The original scope of services for GSP implementation had 14 tasks and was amended to 33 tasks in 2022. Thirteen of these tasks have been completed, including Tasks 3, 4, 7, 8, 9, 10, 11, 12, 15, 22, 26, 29, and 33. Twenty tasks are continuing; five new tasks (Tasks 34 through 38) have been added for additional GSP implementation purposes. **Table 2** below summarizes the estimated task costs for January 1, 2024 through June 30, 2025 for the continuing and new tasks.

The estimated budget for January 1, 2024 through June 30, 2024 is \$932,277, and the estimated budget for July 1, 2024 through June 30, 2025 is \$1,542,440. The total estimated budget is \$2,474,717 (Table 2). The estimated cost for optional tasks is \$329,227. In consideration of the residual budget of \$153,259 shown in **Table 1**, the requested amendment for GSP implementation technical services includes \$2,803,944 for core and optional tasks minus the residual budget for a total of \$2,650,685.

**Table 2. Summary of Budget Amendment Tasks for January 1, 2024 through June 30, 2025**

Task Description	January 2024 through June 2024		July 2024 through June 2025	
	Subtask	Task	Subtask	Task
<b>Task 1 – Project Management and Administration</b>				
	Project management and admin and support for DWR progress reports	\$10,160		\$20,320
	<b>Task Total</b>	<b>\$10,160</b>		<b>\$20,320</b>
<b>Task 2 – Stakeholder Engagement/Outreach</b>				
Task 2.1	Meeting Prep and Special Meetings Planning Team	\$42,480		\$56,640
Task 2.2	Public Outreach, Newsletters, Technical Support to County for Communications	\$10,160		\$28,320
	<b>Task Total</b>	<b>\$52,640</b>		<b>\$84,960</b>
<b>Task 5 – DMS and Data Products</b>				
	Updating and maintaining the DMS. Maintain and enhance data visualization tools.	\$10,360		\$19,960
	<b>Task Total</b>	<b>\$10,360</b>		<b>\$19,960</b>
<b>Task 6 – Monitoring/Assessment</b>				
	Provide technical support services for completion of grant project for monitoring wells component. Prepare final installation and instrumentation reporting documentation.	\$10,840		
	<b>Task Total</b>	<b>\$10,840</b>		
<b>Task 13 – Grant Proposal Support</b>				
	Support NCGSA with grant application(s) TBD	\$14,960		\$14,960
	<b>Task Total</b>	<b>\$14,960</b>		<b>\$14,960</b>
<b>Task 14 – On-call Services and Meetings</b>				
	Assist NCGSA staff as needed with GSP implementation efforts. Supplemental meetings as needed.	\$42,480		\$63,720
	<b>Task Total</b>	<b>\$42,480</b>		<b>\$63,720</b>
<b>Task 16 - Napa Valley GSP Monitoring Implementation (FY 2023-2024)</b>				
Task 16.1	Groundwater Elevation Monitoring: Coordinating, supporting, and training during monitoring; providing support for NCGSA staff conducting monitoring	\$9,452		
Task 16.2	Groundwater Quality Monitoring: Conducting, coordinating, supporting, and training during monitoring; providing	\$28,152		

**Table 2. Summary of Budget Amendment Tasks for January 1, 2024 through June 30, 2025**

Task Description	January 2024 through June 2024		July 2024 through June 2025	
	Subtask	Task	Subtask	Task
	support for NCGSA staff conducting monitoring			
Task 16.3	Surface Water Quality and Stage Monitoring: Coordinating, supporting, and training during monitoring; providing support for NCGSA staff conducting monitoring	\$4,692		
Task 16.4	Surface Water Stage Monitoring Installation: Installation and surveying of stream stage monitoring sites adjacent to 8 new MW sites	\$32,396		
	<b>Task Total</b>	<b>\$74,692</b>		
<b>Task 17 – Napa Valley GSP Monitoring Implementation (FY 2024-2025)</b>				
Task 17.1	Groundwater Elevation Monitoring: Coordination, Support, and Training; all monitoring to be conducted by NCGSA staff		\$12,568	
Task 17.2	Groundwater Quality Monitoring: Coordination, Support, and Training; providing support for NCGSA staff conducting monitoring		\$28,152	
Task 17.3	Surface Water Quality Monitoring: Coordination, Support, and Training; providing support for NCGSA staff conducting monitoring		\$12,048	
	<b>Task Total</b>			<b>\$52,768</b>
<b>Task 18 – Evaluation of Hydrologic Data/Sustainability Indicators</b>				
Task 18.1	Evaluation of Hydrologic Data - ongoing review and analysis of monitoring data and conditions in relation to SMC and triggers; including assessment of mid-winter conditions (precipitation deficit) and implications for required management actions	\$13,196	\$18,936	
Task 18.2	Monitoring networks and Identifying and Addressing Data Gaps	\$6,048	\$11,056	
Task 18.3	SMC and Potential Triggers, Exceedances and Recommended Actions	\$8,600	\$17,200	
	<b>Task Total</b>		<b>\$27,844</b>	<b>\$47,192</b>

**Table 2. Summary of Budget Amendment Tasks for January 1, 2024 through June 30, 2025**

<b>Task Description</b>	<b>January 2024 through June 2024</b>		<b>July 2024 through June 2025</b>	
	<b>Subtask</b>	<b>Task</b>	<b>Subtask</b>	<b>Task</b>
<b>Task 19 – Interconnected Surface Waters and GDEs Workplan</b>				
	Response to Comments and Finalize Workplan	\$21,056		
	<b>Task Total</b>	<b>\$23,056</b>		
<b>Task 20 – Water Conservation Workplan</b>				
	Response to Comments and Finalize Workplan	\$16,476		
	<b>Task Total</b>	<b>\$16,476</b>		
<b>Task 21 – Groundwater Pumping Reduction Workplan</b>				
	Response to Comments and Finalize Workplan	\$28,856		
	<b>Task Total</b>	<b>\$28,856</b>		
<b>Task 23 – Water Year 2023 Required GSP Annual Report</b>				
<b>Task 23.1</b>	Data acquisition and quality control review of the following: Subsidence data (InSAR and NGS stations) and groundwater levels (DWR, Napa County, Geotracker, USGS). Obtain/update publicly available groundwater quality data. Also includes acquisition of data necessary for the water budget reporting required for the SGMA Annual Report (e.g., groundwater extractions, surface water diversions/deliveries). This involves coordination with local entities and QC of riparian diversion data from eWRIMS and other surface water inflow data.	\$6,876		
<b>Task 23.2</b>	Update tables, figures and appendices with most current groundwater level (e.g. groundwater level contour maps) and subsidence data. Prepare change in groundwater storage maps. Prepare graph depicting water year type, groundwater use, annual change in storage, and cumulative change in storage, including January 1, 2015 to current year.	\$17,296		

**Table 2. Summary of Budget Amendment Tasks for January 1, 2024 through June 30, 2025**

Task Description	January 2024 through June 2024		July 2024 through June 2025	
	Subtask	Task	Subtask	Task
Task 23.3	Compute and summarize annual groundwater extraction estimates for all water use sectors; estimate surface water supply used or available for use (or in lieu use). Summarize total water use. Prepare and summarize for water years 2015 through 2022, per SGMA requirements.	\$6,152		
Task 23.4.1	Draft report preparation and distribution	\$19,808		
Task 23.4.2	Final report preparation and distribution	\$6,648		
Task 23.4.3	Data upload to DWR Portal	\$3,624		
Task Total		\$60,404		
<b>Task 24 – Water Year 2024 Required GSP Annual Report</b>				
Task 24.1	Data acquisition and quality control review of the following: Subsidence data (InSAR and NGS stations) and groundwater levels (DWR, Napa County, Geotracker, USGS). Obtain/update publicly available groundwater quality data. Also includes acquisition of data necessary for the water budget reporting required for the SGMA Annual Report (e.g., groundwater extractions, surface water diversions/deliveries).			\$23,812
Task 24.2	Update tables, figures and appendices with most current groundwater level (e.g. groundwater level contour maps) and subsidence data. Prepare change in groundwater storage maps. Prepare graph depicting water year type, groundwater use, annual change in storage, and cumulative change in storage, including January 1, 2015 to current year.			\$21,556
Task 24.3	Compute and summarize annual groundwater extraction estimates for all water use sectors; estimate surface water supply used or available for use (or in lieu use). Summarize total water use.			\$6,152
Task 24.4	Draft report preparation and distribution			\$21,792

**Table 2. Summary of Budget Amendment Tasks for January 1, 2024 through June 30, 2025**

<b>Task Description</b>		<b>January 2024 through June 2024</b>		<b>July 2024 through June 2025</b>	
		<b>Subtask</b>	<b>Task</b>	<b>Subtask</b>	<b>Task</b>
Task 24.5	Final report preparation and distribution			\$8,072	
Task 24.6	Data upload to DWR Portal			\$5,112	
<b>Task Total</b>					<b>\$86,496</b>
<b>Task 25 – Technical Advisory Group Coordination/Technical Support</b>					
	Other TAG/GSA Meetings (Jan 2024 - June 2024; 5 meetings; at least 1 GSA meeting)	\$59,840		\$107,120	
<b>Task Total</b>		<b>\$59,840</b>			<b>\$107,120</b>
<b>Task 27 – Napa Valley Integrated Hydrologic Model Refinement (FY 2023-2024)</b>					
Task 27.1	Stream Properties	\$5,840			
Task 27.2	Platform Updates (Soil Moisture)	\$22,282			
Task 27.3	Communication of Model Refinements	\$7,040			
<b>Task Total</b>		<b>\$35,162</b>			
<b>Task 28 – Napa Valley Integrated Hydrologic Model Refinement (FY 2024-2025)</b>					
Task 28.1	Geologic, ET, Soil Moisture and Other Refinements			\$41,832	
Task 28.2	Upper Watershed Model Refinements			\$18,420	
Task 28.3	Refinement of Model Calibration			\$33,264	
Task 28.4	Documentation of Model Refinements			\$29,880	
<b>Task Total</b>		<b>\$0</b>			<b>\$123,396</b>
<b>Task 30 – Napa Valley Integrated Hydrologic Model Scenarios/Application (FY 2023-2024)</b>					
Task 30.1	Annual Report Support	\$7,992			
Task 30.2	Develop Pumping Reduction Scenarios	\$7,560			
Task 30.3	Recharge Scenarios	\$7,560			
Task 30.4	Climate Change Approach Refinements	\$2,450			
Task 30.5	As Requested Modeling Scenarios	\$33,212			
<b>Task Total</b>		<b>\$58,774</b>			
<b>Task 31 – Napa Valley Integrated Hydrologic Model Scenarios/Application (FY 2024-2025)</b>					
Task 31.1	Annual Report Support			\$9,852	
Task 31.2	Climate Change Scenarios			\$47,768	
Task 31.3	As Requested Modeling Scenarios			\$48,548	
<b>Task Total</b>					<b>\$106,168</b>

**Table 2. Summary of Budget Amendment Tasks for January 1, 2024 through June 30, 2025**

Task Description	January 2024 through June 2024		July 2024 through June 2025	
	Subtask	Task	Subtask	Task
<b>Task 32 – Drought and Water Shortage Task Force – Technical Support (Dry Well Potential and Other)</b>				
	Support to Napa County for Drought and Water Shortage Task Force	\$4,064		\$6,096
	<b>Task Total</b>	<b>\$4,064</b>		<b>\$6,096</b>
<b>Task 34 – Well Inventory Support</b>				
	Updates to well inventory database; provide input as needed.	\$4,904		\$8,552
	<b>Task Total</b>	<b>\$4,904</b>		<b>\$8,552</b>
<b>Task 35 – ISW and GDEs Workplan Implementation</b>				
Task 35.1.1	Site Reconnaissance and Access	\$37,873		\$5,884
Task 35.1.2	Vegetation Surveys	\$27,783		\$10,955
Task 35.1.3	Aq. Wildlife	\$21,644		\$15,181
Task 35.1.4	Terrestrial Wildlife			\$23,835
Task 35.1.5	Topographic surveys and hydraulic modeling			\$69,157
Task 35.2	CEFF Assessment			\$100,712
Task 35.3	2024 Tech Memo			\$35,432
Task 35.4	Meetings: LSCE and Stillwater; LSCE/SS/RCD/County; LSCE/County SB and RB	\$60,117		\$81,473
Task 35.5	Stillwater Sciences Grant Support	\$6,272		\$14,356
Task 35.6	Project Management (specific to ISW and GDEs Workplan implementation)	\$15,955		\$31,423
	<b>Task Total</b>	<b>\$169,644</b>		<b>\$388,408</b>
<b>Task 36 – Water Conservation and GW Pumping Reduction Workplan Implementation</b>				
Task 36.1	Outreach and Education Material Development, Public Workshops, Implementation Partner Collaboration, and Project Management	\$37,613		\$30,912
Task 36.2	Conduct Cost-Effectiveness Analysis of Demand Management and GSP Supply Augmentation Project Opportunities			\$95,078
Task 36.3	Incentive Program for Voluntary Adoption of Water Conservation Practices	\$49,092		\$21,287
Task 36.4	Develop and Implement Voluntary Certification Program	\$28,155		\$91,728
Task 36.5	Develop and Implement Benchmarking Program	\$31,514		\$87,933

<b>Table 2. Summary of Budget Amendment Tasks for January 1, 2024 through June 30, 2025</b>					
<b>Task Description</b>		<b>January 2024 through June 2024</b>		<b>July 2024 through June 2025</b>	
		<b>Subtask</b>	<b>Task</b>	<b>Subtask</b>	<b>Task</b>
<b>Task 36.6</b>	Develop and Implement Messaging and Alert System	\$23,752		\$8,675	
<b>Task 36.7</b>	Support Other Technical Services and Rate Study	\$32,025		\$6,585	
		<b>Task Total</b>		<b>\$202,149</b>	
<b>Task 37 – Water Conservation Pilot Sites</b>					
	Coordinate re Pilot Site Implementation	\$24,972		\$20,128	
		<b>Task Total</b>		<b>\$24,972</b>	
<b>Task 38 – Water Dashboard Development for Standardized Data Management</b>					
	TAPP H2O NCGSA Dashboard and Steps for Implementation			\$50,000	
		<b>Task Total</b>			<b>\$50,000</b>
<b>Totals Each Fiscal Period</b>				<b>\$932,277</b>	
<b>Total Budget Amendment January 1, 2024 through June 30, 2025</b>					<b>\$1,542,440</b>
<b>Total Budget Amendment January 1, 2024 through June 30, 2025</b>					
<b>Task 17A – Additional Groundwater Level and ISW Monitoring Site Installation (OPTIONAL: Two Sites Assumed)</b>					
	Two additional groundwater level and ISW monitoring sites			\$124,742	
		<b>Task Total</b>			<b>\$124,742</b>
<b>Task 35A – ISW and GDEs Workplan Implementation: Monitoring Support Contingency -- OPTIONAL</b>					
<b>Task 35A</b>	ISW and GDEs Workplan Implementation: Monitoring Support Contingency			\$72,380	
		<b>Task Total</b>			<b>\$72,380</b>
<b>Task 35B – ISW and GDEs Workplan Implementation: Additional Surveys -- OPTIONAL</b>					
<b>Task 35B</b>	ISW and GDEs Workplan Implementation: Additional Surveys			\$132,105	
		<b>Task Total</b>			<b>\$132,105</b>
<b>Total for Optional Tasks 17A, 35A and 35B</b>					<b>\$329,227</b>
<b>Total Budget Amendment January 1, 2024 through June 30, 2025 Plus the Optional Tasks (17A, 35A, and 35B)</b>					<b>\$2,803,944</b>
<b>Remove Carryover (Residual Budget as of Dec 31, 2023)</b>					<b>(\$153,209)</b>
<b>REQUESTED AMENDMENT AMOUNT: Total Budget Amendment January 1, 2024 through June 30, 2025, Plus Optional Tasks, and Subtraction of December 31, 2023 Residual Budget</b>					<b>\$2,650,685</b>

**EXHIBIT "B-3"****LUHDORFF & SCALMANINI, CONSULTING ENGINEERS COMPENSATION RATES****SCHEDULE OF FEES - ENGINEERING AND FIELD SERVICES 2024****Professional\***

Senior Principal.....	\$260/hr.
Principal Professional .....	\$248/hr.
Supervising Professional.....	\$238/hr.
Senior Professional.....	\$200 to 228/hr.
Project Professional.....	\$182/hr.
Staff Professional.....	\$165/hr.

**Technical**

ACAD/DMS/GIS .....	\$150/hr.
Engineering Assistant .....	\$135/hr.
Scientist .....	\$135/hr.
Technician .....	\$135/hr.

**Clerical Support**

Word Processing, Clerical .....	\$105/hr.
Digital Communications Specialist .....	\$115/hr.
Project Admin/Accounting Assistant.....	\$115/hr.

Vehicle Use (rate)	\$0.67/mi. (or current IRS
Subsistence	Cost Plus 15%
Groundwater Sampling Equipment (Includes Operator)	\$200.00/hr
Copies	\$0.20 ea.
Professional or Technical Testimony	200% of Regular Rates
Technical Overtime (if required)	150% of Regular Rates
Outside Services/Rentals	Cost Plus 15%
Services by Associate Firms	Cost Plus 15%

\* *Engineer, Geologist, Hydrogeologist, and Hydrologist*