Attachment 4: Work Plan
East Butte Subbasin Groundwater Sustainability Plan (Project 3)

Overview
The East Butte subbasin (5-21.59) is identified by the Department of Water Resources as a Medium Priority subbasin. This Work Plan lays out the tasks necessary to develop the Groundwater Sustainability Plan (GSP) for the East Butte subbasin. Tasks 1-9 represent foundational, underlying tasks that support GSP development, adoption, and implementation but are not directly linked to the GSP content, as described in Article 5 of the GSP Regulations. All remaining tasks (Tasks 10-15) are tied directly to the GSP content and organized by Subarticle of Article 5 of the GSP Regulations, with subtasks based on individual sections of Subarticle 5.

Task 1. Project Management and Administration
This task is designed to manage the agreement with DWR in compliance with grant requirements, and includes preparation and submission of supporting documents for development of the GSPs for the East Butte Subbasin as well as the Vina, West Butte and Wyandotte Creek Subbasins, which are also included in this grant proposal. This task also includes administrative responsibilities associated with the project such as managing consultants/contractors and various reporting as required by DWR.

Subtask 1. Grant Management
Subtask 1 addresses the on-going management of the grant agreement and includes development of the contractual agreement between Butte County and the DWR.

Deliverables:
1. Audited Financial Statement Forms
2. Executed Agreement with DWR
3. Subsequent Agreement Amendments (if necessary)

Subtask 2. Reporting and Invoicing
Under Subtask 2, grantee agrees to prepare progress reports detailing work completed during each reporting period as designated by the DWR project manager. Progress reports shall include sufficient information for the DWR project manager to review and comprehend backup documentation submitted with invoices. Grantee shall prepare draft invoices for submission to DWR per direction by DWR project manager using the invoice template provided by DWR. All back-up documentation will be organized by task and include a summary excel document detailing contents of backup materials provided that track the budget and verify expenditures for submission with each draft invoice. Grantee will respond to DWR project manager’s comments and questions on the draft invoice in a timely manner to prepare and submit the final invoice as quickly as possible.

Deliverables:
1. Project Progress Reports
2. Draft and Final Project Completion Reports
3. Draft and final invoices
4. Backup documentation and summary documents
Task 2. GSA Governance
The GSAs in the East Butte subbasin include Butte County, Sutter County, Butte Water District, Biggs West Gridley Water District, City of Biggs, City of Live Oak, City of Gridley, City of Oroville, Sutter Extension Water District, Thermalito Water and Sewer, Western Canal Water District, Richvale Irrigation District. The GSAs have formally committed through letters of support (Attachment 3 – Justification, Project Support) to work toward the development of one GSP for the East Butte subbasin. The GSAs have begun exploring various governance structures for the East Butte GSP. However, these parties have not yet decided on the final governance structure to be utilized in the East Butte subbasin. The final governance structure will include the decision making process for GSP development, adoption and implementation. Governance may also include advisory committees (if applicable) and various staffing assignments. All parties agree that the GSA governance may be affected by potential basin boundary modifications as early as 2018 and have agreed to review potential basin boundary modifications through the facilitated process.

Deliverable:
1. Prepare and submit the GSA governance documentation for inclusion in the Agency Information section of the East Butte GSP (§354.6) including all related filings by GSA entities and finalized basin modifications as appropriate.

Task 3. Facilitation Support
Facilitation support under this program will be led by a professional facilitator with staff support. Facilitation will build upon Phase I and Phase II Facilitation Support Services provided by DWR to cover full GSP development and adoption by January 2022. Non-biased facilitation will ensure that work is completed in an open and collaborative manner and that the GSP will be developed in an inclusive process that seeks, promotes, and encourages, the involvement of all interested parties. Facilitation will be conducted throughout the extent of the project and will inform the development of the GSP through the Notice and Communication Plan (Task 11, subtask 4). We believe that facilitation will be a critical component in the development of the Sustainable Management Criteria (Task 13) and Projects and Management Action (Task 15). All parties will be encouraged to participate in the GSP development process through this non-biased third party facilitation. This task will include the following activities:
1. Identification and engagement of interested persons.
2. Facilitation of various meetings and sub-committees.
3. Interest-based negotiation/consensus building with interested parties.
4. Facilitation of public outreach workshops

Deliverables:
1. Meeting announcements, agendas, and minutes.

Task 4. Coordination with Neighboring Basins
For the East Butte Subbasin, neighboring basins include the West Butte (5-021.58), Wyandotte Creek (5-021.69), Colusa (5-21.52), North Yuba (5-021.69) and Sutter (5-021.62) subbasins. East Butte and the adjoining subbasins have varying degrees of interconnectedness. Coordination among the GSAs will assure that their respective GSPs will not adversely affect the ability of an adjoining GSP to achieve their sustainability goals (Water Code §10733(c)), promote the development of regional sustainability projects, and coordinate policy and program approaches. This task will be led by staff with limited
consultant support. All associated subbasins are located within the Northern Sacramento Valley Integrated Regional Water Management (NSVIRWM) area. Outreach and coordination discussion will continue to occur through the NSVIRWM Board of Directors and Technical Advisory Committee (TAC) as they have been discussing and reviewing SGMA issues since 2015. As an example, the NSVIRWM TAC participated in the development of the report entitled, Assessment of Interconnected Subbasins, which will be used as a guiding document by all subbasins within the region to create water balances throughout the region. Coordination will also occur through standing and ad hoc groups, and other informal means. This task will include the following activities:

1. Regular communication with representatives of neighboring basins.
2. Public meetings and workshops to facilitate coordination regarding technical and policy considerations, including evaluation of groundwater conditions and flows, definition of sustainable management criteria, and other relevant topics.

**Deliverables:**

1. Meeting materials, including agendas, minutes, presentations, etc.
2. Formal agreements including voluntary Interbasin Agreements (§357.2), technical agreements and others, as applicable.

**Task 5. Integrated Hydrologic Modeling**

This task will be led by a consultant with staff direction and support. This task will build upon existing information, including the report, “Assessment of Interconnected Subbasins” completed through the NSVIRWM in 2017 with funding from the California Water Foundation; the Water Inventory and Analysis updated by Butte County in 2016, and recent and ongoing updates to the Butte Basin Groundwater Model (BBGM). For purposes of the proposal, it is assumed that either the BBGM or SVSim will be selected as a starting point to develop a model application to support GSP development in the East Butte Subbasin. It is anticipated that the selected application will be refined based on local water budget information. Sources of local data may include agricultural water management plans (AWMPs), urban water management plans (UWMPs), municipal service reviews (MSRs), and the NSVIRWMP. This task will include the following activities:

1. Compilation, evaluation, and comparison of BBGM, SVSim and local information, considering:
   a. Comparison of water budgets
   b. Input data (e.g. diversions, land use, surface water inflows and outflows, precipitation)
   c. Model structure (relationship to HCM; spatial and temporal discretization; layering; representation of hydrologic features, including streams, springs and groundwater dependent ecosystems; and delineation of subregions)
   d. Calibration: Groundwater levels and streamflows
2. Selection and refinement of integrated hydrologic model for water budget development and other analysis supporting GSP development, considering:
   a. Refinement or other modifications to spatial and temporal discretization and delineation of subregions.
   b. Refinements or other modifications to surface layer inputs, including static and time series data and parameters used to simulate streams and root zone processes, and the representation and spatial distribution of groundwater pumping and recharge.
c. Refinements to subsurface inputs, including hydrogeology and subsurface representation, boundary conditions, vertical distribution of pumping, and aquifer hydraulic parameters.

3. Development of model scenarios, completion of model runs, and evaluation of model results, including:
   a. Historical, current, and projected water budgets for the subbasin and potentially for management areas (Task 12, subtask 4) within the subbasin.
   b. Scenarios for future conditions, considering climate change, land use, population, surface water availability, and other relevant factors.

4. Development of model scenarios to support evaluation of potential projects and management actions or other analysis, including:
   a. Model revisions, as needed.
   b. Scenario development and completion of model runs.
   c. Analysis and comparison of potential projects and management actions.

**Deliverables:**

1. Technical documentation of model evaluation, comparisons and selection documentation.
2. Technical documentation of refinements and other modifications to selected application.
3. Technical documentation of model scenarios and results.
4. Electronic model files for refined model and scenarios developed.

**Task 6. Data Collection and Analysis to Support GSP Development**

The task will identify and develop data and information needed to inform the hydrogeologic conceptual model (HCM), numerical modeling and calibration, and development of measurable objectives and sustainability thresholds. The identification of data needs may be conducted through a technical advisory committee designated by the GSAs. The evaluation of data needs will consider previous studies and technical recommendations such as those identified through the Lower Tuscan Investigation, NSVIRWM project priorities, Stable Isotope Recharge Study and the Butte County 2016 Water Inventory and Analysis Report. Data collection approaches may include an Airborne Electromagnetic Survey (AEM) to better define the structure of the groundwater basin within the East Butte subbasin, installation of additional stream gaging locations, or installation of additional monitoring wells to provide critical data for better numerical model calibration and monitoring of groundwater conditions and stream-groundwater interaction within the subbasin. A consultant with staff direction and support will lead this task. This task will include the following activities:

1. Identification of data collection and analysis needs.
2. Planning and implementation of data collection activities.
3. Data analysis and documentation of methodologies and results.

**Deliverables:**

1. Technical memorandum that identifies data and analytical needs for GSP development
2. Established datasets.
3. Documentation of data collection and analysis.

**Task 7. Monitoring Protocols (§352.2)**

This task is related to Article 3 of the GSP Regulations: Technical and Reporting Standards and will be led by a consultant with staff direction and support. The task will build upon existing documentation.
developed by Butte County and Sutter County for the California Statewide Elevation Monitoring (CASGEM) Program and from other available sources. Existing protocols will be evaluated using the DWR’s BMP for Monitoring Protocols, Standards, and Sites and GSP Regulations and updated as needed to ensure compliance with SGMA. This task will include the following activities:

1. Identification and compilation of existing monitoring protocols.
2. Review and updating of monitoring protocols as needed for consistency with best management practices (BMPs) and GSP regulations.

Deliverable:
1. Documented monitoring protocols for inclusion in the GSP.

Task 8. Data and Reporting Standards (§352.4)
This task is related to Article 3 of the GSP Regulations: Technical and Reporting Standards and will be led by a consultant with staff direction and support. The task will focus on evaluating whether existing data standards meet the GSP Data and Reporting Standards (§352.4) and identifying the actions needed to modify the existing standards. A protocol will be developed to assure that newly developed data will meet the GSP Data and Reporting Standard. Priority will be placed on data required for the development of the hydrogeologic conceptual model (HCM), the water budget, maps, hydrographs, Butte Basin Groundwater Model and other groundwater models and the monitoring network. Monitoring network data gaps will be further evaluated under Task 14, Subtask 3. This task will include the following activities:

1. Inventory and review of current data and reporting standards and potential reformatting as needed for consistency with GSP standards.
2. Modification of existing data and reporting standards to meet GSP requirements
3. Incorporation of GSP data and reporting standards into protocols to be used for new data.

Deliverable:
1. A technical memorandum, which includes an inventory of required data and reports that support GSP development, the data and reporting standards that comply with GSP regulations, and documentation of actions to comply with data and reporting standards.

Task 9. Data Management System (§352.6)
This task will evaluate, select and deploy the data management system for the East Butte GSP consistent with Article 3 of the GSP Regulations: Technical and Reporting Standards. The task will involve an evaluation of Data Management System (DMS) options. The DMS evaluation will consider DWR reporting requirements, once established, as well as guidance that DWR may provide in the form of a BMP or other documents that may be available. An evaluation of DMS options will consider a range of available options, including: proprietary systems, open-source systems developed by DWR or and independent custom application. Based on the results of the DMS evaluation, the DMS will be selected for implementation. A consultant with some staff support will conduct this task. This task will include the following activities:

1. Inventory of existing DMS and review of DWR reporting requirements, BMP and other materials.
2. Development of specifications for initial design of DMS.
3. Development, testing, and implementation of Quality Control (QC) procedures.
4. Compilation of high priority data and importation to a preliminary, non-proprietary DMS capable of future reporting to other platforms.
6. Implementation and testing of QC procedures.

**Deliverables:**
1. DMS evaluation and selection technical memorandum.
2. DMS user guide.
3. DMS software, including data used in the development and implementation of the elements to support GSP annual reporting.

**Task 10. GSP Document Preparation and Adoption**
The draft GSP will be prepared for public review by compiling various sections of the GSP content developed under Tasks 11 through 15, including review of each section to ensure that all GSP content required by the Regulations is included. Copies of the draft GSP will be produced and distributed to facilitate public review by decision-makers and other stakeholders within the East Butte subbasin. The availability of the GSP for review and comment will be based on the Notice and Communication Plan (Task 11, subtask 4) that will include a widespread distribution of the draft GSP as well as a comprehensive public comment process, which will include an opportunity for responses from the appropriate GSAs. However, preparation and adoption of the East Butte GSP will not be subject to the California Environmental Quality Act (CEQA) pursuant to Water Code §10728.6. Additionally, this task will include adoption of the GSP by the appropriate GSAs at one or more public hearings. Staff with some consultant support will lead this task. This task will include the following activities:

1. Assemble draft GSP based on content developed under Tasks 11 through 15.
2. Distribute final draft GSP for public review, gather and incorporate public comments, and facilitate GSP adoption by appropriate GSA(s).

**Deliverables:**
1. Draft and final GSP documents.

**Task 11. GSP Administrative Information (Subarticle 1)**
This task consists of all activities required to prepare GSP Administrative Information as described in Article 5, Subarticle 1 of the GSP Regulations. The associated subtasks are described below.

**Subtask 1. General Information (§354.4)**
This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 1: Administrative Information. Staff will lead this subtask with some consultant support. The executive summary will be prepared late in the development of the GSP, building upon individual sections of the draft GSP once it is complete or nearly complete. All references will be cataloged throughout the development of the GSP. This subtask will include the following activities:

1. Preparation of executive summary.
2. Compilation and preparation of a literature review which includes a list of references and technical studies.
Deliverable:
1. General information section of GSP document, which includes an executive summary and list of references and technical studies.

Subtask 2. Agency Information (§354.6)
This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 1: Administrative Information and will be led by a consultant with staff direction and support. Agency information as required by the GSP regulations will be prepared primarily by staff at the start of GSP development (Task 2). The estimate of GSP implementation costs will be prepared late in GSP development once implementation activities are better understood (monitoring, reporting, projects and management actions, etc.). Staff with some consultant support will lead this subtask. This subtask will include the following activities:
1. Preparation of a summary of Agency information.
2. Preparation of an estimate of implementation program/project costs.

Deliverables:
1. Summary of Agency information
2. Estimate of implementation costs.

Subtask 3. Description of Plan Area (§354.8)
This subtask will produce a description of the plan area for inclusion in the GSP consistent with Article 5 of the GSP Regulations: Plan Contents, Subarticle 1: Administrative Information, and will be led by staff with some consultant support. This task will build upon information from the 2005 Butte County GMP, and documentation developed from the Butte County Stressed Basins grant, AWMPs, UWMPs, MSRs, the NSVIRWMP, General Plans, data made available by DWR, and other information as appropriate. This subtask will include the following activities:
1. Preparation of map(s) of the plan area, including GSAs; adjacent basins; adjudicated and alternative GSP areas; other jurisdictional boundaries; land uses, water use sectors, and water source types; well densities for agricultural, industrial, and domestic wells.
2. Preparation of a written description of plan area.
3. Description of existing water resource monitoring and management programs, and their integration into the monitoring network.
4. Description of existing programs how they may limit operational flexibility.
5. Description of existing and proposed conjunctive use programs that integrate the use of groundwater and surface water supplies.
6. Description of land use elements, including a summary of general plans and specified considerations related to GSP development and implementation.
7. Description of additional GSP elements as appropriate.

Deliverables:
1. Maps of the plan area, adjacent subbasins, land use, water sources, etc.
2. Narrative description of the plan area.
3. Description of water resource monitoring, management programs and potential operational limitations.
4. Report describing General Plan elements and their relationship with the GSP.
5. Inventory of existing and potential conjunctive use programs.
Subtask 4. Notice and Communication (§354.10)
This subtask will develop the notice and communication strategy consistent with Article 5 of the GSP Regulations: Plan Contents, Subarticle 1: Administrative Information, and will be led by staff with consultant support. This task does not include Facilitation Support (Task 3) or Coordination with Neighboring Basins (Task 4). This subtask will develop the Notice and Communication Plan for the East Butte GSP. The Notice and Communication Plan will describe the GSA’s decision-making process, access to meetings, documents, reports and proposals, the opportunity for public participation, and any public outreach activities and communications. The subtask will consider approaches included in reports such as “Stakeholder Communication and Engagement” (DWR), “Collaborating for Success” (Community Water Center) and the draft Proposal for Native American Outreach in Butte County.

The task will begin with a focus on the identification of stakeholders (beneficial uses and users of water) and conclude with the development of the communications plan. Actions will be taken to identify and involve all beneficial users with an emphasis on private domestic well users, agricultural groundwater users, Native American tribes and disadvantaged communities. The remainder of the task includes regular stakeholder meetings, preparation and issuance of notices, communication, website design, and social media presence. Documentation of public comments and responses will be conducted throughout GSP development and adoption. This subtask will include the following work activities:
1. Maintenance of Interested Persons list for the East Butte subbasin (Water Code §10723.4)
2. Updated identification of beneficial uses and users
3. Compilation of a list of public meetings related to GSP development.
4. Compilation of public comments received and responses made by GSAs.
5. Preparation of communication section describing GSA decision-making process, public engagement process, encouragement of active involvement, notification method(s) and process. (Water Code §10723.2)
6. Compilation of outreach activities, including regular stakeholder meetings.

Deliverables:
1. Notice and Communication Plan for inclusion in the East Butte GSP.

Task 12. Basin Setting (Subarticle 2)
This task consists of all activities required to prepare the GSP Basin Setting as described in Article 5, Subarticle 2 of the GSP Regulations. Associated subtasks are described below.

Subtask 1. Hydrogeologic Conceptual Model (§354.14)
This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 2: Basin Setting, and will be led by staff with some consultant support. This task will refine information relevant to the hydrogeologic conceptual model (HCM) developed as part of the 2005 Butte County GMP, the 2005 Butte County Groundwater Inventory, the Butte County 2016 Water Inventory and Analysis Report, the Butte County Prop 1 Stressed Basin grant, the Lower Tuscan Investigation, the Stable Isotope Recharge Investigation and other identified sources. Additionally, the HCM and associated documentation developed for SVSim will be reviewed and utilized to support HCM development, as appropriate. It is anticipated that this subtask will include consultation with DWR modeling and regional office technical staff. This subtask will include the following activities:
1. Preparation of written description of the basin including:
   a. Regional geologic and structural setting.
b. Lateral basin boundaries and major geologic features.
c. Definable bottom of basin.
d. Principal aquifers and aquitards, including formation names, physical properties (aquifer parameters), structural properties, general water quality, primary groundwater uses and users.
e. Primary data gaps and uncertainty.

2. Preparation of at least two scaled cross-sections.
3. Preparation of map(s) depicting the following:
   a. Surface topography.
   b. Surficial geology.
   c. Surface soil characteristics.
   d. Existing and potential recharge areas and discharge areas.
   e. Significant surface water bodies.
   f. Sources and points of delivery for imported supplies.

**Deliverables:**
1. Written description of the subbasin
2. Two or more geologic cross sections
3. Maps as required by the GSP Regulations (§354.14(d)) for inclusion in the GSP.

Subtask 2. Current and Historical Groundwater Conditions (§354.16)
This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 2: Basin Setting, and will be led by staff with some consultant support. For initial GSP development, staff will rely on data compiled beginning on January 1, 2015 through the most recent available information, with additional data collected as needed and identified under Task 14, Subtask 3 described below. Existing information will include available Butte County Annual Groundwater Status Report, Sutter County CASGEM report, DWR models and tools, existing groundwater quality monitoring and management programs (GAMS, ILRP, etc.), existing subsidence monitoring (DWR, NASA), and the Groundwater Dependent Ecosystem (GDE) identification framework and potential GDE dataset as presented by The Nature Conservancy.
This subtask will include the following activities:
1. Development of groundwater elevation maps and hydrographs demonstrating flow directions, lateral and vertical gradients, and regional pumping patterns.
2. Development of graphs estimating annual and cumulative change in groundwater storage, including annual use and water year type.
3. Description of and map groundwater quality issues, including known contamination sites and plumes.
4. Description and mapping of potential and active land subsidence.
5. Identification of interconnected surface water and groundwater and estimate of the quantity and timing of depletions.
6. Identification of groundwater dependent ecosystems (GDEs).

**Deliverables:**
1. Groundwater elevation data
2. Graphic depicting change in annual groundwater storage
3. Description of groundwater quality issues that may affect the supply and beneficial uses of groundwater
4. Summary and analysis of land subsidence from local, regional and statewide monitoring
5. Identification and evaluation of interconnected surface water systems.
6. Identification and description (map, narrative) of groundwater dependent ecosystems (GDE)

Subtask 3. Water Budget Information (§354.18)

This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 2: Basin Setting, and will be led by a consultant with staff direction and support. This task will consist primarily of organizing, summarizing, and reporting water budget information developed using the integrated hydrologic model described previously under Task 5. Primary analysis conducted as part of this subtask will include the evaluation of sustainable yield, as informed by sustainable management criteria developed under Task 13. In addition, an evaluation of the availability and reliability of surface water supplies, suitability of the historical water budget to project future water budget information, and impacts of historical conditions on operational sustainably will be conducted. Water budget information will be developed for identified management areas (Task 12, subtask 4), if applicable. This subtask will include the following activities:

1. Quantification of historical and current water budget components, including:
   a. Surface water entering and leaving basin by water source type.
   b. Inflow to groundwater system by water source type.
   c. Outflows from groundwater system by water use sector.
   d. Change in annual groundwater storage.
   e. Average overdraft, if applicable.
   f. Estimated supplies, demands, and storage change by water year type.
   g. Estimated sustainable yield (Task 13).

2. Evaluation of historical water budget as follows:
   a. Availability and reliability of surface water supplies.
   b. Assessment of historical budget suitability to project future water budget information.
   c. Review of impacts of historical conditions on ability to operate basin within sustainable yield.

3. Development if projected water budgets as follows:
   a. Compilation of 50 years of historical precipitation, evapotranspiration, and streamflow for development of baseline conditions.
   b. Compilation of water demand based on most recent land use, evapotranspiration, and crop coefficient information for development of baseline conditions.
   c. Compilation of recent surface water supplies and use.
   d. Development of projected water budget.

Deliverables:
1. Water budget including required content for inclusion in the GSP.

Subtask 4. Management Areas (§354.20)

This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 2: Basin Setting and will be led by staff with consultant support. The primary focus of this task will be to evaluate potential management areas and provide documentation for inclusion of management areas into the GSP development, approval and implementation process. Consideration of management areas will be driven by a combination of technical analysis and facilitated discussions with GSAs and other stakeholders within the subbasin. The consideration of management areas will encompass groundwater conditions, geology and aquifer characteristics, land use, water sources, water uses, jurisdictional boundaries,
existing subbasin boundaries, etc. and will be decided through a facilitated public process. This subtask will include the following activities:

a. Evaluation of potential management areas.

b. Preparation of the following for each identified management area:
   i. Reason for creation.
   ii. Minimum Thresholds (MTs) and Measurable Objectives (MOs) based on undesirable results defined with basin-wide consistency, as developed under Task 13, Subtasks 2 through 4.
   iii. Level of appropriate monitoring and analysis.
   iv. Explanation of operations without undesirable results in adjacent areas.

c. Preparation of maps with description of conditions in each management area.

**Deliverables:**

1. Evaluation, recommendation and justification of proposed management area(s)
2. Descriptions and maps of management areas as required by the Regulations for inclusion in the GSP.

**Task 13. Sustainable Management Criteria (Subarticle 3)**

This task consists of all activities required to prepare the GSP Sustainable Management Criteria as described in Article 5, Subarticle 3 of the GSP Regulations. Associated subtasks are presented below.

**Subtask 1. Sustainability Goal (§354.24)**

This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 3: Sustainable Management Criteria, and will be led by a consultant with staff direction and facilitation support (Task 3). Completion of the subtask will begin with development of a general description of the sustainability goals, which will be defined in greater detail as they are revealed over the course of GSP development. Development and description of the sustainability goal will consider the basin setting as described under Task 12; evaluation of sustainability indicators, significant and unreasonable conditions, minimum thresholds, undesirable results, interim milestones, and measurable objectives under Subtasks 2 through 4 of Task 13; and development of projects and management actions to maintain or achieve sustainability under Task 15. This subtask will include the following activities:

1. Preparation of general description of sustainability goals.
2. Description of information from basin setting to establish goals.
3. Description of measures to ensure operation within sustainable yields.
4. Description of how sustainability goals will be achieved within the 20-year planning horizon.

**Deliverables:**

1. Description of sustainability goals and supporting information required by the Regulations for inclusion in the GSP.

**Subtask 2. Undesirable Results (§354.26)**

This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 3: Sustainable Management Criteria, and will be led by a consultant with staff direction and facilitation support (Task 3). Initial qualitative descriptions of significant and unreasonable effects from the groundwater conditions will be developed through a collaborative, public process informed by technical data and analysis based on the basin setting, monitoring network, and other information. This subtask will include a description of how groundwater conditions throughout the basin may lead to, or has led to
undesirable results based on information contained in the basin setting, models, and other data as appropriate. This subtask will include the following activities:

1. Description of processes and criteria to define undesirable results (URs)
2. Description of existing or potential URs, including:
   a. Existing/potential causes of URs.
   b. Quantitative criteria based on a combination of minimum threshold (MTs) exceedances to define when and where URs occur.
   c. Potential effects of URs on the beneficial uses and users of groundwater, land uses property interests and other potential effects.

**Deliverables:**

1. Description of Undesirable Results as required by the Regulations for inclusion in the GSP.

**Subtask 3. Minimum Thresholds (§354.28)**

This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 3: Sustainable Management Criteria, and will be led by a consultant with staff direction and support. Minimum Thresholds (MTs) will be established through a facilitated public process informed by technical data and analysis based on the basin setting, monitoring results, and other information. One goal of this portion of the planning process will be to establish MTs for groundwater levels as the representative measurement for multiple sustainability indicators. As part of this subtask, an appraisal of MTs will be conducted to determine whether MTs are currently exceeded or are likely to be exceeded in the future. The MT appraisal may include an economic evaluation of varying potential MTs and will inform the development of Measurable Objectives (Task 11, subtask 4) and Project and Management Actions (Task 15). This subtask will include the following activities:

1. Establishment of MTs based on:
   a. Information and criteria to establish and justify MTs.
   b. The relationship between MTs for each sustainability indicator.
   c. How MTs have been selected to avoid URs within the subbasin as well as adjacent basins.
   d. How MTs may impact other beneficial uses and users of groundwater or land uses and property interests.
2. Description of how other (State, Federal, etc.) standards relate to MTs.
3. Description of how each MT will be quantified consistent with Monitoring Networks (Task 14).

**Deliverables:**

1. Description of Minimum Thresholds as required by the Regulations for inclusion in the GSP.

**Subtask 4. Measurable Objectives (§354.30)**

This task is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 3: Sustainable Management Criteria, and will be led by a consultant with staff direction and facilitation support (Task 3). Measurable Objectives (MO) and interim milestones (IM), if applicable, will be established through a facilitated public process informed by technical data and analysis based on the basin setting, monitoring results, and other information. MOs will be based on the Minimum Threshold (Task 11, subtask 3) for each sustainability indicator. MO for groundwater levels may serve as the value for other sustainability indicators. The development of MOs include operational flexibility to account for historic water conditions, long-term trends, and other factors commensurate with uncertainty. The result will be the development of MOs that will maintain sustainable conditions or achieve the sustainability goals.
within the 20 year planning horizon. Interim milestones may need to be established for some MOs in order to achieve sustainability in 20 years. Interim milestones will be established in five-year increments based on Projects and Management Actions (Task 15). This subtask will include the following activities:

1. Establishment of MOs for each sustainability indicator or description of how a representative MO serves as a MO for other sustainability indicator(s).
2. Description of the establishment of a reasonable margin of operational flexibility.
3. Establishment of interim milestones for MO that are exceeded or are likely to be exceeded, that describes a reasonable path to sustainability for the 20-year planning horizon.

**Deliverables:**

1. Description of Measurable Objectives as required by the Regulations for inclusion in the GSP.

**Task 14. Monitoring Networks (Subarticle 4)**

This task consists of all activities required to prepare GSP Monitoring Network information as described in Article 5, Subarticle 4 of the GSP Regulations. The monitoring networks developed in Task 14 will result in the collection of sufficient data to characterize groundwater and related surface water conditions in the subbasin and evaluate changing conditions during the course of GSP implementation. Associated subtasks are described below.

**Subtask 1. Monitoring Network (§354.34)**

This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 4: Monitoring Networks, and will be led by staff with consultant support. This task will build on the existing monitoring network in the East Butte subbasin developed through the CASGEM and other programs to evaluate historical groundwater conditions. The monitoring network discussion will provide the basis for representative monitoring (Task 14, subtask 2) and an assessment to suggest improvements to the monitoring network (Task 14, subtask 3). This subtask will include the following activities:

1. Description of existing monitoring networks and how they are capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate GSP implementation.
2. Description of how the monitoring network will be utilized to:
   a. Demonstrate progress toward achieving MOs.
   b. Monitor impacts to beneficial uses and users of groundwater.
   c. Monitor changes in groundwater conditions relative to Minimum Thresholds, Measurable Objectives, and Interim Milestones.
   d. Quantify changes in annual water budget components.
   e. Evaluate sustainability indicators, including site density and monitoring frequency.
3. Description of the following:
   a. Scientific rationale for site selection.
   b. Consistency with data and reporting standards (Task 8).
   c. Measurement of MTs, MOs, and IMs corresponding at each site for applicable sustainability indicator(s).
4. Preparation of map(s) and table(s) describing the location, type, monitoring frequency, and purpose of each site.
**Deliverables:**

1. Description of the monitoring network capable of yielding representative information about groundwater and related surface conditions within the subbasin, including monitoring objectives, rationale for the selection of monitoring locations, parameters and frequencies for each sustainability indicator.


**Subtask 2. Representative Monitoring (§354.36)**

This subtask is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 4: Monitoring Networks, and will be led by a consultant with staff direction and support. This task will build on work conducted previously to evaluate historical groundwater conditions and assess existing monitoring well networks. Existing monitoring sites and new monitoring sites identified as part of this proposed effort will be considered for classification as representative monitoring sites based on a collaborative process to define management areas, MTs, MOs, and IMs under Tasks 12 and 13 of this proposal, and additional technical data collected as part of the proposed work (Tasks 6 and 8). This subtask will include the following activities:

1. Designation of representative monitoring sites.
2. Evaluation of adequacy of groundwater levels as proxy for other sustainability indicators.
3. Description of adequacy of various monitoring sites to represent general conditions within the area.

**Deliverables:**

1. Description of the Representative Monitoring sites, including supporting information justifying why each site reflects general conditions in the area, as required by the Regulations for inclusion in the GSP.

**Subtask 3. Assessment and Improvement of Monitoring Network (§354.38)**

This task is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 4: Monitoring Networks, and will be led by a consultant with staff direction and support. This task will build on existing monitoring conducted within the subbasin through CASGEM and other programs that evaluate historical groundwater conditions and assess existing monitoring well networks. In conjunction with the work conducted under Task 8, this task will provide an evaluation of the data gaps in the existing monitoring network and the uncertainty within the network. The assessment will address the number and locations of monitoring sites, monitoring frequencies and the quality of the data collected. Recommendations will be made to address the data gaps and incorporated into the five-year review process. This subtask will include the following activities:

1. Update of initial data gap action plan.
2. Evaluation of uncertainties and potential effect of GSP success.
3. Modification of frequency and/or density of monitoring sites, as needed.

**Deliverables:**

1. Assessment of the number and locations of monitoring sites, monitoring frequencies and the quality of the data collected, as required by the Regulations for inclusion in the GSP.

2. Recommendations for improvements to the monitoring network.

3. Description of the process for evaluating the monitoring network during five-year reviews.
Subtask 4. Reporting Monitoring Data to the Department of Water Resources (§354.40)

This task is related to Article 5 of the GSP Regulations: Plan Contents, Subarticle 4: Monitoring Networks. A consultant with staff direction and support will lead this task. This task will build on DMS development conducted under Task 9 of the proposed work. Efforts under this task will consist of updating the DMS to produce monitoring data reports for the Annual Report and electronic data submittals required by DWR. This task will include the following activities:

1. Review of DWR forms for reporting of monitoring data.
2. Formatting of monitoring data and/or development of reports aligned with DWR requirements.

Deliverables:

1. DMS updates to produce monitoring data for inclusion in annual reports and electronic submittals on DWR forms.
2. Description of the DMS functionality for annual reporting for inclusion in the GSP.

Task 15. Projects and Management Actions (§354.44)

This task is related to Article 5 of the GSP Regulations: Projects and Management Actions (PMA), and will be led by a consultant with staff direction and support. Identification and discussion of PMAs in the East Butte subbasin will be initiated early in GSP development through a collaborative, facilitated public process. PMAs will achieve the sustainability goals (Task 13, subtask 1) for the East Butte subbasin including actions necessary to respond to changed conditions. Potential projects may include those identified as part of the Butte County Prop 1 Stressed Basins grant, as well as other projects identified through this process. Based on this process and initial screening, selected PMAs will be further defined and evaluated. Selected PMAs will be evaluated using the Integrated Hydrologic Model under Task 5 to evaluate project impacts on groundwater conditions and related sustainability indicators to support quantification of project benefits. This task will include the following activities:

1. Development of a list of projects and management actions (PMAs) designed to achieve sustainability goals.
2. Description of potential PMAs, including:
   a. Lists of PMAs and associated MOs, including circumstances for implementation/termination and processes for determining associated conditions that have occurred and for notifying the public and other agencies.
   b. Quantification of demand reduction or other methods to reduce overdraft.
   c. Required permitting and associated regulatory processes.
   d. Status of each PMA, including timeline for implementation and accrual of benefits.
   e. Explanation of PMA benefits and process for evaluation.
   f. Explanation of how PMA will be accomplished, including source and reliability of additional supplies.
   g. Description of required legal authorities.
   h. Description of estimated cost and financing, as well as potential beneficiaries of each project.
   i. Description of management of extractions and recharge to ensure lowering of groundwater levels during drought is offset by increases during other periods.

Deliverable:

1. Description of Projects and Management Actions as required by the Regulations for inclusion in the GSP.