PROFESSIONAL SERVICES AGREEMENT
BY AND BETWEEN
COUNTY OF HUMBOLDT
AND
GHD, Inc.
FOR FISCAL YEARS 2020-2021 THROUGH 2021-2022

This Agreement, entered into this _____ day of _____, 2020, by and between the County of Humboldt, a political subdivision of the State of California, hereinafter referred to as "COUNTY," and GHD, Inc., a California corporation, hereinafter referred to as "CONSULTANT," is made upon the following considerations:

WHEREAS, COUNTY, by and through its Department of Public Works – Environmental Services Division, has agreed to receive grant funding from the California Department of Water Resources ("DWR") pursuant to Sustainable Groundwater Management Grant Agreement No. 4600013562, dated May 14, 2020 ("Sustainable Groundwater Management Agreement"); and

WHEREAS, CONSULTANT is intended to receive an allocation of grant funding from COUNTY pursuant to said Sustainable Groundwater Management Agreement ("Grant Funds") for the provision of services pertaining to implementation of the Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project ("Project") as set forth in the Sustainable Groundwater Management Agreement; and

WHEREAS, the parties acknowledge that COUNTY is relying on CONSULTANT's performance hereunder in order for COUNTY to comply with its obligations under the Sustainable Groundwater Management Agreement; and

WHEREAS, the parties desire to enter into an agreement which sets forth each party's rights and responsibilities regarding the completion and administration of the Project.

NOW THEREFORE, the parties hereto mutually agree as follows:

1. RIGHTS AND OBLIGATIONS OF CONSULTANT:

A. Project Implementation. CONSULTANT shall utilize the Grant Funds to provide any and all services necessary to implement the Project in accordance with the terms, conditions, criteria and fiscal requirements set forth in Exhibit A – Scope of Services, Exhibit B – Project Schedule, Exhibit C – Project Budget, Exhibit D – Billing Rate Schedule and Exhibit E – Sustainable Groundwater Management Agreement, which are attached hereto and incorporated herein by reference as if set forth in full. In utilizing such funding, CONSULTANT agrees to fully cooperate with the Humboldt County Department of Public Works Director, or a designee thereof, hereinafter referred to as "Director."

B. Internal Controls. CONSULTANT shall maintain any and all appropriate internal financial controls over the Grant Funds received and disbursed pursuant to the terms and conditions of this Agreement, including, without limitation, procedures for authorizing disbursements and tracking expenditures of Grant Funds.

C. Provision of Relevant Information. CONSULTANT shall cooperate with COUNTY in completing progress reports and other documents pertaining to implementation of the Project, including, without limitation, providing, in a timely manner, any and all requested information regarding the services provided pursuant to the terms and conditions of this Agreement.

D. Project Access. CONSULTANT shall provide COUNTY, and any duly authorized representatives thereof, access to any and all documents, work sites and other areas associated with the Project that is needed to enable COUNTY to confirm CONSULTANT's compliance with the terms and conditions of this Agreement.

E. Recognition of Grant Funding. CONSULTANT shall identify DWR as a support organization in any and all informational materials relating to implementation of the Project.

2. RIGHTS AND OBLIGATIONS OF COUNTY:

A. Provision of Necessary Data and Materials. COUNTY shall provide CONSULTANT with information and administrative support necessary for CONSULTANT to complete the Project and comply with the terms and conditions of this Agreement.

B. COUNTY Representative. COUNTY shall designate a representative with complete authority to transmit instructions and information, receive correspondence, interpret policy and define decisions related to the services provided pursuant to the terms and conditions of this Agreement. COUNTY's representative shall have overall charge and responsibility of COUNTY's activities and obligations with respect to the Project. All correspondence pertaining to the performance of CONSULTANT's duties and obligations hereunder shall be submitted to COUNTY's representative in accordance with the notice requirements set forth herein.

C. Review of Submitted Materials. COUNTY shall thoroughly review any and all reports, proposals and other documents prepared and submitted pursuant to the terms and conditions of this Agreement. COUNTY shall provide CONSULTANT with a written response pertaining to the review of documents submitted by CONSULTANT within two (2) weeks from the receipt thereof.

D. Remedies. In the event CONSULTANT violates any provision of this Agreement that could potentially result in a violation of the Sustainable Groundwater Management Agreement, COUNTY may take any and all appropriate measures to prevent any such violation of the Sustainable Groundwater Management Agreement, or to mitigate any damages COUNTY could incur as a result thereof, including, without limitation, performing any services required hereunder. CONSULTANT shall be liable for any and all costs incurred by COUNTY in connection with any such violation of this Agreement or the Sustainable Groundwater Management Agreement.

3. TERM:

This Agreement shall begin upon execution by both parties and shall remain in full force and effect until April 1, 2022, unless sooner terminated or extended as provided herein.

4. TERMINATION:

A. Termination for Cause. COUNTY may, in its sole discretion, immediately terminate this Agreement, upon written notice, if CONSULTANT fails to adequately perform it obligations hereunder, fails to comply with the terms or conditions set forth herein, or violates any local, state or federal law, regulation or standard applicable to its performance hereunder.

B. Termination without Cause. COUNTY may terminate this Agreement without cause upon thirty (30) calendar days advance written notice which states the effective date of the termination.

C. Termination due to Insufficient Funding. COUNTY's obligations under this Agreement are

contingent upon the availability of local, state and/or federal funds. In the event such funding is reduced or eliminated, COUNTY shall, at its sole discretion, determine whether this Agreement shall be terminated. COUNTY shall provide CONSULTANT seven (7) calendar days advance written notice of its intent to terminate this Agreement due to insufficient funding.

D. Compensation upon Termination. In the event this Agreement is terminated, CONSULTANT shall be entitled to compensation for uncompensated services provided hereunder through and including the effective date of such termination. However, this provision shall not limit or reduce any damages owed to COUNTY due to a breach of this Agreement by CONSULTANT.

5. REMITTANCE OF GRANT FUNDS:

A. Maximum Amount Payable. COUNTY shall remit Grant Funds to CONSULTANT in an amount not to exceed a total sum of One Million Four Hundred Fifty Thousand Dollars ($1,450,000.00) as full compensation for all services rendered, and eligible costs and expenses incurred, pursuant to the terms and conditions of this Agreement. CONSULTANT agrees to complete all of the activities, objectives and deliverables set forth in this Agreement for an amount not to exceed such maximum amount payable. However, if local, state or federal funding or allowance rates are reduced or eliminated, COUNTY may, by amendment, reduce the maximum amount payable hereunder or terminate this Agreement as provided herein.

B. Schedule of Rates. The specific costs applicable to this Agreement are set forth in Exhibit – A Sustainable Groundwater Management Agreement and Exhibit B – Work Plan, Schedule and Budget.

C. Additional Services. Any additional services not otherwise set forth herein shall not be provided by CONSULTANT, or compensated by COUNTY, unless specifically authorized in writing by COUNTY. Any and all unauthorized costs and expenses incurred above the maximum payable amount set forth herein shall be the responsibility of CONSULTANT. CONSULTANT shall notify COUNTY, in writing, at least six (6) weeks prior to the date upon which CONSULTANT estimates that the maximum payable amount will be reached.

6. DISBURSEMENT OF GRANT FUNDS:

A. Invoices. In order to receive disbursement of Grant Funds, CONSULTANT shall submit to COUNTY monthly invoices itemizing all work completed, and eligible costs and expenses incurred, pursuant to the terms and conditions of this Agreement within fifteen (15) calendar days after each month in which such services were provided. CONSULTANT shall submit a final invoice for payment with thirty (30) calendar days following completion of the Project, as set forth in Exhibit – A Sustainable Groundwater Management Agreement and Exhibit B – Work Plan, Schedule and Budget, or termination of this Agreement. Invoices shall be in a format approved by, and shall include backup documentation as specified by, Director and the Humboldt County Auditor-Controller. Any and all invoices submitted pursuant to the terms and conditions of this Agreement shall be sent to COUNTY electronically at the following addresses:

COUNTY: Humboldt County Department of Public Works – Environmental Services Division
Attention: Hank Seemann, Deputy Director
hseemann@co.humboldt.ca.us
sdaugherty@co.humboldt.ca.us

B. Payment. Reimbursement for services rendered, and costs and expenses incurred, pursuant to the

terms and conditions of this Agreement shall be made by COUNTY within thirty (30) calendar days after receipt of payment from DWR.

C. Disbursement Requests. CONSULTANT hereby acknowledges that the eligible costs related to the Project are limited to those set forth in the applicable provisions of Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement. CONSULTANT shall not request a disbursement of Grant Funds for any cost until such cost has been incurred, and has been paid, or is due and payable, by CONSULTANT.

D. Retention of Grant Funds. CONSULTANT acknowledges that COUNTY may withhold disbursement of any Grant Funds that may be necessary to satisfy the retention requirements set forth in the applicable provisions of Exhibit E – Sustainable Groundwater Management Agreement.

E. Restrictions. Notwithstanding anything to the contrary, no disbursement of Grant Funds shall be required at any time, or in any manner, which:

1. Violates, or conflicts with, the Sustainable Groundwater Management Agreement or any local, state or federal laws, regulations or standards.

2. Requires any rebates to the federal government pursuant to any applicable local, state or federal laws, regulations or standards.

3. Results in the loss of the tax-free status of state bonds pursuant to any applicable local, state or federal laws, regulations or standards.

F. Refunds. If COUNTY is required to refund any disbursement made pursuant to the terms and conditions of this Agreement to DWR, due to a violation of the Sustainable Groundwater Management Agreement by CONSULTANT, CONSULTANT shall refund to COUNTY such disbursement plus any interest or penalties required to be paid by COUNTY in connection with such refund.

G. Matching Funds. CONSULTANT hereby acknowledges that it is required to obtain matching funds for the Project as set forth in the applicable provisions of Exhibit E – Sustainable Groundwater Management Agreement, if applicable.

7. NOTICES:

Any and all notices required to be given pursuant to the terms and conditions of this Agreement shall be in writing and either served personally or sent by certified mail, return receipt requested, to the respective addresses set forth below. Notice shall be effective upon actual receipt or refusal as shown on the receipt obtained pursuant to the foregoing.

COUNTY: Humboldt County Department of Public Works – Environmental Services Division
Attention: Hank Seemann, Deputy Director
1106 Second Street
Eureka, California 95501

CONSULTANT: GHD, Inc.
Attention: Patrick Sullivan, Senior Civil Engineer/Project Manager
718 Third Street
Eureka, CA 95501

8. REPORTS:

A. General Reporting Requirements. CONSULTANT agrees to provide COUNTY with any and all reports that may be required by any local, state and federal agencies for compliance with this Agreement. CONSULTANT shall submit one (1) electronic copy of any and all reports required hereunder in a format that complies with the Americans with Disabilities Act and any other applicable local, state and federal accessibility laws, regulations and standards. Any and all reports required hereunder shall be submitted in accordance with any and all applicable timeframes using the format required by the State of California as appropriate.

B. Quarterly Progress Reports. CONSULTANT shall submit to COUNTY quarterly progress reports no later than fifteen (15) days after the end of each calendar quarter. Failure to submit progress reports may be the basis for withholding payments until such reports are received. Any and all progress reports required hereunder shall be prepared in accordance with the applicable provisions of Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement and include, without limitation, all of the following:

1. A description of any and all services provided, meetings attended, milestones achieved, problems or scheduling issues encountered and costs incurred during the applicable reporting period.

2. The current completion percentage and actual progress versus planned progress as set forth in Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement.

3. A description of any and all schedule or budget modifications approved by COUNTY during the applicable reporting period.

4. A description of any and all services, activities, meetings and milestones that are anticipated to accomplished during the next reporting period.

5. Supporting photographic documentation, as appropriate.

C. Project Completion Report. CONSULTANT shall submit to COUNTY a Project completion report no later than sixty (60) days after completion the Project as set forth in Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement. The Project completion report required hereunder shall be prepared in accordance with the applicable provisions of Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement and include, without limitation, all of the following:

1. A description of the activities, objectives and deliverables stated in Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement.

2. A description of the services provided, activities performed, milestones achieved, problems encountered and costs and expenses incurred during implementation of the Project.

3. A description of any and all schedule or budget modifications approved by COUNTY during implementation of the Project.

4. A description of any deviations in the actual work completed, and costs and expenses incurred, from the activities objectives and deliverables set forth in Exhibit B – Work Plan, Schedule and

Budget and Exhibit E – Sustainable Groundwater Management Agreement.

5. Any final technical reports and studies, including, without limitation, as built drawings and final geodetic survey reports, produced or utilized in connection with the Project.

6. Any previously unsubmitted data collected pursuant to the terms and conditions of this Agreement.

7. A final schedule showing actual progress versus planned progress as set forth in Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement.

8. A description of the benefits derived from the Project which includes quantification of such benefits.

9. A certification from a registered civil engineer or geologist, as appropriate, that the Project was conducted in accordance with the applicable provisions of Exhibit B – Work Plan, Schedule and Budget and Exhibit E – Sustainable Groundwater Management Agreement.

10. A submittal schedule for any and all post-performance reports required to be prepared pursuant to the terms and conditions of this Agreement.

11. Supporting photographic documentation, as appropriate.

9. AUDIT AND RETENTION OF FINANCIAL AND PERFORMANCE RECORDS:

A. Maintenance and Preservation of Records. CONSULTANT agrees to timely prepare accurate and complete financial, performance and payroll records, documents and other evidence relating to the services provided pursuant to the terms and conditions of this Agreement, and to maintain and preserve said records for a minimum of seven (7) years after the date of final payment hereunder, except that if any litigation, claim, negotiation, audit or other action is pending, the records shall be retained until completion and resolution of all issues arising therefrom. Such records shall be original entry books with a general ledger itemizing all debits and credits for the services provided pursuant to the terms and conditions of this Agreement.

B. General Audit and Examination Requirements. Pursuant to California Government Code Section 8546.7, all records, documents, conditions and activities of CONSULTANT, and its subcontractors, related to the services provided pursuant to the terms and conditions of this Agreement, shall be subject to the examination and audit of the California State Auditor and any other duly authorized agents of the State of California for a period of three (3) years after the date of final payment hereunder. CONSULTANT hereby agrees to make all such records available during normal business hours to inspection, audit and reproduction by COUNTY and any other duly authorized local, state and/or federal agencies. CONSULTANT further agrees to allow interviews of any of its employees who might reasonably have information related to such records by COUNTY and any other duly authorized local, state and/or federal agencies. All examinations, inspections and/or audits conducted hereunder shall be strictly confined to those matters connected with the performance of this Agreement, including, without limitation, the costs of administering this Agreement.

C. Audit Costs. In the event of an audit exception or exceptions related to the services provided pursuant to the terms and conditions of this Agreement, the party responsible for not meeting the requirements set forth herein shall be responsible for the deficiency and for the cost of the audit. The

party responsible for the deficiency shall pay the cost of the audit and the deficiency within thirty (30) days after receiving notice thereof. If the allowable expenditures cannot be determined because CONSULTANT's documentation is nonexistent or inadequate, according to generally accepted accounting practices, the questionable cost shall be disallowed.

10. LOCAL, STATE AND FEDERAL INSPECTION RIGHTS:

CONSULTANT shall allow COUNTY, DWR and any other duly authorized local, state and federal agencies to inspect, examine and audit any and all records, documents, facilities and work sites maintained by CONSULTANT, and its subcontractors hereunder, at any time during normal business hours, for a period of at least seven (7) years after the date of final payment hereunder, in order to evaluate the quality, appropriateness and timeliness of the services provided pursuant to the terms and conditions of this Agreement. For purposes of this provision, "records" and "documents" include, without limitation, any and all physical and electronic records originated or prepared pursuant to CONSULTANT's performance hereunder, including, but not limited to, working papers, reports, financial records and books of account, subcontracts and any other documentation pertaining to the services provided pursuant to the terms and conditions of this Agreement. Upon request, at any time during the above-referenced seven (7) year period, CONSULTANT shall furnish any such record, or copy thereof, to COUNTY, DWR and any other duly authorized local, state and federal agencies.

11. LOCAL, STATE AND FEDERAL MONITORING:

CONSULTANT agrees that COUNTY, DWR and any other duly authorized local, state and federal agencies have the right to monitor any and all activities related hereto, including, without limitation, the right to review and monitor CONSULTANT's facilities, work sites, records, policies, procedures and overall business operations, at any time, in order to ensure compliance with the terms and conditions of this Agreement. CONSULTANT shall cooperate with a corrective action plan, if deficiencies in CONSULTANT's facilities, work sites, records, policies, procedures or business operations are identified by COUNTY. However, COUNTY is not responsible, and will not be held accountable, for overseeing or evaluating the adequacy of CONSULTANT's performance hereunder.

12. CONFIDENTIAL INFORMATION:

A. Disclosure and Use of Confidential information. In the performance of this Agreement, CONSULTANT may receive information that is confidential under local, state or federal law. CONSULTANT hereby agrees to protect all confidential information obtained pursuant to the terms and conditions of this Agreement in conformance with any and all applicable local, state and federal laws, regulations and standards.

B. Continuing Compliance with Confidentiality Requirements. Each party hereby acknowledges that local, state and federal laws, regulations and standards pertaining to confidentiality, electronic data security and privacy are rapidly evolving, and that amendment of this Agreement may be required to ensure compliance with such developments. Each party agrees to promptly enter into negotiations concerning an amendment to this Agreement embodying written assurances consistent with the requirements of any and all applicable local, state and federal laws, regulations or standards.

C. Incorporation of Provisions. The foregoing provisions shall be included in all subcontracts relating to the services provided pursuant to the terms and conditions of this Agreement.

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13. NON-DISCRIMINATION COMPLIANCE:

A. Professional Services and Employment. In connection with the execution of this Agreement, CONSULTANT, and its subcontractors, shall not unlawfully discriminate in the provision of professional services or against any employee or applicant for employment because of: race; religion or religious creed; color; age, over forty (40) years of age; sex, including, without limitation, gender identity and expression, pregnancy, childbirth and related medical conditions; sexual orientation, including, without limitation, heterosexuality, homosexuality and bisexuality; national origin; ancestry; marital status; medical condition, including, without limitation, cancer and genetic characteristics; mental or physical disability, including, without limitation, HIV status and AIDS; political affiliation; military service; denial of family care leave; or any other classifications protected by local, state and federal laws, regulations or standards. Nothing herein shall be construed to require employment of unqualified persons.

B. Compliance with Anti-Discrimination Laws. CONSULTANT further assures that it, and its subcontractors, will abide by the applicable provisions of: Title VI and Title VII of the Civil Rights Act of 1964; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975; the Food Stamp Act of 1977; Title II of the Americans with Disabilities Act of 1990; the California Fair Employment and Housing Act; California Civil Code Sections 51, *et seq*.; California Government Code Sections 4450, *et seq*.; California Welfare and Institutions Code Section 10000; Division 21 of the California Department of Social Services Manual of Policies and Procedures; United States Executive Order 11246, as amended and supplemented by United States Executive Order 11375 and Part 60 of Title 41 of the Code of Federal Regulations ("C.F.R."); and any other applicable local, state and/or federal laws and regulations, all as may be amended from time to time. The applicable regulations of the California Fair Employment and Housing Commission implementing California Government Code Section 12990, set forth in Sections 8101, *et seq*. of Title 2 of the California Code of Regulations ("C.C.R."), are incorporated into this Agreement by reference and made a part hereof as if set forth in full.

14. NUCLEAR FREE HUMBOLDT COUNTY ORDINANCE COMPLIANCE:

By executing this Agreement, CONSULTANT certifies that is not a Nuclear Weapons Contractor, in that CONSULTANT is not knowingly or intentionally engaged in the research, development, production or testing of nuclear warheads, nuclear weapons systems or nuclear weapons components, as defined by the Nuclear Free Humboldt County Ordinance. CONSULTANT agrees to notify COUNTY immediately if it becomes a Nuclear Weapons Contractor as defined above. COUNTY may immediately terminate this Agreement if it determines that the foregoing certification is false or if CONSULTANT subsequently becomes a Nuclear Weapons Contractor.

15. DRUG-FREE WORKPLACE CERTIFICATION:

By executing this Agreement, CONSULTANT certifies that it will provide a drug-free workplace in accordance with the requirements of the Drug-Free Workplace Act of 1990 (California Government Code Sections 8350, *et seq*.) by doing all of the following:

A. Drug-Free Policy Statement. Publish, as required by California Government Code Section 8355(a)(1), a Drug-Free Policy Statement which notifies employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited, and specifies the actions to be taken against employees for violations.

B. Drug-Free Awareness Program. Establish, as required by California Government Code Section

8355(a)(2), a Drug-Free Awareness Program which informs employees about:

1. The dangers of drug abuse in the workplace;

2. CONSULTANT's policy of maintaining a drug-free workplace;

3. Any available counseling, rehabilitation and employee assistance programs; and

4. Penalties that may be imposed upon employees for drug abuse violations.

C. Drug-Free Employment Agreement. Ensure, as required by California Government Code Section 8355(a)(3), that every employee who provides services hereunder will:

1. Receive a copy of CONSULTANT's Drug-Free Policy Statement; and

2. Agree to abide by CONSULTANT's Drug-Free Policy as a condition of employment.

D. Effect of Non-Compliance. Failure to comply with the requirements set forth herein may result in termination of this Agreement and/or ineligibility for award of future contracts.

16. INDEMNIFICATION:

A. Hold Harmless, Defense and Indemnification. CONSULTANT shall hold harmless, defend and indemnify COUNTY and its agents, officers, officials, employees and volunteers from and against any and all liabilities, including, without limitation, liability under the Sustainable Groundwater Management Agreement, claims, demands, losses, damages, expenses and costs of any kind or nature, including, but not limited to, attorney fees and other costs of litigation, arising out of, or in connection with, CONSULTANT's negligent performance of, or failure to comply with, any of the obligations contained herein, except such loss or damage which was caused by the sole negligence or willful misconduct of COUNTY.

B. Effect of Insurance. Acceptance of the insurance required by this Agreement shall not relieve CONSULTANT from liability under this provision. This provision shall apply to any and all claims for damages related CONSULTANT's performance hereunder, regardless of whether any insurance is applicable or not. The insurance policy limits set forth herein shall not act as a limitation upon the amount of indemnification or defense to be provided hereunder.

17. INSURANCE REQUIREMENTS:

This Agreement shall not be executed by COUNTY, and CONSULTANT is not entitled to any rights hereunder, unless certificates of insurance, or other proof that the following provisions have been complied with, are filed with the Clerk of the Humboldt County Board of Supervisors.

A. General Insurance Requirements. Without limiting CONSULTANT's indemnification obligations set forth herein, CONSULTANT, and its subcontractors hereunder, shall take out and maintain, throughout the entire term of this Agreement, and any extensions thereof, the following policies of insurance, placed with insurers authorized to do business in the State of California with a current A.M. Bests rating of no less than A: VII or its equivalent against personal injury, death and property damage which may arise from, or in connection with, the activities performed pursuant to the terms and conditions of this Agreement by CONSULTANT and its agents, officers, directors, employees, licensees, invitees, assignees or subcontractors:

1. Comprehensive or Commercial General Liability Insurance at least as broad as Insurance Services Office Commercial General Liability Coverage (occurrence form CG 0001), in an amount of Two Million Dollars ($2,000,000.00) per occurrence for any one (1) incident, including, without limitation, personal injury, death and property damage. If a general aggregate limit is used, such limit shall apply separately hereto or shall be twice the required occurrence limit.

2. Automobile/Motor Liability Insurance with a limit of liability not less than One Million Dollars ($1,000,000.00) combined single limit coverage. Such insurance shall include coverage of all owned, hired and non-owned vehicles, and be at least as broad as Insurance Service Offices Form Code 1 (any auto).

3. Workers' Compensation Insurance, as required by the California Labor Code, with statutory limits, and Employers Liability Insurance with a limit of no less than One Million Dollars ($1,000,000.00) per accident for bodily injury or disease. Said policy shall contain, or be endorsed to contain, a waiver of subrogation against COUNTY and its agents, officers, officials, employees and volunteers.

B. Special Insurance Requirements. Said policies shall, unless otherwise specified herein, be endorsed with the following provisions:

1. The Comprehensive or Commercial General Liability Policy shall provide that COUNTY, and its agents, officers, officials, employees and volunteers, are covered as additional insured for liability arising out of the operations performed by or on behalf of CONSULTANT. The coverage shall contain no special limitations on the scope of protection afforded to COUNTY or its agents, officers, officials, employees and volunteers. Said policy shall also contain a provision stating that such coverage:

   a. Includes contractual liability.

   b. Does not contain exclusions as to property damage caused by explosion or collapse of structures or underground damage, commonly referred to as "XCU Hazards."

   c. Is the primary insurance with regard to COUNTY.

   d. Does not contain a pro-rata, excess only and/or escape clause.

   e. Contains a cross liability, severability of interest or separation of insureds clause.

2. The above-referenced policies shall not be canceled, non-renewed or materially reduced in coverage without thirty (30) days prior written notice being provided to COUNTY in accordance with the notice requirements set forth herein. It is further understood that CONSULTANT shall not terminate such coverage until COUNTY receives adequate proof that equal or better insurance has been secured.

3. The inclusion of more than one (1) insured shall not operate to impair the rights of one (1) insured against another insured, and the coverage afforded shall apply as though separate policies had been issued to each insured, but the inclusion of more than one (1) insured shall not operate to increase the limits of the insurer's liability.

4. For claims related to this Agreement, CONSULTANT's insurance is the primary coverage to

COUNTY, and any insurance or self-insurance programs maintained thereby are excess to CONSULTANT's insurance and will not be used to contribute therewith.

5. Any failure to comply with the provisions of this Agreement shall not affect the coverage provided to COUNTY or its agents, officers, officials, employees and volunteers.

6. CONSULTANT shall furnish COUNTY with certificates and original endorsements effecting the required coverage prior to execution of this Agreement. The endorsements shall be on forms approved by the Humboldt County Risk Manager. Any deductible or self-insured retention over One Hundred Thousand Dollars ($100,000.00) shall be disclosed to, and approved by, COUNTY. If CONSULTANT does not keep all required policies in full force and effect, COUNTY may, in addition to any other available remedies, take out the necessary insurance and deduct the cost of said insurance from the monies owed to CONSULTANT under this Agreement.

7. COUNTY is to be notified immediately if twenty-five percent (25%) or more of any required insurance aggregate limit is encumbered, and CONSULTANT shall be required to purchase additional coverage to meet the above-referenced aggregate limits.

C. Insurance Notices. Any and all insurance notices required to be given pursuant to the terms of this Agreement shall be sent to the addresses set forth below in accordance with the notice requirements contained herein.

COUNTY: County of Humboldt
Attention: Risk Management
825 Fifth Street, Room 131
Eureka, California 95501

CONSULTANT: GHD, Inc.
Attention: Patrick Sullivan, Senior Civil Engineer/Project Manager
718 Third Street
Eureka, CA 95501

18. RELATIONSHIP OF PARTIES:

It is understood that this Agreement is by and between two (2) independent entities and is not intended to, and shall not be construed to, create the relationship of agent, servant, employee, partnership, joint venture or any other similar association. Both parties further agree that CONSULTANT shall not be entitled to any benefits to which COUNTY employees are entitled, including, without limitation, overtime, retirement, leave or workers' compensation benefits. CONSULTANT shall be solely responsible for the acts or omissions of its agents, officers, employees, assignees and subcontractors.

19. THIRD-PARTY BENEFICIARIES:

Notwithstanding anything to the contrary, the parties hereto do not in any way intend for any person or entity to acquire any rights as a third-party beneficiary of this Agreement.

20. WARRANTIES AND REPRESENTATIONS:

CONSULTANT hereby makes all of the warranties, representations, covenants and certifications that are otherwise made by COUNTY with respect to the Project, as set forth in the applicable provisions of

Exhibit E – Sustainable Groundwater Management Agreement.

21. COMPLIANCE WITH APPLICABLE LAWS, REGULATIONS AND STANDARDS:

A. General Legal Requirements. CONSULTANT agrees to comply with any and all local, state and federal laws, regulations, policies, procedures and standards applicable to its performance hereunder.

B. Licensure Requirements. CONSULTANT agrees to comply with any and all local, state and federal licensure, certification and accreditation requirements and standards applicable to its performance hereunder.

C. Accessibility Requirements. CONSULTANT agrees to comply with any and all applicable accessibility requirements set forth in the Americans with Disabilities Act, Section 508 of the Rehabilitation Act of 1973, as amended, California Government Code Section 1135 and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, including, without limitation, the federal accessibility standards set forth in 36 C.F.R. Section 1194.1, all as may be amended from time to time.

D. Conflict of Interest Requirements. CONSULTANT agrees to comply with any and all applicable conflict of interest requirements set forth in the California Political Reform Act and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, including, without limitation, COUNTY's Conflict of Interest Code, all as may be amended from time to time.

E. Prevailing Wage Requirements. CONSULTANT agrees to comply with any and all applicable prevailing wage requirements set forth in California Labor Code Sections 1770, *et seq*. and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, all as may be amended from time to time. Current information regarding California's prevailing wage requirements can be obtained online at: http://www.dir.ca.gov/lcp.asp. and http://www.dir.ca.gov/dlse/PWManualCombined.pdf.

F. Competitive Bidding and Procurement Requirements. CONSULTANT agrees to comply with any and all applicable competitive bidding and procurement requirements set forth in the California Public Contract Code and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, including, without limitation, the California Department of General Services' State Contracting Manual, all as may be amended from time to time. Current information regarding California's public bidding and procurement requirements can be obtained online at: http://www.dgs.ca.gob/OLS/Resources/Page-Content/Office-of-Legal-ServicesResources-List-Folder/State-Contracting.

G. Environmental Quality Requirements. CONSULTANT agrees to comply with any and all applicable environmental quality requirements set forth in the California Environmental Quality Act and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, including, without limitation, the environmental quality guidelines set forth in 14 C.C.R. Sections 15000, *et seq*., all as may be amended from time to time.

H. Child Support Requirements. CONSULTANT agrees to comply with any and all applicable local, state and federal laws, regulations and standards relating to child and family support enforcement, including, without limitation, disclosure of information and compliance with earnings assignment orders, as set forth in California Family Code Sections 5200, *et seq*. and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, all as may be

amended from time to time. CONSULTANT hereby certifies that, to the best of its knowledge, it is currently complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

I. Intellectual Property Requirements. CONSULTANT agrees to comply with any and all applicable local, state and federal laws, regulations and standards relating to the protection of intellectual property rights. CONSULTANT hereby certifies that, to the best of its knowledge, it has the appropriate systems and controls in place to ensure that the Grant Funds received pursuant to the terms and conditions of this Agreement will not be used for the acquisition, operation and/or maintenance of computer software in violation of any applicable local, state or federal copyright laws, regulations or standards.

J. Union Organizing Requirements. CONSULTANT agrees to comply with any and all applicable local, state and federal laws, regulations and standards relating to union organizing, including, without limitation, California Government Code Sections 16645, *et seq*. and any current and future implementing regulations, policies, procedures and standards promulgated thereunder, all as may be amended from time to time. CONSULTANT hereby certifies that it will not use any Grant Funds received pursuant to the terms and conditions of this Agreement to assist, promote or deter union organizing. If CONSULTANT incurs any costs or makes any expenditure to assist, promote or deter union organizing, CONSULTANT shall maintain, and provide to the California Attorney General upon request, records sufficient to show that no reimbursement from local, state or federal funds has been sought for such costs.

22. PROVISIONS REQUIRED BY LAW:

This Agreement is subject to any additional local, state and federal restrictions, limitations or conditions that may affect the terms, conditions or funding of this Agreement. This Agreement shall be read and enforced as though all legally required provisions are included herein, and if any such provision is not included, or is not correctly stated, the parties agree to amend the pertinent section to make such insertion or correction.

23. REFERENCE TO LAWS, REGULATIONS AND STANDARDS:

In the event any law, regulation or standard referred to herein is amended during the term of this Agreement, the parties agree to comply with the amended provision as of the effective date thereof.

24. SEVERABILITY:

If any provision of this Agreement, or any portion thereof, is found by any court of competent jurisdiction to be unenforceable or invalid for any reason, such provision shall be severable and shall not in any way impair the enforceability of any other provision of this Agreement.

25. ASSIGNMENT:

Neither party shall delegate its duties nor assign its rights, obligations or interests hereunder, either in whole or in part, without the other party's prior written consent. Any assignment in violation of this provision shall be void, and shall be cause for immediate termination of this Agreement. This provision shall not be applicable to service agreements or other arrangements usually or customarily entered into by either party to obtain supplies, technical support or professional services.

26. AGREEMENT SHALL BIND SUCCESSORS:

All provisions of this Agreement shall be fully binding upon, and inure to the benefit of, the parties and to each of their heirs, administrators, legal representatives, successors and permitted assigns.

27. WAIVER OF DEFAULT:

The waiver of any breach of this Agreement by either party shall not be deemed a waiver of any such breach in the future, or of the breach of any other requirement of this Agreement. In no event shall any payment by COUNTY constitute a waiver of any breach of this Agreement which may then exist on the part of CONSULTANT. Nor shall such payment impair or prejudice any remedy available to COUNTY with respect to the breach or default. COUNTY shall have the right to demand repayment of, and CONSULTANT shall promptly refund, any Grant Funds disbursed to CONSULTANT which COUNTY determines were not expended in accordance with the terms of this Agreement.

28. NON-LIABILITY OF COUNTY OFFICIALS AND EMPLOYEES:

No official or employee of COUNTY shall be personally liable for any default or liability under this Agreement.

29. AMENDMENT:

This Agreement may be amended at any time during the term of this Agreement upon the mutual consent of both parties. No addition to, or alteration of, the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto.

30. DISPUTE RESOLUTION:

If a dispute arises involving the interpretation, implementation or enforcement of this Agreement, the parties shall make every reasonable attempt to resolve the problem within thirty (30) calendar days after becoming aware of the dispute. Each party agrees to cooperate with the other party in trying to reasonably resolve all disputes, including, if requested by either party, appointing senior representatives to meet and engage in good faith negotiations regarding resolution of the dispute. Senior representatives of the parties shall meet in person, at a mutually agreeable location in Humboldt County, within thirty (30) calendar days after receiving written notice of a dispute, unless otherwise agreed upon by the parties. All meetings and discussions between senior representatives will be deemed confidential settlement discussions not subject to disclosure under Federal Rule of Evidence 408 or any similar local, state or federal law, regulation or rule of court. Each party further parties agree that informal dispute resolution, including mediation, should an in-person meeting prove unsuccessful, shall be attempted prior to seeking recourse from the courts.

31. JURISDICTION AND VENUE:

This Agreement shall be construed in accordance with the laws of the State of California. Any dispute arising hereunder, or relating hereto, shall be litigated in the State of California and venue shall lie in the County of Humboldt unless transferred by court order pursuant to California Code of Civil Procedure Sections 394 or 395.

32. ADVERTISING AND MEDIA RELEASE:

Any and all informational material related to this Agreement shall receive approval from COUNTY prior

to being used as advertising or released to the media, including, without limitation, television, radio, newspapers and internet. CONSULTANT shall inform COUNTY of any and all requests for interviews by the media related to this Agreement before such interviews take place; and COUNTY shall be entitled to have a representative present at such interviews. All notices required by this provision shall be given to Director in accordance with the notice requirements set forth herein.

33. SUBCONTRACTS:

CONSULTANT shall obtain prior written approval from COUNTY before subcontracting any of the services to be provided pursuant to the terms and conditions of this Agreement. Any and all subcontracts will be subject to all applicable terms and conditions of this Agreement, including, without limitation, the licensing, certification and confidentiality requirements set forth herein. CONSULTANT shall remain legally responsible for the performance of all terms and conditions of this Agreement, including, without limitation, any and all services provided by third-parties under subcontracts, whether approved by COUNTY or not.

34. ATTORNEYS' FEES:

If either party shall commence any legal action, including, without limitation, an action for declaratory relief, against the other by reason of the alleged failure of the other to perform any of its obligations hereunder, the prevailing party in said action shall be entitled to recover court costs and reasonable attorneys' fees, including, but not limited to, the reasonable value of services rendered by the Humboldt County Counsel's Office, to be fixed by the court, and such recovery shall include court costs and attorney's fees on appeal, if applicable. As used herein, "prevailing party" means the party who dismisses an action in exchange for payment of substantially all sums allegedly due, performance of provisions allegedly breached, or other considerations substantially equal to the relief sought by said party, as well as the party in whose favor final judgment is rendered.

35. SURVIVAL OF PROVISIONS:

The duties and obligations of the parties set forth in Section 4(D) – Compensation upon Termination, Section 9 – Audit and Retention of Financial and Performance Records, Section 10 – Local, State and Federal Inspection Rights, Section 12 – Confidential Information and Section 16 – Indemnification shall survive the expiration or termination of this Agreement.

36. CONFLICTING TERMS OR CONDITIONS:

In the event of any conflict in the terms or conditions set forth in any other agreements in place between the parties hereto and the terms and conditions set forth in this Agreement, the terms and conditions set forth herein shall have priority.

37. INTERPRETATION:

This Agreement, as well as its individual provisions, shall be deemed to have been prepared equally by both of the parties hereto, and shall not be construed or interpreted more favorably for one (1) party on the basis that the other party prepared it.

38. INDEPENDENT CONSTRUCTION:

The titles of the sections and subsections set forth herein are inserted for convenience of reference only and shall be disregarded in construing or interpreting any of the provisions of this Agreement.

39. FORCE MAJEURE:

Neither party hereto shall be liable or responsible for delays or failures in performance resulting from events beyond the reasonable control, and without the fault or negligence, of such party. Such events shall include, but not be limited to, acts of God, strikes, lockouts, riots, acts of war, epidemics, pandemics, acts of government, fire, power failures, nuclear accidents, earthquakes, unusually severe weather, acts of terrorism or other disasters, whether or not similar to the foregoing.

40. ENTIRE AGREEMENT:

This Agreement contains all of the terms and conditions agreed upon by the parties hereto, and no other agreements, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind either of the parties hereto. In addition, this Agreement shall supersede in their entirety any and all prior agreements, promises, representations, understandings and negotiations of the parties, whether oral or written, concerning the subject matter set forth herein. Any and all acts which may have already been consummated pursuant to the terms and conditions of this Agreement are hereby ratified.

41. COUNTERPART EXECUTION:

This Agreement, and any amendments hereto, may be executed in one (1) or more counterparts, each of which shall be deemed to be an original and all of which, when taken together, shall be deemed to be one (1) and the same agreement. This Agreement, and any amendments hereto, may be signed by manual or electronic signatures in accordance with any and all applicable local, state and federal laws, regulations and standards, and such signature shall constitute an original signature for all purposes. A signed copy of this Agreement, and any amendments hereto, transmitted by email or by other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original executed copy of this Agreement and any amendments hereto.

42. AUTHORITY TO EXECUTE:

Each person executing this Agreement represents and warrants that he or she is duly authorized and has legal authority to execute and deliver this Agreement. Each party represents and warrants to the other that the execution and delivery of this Agreement and the performance of such party's obligations hereunder have been duly authorized.

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the date first written above.

[Signatures on Following Page]

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TWO SIGNATURES ARE REQUIRED FOR CORPORATIONS:

1. *CHAIRPERSON OF THE BOARD, PRESIDENT, OR VICE PRESIDENT; AND*
2. *SECRETARY, CHIEF FINANCIAL OFFICER OR TREASURER.*

GHD, Inc.:

By: _____ Date: _____

Name: _____

Title: _____

By: _____ Date: _____

Name: _____

Title: _____

COUNTY OF HUMBOLDT:

By: _____ Date: _____
Thomas K. Mattson, Public Works Director
(*Pursuant to the authority delegated by the Humboldt County Board of Supervisors on [_____] [__], 20[__] [Item No. _-__]*)

INSURANCE AND INDEMNIFICATION REQUIREMENTS APPROVED:

By: _____ Date: _____
Risk Management

LIST OF EXHIBITS:

Exhibit A – Scope of Services
Exhibit B – Project Schedule
Exhibit C – Project Budget
Exhibit D – Billing Rate Schedule
Exhibit E – Sustainable Groundwater Management Agreement

July 30, 2020

Exhibit A

Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project Scope of Services

Project Understanding

The Sustainable Groundwater Management Act (SGMA) requires local governments and water agencies in California's high and medium priority groundwater basins, as defined by the California Department of Water Resources (DWR), to form Groundwater Sustainability Agencies (GSAs) and operate under a Groundwater Sustainability Plan (GSP) by the year 2022. The Eel River Valley Basin (ERVB) was listed as a medium priority basin and the County is acting as the lead in the formation of the ERVB GSA and developing the GSP.

The primary goals of the project are to:

- Improve the technical understanding of the physical processes that affect sustainability indicators within the basin.
- Create a GSP that will ensure high quality and abundant groundwater resources for human consumption, agricultural irrigation, and ecosystem services while avoiding undesirable results.
- Engage in robust public engagement to support involvement and collaboration with all interested stakeholders.
- Develop a monitoring network that provides representative and complete information.
- Create a framework for ongoing management that emphasizes data-driven decision-making, continuous improvement, and integration of learning through monitoring.
- Create a GSP that conforms with the Sustainable Groundwater Management Act ("SGMA"), the California Code of Regulations (Title 23, Section 350 et seq.), and DWR's BMP documents.

Create a GSP that is supported by stakeholders, approved by DWR, and efficient and affordable to implement.
This is a complex project that entails the application of a multi-discipline approach to meet the project objectives. The sub-tasks described in this Scope of Services are organized into five main tasks that align with the County's Grant agreement with DWR. The Sub-tasks are primarily aligned along technical disciplines and also conform to the County's Grant agreement with DWR. The five main Tasks are:

Task 0 – Public Outreach

Task 1 – Data Collection and Analysis

Task 2 – GSP Development

Task 3 – Monitoring / Assessment: Planning/Design/Environmental Documentation

Task 4 – Monitoring / Assessment: Construction

While these tasks are presented as discrete items, it is understood that many of these tasks will require iterative interaction and dependencies with other tasks. Some of these tasks will occur over the life of the project, such as Public Outreach, while others will need to be completed to provide the necessary information for subsequent tasks. In general, our approach is to start with gathering the existing data, performing the initial data collection, and data analysis (Task 1). This information will be compiled and represented the site conceptual model (Task 2.3.1 Hydrogeologic Conceptual Model (HCM)), which will serve as the basis for developing the Hydrologic Model (Task 2.1). Once the hydrologic model is constructed and calibrated it will be used to perform the necessary analysis to support the development of the GSP (Tasks 2.2 and 2.3). Each sub-task shall result in analysis or data that will be used to support the completion of subsequent tasks. The findings and results of most sub-tasks will be summarized in individual technical memorandums (TM). The TM's are intended to meet the deliverables of the County's Grant Agreement with DWR and also be incorporated into Chapters or sections of Chapters of the GSP.

A key component of the analysis and development of the GSP entails monitoring sustainability indicators of conditions in the basin. This is primarily done through the implementation of a Monitoring Network (Task 2.3.6 Monitoring Network). The monitoring network is comprised of existing wells and new wells and geoprobes. The design, permitting, and installation of the new groundwater wells and geoprobes are described in Tasks 3 and 4.

Project Team

The following scope of services will be completed by the project team referred hereinafter as the Team. The Team will be led by GHD and supported by SHN, Stillwater Science, GEI, and Thomas Gast & Associates.

Scope of Services

Based on our understanding of the project and as described in the Grant, GHD has developed the following scope of services for the project, which will include:

1. Category (B)

Task 0 – Public Outreach

The scope of services in the Grant proposes preliminary and intermediate stakeholder engagement and community workshops. The purpose of the preliminary engagement is to introduce the project to participating stakeholders, discuss previous studies and current information gaps, identify the stakeholder's short-term and long-term goals and priorities, identify known areas of concern, and invite ideas for adaptation measures to be further evaluated. During the intermediate stakeholder engagement, the Team will present project findings and gather feedback on the current state of the work. The community workshops are intended to target a broader audience, introduce the project, inform the community of opportunities and constraints and allow community members to provide

feedback. The County will lead this task and the Team will provide technical support on an as-requested basis described below.

Under this task, the Team will prepare exhibits and meeting materials and other technical documents intended to assist the County in scheduling and facilitating stakeholder engagement and community workshops. The Team will develop the materials at the direction of the County and participate in stakeholder meetings and community workshops as requested by the County. Team members may also serve as speakers on videos produced by the County.

Assumptions/Exclusions:

- The Team will support the County as-requested on an as-needed time and materials basis up to the task budget allowance.
- Of the budget allowance, approximately half is allocated to preparation of as-requested technical materials and community workshop support with the remaining half allocated to stakeholder meetings/site visits. The Team's effort associated with stakeholder meetings/site visits includes preparation of relevant materials, participation, and processing of collected data following the meetings/site visits. The Team assumes 6-8 hours of effort per meeting, actual effort will vary based on stakeholder(s) and desired meeting objectives/ outcomes.
- County will coordinate and schedule meetings with stakeholders.

Deliverables:

- As defined by the County.

2. Category (C)

Task 1 Data Collection and Analysis

Task 1.1 Data Collection and Analysis Work plan

Many different types and quantities of supporting data will need to be collected as the GSP is developed to adequately characterize and defend sustainability indicator conclusions. Data collection tasks will include identifying and compiling historical, existing, and ongoing studies as well as the collection of new data as outlined in the Proposition 68 grant. The overarching purpose of the data collection is to advance the understanding of the physical mechanics and groundwater conditions of the ERVB, such that the sustainable management of the basin can be characterized and the limits of use can be understood in the context of the six sustainability indicators laid out in the SGMA regulations.

The project team will collaborate on how to best apply the data collection tasks under the grant agreement to meet the objectives of the project, while staying within the budget and schedule. We will hold a series of working group meetings with the technical leads to review existing data and identify and prioritize additional data needs for the following GSP components:

1) Hydrogeologic Conceptual Model
2) Hydrologic Model (construction and calibration)
3) Water Budget
4) Characterization of Sustainability Indicators.

Each of the data collection tasks will be reviewed in the context of the needs of the project, specifically, with regards to determining the timing and methods of data collection to maximize value. The data gaps will be identified and prioritized. A Data Collection and Analysis Work Plan (Work Plan) will be developed that outlines where data will be collected and how all the information will be integrated into the GSP elements. In as much as feasible, the Work Plan will be developed in concert with some of the task specific planning documents.

We will determine the locations of high priority data collection efforts early in the process so that the necessary monitoring installations (wells, surface gauging stations, transducers) can be installed as early in the 2020 irrigation season as possible.

One of the objectives in developing the Work Plan will be to identify the specific format(s) for which data will need to be compiled in order to efficiently transfer it into a data management system. SGMA regulations specify that a data management system needs to be capable of storing and reporting information relevant to the development or implementation of the GSP and monitoring of the basin. To meet this requirement, the specific data requirements and format for each of the sub-tasks shall be summarized.

Additionally, there are data submittal requirements as part of the County's grant agreement to the following data repositories:

- California Environmental Data Exchange Network (CEDEN) for surface water quality data,
- State Water Resources Control Board Groundwater Ambient Monitoring and Assessment Program Information system (GAMA) for ambient groundwater quality monitoring data,
- DWR's Water Data Library (WDL) for water level data, and
- California Statewide Groundwater Elevation Monitoring program (CASGEM). CASGEM will eventually supersede the WDL but at this point data must be uploaded to both.

Each of these databases has a specific data format and upload procedure. These formats and procedures shall be outlined in the Data Management section of the Data Collection and Analysis Plan. The task of populating the databases would be spread over several different sub-tasks.

Assumptions:

- Existing data formats required for each of the data repositories (current as of the start of this project) will be used.
- Minor changes to data repositories data formats during the project will be incorporated under this task.
- Substantial changes to data repositories data formats during the project are outside of this Scope of Services

Deliverables:

- Draft and Final Data Collection and Analysis Work Plan

Task 1.2 Land Use

We will compile existing land use databases, beginning with the database developed by HCRCD. The Land Use database maintained by DWR will be compared with that of the HCRCD and other local sources. We will work with the County and HCRCD to evaluate data gaps and help resolve discrepancies between the various databases. Aerial photos and assessor data will be used to identify vacant land and existing land uses that are inconsistent with local land use plans and zoning designations, to identify potential land use changes. We will work with local jurisdiction planning staff to identify any planned general plan or zoning amendments, such that a cohesive, multi-jurisdictional land use map and inventory is created.

The land use will be compiled into ArcGIS shapefiles. We will prepare a Land Use Inventory/ Geodatabase Technical Memorandum that summarizes the data sources used to develop the inventory and describes the limitations or areas where data is incomplete. Our evaluation and summary of likely development, land use changes, and growth over time will be useful for prediction of water use patterns over time.

Assumptions:

- Data compilation will be limited to existing and readily available sources.
- County planners will assist in grouping appropriately similar land uses.

Deliverables:

- Draft and Final Land Use Inventory/Geodatabase TM.

Task 1.3 Water Use

This Task includes three sub-tasks:

1. Development of a Well Inventory
2. Design and oversee an empirical Water Use Study
3. Review DWR Water Use Estimates

Well Inventory

It is our understanding that the County will take the lead on compiling the inventory of production wells in the Basin. We will provide assistance as necessary ensure the data is efficiently incorporated into the other components of the GSP.

Water Use Study

To develop an estimate of agricultural use, the Team will work with the County and stakeholders to design a flow meter study. The source data used to inventory irrigated acres and estimate water use for the 2016 irrigation season by the Humboldt County RCD will be compiled and reviewed. The Team will work with HCRCD and stakeholders to determine any updates that are needed. A representative set of irrigated properties and/or irrigation systems will be identified that would provide the most valuable flow data. The Team will work with the County and their public outreach specialist to solicit volunteer landowners for a flow study and/or coordinate with landowners that have flow meters already in place. We will purchase and install a minimum of 6 flow meters on representative wells. The installation is anticipated to be done by Northcoast Pumphouse or the property owner if that is their preference. The Team will oversee and document the installation and will coordinate data collection methods and frequencies. The documentation will be included in the Water Use Inventory/Geodatabase TM. Flow data will be compiled and analyzed and used to update the water use estimates developed by HCRCD in 2016. Existing cannabis water use within the Basin will be researched through available information from County records and regulatory agency permits to inventory and account for current and projected cannabis water use.

DWR Water Use Data

The Team will evaluate the Cal-SIMETAW model and compare the input data with locally derived data from the recently installed California Irrigation and Management Information System (CIMIS) weather station. Comparing the locally generated and measured water use data with previous DWR water use estimates, and in consultation with DWR, we will determine whether the Cal-SIMETAW estimates should be updated based on the locally generated evapotranspiration and water use rates. With this analysis, we can work with the County, DWR, and other partners to work towards an agreement on appropriate water use estimates for the Basin.

Assumptions:

- The County will take the lead on compiling the well inventory.
- Source data (GIS shape files) from the 2016 HCRCD irrigated acreage study will be provided
- HCRCD, Public Outreach Specialist, and/or County will provide assistance to:
    - Update existing land use data as necessary (irrigated acreages, crop type, irrigation type),
    - conduct the public outreach necessary for soliciting volunteer irrigators
- Flow meters will be installed by Northcoast Pumphouse or Landowners under GHD supervision
- County and the Team will request DWR run their Cal-SIMETAW model with new input files, which will be included in the GSP if new model output is provided by DWR.

Deliverables:

- Draft and Final Water Use Inventory/Geodatabase TM,

- Updated Agricultural Water Use Rates

Task 1.4 Water Levels

The Water Levels task includes two sub-tasks;

1. Static Water Level Measurements
2. Continuous Water Level Measurements

Static Water Levels

Static water level measurements (depth to water) will be collected from a minimum of 75 wells throughout the basin, once during fall 2020 and once during spring 2021. The list of wells previously sampled in 2016/2017 will be reviewed and prioritized for resampling. We will review the distribution of wells and look for any spatial gaps of importance. We will work with the County to reach out to past volunteers and seek additional volunteer landowners to develop an inventory of at least 75 wells.

Two sampling teams will be deployed to collect depth-to-water as close to the timeframe that DWR does their well sampling for the CASGEM program. All data will be collected with calibrated equipment using standardized procedures consistent with DWRs 2016 BMP for Monitoring Protocols, Standards and Sites. Field data will be recorded on standard forms to ensure that all relevant data specific to that sampling location is as complete as possible. Representative photographs of each location will be collected and included with field notes to ensure that future measurements are collected from the same reference points.

All data will be tabulated in excel using a format that allows for integration into the modeling and the data management system. Groundwater contour maps will be prepared in ArcGIS and tables with the results will be prepared for each of the two sampling campaigns.

Continuous Water Levels

A minimum of 35 transducers will be purchased, calibrated, and deployed in wells throughout the Basin for the collection of continuous water level data. Transducer installation will be conducted in stages. To collect data during the low flow season, an initial installation effort will be made as soon as possible with the wells that are currently available and accessible, including the existing County wells and any private wells that are made available. Transducers will also be installed in the new monitoring wells following their development, and some transducers may be installed during the fall 2020 static water level measurement campaign. Data will be retrieved from deployed transducers during the fall 2020 static well measurement campaign, and again during the spring 2021 campaign.

Data collected from transducers will be processed and barometrically compensated. All data will be tabulated in excel spreadsheets in a format that allows for use into the modeling and integration into the data management system. Hydrographs of data collected will be prepared for each location.

Following the spring 2021 well measurement campaign, all water level data (static and continuous) will be compiled into a Water Levels Technical Memorandum that describes the data collection methods and presents the findings.

Assumptions:

- The County will lead the public outreach effort for acquiring volunteer wells, and will provide public interface support during field activities, as necessary, to coordinate access.

Deliverables:

- Draft and Final Water Levels Technical Memorandum.

Task 1.5 Water Quality

Historic water quality data will be researched and compiled by the Team, including data from the Groundwater Ambient Monitoring and Assessment (GAMA) program database, the North Coast Regional Water Quality Control Board, the State of California's GeoTracker database, USGS National Water Information System, and the County's Local Oversight Program (LOP). Known contaminated sites in the basin will be evaluated to determine if they are actively being investigated and remediated. The water quality data that was compiled and analyzed in 2016 will be further analyzed to address DWR's comments described in their July 17, 2019 *Alternative Assessment Staff Report*.

An inventory of water supply wells with the aquifer they are drawing from will be developed under Task 1.3. We will work with water suppliers to review their historic water quality sample results, assess concerns they have, and what additional sampling might be considered moving forward.

The compiled water quality data will then be reviewed considering the SGMA requirements. Specifically, it will be important to identify any water quality degradation that has developed or worsened since January 1, 2015, as conditions that existed prior to that time are not required to be addressed in the GSP. Additionally, an assessment of if/where significant and unreasonable impacts to groundwater quality may have been caused or exacerbated by groundwater use or groundwater management projects. This will be aided by comparing known groundwater quality problems with the distribution of production wells and other areas of water use.

The Team will prepare a Water Quality Sampling Plan that summarizes the existing data, the results of our analysis, and targeted areas of interest for a minimum of 15 water quality samples.

The Team will work with the County to identify candidate wells for sampling, finalize the relevant analyte list for each location, and coordinate access. Experienced environmental field technicians will collect samples from the wells in conformance with calibrated equipment and established protocols (DWR, 2016). Samples are anticipated to be tested for metals (target analyte list), nutrients, salts, organochlorine and organophosphorus pesticides, chlorinated herbicides, volatile organic compounds, semivolatile organic compounds, PCBs, microbial contaminants, radioactive constituents, and physical parameters (pH, total dissolved solids, dissolved oxygen, redox potential, specific conductance, and temperature) will be measured in the field with a multi-meter. Samples will be submitted to an accredited laboratory for the specific analytes being tested.

A Water Quality Technical Memorandum will be prepared that includes a summary of the historic data review, new data collection, sample results, and an evaluation of if/where there are groundwater quality areas of concern in the context of SGMA regulations. The findings from this work will support the

description of general water quality in the HCM, the characterization of the water quality sustainability indicator, and the development of sustainable management criteria.

Assumptions:

- The County or the County's specialist will assist, as necessary, to solicit volunteer wells and coordinate access for sampling.

- A total of $27,000 has been allocated for laboratory fees. The Water Quality Sampling Plan will be based on this budgeted amount. Some samples may not be tested for every analyte.

Deliverables:

- Draft and Final Water Quality Sampling Plan,
- Draft and Final Water Quality Technical Memorandum

Task 1.6 Surface Water Flows

Discharge measurements will be performed at a minimum of 10 locations at three different times. If possible, all three measurements will be performed during the 2020 low flow season. As part of the initial monitoring event, transducers will be installed in the river channel to log continuous stage data through the low flow season. Transducers will be recovered prior to the onset of the winter rains, where required.

The priority reaches of the Eel and Van Duzen Rivers and the optimum locations for discharge measurements will be defined as soon as possible by key members of the project team including SHN, modeling staff from GHD, biological staff with Stillwater Sciences, and Thomas Gast. The process of determining optimum locations for discharge measurements and transducer placement will be informed by:

- a field reconnaissance of suitable locations for discharge measurements
- results of ongoing surface water/groundwater monitoring to date as presented in SHN's October 2019 *Preliminary Analysis of Surface Water/Groundwater Interaction Monitoring*
- experience and results of previous surface water discharge studies performed by Thomas Gast in 2016/2017
- experience and results of previous habitat conditions mapping in the river channels by Stillwater Sciences
- spatial distribution of groundwater use
- proximity/location of existing monitoring wells
- data needs for developing the surface flow model
- river morphology (characteristics of channel, gravel distribution, underflow)

The results of this collaborative effort will be summarized in a Surface Water Flow Measurement Plan. The Plan will identify the locations and timing of data collection and what field data should be collected.

We will purchase and calibrate 10 transducers that will be capable of continuously recording stage and temperature. Thomas Gast will perform the discharge measurements and install and remove the

transducers. The transducers will be left in place as long as possible, but most are anticipated to need to be removed prior to the onset of winter rains. If/where feasible, transducers will be left in place through the winter season.

The flow and stage data will be processed, compiled and tabulated in a format suitable for incorporation into the data management system and the modeling software. A Surface Water Flow Technical Memorandum will be prepared that includes a discussion of the methods of data collection, description of data collection locations, and the results of the studies including tables, figures and hydrographs.

Assumptions:

- The 2020 dry season lasts long enough to facilitate three useful rounds of measurements with adequate temporal separation.
- Only one install and recovery of the transducers will be performed.

Deliverables:

- Draft and Final Surface Water Flow Measurement Plan,
- Draft and Final Surface Water Flow Technical Memorandum

Task 1.7 Saltwater Intrusion

The Team will compile and review the existing data to identify data gaps and areas of interest. A Saltwater Intrusion Sampling Plan will be developed that outlines the target wells, areas of interest, and the methods for sampling. Using the Sampling Plan, we will work with the County to facilitate outreach to landowners for access to a minimum of 30 wells. Wells that were sampled during the 2016/2017 campaigns will be prioritized so that existing well databases can be reused and chloride concentration values can be directly compared to previous values. The target areas for new sampling points will be communicated for the purposes of focused outreach.

Sample collection will be scheduled to coincide as closely to the fall 2020 and spring 2021 CASGEM sampling events by DWR. To the extent feasible, the chloride sampling will be conducted in concert with the depth-to-water measurements under Task 1.4. Some wells will require a more time-consuming method for sampling and will be done separately. Samples will be packaged and shipped to the laboratory for analysis in accordance with the Sampling Plan.

Results will be compiled and formatted for incorporation with the modeling and the data management system. Figures and maps will be prepared that show the sample locations and their results. A Saltwater Intrusion Technical Memorandum will be prepared that describes the activities, results and analysis. The narrative and figures/tables will be included into the Groundwater Conditions section of the GSP (Chapter 5).

Assumptions:

- The County will lead the public outreach to identify volunteer wells and provide access.
- 30 wells will be made available to be sampled.

Deliverables:

- Draft and Final Saltwater Intrusion Sampling Plan,
- Draft and Final Saltwater Intrusion Technical Memorandum.

Task 1.8 Topography/Bathymetry/Imagery

There are several different types of remote sensing data that would prove valuable to the project, such as: hyperspectral satellite imagery, topographic data from LiDAR scans, and bathymetric data of selected reaches of the wetted Eel River channel. Remote sensing data can be used to support characterizations of surface water/groundwater interactions, land subsidence, the HCM, Eel River channel morphology evolution over time, historical flooding implications, previous and current basin land uses, infrastructural improvements/degradation over time, etc. The Team will hold an interdisciplinary meeting to review, discuss, and reach consensus on the most valuable data to acquire and the areas where this data is needed.

The Team will gather the existing LiDAR and topographic surveys, as well as the spatiotemporal satellite imagery to determine if GSP elements analysis needs will be satisfied. Surface topography and surface model data sources to be incorporated and evaluated include:

- FEMA FIS Flood Model Developed in 1970s using 5’ contour data,
- Fortuna Photogrammetry 2’ contours supplemented with ground survey in channel collected by GLS/GHD,
- 2011 Coastal LiDAR,
- Ground and bathy survey collected by GMA, USFWS – 2020,
- 2009 USACE Photogrammetry supplemented with ground and bathy survey collected by LACO in 2011,
- 2009 USACE Photogrammetry supplemented with 2011 Coastal LiDAR and ground survey collected by LACO in 2011 and supplemented by GMA in 2018 due to rapid sediment accretion,
- 2011 Coastal LiDAR supplemented with ground and bathy survey collected by Ducks Unlimited for Ocean Ranch project and GMA/GHD for Cannibal Island project,
- 2019 USGS LiDAR.

If the current LiDAR survey of the basin does not have the resolution required for a specific analysis then the Team's Aerial and Ground Intelligence group will conduct a focused localized higher resolution survey in the area of interest, as appropriate. Additionally, if particular reaches of the submerged Eel River channel bathymetry are needed for the surface water modeling then a bathymetric survey by drone could be performed to fill in data gaps. These elevation models will be combined to create a composite elevation model for the basin.

Assumptions:

- The existing surface models and LiDAR data sets have been reviewed and appear sufficient for project needs, If additional survey or surface topology is required for the studies it will be localized to the specific study location.

- Any additional topo data needed would be focused on localized sections of the basin or river reaches.

Deliverables:

- Draft and Final Terrain Data and Imagery TM,
- Composite elevation model in electronic format.

Task 1.9 Aquifer Parameters

The Team will review existing data on aquifer parameters during the development of the Data Collection and Analysis Work Plan with specific focus on the needs of the HCM, modeling, and the water budget. Any data gaps will be considered in the final siting of the new monitoring wells. The Team will conduct a minimum of 23 slug tests throughout the basin. The location of the slug tests will be determined during the preliminary groundwater model development (Task 2.1.1 Model Preparation) and development of the Hydrogeologic Conceptual Model (Task 2.3.1). Data will be analyzed and compiled into an Aquifer Parameters TM.

Assumptions:

- The specific types of tests will be based on priority needs and will be comparable to those that included in the County's Grant Agreement with DWR.
- Any deviation from the Grant Agreement will be approved by the County and DWR.

Deliverables:

- Draft and Final Aquifer Parameters TM

Task 1.10 Groundwater Dependent Ecosystems Assessment

The Team will identify groundwater dependent ecosystems and evaluate the effects of groundwater management on GDEs and species that rely on interconnected surface waters in the tasks outlined below.

The Team will compile and review available information relevant for identifying and characterizing potential groundwater dependent ecosystems (GDEs) and ecohydrological linkages between aquifers and GDEs. We will integrate DWRs Natural Communities Commonly Associated with Groundwater (NCCAG) map (DWR 2018) with other available local data using methods outlined in Rohde et al. (2018). Because the existing vegetation map is moderate quality and is based on imagery from 2007-2010), we will check the vegetation mapping using more recent available aerial photographs in a desk top analysis.

The Team will query the California Natural Diversity Database (CNDDB) in the project area to identify special status species in the ERVB GSA. This database has a low spatial accuracy (sometimes spatial information only includes the 7.5 minute USGS quadrangle where the species was observed), but because the habitats are quite different inside and outside of the Eel River Basin we will review and eliminate upland species from the list as feasible based on professional opinion. These special status species lists will also be culled to eliminate species that are not groundwater dependent using the TNC

LookBook (Rohde et al. 2019) and other literature sources. The Team will define the extent of interconnected surface waters and the effects of interconnected surface water flows on salmonids will be evaluated subsequently.

GDEs will be defined as potential GDE polygons where groundwater elevations are within the rooting depth of mapped phreatophytic plant species based on guidance in Rohde et al. (2018) (generally < 30 feet). Other adjustments may be made based on the type of vegetation, interconnected surface water, proximity to groundwater wells (where the groundwater elevation is more certain), and position within the basin (i.e., uplands versus riparian areas).

Assumptions:

- This task will use existing vegetation maps and discrepancies between existing maps and aerial photographs will be identified as data gaps. Vegetation mapping will be estimated from aerial imagery where appropriate.
- The results of GDE assessment activities will be documented in the GDE Assessment TM on the distribution and extent of GDEs.
- The GDE Assessment, groundwater/surface monitoring and modeling is of sufficient quality to compare groundwater elevations with rooting depths.

Deliverables:

- Draft and Final GDE Assessment TM

Task 1.11 Surface Water Beneficial Use Assessment

The team will assess the flow needs for surface water beneficial uses identified in the Water Quality Control Plan for the North Coast Region (North Coast Region Water Quality Control Board 2018) including recreation; cold freshwater habitat; rare, threatened or endangered species; migration of aquatic organisms; and wetland habitat. This analysis will assess flow needs for listed aquatic species in the Eel, Van Duzen and other salmonid-bearing streams interconnected with groundwater in the ERVB. In addition, we will map principal habitat types (e.g., pools, glides, riffles, and alcoves), note potential passage barriers and assess the timing of salmonid usage. Where they overlap, habitat maps of the salmonid-bearing streams in the ERVB will be compared with long-term maps of habitat in the basin from 2005-2019 collected by Stillwater Sciences (2020) to identify areas where habitat changes through time are likely due to changes in hydrology. A key part of this analysis is determining the degree to which the timing of modeled or measured interconnected surface water flow decreases coincide with habitat needs of salmonids. Using the time series of salmonid habitat, we will identify locations where habitat varies and assess the degree to which the habitat changes are flow dependent.

Assumptions:

- The Surface Water Beneficial Use Assessment will utilize existing information (e.g. CDFW stream inventory reports) for small tributaries within the basin (e.g. Francis Creek, Williams Creek, Price, Howe, Russ, Strongs, Yager).

- No new instream habitat data collection in tributaries will be conducted. Principal habitat types will be mapped in the lower Eel and Van Duzen rivers only in those reaches mapped by Stillwater Sciences (2020).
- Principal habitat mapping information within the reach between the mouth of the Van Duzen River and Scotia will be developed using existing information and/or aerial photographic methods.
- Habitat mapping will not be conducted downstream of Fernbridge.

Deliverables:

- Draft and Final Surface Water Beneficial Use Assessment TM

Task 2 GSP Development

Task 2.1 Hydrologic Modeling

The Team will generally follow Moran's (2016[1]) phased approach for developing hydrologic models under SGMA, as follows:

- Phase 1 – Plan, Conceptualize, Design, and Report, where planning of the modeling evaluation and decisions on the model code are made in consideration of the available basin data (climate data, groundwater levels, geology, groundwater use, groundwater recharge, groundwater/surface water interaction, surface water flow rates, land use, etc.), Hydrogeologic Conceptual Model (HCM) and water budget, and basin sustainability goals/management objectives that require evaluation through model development and application. A model design report is required to present the outcome of the model planning steps.
- Phase 2 – Construct, Calibrate, and Report, where model construction is conducted consistent with the HCM and water budget, and then the model is calibrated to provide a reasonable match to observed data (groundwater levels, surface water levels and flows, seawater/fresh groundwater interface, water balance, etc.). Comprehensive reporting of the model construction and calibration is required where all inputs, assumptions, and calibration results are clearly stated and presented in a transparent fashion.
- Phase 3 – Predict, Analyze Uncertainty, and Report, where the calibrated model is used to predict the impacts of current and future groundwater use, surface water inflows, land use, climate change, and other basin management scenarios relative to evaluating the occurrence of any undesirable results (e.g., reduced groundwater discharge to surface water that impacts GDEs, insufficient municipal/agricultural water supply, increased seawater intrusion, etc.). The predictive simulations form the basis for establishing sustainable management criteria for the basin and the monitoring network needed to evaluate these criteria. An uncertainty analysis is necessary to evaluate where limitations or data gaps in the model development exist (e.g. HCM, water balance, calibration data, model inputs, etc.) that reduce reliability in the model predictions.

[1] Moran, T., 2016. Projecting Forward, A Framework for Groundwater Model Development Under the Sustainable Groundwater Management Act, Stanford Water in the West, Stanford Law School, Martin Daniel Gould Center for Conflict Resolution, November.

Clear documentation of the predictive scenarios, resulting sustainable management criteria, and associated uncertainty is needed so that decision-makers and stakeholders (both technical and non-technical) understand the implications of the management criteria and associated uncertainty.

- Phase 4 – Document and Archive, where a final model report is prepared to combine the previous documents prepared for modeling evaluation that incorporates all feedback obtained. All digital files and metadata related to the hydrologic model need to be organized, annotated, and archived to allow third-party model replication.

Phases 1 thru 4 of Moran (2016) align with Tasks 2.1.1 (Model Preparation), 2.1.2 (Model Construction and Calibration), 2.2.3 (Model Predictions), and 2.2.4 (Model Documentation). The scope for these tasks is developed below to reflect the recommendations of the four phases outlined by Moran (2016) to the extent practical at this early stage in the overall process. The scope will be executed in a fluid and evolutionary manner where collaborative feedback from all members of the Team, County, and stakeholders/public can be incorporated throughout the process in a transparent, collaborative, and inclusive manner.

Task 2.1.1 Model Preparation

The inter-dependent complexities of the ERVB, such as significant topographic relief, seasonal oscillation between wet and dry climatic conditions, variable land uses, heterogeneous geology, fluctuations in groundwater pumping, variation in groundwater/surface water interaction across the basin, and seawater intrusion from the Pacific Ocean, preclude using analytical solutions to analyze groundwater flow conditions and develop sustainability management criteria. A numerical hydrologic model for the ERVB will be required to achieve the simultaneous representation of these complexities.

The initial step in preparing to develop a numerical hydrologic model is the assembly and organization of the basin data that are applied in the model construction and calibration. The Team will assemble and organize the available hydrogeologic and surface water data in conjunction with developing the HCM (under Task 2.3.1) and water budget (under Task 2.3.3) for the ERVB. The HCM and water budget provide the context for developing the hydrologic model for the ERVB, which will incorporate the data collection and analysis activities completed under Task 1.

A model code will be selected by the Team in consideration of the model purpose and objectives, as they are informed by the sustainability goals for the basin. The initial key model objectives considered at this time for the hydrologic model evaluation include:

- Represent observed groundwater/surface water interaction along the Eel River, Van Duzen River, and major tributaries, including seasonal variations, and assess how groundwater uses (e.g., agricultural, industrial, and municipal pumping) may change groundwater discharge to surface water that may cause an undesirable result, such as adversely impact GDEs or surface water beneficial uses.
- Evaluate the overall water balance for the ERVB, through consideration of all inter-dependent hydrologic processes as represented in the numerical model, to determine whether groundwater and surface water uses (e.g., agricultural, industrial, and municipal pumping, surface water diversions, etc.) are sustainable currently and into the future without creating an undesirable

result (i.e., evaluate whether the basin is being operated and managed within its sustainable yield).

- Evaluate whether current and future groundwater and surface water uses result in an increased inland extent of the currently observed seawater/fresh groundwater interface at the west end of the ERVB.
- Develop minimum thresholds and associated metrics (e.g., groundwater levels, surface water levels and flows, groundwater pumping rates, inland position of seawater intrusion, etc.) that if exceeded individually or in combination with other minimum thresholds may cause an undesirable result in the ERVB.
- Develop a suitable monitoring network to evaluate that minimum thresholds are met and maintained.
- Evaluate any management strategies, if needed, to maintain sustainable yield with the basin.

The initial objectives outlined above will evolve as further collaboration occurs during the model planning stage between the Team, County, and stakeholders/public.

Model code selection will ensure that the key processes having a potentially significant influence on the sustainability indicators are fully represented (e.g., the effects of pumping on streamflow will be represented and the model will be able to quantify the potential depletion of interconnected surface waters). The modeling approach will help translate minimum thresholds for groundwater levels and surface water levels and flow into the amount of groundwater pumping that can be sustained without creating an undesirable result.

The Team anticipates selecting the model code GSFLOW (Markstrom et al., 2008[2]; Regan and Nuswonger, 2020[3]) to meet the objectives outlined above. GSFLOW is a public domain open-source model code developed by the U.S. Geological Survey (USGS). GSFLOW is a coupled groundwater and surface water flow model based on the integration of the USGS's Precipitation-Runoff Modeling System (PRMS, Markstrom et al., 2015[4]; Regan et al., 2020[5]) and the USGS's Modular Groundwater Flow Model MODFLOW family of codes (MODFLOW-2005, Harbaugh, 2005[6]; and MODFLOW-NWT, Niswonger et al., 2011[7]).

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2 Markstrom, S.L., Niswonger, R.G., Regan, R.S., Prudic, D.E., and Barlow, P.M., 2008. GSFLOW-Coupled Ground-water and Surface-water FLOW model based on the integration of the Precipitation-Runoff Modeling System (PRMS) and the Modular Ground-Water Flow Model (MODFLOW-2005), U.S. Geological Survey Techniques and Methods 6-D1, 240 p.

3 Regan, R.S. and Niswonger, R.G., 2020. GSFLOW version 2.1.0: Coupled Groundwater and Surface-water FLOW model: U.S. Geological Survey Software Release, March 4.

4 Markstrom, S.L., Regan, R.S., Hay, L.E., Viger, R.J., Webb, R.M.T., Payn, R.A., and LaFontaine, J.H., 2015. PRMS-IV, the precipitation-runoff modeling system, version 4: U.S. Geological Survey Techniques and Methods, book 6, chap. B7, 158 p.

5 Regan, R.S., Markstrom, S.L., LaFontaine, J.H., 2020. PRMS version 5.1.0: Precipitation-Runoff Modeling System (PRMS): U.S. Geological Survey Software Release, May 1.

6 Harbaugh, A.W. 2005. MODFLOW-2005, The U.S. Geological Survey Modular Ground-Water Model-the Ground-Water Flow Process, Chapter 16 of Book 6. Modeling Techniques, Section A. Ground Water. U.S. Geological Survey Techniques and Methods 6-A16.

7 Niswonger, R.G., 2011. MODFLOW-NWT, A Newton Formulation for MODFLOW-2005, Chapter 37 of Section A, Groundwater Book 6, Modeling Techniques and Methods 6-A37.

GSFLOW simulates coupled groundwater/surface water flow in a watershed and integrates flow across the land surface, within the subsurface saturated and unsaturated zones, and within streams/rivers. GSFLOW simulations can be used to evaluate the effects of land use change, climate variability, and groundwater withdrawals on groundwater flow, surface water flow, and groundwater/surface water interaction. The model incorporates well documented methods for simulating runoff and infiltration from precipitation; balancing energy and mass budgets of the plant canopy, snowpack, and soil zone; and simulating groundwater/surface water interaction. The spatial domain for GSFLOW models can span many square miles with model cell spacings that range from several 10s to 100s of feet, and the temporal domain can span months to several decades using daily time steps (based on daily precipitation data). An important aspect of GSFLOW is its ability to conserve water mass and to provide comprehensive water budgets. GSFLOW has been applied in developing GSPs for other California groundwater basins, including the San Gorgonio Pass Water Agency[8], Santa Cruz Mid-County Groundwater Basin[9]. San Luis Obispo Valley Groundwater Basin[10], Ukiah Valley Basin Groundwater Sustainability Agency[11], Sonoma County Water Agency Russian River Watershed[12], Sonoma County Water Agency Santa Rosa Plain Watershed[13], and State Water Resources Control Board for Ventura River Watershed[14].

PRMS was developed to evaluate the response of various combinations of climate and land use on streamflow and general watershed hydrology. PRMS simulates hydrologic processes including evaporation, transpiration, runoff, infiltration, and interflow as determined by the energy and water budgets of the plant canopy, snowpack, and soil zone on the basis of distributed climate information (temperature, precipitation, and solar radiation). Areal recharge (that recharges groundwater) and runoff (that discharges to surface water) are estimated based on land use, dominant vegetation covering the soil surface, and surficial soil types.

Groundwater/surface water interaction is represented in GSFLOW using the Streamflow Routing (SFR2) package (Prudic et al., 2004[15]; and Niswonger and Prudic, 2010[16]). The SFR2 package calculates flows between streams and groundwater based on stream and groundwater levels. Flow is routed downstream based on the calculated flow in and out of the streams. The SFR2 package includes several options for calculating stream water levels based on stream flow that account for streambed geometry, streambed elevations, and channel slope, wetted perimeter, and roughness. The SFR2 package also represents unsaturated flow beneath streams, or an underflow condition, which occurs during low flow seasonal conditions along the lower reaches of the Eel River.

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8 https://www.sgpwa.com/wp-content/uploads/2019/04/SGMA-RFP.pdf

9 https://www.midcountygroundwater.org/sustainability-plan

10 https://02ee8e55-e735-4a38-bedf-455049034f73.filesusr.com/ugd/06d0c0_3402b84e0c3747c2837af8784169620e.pdf

11 https://02ee8e55-e735-4a38-bedf-455049034f73.filesusr.com/ugd/06d0c0_3402b84e0c3747c2837af8784169620e.pdf

12 https://sonoma-county.granicus.com/MetaViewer.php?view_id=2&clip_id=695&meta_id=215548

13 https://pubs.usgs.gov/sir/2014/5052/pdf/sir2014-5052.pdf

14 https://app.box.com/s/l7hoyx2gcp4qce50d8nqeq1tmjn75eo5

15 Prudic, D.E., L.F. Konikow, and E.R. Banta, 2004. A new Streamflow-Routing (SFR1) Package to Simulate Stream-Aquifer Interaction with MODFLOW-2000: U.S. Geological Survey Open-File Report 2004-1042, 95 p.

16 Niswonger, R.G., and D.E. Prudic, 2010. Documentation of the Streamflow-Routing (SFR2) Package to Include Unsaturated Flow Beneath Streams—A modification to SFR1, U.S. Geological Survey Techniques and Methods 6-A13, 50 p.

Variably-saturated groundwater flow in the unsaturated zone is represented in GSFLOW using the Unsaturated Zone Flow (UZF) package (Niswonger et al., 2006[17]). The UZF package simulates flow through the unsaturated zone via gravity drainage to the groundwater table.

GSFLOW incorporates MODFLOW's Seawater Intrusion (SWI2) package (Bakker et al., 2013[18]), where Dupuit interface flow assumptions are used to separate fresh groundwater and seawater. This SWI2 module may not provide the degree of rigor needed to thoroughly assess seawater intrusion concerns at the west of the ERVB adjacent to the Pacific Ocean. SEAWAT_V4 (Langevin et al., 2008[19]), based on MODFLOW, which simulates full variable-density flow based on simulating inland migration of a dissolved solute (e.g., chloride or total dissolved solids) responsible for the increased density in seawater. The degree of inland migration of the density solute is balanced against the seaward directed hydraulic pressures imposed by fresh groundwater flow down the basin, which is established by the basin inflow boundary conditions assigned to the model. The Team may apply SEAWAT_v4 to establish the basin inflow boundary conditions to more rigorously reflect the observed seawater/fresh groundwater interface position, or the seawater/fresh groundwater interface position under future climate change conditions, and apply inflow boundary conditions in GSFLOW. Since both GSFLOW and SEAWAT_v4 are MODFLOW-based codes, they can be executed using the same model grid, hydraulic properties, and boundary conditions so there is no addition model setup requirements, apart from establishing a density equation of state between the density solute and density (or specific gravity), which can be developed from observed salinity data in groundwater.

The Team will evaluate applying telescopic mesh refinement to develop sub-domain models with increased spatial discretization over key areas of interest along the Eel River and Van Duzen River where evaluating critical groundwater/surface interaction may require a higher degree of resolution. The need for sub-domain models will depend on how small the model grid size can be made in these areas without creating prohibitively long model run times and unmanageable memory requirements.

The Team will prepare a Technical Memorandum (TM) to document the outcome of the model preparation task. The TM will include model objectives, data sources and key areas of uncertainty, an overview of the conceptual model, model code(s), model domain, grid size and time step size, an overview of model strengths, weaknesses and constraints, and a timeline for model development.

Assumptions:

- The Team, in conjunction with the County, will finalize the selection of the appropriate model code(s) to be used for the project

Deliverables:

- Draft and final Model Preparation TM

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[17] Niswonger, R.G., D.E. Prudic, and R.S. Regan, 2006. Documentation of the Unsaturated-Zone Flow (UZF1) Package for modeling unsaturated flow between the land surface and the water table with MODFLOW-2005: U.S. Geological Techniques and Methods Book 6, Chapter A19, 62 p.

[18] Bakker, M., F. Schaars, J.D. Hughes, C.D. Langevin, and A.M. Dausman, A.M., 2013. Documentation of the Seawater Intrusion (SWI2) package for MODFLOW, U.S. Geological Survey Techniques and Methods, Book 6, Chap. A46, 47 p.

[19] Langevin, C.D., D.T. Thorne, Jr., A.M. Dausman, M.C. Sukop, and W. Guo, 2008. SEAWAT Version 4: A Computer Program for Simulation of Multi-Species Solute and Heat Transport, Techniques and Methods Book 6, Chapter A22, U.S. Department of the Interior, U.S. Geological Survey, Reston, Virginia.

Task 2.1.2 Model Construction and Calibration

This task involves both the construction and calibration of the hydrologic model to encompass the full ERVB. The Team will construct the hydrologic model in accordance with the model objectives and model design set out in Task 2.1.1 – Model Preparation, incorporating feedback received from the County and stakeholders/public. The hydrologic model will be constructed to represent the HCM developed under Task 2.3.1 and the water budget developed under Task 2.3.3.

Model construction will include converting the model grid proposed under Task 2.1.1 into a three-dimensional digital format to include the vertical discretization necessary to represent the geologic conditions throughout the ERVB represented in the 3D Geologic Model developed for the HCM, as described in Task 2.3.1. The 3D Geologic Model will represent an interpolation of the geologic structure of the ERVB in three-dimensional space, which can be converted into model layers (i.e., vertical discretization) and a 3D hydraulic conductivity distribution (i.e., hydraulic conductivity per geologic medium) for input into the hydrologic model. Hydraulic conductivity values will be assigned consistent with the aquifer parameter testing results obtained under Task 1.9. Boundary conditions at the model domain limits will be assigned consistent with the HCM and water budget. Additional data collected under Task 1 will be used to populate the interior of the model with hydrologic and hydrogeologic parameters, such as land use and predominant vegetation/crop cover (Task 1.2), well inventory and water use from municipal, agricultural, and private wells (Task 1.3), and topography/bathymetry/LiDAR data (Task 1.8). Precipitation data measured at local weather stations will be applied on a daily basis in the model.

Existing surface water models developed within the ERVB will be reviewed and evaluated to aid in defining the input parameters for representing the Eel and Van Duzen Rivers and their tributaries, such as channel geometry, wetted perimeter, cross-sectional area, slope, and channel bottom roughness. It is recognized that channel geometry for the Eel River in the lower portion of the valley near the confluence with the Van Duzen River, and along the Sandy Prairie levee to the Boxcar Pool, is dynamic where a significant volume of gravel is redistributed every year. Stillwater has collected historical channel geometry monitoring data that will be evaluated to determine representative channel geometry in this area. The sensitivity of the model calibration and predictions will be evaluated based on channel geometry variations derived from Stillwater's monitoring data.

Following initial model construction, preliminary model simulations will be completed to evaluate the computational efficiency of the model and ensure manageable model execution and memory requirements. Opportunities will be explored to refine model grid spacing in key areas of interest (e.g., the lower portion of the Eel River). Alternatively, sub-domain models may be developed using telescopic mesh refinement to provide increased resolution in key areas. Boundary conditions for the sub-domain models can be extrapolated from the full basin model.

Both historical data from previous studies/monitoring within the ERVB and newly collected data under Task 1 will be applied as model calibration targets. These data include:

- Groundwater elevations measured as part of the California Statewide Groundwater Elevation Monitoring (CASGEM) program in collaboration with DWR dating back to the 1950s at some monitoring well locations, but more continuously at most wells since the 1990s
- Surface water flows and stage elevations measured at USGS gauging stations on the Lower Eel River at Scotia and Fernbridge, and on the Van Duzen River at Bridgeville

- Groundwater elevations and surface water flows, stage elevations, and surface water depths measured in 2016 (SHN, 2016[20])
- Surface water flows, stage elevations, and surface water depths applied in surface water models previously developed within the ERVB
- Groundwater elevations and surface water flows, stage elevations, and surface water depths measured in 2016 to 2019 (SHN, 2019[21])
- Groundwater elevations and surface water flows, stage elevations, and surface water depths to be collected under Tasks 1.4 and 1.6

The available calibration data will be reviewed for accuracy and reliability to identify potential errors in measurement, location and/or elevation survey, transcription/reduction, etc. Data identified as less reliable will be assigned a lower weight in the calibration process, or discarded as calibration targets.

The water budget developed under Task 2.3.3 will serve as a further model calibration target. The model simulated inflows and outflows will be compared to that estimated as part of the water budget to ensure consistency between the water sources/sinks represented in the model are consistent with the annual volume of groundwater and surface water entering and leaving the ERVB estimated through developing the water budget.

A further model calibration target will consist of matching the delineated position of the saltwater/freshwater transition zone at the western end of the ERVB, as determined through completing Task 1.7. The position of the saltwater/freshwater transition zone represents a balance between the inland-directed hydraulic pressures exerted by the density of seawater against the seaward-directed hydraulic pressures exerted by westward groundwater flow through the ERVB. Applying the delineated position saltwater/freshwater transition zone as an additional model calibration target will add further confidence in the ability to represent the hydraulic pressures created by the complex groundwater flow regime throughout the ERVB.

The hydrologic model will be calibrated using an iterative approach of adjusting model parameters to achieve a reasonable match between simulated and measured groundwater elevations, groundwater flow directions, stream flows and depths, and water surface elevations. Calibration will involve both iterative manual adjustments of various model input parameters and the use of least squares parameter estimation and uncertainty analysis tools, such as the program PEST (Parameter Estimation) (Watermark, 2016[22]), until the model results match historical observations within an agreed-upon tolerance. Hydrogeologic parameters such as hydraulic conductivity, specific yield, storativity, and leakage coefficients may be adjusted during model development, staying within the range of reasonable values for the aquifer materials identified in the HCM.

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[20] SHN Consulting Engineers & Geologists, Inc. (SHN), 2016. Groundwater Sustainability Plan Alternative, Eel River Valley Groundwater Basin, Humboldt County, California, December.

[21] SHN Consulting Engineers & Geologists, Inc. (SHN), 2019. Technical Memorandum: Preliminary Analysis of Surface Water/Groundwater Interaction Monitoring; Eel River Valley Groundwater Basin, Humboldt County Public Works, October 11.

[22] Watermark Numerical Computing (Watermark), 2016. PEST, Model-Independent Parameter Estimation User Manual Part I: PEST, SENSAN and Global Optimizers, 6th Edition, Watermark Numerical Computing, Brisbane, Australia, April.

Model calibration will be evaluated using both quantitative and qualitative measures. Quantitative measures include evaluating how closely the calibrated model matches observed groundwater elevations, horizontal and vertical groundwater hydraulic gradients, surface water elevations/depths, and surface water flow rates over time and space throughout the ERVB. Qualitative measures include ensuring consistency between simulated and observed groundwater flow directions and ensuring there is no spatial bias in the distribution of calibration residuals (difference between simulated and observed targets).

Following the model calibration process, the sensitivity of the model(s) will be analyzed to identify input parameters or boundary conditions to which model forecasts are particularly sensitive. PEST will facilitate an efficient means to conduct a sensitivity/uncertainty analysis on the calibrated input parameters. The sensitivity analysis will be used to identify input parameters that most significantly influence the model calibration. These parameters then may become a focus for further characterization and monitoring.

GHD will prepare a Model Construction and Calibration TM to summarize the model development process, calibration results, and sensitivity analysis.

Assumptions:

- The model(s) will be calibrated using existing available data and data collected as part of this project

Deliverables:

- Draft and Final Model Construction and Calibration TM

Task 2.1.3 Model Predictions

The Team will collaborate with the County and stakeholders/public to determine the model prediction scenarios of greatest interest for the ERVB. It is assumed that a wide range of scenarios will initially be explored and eight to ten predictive scenarios will be carried forward to full analysis and documentation. The calibrated hydrologic model will be used to evaluate these predictive scenarios. The model prediction scenarios will address the objectives of the model development established in Task 2.1.1, with the key purpose of supporting development of sustainable management criteria and determining the sustainable yield of the ERVB. The primary question to be answered is whether the water uses with the ERVB can be sustained currently and into the future without creating an undesirable result (e.g., impacting GDEs and/or beneficial surface water uses). Future scenarios to be evaluated will include the potential impacts of climate change (e.g., drought conditions, sea level rise).

Through completing the predictive scenarios, the Team will provide a summary of the following:

- Basin inflow volumes through surface water inflow, subsurface groundwater inflow, total infiltration through precipitation, infiltration of applied water (e.g., irrigation), infiltration from surface water systems/wetlands, and infiltration from managed recharge projects (e.g., Futuna and Ferndale wastewater treatment ponds)
- Basin outflow volumes through evapotranspiration, groundwater discharge to surface water/wetlands, subsurface groundwater outflow, groundwater extraction (e.g., agricultural, industrial, and municipal pumping), and infiltration from other sources

- Groundwater/surface water interactions, including seasonal variability
- Change in the annual volume of groundwater in storage between seasonal high conditions.
- Assessment of seasonal groundwater level fluctuations including an evaluation of current and historical conditions
- Variations in annual supply, demand, and change in groundwater stored for different water year types

The Team will assess the above components based on predictive model simulations applying the current basin conditions and management practices and then incorporating potential future GSP management actions.

The Team will consider climate change and develop a baseline future scenario by sequentially repeating historical model inputs in a way that preserves historical average conditions over this period. DWR also requires simulations using 2030-level hydrology (moderately dry future conditions) and 2070-level hydrology (extremely dry future conditions). Baseline hydrology will represent 2030-level and 2070-level hydrology by modifying stream flows, precipitation rates, and evapotranspiration rates using the change factors provided by DWR. This will yield models simulating baseline, moderately dry, and extremely dry future conditions.

The Team will analyze model uncertainties and discuss how actual basin responses to management actions may vary from those predicted by modeling. Applying PEST provides a robust means to identify potential uncertainty in model predictions, and will allow assessment of potential risks associated with each management action, thus informing future management decisions for the ERVB.

Where the amount or quality of observed data is inadequate to meet model objectives goals, the model limitations and uncertainty will be clearly articulated to decision-makers, stakeholders and other interested parties. Potential future additional data and technical studies will be suggested, discussed, and implemented as appropriate to remedy data deficiencies. As new data become available, the model(s) can be updated under future efforts.

The Team will prepare a Model Prediction and Uncertainty Analysis TM clearly articulating the model prediction and uncertainty analysis results to decision-makers, stakeholders, and other technical and nontechnical users. Presenting model results as a range of possible outcomes rather than as a single “true” value will help to convey the uncertainty inherent in model results.

Assessment of current and future impacts to GDEs

GDEs in the basin could be affected by both decreasing groundwater elevation, changes to salinity, and decreasing interconnected surface water flows. This requires determining how past changes in flow and local precipitation have affected GDEs in the Eel River Valley Basin, and coupling these observations to modeled changes in groundwater and surface water from model results. To assess the effect of past changes on GDE health, the Team will compare maps and models of historical changes in groundwater elevation and changes in interconnected surface water discharge with changes in ecosystem health. In particular, we will explore the change in Normalized Differential Vegetation Index (NDVI) and Normalized Differential Wetness Index (NDWI) through time via the GDE Pulse tool (Klausmeyer et al. 2019). This tool can be used to track summer vegetation health through space and time since 1985. Both NDVI and NDMI will reflect not only groundwater management but also local precipitation, flow into the basin from the Eel and Van Duzen rivers, changes associated with anthropogenic land and water use in the basin,

and channel dynamics. It is therefore crucial to evaluate the NDVI/NDMI analyses within these larger contexts. These results can then be used to project how future changes in surface water and groundwater inflows might affect the GDE. The GDE Pulse analysis uses LANDSAT imagery which has between a 15-30 m resolution, and uses the existing GDE polygons mapped by DWR. We will remove polygons that can be removed based on depth to groundwater or where the desktop analysis showed that the mapping was no longer correct.

To evaluate GDE response to future changes in groundwater, we will use model results from Task 2.1.2 (Model Construction and Calibration) and this task to explore the spatial and temporal changes in groundwater elevation, interconnected surface water discharge, sea level rise, and water quality (including salinity). Our approach will involve a review of hydrological model results to determine future trends in groundwater elevations and surface water flow to identify areas where future groundwater management is most likely to affect GDEs. For example, we will assess how predicted changes to groundwater levels will change interconnected surface water flow and the groundwater depth relative to rooting depths of vegetation reported in the literature.

Based on modeled changes to groundwater elevation and interconnected surface water discharge and the response of GDEs to past hydrologic changes, we will assess the response of GDEs to the model results. In particular, we will focus on any modeled changes in groundwater elevations relative to rooting depth of vegetation as well assess how the spatial patterns in NDVI change based on differences in inflows and groundwater elevation, where available. The modeled effects of potential changes in future surface water/groundwater interaction on GDEs will be evaluated to determine potential impacts to GDEs under different water use scenarios. We will also evaluate the potential impacts of climate change, water quality and sea level rise on GDEs.

As part of this analysis, we will identify any data gaps in hydrological data and GDE maps that could help future analyses. In addition, the Team will incorporate the GDE assessment during the evaluation of sustainable management criteria (Task 2.3.5) for GDEs based on flow and or groundwater depth requirements of different species including salmonids.

In coordination with Humboldt County and the Team, we will evaluate the data collected to identify areas of gaps and uncertainties, in either GDE data or where additional groundwater monitoring may be required.

Assumptions:

- The pulse analysis will use existing vegetation maps from DWR. We will remove polygons that were incorrectly mapped from the pulse analysis. Adding new mapped polygons based on depth to groundwater is not included in the scope of services.
- Deliverables for Assessment of current and future impacts to GDEs are included with Task 1.10.2

Deliverables:

- Draft and Final Model Prediction and Uncertainty Analysis TM

Task 2.1.4 Model Documentation

The Team will prepare a final model report to combine the previous TMs prepared for modeling evaluation that incorporates all feedback obtained. The model report will fully document the model construction and calibration process, and the predictive application of the calibrated model(s). Specifically, the documentation will include description of the model code(s) and detailed descriptions of the model development, including model conceptualization, assumptions, data inputs, boundary conditions, calibration, sensitivity and uncertainty analysis, and model application. Groundwater model reporting will be accessible to technical and nontechnical audiences and will include an executive summary with easy-to-read visuals. Model data and source files will be organized, annotated, and achieved so they can be made publicly available in electronic format with all necessary metadata and be in a format that can be easily viewed and shared among multiple model platforms and allow third-party model replication. All relevant data files will be uploaded to the basin's shared data platform.

The Team's application of 3D Visualization/Interpolation services (to be used for developing the 3D Geologic Model for the ERVB in conjunction with HCM under Task 2.3.1) will provide a clear visual representation of both the model, its development, and management alternatives that can be easily communicated to nontechnical audiences. The visualizations have the ability to show the model(s) in a 3D environment to highlight key model characteristics and how these characteristics effect critical ERVB features such as surface water elevations, groundwater elevations, surface water/groundwater interactions, and saltwater intrusion extent.

Assumptions:

- Model development will be conducted in accordance with the Modeling BMP,
- Model development will be based on a single realization of the HCM (and not multiple alternatives or variations of the HCM that may be contemplated to address basin data or characterization uncertainties)

Deliverables:

- Draft and Final sections of Chapters 4 and 6 of the GSP.

Task 2.2 GSP Administrative Information

At the completion of data collection and analysis activities, the Team will prepare the Draft Administrative Information (Chapter 2 of the GSP). The chapter shall include information relating to administrative and other general information about the GSA (Agency Information (§354.6), Description of the Plan Area (§354.8) and Notice the area covered by the Plan). The section shall include the following general information:

- An executive summary written in plain language that provides an overview of the Plan and Communication (§354.10).).
- A list of references and technical studies relied upon by the Agency in developing the Plan.
- The name and mailing address of the Agency.

- The organization and management structure of the Agency, identifying persons with management authority for implementation of the Plan.
- The name and contact information, including the phone number, mailing address and electronic mail address, of the plan manager.
- The legal authority of the Agency, with specific reference to citations setting forth the duties, powers, and responsibilities of the Agency, demonstrating that the Agency has the legal authority to implement the Plan.
- An estimate of the cost of implementing the Plan and a general description of how the Agency plans to meet those costs.

  Assumptions:

  - The County shall work with GHD to provide the required information to be included in the plan

  Deliverables:

  - Draft of the Administration Information section of Chapter 2 of the GSP.

Task 2.3 Basin Setting

Task 2.3.1 Hydrogeologic Conceptual Model

The Hydrogeological Conceptual Model (HCM) prepared in support of the Alternative Plan Submittal in 2016 will serve as a baseline to build upon. DWR's comments related to the HCM will be reviewed and considered in the HCM development under this scope. The team will use the existing HCM (and the technical studies and mapping that support it) to begin framing the hydrologic model and the water budget. Through this process, the adequacy of the existing HCM will be evaluated and data gaps will be identified and prioritized based on the project priorities. The primary focus for refinement of the existing HCM will be:

- Improving our understanding of the vertical and lateral limits of the basin through existing geologic mapping and geophysical data together with the spatial distribution of the principal aquifers through review of existing well log databases and the installation of new wells
- Improving our understanding of the physical properties of the aquifers and aquitards (hydraulic conductivity, storativity) through review and compilation of historic aquifer test results and new aquifer testing under this scope of work
- Improving the understanding of the physical characteristics of the Basin, including recharge areas and the spatial and temporal interactions between the surface water and groundwater systems.

We will review and compile stratigraphy available from existing/available well logs. Stratigraphic data will be compiled into a format suitable for construction of the hydrologic model and the data management system, as necessary. The DWR database is the most comprehensive database of wells within the valley,

however, the location data for the well records is poorly constrained (grouped in sections). A more complete and systematic spatial analysis of the well logs will be performed in identified priority areas.

Some of the new wells will be prioritized for closing data gaps in our understanding of the aquifer boundaries. Early collaboration between team members will be important for identifying the most valuable locations and the appropriate aquifer testing that should be performed at each location.

The work under the aquifer parameters task will be in part focused on addressing data gaps in our understanding of the physical properties of the principal aquifers. Data collected from aquifer testing in the new wells or within suitable existing wells in the basin will be incorporated into the hydrologic modeling. In exchange, the results of the hydrologic modeling will enhance understanding and provide a technical framework for quantifying key components of the HCM.

We will collaborate with the USGS to ensure that the HCM is consistent with the findings and conclusions associated with their Regional Groundwater Availability Study, and that any relevant data from their study are included in the GSP.

A geomorphic analysis of interconnected surface waters will be performed by reviewing previous studies, historic records, and from the results of the Terrain Data and Imagery Report. This analysis will be closely coordinated with the Beneficial Uses of Surface Water task, as the geomorphic characteristics of the channels are an important component to habitat conditions. The impact of the river dynamics, erosion and sedimentation will be considered in light of the surface flows, and how those factors affect the ability to characterize and monitor the impacts that groundwater use in the basin has on the beneficial uses of those waters.

3D Geologic Model Development

The Team plans to utilize in-house Three-Dimensional (3D) Visualization/Interpolation services to develop a 3D Geologic Model of the ERVB by applying all viable data such as geologic logs, two-dimensional (2D) cross-sections, and well/boring logs compiled into the DMS developed for the ERVB.

The Team will develop the 3D Geologic Model using the Studio program developed by CTech Development Corporation (CTech). Once the 3D Geologic Model is developed, additional features can be added to the model to enhance visual communication. Items such as static water levels of each aquifer, screened well intervals, location and total depths of borings/wells, surface water features, topographic features and more can be added and animated to the enhance the communication power of the hydrologic model and its results.

Assumptions:

- All deliverables will be submitted in electronic format,
- The Team will use existing data for the geomorphic review and the task does not include new aerial photographic mapping nor a geomorphic analysis report.

Deliverables:

- PDFs of geologic cross-sections, maps of topography, surficial geology, soil characteristics, delineation of recharge areas, surface water bodies, and local and imported water supply sources

- 3D Geologic Model
- Hydrogeologic Conceptual Model section of the GSP

Task 2.3.2 Current and Historical Groundwater Conditions

This task includes

1. The compilation and formatting of historic groundwater data for input into the hydrologic model(s) and the data management system.
2. The preparation of the narrative descriptions and the supporting figures/tables that will form the *Current and Historical Groundwater Conditions* chapter of the GSP.
3. Provide coordination and support for the development of narrative, figures and tables for the other GSP elements that rely on groundwater data.

We will compile and format the groundwater data collected as part of the 2016 Proposition 1 Grant and the subsequent annual monitoring. The effort will be coordinated with the modelers and the curator of the data management system. Data gaps and priority areas of interest will be defined during the initial setup of the hydrologic model.

Current and Historical Groundwater Conditions is a descriptive chapter of the GSP broken into sections that generally correspond with each of the sustainability indicators. The groundwater conditions chapter of the 2016 Alternative Plan will serve as a baseline and will be updated with new data collection and modeling results. Some of the sections will be developed from the technical memoranda prepared under specific data collection tasks, while others will rely heavily on the modeling results.

The narrative and figures developed under the water levels (1.4), water quality (Task 1.5), seawater intrusion (Task 1.7), and groundwater dependent ecosystems (Task 1.10) tasks will be incorporated in the chapter. New groundwater contour maps representative of the seasonal high and low conditions will be prepared following the two groundwater elevation campaigns. Water quality data compilation, analysis and sampling will provide a much more robust understanding of the water quality conditions. Two new rounds of chloride sampling will provide better resolution on the lateral and vertical position of the saltwater interface and will be useful to evaluate any changes in its position since 2016/2017. The description and mapping of groundwater dependent ecosystems will be prepared as part of the Task 1.10 effort.

The modeling will be critical for the estimation of the quantity and timing of depletions of the interconnected surface water systems. The model also provides the quantitative framework for estimating the groundwater in storage.

We will synthesize the data and prepare the narrative and the supporting figures/tables for the GSP chapter. All newly collected data will be compiled and formatted for incorporation into the DMS.

Assumptions:

- Only existing data from the Alternative Plan and data collected or generated in this project will be incorporated

Deliverables:

- Draft and final of the Groundwater Conditions section Chapter 5 of GSP

Task 2.3.3 Water Budget

The initial 2016 Water Budget developed for the Alternative Plan will serve as the starting point for developing the Budget. The comments received from DWR review will be incorporated and include an update on use data, provide more detail and explanation of water uses from the shallow portion of the (upper 200 feet of a relatively deep aquifer that could also contain considerably more water in storage than previously estimated); and, reflect changes, perspectives, or innovations detailed in the latest Draft Handbook for Water Budget Development (DWR, February 2020). The water budget will take into account data collected for the HCM/groundwater model on topography, climate, hydrology, land and water use, infrastructure, soil, geologic setting, aquifer characteristics and groundwater data. The water budget will form the basis for forward-looking water use estimates of future groundwater sustainability in the basin. The specific work elements under this task are described below:

- Develop current and historical water budgets for the ERVB. The water budget will include estimates of the long-term average and transient variability (seasonally and by water year type) in recharge to the aquifer systems of interest. Estimates will include groundwater recharge from precipitation and applied water, groundwater recharge from surface water systems such as the Eel, Van Duzen and Salt Rivers and subsurface inflow from the adjacent basin. The Team will also use the model to estimate the magnitude and variability in the primary discharge components from the aquifer system, including shallow groundwater evapotranspiration, groundwater pumping, groundwater discharge to surface waters, and subsurface outflow to the ocean.
- Develop spatial and temporal estimates of the magnitude of deep percolation of precipitation and applied water utilizing land use information along with irrigation methods and water source data.
- Characterize the primary uses of the aquifers systems, such as domestic, irrigation, and municipal water supply. Estimate changes in groundwater storage, flow directions, horizontal and vertical hydraulic gradients, and regional pumping patterns within the ERVB using available current and historical groundwater elevation data, pumping records, and estimates of historic and current groundwater use derived from land use data.
- Develop the projected water budget by compiling up to 50 years of historical precipitation, evapotranspiration and streamflow to establish baseline conditions; compile water demand based on current land use, evaporation, and crop coefficient information, compile recent surface water supplies and develop the projected water budget.

If data gaps are identified, the gaps will be noted for future consideration and a sensitivity analysis will be conducted to gauge the impact of the data gap on the water budget.

Assumptions:

- Only existing data from the Alternative Plan and data collected or generated in this project will be incorporated.

Deliverables:

- Chapter 6 of GSP

Task 2.3.4 Management Areas

The Eel River Basin in its entirety is unique and geologically complex, with a variety of water uses; however, basin complexity alone does not mandate the use of management areas. As stated in the Draft Sustainable Management Criteria BMP (BMP-6) (DWR, November 2017), a "Management area refers to an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors." Management areas, if required, would only be delineated after any of six overall basin sustainability indicators and sustainability goal would have been defined. Data that would be used to evaluate the need for a specific management area(s), includes the results of historical and planned groundwater/surface water monitoring activities, water budget, HCM, and groundwater modeling.

Our knowledge of basin geology and groundwater eccentricities at the different locations will enable us to focus on key areas thus reducing the potential need for management areas and mitigate negative stakeholder sentiment. Identification of management areas will be achieved by evaluating the distribution and density of groundwater use; defining hydrogeologically similar areas in close geographic proximity; and identifying areas in proximity to the coast with higher risk salt water intrusion zones versus areas with steeper hydraulic gradients that are geologically isolated and elevated above the lowermost portions of the basin. The results of the evaluation in conjunction with stakeholder input, will be used to identify or eliminate if there are areas that may need separate or additional representative monitoring points to adequately evaluate the sustainable management criteria specific to the area.

Assumptions:

- Stakeholder input from three meeting shall be included.

Deliverables:

- Draft and Final Sections of Chapter 3 of GSP.

Task 2.3.5 Sustainable Management Criteria

The Team will work with the ERVB GSA and stakeholder groups to collaboratively define the Sustainable Management Criteria [undesirable results (UR) definitions, minimum thresholds, and measurable objectives] for the ERVB. After reaching majority consensus on the Sustainable Management Criteria (SMC), the next step is to define the Sustainability Goal for the basin. The results of the SMC development activities will be documented in a TM, structured as a GSP Chapter 7 (Sustainability Management Criteria).

Because a thorough understanding of the historical and current condition of the basin is crucial, Sustainable Management Criteria can only be defined after the HCM, water budget and model have been completed. The data collected for these activities will be evaluated to determine if any of the sustainable management criteria are applicable, and if so, what level they should be set.

The Team will follow the DWR guidance published in BMP-6 to perform the evaluation. Data required to develop each SMC includes current and historical groundwater elevation and monitoring data, water budget results, land subsidence measurements, and stream gauge measurements. These empirical data will be used in conjunction with model outputs to determine the sustainable yield for the basin. The sustainable yield for the basin will be used to select representative monitoring points. If data gaps are identified while conducting this task, the gaps will be noted for future consideration and a sensitivity analysis will be conducted to gauge the impact of the data gap on the SMC(s).

Undesirable Results

After evaluating the data sources listed above, the Team will provide guidance to the County and ERVB GSA and stakeholders to develop the definition of an undesirable result (UR) for any of the following six selected sustainability indicators that may be identified:

- Chronic lowering of groundwater levels that indicate a significant and unreasonable depletion of supply
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable water quality degradation
- Depletion of interconnected surface waters that have significant and unreasonable adverse impacts on beneficial uses of the surface water.
- Significant and unreasonable land subsidence that interferes with existing or planned land uses.

If the data indicates that definition of an UR(s) would be necessary, the Team would work with the County and ERVB GSA to define what constitutes significant and unreasonable impacts for each sustainability indicator that the evaluation determines may potentially occur. Defining what constitutes an undesirable result would depend greatly on information gathered in Task 1 including land use, planning objectives, and protection of beneficial uses of groundwater and interconnected surface water within the basin and input received from the ERVB GSA and stakeholders.

Minimum Thresholds

For each UR that may be defined, the Team would work with the County and ERVB GSA and stakeholders to establish and understand the technical aspects of the quantitative minimum threshold(s) (MT) for any identified sustainability indicator(s) in the basin. This would be accomplished by using information from the HCM, water budget, and the model results and consulting with the County and ERVB GSA and stakeholders. If needed, MTs would be set at designated locations within the representative monitoring network. As stated in draft Best Management Practices, Sustainable Management Criteria ("BMP 6;" DWR, 2017), "a minimum threshold is the quantitative value that represents the groundwater conditions at a representative monitoring site that, when exceeded

individually or in combination with minimum thresholds at other monitoring sites, may cause an undesirable result(s) in the basin."

Measurable Objectives

If URs and MTs are established, the County and the ERVB GSA (with support from the GHD Team) would then establish measurable objectives (MOs) for any identified sustainability indicator (groundwater level, groundwater storage, seawater intrusion, water quality, and depletion of interconnected surface waters). This would require a discussion of the implications and the technical aspects involved in the development of these indicators with local agencies, water purveyors and residents involved in the stakeholder process. If identified, MOs would be established for selected locations within the monitoring network using information from the HCM, water budget, and water needs of relevant GDEs. Each MO would include a margin of safety to provide operational flexibility during adverse conditions and in case of hydrologic variability and uncertainty. As stated in BMP-6, (DWR, 2017) MOs are quantitative goals that reflect the basin's desired groundwater conditions; and if not already proven to be sustainable, this would allow the GSA to achieve the sustainability goal within 20 years. In addition to the MO, interim milestones (IMs) would be defined in five-year increments at each representative monitoring site using the same metrics as the MO.

Sustainability Goal

Finally, the Team will develop the sustainability goal for the basin based on the historical and current groundwater conditions, the water budget, the HCM and model results, and discussions with the County. BMP 6 (DWR, 2017) states that the sustainability goal is applicable to the entire basin and should succinctly state the ERVB GSA's objectives and desired conditions of the Basin. It also should state how the basin will get to the desired condition, and why planned measures will lead to success. The sustainability goal is not quantitative, unlike the other sustainable management criteria. "Note that most of the sustainability goal can only be finalized after minimum thresholds and undesirable results have been defined, projects and management actions have been identified, and the projected impact of those projects and management actions on groundwater conditions have been evaluated (DWR 2017)."

At the completion of this Task activities, the Team will prepare the Draft Chapter 7 (Sustainable Management Criteria TM) for ERVB. This chapter will include discussions and results of Undesirable Results (§354.26), Minimum Thresholds (§354.28), Measurable Objectives (§354.30), and the Sustainability Goal (§354.24) as applicable to the Basin.

Deliverables:

- Draft and Final Sustainable Management TM,
- Draft Final and Chapter 7 (Sustainable Management Criteria TM)

Task 2.3.6 Monitoring Network

Monitoring Protocols

The Team will prepare a document that spells out the specific monitoring protocols for each specific type of monitoring station. The best management practices outlined in DWR's 2016 Monitoring Protocols, Standards, and Sites will serve as the default set of protocols for data collection and management, unless there is need to develop a site-specific protocol that yields comparable data.

Monitoring Network

The current monitoring network includes 9 County monitoring wells and 5 active CASGEM wells (sampled by DWR) that are sampled bi-annually to monitor groundwater levels, as well as 3 USGS river gauging stations, and a temporary river gauging station managed by the County that monitors river levels continuously. Most, if not all, of the additional wells that will be installed during the implementation of this project will supplement this network. A number of transducers will be installed in wells and river stations throughout the basin, and as the data is gathered and analyzed, a subset of these will likely be designated as part of the monitoring network.

As the basin characterization and modeling are being completed, the final monitoring network will be developed to yield representative information about surface and groundwater conditions necessary to evaluate the GSP implementation. Every effort will be made to use the existing County wells to provide adequate monitoring of the relevant sustainability indicators.. If additional monitoring locations are deemed necessary, to adequately satisfy the requirements of SGMA, then an effort will be made to seek out existing and adequate sources of monitoring data (private wells, municipal wells). The locations of monitoring wells (either existing or new wells) needed to fill in data gaps will be included in Chapter 9 (Projects and Management Actions) of the GSP.

Representative Monitoring

It will be important to develop representative monitoring sites, such that, each of the sustainability indicators can be monitored. Some of the wells installed as part of this project will be designed specifically to augment the existing monitoring network associated with monitoring sustainability indicators. Existing municipal, agricultural, or private wells can also be sought out to serve as monitoring points. The results of the data collection and subsequent integrated modeling will ultimately inform the monitoring needs for each sustainable indicator.

Assessment and Improvement of Monitoring Network

Assessment and improvement of the monitoring network will be a collaborative process. Defining the monitoring network will be iterative as additional data is collected and analyzed and the results of the modeling begin to refine our understanding of the specific groundwater conditions relative to the sustainability indicators. The process of evaluating and defining specific management areas also will be an important part of understanding the basin setting and may result in the need for development of additional site-specific monitoring sites.

As part of the finalization of the monitoring network, we will assess the adequacy of that network, the level of uncertainty, and any data gaps that may exist. Where gaps exist or additional monitoring is warranted, a description of the areas or monitoring types that are missing, and the steps that can be taken to fill data gaps will be detailed.

The required narrative descriptions, objectives, protocols and data reporting requirements will be prepared along with the necessary supporting figures and tables to serve as Chapter 8 (Monitoring Networks) of the GSP.

Deliverables:

- Draft and Final Monitoring Protocols TM,
- Draft and Final Chapter 8 (Monitoring Networks)

Task 2.3.7 Projects and Management Actions

Sustainable groundwater management in the Eel River Basin may require implementation of projects/management actions (P/MA) to bring the basin into sustainability (if not already) or to refine the understanding of the basin and fill data gaps. This task focuses on the development of the potential P/MAs, evaluation of P/MAs and estimating the costs of P/MAs implementation.

Development of Projects and Management Actions

If the data collected during the GSP indicate that P/MAs may be required in the future, the Team would work with the County and stakeholders to identify P/MAs to help respond to changing and dynamic conditions in the ERVB, and achieve the Sustainable Management Threshold Criteria. The types of P/MAs that could be considered include those identified during previous planning efforts, and/or actions such as encouragement of conjunctive use of surface water and groundwater; increasing water conservation and efficiency; increasing/enhancing recharge mechanisms; groundwater banking; or Flood Managed Aquifer Recharge. If P/MAs appear to be needed based on the results of data evaluation, the Team would solicit P/MA ideas from the ERVB GSA and stakeholders in the basin.

Project/Management Action Evaluation

If the GSP results indicate that P/MAs are necessary for basin groundwater sustainability, the Team would evaluate and develop P/MAs based upon implementation timetable, expected benefits, required legal authority, regulatory permitting, and operation and maintenance costs. P/MAs would be focused to address the relevant sustainability indicator(s), including determining the minimum threshold that would trigger implementation. P/MAs would be assessed in terms of their benefit and implementability for each management objective. The expected benefit for each of the alternative P/MAs would be predicted through simulations using the groundwater flow model scenarios. These efforts would need to account for uncertainty arising from model errors and other hydrogeologic factors identified as part of Basin Setting that could inhibit accurately predicting the effects of P/MAs. This task would also assess the GSA's legal authority to implement the project as well as relevant permitting processes and requirements.

Cost Estimate for Implementing the GSP

Each developed P/MA, if any, would include a description of expected benefits, how those benefits would be evaluated, and which measurable objective would likely benefit from the P/MA. Each P/MA would list the circumstances required for implementation, process of public notification, permitting and regulatory processes, estimated cost of implementation, a recommendation on how the ERVB GSA could meet those costs, and a schedule for initiating and completing the project. If P/MAs are deemed necessary, based on the results of the GSP evaluation, this information will be summarized in Chapters 9 (Projects and Management Actions) and 10 (Implementation Plan).

Assumptions:

- Any needed estimates of potential costs of P/MAs implementation would be order of magnitude estimates for planning purposes

Deliverables:

- Draft and Final Chapters 9 (Projects and Management Actions) and
- Draft and Final Chapters 10 (Implementation Plan).

Task 2.3.8 GSP Document Preparation and Adoption

The Team will compile all GSP Chapters, TMs, Plans and back-up information/data into the GSP in compliance with the DWR grant requirements for incorporation into the SGMA as the ERVB GSP. All TMs, Reports, Plans, and Chapters will be prepared in a standardized format for the intended objective of a streamlined final GSP compilation process. All written documents will meet high professional writing standards. As each draft chapter is completed and approved by the GSA for public review, it will be posted for public review and comment. The team will compile public comments into a single spreadsheet and provide draft responses to the comments for ERVB GSA review. The Team will address ERVB GSA review comments and update the draft chapter with the accepted responses. When all chapters are updated and completed, the Team will compile all the chapters together into a single final document for ERVB GSA review. The Team will address the ERVB GSA's comments and provide the Final GSP within two weeks after receipt of written comments.

The Team will also prepare a GSP checklist spreadsheet that lists the GSP regulation section, water code section, requirement, a description of how the requirement was met, and corresponding Sections and page numbers of the GSP. After adoption, the Final GSP will be submitted to the DWR on or before January 31, 2022. Once received by the DWR, the GSP will undergo a 60-day public comment period.

The ERVB GSA will make the plans and prepare the necessary documents for GSP adoption including:

- Providing a 90-day notice to local cities and counties
- Posting of a public notice for the hearing to adopt
- Assisting with conducting the public hearing to adopt
- GSP submittal to DWR

Deliverables:

- Compiled Draft and Final GSP,
- Lists of Public Comments,
- GSP checklist

3. Category (D) Monitoring / Assessment

Task 3 Planning/Design/Environmental Documentation

In general, this task consists of the following sub-tasks:

1. Developing the Monitoring Well Installation Plan with optimal locations and purpose.
2. Solicit bids and secure a subcontract with a Drilling Contractor
3. Prepare the required documentation and obtain the various permit approvals.
4. Schedule, coordinate and oversee the well installation.
5. Prepare documentation for permit compliance and data compilations for project needs.

Selecting the optimal locations, final design, and purpose for the new wells is critically important and will be developed as soon as possible through collaborative review of existing data and determination of data gaps. Potential locations will be reviewed in the field by an experienced geologist to ensure safe access for drilling equipment. Safe, reliable access, long term stability and security, and ease of permitting will all be considered during the finalization of the well locations. Wherever possible, wells will be installed within the County right-of-way or other public access property to minimize the need for easements or other access agreements. Sites will be marked for utility location services to screen for any utility conflicts.

Planners will coordinate early in the process with the team designing the monitoring well study locations to identify, and avoid if possible, any significant land use and permitting limitations, such as locations within environmentally sensitive habitat. The Team will coordinate with each permitting authority to determine the most expedient path towards the approval of any required permits. All wells require drilling permits from the Humboldt County Division of Environmental Health. It is anticipated that with appropriate screening during the location selection process, the wells will qualify for a Categorical Exception under CEQA. In 2016 SHN worked with the County to get waivers from the California Coastal Commission, which expedited the process and allowed for the wells to be installed in the fall of 2016. We intend to follow the same process for the wells installed under this project.

The Team will prepare a Monitoring Well Installation Work Plan containing the components listed in Exhibit J of the County's Grant Agreement that will include the location, boring depths, sampling and testing program, well construction details for each of the new wells, and health and safety plan. A minimum of 4 deep, dual-screened wells and 15 shallow monitoring wells will be included. The Work Plan will form the basis for soliciting bids from qualified drilling contractors. The ability to satisfactorily perform the work within the existing grant agreement budget and project schedule will be an important consideration in the selection as will the drilling contractor's experience within the Basin.

Task 4 Construction

Following the selection of a qualified drilling contractor, the Team will coordinate and oversee the well installation activities and ensure that the permit requirements, data collection and documentation are all

completed per the Monitoring Well Installation Work Plan. Licensed geologists will observe and direct the drilling, well installation and development. Final well screen intervals will be determined in the field based on the stratigraphic conditions encountered. Field logs documenting the stratigraphy encountered, samples collected and well construction details will be completed and will form the basis for Well Completion reports.

Assumptions:

- The drilling contractor will be responsible for well development.
- The permitting requirements and process will be similar to that experienced in 2016.
- Four(4) 250 – foot dual-screened mud rotary drilled wells
- Fifteen(15) 60-foot Geoprobe PVC wells

Deliverables:

- Daily logs
- Notice of Completion and DWR Certification of Project Completion Form
- As-Built Record Drawings (Logs)
- Well Completion Reports
- Soil/Water Quality Sampling Report, if applicable

Exhibit B

Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project Schedule

Schedule

GHD will complete the above *scope of work based on the following milestone deliverable dates.*

Group Task	Subtask	Title	Deliverables	Due Date
0		Public Outreach		
	0.1	Stakeholder meetings	Presentation materials as requested	As Requested
	0.2	Meetings involving local agencies and stakeholders	Presentation materials as requested	As Requested
	1.0	Data Collection and Analysis	Data Management, Collection and Analysis Workplan	Q3 2020
	1.2	Land Use	Land Use Inventory/Geodatabase Technical Memorandum	Q4 2020
	1.3	Water Use	Water Use Inventory/Geodatabase Technical Memorandum	Q4 2020
			Updated Agricultural Water Use Study	Q4 2020
	1.4	Water Levels	Water Levels Technical Memorandum	Q2 2021
	1.5	Water Quality	Water Quality Sampling Plan	Q2 2021
			Water Quality Technical Memorandum	Q2 2021
	1.6	Surface Water Flows	Surface Water Flow Measurement Plan	Q3 2020
			Surface Water Flow Technical Memorandum	Q2 2021
	1.7	Saltwater Intrusion	Saltwater Intrusion Sampling Plan	Q3 2020
			Saltwater Intrusion Technical Memorandum	Q2 2021
	1.8	Topography/Bathymetry/Imagery	Terrain Data and Imagery Report	Q3 2020
	1.9	Aquifer Parameters	Aquifer Parameters Technical Memorandum	Q2 2021
	1.10	Groundwater Dependent Ecosystems Assessment	GDE Assessment Technical Memorandum	Q2 2021
	1.11	Surface Water Beneficial Use Assessment	Surface Water Beneficial Use Assessment Technical Memorandum	Q2 2021
2		GSP Development		
	2.1.1	Model Preparation	Model Preparation TM	Q4 2020
	2.1.2	Model Construction and Calibration	Model Construction and Calibration TM	Q2 2021

Group Task	Subtask	Title	Deliverables	Due Date
	2.1.3	Model Predictions, Assessment of current and future impacts to GDEs	Model Prediction and Uncertainty Analysis TM	Q3 2021
	2.1.4	Model Documentation	Chapters 4 and 6 of the GSP	Q4 2021
	2.2	GSP Administrative Information	Administration Information section of Chapter 2 of the GSP	Q2 2021
	2.3	Basin Setting		
	2.3.1	Hydrogeologic Conceptual Model	Conceptual Model TM for including in the GSP	Q3 2021
	2.3.2	Current and Historical Groundwater Conditions	Groundwater Conditions section Chapter 5 of GSP	Q3 2021
	2.3.3	Water Budget	Chapter 6 of GSP	Q3 2021
	2.3.4	Management Areas	Sections of Chapter 3 of GSP	Q3 2021
	2.3.5	Sustainable Management Criteria	Sustainable Management TM, Draft Final and Chapter 7	Q3 2021
	2.3.6	Monitoring Network	Monitoring Protocols TM, Draft and Final Chapter 8	Q3 2021
	2.3.7	Projects and Management Actions	Chapters 9 and 10 of GSP	Q4 2021
	2.3.8	GSP Document Preparation and Adoption	Compiled GSP	Q1 2022
3		Monitoring / Assessment		
	3.1	Project Coordination and Management		
	3.2	100% Design, plans and specifications	100% Design, plans and specifications	Q3 2020
	3.3	Solicit, Award, Schedule, and sub to Drilling Contractor	Awarded contracts	Q3 2020
	3.4	Permitting	Required environmental documentation for CEQA compliance	Q3 2020
	3.5	USA Marking	Copies of required permits and access agreements	Q3 2020
	3.6	Monitoring Plan (Exhibit J)	Monitoring plan	Q3 2020
	3.7	Health and Safety Plan	Health and Safety Plan	Q3 2020
	3.8	Soil/Groundwater Sampling Plan	Soil/Groundwater Sampling Plan, if applicable	Q3 2020

Group Task	Subtask	Title	Deliverables	Due Date
4		Construction		
	4.1	Driller	Drillers Bids	Q4 2020
	4.2	Field Labor	Daily logs	Q4 2020
	4.3	Notice of Completion and DWR Certification of Project Completion Form	Notice of Completion and DWR Certification of Project Completion Form	Q1 2021
	4.4	As-Built Record Drawings (Logs)	As-Built Record Drawings (Logs)	Q1 2021
	4.5	Well Completion Reports	Well Completion Reports	Q1 2021
	4.6	Soil/Water Quality Sampling Report, if applicable	Soil/Water Quality Sampling Report, if applicable	Q1 2021

Exhibit C

Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project Budget

Compensation

GHD will complete the above scope of work on a time and materials basis in accordance with the standard fee schedule in Exhibit D and within the total contract budget of $1,450,000. The rates in our standard fee schedule are subject to change on a semi-annual basis. Expenses and other similar project related costs will be billed out at cost. Work will be completed and billed monthly by group task based on our standard rates at the time services are performed. The fee estimate broken down by subtasks is below, and while actual effort for each subtask may vary from our estimate, the group task budgets and overall project budget will not be exceeded without prior written authorization from the County. Payment for work and expenses is due and payable upon receipt of our invoice.

Group Task	Subtask	Title	Fee by Task
0		Public Outreach	
	0.1	Stakeholder meetings	$ 10,000
	0.2	Meetings involving local agencies and stakeholders	$ 10,000
		Subtotal	**$ 20,000**
1		Data Collection and Analysis	
	1.1	Data Management Collection and Analysis Work Plan	$ 6,000
	1.2	Land Use	$ 12,000
	1.3	Water Use	$ 77,000
	1.4	Water Levels	$ 75,000
	1.5	Water Quality	$ 61,000
	1.6	Surface Water Flows	$ 42,000
	1.7	Saltwater Intrusion	$ 23,500
	1.8	Topography/Bathymetry/Imagery	$ 21,000
	1.9	Aquifer Parameters	$ 61,000
	1.10	Groundwater Dependent Ecosystems Assessment	$ 68,000
	1.11	Surface Water Beneficial Use Assessment	$ 28,500
		Subtotal	**$ 475,000**
2		GSP Development	
	2.1.1	Model Preparation	$ 25,000
	2.1.2	Model Construction and Calibration	$ 200,000
	2.1.3	Model Predictions, Assessment of current and future impacts to GDEs	$ 125,000
	2.1.4	Model Documentation	$ 50,000
	2.2	GSP Administrative Information	$ 5,000
	2.3	Basin Setting	

Group Task	Subtask	Title	Fee by Task
	2.3.1	Hydrogeologic Conceptual Model	$ 100,000
	2.3.2	Current and Historical Groundwater Conditions	$ 35,000
	2.3.3	Water Budget	$ 100,000
	2.3.4	Management Areas	$ 5,000
	2.3.5	Sustainable Management Criteria	$ 50,000
	2.3.6	Monitoring Network	$ 15,000
	2.3.7	Projects and Management Actions	$ 10,000
	2.3.8	GSP Document Preparation and Adoption	$ 35,000
		Subtotal	**$ 755,000**
3		Monitoring / Assessment	
	3.1	Project Coordination and Management	$ 5,000
	3.2	100% Design, plans and specifications	$ 2,000
	3.3	Solicit, Award, Schedule, and sub to Drilling Contractor	$ 2,000
	3.4	Permitting	$ 7,000
	3.5	USA Marking	$ 1,000
	3.6	Monitoring Plan	$ 2,000
	3.7	Health and Safety Plan	$ 1,000
	3.8	Soil/Groundwater Sampling Plan	$ 2,500
		Subtotal	**$ 22,500**
4		Construction	
	4.1	Driller	$ 150,000
	4.2	Field Labor	$ 20,000
	4.3	Notice of Completion and DWR Certification of Project Completion Form	$ 1,000
	4.4	As-Built Record Drawings (Logs)	$ 2,500
	4.5	Well Completion Reports	$ 2,000
	4.6	Soil/Water Quality Sampling Report, if applicable	$ 2,000
		Subtotal	**$ 177,500**
		Total Contract Amount:	**$ 1,450,000**

Exhibit D

GHD Standard Rates for Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project

US West Region Fee Schedule *

Principals:	$245.00 - $280.00
Associates:	$175.00 - $250.00
Specialist:	$225.00 - $275.00

Engineers:

♦ Level A	$120.00 - $135.00
♦ Level B	$135.00 - $155.00
♦ Level C	$155.00 - $175.00
♦ Level D	$175.00 - $195.00
♦ Level E	$195.00 - $230.00
♦ Level F	$230.00 - $260.00

Environmental Chemists/Scientists/Planners:

♦ Level A	$105.00 - $125.00
♦ Level B	$125.00 - $145.00
♦ Level C	$145.00 - $165.00
♦ Level D	$165.00 - $185.00
♦ Level E	$185.00 - $215.00
♦ Level F	$215.00 - $245.00

Industrial Hygienists/Safety Professionals:

♦ Level A	$120.00 - $135.00
♦ Level B	$135.00 - $150.00
♦ Level C	$150.00 - $175.00
♦ Level D	$175.00 - $200.00
♦ Level E	$200.00 - $230.00
♦ Level F	$230.00 - $260.00

Geologists/Hydrogeologists:

♦ Level A	$120.00 - $135.00
♦ Level B	$135.00 - $145.00
♦ Level C	$145.00 - $175.00
♦ Level D	$175.00 - $200.00
♦ Level E	$200.00 - $225.00
♦ Level F	$225.00 - $250.00

Technicians/Technologists:

♦ Level A	$ 70.00 - $100.00
♦ Level B	$100.00 - $120.00
♦ Level C	$120.00 - $135.00
♦ Level D	$135.00 - $160.00
♦ Level E	$160.00 - $190.00
♦ Level F	$190.00 - $235.00

Draft/CADD:

♦ Level A	$ 90.00 - $100.00
♦ Level B	$100.00 - $110.00
♦ Level C	$110.00 - $120.00
♦ Level D	$120.00 - $130.00
♦ Level E	$130.00 - $140.00
♦ Level F	$140.00 - $150.00

Technical Apprentices: $75.00 - $115.00

Administrative Support: $75.00 - $125.00

Expert Witness Testimony: $280.00

Updated: April 20, 2020

GRANT AGREEMENT BETWEEN THE STATE OF CALIFORNIA

(DEPARTMENT OF WATER RESOURCES) AND

HUMBOLDT COUNTY

AGREEMENT NUMBER 4600013562

SUSTAINABLE GROUNDWATER MANAGEMENT (SGM) GRANT

THIS GRANT AGREEMENT is entered into by and between the Department of Water Resources of the State of California, herein referred to as the "State" or “DWR” and Humboldt County, a public agency in the State of California, duly organized, existing, and acting pursuant to the laws thereof, herein referred to as the "Grantee," which parties do hereby agree as follows:

1. PURPOSE. The State shall provide funding from the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018 (Proposition 68; Pub. Resources Code, § 80000, et seq.) or the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1; Pub. Resources Code, § 79700 et seq.) to the Grantee to assist in financing the Eel River Valley Groundwater Sustainability Plan (GSP) and Monitoring Well Installation Project (Project). The provision of State funds pursuant to this Agreement shall result in an adopted GSP by the applicable Groundwater Sustainability Agency (GSA) and submitted to the Department of Water Resources (DWR) via the Sustainable Groundwater Management Act (SGMA) GSP Submittal Portal for review. The provisions of State funds does not guarantee adoption of the GSP by the applicable GSA or that the GSP will meet all of the evaluation and assessment criteria when submitted to DWR as required by SGMA and implementing regulations.
2. TERM OF GRANT AGREEMENT. The term of this Grant Agreement begins on the date this Grant Agreement is initially executed by the State, through final payment plus three (3) years unless otherwise terminated or amended as provided in this Agreement. However, all work shall be completed by JANUARY 31, 2022 and no funds may be requested after APRIL 30, 2022.
3. GRANT AMOUNT. The maximum amount payable by the State under this Agreement shall not exceed $1,900,000.
4. GRANTEE COST SHARE. Not applicable.
5. BASIC CONDITIONS. The State shall have no obligation to disburse money for the Project under this Grant Agreement until the Grantee has satisfied the following conditions:
   A. Prior to execution of this Grant Agreement, selected applicants (Groundwater Sustainability Agency) for GSP Development projects must submit evidence of a notification to the public and DWR prior to initiating development of a GSP in compliance with California Code of Regulations, title 23, Section 350 et seq. (GSP Regulations) and Water Code Section 10727.8.
   B. The Grantee must demonstrate compliance with all eligibility criteria as set forth in the 2019 Program Guidelines for the Sustainable Groundwater Management (SGM) Grant Program..
   C. For the term of this Grant Agreement, the Grantee submits Quarterly Progress Reports, associated quarterly invoices, and all invoice backup documentation no later than 60-days following the end of the calendar quarter (e.g. submitted by May 30th, August 30th, November 30th, and February 28th) and all other deliverables as required by Paragraph 12, “Submission of Reports” and Exhibit A, “Work Plan”.
6. DISBURSEMENT OF FUNDS. The State will disburse to the Grantee the amount approved, subject to the availability of funds through normal State processes. Notwithstanding any other provision of this Grant Agreement, no disbursement shall be required at any time or in any manner which is in violation of, or in conflict with, federal or state laws, rules, or regulations, or which may require any rebates to the federal government, or any loss of tax-free status on state bonds, pursuant to any federal statute or regulation. Any and all money disbursed to the Grantee under this Grant Agreement shall be deposited in a non-interest bearing account and shall be used solely to pay Eligible Project Costs.
7. ELIGIBLE PROJECT COST. The Grantee shall apply State funds received only to Eligible Project Costs in accordance with applicable provisions of the law and Exhibit B, “Budget”. Eligible Project Costs include the reasonable costs of studies, engineering, design, land and easement acquisition and associated legal fees,

preparation of environmental documentation, environmental mitigations, monitoring, and project construction. Reimbursable administrative expenses are the necessary costs incidental but directly related to the Project included in this Agreement.

Costs that are not eligible for reimbursement include, but are not limited to the following items:

A. Costs associated with the formation of a GSA(s).

B. Costs for preparing and filing a grant application.

C. Operation and maintenance costs, including post construction performance and monitoring costs.

D. Purchase of equipment not an integral part of a project.

E. Establishing a reserve fund.

F. Purchase of water supplies.

G. Monitoring and assessment costs for efforts required after project construction is complete.

H. Replacement of existing funding sources for ongoing programs.

I. Travel and per diem costs.

J. Support of existing agency requirements and mandates.

K. Purchase of land in excess of the minimum required acreage necessary to operate as an integral part of a project, as set forth and detailed by engineering and feasibility studies, or acquisition of land by eminent domain.

L. Meals, food items, or refreshments.

M. Overhead and indirect costs: “Indirect Costs” means those costs that are incurred for a common or joint purpose benefiting more than one cost objective and are not readily assignable to the funded project (i.e., costs that are not directly related to the funded project). Examples of Indirect Costs include, but are not limited to: central service costs; general administration of the Grantee; non-project-specific accounting and personnel services performed within the Grantee’s organization; depreciation or use allowances on buildings and equipment; the costs of operating and maintaining non-project-specific facilities; tuition and conference fees; forums, trainings, and seminars; and, generic overhead or markup. This prohibition applies to the Grantee and any subcontract or sub-agreement for work on the Project that will be reimbursed pursuant to this Agreement.

8. METHOD OF PAYMENT. After the disbursement requirements in Paragraph 5, “Basic Conditions” are met, the State will disburse the whole or portions of State funding to the Grantee, following receipt from the Grantee via US mail or Express mail delivery of a “wet signature” invoice or an electronic invoice certified and transmitted via DocuSign for costs incurred, including Local Cost Share, and timely Quarterly Progress Reports as required by Paragraph 12, “Submission of Reports.” Payment will be made no more frequently than quarterly, in arrears, upon receipt of an invoice bearing the Grant Agreement number. Invoices must accompany a Quarterly Progress Report and shall be submitted within sixty (60) days following the end of the calendar quarter (i.e. May 30th, August 30th, November 30th, and February 28th). The State will notify the Grantee, in a timely manner, whenever, upon review of an Invoice, the State determines that any portion or portions of the costs claimed are not eligible costs or is not supported by documentation or receipts acceptable to the State. The Grantee may, within thirty (30) calendar days of the date of receipt of such notice, submit additional documentation to the State to cure such deficiency(ies). If the Grantee fails to submit adequate documentation curing the deficiency(ies), the State will adjust the pending invoice by the amount of ineligible or unapproved costs.

   Invoices submitted by the Grantee shall include the following information:

   A. Costs incurred for work performed in implementing the Project during the period identified in the particular invoice.

B. Costs incurred for any interests in real property (land or easements) that have been necessarily acquired for a project during the period identified in the particular invoice for the implementation of a project.

C. Invoices shall be submitted on forms provided by the State and shall meet the following format requirements:

i. Invoices must contain the date of the invoice, either the time period covered by the invoice or the invoice date received within the time period covered, and the total amount due.

ii. Invoices must be itemized based on the categories (i.e., tasks) specified in Exhibit B, "Budget". The amount claimed for salaries/wages/consultant fees must include a calculation formula (i.e., hours or days worked times the hourly or daily rate = the total amount claimed).

iii. One set of sufficient evidence (i.e., receipts, copies of checks, time sheets) must be provided for all costs included in the invoice.

iv. Each invoice shall clearly delineate those costs claimed for reimbursement from the State's funding amount, as depicted in Paragraph 3, "Grant Amount" and those costs that represent the Grantee's costs, as applicable, in Paragraph 4, "Grantee Cost Share."

v. Original signature and date of the Grantee's Project Representative. Submit the original "wet signature" copy of the invoice form to the following address: Ian Espinoza, Division of Regional Assistance, 2440 Main Street, Red Bluff, CA 96080 or an electronic signature certified and transmitted via DocuSign from authorized representative to Ian Espinoza, Division of Regional Assistance at Ian.Espinoza@water.ca.gov.

All invoices submitted shall be accurate and signed under penalty of law. Any and all costs submitted pursuant to this Agreement shall only be for the tasks set forth herein. The Grantee shall not submit any invoice containing costs that are ineligible or have been reimbursed from other funding sources unless required and specifically noted as such (i.e., match costs/cost share). Any eligible costs for which the Grantee is seeking reimbursement shall not be reimbursed from any other source. Double or multiple billing for time, services, or any other eligible cost is illegal and constitutes fraud. Any suspected occurrences of fraud, forgery, embezzlement, theft, or any other misuse of public funds may result in suspension of disbursements of grant funds and/or termination of this Agreement requiring the repayment of all funds disbursed hereunder plus interest. Additionally, the State may request an audit pursuant to Paragraph D.5 and refer the matter to the Attorney General's Office or the appropriate district attorney's office for criminal prosecution or the imposition of civil liability. (Civ. Code, §§ 1572-1573; Pen. Code, §§ 470, 487-489.)

9. WITHHOLDING OF DISBURSEMENTS BY THE STATE. If the State determines that a project is not being implemented in accordance with the provisions of this Grant Agreement, or that the Grantee has failed in any other respect to comply with the provisions of this Grant Agreement, and if the Grantee does not remedy any such failure to the State's satisfaction, the State may withhold from the Grantee all or any portion of the State funding and take any other action that it deems necessary to protect its interests. Where a portion of the State funding has been disbursed to the Grantee and the State notifies the Grantee of its decision not to release funds that have been withheld pursuant to Paragraph 10, "Default Provisions," the portion that has been disbursed shall thereafter be repaid immediately with interest at the California general obligation bond interest rate at the time the State notifies the Grantee, as directed by the State. The State may consider the Grantee's refusal to repay the requested disbursed amount a contract breach subject to the default provisions in Paragraph 10. If the State notifies the Grantee of its decision to withhold the entire funding amount from the Grantee pursuant to this Paragraph, this Grant Agreement shall terminate upon receipt of such notice by the Grantee and the State shall no longer be required to provide funds under this Grant Agreement and the Grant Agreement shall no longer be binding on either party.

10. DEFAULT PROVISIONS. The Grantee will be in default under this Grant Agreement if any of the following occur:

A. Substantial breaches of this Grant Agreement, or any supplement or amendment to it, or any other agreement between the Grantee and the State evidencing or securing the Grantee's obligations;

B. Making any false warranty, representation, or statement with respect to this Grant Agreement or the application filed to obtain this Grant Agreement;

C. Failure to operate or maintain the Project in accordance with this Grant Agreement.

D. Failure to make any remittance required by this Grant Agreement, including any remittance recommended as the result of an audit conducted pursuant to Paragraph D.5.

E. Failure to submit quarterly progress reports pursuant to Paragraph 5.

F. Failure to routinely invoice the State pursuant to Paragraph 5.

G. Failure to meet any of the requirements set forth in Paragraph 11, "Continuing Eligibility."

Should an event of default occur, the State shall provide a notice of default to the Grantee and shall give the Grantee at least ten (10) calendar days to cure the default from the date the notice is sent via first-class mail to the Grantee. If the Grantee fails to cure the default within the time prescribed by the State, the State may do any of the following:

A. Declare the funding be immediately repaid, with interest, which shall be equal to State of California general obligation bond interest rate in effect at the time of the default.

B. Terminate any obligation to make future payments to the Grantee.

C. Terminate the Grant Agreement.

D. Take any other action that it deems necessary to protect its interests.

In the event the State finds it necessary to enforce this provision of this Grant Agreement in the manner provided by law, the Grantee agrees to pay all costs incurred by the State including, but not limited to, reasonable attorneys' fees, legal expenses, and costs.

11. CONTINUING ELIGIBILITY. The Grantee must meet the following ongoing requirement(s) and all eligibility criteria outlined in the 2019 Guidelines to remain eligible to receive State funds:

A. The Grantee must continue to demonstrate eligibility by being a GSA, a member agency of a GSA, or an entity that has an approved Alternative to a GSP and the groundwater basin must continue to be an eligible basin as outlined in the 2019 Guidelines and 2019 Proposal Solicitation Package (PSP).

B. An agricultural water supplier receiving State funds must comply with Sustainable Water Use and Demand Reduction requirements outlined in Water Code section 10608, et seq. and have their Agricultural Water Management Plan (AWMP) deemed consistent by DWR. To maintain eligibility and continue funding disbursements, an agricultural water supply must have their 2015 AWMP identified on the State's website. For more information, visit the website listed in Appendix A in 2019 Guidelines.

C. Grantees that have been designated as monitoring entities under the California Statewide Groundwater Elevation Monitoring (CASGEM) Program must maintain reporting compliance, as required by Water Code section 10932 and the CASGEM Program.

D. To the extent practicable, Grantees shall measure the amount of greenhouse gas emissions reduced and carbon sequestered resulting from an implementation project funded under this Grant Agreement. (Pub. Resources Code, § 80001(b)(7)).

E. For groundwater implementation projects that directly affect groundwater levels or quality, the Grantee must demonstrate compliance with the Groundwater Management Act set forth on page 7 of the 2019 Guidelines.

F. Grantees must adhere to the protocols developed pursuant to The Open and Transparent Water Data Act (Wat. Code, § 12405, et seq.) for data sharing, transparency, documentation, and quality control.

G. If applicable, the development of a Stormwater Resource Plan or functionally equivalent plan for stormwater and dry weather runoff capture projects is required to receive State funds set forth on page 8 of the 2019 Guidelines.

H. Grantees diverting surface water must maintain compliance with diversion reporting requirements as outlined in Water Code section 5100 et seq.

I. Sustainable Water Use and Demand Reduction: Senate Bill (SB)x7-7 (Water Code § 10608 et seq.) conditions the receipt of a water management grant or loan for urban water suppliers on gallons per capita per day reduction targets with the end goal of a 20% reduction by 2020.

J. An urban water supplier that receives grant funds pursuant to this Agreement must maintain compliance with the Urban Water Management Planning Act (UWMP; Water Code § 10610 et seq.) and Sustainable Water Use and Demand Reduction (Water Code § 10608 et seq.) as set forth on page 18 of the 2019 Guidelines. For more information, visit the website listed in Appendix A in 2019 Guidelines.

12. SUBMISSION OF REPORTS. The submittal and approval of all reports is a requirement for the successful completion of this Grant Agreement. Reports shall meet generally accepted professional standards for technical reporting and shall be proofread for content, numerical accuracy, spelling, and grammar prior to submittal to the State. All reports shall be submitted to the State's Grant Manager, and shall be submitted via DWR's "Grant Review and Tracking System" (GRanTS). If requested, the Grantee shall promptly provide any additional information deemed necessary by the State for the approval of reports. Reports shall be presented in the formats described in the applicable portion of Exhibit F, "Report Formats and Requirements." The timely submittal of reports is a requirement for initial and continued disbursement of State funds. Submittal and subsequent approval by the State, of a Project Completion Report is a requirement for the release of any funds retained for such project.

    A. Quarterly Progress Reports: The Grantee shall submit Quarterly Progress Reports to meet the State's requirement for disbursement of funds. Quarterly Progress Reports shall be shall be uploaded via GRanTS, and the State's Grant Manager notified of upload. Quarterly Progress Reports shall, in part, provide a brief description of the work performed, the Grantees activities, milestones achieved, any accomplishments and any problems encountered in the performance of the work under this Grant Agreement during the reporting period. The first Quarterly Progress Report should be submitted to the State no later than four (4) months after the execution of the agreement, with future reports then due May 30th, August 30th, November 30th, and February 28th.

    B. Groundwater Sustainability Plan: The Grantee shall submit an adopted GSP to DWR by the date as specified per the SGMA. The GSP shall be formatted, drafted, prepared, and completed as required by the GSP Regulations, and in accordance with any other regulations or requirements that are stipulated through SGMA.

    C. Coordination Agreement: The Grantee shall provide the State a copy of the executed Coordination Agreement, and all supporting documentation. This condition is only required in basins where GSAs develop multiple GSPs pursuant to Water Code section 10727(b)(3). Refer to the GSP Regulations for necessary details and requirements to prepare and submit a Coordination Agreement.

    D. Component Completion Report: The Grantee shall prepare and submit to the State a separate Completion Report for each component included in Exhibit A, if applicable. The Grantee shall submit a Completion Report as outlined in Exhibits A and F. Each Completion Report shall include, in part, a description of actual work done, any changes or amendments to each project, and a final schedule showing actual progress versus planned progress, copies of any final documents or reports generated or utilized during a project. The Completion Report shall also include, if applicable for Implementation Project(s), certification of final project by a registered civil engineer, consistent with Exhibit D. A "Certification of Project Completion" form will be provided by the State.

    E. Grant Completion Report: Upon completion of the Project included in Exhibit A, "Work Plan" the Grantee shall submit to the State a Grant Completion Report. The Grant Completion Report shall be submitted as outlined in Exhibits A, "Work Plan", and F, "Report Formats and Requirements". Retention

for the last component to be completed as part of this Grant Agreement will not be disbursed until the Grant Completion Report is submitted to be approved by the State.

13. STATEWIDE MONITORING REQUIREMENTS. The Grantee shall ensure that all groundwater projects and projects that include groundwater monitoring requirements are consistent with the Groundwater Quality Monitoring Act of 2001 (Wat. Code, § 10780 et seq.) and, where applicable, that projects that affect water quality shall include a monitoring component that allows the integration of data into statewide monitoring efforts, including where applicable, the Surface Water Ambient Monitoring Program carried out by the State Water Resources Control Board. See Exhibit G, "Requirements for Data Submittal" for web links and information regarding other State monitoring and data reporting requirements.
14. NOTIFICATION OF STATE. The Grantee shall promptly notify the State, in writing, of the following items:
    A. Events or proposed changes that could affect the scope, budget, or work performed under this Grant Agreement. The Grantee agrees that no substantial change in the scope of a project will be undertaken until written notice of the proposed change has been provided to the State and the State has given written approval for such change. Substantial changes generally include changes to the scope of work, schedule or term, and budget.
    B. Any public or media event publicizing the accomplishments and/or results of this Grant Agreement and provide the opportunity for attendance and participation by the State's representatives. The Grantee shall make such notification at least fourteen (14) calendar days prior to the event.
    C. Discovery of any potential archaeological or historical resource. Should a potential archaeological or historical resource be discovered during construction, the Grantee agrees that all work in the area of the find will cease until a qualified archaeologist has evaluated the situation and made recommendations regarding preservation of the resource, and the State has determined what actions should be taken to protect and preserve the resource. The Grantee agrees to implement appropriate actions as directed by the State.
    D. The initiation of any litigation or the threat of litigation against the Grantee regarding the Project or that may affect the Project in any way.
15. NOTICES. Any notice, demand, request, consent, or approval that either party desires or is required to give to the other party under this Grant Agreement shall be in writing. Notices may be transmitted by any of the following means:
    A. By delivery in person.
    B. By certified U.S. mail, return receipt requested, postage prepaid.
    C. By "overnight" delivery service; provided that next-business-day delivery is requested by the sender.
    D. By electronic means.
    E. Notices delivered in person will be deemed effective immediately on receipt (or refusal of delivery or receipt). Notices sent by certified mail will be deemed effective given ten (10) calendar days after the date deposited with the U. S. Postal Service. Notices sent by overnight delivery service will be deemed effective one business day after the date deposited with the delivery service. Notices sent electronically will be effective on the date of transmission, which is documented in writing. Notices shall be sent to the below addresses. Either party may, by written notice to the other, designate a different address that shall be substituted for the one below.
16. PERFORMANCE EVALUATION. Upon completion of this Grant Agreement, the Grantee's performance will be evaluated by the State and a copy of the evaluation will be placed in the State file and a copy sent to the Grantee.
17. PROJECT REPRESENTATIVES. The Project Representatives during the term of this Grant Agreement are as follows:

Department of Water Resources	Humboldt County
Arthur Hinojosa Chief, Division of Regional Assistance P.O. Box 942836 Sacramento, CA 94236-0001 Phone: (916) 653-4736 Email: Arthur.Hinojosa@water.ca.gov	Hank Seemann Deputy Director, Environmental Services 1106 Second Street Eureka, CA 95501 Phone: (707) 445-7741 Email: Hseemann@co.humboldt.ca.us

Direct all inquiries to the Grant Manager:

Department of Water Resources	Humboldt County
Ian Espinoza Division of Regional Assistance 2440 Main Street Red Bluff, CA 96080 Phone: (530) 529-7330 E-mail: ian.espinoza@water.ca.gov	Summer Daugherty Senior Environmental Analyst 1106 Second Street Eureka, CA 95501 Phone: (707) 268-2664 Email: Sdaugherty@co.humboldt.ca.us

Either party may change its Grant Manager, Project Representative, or Project Manager upon written notice to the other party.

18. STANDARD PROVISIONS AND INTEGRATION. This Grant Agreement is complete and is the final Agreement between the parties. The following Exhibits are attached and made a part of this Grant Agreement by this reference:

Exhibit A – Work Plan

Exhibit B – Budget

Exhibit C – Schedule

Exhibit D – Standard Conditions

Exhibit E – Authorizing Resolution Accepting Funds

Exhibit F – Report Formats and Requirements

Exhibit G – Requirements for Data Submittal

Exhibit H – State Audit Document Requirements for Grantees

Exhibit I – Project Location

Exhibit J – Monitoring and Maintenance Plan Components

IN WITNESS WHEREOF, the parties hereto have executed this Grant Agreement.

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Arthur Hinojosa
Chief, Division of Regional Assistance

Date 5/14/2020

HUMBOLDT COUNTY

Hank Seemann
Deputy Director, Environmental Services

Date 5/14/2020

Approved as to Legal Form and Sufficiency

James Herink For
Robin Brewer
Assistant Chief Counsel, Office of Chief Counsel

Date 5/14/2020

Exhibit A

WORK PLAN

Project Title: Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project

Project Description: This Work Plan includes activities associated with planning, development, and preparation of a GSP for the Eel River Valley groundwater basin. The resulting GSP will incorporate appropriate Best Management Practices (BMPs) as developed by DWR and will result in a more complete understanding of the groundwater subbasin to support long-term sustainable groundwater management.

Category (a): Grant Agreement Administration
Prepare reports detailing work completed during reporting period as outlined in Exhibit F, "Report Formats and Requirements" of this Agreement. Progress Reports will include sufficient information for DWR Grant Manager to understand and review backup documentation submitted with invoices. Quarterly invoices will accompany the Quarterly Progress Reports and should be submitted to the DWR Grant Manager for review to receive reimbursement of Eligible Project Costs. Collect and organize backup documentation by task and prepare a summary Excel document detailing contents of the backup documentation organized by task.

Prepare and submit the Environmental Information Form (EIF) within 30 days of the execution date of the Grant Agreement. No invoices will be reviewed or processed until the EIF has been received and deemed acceptable by DWRs Grant Manager. Submit a deliverable due date schedule prior to the execution of the Grant Agreement to be reviewed and approved by the DWR Grant Manager. Any edits to the schedule must be approved by the DWR Grant Manager and the revised schedule saved in the appropriate project files.

Submit a deliverable due date schedule within 30 days of execution of of this Agreement or any future amendments, where the amendment would result in a change in the deliverables and/or schedule, for DWRs Project Manager's review and approval. Edits made to the schedule must be approved by the DWR Project Manager in advance.

Prepare draft a Grant Completion Report and submit to DWR for Project Manager's comments and review no later than 90 days prior to the Work Completion Date listed in Paragraph 2. Prepare a Final Grant Completion Report addressing the DWR Project Manager's comments and submit within 30 days prior to the Work Completion Date listed in Paragraph 2. The reports will be prepared and presented in accordance with the provisions of Exhibit F of this Agreement. All deliverables shall be submitted prior to the Final Grant Completion Report submittal as outlined on the approved deliverable due date schedule.
Deliverables:

- EIF
- Deliverable due date schedule
- Quarterly Progress Reports, Quarterly Invoices, and all required backup documentation
- Grant Completion Reports

Category (b): Stakeholder Engagement / Outreach
Prepare an Outreach and Communications Plan to ensure that interested parties have opportunities to be informed about progress and opportunities to provide input and feedback. Hold a minimum of eight (8) stakeholder meetings of the Eel River Valley Groundwater Working Group or Groundwater Resources Advisory Committee. Provide a minimum of sixteen (16) meetings involving local agencies and stakeholders (e.g. Humboldt County Board of Supervisors, city councils, special district boards within the basin, the Bear River Band of the Rohnerville Rancheria tribal council, the Humboldt County Farm Bureau, the Eel River Forum, etc.) to convey information and updates. Develop a user-friendly website and post interim work products (e.g. work plans, technical memoranda, etc.). Send at least three (3) letters and handouts to all municipal, agricultural, and industrial water users within the basin.

Deliverables:

- Outreach and Communications Plan
- Completed Website
- Presentation materials
- Meeting summaries included as attachments in the Quarterly Progress Report

Category (c): GSP Development

Collect and analyze all data necessary for preparing a GSP. Prepare a GSP that meets the SGMA regulations. Work collaboratively to reach consensus whenever possible on the GSP as it is developed. Adjust and modify the GSP, as necessary, to respond to stakeholder input. Submit the adopted GSP to DWR.

Task 1: Data Collection and Analysis

Prepare and implement a workplan to collect and analyze all data necessary for preparing a GSP

Subtask 1.1: Data Collection and Analysis Workplan

Prepare and implement a workplan to collect and analyze data to support the hydrologic modeling, hydrogeologic conceptual model, water budget, and the development of sustainable management criteria.

Deliverables:

- Data collection and analysis workplan

Subtask 1.2: Land Use

Coordinate with the Humboldt County Building & Planning Department, the City of Fortuna Planning Department, and the City of Rio Dell Planning Department to compile a detailed inventory of land use types within the basin. Identify potentially significant future land use changes based on the General Plan land use designations and zoning. Prepare a Land Use Inventory/Geodatabase Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Land Use Inventory/Geodatabase Technical Memorandum

Subtask 1.3: Water Use

Develop a detailed inventory of municipal and agricultural irrigation supply wells with attribute data including location, size, screen depth, and type. Purchase and install a minimum of six (6) flow meters to obtain direct flow measurements from representative irrigation systems. Coordinate with the USDA-Natural Resources Conservation Service (NRCS) to work collaboratively with landowners who have installed flow meters as part of NRCS-funded projects to request voluntary sharing of irrigation water use. Collect information to account for cannabis production in the water use inventory. Update and refine the 2016 Preliminary Irrigation Water Use Study prepared by the Humboldt County RCD based on the direct flow data and other relevant data and information. Review the most current estimate for agricultural irrigation water use developed by DWR using the California Simulation of Evapotranspiration of Applied Water (Cal-SIMETAW) soil water balance program. Determine whether an update of the agricultural irrigation water use using Cal-SIMETAW is warranted to support the GSP for the basin. Prepare a Water Use Inventory/Geodatabase Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Water Use Inventory/Geodatabase Technical Memorandum
- Updated Agricultural Water Use Study

Subtask 1.4: Water Levels

Measure water levels at existing and new wells. Collect point-in-time measurements in at least seventy-five (75) wells in the Fall of 2020 and the Spring of 2021. Tabulate data and prepare groundwater contour maps. Purchase and install pressure transducers and data loggers to collect continuous water level data in at least thirty-five (35) wells. Store transducer data electronically and depict data in a set of graphical figures. Prepare a Water Levels Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Water Levels Technical Memorandum

Subtask 1.5: Water Quality

Compile and evaluate existing data and information regarding groundwater quality within the basin from sources such as the GAMA groundwater information system, GeoTracker data management system, USGS National Water Information System, and Humboldt County Division of Environmental Health records. Consult with the appropriate regulatory agencies (e.g. USEPA, Department of Toxic Substances Control, State and Regional Water Boards, Humboldt County Division of Environmental Health) to identify known groundwater quality problems and to identify data gaps. Utilize the assessment to determine whether known groundwater quality problems are under the purview of any agency and the status of response plans. Consult with federal, state, and local agencies to determine an appropriate action plan if a known groundwater quality problem is not under the purview of any agency and/or the response plan is not clearly developed. Compile and summarize monitoring data for drinking water supplies within the basin and evaluate any exceedances of applicable water quality standards. Prepare a Water Quality Sampling Plan and collect water samples from at least fifteen (15) wells distributes throughout the basin for laboratory testing. Analyze water samples for metals (target analyte list), nutrients, salts, organochlorine, and organophosphorus pesticides, chlorinated herbicides, volatile organic compounds, semivolatile organic compounds, PCBs, microbial contaminants, radioactive constituents, and physical parameters. Prepare a Water Quality Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Water Quality Sampling Plan
- Water Quality Technical Memorandum

Subtask 1.6: Surface Water Flows

Prepare and implement a Surface Water Flow Measurement Plan. Collect streamflow and stage measurements at a minimum of ten (10) locations. Measure streamflow manually during at least three (3) monitoring events. Purchase and install pressure transducers and data loggers to collect continuous stage data at each of the ten (10) locations. Prepare a Surface Water Flows Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Surface Water Flow Measurement Plan
- Surface Water Flow Technical Memorandum

Subtask 1.7: Saltwater Intrusion

Prepare and implement a Saltwater Intrusion Sampling Plan. Collect water samples in the Fall of 2020 and in the Spring of 2021 from at least thirty (30) wells within the vicinity of the freshwater-seawater transition zone for laboratory testing of chlorides to support the delineation and evaluation of saltwater intrusion. Prepare a Saltwater Intrusion Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Saltwater Intrusion Sampling Plan
- Saltwater Intrusion Technical Memorandum

Subtask 1.8: Topography/Bathymetry/Imagery

Determine what topographic and bathymetric data and imagery are needed to support the development of the GSP. Compile, evaluate, and analyze existing topographic and bathymetric data and imagery for the basin, including terrain data and digital elevation models available from the USGS. Identify data gaps. Collect terrain data with aerial Light Detection and Ranging (LiDAR) and high resolution orthophotography to ensure spatial coverage over the entire basin at the appropriate resolution and quality to support the development of hydrologic models, hydrogeologic conceptual model, and land use geodatabase. Conduct additional ground survey(s) to collect representative cross-sections of the wetted channels of the Eel River, Van Duzen River, and selected tributaries. Prepare a Terrain Data and Imagery Report.

Deliverables:

- Terrain Data and Imagery Report

Subtask 1.9: Aquifer Parameters

Perform slug tests on twenty-three (23) new wells to estimate hydraulic conductivity in the vicinity of the wells. Perform at least three (3) tests on each well to ensure stable results. Analyze the raw slug test data with appropriate methods. Prepare an Aquifer Parameters Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Aquifer Parameters Technical Memorandum

Subtask 1.10: Groundwater Dependent Ecosystems Assessment

Identify and characterize groundwater dependent ecosystems (GDEs) within the basin. Assess if the GDEs are being impacted by current groundwater conditions and whether they could be impacted by future groundwater conditions. Prepare a GDE Assessment Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- GDE Assessment Technical Memorandum

Subtask 1.11: Surface Water Beneficial Use Assessment

Assess the flow needs for surface water beneficial uses identified in the Water Quality Control Plan for the North Coast Region (Basin Plan). Map principal habitat types (pools, flatwaters, riffles, alcoves) and specific micro-habitat features relevant for salmonid life history stages (e.g. spawning, adult holding, and juvenile rearing habitat) within the Eel River, Van Duzen River, and readily accessible reaches of other fish-bearing streams that are interconnected with groundwater. Prepare a Surface Water Beneficial Use Assessment Technical Memorandum that describes the activities and findings from this task.

Deliverables:

- Surface Water Beneficial Use Assessment Technical Memorandum

Task 2: GSP Development

Prepare a GSP that meets the SGMA regulations and DWR requirements. Work collaboratively with the Groundwater Resources Advisory Committee to reach consensus whenever possible on the GSP as it is developed. Adjust and modify the GSP, as necessary, to respond to stakeholder input. Submit deliverables listed below electronically through an online reporting system. Compile the complete GSP and prepare for adoption by the GSA's Board. Provide a 90-day notice to local cities and counties for GSP review. Post a

public notice for the hearing to adopt the GSP. Assist with conducting the public hearing to adopt the GSP. Provide summaries of activities within the Quarterly Progress Report(s). Submit the adopted GSP to DWR.

Activities to develop the GSP and sections that may be included within the GSP, but are not limited to, those described below.

1. Initial Notification of GSP Preparation
   Prepare the initial notification of GSP preparation and submit to DWR and local agencies, distribute to the Grantee's interested-parties email list, and post on the website.

2. Data Collection and Analysis
   Compile, evaluate, and analyze data necessary for development of the GSP. Identify data gaps and develop a plan for obtaining that data.

3. Hydrologic Modeling
   Evaluate the available options and develop an integrated or coupled hydrologic model for the Basin. Compile, evaluate, and compare simulated and local water budget information. Refine the hydrologic model for water budget development and other GSP model scenario analysis. Develop model scenarios, complete model runs, evaluate model results. Develop model scenarios to support evaluation of potential projects and management actions or other analysis.

4. GSP Administrative Information
   Compile and organize information necessary for completing GSP Administrative Information section.

5. Basin Setting
   Develop a GSP Basin Setting section for the Basin including, but not limited to, management areas as applicable, hydrogeologic conceptual model, current and historical groundwater conditions, and water budget.

6. Sustainable Management Criteria
   Develop GSP Sustainable Management Criteria for the Basin, including analysis and determination of Sustainability Goals, Undesirable Results, Minimum Thresholds, Measurable Objectives, as appropriate.

7. Monitoring Network
   Develop a monitoring network and data management system for the Basin including, but not limited to, monitoring objectives, representative monitoring sites, scientific rationale for the monitoring site selection process, and monitoring protocols.

8. Projects and Management Actions
   Develop Projects and Management Actions to achieve Sustainability Goals for the Basin, describe the implementation feasibility, and the method by which each will be evaluated for effectiveness.

Deliverables:

- Adopted GSP
- Proof of Adopted GSP submittal to DWR

Category (d): Monitoring / Assessment

Plan, design, and install monitoring wells to expand the spatial distribution of water level and stratigraphic data, with a focus on locations of greatest interest for identifying potential undesirable results and locations necessary for model calibration.

Task 3: Planning/Design/Environmental Documentation
Select locations for the proposed monitoring wells. Prioritize locations with a strong preference for publicly-owned property and road right-of-way. Develop easements and/or access agreements, if necessary. Develop and prepare designs and specifications for at least four (4) dual-screened monitoring well clusters and at least fifteen (15) shallow monitoring wells. Utilize specifications to solicit competitive bids from qualified local contractors. Acquire necessary permits required for the installation of the four (4) dual-screened monitoring well clusters and at least fifteen (15) shallow monitoring wells. Prepare CEQA documentation and file a Notice of Exemption(s). Develop a monitoring plan that includes components stated in Exhibit J of the Grant Agreement, a site soil/groundwater sampling plan, and a health and safety plan. Submit the final site locations, monitoring plan, health and safety plan, and final design plans and specs to the DWR Project Manager for reviews and approval prior to advertising the bid packet. Prepare and submit a site soil/groundwater sampling plan, if applicable.

Deliverables:

- 100% Design, plans and specifications
- Awarded contracts
- Required environmental documentation for CEQA compliance
- Copies of required permits and access agreements
- Health and Safety Plan
- Monitoring Plan
- Soil/Groundwater Sampling Plan, if applicable

Task 4: Construction
Install at least four (4) dual-screened monitoring well clusters, totaling to eight (8) new wells, to a depth of approximately 250 feet below ground surface. Install at least fifteen (15) shallow monitoring wells to a depth of approximately 60 feet below ground surface. Provide oversight of drilling, construction, and development for the new monitoring wells by a licensed Professional Geologist or Engineer. Conduct site sampling as outlined in the approved sampling plan, if applicable. Prepare and submit final installation reports, including the submittal of Well Completion Reports, to DWR.

Deliverables:

- Notice of Completion and DWR Certification of Project Completion Form
- As-Built Record Drawings
- Well Completion Reports
- Soil/Water Quality Sampling Report, if applicable

Exhibit B

BUDGET

Project Title: **Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project**
Grantee: **Humboldt County**
Project serves a need of a Disadvantaged Area?: **Yes**
Local Cost Share Required: **0%**

Budget Categories	Grant Amount	Local Cost Share	Total Cost	% Local Cost Share
(a) Grant Agreement Administration	$40,000	$0	$40,000	
(b) Stakeholder Engagement / Outreach	$95,000	$0	$95,000	
(c) GSP Development	$1,555,000	$0	$1,555,000	
(d) Monitoring / Assessment	$210,000	$0	$210,000	
TOTAL:	**$1,900,000**	**$0**	**$1,900,000**	**0%**

Exhibit C

SCHEDULE

Grant Proposal Title: **Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project**

Categories	Start Date[1]	End Date[1]
(a) Grant Agreement Administration	05/01/2020	01/31/2022
(b) Stakeholder Engagement / Outreach	05/01/2020	01/31/2022
(c) GSP Development	05/01/2020	01/31/2022
(d) Monitoring / Assessment	05/01/2020	12/31/2021

NOTES:

[1]Exhibit C Schedule only dictates the work start date and the work end date for the Budget Category listed. The Grantee should adhere to the Deliverable Due Date Schedule that has been approved by the DWR Grant Manager. The dates listed in Exhibit C Schedule are date ranges that correlates to the Deliverable Due Date Schedule. Eligible costs for each line item will only be approved if the work completed falls within the date ranges listed in Exhibit C.

Exhibit D

STANDARD CONDITIONS

D.1. ACCOUNTING AND DEPOSIT OF FUNDING DISBURSEMENT:

A. Separate Accounting of Funding Disbursements: the Grantee shall account for the money disbursed pursuant to this Grant Agreement separately from all other Grantee funds. The Grantee shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied. The Grantee shall keep complete and accurate records of all receipts and disbursements on expenditures of such funds. The Grantee shall require its contractors or subcontractors to maintain books, records, and other documents pertinent to their work in accordance with generally accepted accounting principles and practices. Records are subject to inspection by the State at any and all reasonable times.

B. Disposition of Money Disbursed: All money disbursed pursuant to this Grant Agreement shall be deposited in a non-interest bearing account, administered, and accounted for pursuant to the provisions of applicable law.

C. Remittance of Unexpended Funds: The Grantee shall remit to the State any unexpended funds that were disbursed to the Grantee under this Grant Agreement and were not used to pay Eligible Project Costs within a period of sixty (60) calendar days from the final disbursement from the State to the Grantee of funds or, within thirty (30) calendar days of the expiration of the Grant Agreement, whichever comes first.

D.2. ACKNOWLEDGEMENT OF CREDIT AND SIGNAGE: The Grantee shall include appropriate acknowledgement of credit to the State for its support when promoting the Project or using any data and/or information developed under this Grant Agreement. Signage shall be posted in a prominent location at Project site(s) (if applicable) or at the Grantee's headquarters and shall include the Department of Water Resources color logo and the following disclosure statement: "Funding for this project has been provided in full or in part from the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018 (Proposition 68) and through an agreement with the State Department of Water Resources." The Grantee shall also include in each of its contracts for work under this Agreement a provision that incorporates the requirements stated within this paragraph.

D.3. AMENDMENT: This Grant Agreement may be amended at any time by mutual agreement of the Parties, except insofar as any proposed amendments are in any way contrary to applicable law. Requests by the Grantee for amendments must be in writing stating the amendment request and the reason for the request. Requests solely for a time extension must be submitted at least 90 days prior to the work completion date set forth in Paragraph 2, "Term of Grant Agreement." Any other request for an amendment must be submitted at least 180 days prior to the work completion date set forth in Paragraph 2, "Term of Grant Agreement." The State shall have no obligation to agree to an amendment.

D.4. AMERICANS WITH DISABILITIES ACT: By signing this Grant Agreement, the Grantee assures the State that it complies with the Americans with Disabilities Act (ADA) of 1990, (42 U.S.C. § 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

D.5. AUDITS: The State reserves the right to conduct an audit at any time between the execution of this Grant Agreement and the completion of the Project, with the costs of such audit borne by the State. After completion of the Project, the State may require the Grantee to conduct a final audit to the State's specifications, at the Grantee's expense, such audit to be conducted by and a report prepared by an independent Certified Public Accountant. Failure or refusal by the Grantee to comply with this provision shall be considered a breach of this Grant Agreement, and the State may elect to pursue any remedies provided in Paragraph 10, "Default Provisions" or take any other action it deems necessary to protect its interests. The Grantee agrees it shall return any audit disallowances to the State.

Pursuant to Government Code section 8546.7, the Grantee shall be subject to the examination and audit by the State for a period of three (3) years after final payment under this Grant Agreement with respect of all matters connected with this Grant Agreement, including but not limited to, the cost of administering this Grant Agreement. All records of the Grantee or its contractor or subcontractors shall be preserved for this purpose for at least three (3) years after receipt of the final disbursement under this Agreement. If an audit reveals any impropriety, the Bureau of State Audits or the State Controller's Office may conduct a full audit of any or all of the Grantee's activities. (Pub. Resources Code, § 80012, subd. (b).)

D.6. BUDGET CONTINGENCY: If the Budget Act of the current year covered under this Grant Agreement does not appropriate sufficient funds for this program, this Grant Agreement shall be of no force and effect. This provision shall be construed as a condition precedent to the obligation of the State to make any payments under this Grant Agreement. In this event, the State shall have no liability to pay any funds whatsoever to the Grantee or to furnish any other considerations under this Grant Agreement and the Grantee shall not be obligated to perform any provisions of this Grant Agreement. Nothing in this Grant Agreement shall be construed to provide the Grantee with a right of priority for payment over any other Grantee. If funding for any fiscal year after the current year covered by this Grant Agreement is reduced or deleted by the Budget Act, by Executive Order, or by order of the Department of Finance, the State shall have the option to either cancel this Grant Agreement with no liability occurring to the State, or offer a Grant Agreement amendment to the Grantee to reflect the reduced amount.

D.7. CALIFORNIA CONSERVATION CORPS: The Grantee may use the services of the California Conservation Corps or other community conservation corps as defined in Public Resources Code section 14507.5.

D.8. CEQA: Activities funded under this Grant Agreement, regardless of funding source, must be in compliance with the California Environmental Quality Act (CEQA). (Pub. Resources Code, § 21000 et seq.) Any work that is subject to CEQA and funded under this Agreement shall not proceed until documents that satisfy the CEQA process are received by the DWR Grant Manager and the State has completed its CEQA compliance. Work funded under this Agreement that is subject to a CEQA document shall not proceed until and unless approved by the Department of Water Resources. Such approval is fully discretionary and shall constitute a condition precedent to any work for which it is required. If CEQA compliance by the Grantee is not complete at the time the State signs this Agreement, once the State has considered the environmental documents, it may decide to require changes, alterations, or other mitigation to the Project; or to not fund the Project. Should the State decide to not fund the Project, this Agreement shall be terminated in accordance with Paragraph 10, "Default Provisions."

D.9. CHILD SUPPORT COMPLIANCE ACT: The Grantee acknowledges in accordance with Public Contract Code section 7110, that:

A. The Grantee recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Family Code section 5200 et seq.; and

B. The Grantee, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

D.10. CLAIMS DISPUTE: Any claim that the Grantee may have regarding performance of this Agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the DWR Project Representative, within thirty (30) days of the Grantee's knowledge of the claim. The State and the Grantee shall then attempt to negotiate a resolution of such claim and process an amendment to this Agreement to implement the terms of any such resolution.

D.11. COMPETITIVE BIDDING AND PROCUREMENTS: The Grantee's contracts with other entities for the acquisition of goods and services and construction of public works with funds provided by the State under this Grant Agreement must be in writing and shall comply with all applicable laws and regulations regarding the securing of competitive bids and undertaking competitive negotiations. If the Grantee does not have a written policy to award contracts through a competitive bidding or sole source process, the Department of General Services' *State Contracting Manual* rules must be followed and are available at: https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/State-Contracting.

D.12. COMPUTER SOFTWARE: The Grantee certifies that it has appropriate systems and controls in place to ensure that state funds will not be used in the performance of this Grant Agreement for the acquisition, operation, or maintenance of computer software in violation of copyright laws.

D.13. CONFLICT OF INTEREST: All participants are subject to State and Federal conflict of interest laws. Failure to comply with these laws, including business and financial disclosure provisions, will result in the application being rejected and any subsequent contract being declared void. Other legal action may also be taken. Applicable statutes include, but are not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411, for State conflict of interest requirements.

A. Current State Employees: No State officer or employee shall engage in any employment, activity, or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any State agency, unless the employment, activity, or enterprise is required as a condition of regular State employment. No State officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

B. Former State Employees: For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements, or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

C. Employees of the Grantee: Employees of the Grantee shall comply with all applicable provisions of law pertaining to conflicts of interest, including but not limited to any applicable conflict of interest provisions of the California Political Reform Act. (Gov. Code, § 87100 et seq.)

D. Employees and Consultants to the Grantee: Individuals working on behalf of a Grantee may be required by the Department to file a Statement of Economic Interests (Fair Political Practices Commission Form 700) if it is determined that an individual is a consultant for Political Reform Act purposes.

D.14. DELIVERY OF INFORMATION, REPORTS, AND DATA: The Grantee agrees to expeditiously provide throughout the term of this Grant Agreement, such reports, data, information, and certifications as may be reasonably required by the State.

D.15. DISPOSITION OF EQUIPMENT: The Grantee shall provide to the State, not less than 30 calendar days prior to submission of the final invoice, an itemized inventory of equipment purchased with funds provided by the State. The inventory shall include all items with a current estimated fair market value of more than $5,000.00 per item. Within 60 calendar days of receipt of such inventory the State shall provide the Grantee with a list of the items on the inventory that the State will take title to. All other items shall become the property of the Grantee. The State shall arrange for delivery from the Grantee of items that it takes title to. Cost of transportation, if any, shall be borne by the State.

D.16. DRUG-FREE WORKPLACE CERTIFICATION: Certification of Compliance: By signing this Grant Agreement, the Grantee, its contractors or subcontractors hereby certify, under penalty of perjury under

the laws of the State of California, compliance with the requirements of the Drug-Free Workplace Act of 1990 (Gov. Code, § 8350 et seq.) and have or will provide a drug-free workplace by taking the following actions:

A. Publish a statement notifying employees, contractors, and subcontractors that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees, contractors, or subcontractors for violations, as required by Government Code section 8355.

B. Establish a Drug-Free Awareness Program, as required by Government Code section 8355 to inform employees, contractors, or subcontractors about all of the following:

   i. The dangers of drug abuse in the workplace,

   ii. The Grantee's policy of maintaining a drug-free workplace,

   iii. Any available counseling, rehabilitation, and employee assistance programs, and

   iv. Penalties that may be imposed upon employees, contractors, and subcontractors for drug abuse violations.

C. Provide, as required by Government Code section 8355, that every employee, contractor, and/or subcontractor who works under this Grant Agreement:

   i. Will receive a copy of the Grantee's drug-free policy statement, and

   ii. Will agree to abide by terms of the Grantee's condition of employment, contract or subcontract.

D.17. EASEMENTS: Where the Grantee acquires property in fee title or funds improvements to real property already owned in fee by the Grantee using State funds provided through this Grant Agreement, an appropriate easement or other title restriction shall be provided and approved by the State. The easement or other title restriction must be in first position ahead of any recorded mortgage or lien on the property unless this requirement is waived by the State.

Where the Grantee acquires an easement under this Agreement, the Grantee agrees to monitor and enforce the terms of the easement, unless the easement is subsequently transferred to another land management or conservation organization or entity with State permission, at which time monitoring and enforcement responsibilities will transfer to the new easement owner.

Failure to provide an easement acceptable to the State may result in termination of this Agreement.

D.18. GRANTEE'S RESPONSIBILITIES: The Grantee and its representatives shall:

A. Faithfully and expeditiously perform or cause to be performed all project work as described in Exhibit A, "Work Plan" and in accordance with Project Exhibit B, "Budget" and Exhibit C, "Schedule".

B. Must maintain eligibility requirements as outlined in the 2019 Guidelines and 2019 PSP.

C. Accept and agree to comply with all terms, provisions, conditions, and written commitments of this Grant Agreement, including all incorporated documents, and to fulfill all assurances, declarations, representations, and statements made by the Grantee in the application, documents, amendments, and communications filed in support of its request for funding.

D. Comply with all applicable California, federal, and local laws and regulations.

E. Implement the Project in accordance with applicable provisions of the law.

F. Fulfill its obligations under the Grant Agreement and be responsible for the performance of the Project.

G. Obtain any and all permits, licenses, and approvals required for performing any work under this Grant Agreement, including those necessary to perform design, construction, or operation and maintenance of the Project. The Grantee shall provide copies of permits and approvals to the State.

H. Be solely responsible for design, construction, and operation and maintenance of projects within the work plan. Review or approval of plans, specifications, bid documents, or other construction documents by the State is solely for the purpose of proper administration of funds by the State and shall not be deemed to relieve or restrict responsibilities of the Grantee under this Agreement.

I. Be solely responsible for all work and for persons or entities engaged in work performed pursuant to this Agreement, including, but not limited to, contractors, subcontractors, suppliers, and providers of services. The Grantee shall be responsible for any and all disputes arising out of its contracts for work on the Project, including but not limited to payment disputes with contractors and subcontractors. The State will not mediate disputes between the Grantee and any other entity concerning responsibility for performance of work.

D.19. GOVERNING LAW: This Grant Agreement is governed by and shall be interpreted in accordance with the laws of the State of California.

D.20. INCOME RESTRICTIONS: The Grantee agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Grantee under this Agreement shall be paid by the Grantee to the State, to the extent that they are properly allocable to costs for which the Grantee has been reimbursed by the State under this Agreement. The Grantee shall also include in each of its contracts for work under this Agreement a provision that incorporates the requirements stated within this paragraph.

D.21. INDEMNIFICATION: The Grantee shall indemnify and hold and save the State, its officers, agents, and employees, free and harmless from any and all liabilities for any claims and damages (including inverse condemnation) that may arise out of the Project and this Agreement, and any breach of this Agreement. The Grantee shall require its contractors or subcontractors to name the State, its officers, agents and employees as additional insureds on their liability insurance for activities undertaken pursuant to this Agreement.

D.22. INDEPENDENT CAPACITY: The Grantee, and the agents and employees of the Grantees, in the performance of the Grant Agreement, shall act in an independent capacity and not as officers, employees, or agents of the State.

D.23. INSPECTION OF BOOKS, RECORDS, AND REPORTS: During regular office hours, each of the parties hereto and their duly authorized representatives shall have the right to inspect and to make copies of any books, records, or reports of either party pertaining to this Grant Agreement or matters related hereto. Each of the parties hereto shall maintain and shall make available at all times for such inspection accurate records of all its costs, disbursements, and receipts with respect to its activities under this Grant Agreement. Failure or refusal by the Grantee to comply with this provision shall be considered a breach of this Grant Agreement, and the State may withhold disbursements to the Grantee or take any other action it deems necessary to protect its interests.

D.24. INSPECTIONS OF PROJECT BY STATE: The State shall have the right to inspect the work being performed at any and all reasonable times during the term of the Grant Agreement. This right shall extend to any subcontracts, and the Grantee shall include provisions ensuring such access in all its contracts or subcontracts entered into pursuant to its Grant Agreement with the State.

D.25. LABOR CODE COMPLIANCE: The Grantee agrees to be bound by all the provisions of the Labor Code regarding prevailing wages and shall monitor all contracts subject to reimbursement from this Agreement to assure that the prevailing wage provisions of the Labor Code are being met. Current Department of Industrial Relations (DIR) requirements may be found at: http://www.dir.ca.gov/ lcp.asp. For more information, please refer to DIR's *Public Works Manual* at: http://www.dir.ca.gov/ dlse/PWManualCombined.pdf. The Grantee affirms that it is aware of the provisions of section 3700 of the Labor Code, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance, and the Grantee affirms that it will comply with such provisions before commencing the performance of the work under this Agreement and will make its contractors and subcontractors aware of this provision.

D.26. MODIFICATION OF OVERALL WORK PLAN: At the request of the Grantee, the State may at its sole discretion approve non-material changes to the portions of Exhibits A, B, and C which concern the budget and schedule without formally amending this Grant Agreement. Non-material changes with respect to the budget are changes that only result in reallocation of less than 20 percent (20%) of any line item within the budget and will not result in an increase in the amount of the State Grant Agreement. Non-material changes with respect to the Project schedule are changes that will not extend the term of this Grant Agreement. Requests for non-material changes to the budget and schedule must be submitted by the Grantee to the State in writing and are not effective unless and until specifically approved by the State's Program Manager in writing.

D.27. NONDISCRIMINATION: During the performance of this Grant Agreement, the Grantee and its contractors or subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex (gender), sexual orientation, race, color, ancestry, religion, creed, national origin (including language use restriction), pregnancy, physical disability (including HIV and AIDS), mental disability, medical condition (cancer/genetic characteristics), age (over 40), marital status, and denial of medial and family care leave or pregnancy disability leave. The Grantee and its contractors or subcontractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. The Grantee and its contractors or subcontractors shall comply with the provisions of the California Fair Employment and Housing Act (Gov. Code, § 12990.) and the applicable regulations promulgated there under (Cal. Code Regs., tit. 2, § 11000 et seq.). The applicable regulations of the Fair Employment and Housing are incorporated into this Agreement by reference. The Grantee and its contractors or subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

The Grantee shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Grant Agreement.

D.28. OPINIONS AND DETERMINATIONS: Where the terms of this Grant Agreement provide for action to be based upon, judgment, approval, review, or determination of either party hereto, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review, or determination to be arbitrary, capricious, or unreasonable.

D.29. PERFORMANCE BOND: Where contractors are used, the Grantee shall not authorize construction to begin until each contractor has furnished a performance bond in favor of the Grantee in the following amounts: faithful performance (100%) of contract value, and labor and materials (100%) of contract value. This requirement shall not apply to any contract for less than $25,000.00. Any bond issued pursuant to this paragraph must be issued by a California-admitted surety. (Pub. Contract Code, § 7103; Code Civ. Proc., § 995.311.)

D.30. PRIORITY HIRING CONSIDERATIONS: If this Grant Agreement includes services in excess of $200,000, the Grantee shall give priority consideration in filling vacancies in positions funded by the Grant Agreement to qualified recipients of aid under Welfare and Institutions Code section 11200 in accordance with Public Contract Code section 10353.

D.31. PROHIBITION AGAINST DISPOSAL OF PROJECT WITHOUT STATE PERMISSION: The Grantee shall not sell, abandon, lease, transfer, exchange, mortgage, hypothecate, or encumber in any manner whatsoever all or any portion of any real or other property necessarily connected or used in conjunction with the Project, or with the Grantee's service of water, without prior permission of the State. The Grantee shall not take any action, including but not limited to actions relating to user fees, charges, and assessments that could adversely affect the ability of the Grantee meet its obligations under this Grant Agreement, without prior written permission of the State. The State may require that the proceeds from the disposition of any real or personal property be remitted to the State.

D.32. PROJECT ACCESS: The Grantee shall ensure that the State, the Governor of the State, or any authorized representative of the foregoing, will have safe and suitable access to the Project site at all reasonable times during Project construction and thereafter for the term of this Agreement.

D.33. REMAINING BALANCE: In the event the Grantee does not submit invoices requesting all of the funds encumbered under this Grant Agreement, any remaining funds revert to the State. The State will notify the Grantee stating that the Project file is closed and any remaining balance will be disencumbered and unavailable for further use under this Grant Agreement.

D.34. REMEDIES NOT EXCLUSIVE: The use by either party of any remedy specified herein for the enforcement of this Grant Agreement is not exclusive and shall not deprive the party using such remedy of, or limit the application of, any other remedy provided by law.

D.35. RETENTION: The State shall withhold ten percent (10%) of the funds requested by the Grantee for reimbursement of Eligible Project Costs until the Project is completed and Final Project Report is approved. At the State's discretion and upon a written request by the Grantee, any retained amount attributable to a single Component may be released when that Component is complete and the Final Component Completion Report is approved. Any retained amounts due to the Grantee will be promptly disbursed to the Grantee, without interest, upon completion of the Project or an approved Component upon request.

D.36. RIGHTS IN DATA: The Grantee agrees that all data, plans, drawings, specifications, reports, computer programs, operating manuals, notes and other written or graphic work produced in the performance of this Grant Agreement shall be made available to the State and shall be in the public domain to the extent to which release of such materials is required under the California Public Records Act. (Gov. Code, § 6250 et seq.) The Grantee may disclose, disseminate and use in whole or in part, any final form data and information received, collected and developed under this Grant Agreement, subject to appropriate acknowledgement of credit to the State for financial support. The Grantee shall not utilize the materials for any profit-making venture or sell or grant rights to a third party who intends to do so. The State shall have the right to use any data described in this paragraph for any public purpose.

D.37. SEVERABILITY: Should any portion of this Grant Agreement be determined to be void or unenforceable, such shall be severed from the whole and the Grant Agreement shall continue as modified.

D.38. SUSPENSION OF PAYMENTS: This Grant Agreement may be subject to suspension of payments or termination, or both if the State determines that:

A. The Grantee, its contractors, or subcontractors have made a false certification, or

B. The Grantee, its contractors, or subcontractors violates the certification by failing to carry out the requirements noted in this Grant Agreement.

D.39. SUCCESSORS AND ASSIGNS: This Grant Agreement and all of its provisions shall apply to and bind the successors and assigns of the parties. No assignment or transfer of this Grant Agreement or any part thereof, rights hereunder, or interest herein by the Grantee shall be valid unless and until it is approved by the State and made subject to such reasonable terms and conditions as the State may impose.

D.40. TERMINATION BY THE GRANTEE: Subject to State approval which may be reasonably withheld, the Grantee may terminate this Agreement and be relieved of contractual obligations. In doing so, the Grantee must provide a reason(s) for termination. The Grantee must submit all progress reports summarizing accomplishments up until termination date.

D.41. TERMINATION FOR CAUSE: Subject to the right to cure under Paragraph 10, “Default Provisions,” the State may terminate this Grant Agreement and be relieved of any payments should the Grantee fail to perform the requirements of this Grant Agreement at the time and in the manner herein, provided including but not limited to reasons of default under Paragraph 10, “Default Provisions.”

D.42. TERMINATION WITHOUT CAUSE: The State may terminate this Agreement without cause on 30 days' advance written notice. The Grantee shall be reimbursed for all reasonable expenses incurred up to the date of termination.

D.43. THIRD PARTY BENEFICIARIES: The parties to this Agreement do not intend to create rights in, or grant remedies to, any third party as a beneficiary of this Agreement, or any duty, covenant, obligation or understanding established herein.

D.44. TIMELINESS: Time is of the essence in this Grant Agreement.

D.45. UNION ORGANIZING: The Grantee, by signing this Grant Agreement, hereby acknowledges the applicability of Government Code sections 16645 through 16649 to this Grant Agreement. Furthermore, the Grantee, by signing this Grant Agreement, hereby certifies that:

A. No State funds disbursed by this Grant Agreement will be used to assist, promote, or deter union organizing.

B. The Grantee shall account for State funds disbursed for a specific expenditure by this Grant Agreement to show those funds were allocated to that expenditure.

C. The Grantee shall, where State funds are not designated as described in (b) above, allocate, on a pro rata basis, all disbursements that support the program.

D. If the Grantee makes expenditures to assist, promote, or deter union organizing, the Grantee will maintain records sufficient to show that no State funds were used for those expenditures and that the Grantee shall provide those records to the Attorney General upon request.

D.46. VENUE: The State and the Grantee hereby agree that any action arising out of this Agreement shall be filed and maintained in the Superior Court in and for the County of Sacramento, California, or in the United States District Court in and for the Eastern District of California. The Grantee hereby waives any existing sovereign immunity for the purposes of this Agreement.

D.47. WAIVER OF RIGHTS: None of the provisions of this Grant Agreement shall be deemed waived unless expressly waived in writing. It is the intention of the parties here to that from time to time either party may waive any of its rights under this Grant Agreement unless contrary to law. Any waiver by either party of rights arising in connection with the Grant Agreement shall not be deemed to be a waiver with respect to any other rights or matters, and such provisions shall continue in full force and effect.

Exhibit E

AUTHORIZING RESOLUTION ACCEPTING FUNDS

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HUMBOLDT
MAILING ADDRESS: 1106 SECOND STREET, EUREKA, CA 95501-0579
AREA CODE 707

On-line
Web: humboldtgov.org

Public Works Building
Second & L St., Eureka
Fax 445-7409

Administration	445-7491	Natural Resources	445-7741
Business	445-7652	Natural Resource Planning	267-9542
Engineering	445-7377	Parks	445-7651
Facility Management	445-7621	Roads	445-7421

Clark Complex
Harris & H St., Eureka
Fax 445-7388

Land Use	445-7205

May 7, 2020

Carmel Brown, Chief
Financial Assistance Branch
California Department of Water Resources
1416 Ninth Street, P.O. Box 942836
Sacramento, CA 94236-0001

Transmitted Via E-Mail to sgwp@water.ca.gov

RE: Grant Agreement No. 4600013562
Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project
Proposition 68 Sustainable Groundwater Management (SGM) Grant

Dear Ms. Brown:

On November 12, 2019, the Humboldt County Board of Supervisors adopted Resolution No. 19-111 authorizing the Humboldt County Department of Public Works to submit an application to California Department of Water Resources for the above-referenced project. In that resolution, the Board authorized the Director of the Humboldt County Department of Public Works, or a designee thereof, to execute a grant agreement with DWR and any amendments thereto.

The purpose of this letter is to designate Hank Seemann, Deputy-Director (Environmental Services), to be the signatory for Humboldt County on this grant. Mr. Seemann is designated to sign the grant agreement, any amendments, and all invoices and reports that will be submitted as required under the grant agreement. Mr. Seemann can be reached at hseemann@co.humboldt.ca.us and (707) 445-7741.

Summer Daugherty will also be a primary point of contact for day-to-day communications. Ms. Daugherty can be reached at sdaugherty@co.humboldt.ca.us.

Sincerely,

Thomas K. Mattson
Director

CC: Kelley List, Kelley.List@water.ca.gov
Jackson Cook, Jackson.Cook@water.ca.gov
Ian Espinoza, Ian.Espinoza@water.ca.gov
Summer Daugherty, sdaugherty@co.humboldt.ca.us

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA
Certified copy of portion of proceedings, Meeting of November 12, 2019

RESOLUTION NO. 19-111

RESOLUTION AUTHORIZING THE HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS TO SUBMIT AN APPLICATION TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES TO OBTAIN A SUSTAINABLE GROUNDWATER MANAGEMENT PLANNING GRANT FOR THE EEL RIVER VALLEY GROUNDWATER SUSTAINABILITY PLAN AND MONITORING WELL INSTALLATION PROJECT

WHEREAS, the California Department of Water Resources ("DWR") designated the Eel River Valley groundwater basin as a medium-priority basin for the initial prioritization under the Sustainable Groundwater Management Act ("SGMA") which went into effect on January 1, 2015; and

WHEREAS, the medium-priority designation indicates that a basin has regional or statewide importance for water supply and does not imply that the basin is overdrafted or being managed unsustainably; and

WHEREAS, on October 6, 2015, the Humboldt County Board of Supervisors ("Board") approved the formation of an Eel River Valley Groundwater Working Group consisting of stakeholders representing agricultural, municipal and environmental interests to provide input on organizing the local response to the requirements of SGMA for the Eel River Valley groundwater basin; and

WHEREAS, data and information on groundwater levels, groundwater use and groundwater/surface water interactions within the Eel River Valley groundwater basin were extremely limited in 2015; and

WHEREAS, on July 6, 2016, DWR awarded the County of Humboldt ("County") a Proposition 1 Sustainable Groundwater Planning Grant in the amount Two Hundred and Fifty Thousand Dollars ($250,000.00) to conduct geologic and hydrogeologic investigation activities in the Eel River Valley groundwater basin; and

WHEREAS, SGMA authorized local agencies to submit a Groundwater Sustainability Plan ("GSP") Alternative by January 1, 2017, if the GSP Alternative demonstrates that the basin has operated within its sustainable yield over a period of ten (10) years and contains the functional equivalent of a GSP; and

WHEREAS, on December 13, 2016, the Board approved Resolution No. 16-142 authorizing the Humboldt County Department of Public Works ("Public Works") to submit a GSP Alternative for the Eel River Valley groundwater basin; and

WHEREAS, the County deferred on formation of a Groundwater Sustainability Agency ("GSA") because a GSP Alternative could be submitted by a local agency without forming a GSA; and

WHEREAS, on December 31, 2016, Public Works submitted a GSP Alternative for the Eel River Valley groundwater basin to DWR for review and approval; and

WHEREAS, Public Works performed annual monitoring and reporting activities for the Eel River Valley groundwater basin following submittal of the GSP Alternative; and

WHEREAS, in the 2018 SGMA Basin Prioritization process, the Eel River Valley groundwater basin received a score of 14.5 points, which was 0.5 points above the threshold for medium-priority designation; therefore, the basin continues to be classified as a medium-priority basin; and

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA
Certified copy of portion of proceedings, Meeting of November 12, 2019

RESOLUTION NO. 19-111

WHEREAS, on July 17, 2019, DWR issued a notification letter and staff report stating that DWR intends to not approve the GSP Alternative that was submitted for the Eel River Valley groundwater basin because the GSP Alternative did not contain all the required elements and did not provide sufficient evidence that the requirements for sustainable groundwater management had been performed for a period of ten (10) years; and

WHEREAS, on September 30, 2019, the County submitted a comment letter regarding DWR's review of the GSP Alternative for the Eel River Valley groundwater basin; and

WHEREAS, the County has not received notice of DWR's final determination on the GSP Alternative for the Eel River Valley groundwater basin, but is proceeding with the presumption that it will be disapproved; and

WHEREAS, SGMA requires that all medium-priority basins have an adopted GSP no later than January 31, 2022, if a GSP Alternative has not been approved; and

WHEREAS, SGMA authorizes the State Water Resources Control Board to intervene in a basin that is not covered by a GSA after June 30, 2017; and

WHEREAS, state intervention would result in mandatory fees and reporting requirements for groundwater users within the Eel River Valley groundwater basin; and

WHEREAS, the California Drought, Water, Parks, Climate, Coastal Protection and Outdoor Access for All Act of 2018 (Proposition 68) (California Public Resources Code Sections 80000, *et seq.*) authorized funds for competitive grants for projects that develop and implement groundwater plans and projects; and

WHEREAS, in September 2019, DWR released guidelines for the Sustainable Groundwater Management Grant Program's Planning Grant – Round 3 Solicitation ("Round 3 Planning Grants"); and

WHEREAS, eligible grantees must be GSAs or member agencies of GSAs; and

WHEREAS, a new applicant developing a GSP is eligible for a maximum grant of Two Million Dollars ($2,000,000.00); and

WHEREAS, the Eel River Valley Groundwater Sustainability Plan and Well Monitoring Installation Project is eligible for a cost share waiver since it benefits an economically disadvantaged community; and

WHEREAS, following a two (2) week extension due to the statewide emergency declaration resulting from catastrophic wildfires and public safety power shutoffs, applications for Round 3 Planning Grants are due November 15, 2019.

NOW, THEREFORE, THE HUMBOLDT COUNTY BOARD OF SUPERVISORS HEREBY RESOLVES AS FOLLOWS:

1. The County of Humboldt hereby commits to work collaboratively with water users and stakeholders to form a GSA for the Eel River Valley groundwater basin, based on a governance structure that provides appropriate representation for affected water users and stakeholders within the basin, by April 2020.

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA
Certified copy of portion of proceedings, Meeting of November 12, 2019

RESOLUTION NO. 19-111

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2. The County of Humboldt hereby affirms its intent to consider forming an interim GSA prior to April 2020, while continuing to work toward forming a GSA with a more permanent governance structure, if necessary for grant eligibility or to forestall state intervention.

3. The Humboldt County Department of Public Works is hereby authorized, as a proxy for the future GSA, to prepare and submit an application to DWR to obtain a Round 3 Planning Grant pursuant to the Water Quality, Supply and Infrastructure Improvement Act of 2014 (Proposition 1) (California Water Code Sections 79700, *et seq*.) and/or the California Drought, Water, Parks, Climate, Coastal Protection and Outdoor Access for All Act of 2018 (Proposition 68) (California Public Resources Code Sections 80000, *et seq*.), and to enter into an agreement to accept and receive such Round 3 Planning Grant, if awarded, for the Eel River Valley Groundwater Sustainability Plan and Monitoring Well Installation Project.

4. The Director of the Humboldt County Department of Public Works, or a designee thereof, is hereby authorized and directed to prepare any and all necessary data, conduct investigations, file such application and execute a grant agreement with DWR and any amendments thereto.

Dated: November 12, 2019

Rex Bohn, Chair
Humboldt County Board of Supervisors

Adopted on motion by Supervisor Wilson, seconded by Supervisor Bass, and the following vote:

AYES:	Supervisors	Bohn, Fennell, Madrone, Wilson, Bass
NAYS:	Supervisors	--
ABSENT:	Supervisors	--
ABSTAIN:	Supervisors	--

STATE OF CALIFORNIA)
County of Humboldt)

I, KATHY HAYES, Clerk of the Board of Supervisors, County of Humboldt, State of California, do hereby certify the foregoing to be an original made in the above-entitled matter by said Board of Supervisors at a meeting held in Eureka, California.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Seal of said Board of Supervisors.

Ryan Sharp
Deputy Clerk of the Board of Supervisors of the
County of Humboldt, State of California

Exhibit F

REPORT FORMATS AND REQUIREMENTS

The following reporting formats should be utilized. Please obtain State approval prior to submitting a report in an alternative format.

1. QUARTERLY PROGRESS REPORTS

- A Progress Report template will be provided by the assigned Grant Manager. Grantees must use the template provided for all Quarterly Progress Reports to obtain reimbursement and credit for local cost share reported. The Progress Report must accompany an Invoice and be numbered the same for ease of reference for auditing purposes.

1. COMPONENT COMPLETION REPORT

Component Completion Reports shall generally use the following format.

EXECUTIVE SUMMARY – Should include a brief summary of project information and include the following items:

- Brief description of work proposed to be done in the original application
- Description of actual work completed and any deviations from the work plan identified in the Grant Agreement

REPORTS AND/OR PRODUCTS – The following items should be provided

- Final Evaluation report
- Electronic copies of any data collected, not previously submitted
- As-built drawings
- Final geodetic survey information
- Self-Certification that the Project meets the stated goal of the Grant Agreement (e.g. 100-year level of flood protection, HMP standard, PI-84-99, etc.)
- Project photos
- Discussion of problems that occurred during the work and how those problems were resolved
- A final project schedule showing actual progress versus planned progress

COSTS AND DISPOSITION OF FUNDS – A list of showing:

- The date each invoice was submitted to the State
- The amount of the invoice
- The date the check was received
- The amount of the check (If a check has not been received for the final invoice, then state this in this section.)
- A summary of the payments made by the Grantee for meeting its cost sharing obligations under this Grant Agreement.
- A summary of final funds disbursement including:
  - Labor cost of personnel of agency/ major consultant /sub-consultants. Indicate personnel, hours, rates, type of profession and reason for consultant, i.e., design, CEQA work, etc.
  - Evaluation cost information, shown by material, equipment, labor costs, and any change orders
  - Any other incurred cost detail
  - A statement verifying separate accounting of funding disbursements
- Summary of project cost including the following items:
  - Accounting of the cost of project expenditure;

- Include all internal and external costs not previously disclosed; and
- A discussion of factors that positively or negatively affected the project cost and any deviation from the original project cost estimate.

ADDITIONAL INFORMATION – Any relevant additional Information should be included.

2. GRANT COMPLETION REPORT

Grant Completion Reports shall generally use the following format.

EXECUTIVE SUMMARY – The Executive Summary consists of a maximum of ten (10) pages summarizing information for the grant as well as the individual components.

REPORTS AND/OR PRODUCTS – The following items should be provided

- Brief comparison of work proposed in the original 2017 SGWP Grant application and actual work done.
- Brief description of the Project or components completed and how they achieve either or both of the following:
  - Serve SDAC(s) and support groundwater sustainability planning and management in the basin (Implementation Projects); and/or
  - Support planning, development, and/or preparation of GSP(s) that will comply with and meet the requirements of the GSP Regulations (GSP Development Projects).
- Identify remaining work and mechanism for their implementation (Implementation Projects).
- If applicable (e.g., if a DAC, EDA, or SDAC Cost Share Waiver was approved), a discussion of the benefits to DAC, EDA, and/or SDAC as part of this Grant Agreement.

COSTS AND DISPOSITION OF FUNDS

- A summary of final funds disbursement for the Project, or each component.

ADDITIONAL INFORMATION – Any relevant additional Information should be included.3

3. POST-PERFORMANCE REPORT

The Post-Performance Report should be concise and focus on how (each/the) project or component is actually performing compared to its expected performance; whether the project or component is being operated and maintained, and providing intended benefits as proposed (for Implementation Project or components). The Post-Performance Report should follow the same general format and provide requested information as required to be included in the Project Monitoring Plan (Exhibit K). As applicable, the following information, at a minimum, shall be provided:

REPORTS AND/OR PRODUCTS:

- Time period of the annual report (e.g., January 2018 through December 2018)
- Short project description
- Discussion of the project benefits
- An assessment of any explanations for any differences between the expected versus actual project benefits as stated in the original 2017 SGWP Grant application. Where applicable, the reporting should include quantitative metrics (i.e., new acre-feet of water produced that year, etc.).
- Summary of any additional costs and/or benefits deriving from the project since its completion, if applicable.
- Continued reporting on meeting the Output Indicators and Targets discussed in the Project and/or Component Monitoring Plan discussed in Paragraph 18 of this Grant Agreement.
- Any additional information relevant to or generated by the continued operation of the project.

Exhibit G

REQUIREMENTS FOR DATA SUBMITTAL

Surface and Groundwater Quality Data:

Groundwater quality and ambient surface water quality monitoring data that include chemical, physical, or biological data shall be submitted to the State as described below, with a narrative description of data submittal activities included in project reports, as described in Exhibit G, “Requirements for Data Submittal.”

Surface water quality monitoring data shall be prepared for submission to the California Environmental Data Exchange Network (CEDEN). The CEDEN data templates are available on the CEDEN website. Inclusion of additional data elements described on the data templates is desirable. Data ready for submission should be uploaded to your CEDEN Regional Data Center via the CEDEN website. CEDEN website: http://www.ceden.org.

If a project’s Work Plan contains a groundwater ambient monitoring element, groundwater quality monitoring data shall be submitted to the State for inclusion in the State Water Resources Control Board’s Groundwater Ambient Monitoring and Assessment (GAMA) Program Information on the GAMA Program can be obtained at: https://www.waterboards.ca.gov/water_issues/programs/gama/. If further information is required, the Grantee can contact the State Water Resources Control Board (SWRCB) GAMA Program. A listing of SWRCB staff involved in the GAMA program can be found at: https://www.waterboards.ca.gov/water_issues/programs/gama/contact.shtml.

Groundwater Level Data

For each project that collects groundwater level data, the Grantee will need to submit this data to DWR’s Water Data Library (WDL), with a narrative description of data submittal activities included in project reports, as described in Exhibit F, “Report Formats and Requirements.” Information regarding the WDL and in what format to submit data in can be found at: http://www.water.ca.gov/waterdatalibrary/.

In the near future, DWR’s WDL will be replaced by the California Statewide Groundwater Elevation Monitoring program (CASGEM). Once this Program comes online the Grantee will then submit groundwater level data to CASGEM. Information regarding the CASGEM program can be found at: http://www.water.ca.gov/groundwater/casgem/.

Exhibit H

STATE AUDIT DOCUMENT REQUIREMENTS FOR GRANTEES

The following provides a list of documents typically required by State Auditors and general guidelines for Grantees. List of documents pertains to both State funding and the Grantee's Local Cost Share and details the documents/records that State Auditors would need to review in the event of this Grant Agreement is audited. Grantees should ensure that such records are maintained for each funded project.

State Audit Document Requirements

Internal Controls

1. Organization chart (e.g., Agency's overall organization chart and organization chart for the State funded Program/Project).
2. Written internal procedures and flowcharts for the following:
   a) Receipts and deposits
   b) Disbursements
   c) State reimbursement requests
   d) Expenditure tracking of State funds
   e) Guidelines, policy, and procedures on State funded Program/Project
3. Audit reports of the Agency internal control structure and/or financial statements within the last two years.
4. Prior audit reports on the State funded Program/Project.

State Funding:

1. Original Grant Agreement, any amendment(s) and budget modification documents.
2. A listing of all bond-funded grants, loans, or subventions received from the State.
3. A listing of all other funding sources for each Program/Project.

Contracts:

1. All subcontractor and consultant contracts and related or partners' documents, if applicable.
2. Contracts between the Agency and member agencies as related to the State funded Program/Project.

Invoices:

1. Invoices from vendors and subcontractors for expenditures submitted to the State for payments under the Grant Agreement.
2. Documentation linking subcontractor invoices to State reimbursement, requests and related Grant Agreement budget line items.
3. Reimbursement requests submitted to the State for the Grant Agreement.

Cash Documents:

1. Receipts (copies of warrants) showing payments received from the State.
2. Deposit slips (or bank statements) showing deposit of the payments received from the State.
3. Cancelled checks or disbursement documents showing payments made to vendors, subcontractors, consultants, and/or agents under the grants or loans.
4. Bank statements showing the deposit of the receipts.

Accounting Records:

1. Ledgers showing entries for funding receipts and cash disbursements.
2. Ledgers showing receipts and cash disbursement entries of other funding sources.
3. Bridging documents that tie the general ledger to requests for Grant Agreement reimbursement.

Administration Costs:

1. Supporting documents showing the calculation of administration costs.

Personnel:

1. List of all contractors and Agency staff that worked on the State funded Program/Project.
2. Payroll records including timesheets for contractor staff and the Agency personnel who provided services charged to the program

Project Files:

1. All supporting documentation maintained in the project files.
2. All Grant Agreement related correspondence.

Exhibit I

PROJECT LOCATION

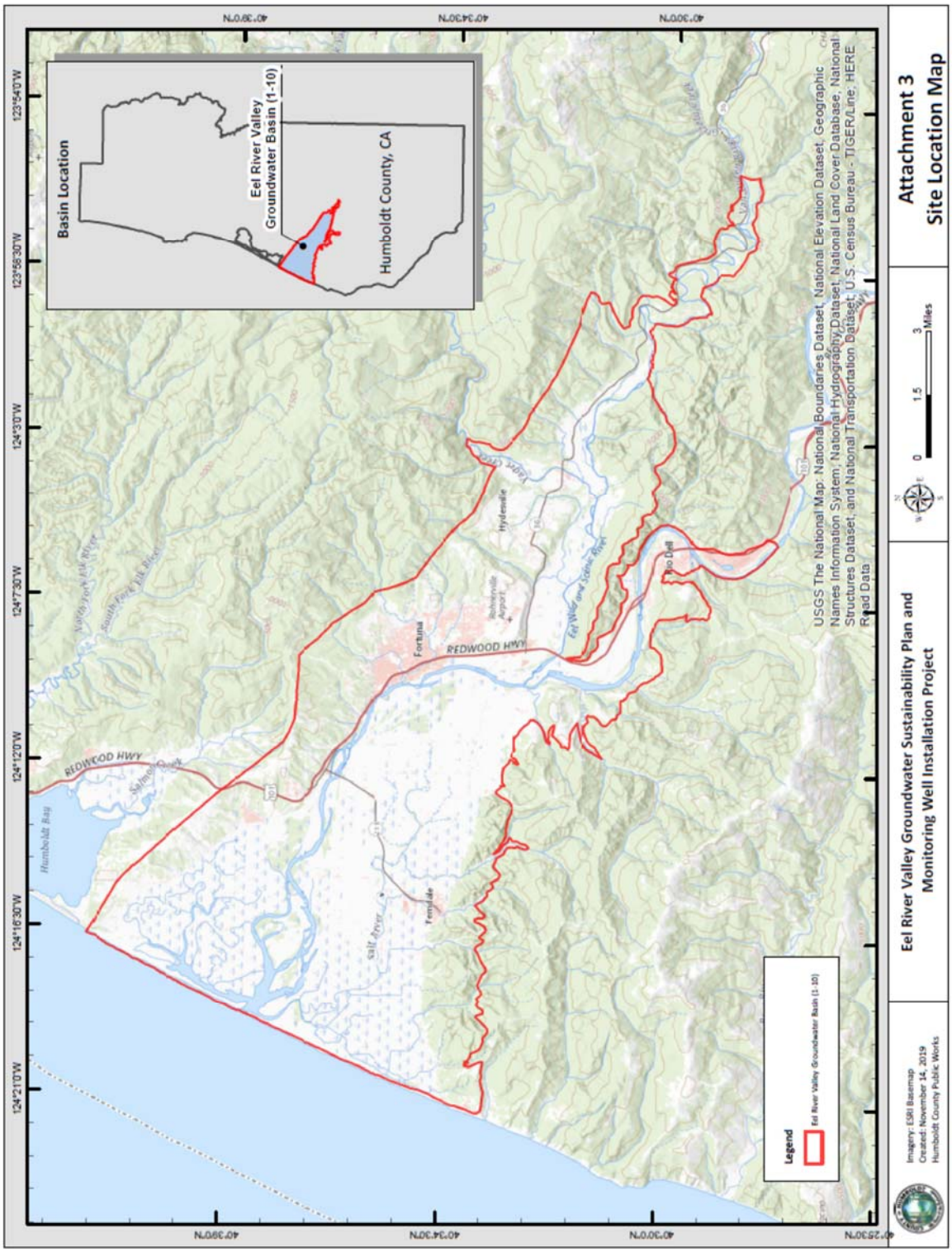

Exhibit J

MONITORING AND MAINTENANCE PLAN COMPONENTS

Introduction

- Goals and objectives of project
- Site location and history
- Improvements implemented

Monitoring and Maintenance Plan

- Monitoring Metrics (ex: Plant establishment, bank erosion, hydraulic characteristics, habitat expansion)
- Maintenance Metrics (ex: irrigation, pest management, weed abatement, continuous invasive species removal until natives established)
- Special Environmental Considerations (ex: resource agency requirements, permit requirements, CEQA/NEPA mitigation measures)
- Performance Measures, or success/failure criteria monitoring results measured against (ex: percent canopy cover after 1, 5, 10 years, water temperature decrease, site specific sediment scour or retention)
- Method of Reporting (ex: paper reports, online databases, public meetings)
- Frequency of Duration Monitoring and Reporting (daily, weekly, monthly, yearly)
- Frequency and Duration of Maintenance Activities
- Responsible Party (who is conducting monitoring and/or maintenance) Implementing responsibility (i.e., who is responsible for monitoring and maintenance)
- Adaptive Management Strategies (i.e., what happens when routine monitoring or maintenance encounters a problem)