

**PROPOSAL FOR DESIGN OF THE RAW WATER PIPELINE
REPLACEMENT PROJECT; PROJECT NO. 2018-02**



**By: KASL Consulting Engineers
Oct 26, 2018**

October 26, 2018



City of Fort Bragg
Attention: June Lemos, CMC, City Clerk
416 North Franklin Street
Fort Bragg, CA 95437

Subject: Proposal for Design of the Replacement Raw Water Pipeline from the Water Treatment Plant to Summers Lane Reservoir and from Highway 20 to Waterfall Gulch; City of Fort Bragg Project No. 2018-02

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Suite 104

Citrus Heights, CA
95610

Tel. 916 / 722-1800

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Principal:

John C. Scroggs

Ms. Lemos and Members of the Consultant Selection Team:

The City of Fort Bragg is seeking qualified consultants to design replacement pipeline improvements for portions of the Waterfall Gulch raw water supply system. We understand the importance of this supply source from our previous experience with the design of the raw water pipeline improvements from Highway 20 to Brush Creek Road and from preparation of the Fort Bragg Phase 1 Water Facilities Study. The Waterfall Gulch supply is the City's highest quality water source. It is critical that this supply line be rehabilitated and maintained, especially when low flow conditions occur in the Noyo River which curtails the delivery of Noyo River water to the City's Water Treatment Plant. Design of replacement improvements will require close coordination with City staff together with innovative and environmentally sensitive solutions that will permit construction of sustainable, replacement, waterlines placed with the minimum of disturbance to existing forest and coastland resources.

KASL has assembled a team of professionals to provide the City with the experience and qualifications to meet the challenges of the Raw Water Pipeline Replacement Project. Our in-house professional engineers and surveyors will be joined by geotechnical engineers from **ENGEO**, the environmental scientists of **Environmental Planning Partners** and the local Timber Harvesting Plan expertise of **Summit Forestry**. Our services will also be augmented by the Ground Penetrating Radar (GPR) and Utility Pothing Services of **B and B Locating**. With the direction and the background information provided by City staff, KASL will take the lead in developing the best design solutions for each Project phase. We have successfully completed similar pipeline replacement projects involving sensitive environmental areas, alternative funding sources and private properties. We bring to the City over 35 years of water system planning, design and construction experience and a dynamic set of water system analysis tools. We are passionate about this opportunity to serve the City of Fort Bragg.

Thank you for your consideration. We look forward to your response

Very Truly Yours,

KASL Consulting Engineers, Inc.

A handwritten signature in blue ink, appearing to read "John C. Scroggs".

John C. Scroggs
jscroggs@kasl.com

CIVIL

WATER RESOURCES

SURVEYING



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A. FIRM DESCRIPTION

KASL Consulting Engineers, Inc., established in 1982 and certified as a small business by the U.S Small Business Administration and the State of California, provides high quality civil engineering, water resource and land surveying services for a wide variety of government public works and private sector commercial and residential projects.

With offices in Citrus Heights, CA, a suburb of Sacramento, KASL Consulting Engineers serves clients and projects located throughout California, the continental United States and the Hawaiian Islands. KASL specializes in providing water resources, civil engineering, surveying and related computer modeling services.

Our in-house staff is comprised of the following professional and support personnel:

- California Registered Civil Engineers: 4
- California Civil Engineer in Training (EIT): 1
- Land Surveyors: 2
- Draftsmen/AutoCAD Operators: 1
- Administrative Staff: 2

Over the past 36 years we have continuously demonstrated our capacity to successfully complete work we undertake on time and within budget. Our list of satisfied repeat clients developed over the course of more than three decades is a testament to the knowledge, abilities, capacity and the reasonable rate schedule offered by KASL.

We carefully select the type and quantity of projects that we undertake. Before a proposal is submitted, the Principal of the firm



analyzes existing workload commitments and assesses our capacity to complete the project on time. We have assessed the requirements of the City's Raw Water Pipeline Replacement Project and conclude that KASL, with the support of our subconsultants, has the capacity, experience and ability to perform the field surveys, assess the opportunities and constraints associated with the design and construction of the replacement pipelines, conduct the hydraulic modeling of replacement pipeline improvements and complete a comprehensive Preliminary Design Report which will serve as the blueprint for supporting the project environmental analysis, permitting, applications for funding and the preparation of construction documents.

The City has identified a phasing plan for construction of the raw water pipeline replacement

improvements. Design of all raw water replacement phases of the Project will be completed at one time and will reflect land surveying and mapping of the existing pipeline route, field investigations to assess existing conditions, environmental issues that could impact the selection of the best apparent pipeline replacement route, hydraulic analysis of the proposed pipeline replacement size, material and alignment, analysis of pipeline constructability and ongoing system operation and maintenance.

In response to the project tasks, the capabilities that our team offers to the City of Fort Bragg include:

SURVEYING SERVICES

- Topographic, Aerial and Boundary Surveys
- Record Maps, ALTA/ASCM Surveys
- Construction Surveys and Staking
- Preparation of Easement Plats and Descriptions



WATER RESOURCE SERVICES

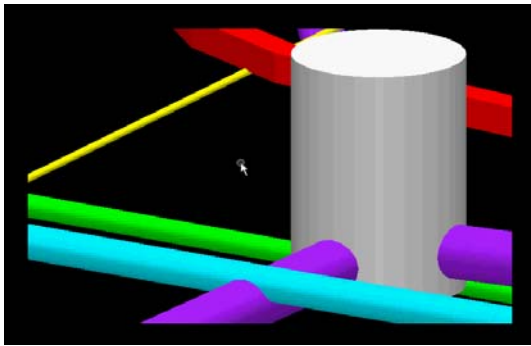
- Water and Sewer Pipeline Design
- Water and Sewer Pump Stations
- Water and Wastewater Treatment
- Water Tanks and Wastewater Storage
- Systems
- Wastewater Reclamation

COMPUTER MODELING

- Models to accurately predict water system, sewer system and stormwater system hydraulic and hydrologic performance.
- 3-D computer models of underground utilities systems to produce design plans and to avoid piping conflicts (clash detection).
- Site and utility renderings, animated renderings for visualization purposes, meetings, presentations and public display.
- Digital Terrain Models (DTM) of original and proposed final ground surfaces, mass grading & cut/fill diagrams to accurately estimate quantities of materials required for your job.



A. FIRM DESCRIPTION



DESIGN ANALYSIS

- Preparation of Project Feasibility Studies
- Preparation of Preliminary Engineering Reports
- Preparation of Preliminary Design Reports

FUNDING SUPPORT SERVICES

- Application for CWSRF and DWSRF Loans / Grants
- Application for CDBG Funds
- Application for USDA Funding
- Application for ATP Funds
- Assistance to Cities, Counties, Agencies and Districts to secure low interest loans for Federal or State Grant Funds

KASL is supported in this proposal by **ENGEO Inc.** ENGEO is an award winning firm of geotechnical engineers, geologists, environmental scientists, hydrologists and construction quality assurance representatives. ENGEO has offices in the United States, Australia and New Zealand. In northern California, their offices are located in San Ramon, Oakland, San Francisco, San Jose, Lathrop and Rocklin. For the purpose of this proposal, ENGEO would conduct geotechnical investigations, in particular, in the Phase 2 Project Area and provide recommended measures to protect raw waterline improvements from slide damage and unstable geologic conditions. For other Project phases, ENGEO will provide recommendations for construction of pipelines in steep terrain and provide recommendations regarding utility trench construction, bedding, backfill and erosion protection. KASL regularly engages the services of ENGEO for geotechnical investigations and design. They have provided subconsultant services to KASL for numerous pipeline and water system improvements similar in scope to the Fort Bragg Raw Water Pipeline Replacement Project.

Environmental Planning Partners, Inc. (Planning Partners) is a full-service environmental compliance consulting firm, specializing in the preparation of environmental technical studies and environmental documents pursuant to the requirements of the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). NEPA and CEQA documents prepared by the firm have ranged in size and importance from Program EIRs for General Plans and other planning projects, to complex NEPA /CEQA documents for water supply, community infrastructure and transportation projects, to less complicated Initial Studies – Mitigated Negative Declarations / Environmental Assessments / FONSIs and Notices of Exemption / Categorical Exclusions for smaller projects. Based in Rancho Cordova, the 9-person firm serves clients throughout the West Coast and Hawaii. KASL has teamed with Planning Partners for environmental compliance and permitting of numerous water and wastewater projects.

Summit Forestry is a timber and timber land management company specializing in permit acquisition for harvesting timber in California as well as botanical and wildlife surveys in the North Coast region.

Summit Forestry is based in Fort Bragg. They successfully complete permitting projects for timber harvest plans (THP), long term non-industrial timber management plans (NTMP) as well as exemptions for municipalities, fire prevention, post fire, disease, or insect salvage, construction and timberland conversions to alternate uses.

Summit Forestry has two registered professional foresters (RPF) on staff (Lee Susan RPF #2127 & Curtis Tyler RPF #2990) providing knowledge and understanding of the rules, regulations and the various State agencies and stakeholders involved in the life of the Project.

B and B Locating applies the latest technology in equipment to identify the horizontal and vertical location of underground utilities. B and B uses ground penetrating radar, metro radio detection system, magnetic location and acoustic detection to accurately identify the location of both metallic and not metallic subsurface utility improvements. On previous projects, KASL has retained B and B to locate water system pipelines in rugged terrain.



B. RELEVANT EXPERIENCE

WATERFALL GULCH RAW WATER PIPELINE, STATE HIGHWAY 20 TO BRUSH CREEK ROAD

Location: City of Fort Bragg
Reference: Tom Varga,
Director of Public Works
City of Fort Bragg
416 North Franklin Blvd.
Fort Bragg, CA
(707) 961-2824, Ext. 132

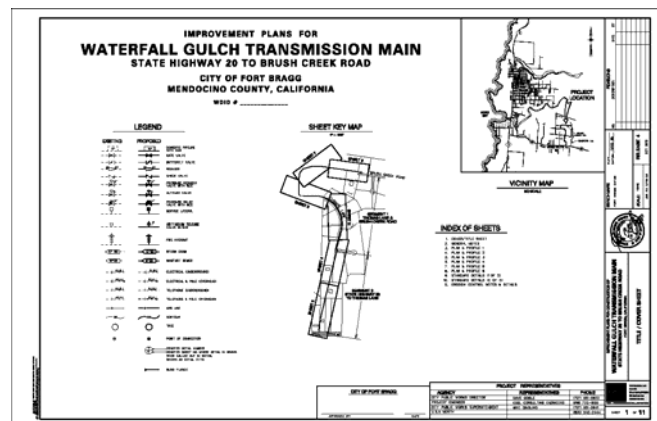
This section of the Waterfall Gulch Raw Water Pipeline included approximately 5280 lineal feet of 10 inch diameter PVC CL 235 pipeline. During design development technical memos were submitted to the City of Fort Bragg verifying the design flows, pipe size and material selected. The final selected pipeline alignment was retained within existing easements and public rights of way. Pipe bursting a portion of the old ACP pipeline was evaluated extensively but was eventually eliminated from consideration due to the limited cover and the asbestos cement material of the pipeline to be replaced.

A portion of the old alignment crossed Brush Creek with an aerial trestle in an aerial locally known as "Scholars Marsh". To avoid wetlands impacts, KASL evaluated a $\pm$ 400 foot long horizontal direction drill (HDD) to replace the aerial crossing. Preliminary plans were prepared and cost estimates obtained from HDD contractors. After these costs were compared to construction of the pipeline with open cuts and within public rights of way, it was determined that the conventional open cut pipeline construction within available rights of way was preferred, even though it resulted in additional pipeline length.

This section of the Waterfall Gulch Raw Water Pipeline System has been constructed and will connect to the proposed Phase IV improvements of the currently proposed Raw Water Pipeline Replacement Project.



**Raw Water Pipeline Traversing Brush Creek Drainage
(known as Scholars Marsh) in Environmentally
Sensitive Area – The Waterfall Gulch Replacement
Pipeline Avoided This Area**



**Construction Drawings Prepared by KASL for Raw
Water Replacement Transmission Main**



B. RELEVANT EXPERIENCE

PLYMOUTH PIPELINE PROJECT

Location: Plymouth, CA. Amador County
Reference: Selby Beck,
Public Works Superintendent
City of Plymouth
9426 Main Street
Plymouth, CA
(209) 245-6941

The Plymouth Pipeline includes approximately 7.3 miles (38,540-LF) of 12-inch diameter water transmission main. The project delivers treated water from the Amador Water Agency's Water Treatment Plant in Sutter Creek to the City of Plymouth's Water Storage Tank in Plymouth.

The pipeline design included extensive network computer modeling, surge analysis and extended period simulations. After a calibrated network model was developed over 100 alternative storage and transmission main scenarios were developed and reviewed to optimize transmission main size and the location and capacity of future storage tanks. The system was designed for operating pressures up to 300 psi with elevation changes along the pipeline in excess of 700 feet.



Plymouth Pipeline Construction

The project included 5 live stream crossings necessitating permits from the U.S. Army Corps of Engineers, California Fish and Wildlife Service, California Department of Fish and Game and California Regional Water Quality Control Board. A new pedestrian bridge was designed to support the pipeline crossing of Sutter Creek and to avoid impacts to this waterway.



Plymouth Pipeline Project Sutter Creek Crossing

Final design and construction of the pipeline alignment traversed 20 privately owned parcels and various public right of ways within Amador County and the cities of Sutter Creek, Amador City and Plymouth. KASL developed legal plats and descriptions for easements on privately owned parcels and identified the limits of existing easements and right of ways for the remaining pipeline alignment. The Plymouth Pipeline Project was funded with grants from USDA and CDBG.

KASL Consulting Engineers prepared the Preliminary Design Report, performed topographic surveys, designed the pipeline improvements, obtained the necessary California Fish and Wildlife and Amador County permits for project approval, adjusted the alignment to mitigate environmental and stakeholder concerns, prepared construction plans and technical specifications for bidding purposes, developed cost estimates for the project and assisted the City of Plymouth with obtaining USDA grant funding.

Environmental Planning Partners and ENGEO served as subconsultants to KASL for this Project.



B. RELEVANT EXPERIENCE

EBBETTS PASS WATER SYSTEM REACH 1 PIPELINE REPLACEMENT PROJECT

Location: Calaveras County
Reference: Charles Palmer, District Engineer
Calaveras County Water District
120 Toma Court
San Andreas, CA 95249
(209) 754-3174

The Ebbetts Pass Water System Reach 1 Pipeline Replacement Project includes approximately 23,100 lineal feet of 12 inch diameter and approximately 1300 lineal feet of 8 inch diameter, 350 psi, pressure rated waterline. The new pipeline improvements replace an 8 inch diameter welded steel pipe which must remain in service until the new pipeline is completed, inspected, tested, disinfected and accepted by the Water District. The scope of improvements includes replacement of 10 Pressure Reducing Stations and 5 Bore and Case crossings of State Route 4.

In addition to the preparation of the Construction Documents (Plans, Specifications, Estimates), the scope of services provided by the KASL Team included the preparation of an Initial Study / Mitigated Negative Declaration (IS / MND), securing permits from the U.S. Army Corps of Engineers (404 Permit) and California Department of Fish and Wildlife (1602 Permit) and a Caltrans Encroachment Permit. Construction of the pipeline will remove over 160 trees, 5 inch dbh and larger. Over 1200 trees were identified, tagged, surveyed and shown on the improvement plans within the pipeline improvement corridor.



Ebbetts Pass Reach 1 Project Site



Ebbetts Pass Reach 1 Project Site



B. RELEVANT EXPERIENCE

COPPER COVE RAW WATER MAIN, PUMP STATION AND WATER TREATMENT PLANT

Location: Calaveras County
Reference: Charles Palmer, District Engineer
Calaveras County Water District
120 Toma Ct. CA 95249
(209) 754-3174

The Copper Cove Raw Water Main and Pump Station Project included engineering design and construction management services for two pump stations (Stage 1 and Stage 2) together with approximately 1000 feet of 16" diameter HDPE pipe and some 6,500 feet of 24 inch diameter Ductile Iron Pipe. The Stage 1 pump station included three 60 hp submersible pumps and motors for water intake from Tulloch Reservoir. The purpose of the project was to convey up to 4 MGD (2800 gpm) of raw water to the new Copper Cove Water Treatment Plant initially, with ultimate delivery of 8 MGD.



Lake Tulloch Intake Facilities

Prior to the preparation of improvement plans and specifications, evaluation of alternative pump station locations and pipeline alignments. Alternatives were performed for engineering feasibility, cost and environmental impact mitigation. A Project Engineering Report was prepared to secure USDA funding for the raw water facilities and for the Copper Cove Water Treatment Plant. A hydraulic network model of the Copper Cove supply, storage, booster pumping and piping system was prepared to help design the raw water main, pump station and treatment plant improvements.

The Copper Cove WTP Project included the design of recovery system for backwash water, clearwell, finished water pump station and pump building, standby power and transmission improvements.

The water treatment plant project scope of work included the preparation of a Pre-Design Report which evaluated alternative water treatment plant processes and capacities to meet the needs of the Copper Cove Service Area. The new plant was designed by KASL to replace an existing 2 MGD, direct filtration facility. Alternative water treatment plant equipment was pilot tested.



Stage 1 Raw Water Pump

The Copper Cove Plant was designed and constructed as a 4 MGD plant with future expansion to an 8 MGD plant.

KASL provided construction management services including pre-bid services, review of submittals, responses to RFIs and quality control services.



B. RELEVANT EXPERIENCE

GREENWOOD WATER TRANSMISSION MAIN GREENWOOD WATER TREATMENT PLANT

Location: Georgetown, El Dorado Co., CA
Reference: Steve Gau, Operations Manager
Georgetown Public Utilities
District
(530) 333-4356

KASL developed and evaluated seven alternative alignments for a 3 mile water transmission main across private properties and along public right of ways and prepared a Preliminary Engineering Report (PER) for EPA and State Water Resource Control Board, Division of Drinking Water, funding assistance.

The scope of services included topographic mapping and extensive hydraulic and surge analyses for the 16 inch to 20 inch diameter water transmission main. Pressure relief stations were included in the design to avoid unacceptable high transient pressures.

KASL also designed the Greenwood Water Treatment Plant including a 3.0 MGD microfiltration treatment system. The plant is designed for expansion to 4.0 MGD capacity and ultimate capacity of 8.0 MGD. System components include raw water pump station, reverse filtration pump station and backwash recovery pump station and a 1.5 MG capacity water storage tank.

Environment Planning Partners prepared the environmental compliance documents and permit applications for the Greenwood Project. ENGEO served as the Project Geotechnical Engineer.



NORTH PLUMAS WATER MASTER PLAN, TREATMENT PLANT, STORAGE TANK AND BOOSTER PUMP

Location: Yuba County, CA
Reference: John Tillotson,
Public Works Director
Olivehurst Public Utility District
(530) 743 8132

The North Plumas Water Master Plan and Treatment Plant Project was designed by KASL Consulting Engineers and constructed to provide an initial capacity of 6 million gallons per day (MGD) with expansion to 12 MGD capacity. This ground water treatment plant includes pressure filtration facilities for iron and manganese removal and air stripping for methane gas removal.

Project components include local and remote ground water supply wells, disinfection, a 1.5 MG capacity steel water storage tank, 0.5 MG steel backwash tank, 3 each 75-hp and 2 each 40-hp variable speed booster pumps with hydro pneumatic tank, water treatment plant controls, water treatment CMU building with stand-by power system and SCADA (Supervisory Control and Data Acquisition) Systems.



Booster pump and distribution system improvements were designed based on network hydraulic

analysis conducted by KASL for the North Plumas water distribution system. The water transmission main improvements included in the scope of work ranged from 8 to 24 inches in diameter.



B. RELEVANT EXPERIENCE

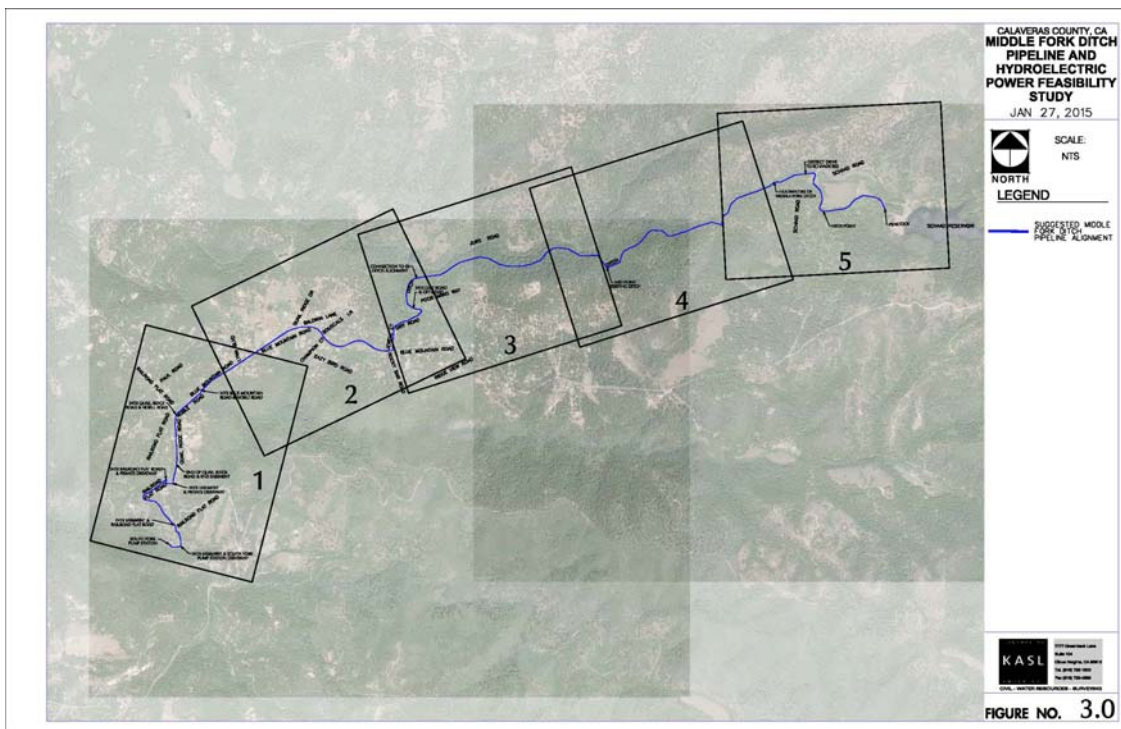
MIDDLE FORK MOKELUMNE RIVER DITCH PIPELINE PROJECT

Location: Calaveras County
Reference: Donna Leatherman
District Manager
Calaveras Public Utility District
(209) 754-9442

Beginning in 2001, KASL has provided preliminary design reports, alignment studies and preliminary improvement plans for restoration and rehabilitation of the Calaveras Public Utility District Middle Fork Ditch System. The Project includes replacement of some 27,500 lineal feet of open channel, raw water conveyance improvements with 36 inch diameter HDPE or DIP pipe capable of delivering 25 cfs from the outlet of Schaad's Reservoir to the South Fork Mokelumne River Lift Station. The Project includes a 700 MW hydroelectric station. With the dynamic head provided by the proposed pipe system the District will be able to deliver raw water to Jeff Davis Reservoir without pumping. The District's WTP is located at Jeff Davis Reservoir.

The pipeline alignment follows old easement and "back country" trails through wooded areas. Extensive field studies were conducted with the assistance of CPUD personnel to establish the best pipeline replacement route.

Project construction is pending obtaining sufficient drinking water and energy grants sufficient to fund the ± \$11M Project.





C. KEY PERSONNEL QUALIFICATIONS

KASL KEY PERSONNEL

John (Jack) Scroggs, P.E. Principal-in-Charge and Project Manager

The Project Manager for all public works projects and water systems design and construction projects conducted by our firm is **Jack Scroggs**. Mr. Scroggs is a California Registered Civil Engineer (**C 26388**) and California Registered Traffic Engineer (**TR 1733**). Jack is also Registered Civil Engineer in Nevada (**015866**).



KEY TASKS FOR THIS PROJECT

Mr. Scroggs will serve as the Principal-in-Charge and Project Manager for this project. Jack will be the primary point of contact for the City of Fort Bragg throughout the assignment. Mr. Scroggs will direct the project design and will coordinate the work of our sub-consultants. He will lead the QA/QC services, and will approve, sign and stamp all engineering documents prepared for the City. Mr. Scroggs will directly monitor the project budget and deliverable schedules. He will lead/participate and coordinate all project meetings.

SUMMARY OF EXPERIENCE

Mr. Scroggs has supervised and directly participated in the preparation of design reports, feasibility studies, master plans, improvements plans, specifications and cost estimates for water systems, open channel and piped raw replacement improvements, water booster pump stations, water storage tanks and water and wastewater treatment facilities. Mr. Scroggs has over 45 years of experience in civil engineering and water resources engineering.

His experience includes serving as the lead Civil Engineer and Project Manager for water pipeline, water system reliability, water system facility, booster pump station, permitting and on call services previously provided by KASL for the City of Fort Bragg.

Selected relevant experience includes:

- Waterfall Gulch Raw Waterline Replacement Project, Highway 20 to Brush Creek Road, City of Fort Bragg
- Fort Bragg Phase 1 Water Facilities Study
- East Fort Bragg Pressure Zone Pump Station and Water Main Improvements, Fort Bragg
- Ebbetts Pass Reach 1 Water System Replacement Project, Calaveras County Water District
- Plymouth Pipeline Project, City of Plymouth
- River Pines Water System Distribution Project, River Pines Public Utility District (Amador County)
- 2016 Pipeline Improvement Project, City of Sebastopol
- Mariposa Avenue, Limerick Way, Dublin Way and Galway Court Water Main Replacement Projects, Citrus Heights Water District
- Greenwood Transmission Main and Water Treatment Plant, Georgetown Divide Public Utility District
- Walton Lakes Water Treatment Plant Modifications, Georgetown Divide Public Utility District
- City of Plymouth Water Master Plan
- Jenny Lind Water Treatment Plant and Jenny Lind Water Treatment Plant Expansion, Calaveras County Water District
- Copper Cover Raw Water Main, Pump Station and Water Treatment Plant, Calaveras County Water District
- Pioneer Park Water Storage Tank and Water Main Improvement Project, San Juan Bautista
- Cripple Creek Channel Restoration Project, Citrus Heights LDS Stake
- Mokelumne River Long Term Water Demand Study, Calaveras County Water District and Calaveras Public Utility District
- West Point Water System Water Master Plan, Calaveras County Water District
- Water System Reliability Study, Georgetown Divide Public Utility District
- Amador Canal Project, Amador Water Agency
- Middle Fork Mokelumne River Ditch Pipeline Project, Calaveras Public Utility District



C. KEY PERSONNEL QUALIFICATIONS

William (Bill) Ostroff, P.E., Project Engineer

Mr. Ostroff is a California Registered Civil Engineer (C 69221) with over **16 years of experience with KASL** preparing improvement plans for utility rehabilitation and improvement projects. He has conducted extensive network modeling of water and sewer systems, and he has completed numerous water studies and hydraulic modeling of water and sewer networks for both proposed and existing systems.



KEY TASKS FOR THIS PROJECT

Mr. Ostroff will serve as Senior Civil Engineer for this assignment and will perform civil engineering planning and design services for the Raw Water Line Replacement Improvements. He will lead and review the Hydraulic Network analysis findings with City staff.

SUMMARY OF EXPERIENCE

Bill's qualifying experience includes serving as the Projects Engineer for:

- Plymouth Pipeline Project, Amador County
- The Greenwood Water Treatment Plant and Transmission Project, El Dorado County
- Waterfall Gulch Raw Water Transmission Pipeline, State Highway 20 to Brush Creek Road, Fort Bragg
- Ebbetts Pass Reach 1 Water System Pipeline Replacement Project, Calaveras County
- East Fort Bragg Pressure Zone Pump Station and Water Main Improvements, Fort Bragg
- Fort Bragg Phase 1 Water Facilities Study
- River Pines Public Utility District Water Rehabilitation Study and Design Project
- City of Plymouth Water Master Plan, Amador County
- Plymouth Main Street Water Improvements
- 2016 Sebastopol Pipeline Improvement Project
- North Plumas Water Treatment Plant Booster Pump Station and Water Transmission Mains, Yuba County

Bill is currently assisting the City of Fort Bragg with the North Side Water System Study.

Octavio Perez, P.E., Project Engineer

Mr. Perez is a California Registered Civil Engineer (C 69969) with over **13 years of civil engineering design experience**. While at KASL, Octavio has conducted detailed design of water systems, sewer collection and storm drain conveyance, water supply improvements for public works and residential land development projects in California, Nevada, New Mexico, Hawaii and Arizona.



KEY TASKS FOR THIS PROJECT

Mr. Perez will serve as a Project Engineer for this assignment and will perform civil engineering design development and plan preparation for the Raw Water Line Replacement Improvement Project.

SUMMARY OF EXPERIENCE

Mr. Perez has served as Project Engineer and prepared utility design and plans for construction for multiple subdivisions and capital improvement projects in California, Hawaii, and Arizona. He also served as the Project Design Engineer for:

- Ebbetts Pass Reach 1 Water System Pipeline Replacement Project, Calaveras County
- West Point Water System Master Plan, Calaveras County
- Skycrest Well Project, Citrus Heights Water District
- 2016 Sebastopol Pipeline Improvement Project
- River Pines Public Utility District Water Rehabilitation Study and Design Project
- CarMax Auto Superstore Water Main Extension Improvements, South Sacramento
- Kernville Administration Building Grading, Drainage and Utility Improvements, Kern County
- USFS Lake Isabella Fire Station, Kern County



C. KEY PERSONNEL QUALIFICATIONS

David Barcal, EIT, Project Engineer

David has been with KASL Consulting Engineers for nearly 3 years. Prior to joining KASL, David served as a Project Engineer for another consulting firm in Roseville. He is a 2015 graduate in Civil Engineering from Boise State University.

KEY TASKS FOR THIS PROJECT

Mr. Barcal will serve as a Project Engineer for this assignment and will assist KASL Project team members with engineering design and plan preparation for the Raw Water Line Replacement Improvements.

SUMMARY OF EXPERIENCE

While at KASL, David has participated in the design of:

- River Pines Public Utility District Water System Rehabilitation Project
- Ebbetts Pass Reach 1 Pipeline Replacement Project
- West Point Water Master Plan
- Mokelumne River Long Term Water Demand Study
- Calaveras Unified School District Wastewater Treatment Upgrade Improvements
- San Andreas Sanitary District Wastewater Treatment Plant Upgrade Improvements
- North Side Water Study, City of Fort Bragg

Charlie Moore, P.E. Senior Project Engineer

Mr. Moore is a California Registered Civil Engineer with over **40 years of experience** in public works and private consulting. Since 2000, Mr. Moore has served as a Senior Project Engineer with KASL. Between 1985 and 2000 he served as District Engineer for the Calaveras County Water District.



Mr. Moore has served as a Senior Project Engineer responsible for engineering design services and for Quality Assurance and Quality Control of water systems design rehabilitation and expansion projects, water pumping systems, booster pumps, lift stations, pipeline projects, storage tanks, and water treatment plants throughout northern California, New Mexico, Arizona and Hawaii.

KEY TASKS FOR THIS PROJECT

Mr. Moore will serve as a Senior Project Engineer responsible for providing Quality Assurance and Quality Control and technical design assistance for this project. Charlie will also be available to provide construction phase support services.

SUMMARY OF EXPERIENCE

As a Senior Engineer of KASL, Mr. Moore has served as the Senior Project Engineer responsible for engineering design services for water treatment, waste water treatment, pump stations and pipeline projects. He has also provided QA/QC for numerous pipeline and booster pump projects. Charlie was the Senior Design Engineer for the Greenwood Water Transmission Main and Water Treatment Plant Project and the Walton Lake Water Treatment Plant Modifications El Dorado County, and the Wildflower Booster Pump, Transmission Main and Water Storage Tank Project, Amador County and the North Plumas Water Treatment Plant, Booster Pump Station and Water Transmission Main, Yuba County.



C. KEY PERSONNEL QUALIFICATIONS

SUBCONSULTANTS

ENGEO, INC.

Jonathan C. Boland, GE, QSD ENGEO Incorporated.

Mr. Boland has more than **15 years of experience** serving both public and private sector clients on projects including residential, healthcare, educational facilities, water storage, and levees throughout northern California and western Nevada. Mr. Boland is a registered Geotechnical Engineer (**GE 2763**). He has extensive experience managing and coordinating field testing operations during mass grading activities, underground utility construction, and asphalt concrete paving in accordance with local and state specifications.



KEY TASKS FOR THIS PROJECT

ENGEO will conduct the geotechnical engineering testing analysis and will prepare a geotechnical report with a summary of the geotechnical investigation findings.

ENVIRONMENTAL PLANNING PARTNERS

Robert D. Klousner

Planning Partner's principal, **Robert D. Klousner**, is a broadly experienced land use and environmental planner with a focus on environmental impact analysis and planning and project administration. He has authored over 850 planning studies, environmental documents and environmental determinations in his 35 years as a planning professional. His contribution to these documents has ranged from sole authorship and technical analysis to management of large multidisciplinary teams and project oversight as principal-in-charge. Mr. Klousner possesses an in-depth knowledge of California and Federal planning and environmental law, quantitative planning methods, needs analysis and decision analysis. He specializes in resolution of complex planning issues among diverse interest groups, including preservationists and

environmentalists, developers and local, state and federal agencies.

For the Waterfall Gulch Raw Water Line Replacement Project, Planning Partners, under Bob Klousner's direction will prepare:

- Biological Constraints Reports
- Cultural Resource Constraints Technical Studies
- CEQA Compliance Documents
- NEPA Compliance documents (depending on funding services)

Dr. Lew Napton

Dr. Lew Napton has been the principal investigator on over 450 historical resource management projects. Awarded a Ph.D. by the University of California, Berkeley, Dr. Napton is a professor (emeritus) of archaeology at California State University, Stanislaus, and was formerly the coordinator of the Central California Information Center of the California Archaeological Inventory. Dr. Napton has provided areawide archaeological inventories of the Marin County Open Space District's preserve system and of Merced, San Benito and San Joaquin Counties for use in the updating of their General Plans. He was Planning Partners' lead cultural resources investigator for the screening analyses completed for the City of Plymouth water pipeline and improvements to the City's wastewater treatment and disposal systems. Dr. Napton meets the Secretary of the Interior's Standards in Prehistoric and Historic Archaeology. For the Waterfall Gulch Raw Waterline Replacement Project, Dr. Napton would lead the Cultural Resources Constraint Analysis.

Sarah Powell

Planning Partner's collaborator **Sara Powell** has 18 years of experience in studying and assessing Northern California biological resources. She conducts biological impact analyses, wetland delineations and regulatory permitting. Ms. Powell's experience includes coordinating with the regulatory agencies to obtain permits and project approvals including U.S. Army Corps of Engineers permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899; California Department of Fish and Wildlife Streambed Alteration Agreements; and Regional Water Quality Control Board Water Quality Certifications. Her experience with special-status species includes formal and informal consultation with the U.S. Fish and





C. KEY PERSONNEL QUALIFICATIONS

Wildlife Service, NOAA Fisheries and the California Department of Fish and Game under the Federal and California Endangered Species Acts. She has experience conducting field evaluations for listed and proposed species using habitat-based methods and approved survey protocols. Ms. Powell is a graduate of Humboldt State University with degrees in Environmental Biology and Computer Information Systems. Sarah has served on the KASL Team for a number of projects including Plymouth Pipeline, Plymouth Wastewater Project and Greenwood Water Transmission Main. Her role for the Waterfall Gulch Raw Waterline Replacement Project would be to serve as the lead biologist for the preparation of the Biological Constraints Report.

SUMMIT FORESTRY

Lee Susan, RPF #2127 and Curtis Typer RPF #2990, principals of Summit Forestry will provide permitting services for the Timber Harvest Plan (THP), if authorized, for the Waterfall Gulch Raw Water Pipeline Replacement Project. Lee and Curtis, with their specialized experience in the Fort Bragg area may also provide support with botanical surveys, wildlife surveys, hepatology, raptors and northern spotted owls. They may also provide support with Project area archaeological surveys.

Lee Susan has been a Registered Professional Forester since 1987. He is a graduate of Humboldt State University with a B.S. Degree in Forestry. Curtis Typer has been a Registered Professional Forester since 1996. In addition to the preparation of timber harvest plans, Mr. Typer's experience includes GIS mapping and analysis, archaeological surveys, wildlife surveys and botanical surveys.



D. REFERENCES

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E. SCOPE OF WORK

SUMMARY OVERVIEW OF PROPOSED TASKS

The KASL Team proposes to complete the following tasks to meet the City of Fort Bragg's goal of replacing portions of the raw water pipeline system and improving the long term reliability of this important water supply network. Elements of each task listed below are described in detail in the following section of this proposal.

Task 1 – Kickoff Meeting, Data Collection

Task 2 – Field Investigations

Task 3 – Opportunities and Constraints Analysis

Task 4 – Constructability and Feasibility Analysis

Task 5 – Hydraulic Analysis

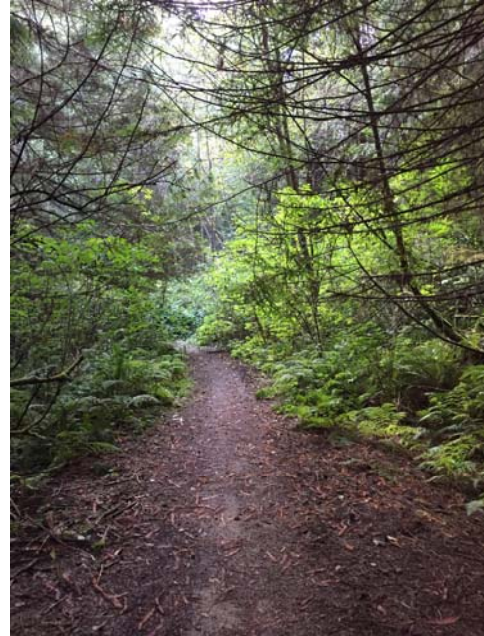
Task 6 – Preliminary Design and Mapping

Task 7 – Preparation of Preliminary Design Report

Task 8 – Funding Applications

Task 9 – Preparation of Construction Documents

Task10 – Project Management



Phase V Project Area



Phase III Project Area
(Newman Gulch Outlet)



E. SCOPE OF WORK

TASK 1 – KICK-OFF MEETING, DATA COLLECTION

Critical to the success of the Raw Water Pipeline Replacement Project is a comprehensive Kick-off meeting with the City of Fort Bragg. KASL has assembled previously prepared pipeline improvement plans, aerial photos and assessors maps of the Project area. We understand that there is also available recorded easements over portions of the constructed pipeline to be replaced. Much of the existing pipeline was constructed in the 1950's and sections of the old asbestos cement pipeline have been repaired using PVC, ductile iron or welded steel pipe. Staff experience and records of previous repairs and as-built alignment "discoveries" will be very valuable in compiling the history and location of the existing facilities. Based on the information included in the City's RFP, our previous Raw Water Pipeline Design, the Phase I Facilities Study and the pre-proposal site visit we understand:

- The **Phase II** Pipeline alignment follows existing graded roadways and pathways from the City's WTP across Oak Avenue to the Noyo River crossing. City staff identified the location of slope facilities that damaged the existing pipeline. This phase will be the focus of geotechnical investigations. Where the existing (and replacement) pipelines are placed across private property, it is anticipated that recorded easements can be obtained from local property owners and lumber companies. KASL has compiled aerial photos, County Assessors Maps and parcel ownership data for properties along the existing alignment. From the pre-proposal site visit it appears that this phase may have the fewest environmental constraints of the replacement pipeline project although a portion of Phase II is within the Coastal Zone. It is also the phase where identification of the existing pipeline alignment will be the least "challenging" using portable ground penetrating radar equipment. The Phase II and Phase III pipeline segments, being located between Summers Lane Reservoir and the WTP will, however, have the shortest available "window" for temporarily removing the existing pipeline segments from service.
 - The **Phase III** pipeline could include the most environmental constraints and is the segment where the existing alignment is the least obvious. City staff knowledge of where pipeline breaks and repairs have occurred will be particularly valuable to help identify known pipeline locations. This phase, identified as "Covington Gulch", is almost entirely within the Coastal Zone. Biological studies of this important forested and coastal resource area have been conducted by the California Department of Fish and Wildlife. CDFW "stakeholders" input will be particularly critical for the Covington Gulch phase. The location where the existing pipeline crosses Noyo River, and where the pipeline begins at the Newman Gulch intake, are known. It is important that the location of the existing Phase III Pipeline be identified with as much accuracy as possible to maintain delivery of water between Summers Lane Reservoir and City's WTP especially during critical periods when low flows in the Noyo River curtail the City's supply of Noyo River Supply.
 - A portion of the **Phase IV** pipeline, beginning at the State Route 20 and continuing south to the Jackson State Forest has likely been "encroached on" by existing residential development. Based on City staff suggestions, the alignment of the replacement pipeline from State Route 20 to the Jackson State forest will be aligned along existing roadways (Dwyer Lane, Andrea Lane, Lahmon Lane, Porterfield Lane, for example). Based on the Assessors Parcel Maps available for this area, these existing roadways are more likely private lanes than public roads. We will review with City staff the preferred re-routing of the replacement pipeline along these roadways and where easement acquisitions are most likely to be obtained. With direction from City staff, ground penetrating radar will be used to identify the existing pipeline alignment between State Route 20 and Jackson State Forest.
- The alignment of the southern half of Phase IV pipeline between the northerly limits of Jackson State Forest and the Hare Creek crossing likely follows old logging



E. SCOPE OF WORK

"skid" roads. The City's repair records and maintenance staff experience will again be valuable in identifying the existing alignment in this area which crosses steep terrain down to Hare Creek. While this segment of the existing pipeline is as critical as the other phases, its position upstream of Summers Lane Reservoir allows some flexibility for pipeline replacement. With the Summers Lane Reservoir full, the existing Phase IV pipeline could be removed from service for 2 to 3 months if planned for early in the construction season and Noyo River flows are average or above.

- The **Phase V** pipeline replacement segment is the shortest. City staff identified the likely alignment at the existing pipeline along logging skid roads. Older sections of the raw water supply pipeline that were previously replaced were identified during the pre-proposal site visit. The City has recovered recorded easements for this section of the existing pipeline and the location of Hare Creek crossing is known. With the information compiled to date, additional field reconnaissance and further direction from City Staff, the alignment of the existing Phase IV pipeline will be identified.

After the Kick-off Meeting, meeting notes and directives, existing City and County Maps, available improvement plans, recorded easements and ownership information will be summarized and distributed to participants. Field reviews with staff will be scheduled.

TASK 2 – FIELD INVESTIGATIONS

Field investigations will be conducted in 3 steps. The first step will require a City staff "guide" to walk the existing alignment with KASL engineers. We will "flag" and "mark" the existing pipeline alignment using the best information and experience available from the City. The second step will include utility locating services provided by B and B Locating. The existing alignments assumed or understood by City staff will be verified, wherever possible, with underground utility locating equipment. Confirmed utility locations will be marked and flagged in the field.

Wherever possible, confirmed pipeline locations will be identified by GPS coordinates.

The third step will include detailed pipeline surveys. Following the "premarked" pipeline routes our crew will conduct topographic surveys which will locate all planimetric features ± 25 feet, each side of the existing pipeline. Existing trees 5" dbh and larger will be surveyed and their position identified in the topographic field files. All planimetric features along the existing pipeline will be identified including roadways, paths, visible pipeline appurtenances and previous pipeline repair locations. For Phase IV, between State Route 20 and Jackson State Forest, alternative alignments(s) along existing roadways will be surveyed.

We understand that the City will take the lead to notify private property owners before our survey crews begin their work on private property. We will always be respectful when crossing over privately owned lands.

The topographic surveys of the existing and replacement pipeline alignment will be used to prepare project base maps. Existing rights of way and property lines and property ownership information, to the maximum extent possible, will be shown on the base maps and submitted to the City for review.

TASK 3 - OPPORTUNITIES AND CONSTRAINTS ANALYSIS

Using the field survey mapping and the information compiled from both Task 1 and Task 2, replacement pipeline alignment opportunities and constraints will be prepared. Within the Phase II area, replacement pipeline alignments which protect the existing pipeline and are located along the "uphill" side of the existing access road, wherever possible, would be preferred. The pipeline alignment will avoid disturbance to existing private property features; fences, driveways, structures, other utilities and similar existing improvements identified with the topographic surveys and base mapping. Preliminary alignment opportunities and constraints will be reviewed with City staff for each Project phase. It is likely that this phase of the pipeline improvements would be constructed



E. SCOPE OF WORK

using conventional open cut construction. Where there are opportunities to avoid impacts using trenchless technology the possible advantage and costs will be developed and reviewed with the City.

In the Phase III area, replacement pipeline alignments will attempt to avoid significant tree removal and other features of apparent environmental significance. Based on preliminary reviews, Phase III could include sections where pipe bursting or horizontal directional drilling methods are utilized to reduce ground disturbance and environmental impact. The feasibility of mobilizing and demobilizing pipe bursting and /or HDD construction equipment within the Phase III segment will be evaluated in Task 4. It is critical that the existing Phase III pipeline be protected with the construction of the replacement pipeline improvements.

Opportunities for utilizing existing roadways for realignment of the northern half of the Phase IV pipeline will be developed in this task. The point of connection on the north side of State Route 20, and on the north side of the Jackson State Forest, and the most likely roadway routing where easements can be obtained, will head the list of opportunities and constraints for this portion of the pipeline replacement project.

The crossing of State Route 20 will require a Caltrans Encroachment Permit. Based on our experience with projects within the Caltrans right of way, we expect that the pipeline crossing of SR 20 will be completed with bore and case methods.

Opportunities and constraints for pipeline construction for the southern half of Phase IV will be similar to those identified for the Phase III segment. The steep terrain within this pipeline segment will be considered together with avoiding significant tree removal wherever possible. Similar to Phase III, opportunities for trenchless technologies will be evaluated for replacement pipeline segments constructed through Jackson State Forest lands to the Hare Creek crossing. It is possible that that best pipeline alignment identified for the southern half of Phase IV is the existing pipeline alignment. If this is the case, contingency plans will be prepared which will include construction of a temporary bypass

pipeline where the permanent replacement pipeline is placed in the same alignment as the existing. Depending on the time of construction there are opportunities to temporarily remove from service portions of the existing Phase IV pipeline to facilitate construction of the replacement pipeline. Environmental, geotechnical, constructability, cost or system O & M considerations will be weighted for this determination.

Opportunities and constraints evaluated for the Phase V segment will be similar to the considerations described above for the southerly half of Phase IV.

With the completion of this task, KASL will deliver to the City a Technical Memo which will include a summary of opportunities and constraints by pipeline phase.

As **Additional Tasks**, the KASL Team will conduct Biological Reconnaissance Field Surveys, prepare a Biological Constraints report and a Cultural Constraints Memo. The combined Biological and Cultural Restraints Technical Studies will be presented to the City as an Environmental Constraints Memo. For the evaluation of biological resources, KASL Team biology staff will conduct a literature review that will include analysis of topographic maps, soil survey maps, aerial photographs, and National Wetland Inventory (NWI) maps of the area surrounding the four pipeline phase alignments to identify areas of potential concern. We will conduct a query of the California Natural Diversity Database (CNDDDB) and Biogeographic Information and Observation System (BIOS) and request a species list from the U.S. Fish and Wildlife Service to determine special-status plant and animal species that could occur in the vicinity of the project site.

Biology staff will then conduct field surveys of the pipeline alignments to assess the site conditions and biological resources occurring along the proposed alignments. Surveys will determine the probability of occurrence of special-status species at the site based on vegetative cover types as well as habitat requirements and historic range of species potentially occurring in the area. Field surveys will include general surveys



E. SCOPE OF WORK

for sensitive and regulated habitats, such as waters and wetlands protected under Section 404 of the Clean Water Act and/or Section 1600 of the California Fish and Wildlife Code. The reconnaissance surveys will be used to identify potentially sensitive habitats and areas of potential impact from proposed project activities. No protocol-level surveys, jurisdictional wetland delineations, or tree surveys are proposed under this task, but could be conducted under a separate scope of work.

The consulting team will then prepare a Biological Constraints Map identifying biological constraints identified within the pipeline replacement corridor. We will also prepare a memorandum briefly summarizing the biological constraints identified. This memorandum will include a summary of regulatory permit requirements. This memo and map will be used to develop the subsequent project tasks of the project. Detailed biological setting information, analysis of project impacts, and identification of specific mitigation measures would be completed as part of future environmental review phases of the project.

For cultural resources, our team is available to conduct a records search at the Northwest Information Center, CSU Sonoma, and complete a reconnaissance survey to assess the archaeological and historical resource potential of the project area. Because it is likely that project development and approval will require compliance with AB 52, the environmental team will request a Sacred Lands file search from the Native American Heritage Commission (NAHC). We will prepare a project notification letter for City distribution to potentially affected Tribes. The intent of the letter will not formally initiate the AB 52 process, but rather notify Tribes of the pending action and request information from them regarding the types and locations of sacred resources that could influence the route or design of the replacement pipeline.

We will prepare a Cultural Resources Constraints Memo to identify potential constraints associated with the proposed project. This report will include a regulatory analysis to identify potential impacts of the project and the permits that may be required to complete the project.

For other environmental issues, the screening analysis will consist of a review of available information from local, state, and federal agencies and private vendors. Because portions of the pipeline are located within unincorporated Mendocino County, partially within the coastal zone and the Jackson State Demonstration Forest, the environmental team will coordinate with CalFIRE, Mendocino County and the Coastal Commission as well as the City of Fort Bragg staff to determine the environmental concerns of the agencies and any permit requirements they may impose. Other permitting agencies, in addition to those identified above for biological resources, will be contacted as well. The information review will be accompanied by a reconnaissance field review of the proposed pipeline routes.

The results of all screening and constraints analyses will be presented in a combined report submitted to the City. The report will identify areas and types of potential environmental effects, conceptual mitigation requirements, and any state or federal permits that might be necessary to allow the pipeline replacement project to be implemented. The analysis will be presented for each pipeline phase and resource affected. Permitting requirements will be identified.

TASK 4 – CONSTRUCTABILITY AND FEASIBILITY ANALYSIS

Similar to previously presented tasks, the Constructability and Feasibility Analysis will be conducted for each of the pipeline phases. Phase II pipeline analysis will include consideration of geologic stability as this pipeline phase has had known slide and subsurface stability issues. Areas of known or suspected geotechnical installations will be avoided with the proposed replacement pipeline alignment and safeguards to protect the replacement pipeline from suspected subsurface failure area will be included in the proposed pipeline design.

ENGEO will:

- Prepare a work plan detailing boring locations, depths and access paths. They will collaborate with the Project team and with the City to strategically locate borings in areas that exhibit surface distress / slope instability.



E. SCOPE OF WORK

- Three borings will be drilled to depths of 10 to 20 feet below the ground surface, or to practical refusal whichever is shallower, using a limited access drilling rig. The goal of the explorations is to evaluate soil conditions along the Phase II alignment and obtain samples for laboratory testing. We anticipate 1 day to complete field explorations using a limited access drilling rig (minuteman rig) with solid flight auger methods.
- Test representative soil samples from exploratory locations in the ENGEO laboratory to determine their engineering properties. ENGEO will perform moisture-density, unconfined compression, sieve analysis, plasticity index and limited corrosion testing.
- Perform engineering analyses in support of the proposed pipeline replacement construction. These may include slope stability analyses, development of corrective grading concepts, reinforced slope concepts and/or surface and subsurface drainage alternatives.
- Provide geotechnical recommendations including:
 - o site clearing, original ground preparation and engineered fill compaction requirements
 - o Underground utility trench backfill recommendations
 - o corrective grading measures
 - o 2016 California Building Code Seismic Parameters
- Provide a summary geotechnical report including details of field investigations, geotechnical data, boring logs and laboratory test results and geotechnical design recommendations for the project.

The feasibility analysis for Phase II will include consideration of either keeping the replacement pipeline within the limits of existing easements or abandoning existing easements and the recording of similar, parallel, easements across the same properties.

Preliminary replacement pipeline alignment plans prepared for Phase III will be reviewed with pipeline contractors familiar with the Fort Bragg area. The option of constructing all or portion of this phase with trenchless technologies will also be reviewed with specialty pipe bursting and HDD

pipeline contractors. Pipe bursting is recognized as an economically, socially and environmentally friendly trenchless technology for replacing existing pipelines. When properly controlled, the U.S. Environmental Protection Agency has determined that pipe bursting of AC pipe can be conducted without detrimental environmental or health effects. Procedures have also been advanced to allow permitting of AC pipe bursting by County Environmental Health and Air Pollution Control Districts. Given the advancements in methods and permitting, the feasibility of pipe bursting all or portions of the Phase III pipeline will be more likely associated with equipment access and construction procedures. Typically, an existing pipe burst "reach" is limited to 300 to 400 feet. Since the Phase III segment is approximately 5000 feet long, pipe bursting shortened segments will require several bursting tool and pipe bursting receiving "pits". The feasibility and cost of mobilizing and remobilizing the pipe bursting equipment along the pipeline replacement route will be extensively reviewed with experienced pipe bursting contractors.

Within the Phase IV segment the replacement pipeline alignment selected along the existing private roads will likely depend on the most feasible combination of easements that can be secured since, according to existing property ownership maps, there will be several privately owned parcels that will be crossed. Preliminary Title Reports, record maps and "local knowledge" of the private land owners in this area will help select the most feasible replacement pipeline alignment.

Local and specialty contractors will be contacted to review constructability issues for the southerly half of Phase IV through the Jackson State Forest. Geotechnical findings will also be considered as part to this phase along steep terrain alignments.

Constructability and Feasibility considerations for Phase V will be similar to those evaluated for Phase IV and will include access concerns, available or replacement easements, and the selected use of trenchless technology methods for specific pipeline replacement segments.



E. SCOPE OF WORK

TASK 5 – HYDRAULIC ANALYSIS

In the Phase I Water Facilities Study prepared by KASL for the City of Fort Bragg, the following existing (2012) and projected raw water demands (2032) were developed.

Demand Category	Existing Conditions (2012)	Projected Conditions (2032)
Raw Water		
Peak Hour (gpm)	1450	1885
Maximum Day (MGD)	1.49	1.94
Average Day (MGD)	0.87	1.13
Annual (AFA)	950	1225

For the Phase I Study we determined that the City of Fort Bragg had rights to divert up to 1800 acre feet per annum (AFA) of raw water. When compared to the “existing” (950 acre feet) and projected (1225 acre feet) raw water demands summarized above, this total right is adequate to meet future projected demands. The City’s raw water rights are divided between:

- Newman Gulch; up to 300 AFA
- Waterfall Gulch; up to 475 AFA*
- Noyo River; up to 1500 AFA*

* The maximum total annual diversions from these two sources is 1500 AFA.

These previous findings will be reviewed with City staff as part of this task.

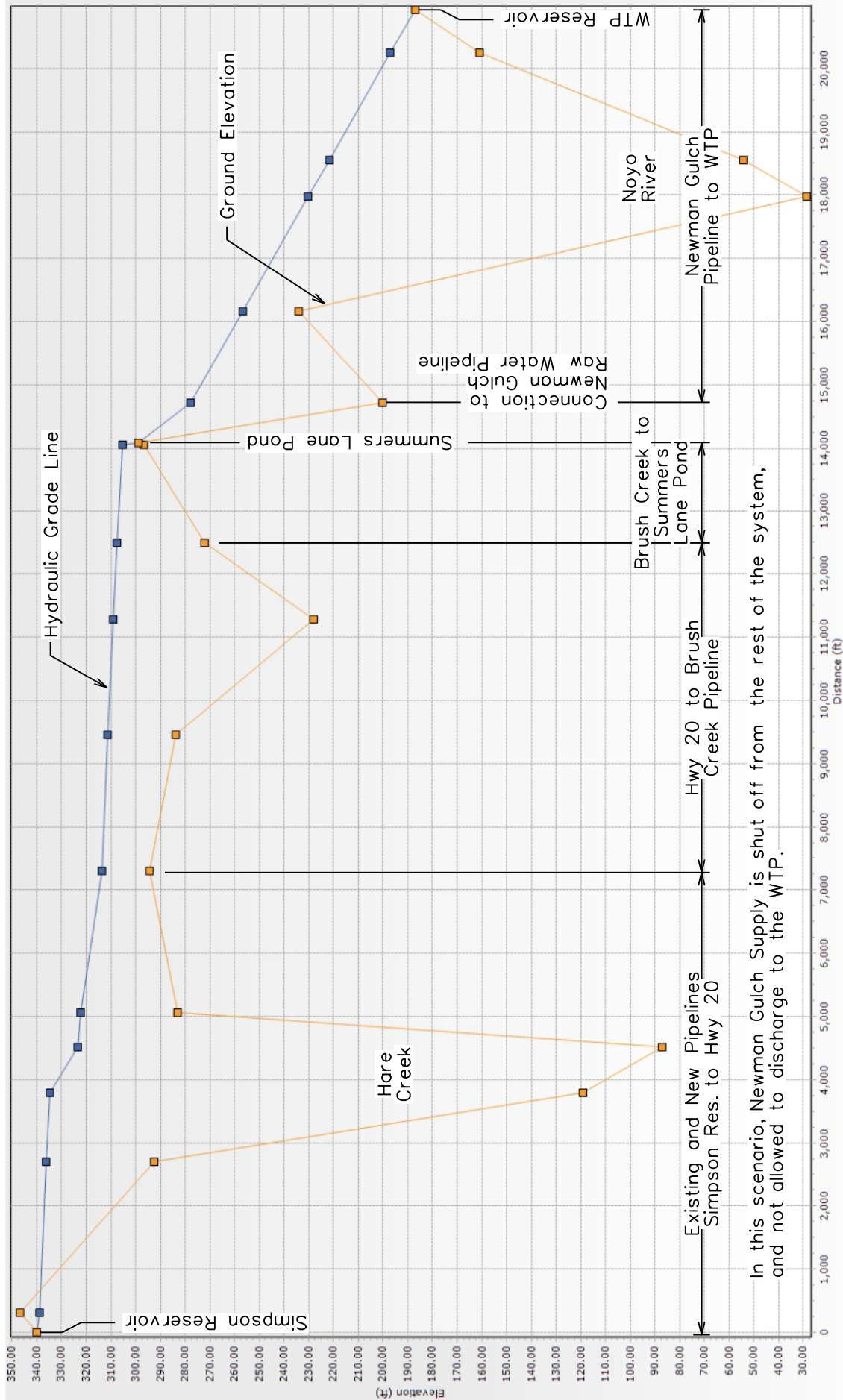
In the Phase I Water Facilities Study it was recommended that the City’s projected maximum day demands of 1.94 MGD (1374 gpm or 3 cfs) be available via the Raw Water Pipeline Improvements delivering water from Waterfall Gulch (Simpson Reservoir) and from Summers Lane Reservoir to the City’s Water Treatment Plant. To adequately provide these raw water conveyance demands a pressure rated 10 inch PVC pipeline (or equivalent) is required from Waterfall Gulch to Summers Lane Reservoir and from Summers Lane Reservoir to the City’s Water Treatment Plant. This finding will also be revisited as part of this task. The hydraulic grade line for the pipeline placed between Waterfall Gulch (Simpson) Reservoir to the City’s WTP is shown on the following figure.

As shown, the pipeline placed through the Hare Creek and Noyo River crossings must be capable of safely supplying the projected raw water demands of 1347 gpm, or 3 cfs with working pressures well in excess of 100 psi.

TASK 6 – PRELIMINARY DESIGN AND MAPPING

Task 6 will incorporate the findings of the previously completed tasks. Preliminary improvement plans will be prepared for each of the Project phases. The preliminary plans will be prepared to scale, submitted in plan and profile and of sufficient detail to support environmental compliance documents and permit applications. Based on the currently proposed scope of improvements it is anticipated that either a Negative / Mitigated Negative Declaration or an Environmental Impact Report will be required for CEQA Compliance. This will be determined based on the results of an Initial Study. Our team is prepared to provide these CEQA Compliance services to the City but these are not included in the scope of this proposal. If requested, a separate proposal would be submitted to the City for environmental documents.

Unlike CEQA, NEPA permits each federal agency to adopt discreet requirements for NEPA document preparation. Thus, depending upon the funding source, the KASL environmental team could assist the City in meeting NEPA compliance ranging from supplementary information provided in the federal agency’s preferred format (Environmental Package Construction for the State Revolving Fund, or Environmental Report for USDA Rural Development). The agency would then conduct necessary federal consultations and prepare or request the appropriate environmental document. If Community Development Block Grant funds were obtained, the City would be required to comply with HUD environmental procedures as administered by the California Department of Housing and Community Development. Depending upon the type and magnitude of environmental impacts identified in



**Simpson Reservoir to Fort Bragg WTP
Hydraulic Grade & Ground Elevation Profile
With Delivery from Summer's Lane Pond**
Fort Bragg Phase 1 Water Facilities Study



E. SCOPE OF WORK

these reports, the NEPA document could range from a Categorical Exclusion (CE) to an Environmental Assessment (EA). If an EA is required, the KASL environmental team would prepare the EA and assist the City in processing the document. If multiple federal funding sources were identified, it is likely that the City would be required to administer multiple types of federal documentation. The scope and fee for NEPA Compliance can be provided to the City, together with the CEQA Compliance tasks, in a separate proposal.

Permits required for this project will likely include California Department of Fish and Wildlife 1602 Streambed Alteration Permits, Caltrans Encroachment Permit and permits, as required, for pipeline construction within the Jackson State Demonstration Forest and for pipeline work within the Coastal Zone. Every effort will be made to avoid the need to obtain a U.S. Corps of Engineers Clean Water Act Section 404 National Permit and Regional Water Quality Control Board 401 Certification.

TASK 7 – PRELIMINARY DESIGN REPORT

Task 7 will include the preparation of a Preliminary Design Report (PDR) to support application for project funding. Assuming the Funding applications will be made to USDA, Drinking Water State Revolving Fund and/or for Community Development Block Grant Funds the Preliminary Design Report will include, at a minimum:

- Description of Project Areas, by Phase
- Discussion of Project Need(s)
- Description of Project Alternatives, by Phase
- Evaluation of Project Alternatives, by Phase
- Recommend Project Improvements, by Phase

The description of Project areas will be developed from Task 2, Field Investigations and Task 3, Opportunities and Constraints. The evaluation of Project Alternatives will be developed from Task 3 and Task 4, Constructability and feasibility Analysis. The description of Project Need will include the updated Hydraulic Analysis included in Task 5.

The recommended Project improvements will include a detailed description of pipeline material, sizes and classification and the methods of construction and detailed quantities, construction costs, total project costs including design, easement acquisition, project administration, construction management and contingencies. Estimated annual operating budgets will also be prepared. Initial cost and annual cost will be presented by phase. Escalation factors will be provided in anticipation of the phased construction of the pipeline replacement improvements.

Draft and Final PDRs will be submitted to the City for review and comment.

TASK 8 – FUNDING APPLICATIONS

The KASL Team will assist the City of Fort Bragg with the preparation and submittal of Funding Applications. Typically, these funding applications are accompanied by the Preliminary Design Report and Environmental Support documents or Environmental Technical Studies. As described in Task 6, the Final CEQA and NEPA Compliance Documents will depend on the funding source(s) secured.

In supporting our clients in the preparation of Funding Applications, we have typically prepared:

- Budget Approval / Eligibility Determination Applications
- Technical Review Checklist / Applications
- Financial Application Checklist
- Planning Grant Applications
- Construction Grant Applications

Together with City staff we will meet with representatives of various funding agencies that typically provide either grants or low interest loans for water supply projects (State Water Resources Control Board, Housing and Community Development Agency, United States Department of Agriculture, for example) to review specific funding application requirements and identify funding opportunities particularly applicable to the City's Raw Water Pipeline Replacement Project.



E. SCOPE OF WORK

TASK 9 – PREPARATION OF CONSTRUCTION DOCUMENTS

Pipeline improvement plans, specifications and cost estimates shall be prepared and submitted at the 60%, 90% and 100% design completion stage. Each submittal shall be reviewed with Public Works Staff. Each subsequent submittal shall reflect responses to previous design submittals. Electronic or paper copies shall be provided as directed by the City.

Improvement plans will be prepared in conformance with City of Fort Bragg Standards. Construction Specifications and Project Manual shall be Buy American Compliant and shall reflect both State and Federal Contracting Requirements. We will review with Public Works the City's typical "Front End" Specifications included for construction bidding. Each design submittal shall include updated quantity and cost estimates. Final plans shall be submitted in AutoCAD or Microstation format. Approved Technical Specifications, General Provisions, Special Provisions, Bid Schedule, Cost Estimate shall be submitted as Word documents.

Task 9 shall also include the preparation of pipeline easement acquisition plats and descriptions. These would typically be completed at the 90% design completion stage and verified at the 100% design completion stage. Typically, funding agencies require that all easements be secured prior to release of construction funds.

TASK 10 – PROJECT MANAGEMENT

At a minimum, we shall coordinate and facilitate project review meetings at the following design stages:

- At the completion of Field Investigations (Task 2)
- At the completion of the Opportunities and Constraints Analysis and Constructability and Feasibility Analysis (Tasks 3 & 4)
- At the completion of Preliminary Design and Mapping (Task 6)
- With the Preparation of the Preliminary Design Report (Task 7)
- After the 60% and 90% PS&E submittal (Tasks 9.1 and 9.2)

For each meeting we shall prepare and distribute the meeting agenda and meeting notes. The meeting notes shall include a summary of key topics, City comments and the action items to be completed in response to the City's comments and directives.

In addition, we will provide the City with monthly progress reports with the submittal of each invoice. The Progress Reports will identify the percent of each task completed to date, the tasks that are currently in progress and the tasks projected for completion prior to the next Progress Report submittal.

We have also found that regular, weekly, conference calls with the City's Project Manager also helps to maintain communication and will keep the City apprised of Project findings and recommendations.

ADDITIONAL TASK

As an additional task, Summit Forestry is included on the KASL Team to prepare Timber Harvest Plan(s) for the Raw Water Pipeline Replacement Projects. The Timber Harvest Plans (THP) or an exemption reports will be prepared in accordance with the Z'Berg Nejedly Forest Practice Act. The THP will include plan layout, flagging, marking, road design, harvest design, silvicultural prescriptions and log sales to local and distant lumber mills depending on markets as well as bidding the job out to potential logging companies and logging administration once the plan is approved and operations begin. Summit Forestry and their Registered Professional Foresters have extensive local knowledge in the timber industry allowing them to remain current on logging rates and timber market prices.

The THP can be prepared for all phases of the pipeline replacement project at once, or, separate THPs can be prepared for each phase, as directed by the City and as construction funding permits.



F. BUDGET AND SCHEDULE OF CHARGES

Fee Proposal

We propose to complete the tasks, reports and construction document deliverables of the Raw Pipeline Replacement Project, as outlined in the Scope of Work, Tab 5, for a **not to exceed amount of \$ 233,650**.

This total not to exceed amount includes geotechnical services provided by ENGEO and pipeline locating services by B and B Locating.

Additional tasks for the Biological and Cultural Restraints documents are proposed for a budget of \$41,680.

Timber Harvest Plans, if authorized as part of this Project, shall be prepared for a budget cost of \$50,000 for all pipeline phases in one THP or for a budget proposal of \$25,000 per phase.

Personnel rates charged to the City of Fort Bragg for our services will be as follows:

Principal Engineer	\$140 / hr
Senior Engineer	\$124 / hr
Project Engineer	\$108 / hr
Designer / CAD Operator	\$91 / hr
Administrative Assistant	\$65 / hr
2 Person Survey Crew	\$195 / hr

Land surveying services provided for pre-construction work such as project base mapping, pipeline route surveys and topographic surveys required for project design shall be charged at prevailing wage rates for public works projects. Typically, we do not invoice our clients mileage or equipment charges. Should KASL personnel be required to stay overnight in the Fort Bragg area to effectively complete scope of work tasks, the City would be invoiced for the actual cost of overnight lodging and meals. We believe that these costs have been adequately included in the not to exceed budget proposal presented above.

Job Description for Personnel

The **Principal Engineer** for this project shall be Jack Scroggs. His responsibilities shall include:

- Project and personnel management
- Ongoing liaison with City Public Works and Community Development Staff

- Review task findings including opportunities and constraints, alternative alignments and construction methods
- Preparation of Technical Memorandums, Task 3, Task 4, Task 5
- Preparation of Preliminary Design Report, Task 7
- Coordination of Project design meetings and review meetings
- Ongoing project reviews with the Public Works Department
- Assist City with funding applications, Task 8
- Review 60%, 90% and 100% PS&E, Task 9

The **Senior Project Engineers** for this project shall be Bill Ostroff and Charlie Moore. Their responsibilities shall include:

- Field evaluation of project opportunities and constraints
- Preparation of findings for Technical Memorandums
- Field and desktop evaluation of alternative alignments, methods of construction
- Preliminary Design Mapping, Task 6
- Develop construction costs and operation and maintenance costs for alternative alignments and alternative methods of construction
- Participate in design review meetings
- Prepare Improvement Plans, Task 9
- Develop Technical Specifications for alternative methods of construction (pipe bursting, horizontal directional drilling)

The **Project Engineers** for this project shall be Octavio Perez and Davis Barcal. Their responsibilities shall include:

- Field evaluation of existing and alternative alignments
- Assist Principal Engineer and Senior Project Engineers in the evaluation of project opportunities and constraints
- Assist Principal Engineer and Senior Project Engineers in the development and review of alternative alignments and methods of construction
- Assist in the preparation of design documents

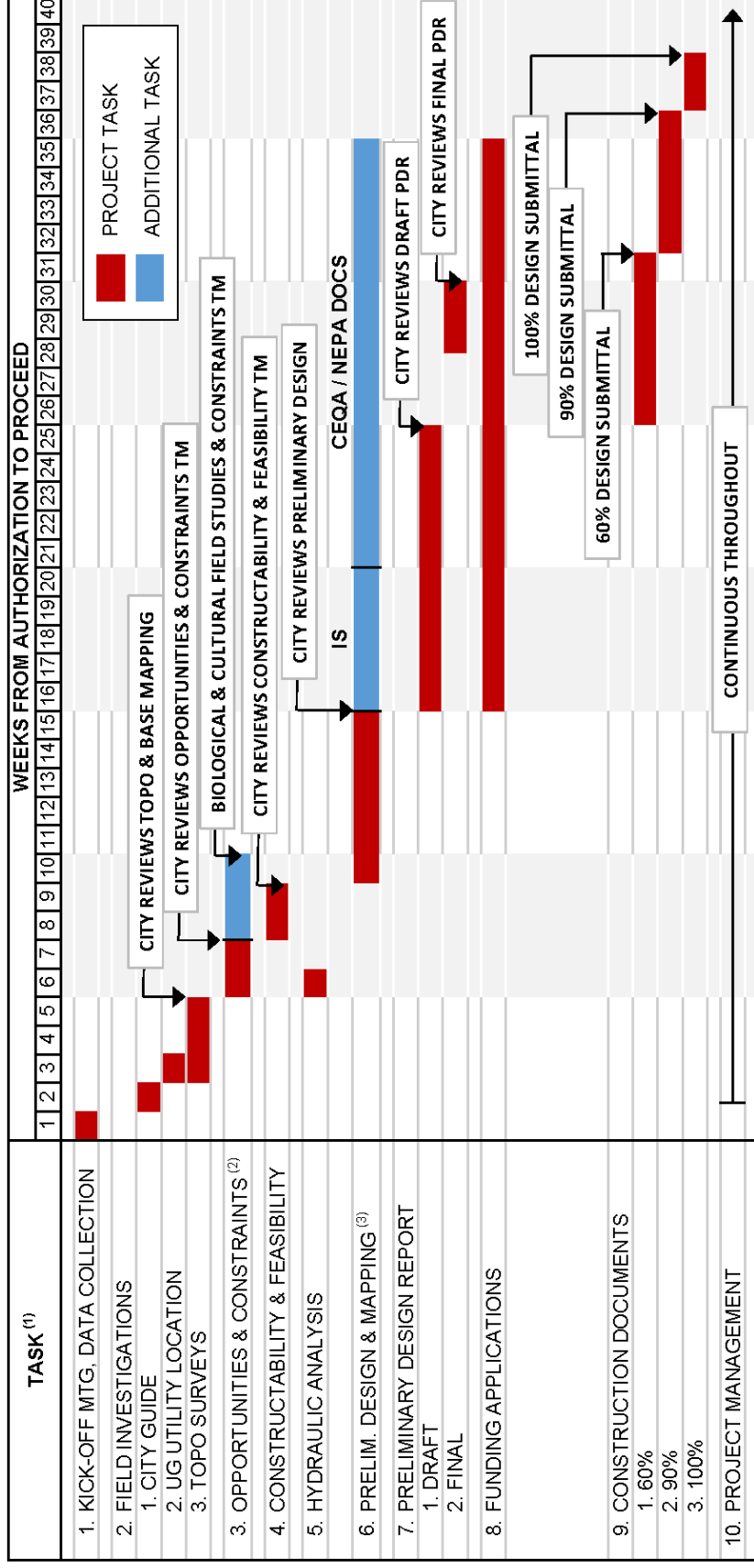
Kevin Romero (chief) and Justin Gingrich (chainman) shall serve as the **Project Survey Crew**.



PROPOSAL FOR DESIGN OF RAW WATER PIPELINE REPLACEMENT PROJECT;
PROJECT NO. 2018-02



G. WORK SCHEDULE



(1) See Tab 5, Scope of Work
 (2) Includes Time for Biological and Cultural Field Surveys and Constraint Report
 (3) Includes Prep. Of CEQA & NEPA Compliance Documents



H. INSURANCE

I. CONSULTANT AGREEMENT

H. INSURANCE

In accordance with Article 13 of the Sample Professional Services Agreement included in the City's Request for Proposal, insurance coverages currently maintained by KASL are as follows:

Commercial General Liability

\$2,000,000 Per Occurrence
\$4,000,000 General Aggregate Limit

Automobile Liability

\$1,000,000 Combined Single Limit

Umbrella Liability

\$3,000,000 Each Occurrence
\$3,000,000 Annual Aggregate

Professional Liability

\$2,000,000 Each Occurrence
\$2,000,000 Annual Aggregate

Worker's Compensation

\$1,000,000 Per Occurrence

KASL shall maintain the above listed coverage for the duration of this work. The cost to maintain these insurance coverages is included in the budget Proposal submitted under Tab F.

I. CONSULTANT AGREEMENT

We have reviewed the Sample Professional Standard Services Agreement provided with the City's RFP and take NO exception to the Agreement terms and conditions stated therein.



Phase II Project Area



Phase II Project Area



ADDENDUM NO. 1
TO REQUEST FOR PROPOSALS FOR
Raw Water Line Replacement Project
PROJECT NO. 2018-02

DATE:	September 25, 2018
TO:	RFP Interested Parties
SUBJECT:	Additions to RFP Scope of Work, Pre-bid Site Visit
REVISED SUBMITTAL DATE:	October 26, 2018 at 2:00 PM
REVISED INTERVIEW DATES (If needed):	November 2 and 5, 2018
REVISED SELECTION DATE:	November 9, 2018

This Addendum No. 1 is an update to the Scope of Work to include and encourage the use of non-trenching pipe-replacement technologies and to add easement acquisition documentation.

Additions to Scope of Work:

Replace Item 1: *"Identify and map existing pipeline location by researching and reviewing maps and by performing fieldwork. Complete land surveying and mapping of the existing pipeline route sufficient for design. Prepare easement plats and descriptions necessary to obtain the required temporary construction and permanent maintenance easements."*

Replace Item 5: *"Preparation of preliminary design and cost estimation, mapping, and a detailed project description to support applications and reports needed for seeking of project funding. Potential sources include United States Department of Agriculture (USDA), State Revolving Fund (SRF), Community Development Block Grant (CDBG) or other Federal or State agency sources. The City would like to encourage the use of trenchless technology where possible."*

The City will be holding a pre-bid, partial site visit on October 9, 2018. Interested parties please contact Diane O'Connor, Engineering Technician, at 707-961-2823 ext. 134, or doconnor@fortbragg.com.

Please sign this addendum in the space provided and include the signed copy of the addendum with your proposal documents. **NOTE THAT PROPOSALS SUBMITTED**

WITHOUT A SIGNED COPY OF THIS ADDENDUM MAY BE CONSIDERED NON-RESPONSIVE AND MAY BE REJECTED.

June Lemos, CMC, City Clerk

September 25, 2018

The undersigned has received and read this addendum.

KASC Consulting Engineers

Contractor

Signature

Name (Printed) John C. Scroggs

Date 10-26-18