Title Page

Project Title: Portola Redwoods State Park Drought Resiliency Project

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Table of Contents

Technical Proposal and Evaluation Criteria

Executive Summary

Applicant Name: Trout Unlimited, Inc., Emeryville, Alameda County, California

Trout Unlimited (TU) is acting as a Category B applicant working in partnership with Portola Redwoods State Park (PRSP). TU has obtained a letter from PRSP (attached) confirming the partnership and endorsing the submittal and content of this proposal.

Portola Redwoods State Park (PRSP), located in San Mateo County, California, sources all of its water from Peters Creek, a tributary to Pescadero Creek, which supports state- and federally-protected coho salmon and steelhead. During the drought of 2014-2015 and the current drought, PRSP shut down its water system and closed its overnight campgrounds because flows in Peters Creek fell to near-zero and could no longer support PRSP's small surface water diversion. Following the devastating impacts of the Santa Cruz Lightning Complex Fire, PRSP, which serves Santa Cruz and San Mateo Counties, and the larger San Francisco Bay Area region, is now the only remaining State Park with overnight camping in the Santa Cruz Mountains. To address the Park's water supply reliability challenges, Trout Unlimited is partnering with California Department of Parks and Recreation (DPR) and the San Mateo Resource Conservation District (SMRCD) to carry out the Portola Redwoods State Park Drought Relief Project (Project). The Project will construct a 600,000-gallon storage tank, diversion intake and pump system, pre-treatment system, and in-tank aeration system allowing PRSP to store water in the winter and operate using stored water in the summer. These infrastructure improvements will improve water supply reliability and ensure that the water system is able to serve the community, even in drought years.

Construction Start Date: September 2023

Estimated Completion Date: April 2024

Federal Facility: This Project is not located on a Federal facility.

Project Location

The Project is located at Portola Redwoods State Park in San Mateo County, California, approximately 8 miles southwest of the town of La Honda (Figure 1).

Lat/Long: 37.2576, -122.2154

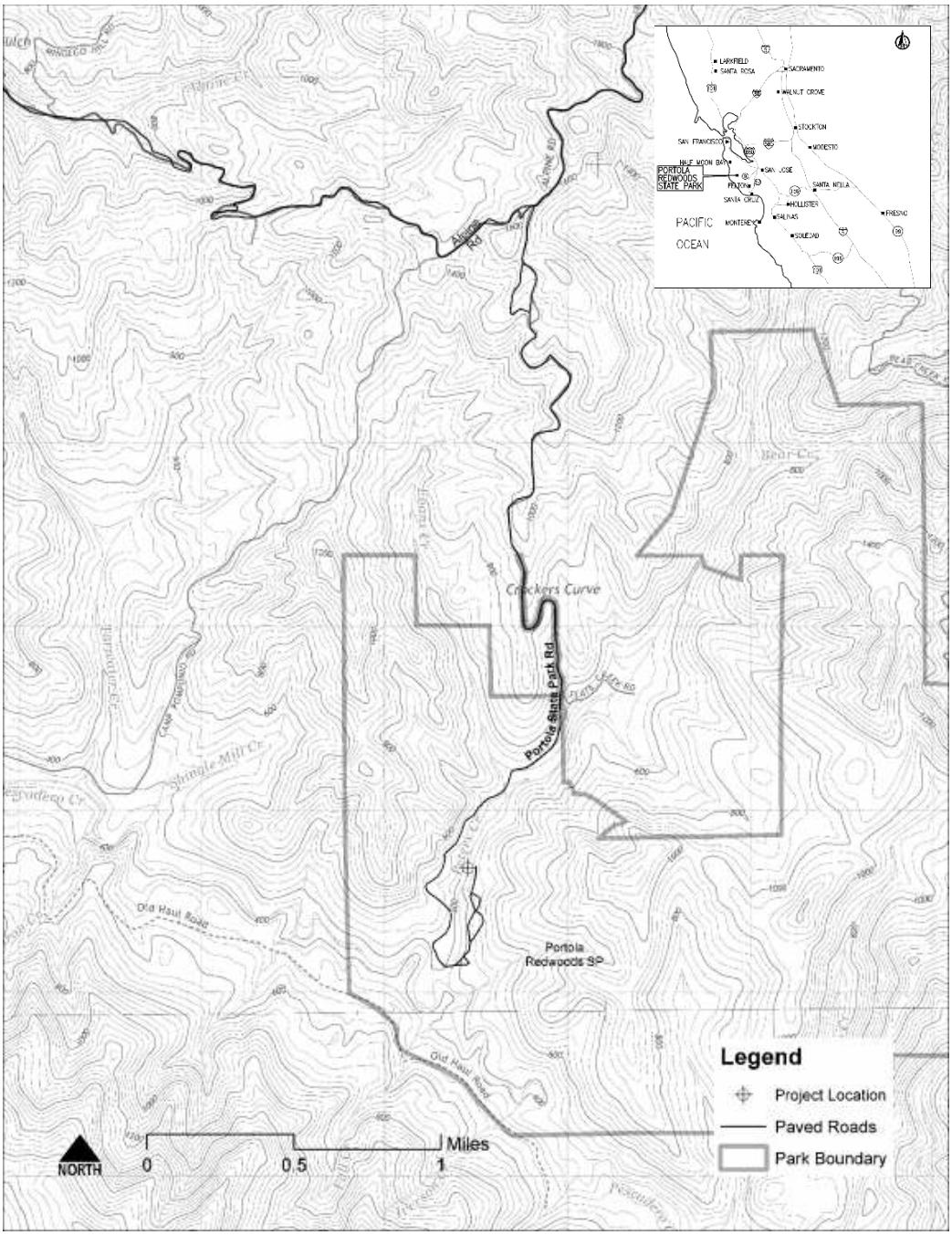


Figure 1. Project location on the USGS Mindego Hill and Big Basin topographic maps.

Technical Project Description

This Project will construct additional storage capacity and water system improvements according to the attached 97% Plans (Attachment 1), which will allow the Park to operate on stored water between June 15th and October 31st of each year, eliminating the Park's dependence on surface flows during that time. The 97% Plans show the

configuration of the existing water system and the proposed system improvements, which include the following:

- **Diversion Facilities**: The diversion facility will consist of one diversion hose, equipped with an approved fish screen, installed with a hoist above the creek. The diversion facility will be designed to intake water in the area immediately downstream of the existing instream diversion structure where the submersible pump is currently located. This new configuration will improve the resiliency and accessibility of the diversion facilities by eliminating the need to manually move a pump in and out of the creek bed and preventing any damage to pumping facilities from heavy storm and runoff conditions.
- **New Raw Water Pump Station**: Two sets of variable frequency drive (VFD) controlled raw water pumps are proposed to be installed at a new raw water pump station located at the clearing in the vicinity of the diversion point, as follows:
    - One set of pumps (active + standby) will be sized to draw water from Peters Creek and deliver it to the existing 2,500-gallon raw water feed tank and water treatment plant (WTP) at a flow rate of 10-15 gpm.
    - One set of pumps (active + standby) will be sized to draw water from Peters Creek at a flow rate of 35 gpm and deliver it to the new raw water storage tank located 158 feet in elevation above the new raw water pump station. TU is working with the SWRCB to approve this increased diversion rate during the wet season. This set of pumps will also account for the head loss through the new pre-treatment facilities.
- **New Raw Water Storage Facility:** A new 600,000-gallon raw water storage facility is proposed at the previously identified site, located southeast of the existing 50,000-gallon potable water storage facility. This new raw water storage capacity will increase supply reliability during the dry season, provide additional operational flexibility and reduce PRSP's dependency on Peters Creek's varying seasonal flows. Water will be diverted in the wet season and maintained in the raw water storage tank throughout the dry season.
- **New Raw Water Conveyance System:** The raw water conveyance system will consist of approximately 2,900 linear feet (LF) of underground PVC C900 pipes and a small amount of above-ground ductile iron piping, as follows:
    - Approximately 650 LF of 4" C900 PVC pipe will be installed between the creek diversion pump house and the pre-treatment facility;
    - Approximately 1,100 LF of 4" C900 PVC pipe will be installed between the pre-treatment facility and the raw water tank inlet;

    - Approximately 1,100 LF of 6" C900 PVC pipe will be installed between the raw water tank outlet and the water treatment plant;
    - Ductile iron pipes will be used for above-grade purposes, with transitions between ductile iron and PVC C900 installed on an as-needed basis; and
    - Isolation valves, as a minimum, will be provided at the inlet and outlet at each facility.

- **New In-tank Aeration System:** An aeration system will be installed at the new raw water tank to maintain oxygen levels and aerobic conditions in the tank for the duration of the storage period.
- **New Pre-Treatment Facility:** A new pre-treatment facility is proposed to be installed southeast of the existing WTP, at the site that previously housed a 5,000-gallon tank. The pre-treatment facilities were designed based on the creek's raw water quality to reduce sediment loading, turbidity levels, and the presence of organics, pathogens, and taste and odor compounds. The proposed pre-treatment facilities include a 100-micron screen filter, followed by two 50-micron bag filters in parallel, two 10-micron bag filters in parallel, and a GAC treatment step. The new pre-treatment facility will reduce the raw water turbidity, taste and odor, and organics prior to storage at the new raw water storage facility.

TU is requesting BOR WaterSMART funding for the following physical components:

- Diversion intake structure
- Diversion pumps and appurtenances
- Skid-mounted filtration system
- Skid-mounted UV system
- Backwash pump and appurtenances
- Raw water piping at the tank site
- Raw water supply and return lines

Funding is also being requested for project management and administration of the award and engineering services during construction.

Performance Measures

Project effectiveness is being evaluated through a monitoring plan funded by the California Wildlife Conservation Board through Agreement # WC-2003AP. The goal of the monitoring plan is to evaluate the effectiveness of the project in 1) improving drought resiliency through greater operational flexibility, and 2) improving important stream flow and water quality parameters in Peters and Pescadero Creeks downstream from the point of diversion. The Monitoring Plan seeks to answer the following questions:

- When are streamflow conditions adequate/inadequate to support diversion from Peters Creek for Park water supply purposes?
- What are the magnitudes of stream flow and water quality enhancements associated with summer forbearance?
- How far downstream do the enhancements extend?
- What, if any, adaptive management should be implemented to minimize the effect of diversion?

The specific metrics used to evaluate surface water conditions and the effectiveness of the project in improving stream flow and water quality conditions are:

- Stream discharge using a depth-discharge rating curve
- Temperature
- Dissolved oxygen (DO) concentration

Starting in 2020, TU installed three monitoring sites, each consisting of a stream gage, staff plate, dissolved oxygen (DO) logger, and temperature logger. Each stream gage consists of a pressure transducer and data logger. The stream gage, and the DO and temperature loggers record measurements at 15-minute intervals. TU's Conservation Hydrology Team developed depth-discharge rating curves for the stream gages.

Data collection follows USGS protocols for gage installations. The gage network is spatially distributed between the POD and Loma Mar (8 miles downstream from the POD) to monitor changes in the hydrograph and water quality parameters associated with summer forbearance.

Pre- and post-project datasets will be compared to evaluate the effectiveness of the project at enhancing streamflow and water quality.

In addition to automated data collection, TU manually measures stream flow year-round at approximately monthly intervals during the summer season, and at approximately six-week intervals during the winter season (using methods outlined by CDFW's Standard Operating Procedures for Discharge Measurements in Wadeable Streams in California).

During site visits, Trout Unlimited field crews download data from pressure transducers and take photos of reach conditions. Field data is uploaded to Trout Unlimited's streamflow database. Complete streamflow records will be entered into the California Environmental Data Exchange Network (CEDEN) at the end of the project.

Data loggers are installed in spring and removed in the fall of each year to protect the equipment from winter stormflows. The stream flow and temperature datasets will be compared to data from USGS gage #11162500 to characterize the relationship between flows and temperatures in Peters Creek and lower Pescadero Creek. If a relationship can be established, the USGS gage will provide a tool for extending the monitoring of stream conditions in the upper watershed beyond the performance period.

Project Benefits

Long-Term Drought Resilience

The project's overall goals are to 1) increase drought resiliency and minimize the Park's vulnerability to drought, 2) improve fire-suppression capability, and 3) improve conditions for protected fish species by eliminating summer diversion from Peters Creek.

The Project is expected to operate indefinitely due to the durability of the components. The proposed 600,000-gallon storage tank will be constructed of glass-fused-to-steel panels, which are highly corrosion-resistant and do not require re-application of corrosion protection.

PRSP draws 100% of its water supply from a diversion in Peters Creek about 1/2 mile above its confluence with Pescadero Creek. Late summer flows are unreliable and threaten the operation of the Park. In summer of 2014, 2015, and 2021, the lack of flow in Peters Creek caused Park staff to close the Park to overnight visitors and install portable toilets for day-use visitors to conserve water.

The Project will improve PRSP's drought preparedness by eliminating the Park's reliance on Peters Creek as a water source during the summer. In addition, the project will implement substantial water conservation measures to reduce water demands, which will better prepare PRSP for potential drought impacts to the water source by reducing the amount of water required to keep the Park in operation. The Project will also improve fire suppression capabilities by providing increased storage and an improved connection point for hydrants.

In addition to eliminating the Park's reliance on unreliable stream flows, the Project will also provide an important benefit to protected fish species that rely on streamflow for survival. Determining the length and timing of the appropriate forbearance period involved tradeoffs between the impacts of the diversion on streamflow and aquatic life, and practical limitations posed by water needs and site constraints limiting the volume of storage that can feasibly be installed. For this project, site constraints place an upper limit on the feasible size of storage at ~600,000 gallons (see discussion in the section below). Based on the water use analysis discussed above, this volume of storage enables a proposed forbearance period of June 15 – October 31, which will be protective of streamflow and aquatic life based on a conservative analysis of hydrologic data from the watershed.

In general, diversion rates of 10% or less of ambient streamflow are associated with a high level of ecological protection, while rates between 11% and 20% provide a moderate level of protection (Richter, et al. 2012). Accordingly, in setting the dates of the proposed annual forbearance period, our objective was to ensure to the maximum extent possible that the Park's diversion will not take more than 10% of the ambient flow of Peters Creek. During the summer and fall the Park's diversion is limited to 12 gpm, or

.027 cfs. Therefore, diversion will not exceed the 10% threshold so long as ambient flow in Peters Creek at the POD remains above 0.27 cfs. To develop a proposed starting date for the annual forbearance period, we analyzed historical streamflow data to determine the point in the annual spring recession when streamflow can be expected to fall below this level in various water year types.

Eliminating diversion from June 15 to October 31 in the critical low-flow period will improve water quality and habitat conditions in Peters Creek for coho salmon and steelhead which are protected species under State and Federal Endangered Species Acts. Streamflow is identified as a limiting factor in the Pescadero Creek watershed in the CDFW and NMFS recovery plans for CCC coho salmon (CDFW 2004, NMFS 2012). CDFW found that "reduced flow and water depth during dry months and periods of drought may… limit the distribution of rearing juveniles" (DFG 2004). The project will reduce the limiting factor of low streamflow in Peters Creek and upper Pescadero Creek The project will effectively eliminate human-caused impairment of streamflow in Peters Creek and reduce impairment in Pescadero Creek, since the Park represents the only summertime diversion on Peters Creek, and is the largest diverter in the upper Pescadero watershed. Elimination of summer diversion on Peters Creek will increase streamflow by 12 gpm and improve DO and temperature conditions in critical habitat units for rearing salmonids.

Multiple institutional controls and design criteria will ensure the Project will be operated and maintained according to its intended purpose over time:

- The term of WCB Agreement # WC-2003AP is 20 years, and both TU and DPR are signatories to the Agreement. This Agreement will ensure long-term management of the diversion according to its terms and conditions.
- The MOA between DPR and MCRCD negotiated during the planning phase will be executed prior to construction.
- A Lake and Streambed Alteration Agreement (LSAA) under FGC § 1602 with diversion terms consistent with the Project's purpose will be administered by CDFW and renewed every five years.
- The proposed 600,000-gallon raw water storage tank and foundation will meet or exceed seismic requirements.
- The tank will be made from highly corrosion-resistant glass-fused-to-steel bolted panels. Glass-fused-to-steel panels do not require re-painting and have the highest longevity of any bolted-steel tank material.
- The proposed pump and pre-treatment facilities will be constructed of durable components and housed in a pre-cast or CMU concrete enclosures to protect the system from weather, falling debris, and fire.

<u>Additional Water Supply Availability</u>

In drought years, the Project will make additional water supplies available during drought years by storing 1.8 acre-feet of winter water and making it available for use in

summer. While drought frequency is challenging to predict as a basis for computing the average annual benefit over ten years, there have already been three extreme drought years in the past 10 years that have forced the Park to shut down its diversion. The Park is anticipating shutting down again in the summer of 2022, for a total of four years of dry-season shut-down over the ten-year 2013-2022 period. Thus, the average water supply availability associated with this Project is estimated to be 0.7 acre-feet per year over ten years. This quantity of water represents ~10% of the Park's total average annual water usage. Since most water usage occurs in the peak season, which roughly coincides with the forbearance period, during drought years, the Project's water supply represents 90% of the Park's total water supply.

Improved Operational Flexibility and Efficiency

The Project will increase operational flexibility by storing winter water and making that water available in summer, which will allow the Park to remain open during drought years when streamflow is insufficient to keep the Park operating.

In addition, the Project will improve operation efficiency by 1) allowing the Park to selectively divert water from Peters Creek during times of relatively low turbidity, relieving the filtration and treatment burden on the existing Water Treatment Plant (WTP), and 2) providing a robust pre-treatment train which will further reduce the operational burden on the existing WTP by reducing raw water sediment and TOC levels ahead of the WTP treatment train, and greatly improve the quality and consistency of the raw water supply. With respect to operational efficiency, the Project will provide for pre-treatment of 100% of the Park's water supply.

This Project will install the following new instrumentation, which will be integrated into the Park's existing SCADA system and will provide new data streams to system operators:

- Pump House:
    - Discharge pressure transmitter
    - Discharge magnetic flowmeter
    - Intrusion switches on enclosure doors
    - Raw water turbidimeter
- Raw Water Storage Tank:
    - Ultrasonic level transmitter
    - Low-Low/Low/High/High-High float level switches
    - Intrusion switches on enclosure door and tank hatches
- Pre-Treatment Facility:
    - Flow meter
    - Discharge pressure transducer
    - Intrusion switches on enclosure doors

This Project will significantly improve diversion operation, reduce WTP maintenance intervals and backflush requirements, and is anticipated to improve overall potable water quality.

Drought Planning and Preparedness

California Water Action Plan (California Natural Resources Agency, CFDA, and Cal EPA 2016)

This project implements the objectives of the California Water Action Plan (CWAP), which can be found at: https://wildlife.ca.gov/Conservation/Watersheds/Instream-Flow/Action-Plan

The primary objectives are 1) more reliable water supplies, 2) restoration of important species and habitat, and 3) a more resilient sustainable managed water resources system. The project implements CWAP's specific recommendation (Action 4 – Protect and Restore Important Ecosystems – Restore Coastal Watersheds) to expand storage to address drought and climate change. It states: "The Department of Fish and Wildlife in coordination with other state resource agencies and other stakeholders, as appropriate, will develop at least 10 off-channel storage projects…along the California coast in strategic coastal estuaries to restore ecological health and natural system connectivity, which will benefit local water systems and help defend against sea level rise." The CWAP was written specifically to provide a statewide roadmap to address drought and climate change (e.g., see page 2).

The project advances the CWAP by providing California State Parks with a more reliable water supply, thereby benefitting both a local, public water system and also public access. (The Park closed to overnight camping in 2014 because the Park's water supply was too low to accommodate camping; the closure received extensive media coverage). In addition, the project increases the resiliency of the Park's water supply to climate change by providing winter storage that reduces reliance on uncertain summer streamflow. In conjunction with that benefit, the project improves instream habitat conditions (flow, temperature, and dissolved oxygen levels) for ESA-listed salmonids by enhancing streamflow during the summer critical flow period.

California Drought Response

This Project advances California's drought response effort (https://drought.ca.gov/state-drought-response/) and is consistent with California Executive Order N-7-22, which encourages water suppliers to go above and beyond required drought contingency plans by activating more ambitious measures.

This Project received funding from the California Department of Fish and Wildlife's drought response funding stream through Agreement # Q2130005. More information about CDFW's drought response partnerships can be found at:

https://wildlife.ca.gov/News/state-agencies-partner-to-support-salmon-population-while-supplying-water-to-millions-of-californians

It also advances the California Department of Fish and Wildlife and the National Oceanic and Atmospheric Administration's Voluntary Drought Initiative (VDI). It specifically advances the Targeted Flow Conservation Actions: "Targeted Flow Conservation Landowners or Water Users are encouraged to consider and apply targeted water conservation strategies that minimize the potential for water use to impact the critical survival needs of priority salmon, steelhead, and sturgeon populations….Landowners or Water Users who contribute minimum instream base flows, periodic fish passage pulse flows, or both can help improve the likelihood of salmon, steelhead, and sturgeon survival during abnormally dry climatic conditions." Information on the VDI is available here: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=193837

California State Parks Cool Parks Strategic Initiative

This project is the type envisioned by California State Park's climate adaptation strategy. More information is available at this link: https://www.parks.ca.gov/pages/24872/files/brochure-climatechange.pdf.

Specifically, the project advances the Adaptation prong of the strategy, which states: "Our field staff has assessed potential climate-related threats to park facilities statewide. Plans are being developed to adapt park infrastructure accordingly. Natural resources specialists are identifying the State Park System's environmental resources that are most vulnerable to climate change. This information will help managers as they monitor and address impacts on habitats and species."

California Water Resilience Portfolio (California Department of Natural Resources, CalEPA, California Department of Food and Agriculture)

This project implements Action 9.3: "Bring together regulators, tribes, water users, public water agencies, non-governmental organizations, and other stakeholders to develop innovative, voluntary solutions to water supply, water quality, and ecosystem protection."

Recovery Plan for the Evolutionarily Significant Unit of Central California Coast Coho Salmon (NMFS 2012)

This project implements Final Recovery Plan for Central California Coast coho salmon Evolutionarily Significant Unit Task 4.1.1.2: "Promote off-channel storage to reduce impacts of water diversions". The Plan can be found at: https://www.fisheries.noaa.gov/resource/document/recovery-plan-evolutionarily-significant-unit-central-california-coast-coho

California State Wildlife Action Plan: 2015 Update (CDFW 2015)

The project, and the unique public educational opportunities it provides address recommended actions for the North Coast (Chapter 5.1):

- Conservation Strategy 2 (Outreach and Education): Increase public awareness of the negative impact to fish from excessive water use and how water conservation measures would benefit fish.
- Conservation Strategy 7 (Direct Management): Promote water conservation measures by…providing incentives for water conservation, and encouraging public participation in enforcement of wasteful use of water...

Sustainability and Supplemental Benefits

Environmental Benefits

This Project will enhance streamflow in Peters Creek by 12 gpm during drought years, which represents a significant percentage of measured streamflow. In coastal California watersheds, relatively small increases in streamflow can make a critical difference in habitat conditions and over-summer survival of juvenile salmonids (Obedzinski, et al., 2018). Streamflow will be enhanced below the point of diversion in Peters Creek and Pescadero Creek during critical summer flow periods, especially in drought years.

Pescadero Creek (80 square miles) is regarded as one of the most important streams for anadromous salmonids on California's central coast (NMFS 2012). Its largely undeveloped area, ample rainfall, and large basin area provide suitable spawning and rearing for steelhead and coho salmon.

The Pescadero Creek watershed historically supported large, persistent, and independent populations of Central California Coast (CCC) coho salmon and steelhead. Recent observations suggest that coho salmon may be extirpated or on the verge of extirpation from Pescadero Creek (NMFS 2016). Although abundant coho salmon were reported as recently as the late 1950s, they are now at extreme risk of extirpation, with only sporadic sightings in the watershed in the last two decades (NOAA 2012). Steelhead were likewise abundant in past decades (Environmental Science Associates 2004). While a remnant recreational steelhead fishery still exists, their numbers have declined by orders of magnitude from historic levels (Environmental Science Associates 2004). Despite the decline of both species, the watershed's largely undeveloped area, ample rainfall, improved land-use practices, and large basin area present a high potential for salmonid recovery (CEMAR 2014, NOAA 2012).

Peters Creek, the largest tributary in the upper Pescadero Creek watershed, offers the best opportunity to restore cold, headwater habitat for salmonids. ESA's 2004 watershed assessment found the best spawning and rearing habitat is located in the upper watershed where development is less intense, and noted that Peters Creek was the last place juvenile coho were documented in the Pescadero watershed, when a 1999 survey found five fish there (Environmental Science Associates 2004). However,

in February 2015, three adult coho carcasses were observed in lower Peters Creek (Jon Jankovitz, CDFW biologist, pers. comm. March 2015), suggesting that Peters Creek may represent the best opportunity for recovering coho salmon in the Pescadero Creek watershed.

Park staff have directly observed pumping for the water system to have a visible impact on flow in Peters Creek during the late summer, when stream flows are lowest, and when staff have contemporaneously observed juvenile salmonids at the diversion site. In the summer of 2014, 2015, and 2021 Park staff stopped diversion, closed the park to overnight visitors, and installed portable toilets to conserve water, to avoid dewatering rearing pools containing juvenile salmonids and other aquatic species.

While fish passage for juvenile coho in the Pescadero watershed is generally good (NMFS 2012), State and Federal fisheries agencies identified inadequate summer flow as a primary limiting factor to salmonid production in the Pescadero Creek watershed (NMFS 2012, CDFG 2004). According to CDFW, “Reduced flow and water depth during dry months and periods of drought may impede migration of adult and juvenile coho salmon between storms and limit the distribution of rearing juveniles” (DFG 2004). Streamflow in the upper watershed typically falls to baseflow levels between July and October; in the dry year 2013, streamflow in Pescadero Creek near the Peters Creek confluence hovered around 0.5 cfs (CEMAR 2014). These levels are associated with diminished rearing habitat quality and quantity for salmonids.

Recovery Task 4.1.1.2 of the federal recovery plan for CCC coho salmon calls for addressing the limiting factor of low streamflow in Pescadero Creek by “promot[ing] off-channel storage to reduce impacts of water diversions (e.g. storage tanks for rural residential users)” (NMFS 2012). This Project will reduce the limiting factor of inadequate flow and implement Recovery Task 4.1.1.2 by constructing off-stream tank storage that will enable the Park to eliminate diversion from Peters Creek during the critical low-flow period during the dry season. The Project will also execute a forbearance agreement to ensure these water management changes will be carried out and water left instream.

Climate Change

This Project offers an innovative solution for increasing human water supply reliability while protecting endangered aquatic species in the face of climate change impacts. In addition, this project may serve as a model project for rural climate change adaptation. Similar systems may be constructed to allow small communities of rural water users to adapt to potential reduced stream flows associated with climate change projections.

Benefits to Disadvantaged or Underserved Communities

This Project will enhance a site that provides public access and enhances public recreational opportunities within 25 miles of several disadvantaged community place-, tract-, and block-units in San Mateo, Alameda, Santa Cruz, and Santa Clara Counties.

In addition, TU's policies ensure to the fullest extent possible that, in procuring goods and services, funds shall be made available to Disadvantaged Business Entities (organizations owned or controlled by socially and economically disadvantaged individuals, including women- and minority-owned businesses).

Severity of Actual or Potential Drought Impacts

Drought impacts along California's Central Coast are especially severe. As of June 2022, the Central Coast of California is currently in Severe Drought. Over the 2013-2022 period, San Mateo County has experienced 42 non-consecutive weeks (9.5 months) of Exceptional (D4) Drought, and 242 non-consecutive weeks (4.7 years) of Severe (D2) Drought (droughtmonitor.unl.edu). The sectors represented by this Project (recreation and tourism) have begun to experience drought impacts due to Park closures, and without adaptive solutions, will decline, and the surrounding community will experience economic losses.

Project Implementation

Project Management

The project will be managed by Trout Unlimited (TU). TU will coordinate all phases of the project. TU will subcontract certain tasks to the following consultants and contractors:

- The San Mateo County Resource Conservation District (RCD) will provide technical design and permitting support, manage construction contractor procurement and contracting, and will provide project management support and biological monitoring during construction.
- The RCD and California Department of Parks and Recreation (DPR) will execute an Inter-Agency Memorandum of Agreement (MOA) for the construction of the Project. The purpose of the MOA is to formalize the RCD's responsibilities for carrying out the Project, secure construction access, and formalize DPR's responsibilities for the operation and maintenance of the Project following construction.
- SRT (Project Engineer) will complete the final designs, provide permitting support, and provide construction oversight.
- The RCD will subcontract to a general construction contractor for construction of the Project.
- TU will subcontract to California Aquastore to manufacture, deliver, construct, and test the storage tank. TU currently has a contract with California Aquastore to support the completion of the final designs prior to construction.

- DPR will subcontract to an electrical subcontractor to construct the electrical portion of the project, including pump power supply and connections, pre-treatment power supply, in-tank aeration power supply, etc.
- DPR will subcontract to a SCADA control subcontractor to integrate the storage system into Park's SCADA system.
- The Santa Cruz Mountains District of California State Parks will provide cost-share in the form of personnel time and fixture upgrades to implement water conservation for storage and forbearance.
- The California Conservation Corps will assist with various construction subtasks including clearing and grubbing, and erosion control BMPs.

Qualifications

Trout Unlimited

TU is a national conservation organization with extensive experience in planning and implementing multi-benefit projects to enhance native fish populations and improve water management throughout the western United States. Through its Western Water Project, TU has worked with farmers, ranchers, irrigators, irrigation districts, state parks, municipalities, and other water users to improve flows and increase drought resilience through on-the-ground water projects and transactions.

In California, TU actively works to advance streamflow enhancement in salmon and steelhead habitat -- through cooperative instream flow projects, water law and policy changes, a robust Conservation Hydrology program, and a solid history of partnerships with local partners and stakeholders. The scope of our cooperative work includes fourteen California watersheds in Humboldt, Mendocino, Tehama, Sonoma, Marin, San Mateo, Santa Clara, Santa Cruz, Monterey, and San Luis Obispo Counties.

TU has six full-time staff positions dedicated to coastal water work, providing the necessary capacity to implement this project. Mary Ann King (California Water Project Director) and Matt Clifford (California Water Project Attorney) will oversee this project and provide water rights scoping and permitting support.

San Mateo Resource Conservation District

The San Mateo Resource Conservation District has a 78-year history of helping people protect, conserve, and restore natural resources through partnerships and collaboration with land owners and managers, technical advisors, area jurisdictions, government agencies, and others. Formed in 1939 in partnership with the USDA Natural Resources Conservation Service (formerly Soil Conservation Service), San Mateo County formed the first soil conservation district in the State of California. The RCD and NRCS Local Partnership Office use diverse means with which to further resource conservation acting as a focal point for local conservation efforts on public and private lands. Through partnerships and collaboration, the RCD and NRCS, implement, plan, and design

projects with landowners, managers, technical advisors, area jurisdictions, government agencies, and others to reach conservation goals.

The RCD and its partners have worked on a variety of projects - building and restoring agricultural ponds, improving irrigation efficiencies, removing fish passage barriers, restoring riparian habitat, and improving irrigation systems - in San Gregorio, Pilarcitos, Gazos, Pescadero – Butano, and various other San Mateo County coastal watersheds. The RCD has secured over $10.5 million in grants (Department of Water Resources Prop 84, NOAA, Wildlife Conservation Board Prop 1 and private funds) to complete water storage and efficiency projects through 2021. The projects completed or planned by RCD and its partners from 2012 through 2021 totals 155+ Acre Feet (AF) of water storage and 175 AF of water conservation per year.

Funding

Please see Funding Plan below.

Design

In 2017 and 2018, TU developed preliminary design drawings and an accompanying design memo. In March 2021, TU procured SRT Consultants (SRT) to serve as the project engineer and complete 100% designs. In March 2022, SRT submitted 97% designs and basis-of-design report (BOD) for review (attached). Construction-ready (100%) designs are nearing completion and are expected to be completed in July 2022. State Parks will contract with SRT to write an Operations Plan for the Park's water system.

Contracting

TU procured California Aquastore, the tank supplier/installer. California Aquastore is awaiting authorization to begin manufacturing the tank following completion of the 100% designs.

Permitting

State Parks filed a California Environmental Quality Act (CEQA) Notice of Exemption (NOE) under Sections 15303, 15304, and 15333 of the California Public Resources Code. Parks also provided a letter stating this project is on State land and is not subject to County planning department approval.

The Project calls for a new appropriative right to facilitate a higher instantaneous rate of wintertime diversion (35 gpm vs 12 gpm), which will expedite filling the tanks during times of low turbidity. In addition, pumping selectively during times of low turbidity will improve filtration efficiency and conserve water by reducing the amount of water needed to backflush suspended solids from the filters.

Since this Project proposes an increased rate of wintertime diversion to fill the new storage system, a water availability analysis was performed for the water right

application in the planning phase. The analysis shows that this effect will be insignificant, since 97.53% (27,369 acre-feet) of unimpaired flow during that period remains unappropriated, and the additional 1.85 acre-feet of proposed winter storage would increase that percentage by an insignificant amount (about .07%).On behalf of State Parks, Trout Unlimited submitted a pre-application for the new appropriative water right to the State Water Resources Control Board and is awaiting review.

Trout Unlimited is working with CDFW biologists on a Lake and Streambed Alteration Agreement for the diversion. A draft Lake and Streambed Alteration Notification is attached.

TU submitted the 97% designs to the National Marine Fisheries Service (NMFS) Central Coast Branch for review. TU will incorporate NMFS comments into the final design and will work with NMFS biologists to incorporate species protection measures into the water system Operations Plan.

Work Plan and Schedule

Task 1. Project Management and Grant Administration

TU will provide technical and administrative services associated with performing and completing the work for this Project, including managing this Agreement, oversight of subcontractors and administering subcontracts, budget tracking, invoicing and payments, drafting and finalizing progress and final reports, and data management.

Deliverables: copies of subcontracts, invoices and progress reports, final report

Task 2. Construction

TU's subcontractor MCRCD will procure construction contractor(s) and construct the project according to the 100% designs and specifications. MCRCD will oversee and coordinate all construction activities. MCRCD biologists will oversee the implementation of species protection measures during construction.

TU's subcontractor SRT will provide engineering support during construction (ESDC). ESDC activities will include the following:

- Provide project-specific training to SMRCD Construction Manager in the following areas to enable SMRCD to conduct daily construction oversight:
    - Grade checks and compaction tests, QA/QC, verification of BMPs
    - Critical project sequencing, identifying critical project waypoints and milestones, and understanding when to engage SRT engineers for on-the-ground monitoring.
- Support SMRCD Project Manager by being onsite during critical construction phases and working collaboratively when negotiating change orders or resolving disputes.
    - Participate in weekly construction progress meetings or teleconferences.

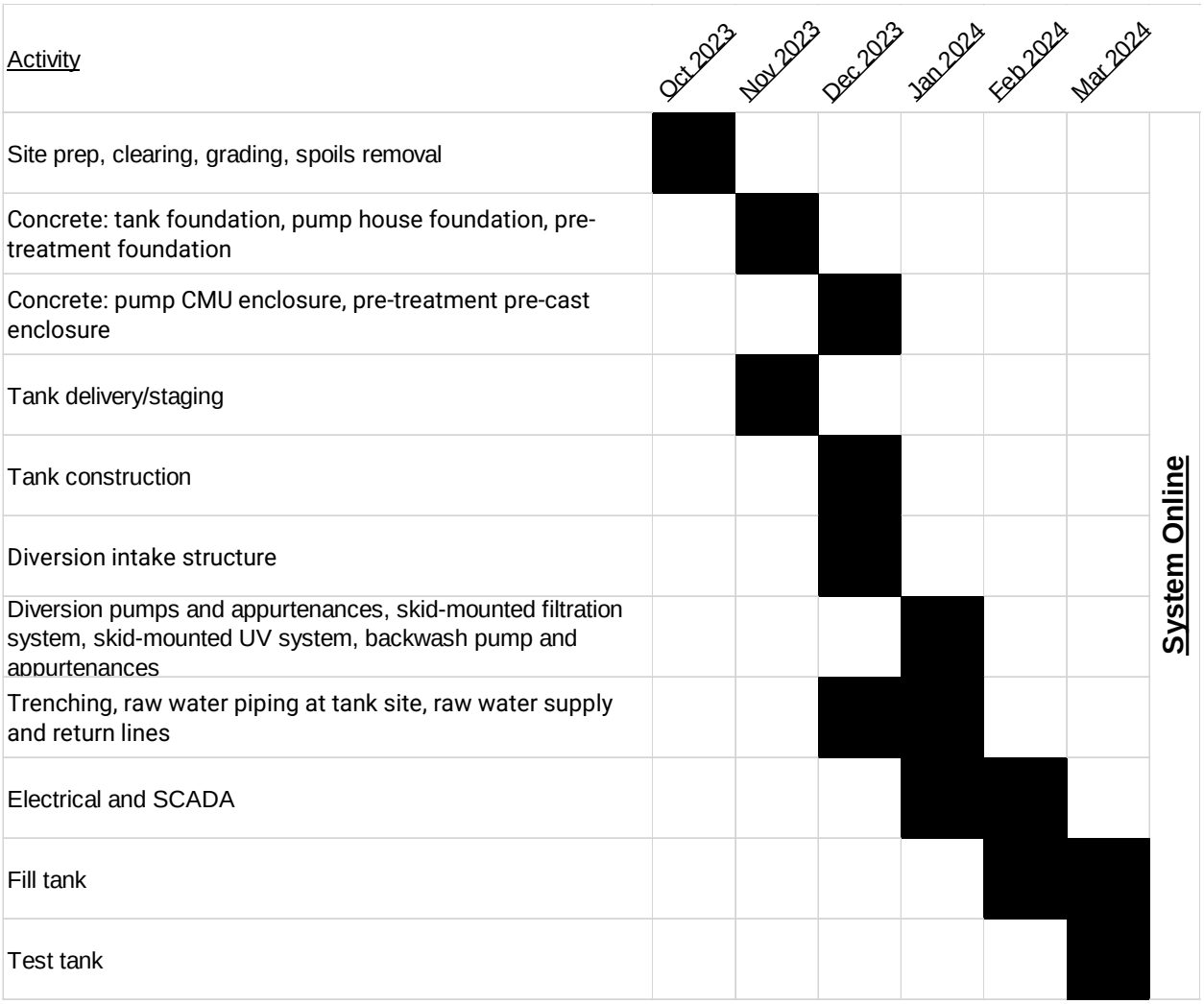
- Respond to RFIs and review design drawing submittals
- Completion and submittal of as-built drawings/documentation

Deliverables: monthly construction logs, as-built drawings

Construction Schedule

The anticipated construction schedule is shown below in Table 4. The construction schedule was developed to avoid marbled murrelet nesting season (March 24 – September 15) and the Park's peak visitation season.

Table 1. Implementation schedule.



Nexus to Reclamation

While PRSP does not receive water from Reclamation, this project will benefit from a Reclamation activity. San Mateo County and other Bay Area Counties depend on the Hetch Hetchy Regional Water System, which is vulnerable to climate change and

drought impacts. These Counties seek to reduce dependence on imported water and diversify their water supply (San Mateo County Civil Grand Jury 2013). The agencies responsible for operating the Hetch Hetchy Regional Water System received grant funding from BOR to conduct pilot studies to evaluate opportunities to increase regional water supply reliability (San Francisco Public Utilities Commission Annual Report Fiscal Year 2019-2020). The storage and forbearance project type offers a potential tool in the toolkit for advancing BOR's efforts to diversify the regional water supply and improve drought resiliency within the region. Additionally, this project provides an important, publicly visible demonstration of the Storage and Forbearance Project Type by virtue of its location at a popular State Park serving the greater Bay Area.

Funding Plan and Letters of Commitment

Between 2016-2018, TU received funds from the California Department of Fish and Wildlife's (CDFW) Fisheries Restoration Grant Program (FRGP) to complete initial designs and permitting for the Project. In 2020, TU executed Agreement WC-2003AP (attached) with the California Wildlife Conservation Board (WCB), which provides $1,875,977 for final designs and construction. In May 2022, TU executed Agreement Q22130005 (attached) with CDFW for an additional $499,972 for design and construction. California Department of Parks and Recreation (DPR) has committed to providing an additional $500,000 for construction (commitment letter attached) through an interagency agreement between DPR and SMRCD. TU is requesting $1,459,159 from BOR which would fully fund the Project. Table 2 below shows a summary of Federal and non-federal costs. Table 3 below shows a summary of Federal and non-federal funding sources. Table 4 below shows an itemized budget for all costs for which TU requests BOR funding.

Environmental and Cultural Resources Compliance

Impacts and Avoidance and Minimization Measures

Ground-disturbing activities include grading and compaction of the foundations for the tank, pre-treatment facility, and pump house, and trenching for the raw water supply and return lines. With the exception of the raw water tank and tank pad, grading and construction will occur in previously-graded areas which are currently part of the water system area of operation and experience frequent vehicle or foot traffic. Trenching will primarily occur in existing roads.

TU will work with resource agencies to incorporate avoidance and minimization measures into the project design. Some proposed measures are discussed below, however the measures are not exhaustive and a comprehensive set of measures will be incorporated into the project design.

The contractor(s) will be required to apply water as needed to minimize dust. Work will be conducted during the Park's fall/winter off-season to avoid noise and traffic impacts to recreation. Erosion control measures such as silt fence, coir rolls, wattles, weed-free straw mulch, will be utilized to avoid impacts to water quality. Soil stockpiling will be minimized and temporary soil stockpiles will be tarped with plastic sheeting to avoid mobilization of fine sediment during rain events. Whenever the project biologist determines it necessary, wildlife exclusion fencing will be utilized to exclude animals from the work area. See below for additional species-specific measures.

Marbled murrelet may be present near the work site. Work will be conducted outside of the marbled murrelet nesting season (March 24 – September 15) to avoid impacts to nesting birds.

California red-legged frog and San Francisco garter snake are known to occur near the project site. A preconstruction survey of the work area for herps and amphibians will be conducted by the project biologist within 24 hours of the start of construction. The biologist or biologist's designee will conduct daily surveys of the work site and around and under equipment at the beginning of each work day. To the maximum extent practicable, no construction activities will occur during rain events or within 24-hours following a rain event.

On May 14th 2018, Park staff conducted a plant survey within the construction footprint of the water tank, pump station, and distribution lines. Staff encountered typical redwood understory species including evergreen huckleberry (*Vaccinium ovatum*), poison oak, (*Toxicodendron diversilobum*), live oak (*Quercus sp.*), hairy honeysuckle (*Lonicera hispidula*), tanbark oak (*Notholithocarpus densiflora*), redwood sorrel (*Oxalis oregana*), and western sword fern (*Polystichum munitum*). This survey occurred during peak blooming period for Dudley's lousewort (*Pedicularis dudleyi)*, but none was found in the project area. (T. Hyland, pers. comm., 5/30/2018).

This project does not involve any in-water work, nor work that will disturb the bed or banks of a stream. No wetlands have been observed in the project area.

Measures will be taken to prevent the spread of noxious weeds or non-native invasive species. Contractor(s) will be required to clean equipment before mobilization to the project site, and to use weed-free rice straw mulch for erosion control.

Historic Resources

Water is currently diverted from Peters Creek using a submersible electric pump. The submersible pump is approximately 10 years old. The proposed project will remove the existing raw water lines which were constructed in 1968. Please see the Demolition Plan on sheet D-01 of the attached 97% designs for more detail. Disturbance to the streambank will be avoided because the raw water lines are accessible from the adjacent staircase and will be removed by hand.

A historic review of the Project was done on 6/7/2018. However, the review focused on the in-channel concrete diversion structure and did not discuss the raw water piping. It is unlikely that the piping is eligible for listing under the National Register of Historic Places nor the California Register of Historical Resources because the piping, like the diversion structure, appears to be of standard design and materials, does not exhibit any significant workmanship, is utilitarian and does not have any unique identifying features, and is not accessible by the public. Additionally, it is younger and smaller than the diversion structure. The Project will not impact any other potentially historic structures.

Pre-Historic/Tribal Resources

State Parks Santa Cruz Mountains District Archaeologist and Tribal Liaison evaluated the project site found the project does not involve any archaeological resources and determined tribal consultation is not required. No tribal lands nor native sacred sites are known to exist within the project site.

Low Income and Minority Populations

The Project will not have an adverse effect on low income or minority populations. The Project is intended and expected to benefit the surrounding community because it will provide a more reliable water supply which will enhance low-cost recreational opportunities, particularly overnight camping.

1777 North Kent Street, Suite 100, Arlington, VA 22209 | 530.557.5367| bonnie.teglas@tu.org

Date: June 14, 2022

Subject: Required Statements for "Portola Redwoods State Park Drought Resiliency Project"

To whom it may concern,

Below are the required statements in regards to our submitted proposal titled "Portola Redwoods State Park Drought Resiliency Project".

Overlap or Duplication of Efforts Statement

In 2020, the Wildlife Conservation Board awarded TU $1,875,977 (Agreement Number WC-2003AP) for final designs and construction of water system improvements for the Portola Redwoods State Park Drought Resiliency Project. Since we received the original award from WCB in 2020, the prices of steel and other goods and services have increased more than anticipated due to economic volatility and supply-chain problems stemming from the pandemic. TU recently received an additional $499,972 from the California Department of Fish and Wildlife (Agreement Number Q2130005). These initial funds are being used to complete 100% designs, permitting, tank manufacturing, site prep, and tank and pump house foundations. In addition, our collaborator, the San Mateo Resource Conservation District, received $500,000 from the California Department of Park and Recreation (DPR). The DPR also contributed $80,163 in cost-share towards the project.

There is no overlap in activity, cost, or commitment of key personnel between these actions and the proposed project.

The proposal for consideration under this program is partially a duplication of a proposal submitted to the California Department of Water Resources, Small Community Drought Relief Program in December 2021 (non-federal). TU has not received any response from DWR, and we presume it was denied. TU will also submit a similar proposal to the Mighty Arrow Family Foundation in June 2022 (non-federal). A funding decision is expected in approximately three months. However, in the past, the Mightly Arrow Family Foundation has made relatively small awards to TU, so we have low expectations that this project would be awarded.

If we are notified that this proposal was awarded funds that would duplicate the funding requested from Reclamation, we will inform the NOFO point of contact or the Program Coordinator immediately.

Conflict of Interest Disclosure:

To the best of our knowledge, no actual or potential conflict of interest exists at the time of submitting this proposal. Trout Unlimited will notify the Financial Assistance Officer in writing of any conflicts of interest that may arise during the life of the award, including those that have been reported by subrecipients.

Trout Unlimited takes appropriate steps to avoid conflict of interest or the perception of conflict of interest in procuring supplies, equipment, construction, and services. We have internal policies addressing actions to prevent conflict of interest in our Code of Conduct/Conflict of Interest section of our Procurement Policy and Standards of Conduct of the TU Employee Handbook, which every TU employee must read and sign. These policies include procedures to identify, disclose, mitigate, or eliminate conflicts of interest. If a conflict of interest arises during the life of the award, TU will disclose the details to the BOR in writing. In addition, should this proposal be awarded, no funds will be used for any lobbying activities, and TU will provide certifications and disclosures requested by the BOR. Trout Unlimited understands that failure to resolve conflicts of interest may cause the award's termination.

Uniform Audit Reporting Statement:

Trout Unlimited, Inc. was required to submit a Single Audit report from the most recently closed fiscal year (2021). The report can be found on the Federal Audit Clearinghouse Single Audit Database website (http://harvester.census.gov/sac/) under EIN#38-1612175.

Sincerely,

Bonnie Teglas / California Operation
and Grants Manager

Trout Unlimited
15695 Donner Pass Rd, Unit 100
Truckee, CA 96161
http://www.tu.org

April 5, 2022

Ben Cook, Project Coordinator
Trout Unlimited
5950 Doyle Street Suite 2
Emeryville, CA 94608
benjamin.cook@tu.org / (831) 345-0508

Dear Mr. Cook,

California State Parks strongly supports Trout Unlimited's application to BOR's WaterSMART funding opportunity for the Peters Creek Streamflow Enhancement and Drought Resilience Project (Project). State Parks is acting in partnership with Trout Unlimited (TU) to carry out the Project and has reviewed and agreed to the submittal of TU's proposal.

California State Parks commits to our ongoing participating in the Project. To date, our staff has been closely involved in the scoping, project development, permitting, and design of the Project, and we will continue to participate in the Project's implementation by upgrading Park facilities to increase water efficiency, and by providing onsite project oversight and supervision of the construction phase.

Thank you for considering TU's application for the Project.

Sincerely,

Jacob Bentley
District Maintenance Chief
California State Parks
Santa Cruz Mountains District
303 Big Trees Park Road, Felton, CA 95018
(831) 251-2884
jacob.bentley@parks.ca.gov

Portola and
Castle Rock
Foundation

13th June, 2022

To whom it may concern:

This is to inform you of the support of the Portola and Castle Rock Foundation for the Peters Creek Stream Flow Enhancement Project.

The PCRF supports this project as it will protect water quality in Peters Creek while still continuing to provide high quality outdoor recreation to potentially millons of visitors who would otherwise be impacted by loss of water resources and park closures.

Yours sincerely,
Mujtaba Ghouse
Mujtaba Ghouse
President of the Board of Directors
Portola and Castle Rock Foundation