



NORTH COAST INTEGRATED REGIONAL WATER MANAGEMENT PLAN

**PROPOSITION 84 IMPLEMENTATION GRANT PROPOSAL,
ROUND 1**

**ATTACHMENT 3:
WORK PLAN**

**Integrated Regional Water Management Program
Applicant: Humboldt County**



NORTH COAST INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Attachment 3, Work Plan

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Introduction

The North Coast Integrated Regional Water Management Plan (NCIRWMP) is a stakeholder-driven collaboration among local government, watershed groups, tribes and interested partners in the North Coast region of California. The NCIRWMP integrates long term planning and high quality project implementation in an adaptive management framework—fostering coordination and communication among the diverse stakeholders in the Region. The NCIRWMP acts as a planning framework that synchronizes statewide planning priorities with local planning efforts.

The NCIRWMP was developed under the oversight of the North Coast Regional Water Management Group (NCRWVG). The NCRWVG coalition consists of seven North Coast counties (Del Norte, Siskiyou, Modoc, Humboldt, Trinity, Mendocino, and Sonoma), Sonoma County Water Agency and Mendocino County Water Agency. The NCRWVG governance framework consists of two committees – the Policy Review Panel (PRP) which is the governing body for the NCIRWMP and the Technical Peer Review Committee (TPRC), an advisory body to the PRP that provides scientific and technical expertise to the North Coast IRWMP. The NCRWVG has authorized Humboldt County to act on its behalf as the regional contract administrator for the NCIRWMP implementation and planning grants. Individual project proponents, under contract with the County of Humboldt, are responsible for project implementation and are signatories to the NCIRWMP Memorandum of Understandings.

The NCIRWMP Plan and this Proposition 84, Round 1 Implementation Proposal (Proposal) are fully integrated, and the projects included in this proposal were rigorously evaluated and prioritized based on their ability to meet the multiple goals and objectives of the NCIRWMP, as well as the program preferences and statewide priorities of the Department of Water Resources (DWR). Additionally, the NCIRWMP Plan and this implementation proposal address the goals and objectives of other key state and federal agencies (i.e., Department of Fish and Game, Coastal Conservancy, Resources Agency, EPA, NOAA Fisheries, Natural Resources Conservation Service), thereby contributing to effective and efficient implementation of high priority projects in the region (*see North Coast IRWMP Priority Project Locations Map*).

The planning region for the NCIRWMP is consistent with the Regional Water Quality Control Board Region 1 boundary. The NCIRWMP is organized according to watershed boundaries and jurisdictional boundaries – reflecting the geography and environmental resources of the North Coast region as well as its socio-economic and policy framework. While the planning region was selected as the planning scale for overall coordination and integration of broad water management objectives throughout the region, the six Watershed Management Areas (WMAs) were selected as the appropriate scale for more detailed planning in order to address watershed specific issues, synchronize with established state water quality management programs, and to help coordinate planning among the counties using their General Plan authority. Throughout this NCIRWMP Proposal, projects are organized by Watershed Management Area (*see North Coast IRWMP Priority Project Locations and Watershed Management Areas Map and detailed Watershed Management Areas Maps for each North Coast WMA*).

The NCIRWMP Plan and associated projects are adaptive - as projects from this NCIRWMP Proposal are implemented, monitoring and project effectiveness data will be incorporated into the next iteration of the NCIRWMP Plan and these data will be used to enhance the North Coast’s planning and project prioritization process, and to gauge how thoroughly statewide priorities and program preferences have been addressed.

Goals and Objectives of the NCIRWMP and Implementation Grant Proposal

Focus areas for the NCIRWMP include salmonid recovery, enhancement of the beneficial uses of water, and the synchronization of state and federal priorities with local priorities, knowledge, and leadership. The NCRWMP developed regional goals based on issues of concern in the North Coast region including the state of water resources, watershed conditions and economic vitality of the region. The overarching goals include:

- Salmonid recovery
- Enhancing beneficial uses of water
- Intra-regional cooperation
- Energy independence and climate change mitigation & adaptation
- Enhancing public health and economic vitality in disadvantaged communities

Supporting these goals are the following seven primary integrated water management objectives for the North Coast region. These objectives were developed with input from the Policy Review Panel, Technical Peer Review Committee, resources agencies and stakeholders in the North Coast region. These objectives are all interrelated, and are relevant at both the local and regional scale. These NCIRWMP objectives are consistent with State water management elements (PRC § 75026), Statewide Priorities, California Water Plan Resource Management Strategies and IRWM Program Preferences (PRC §75026.(b) and CWC §10544). These goals and objectives are expected to be updated during the next revision process for the NCIRWMP.

1. Conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality and watershed processes
2. Protect and enhance drinking water quality to ensure public health
3. Ensure adequate water supply while minimizing environmental impacts
4. Support implementation of Total Maximum Daily Loads (TMDLs), the North Coast Regional Water Quality Control Board's (NCRWQCB) Watershed Management Initiative, and the Non-Point Source Program Plan
5. Address environmental justice issues as they relate to disadvantaged communities, drinking water quality and public health
6. Provide an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation
7. Implement energy independence, greenhouse gas emissions or climate change adaptation project elements

In addition, the NCIRWM Plan and this Proposition 84, Round 1 Implementation Proposal incorporate the following process goals:

- NCIRWMP has an inclusive and transparent development process that incorporates stakeholders and community members in the plan development process and in the project prioritization and implementation process.
- NCIRWMP places an emphasis on engagement, planning and project implementation for disadvantaged communities throughout the Region.

The following table describes how the Proposition 84, Round 1 Implementation Priority Projects address the NCIRWMP objectives.

Map ID #	Project Name	Conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality and watershed processes	Protect and enhance drinking water quality to ensure public health	Ensure adequate water supply while minimizing environmental impacts	Support implementation of TMDLs, the NCRWQCB Watershed Management Initiative, and the NPS Program Plan	Address environmental justice issues as they relate to disadvantaged communities, drinking water quality and public health	Provide an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation	Implement energy independence, greenhouse gas emissions or climate change adaptation project elements
A. Russian River/Bodega Watershed Management Area								
402	Ackerman Creek Habitat Restoration	•			•	•	•	
345	Bodega Bay HU Water Resources Management Project	•	•	•	•	•	•	•
292	Lower Russian River Water Quality Improvement Project	•	•		•	•	•	
364	Mendocino Jumpstart Integrated Water Plan			•		•	•	•
374/6	Nissa-kah Creek Fish Passage Removal	•				•	•	
393	Russian River <i>Arundo donax</i> Removal and Riparian Enhancement Program	•			•		•	
396	The Copeland Creek Watershed Detention/Recharge, Habitat Restoration and Steelhead Refugia Project	•		•	•		•	•
B. Klamath Watershed Management Area								
289	Camp Creek Habitat Protection-Road Decommissioning Implementation Project	•			•	•	•	
311	Indian Creek Sewer Pipeline Crossing	•	•		•	•		
306	Water Treatment System Upgrade for Happy Camp CSD		•	•		•		

Map ID #	Project Name	Conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality and watershed processes	Protect and enhance drinking water quality to ensure public health	Ensure adequate water supply while minimizing environmental impacts	Support implementation of TMDLs, the NCRWQCB Watershed Management Initiative, and the NPS Program Plan	Address environmental justice issues as they relate to disadvantaged communities, drinking water quality and public health	Provide an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation	Implement energy independence, greenhouse gas emissions or climate change adaptation project elements
C. North Coast Rivers Watershed Management Area								
408	Del Norte Agricultural Enhancement Program	•	•		•	•	•	
352	Gualala River Sediment Reduction Program	•			•	•	•	•
444	Mattole Integrated Watershed Management Initiative	•	•	•	•	•	•	
358	Mendocino Headwaters Integrated Water Quality Enhancement Project	•	•		•	•	•	
355	Real-Time Weather Data for Irrigation Water Management	•		•		•	•	•
441	Waterfall Gulch Transmission Main	•	•	•	•	•		•
D. Humboldt Bay Watershed Management Area								
362	Blue Lake Fieldbrook Pipeline Support Retrofit	•	•	•		•	•	
E. Eel River Watershed Management Area								
405	Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project	•	•			•	•	•
F. Trinity River Watershed Management Area								
357	Willow Creek Hwy 96 Stormceptor	•	•	•	•	•		

Need and Purpose

The North Coast retains some of the last viable salmonid populations in the State and is a key source of clean drinking water for the region and beyond. Unlike many areas of California, the North Coast region continues to support natural resource based economies – including commercial fishing, timber harvesting, recreational tourism and agriculture. These economic enterprises are sometimes at odds, creating conflict in the region regarding water quality and water supply.

The North Coast is also a disadvantaged region – information from the US Census Bureau (2000) indicate that thirty six percent of the region’s population and 84% of its geographic area is considered economically disadvantaged, (see *North Coast Priority Project Locations and Economically Disadvantaged Communities Map*), as defined by the IRWM Proposition 84 Guidelines. In 2000, the medium household income (MHI) of the North Coast region was \$36,774, significantly below the MHI for the state, which was \$47,493 per year. In addition, the North Coast region has a significantly higher percentage of Native American residents at 4% than that of the state at 1%.

Based on linear measurement, over 85% of North Coast streams are listed as impaired under Section 303(d) of the Clean Water Act. Water bodies that drain approximately 61% percent of the North Coast Region are listed as impaired due to sediment, resulting in a reduction in water quality and impacts to the beneficial uses of those waters. Some of the most sensitive beneficial uses are impacted by sediment and include those uses that are associated with migration, spawning, reproduction, and early development of coldwater fish such as coho salmon (*Oncorhynchus kisutch*), chinook salmon (*O. tshawytscha*), and steelhead trout (*O. mykiss*); all Endangered Species Act listed. Other sediment impaired beneficial uses include municipal and domestic water supply, navigation, and water-contact and non-water-contact recreation.

Impacts to salmonids and the beneficial uses of water often originate locally at a watershed or basin scale yet are cumulative for both salmonid populations and impaired water bodies, and have effects that impact the entire region. In the case of anadromous salmonid populations, the impacts are worldwide. Conversely, decisions regarding salmonid protection and the beneficial uses of water often take place at the statewide level and need to adequately account for local priorities, knowledge, and needs.

The purpose of the NCIWMP is to create a flexible and inclusive regional framework to better integrate local, regional and statewide water management efforts. The framework for the NCIWMP ensures that locally derived, solution-oriented actions are coordinated at the basin level and at the North Coast region level to collectively address the cumulative impacts to salmonids and the beneficial uses of water throughout the entire North Coast Region. Project level need and purpose is described in the project Task section of the Work Plan.

Project Prioritization and Selection Process

To effectively coordinate and implement basin scale water management strategies that directly improve beneficial uses of water and salmonid habitat across the North Coast region, the seven county NCIWMP and over eighty partnering entities have engaged in the development of the NCIWMP and associated Implementation projects.

Under the direction of the Policy Review Panel, the NCIWMP Project Team performed public outreach and education about the IRWM process and funding opportunities via a website (www.northcoastirwmp.net), workshops, presentations and publications. The website includes a mechanism for project application upload, as well as a variety of resources to support project proponents. All elements of the outreach and project identification process are public

and intentionally transparent. During the Proposition 84 and 1E project upload process, sixty projects were identified and uploaded to the website, with proposals totaling a combined funding need of over \$227,000,000. Projects were individually reviewed and scored by the TPRC using a score sheet based upon NCIRWMP and IRWM program criteria. Late in October, the TPRC met and evaluated the top scoring projects and developed a slate of high priority projects that included highly ranked projects and additional projects selected to allow for regional representation and to address water needs in disadvantaged communities. On November 10th, the PRP met during a NCIRWMP meeting to review and consider the recommended slate of priority projects and the slate was unanimously approved. All NCIRWMP are open to the public; meeting agendas are publically posted at the meeting location, NCIRWMP website and calendar and include an agenda item for Public Comment.

The total budget for the NCIRWMP Proposition 84, Round 1 Implementation Priority Projects was \$8.22 million, the cap established for implementation grants by the state IRWM grant program. All eligible projects are included in the NCIRWMP and the Project List and Scores are listed at http://www.northcoastirwmp.net/docManager/1000007968/NCIRWMP%20Prop%2084_1E%20IRWM%20Projects.pdf. All of the projects that were ranked by the TPRC and PRP are priority projects for the region – individually and comprehensively addressing the goals and objectives of the NCIRWMP, as well as DWR’s program preferences and statewide priorities.

Synergies and Linkages Among Projects – How Projects Collectively Implement the NCIRWM Proposal

Physical connectivity is not required for achieving the NCIRWMP goals and objectives; a series of scientifically and technically valid projects distributed throughout the region – addressing both local and statewide priorities - has been determined by the TPRC and PRP to be the best approach for meeting the NCIRWMP objectives and improving the region’s ecosystems and the quality of life for residents. While geographically separate, the NCIRWM projects in the proposal implement the highest priorities identified by natural resources agencies in the North Coast. For example, all of the projects that address salmonid restoration are acting upon recommendations by the Department of Fish and Game and/or NOAA Fisheries and are located in watersheds that the Department of Fish and Game considers to be high priority for the recovery of endangered salmonids. NCIRWM Projects - such as the barrier removals and in-stream water supply projects in the Russian River and Klamath watersheds, or the integrated salmonid restoration approach for the Mattole River and Bodega Bay - have far-reaching implications for salmonid recovery in the region and beyond. Collectively, the NCIRWMP suite of salmonid restoration projects, implement the NCIRWMP goals and objectives related to salmonid recovery. Seventeen of the nineteen priority projects that make up the Proposal, benefit and are located in disadvantaged communities and demonstrate how physically separated projects can collectively implement the goals and objectives of the NCIRWM Plan. These projects address serious water impairments in the region – prioritized by the TPRC and PRP due to their impacts on regional public health and other beneficial uses of water – including salmonid viability. These projects will address environmental justice issues in tribal and disadvantaged communities by allowing for enhanced economic development via recreational tourism and other mechanisms. Local, regional, state and national energy and climate mitigation/adaptation priorities are integrated into several projects, and the majority of projects support climate change mitigation via conservation, and/or adaptation to climate change. All of the projects that were selected for inclusion in the NCIRWM Proposal address statewide priorities and program preferences – both individually at the project site scale and collectively at the regional scale. The responsiveness of the NCIRWM Proposal to statewide priorities and program preferences is addressed in much more detail in Attachment 11 (Program Preferences) and Attachment 12 (Disadvantaged Community Assistance). The General Information tables for each project describe in detail the work that will be

complete by the assumed contract execution date of June 1, 2011. The following tables describe the summary information for the projects and address the remaining requirements of the Proposition 84, Round 1 Implementation Project Solicitation Package.

Table 2. North Coast Integrated Regional Water Management Plan, Project Summary Table

Map ID #	Implementing Organization Name	Project Name	Technical Peer Review Committee Score (maximum score 150)	Project Status: % Design Complete (June, 2011)	Disadvantaged Community	Project Abstract
A. Russian River/Bodega Watershed Management Area (WMA)						
402	Ackerman Creek Habitat Restoration	Pinoleville Pomo Nation	86.9	30%	X	The Pinoleville Pomo Nation, Ackerman Creek Habitat Restoration project will restore habitat for culturally important species along a 0.63 mile degraded stretch of Ackerman Creek that flows through the reservation. The plans include in-stream restoration and enhancement activities, pollution prevention, invasive plant removal and revegetation of the riparian zone. This riparian restoration proposal will implement two parts of the overall plan. The first part will be to monitor and maintain initial efforts to eradicate Arundo and blackberry for several years after they have been first removed. The second part is to replant with a riparian forest with native plants that have cultural value to tribal citizens and that improve in-stream habitat for salmonids and other aquatic species. We will further address long-term project maintenance by involving youth in the removal and re-vegetation activities, and developing short, field-based science and culture lessons for them.
345	Bodega Bay HU Water Resources Management Project	Gold Ridge RCD	103.8	100%	X	The Bodega Bay HU Water Resources Management Project combines a suite of approaches to restore a resilient riparian corridor and in-stream habitat for the benefit of fish and other aquatic organisms that dwell in Americano, Ebabias and Salmon Creeks. The project will adopt an integrated, community-based approach to address these critical issues and identified impairments to beneficial uses. Fine sediment delivery will be reduced by restoring actively eroding gullies that were identified in a UCCE study in 2007. Instream habitat will be enhanced through the implementation of Large Wood Structures. The streamflow augmentation and water conservation component of this project has been designed using lessons from Gold Ridge RCD's Save our Salmon (SOS) program completed in 2010. This project will expand on the SOS program to improve long-term water security throughout coastal Sonoma County. With salmonid populations dwindling, the time to implement aggressive measures to protect water quality and habitat is now. This project takes that aggressive approach, while at the same time respecting the critical partnerships between the private landowners and the RCD.

292	Lower Russian River Water Quality Improvement Project	Sotoyome Resource Conservation District	88.3	90%	X	The Lower Russian River Water Quality Improvement Project (Project) would improve the overall health and vitality of the lower Russian River Ecosystem with two complimentary programs that address water quality through education and repair of septic systems in the lower river and reduction of sediment in the Austin Creek Watershed. The two projects will address the Russian River TMDL for sediment, pathogen, and temperature through sediment reduction on rural roads, septic system repair, and water quality monitoring of both projects Habitat for endangered coho salmon and steelhead trout will be improved through sediment reduction in high priority streams in Austin Creek and improvement of water quality in the lower Russian River with subsidized septic system evaluations, educational workshops and resources, and a demonstration repair project for low income residents.
364	Mendocino Jumpstart Integrated Water Plan	Mendocino County Water Agency Planning Department	96.4	30%	X	The Mendocino Jumpstart Integrated Water Plan, will implement seven LID and sustainable practice projects, linked to educational opportunities via college courses and county workshops. The County campus parking lot retrofit will treat storm water runoff with LID techniques before entering Orrs Creek. Recycling irrigation water from the sports fields irrigation will reduce potable water consumption, up to 1 million gallons per month during peak demand. Two rainwater catchment and xeric landscape conversions will demonstrate conservation for use at homes and businesses. Turf to xeric conversion at the County roundabout will demonstrate a beautiful landscape while saving water. The bioswale/wetland and vernal pool will create new habitat while treating storm water before entering Hensley Creek. Education opportunities at Mendocino College will promote learning and skill development with these and other sustainable techniques.
374/ 6	Nissa-kah Creek Fish Passage Removal	Hopland Band of Pomo Indians	66.1	60%	X	The Hopland Band of Pomo Indians tribe is working to restore its culture, land and water. In 2005 the tribe identified steelhead restoration as a high priority in its Environmental Master Plan. Since then the tribe has secured grant funding to do stream habitat typing and fish passage analysis, as well as improving stream and riparian habitat. The fish passage analysis identified two culverts as major impediments to upstream and downstream steelhead migration. Tribal EPA secured funding to develop designs for fish passage improvement for these two culverts on Nissakah Creek, one of two headwater streams on the reservation. These designs were developed to meet National Marine Fisheries Services' standards, and were completed in November 2009. The proposed project will build two fish passage improvements according to the engineering designs; this will increase the viability of the remnant population of steelhead that spawn in this stream, will help restore part of the cultural heritage of the Tribe, and will benefit the salmonid restoration efforts of the Russian River Watershed.

393	Russian River <i>Arundo donax</i> Removal and Riparian Enhancement Program	Sotoyome Resource Conservation District	74.7	60%		The Russian River <i>Arundo donax</i> Removal and Riparian Enhancement Program will remove invasive <i>Arundo</i> from 200 infested acres on the mainstem of the Russian River, install several hundred native plants, and provide educational workshops to landowners throughout the watershed. The removal area has been strategically selected to create the best potential for riparian habitat improvement in this reach of the river and builds off previous treatment years and adjacent removal sites where <i>Arundo</i> is already controlled. The project will conserve and enhance salmonid populations by removing <i>Arundo</i> and increasing the abundance of native riparian plants throughout the riparian corridor. Removal of <i>Arundo</i> and replanted of native plant vegetation will reduce sediment delivery and improve water quality, keep water temperatures low, protect and enhance native plant communities. This project is supported by local, state and federal agencies and has been developed and implemented since 2001 based on a watershed approach and with the collaboration of many local landowners and organizations. Over the past decade, the Sotoyome RCD and its partners have made great strides in controlling <i>Arundo</i> in the Russian River, removing it from over 1,500 infested streamside acres.
396	The Copeland Creek Watershed Detention/Recharge, Habitat Restoration and Steelhead Refugia Project	Sonoma County Water Agency	90.3	100%		The Copeland Creek Watershed Detention/Recharge, Habitat Restoration and Steelhead Refugia Project Phase 1: Copeland Creek from Highway 101 east to Snyder Lane in the City of Rohnert Park 1) enhance and restore 21 acres of riparian habitat along 9,400 linear feet of Copeland Creek by strategically removing 10 acres of invasive species and replanting with 14,650 plants; 2) remove up to 11,000 cubic yards of sediment to foster the natural geomorphic functioning of this reach, mitigate flooding, and improve fish passage and water quality; 3) complete the 30% design and continue to advance the environmental review for two to three off-stream storm water detention basins located in the alluvial fan east of Petaluma Hill Road with up to 200 acre-feet in storage capacity and up to 150 acre-feet annual groundwater recharge potential.
B. Klamath Watershed Management Area						
289	Camp Creek Habitat Protection-Road Decommissioning Implementation Project	Karuk Tribe	76.4	100%	X	The Camp Creek Habitat Protection -Road Decommissioning Project involves approximately 16.02 miles of road slated for decommissioning that is within the culturally significant and ecologically sensitive 26,994 acre Camp Creek Watershed. The overall project objective is to protect and enhance the habitat of Tribal trust species such as Spring Chinook, Coho Salmon, Summer Steelhead populations. This is to be accomplished by eliminating the present and future chronic sediment input caused by road failures and prevent catastrophic debris torrents within the Camp Creek Watersheds by removing unstable fill material and re-establishing natural hydrological patterns. The funding requested will provide funding for the removal of 13,000 yd ³ . Other funding partners are anticipated to contribute the necessary funding to accomplish the remaining 21,788 yd ³ . The funds if granted will be used to leverage other funds necessary to accomplish the overall goal of 34,788 yd ³ . In addition to the chronic sediment transport from these roads, the high number of stream crossings has a high potential for failure during a significant storm event.

						Stream crossing failures result in debris torrents that scour stream channels of riparian vegetation which is critical in maintaining lower water temperatures. Depending on slope position and channel gradient these debris torrents can trigger successive debris torrents as they move downstream. Debris torrents fills in pools, which are used by salmonids as rearing areas and as refugia.
311	Indian Creek Sewer Pipeline Crossing	Happy Camp Sanitary District	74.7	0%	X	The Indian Creek Sewer Pipeline Crossing project provides critical infrastructure improvements to the wastewater collection system for an economically disadvantaged community. The project replaces an existing sewer pipeline crossing of Indian Creek with a new sewer pipeline crossing, attached to the adjacent State Highway 96 Bridge. The existing sewer pipeline crossing is currently exposed in the creek bed and is subject to damage due to loose rocks and trees or undermining during large flow events. Leakage or failure of the pipeline crossing would result in an accidental discharge of raw (untreated) sewage into Indian Creek and the Klamath River. This discharge has the potential for adverse impacts to fisheries (including salmonids), aquatic habitat, Native American subsistence fishing and basket material gathering, recreation, and water quality. The project would significantly reduce the potential for these impacts and flood damage potential to the only sewer pipeline crossing of Indian Creek.
306	Happy Camp Water Treatment System Upgrade	Happy Camp Community Services District	76.0	0%	X	The Happy Camp Water Treatment System Upgrade provides critical infrastructure improvements to the water treatment system for Happy Camp, an economically disadvantaged community. The project constructs a new roughing filter upstream of the two existing pressure filters. The project also provides additional upgrades including: inspection of the existing filters; upgrade of the existing wetwell pumps and electrical equipment to handle the additional hydraulic and electrical load; relocation of existing wetwell electrical equipment to place this equipment a safe distance outside the 100-year floodplain; improvements of the existing backwash disposal pond to handle additional filter backwashing cycles; and improvements of Supervisory Control and Data Acquisition (SCADA) for the existing water treatment plant and existing water storage tank for better control of water storage tank levels and wetwell pump operation.
C. North Coast Rivers Watershed Management Area						
408	Del Norte Agricultural Enhancement Program	Del Norte Resource Conservation District	67.5	50%	X	The goal of the Del Norte Agricultural Enhancement Program is to help Del Norte County dairies in the Smith River and Lake Earl watersheds improve their waste management systems. The proposed project is a funding program for dairies in the Del Norte Resource Conservation District (DNRCD) that need financial assistance to improve stewardship. Individual dairies will submit applications to the DNRCD for projects relevant to waste collection and management. The DNRCD and the Natural Resource Conservation Service will facilitate the technical assistance necessary for project planning, prioritization and development.
352	Gualala River Sediment Reduction Program	Gualala River Watershed Council	88.0	100%	X	Located in Mendocino and Sonoma Counties, the Gualala River is the largest watershed in the Mendocino Coast Hydrological Unit. Existing conditions in the basin indicate that 85% of anthropogenic sediment delivery is road related and

						<p>there is a paucity of existing in-stream large wood debris (LWD) habitat required for salmonids. The Gualala River Sediment Reduction Projects are elements of the Gualala River Watershed Council Restoration Program. By implementing these projects through an existing and dynamic program we build upon partnerships and maximize the outcomes and costs associated with attainment of TMDL and Basin Plan goals.</p> <p>Through this proposal 12 miles of road will be hydrologically disconnected to a level of 95% in a high priority watershed reducing 30,000 yrd³ of pollution from entering watercourses. In conjunction with sediment reduction, a suite of habitat enhancement structures will be installed in tributary reaches where coho and steelhead currently spawn and rear and the Wheatfield Fork Stream Flow gauge will be repaired and maintained to assist the Stewarts Point Rancheria in monitoring in-stream flow levels.</p>
444	Mattole Integrated Watershed Management Initiative	Mattole Restoration Council	101	75%	X	<p>The Mattole Integrated Watershed Management Initiative provides a comprehensive approach to watershed restoration in the Mattole through streamflow enhancement, riparian restoration, coho recovery rearing, streamflow, and turbidity monitoring, sediment stabilization, and removal of invasive plants. Seven water storage tanks will be installed in the Mattole headwaters totaling 350,000 gallons to augment summer stream flows in critical reaches of coho salmon habitat. Residents agree to turn off instream pumps when directed and begin using water from storage tanks. Recovery rearing of coho salmon will be implemented as a temporary measure to avoid extirpation until streamflow and habitat issues are more fully addressed in the headwaters. Downstream work to control sediment will take place through the installation of bioengineered willow fences, as well as reduce active erosion and increase streamside shade through the planting of native riparian trees, shrubs, and grasses. Invasive plants will be removed on project sites prior to implementation, and turbidity and streamflow monitoring will ensure that project goals are met.</p>
358	Mendocino Headwaters Integrated Water Quality Enhancement Project	Mendocino County Resource Conservation District	75.2	80%	X	<p>Mendocino Headwaters Integrated Water Quality Enhancement Project will implement water quality enhancement projects in three TMDL water bodies in Mendocino County, including; 1) Decommissioning 3 miles of roads in Jackson State Demonstration Forest to prevent an estimated 6,024 cubic yards of sediment delivery to the Little North Fork Big River; 2) Upgrade three fish passage barriers and two stream crossings, in the Upper Rancheria Creek sub basin of the Navarro River watershed, to prevent an estimated 790 cubic yards of sediment from delivering to streams and to open up an additional 1.26 miles of suitable habitat for migratory salmonids; and 3) Restore approximately two acres of riparian along the Upper main stem Russian River on the Yokayo Rancheria, by controlling invasive <i>Vinca major</i> (Periwinkle), <i>Arundo donax</i>, Himalayan blackberry and Harding grass and replanting with native plants which have cultural significance to the tribal community.</p>

355	Real-Time Weather Data for Irrigation Water Management	Del Norte Resource Conservation District	66.9	100%	X	<p>Del Norte Resource Conservation District (District) and its partners, through the Real-Time Weather Data for Irrigation Water Management Project, propose to link the northwest California irrigated pasture and specialty cropland within its district to a monitoring system typically used throughout the state. This will be done through the adoption of a CIMIS station. The California Irrigation Management Information System (CIMIS) is an integrated network of over 125 automated active weather stations located throughout California.</p> <p>The primary purpose of CIMIS is to make available to the public information useful in estimating crop water use for irrigation scheduling. Reference evapotranspiration (ET_o) is calculated from this data and stored in a database along with the collected climatic data. Users can access the stored data via the Internet. ET_o data gathered will be used to improve Natural Resources Conservation Service (NRCS) recommended irrigation schedules and water use budgets. The District will email a separate irrigation water management report to growers throughout the irrigation season and University of California Cooperative Extension will provide outreach to producers outside of our area that may find similar benefits. The efficient use of water resources benefits all by saving water, energy, and money. Station installation and maintenance will be a cooperative effort between the landowner, the District, and the California Department of Water Resources (DWR). CIMIS provides current conservation technology to a remote area for minimum investment.</p>
441	Waterfall Gulch Transmission Main	City of Fort Bragg	86.7	100%	X	<p>Waterfall Gulch Transmission Main Project includes the replacement of a 50 year old existing 8" Waterfall Gulch Raw Water Transmission Main with 10" PVC. There is limited access to the existing main line and replacement will incorporate solutions for better access to the line in case of emergency, along with carrying a guarantee of a service life of not less than 75 years. Construction of a new main line will reduce the amount of water pumped from the Noyo River, which is a critical habitat for salmon.</p>
D. Humboldt Bay Watershed Management Area						
362	Blue Lake Fieldbrook Pipeline Support Retrofit	Humboldt Bay Municipal Water District	79.9	0%	X	<p>Humboldt Bay Municipal Water District (HBMWD) currently supplies domestic water to the Fieldbrook Glendale Community Services District (FGCSD) and the City of Blue Lake. The water supply pipeline to those communities crosses the Mad River via a 14-inch ductile iron pipe attached to a 1930's era North Coast Railroad Authority (NCRA) bridge, which was not built to modern seismic standards. The bridge has not been used or maintained for many years, and if it fails, it will damage the HBMWD's pipeline and interrupt the sole domestic water service to Fieldbrook and Blue Lake. An inspection of the NCRA bridge was completed by Winzler & Kelly in 2007, which found the condition of the bridge to be substandard and near the end of its functional life. This project replaces the bridge with an aerial overcrossing designed to meet current seismic codes. This project addresses</p>

						the critical water supply needs of the disadvantaged communities of FGCD and Blue Lake.
E. Eel River Watershed Management Area						
405	Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project	Redwood Forest Foundation Inc.	88.8	50%	X	<p>The Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project will work with the Woody Biomass Work Group (WBWG) to be the first step in developing a regional industry to convert excess woody biomass to a carbon sequestering, soil amendment product known as biochar to improve watershed-wide water quality and quantity.</p> <p>Project Steps:</p> <ol style="list-style-type: none"> 1. Remove excess biomass from overcrowded stands on the Usal Redwood Forest 2. Convert biomass into biochar through a process called pyrolysis 3. Sell biochar locally as an amendment to soil 4. Use net revenue to finance further biomass removal <p>Project Benefits:</p> <ol style="list-style-type: none"> 1. Removing excess biomass increases groundwater recharge, in-stream flow, and reduces the risk of catastrophic forest fire events which are detrimental to terrestrial and aquatic habitat. 2. At least one Native American acorn harvesting orchard will be created through the removal of excess biomass and cause high levels of GHG emissions. 3. Biochar is a soil amendment, increasing water and nutrient retention and simultaneously sequesters carbon. 4. Net revenue from the sale of biochar will pay for variable costs of the project creating an economically sustainable model for restoration.
F. Trinity River Watershed Management Area						
357	Willow Creek Hwy 96 Stormceptor	Willow Creek Community Services District	85.7	100%	X	The Hwy 96 Stormceptor project includes construction of a storm water capture, treatment, conveyance, and storage network that will help protect the existing Willow Creek domestic water system. The project is comprised of three primary components: storm water interception, conveyance, and detention.

Table 3. North Coast Integrated Regional Water Management Plan, Priority Projects: Readiness Table

Map ID #	Project Name	End Date	Feasibility Studies	Conceptual Design/Plans	Preliminary Design/Plans	Final Design/Plans
A. Russian River/Bodega Watershed Management Area						
402	Ackerman Creek Habitat Restoration	06/2016	06/2011	06/2011	08/2011	11/2011
345	Bodega Bay HU Water Resources Management Project	06/14	complete	complete	9/11	12/13
292	Lower Russian River Water Quality Improvement Project	12/2013	7/2011	12/12	complete	12/2011
364	Mendocino Jumpstart Integrated Water Plan	12/2013	complete	6/11	8/11	4/12
374/ 6	Nissa-kah Creek Fish Passage Removal	12/2013	complete	complete	complete	3/31/12
393	Russian River <i>Arundo donax</i> Removal and Riparian Enhancement Program	10/2013	7/2011	7/2011	complete	7/2011, 11/2014
396	The Copeland Creek Watershed Detention/Recharge, Habitat Restoration and Steelhead Refugia Project	7/2014	complete	complete	7/2011	7/2011
B. Klamath Watershed Management Area						
289	Camp Creek Habitat Protection-Road Decommissioning Implementation Project	12/2013	complete	complete	07/11	07/11
311	Indian Creek Sewer Pipeline Crossing	2/2013	4/2011	6/2011	8/2011	2/2012
306	Happy Camp CSD Water Treatment System Upgrade	2/2013	12/2010	6/2011	8/2011	2/2012

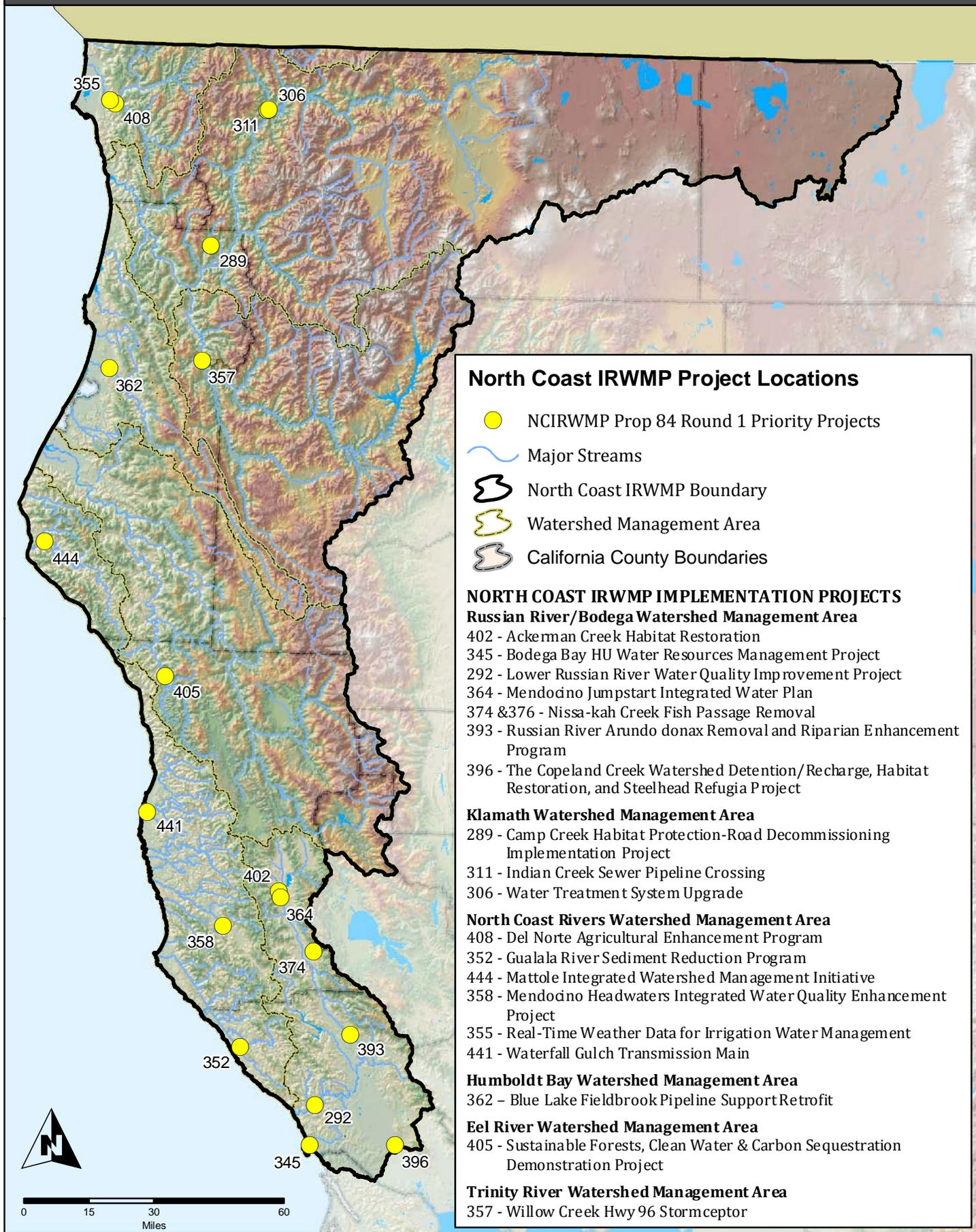
Map ID #	Project Name	End Date	Feasibility Studies	Conceptual Design/Plans	Preliminary Design/Plans	Final Design/Plans
C. North Coast Rivers Watershed Management Area						
408	Del Norte Agricultural Enhancement Program	12/2013	complete	complete	7/2011	4/2012
352	Gualala River Sediment Reduction Program	2/2013	complete	complete	7/2011	7/2011
444	Mattole Integrated Watershed Management Initiative	6/2013	complete	complete	6/2011	8/2011
358	Mendocino Headwaters Integrated Water Quality Enhancement Project	12/2014	2/2012	complete	11/2011	6/2012
355	Real-Time Weather Data for Irrigation Water Management	12/2011	6/2011	complete	complete	complete
441	Waterfall Gulch Transmission Main	03/2012	complete	complete	complete	11/2010
D. Humboldt Bay Watershed Management Area						
362	Blue Lake Fieldbrook Pipeline Support Retrofit	3/2014	complete	5/2012	9/2012	10/2012
E. Eel River Watershed Management Area						
405	Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project	10/2014	complete	3/2011	8/2011	12/2011
F. Trinity River Watershed Management Area						
357	Hwy 96 Stormceptor	6/2012	complete	complete	01/2011	02/2011

Table 4. North Coast Integrated Regional Water Management Plan, Priority Projects: Project Permitting Table

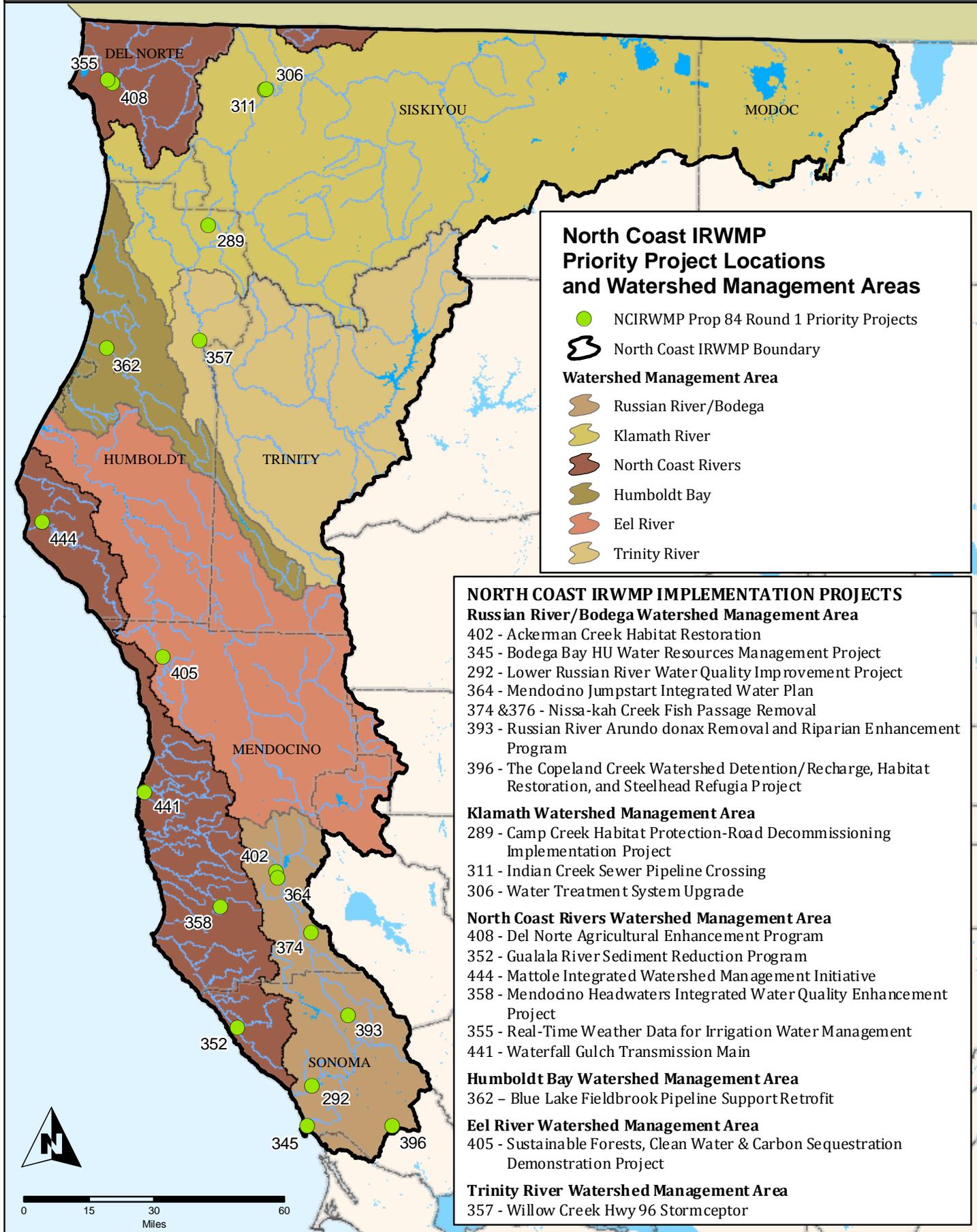
Map ID #	Project Name	CEQA	NEPA	Permit: CDFG 1600	Permit: 401/404	Permit: Other
A. Russian River/Bodega Watershed Management Area						
402	Ackerman Creek Habitat Restoration	06/2011	06/2011	07/2011	n/a	06/2011
345	Bodega Bay HU Water Resources Management Project	12/2012	n/a	01/2013	01/2013	01/2013
292	Lower Russian River Water Quality Improvement Project	7/2011	n/a	n/a	12/2011	01/2012
364	Mendocino Jumpstart Integrated Water Plan	3/2011	n/a	3/2011	n/a	n/a
374/6	Nissa-kah Creek Fish Passage Removal	12/2011	n/a	12/11	12/2011	12/2011
393	Russian River <i>Arundo donax</i> Removal and Riparian Enhancement Program	10/2011	n/a	10/2011	complete	n/a
396	The Copeland Creek Watershed Detention/Recharge, Habitat Restoration and Steelhead Refugia Project	Complete, 7/2012		n/a, 7/2012	n/a, 7/2012	
B. Klamath Watershed Management Area						
289	Camp Creek Habitat Protection-Road Decommissioning Implementation Project	n/a	complete	complete	complete	n/a
311	Indian Creek Sewer Pipeline Crossing	3/2012	3/2012	3/2012	3/2012	3/2012
306	Happy Camp CSD Water Treatment System Upgrade	3/2012	3/2012	n/a	n/a	3/2012
C. North Coast Rivers Watershed Management Area						
408	Del Norte Agricultural Enhancement Program	6/2012	6/2012	n/a	n/a	6/2012

Map ID #	Project Name	CEQA	NEPA	Permit: CDFG 1600	Permit: 401/404	Permit: Other
352	Gualala River Sediment Reduction Program	07/2011	n/a	07/2011	07/2011	n/a
444	Mattole Integrated Watershed Management Initiative	6/2012	6/2012	6/2012	6/2012	6/2012
358	Mendocino Headwaters Integrated Water Quality Enhancement Project	3/2011	n/a	7/2011	6/2011	n/a
355	Real-Time Weather Data for Irrigation Water Management	6/2011	6/2011	n/a	n/a	n/a
441	Waterfall Gulch Transmission Main	complete	complete	n/a	n/a	05/2011
D. Humboldt Bay Watershed Management Area						
362	Blue Lake Fieldbrook Pipeline Support Retrofit	4/2012	4/2012	4/2012	4/2012	n/a
E. Eel River Watershed Management Area						
405	Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project	n/a	n/a	n/a	n/a	n/a
F. Trinity River Watershed Management Area						
357	Hwy 96 Stormceptor	3/2011	n/a	6/2011	9/2011	9/2011

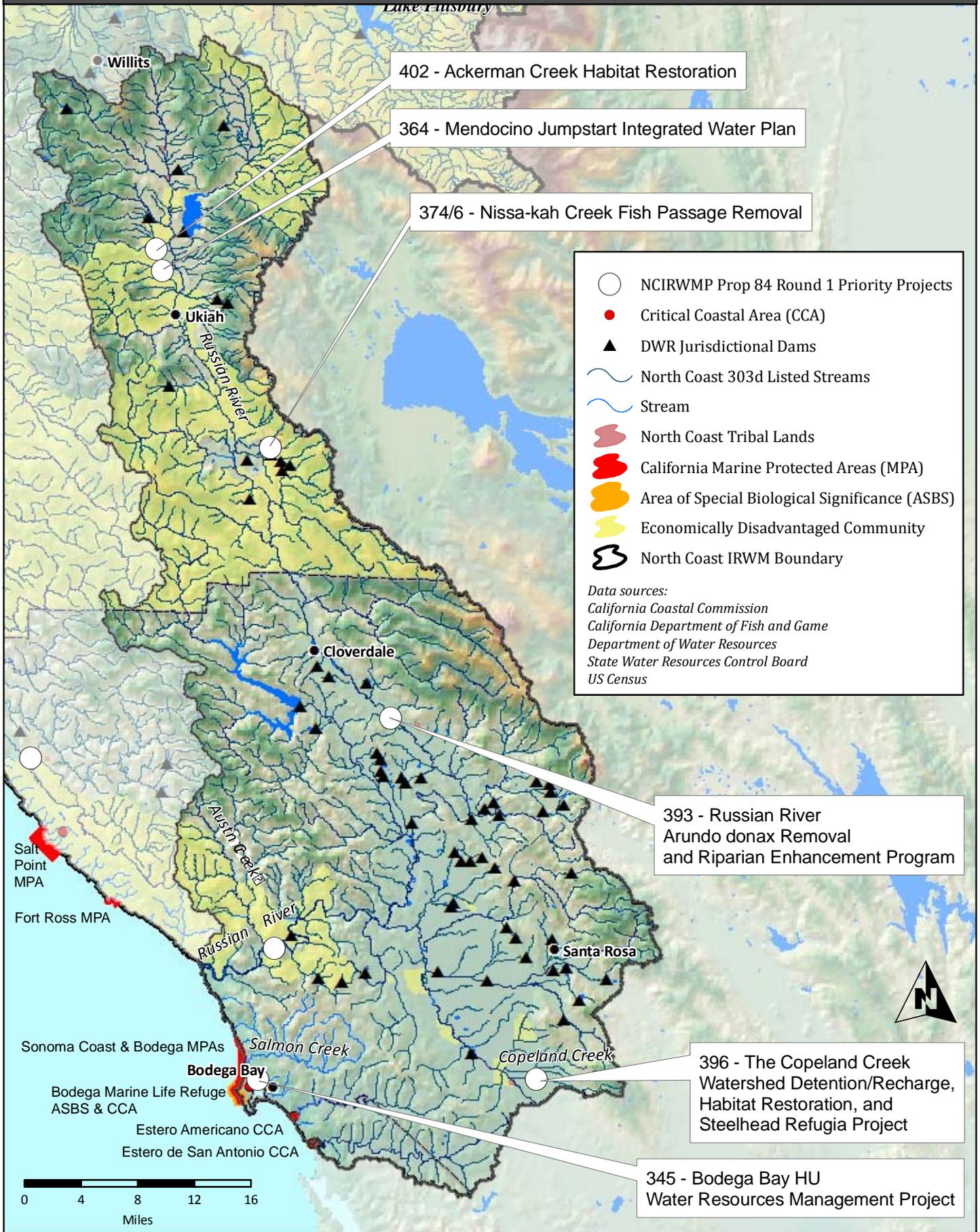
North Coast Integrated Regional Water Management Plan



North Coast Integrated Regional Water Management Plan



North Coast Integrated Regional Watershed Management Plan North Coast Rivers Watershed Management Area (Southern Portion)



North Coast Integrated Regional Watershed Management Plan

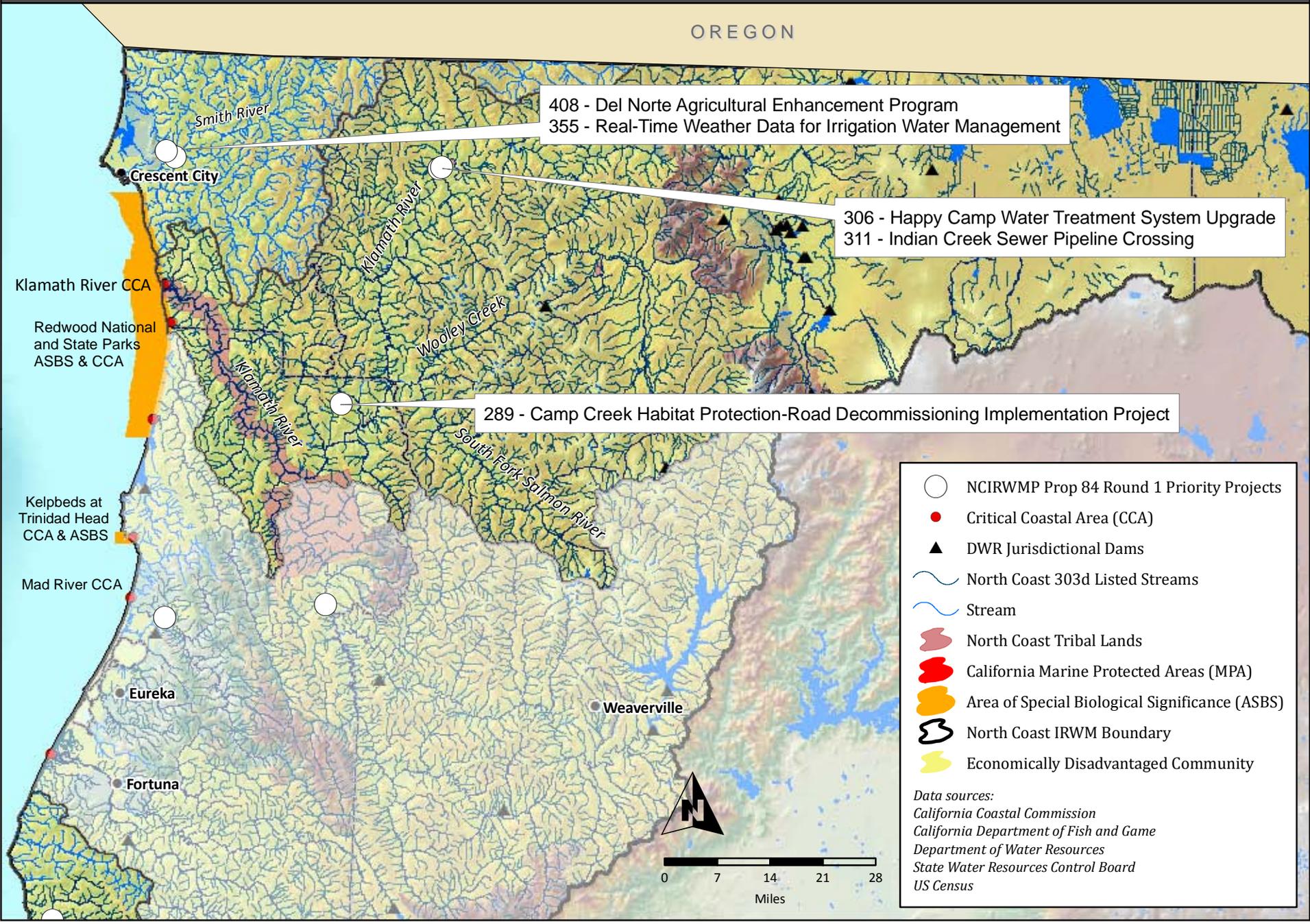
Klamath Watershed Management Area and North Coast Watershed Management Area (Northern Portion)

OREGON

408 - Del Norte Agricultural Enhancement Program
 355 - Real-Time Weather Data for Irrigation Water Management

306 - Happy Camp Water Treatment System Upgrade
 311 - Indian Creek Sewer Pipeline Crossing

289 - Camp Creek Habitat Protection-Road Decommissioning Implementation Project

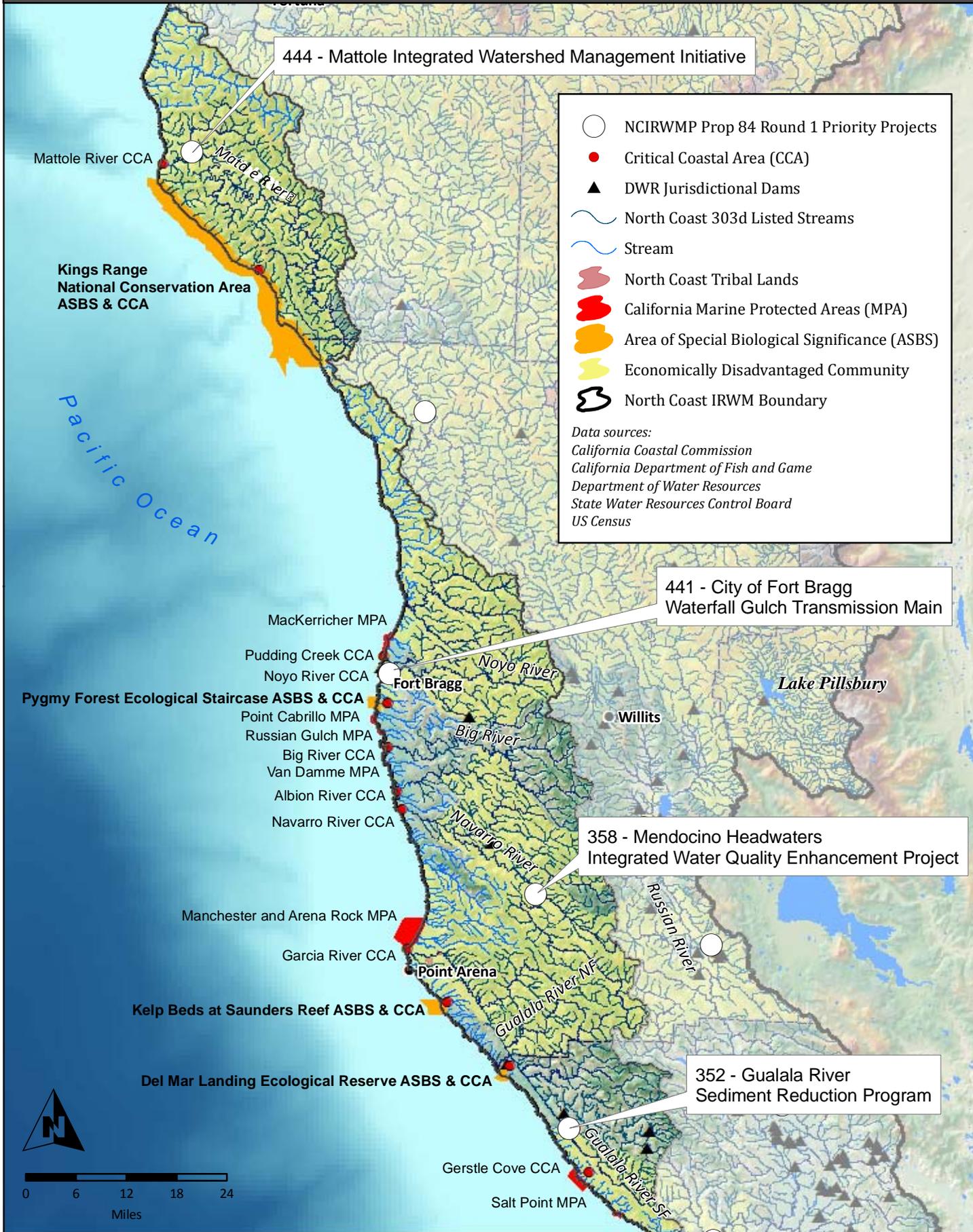


-  NCIRWMP Prop 84 Round 1 Priority Projects
-  Critical Coastal Area (CCA)
-  DWR Jurisdictional Dams
-  North Coast 303d Listed Streams
-  Stream
-  North Coast Tribal Lands
-  California Marine Protected Areas (MPA)
-  Area of Special Biological Significance (ASBS)
-  North Coast IRWM Boundary
-  Economically Disadvantaged Community

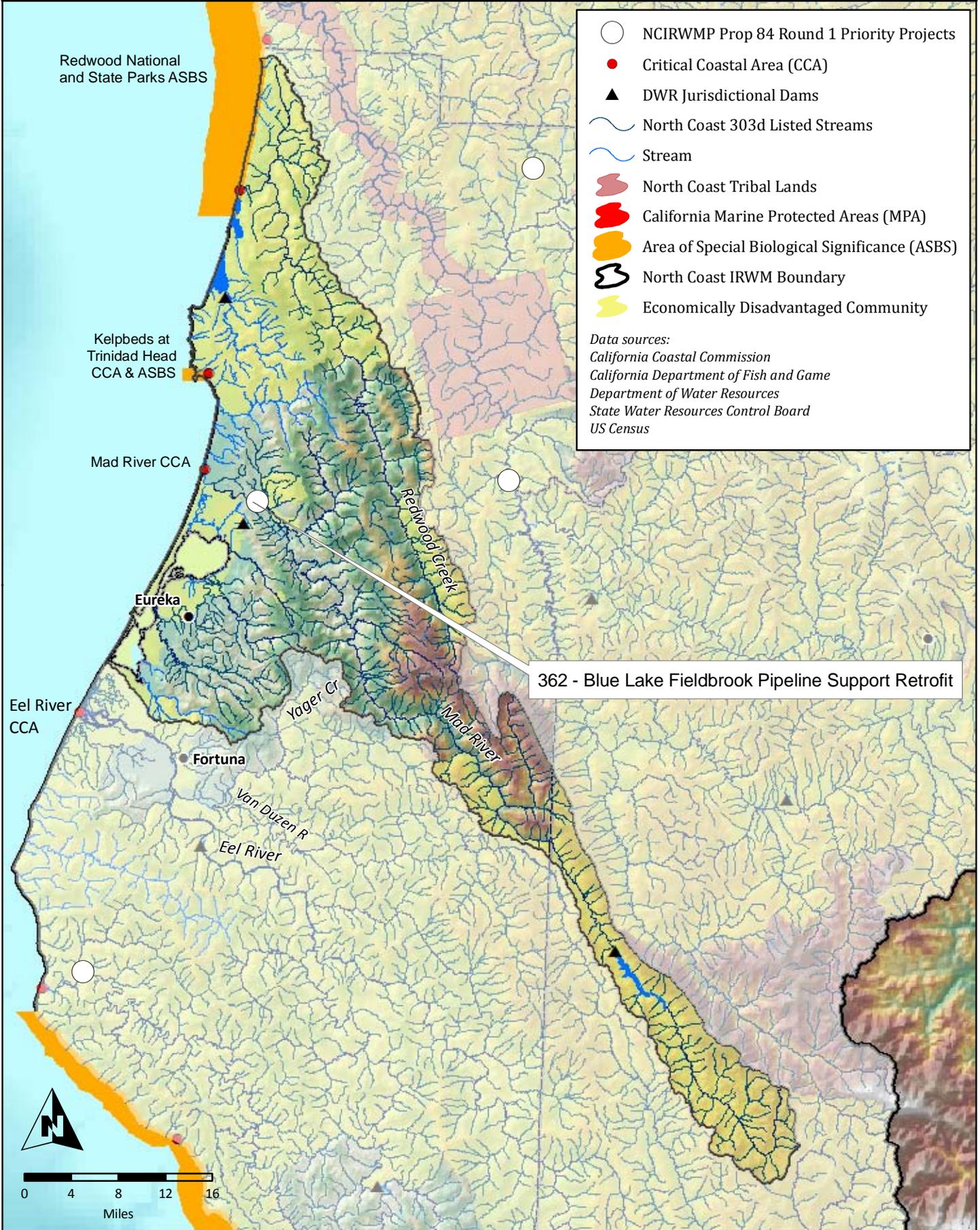
Data sources:
 California Coastal Commission
 California Department of Fish and Game
 Department of Water Resources
 State Water Resources Control Board
 US Census



North Coast Integrated Regional Watershed Management Plan North Coast Rivers Watershed Management Area (Southern Portion)



North Coast Integrated Regional Watershed Management Plan Humboldt Bay Watershed Management Area



- NCIRWMP Prop 84 Round 1 Priority Projects
- Critical Coastal Area (CCA)
- DWR Jurisdictional Dams
- North Coast 303d Listed Streams
- Stream
- North Coast Tribal Lands
- California Marine Protected Areas (MPA)
- Area of Special Biological Significance (ASBS)
- North Coast IRWM Boundary
- Economically Disadvantaged Community

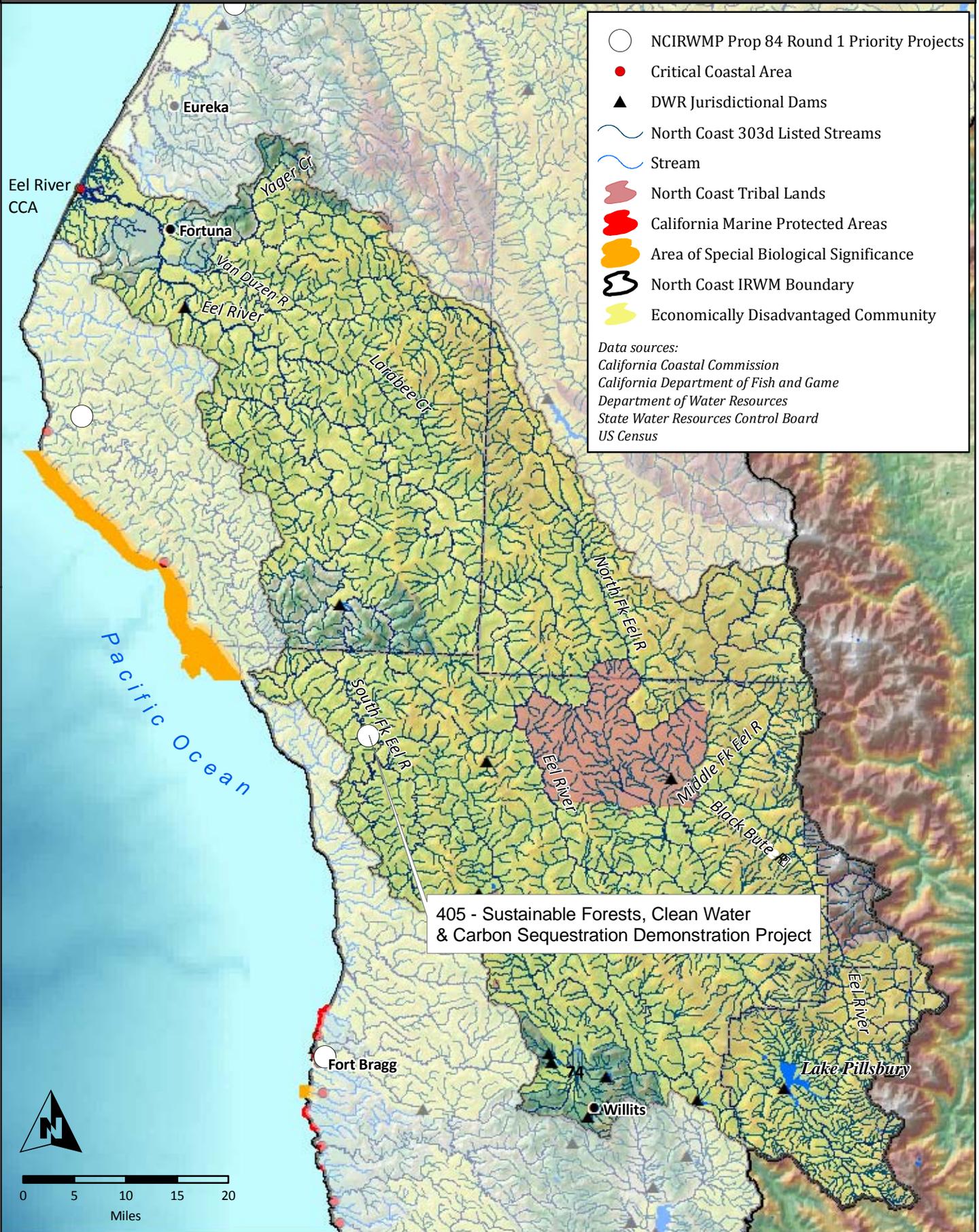
Data sources:
 California Coastal Commission
 California Department of Fish and Game
 Department of Water Resources
 State Water Resources Control Board
 US Census

362 - Blue Lake Fieldbrook Pipeline Support Retrofit



North Coast Integrated Regional Watershed Management Plan

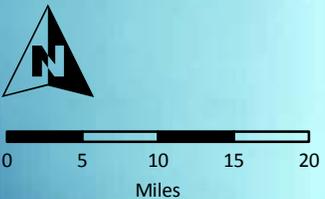
Eel River Watershed Management Area



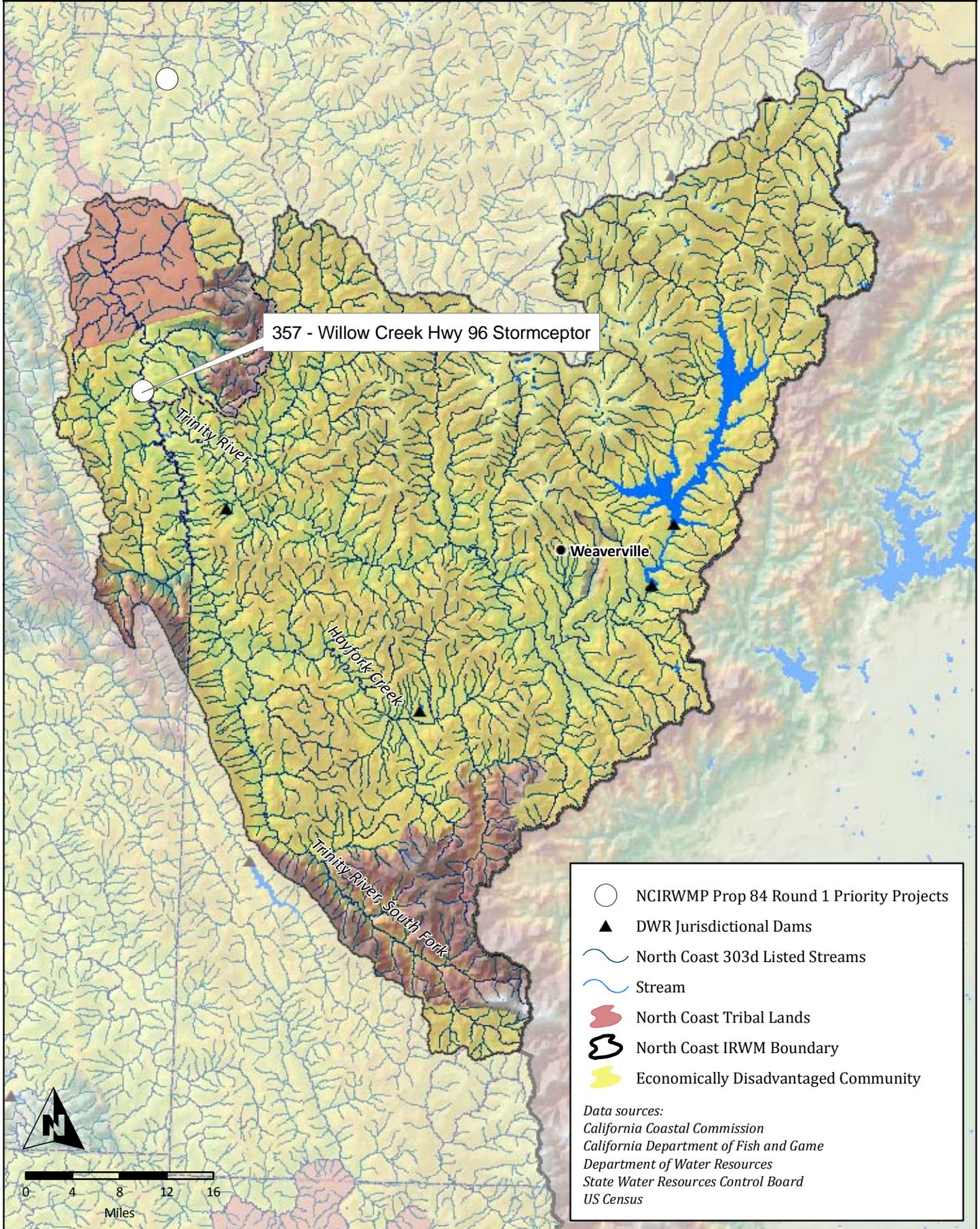
- NCIRWMP Prop 84 Round 1 Priority Projects
- Critical Coastal Area
- ▲ DWR Jurisdictional Dams
- ~ North Coast 303d Listed Streams
- ~ Stream
- North Coast Tribal Lands
- California Marine Protected Areas
- Area of Special Biological Significance
- North Coast IRWM Boundary
- Economically Disadvantaged Community

Data sources:
 California Coastal Commission
 California Department of Fish and Game
 Department of Water Resources
 State Water Resources Control Board
 US Census

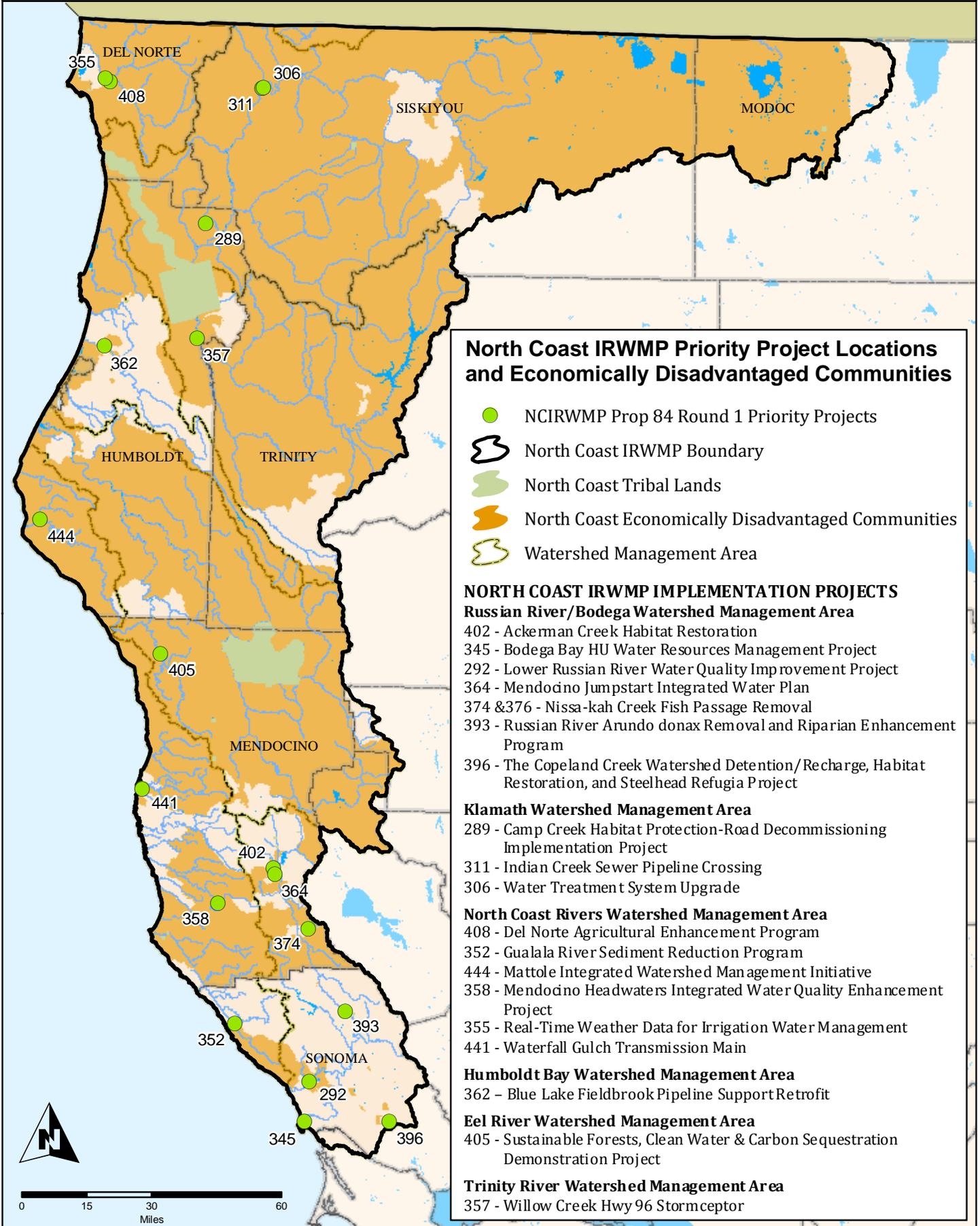
405 - Sustainable Forests, Clean Water
 & Carbon Sequestration Demonstration Project



North Coast Integrated Regional Watershed Management Plan Trinity River Watershed Management Area



North Coast Integrated Regional Water Management Plan



NCIRWMP Proposition 84 Round 1 Implementation Grant Administration

GENERAL INFORMATION:	
Project Title	North Coast Integrated Regional Water Management Plan (NCIRWMP) Proposition 84, Round 1 Implementation Grant Regional Administration
Project Abstract	The NCIRWMP Regional Water Management Group, represented by the NCIRWMP Policy Review Panel, has authorized Humboldt County to act as the applicant and the grant manager for the NCIRWMP Proposition 84, Round 1 Implementation Grant Implementation Grant, if awarded. Humboldt County has established a Central Contracting and Administration Office to administer these funds and respond to DWR’s reporting and compliance requirements associated with the grant administration. This office will act in a coordination role – disseminating grant compliance information to individual project managers throughout the North Coast region, obtaining and retaining evidence of compliance (e.g., CEQA/NEPA documents, reports, monitoring compliance documents, labor requirements, etc), obtaining data for quarterly reports from individual project managers, providing quarterly reports to the State, and coordinating all invoicing and payment of invoices.
Organization	County of Humboldt
Contact Name and Title	Kirk Girard, Director of Community Development Services, Humboldt County
Disadvantaged Community	North Coast region is primarily disadvantaged
Grant Funds Requested	\$411,111 (5% of total implementation proposal)
Non-State Match	\$0 (see Project summary)
Total Budget	\$411,111
Watershed	North Coast Region
County	Del Norte, Humboldt, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties
Goals	<ol style="list-style-type: none"> 1. Provide an efficient regional framework for grant management that supports and meets the objectives and requirements of the state of California and the North Coast region 2. Provide centralized contract administration with uniform accounting, reporting, and compliance protocols for multiple DWR funded projects

Project Description
In 2005, the NCIRWMP Regional Water Management Group unanimously nominated the County of Humboldt to act as the applicant and Regional Manager of grant funds for the NCIRWMP. To date the County of Humboldt has successfully managed over \$27 million in grant funding for 25 North Coast IRWMP planning and implementation projects. The Regional Management Team is led by a Supervising Planner and Administrative Analyst in the Natural Resources Planning Division under the direction of the Community Development Services Director. The Regional Management Team provides QA/QC on all invoices and progress reports submitted by sub-grantees prior to compiling regular grant progress reports and invoices to submit to the granting agency. The Regional Management process of providing initial review of required documentation from component projects aides in simplifying review and approval of progress reports and invoices by the granting agency.

The Regional Management Team acts as the liaison between the project partners (sub-grantees, sub-contractors) and the granting agency to streamline communications. In addition, auditable files are maintained and through the innovative web-based project management tool, access to project information is available to the public. The Online Project Management Tool is provided on the NCIRWMP Implementation Project web portal, facilitates tracking and managing progress on the NCIRWMP implementation projects by the County of Humboldt. This web-based project management tool provides an on-line mechanism for sub-grantee submittal of monthly invoices and reports, review of supporting documentation and project timeline, and upload and public review of project deliverables. The web-based project management system increases the efficiency of project tracking, communication and project management transparency and accountability while minimizing the amount of paperwork generated (see <http://projects.northcoastirwmp.net/projects>).

NCIRWMP matching funds provided by the Sonoma County Water Agency (SCWA) are building the infrastructure for both planning and implementation. The SCWA matching funds were shown in the NCIRWMP, Phase III Proposition 84 IRWM Planning Grant, Round 1. We are therefore not showing the matching funds from SCWA as part of this implementation grant. Consistent with the IRWM program goals, the NCIRWMP views planning and implementation as fully integrated, with the administrative functions supporting both.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management	<p>The County of Humboldt (HC Contract Office) will provide contract administration for the NCIRWMP Proposition 84, Round 1 Implementation Grant (NCIRWMP Prop 84, R1 Implementation) through the following:</p> <ol style="list-style-type: none"> 1. Development of contract agreements 2. Compilation and maintenance of permitting compliance evidence for NCIRWMP Prop 84, R1 Implementation projects 3. Coordination of deliverables for NCIRWMP Prop 84, R1 Implementation projects for delivery to Department of Water Resources (DWR) 4. Regional progress reporting 	
1.1	Contract Development	<p>Develop NCIRWMP Prop 84, R1 Implementation, contract with Department of Water Resources</p> <ol style="list-style-type: none"> 1. Develop NCIRWMP Prop 84, R1 Implementation contract with DWR 2. Develop sub-recipient contract agreements with each of the participating NCIRWMP Prop 84, R1 Implementation project Managers. HC Contract Office will ensure that all sub-recipient contract agreements will be in accordance with DWR requirements. 	Final Contract Agreement
1.2	NCIRWM Plan Performance Measures and Project Performance Plan Development	<p>Develop NCIRWMP Plan Performance Measures methodology and Plan. Coordinate NCIRWMP Prop 84, R1 Implementation Project Performance documentation delivery to DWR</p> <ol style="list-style-type: none"> 1. Develop NCIRWMP Plan Performance Measures 2. Develop schedule for NCIRWMP Prop 84, R1 Implementation Project Performance documentation delivery to DWR 3. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 4. Coordinate final NCIRWMP Prop 84, R1 Implementation Project Performance deliverables 	<p>NCIRWMP Plan Performance Measures</p> <p>Schedule for NCIRWMP Prop 84, R1 Implementation Project Performance documentation delivery to DWR</p>
1.3	CEQA / NEPA Compliance Documentation Coordination	<p>Coordinate NCIRWMP Prop 84, R1 Implementation Project CEQA / NEPA compliance documentation delivery to DWR</p> <ol style="list-style-type: none"> 1. Develop schedule for NCIRWMP Prop 84, R1 Implementation Project CEQA / NEPA 	Schedule for NCIRWMP Prop 84, R1 Implementation Project

#	Work Task Title	Work Task Description	Deliverables
		<p>compliance documentation delivery to DWR, including Native American Tribe Notification</p> <ol style="list-style-type: none"> 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Collect and retain CEQA/NEPA compliance documentation for appropriate NCIRWMP Prop 84, R1 Implementation Projects for seven years. 4. Provide Notice of Determination or Record of Decision or proof of CEQA / NEPA compliance to DWR 	CEQA / NEPA compliance documentation delivery to DWR
1.4	Permit Documentation Coordination	<p>Coordinate NCIRWMP Prop 84, R1 Implementation Project Permit documentation delivery to DWR</p> <ol style="list-style-type: none"> 1. Develop schedule for NCIRWMP Prop 84, R1 Implementation Project Permit documentation delivery to DWR 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Coordinate NCIRWMP Prop 84, R1 Implementation Project Permit deliverables. These may include but are not limited to the following final permits: <ul style="list-style-type: none"> • 1600 permits submitted to the California Department of Fish and Game • Army Corp of Engineers (COE) 404 permit • 401 Water Quality Certification from the North Coast Regional Water Quality Control Board • NPDES permit or WDR from Regional Water Board 5. Collect and retain permit compliance documentation for NCIRWMP Prop 84, R1 Implementation Projects for six years. 	Schedule for NCIRWMP Prop 84, R1 Implementation Project Permit documentation delivery to DWR
1.5	Regional Monthly Reports	<p>Reports will be submitted monthly from June 2011 through completion date. The progress reports shall describe the regional activities and major accomplishments of the NCIRWMP Prop 84, R1 Implementation Projects during the month, milestones achieved, and any important problems encountered in the performance of the work under the agreement.</p> <ol style="list-style-type: none"> 1. Prepare progress reports every month in accordance with DWR reporting format to describe the regional activities and accomplishments of the NCIRWMP Prop 84, R1 Implementation Projects 2. Describe project progress, such as activities completed and problems encountered in current month. The description of regional and major NCIRWMP Prop 84, R1 Implementation project activities and accomplishments during the month shall be in sufficient detail to provide a basis for payment of invoices. 	Regional Monthly Reports - submitted every month until completion

#	Work Task Title	Work Task Description	Deliverables
1.6	NCIRWMP Prop 84, R1 Implementation Project Monthly Report Submittal Coordination	<p>Coordinate NCIRWMP Prop 84, R1 Implementation Project Monthly Report submittal</p> <ol style="list-style-type: none"> 1. Coordinate NCIRWMP Prop 84, R1 Implementation Project Monthly Report submittal to DWR 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Progress reports shall be in accordance with DWR reporting format and will describe project progress, such as activities completed and problems encountered in current month. The description of all NCIRWMP Prop 84, R1 Implementation project activities and accomplishments during the month shall be in sufficient detail to provide a basis for payment of invoices. 	Project Manager Monthly Reports submitted every month until completion
1.7	NCIRWMP Prop 84, R1 Implementation Regional and Project Invoice Management	<p>Coordinate and manage NCIRWMP Prop 84, R1 Implementation Regional and Project Invoice submittal</p> <ol style="list-style-type: none"> 1. Coordinate NCIRWMP Prop 84, R1 Implementation Regional and Project Invoice submittal to DWR 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Invoices shall be in accordance with DWR format and project Managers will provide percent complete status for all project tasks. 	NCIRWMP Prop 84, R1 Implementation Regional and Project Invoices
1.8	NCIRWMP Prop 84, R1 Implementation Grant Regional Final Report	<p>A Draft Regional Final Report will be provided 60 days before the end of Grant Agreement. Comment period on the draft report will be 30 days and the Final Regional Report will incorporate comments to the extent possible or provide explanation.</p> <ol style="list-style-type: none"> 1. Summarize the regional achievements and difficulties for the North Coast 2. Summarize the major NCIRWMP Prop 84, R1 Implementation project activities, achievements and difficulties 3. Prepare Draft Project Report to include DWR report content requirements. The report shall include the following narrative sections: <ul style="list-style-type: none"> An introduction section including a statement of purpose, the scope of the regional project, and a description of the approach and processes used during the project. A list of the task deliverables. Determination of whether the purpose of the regional project has been met. 4. Provide Draft report to appropriate agencies for review and comment 5. Prepare NCIRWMP Prop 84, R1 Implementation Grant Regional Final Report 	Draft Regional Final Report Final NCIRWMP Prop 84, R1 Implementation Grant Regional Report

#	Work Task Title	Work Task Description	Deliverables
1.9	NCIRWMP Prop 84, R1 Implementation Project Final Report Submittal Coordination	<p>Coordinate the NCIRWMP Prop 84, R1 Implementation Project Final Report submittal.</p> <p>Draft NCIRWMP Prop 84, R1 Implementation Project Final Reports will be provided to DWR 60 days before the end of Grant Agreement. Comment period on the draft reports will be 30 days.</p> <ol style="list-style-type: none"> 1. Develop schedule for NCIRWMP Prop 84, R1 Implementation Project Final Report submittal to DWR 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Coordinate NCIRWMP Prop 84, R1 Implementation Project Final Report submittal to DWR 4. Prepare Draft NCIRWMP Prop 84, R1 Implementation Project Final Report to include DWR report content requirements. The report shall include the following narrative sections: <ul style="list-style-type: none"> • An introduction section including a statement of purpose, the scope of the project, and a description of the approach and activities used during the project. • A list of the task deliverables. • Determination of whether the purpose of the project has been met. Include information collected in accordance with the project monitoring and reporting (“assessment and evaluation”) plan. 	<p>Schedule for NCIRWMP Prop 84, R1 Implementation Project Final Report submittal to DWR</p> <p>Draft NCIRWMP Prop 84, R1 Implementation Project Final Reports</p> <p>NCIRWMP Prop 84, R1 Implementation Project Final Reports</p>
2.0	NCIRWMP Prop 84, R1 Implementation Project Feasibility Studies Deliverable Coordination	<p>Coordinate Supplemental Feasibility Studies submittal for appropriate NCIRWMP Prop 84, R1 Implementation projects</p> <p>Supplemental Feasibility Studies will be completed by project Managers for specific NCIRWMP Prop 84, R1 Implementation projects and may include project alternative analysis or prioritization of Pacific Watershed and Associates (PWA) inventory assessment.</p> <ol style="list-style-type: none"> 1. Develop schedule for NCIRWMP Prop 84, R1 Implementation Supplemental Feasibility Study submittal to DWR 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Coordinate NCIRWMP Prop 84, R1 Implementation Project Supplemental Feasibility Studies submittal to DWR 	<p>Schedule for NCIRWMP Prop 84, R1 Implementation Project Feasibility Studies submittal to DWR</p> <p>Completed Supplemental Feasibility Studies for specific NCIRWMP Prop 84, R1 Implementation projects</p>
3.0	NCIRWMP Prop 84, R1 Implementation Project Design Deliverables Coordination	<p>Coordinate Design Deliverables submittal for appropriate NCIRWMP Prop 84, R1 Implementation projects</p> <p>Final Project Designs will be completed by project Managers for specific NCIRWMP Prop 84,</p>	<p>Schedule for NCIRWMP Prop 84, R1 Implementation Project Design Deliverables to be</p>

#	Work Task Title	Work Task Description	Deliverables
		<p>R1 Implementation projects. The plans and specifications will conform to all necessary requirements stipulated by the county and regulatory agencies to ensure a high quality product.</p> <ol style="list-style-type: none"> 1. Develop schedule for NCIRWMP Prop 84, R1 Implementation Project Design Deliverables to be provided to DWR 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Coordinate NCIRWMP Prop 84, R1 Implementation Project Final Design Deliverables submittal to DWR 	<p>provided to DWR</p> <p>Completed Final Project Design or Construction Specifications for specific NCIRWMP Prop 84, R1 Implementation projects</p>
4.0	<p>NCIRWMP Prop 84, R1 Implementation Project Implementation Deliverables Coordination</p>	<p>Coordinate Implementation Deliverable submittal for NCIRWMP Prop 84, R1 Implementation projects</p> <ol style="list-style-type: none"> 1. Develop schedule for NCIRWMP Prop 84, R1 Implementation Project Implementation Deliverables to be provided to DWR 2. Communicate with NCIRWMP Prop 84, R1 Implementation Project Managers 3. Coordinate NCIRWMP Prop 84, R1 Implementation Project Implementation Deliverables submittal to DWR. Implementation deliverables completed by project Managers for NCIRWMP Prop 84, R1 Implementation projects to DWR including 'As Built' drawings, revegetation inspections and County Notice of Completion. 	<p>Schedule for NCIRWMP Prop 84, R1 Implementation project implementation deliverable submittal</p>

A. Russian River/Bodega Watershed Management Area

402 - Ackerman Creek Habitat Restoration, Pinoleville Pomo Nation

GENERAL INFORMATION:	
Project Title	Ackerman Creek Habitat Restoration
Project Abstract	The Pinoleville Pomo Nation, Ackerman Creek Habitat Restoration project will restore habitat for culturally important species along a 0.63 mile degraded stretch of Ackerman Creek that flows through the Pinoleville Pomo Nation reservation. The plans include in-stream restoration and enhancement activities, pollution prevention, invasive plant removal and revegetation of the riparian zone. This riparian restoration proposal will implement two parts of the overall plan. The first part will be to assess and sustain initial efforts to eradicate <i>Arundo</i> and blackberry for several years after they have been first removed. The second part is to replant a riparian forest with native plants that have cultural value to tribal citizens and that improve in-stream habitat for salmonids and other aquatic species. The project will involve tribal youth in the removal and re-vegetation activities which will be reinforced by field-based science and culture lessons.
Organization	Pinoleville Pomo Nation
Contact Name and Title	David Edmunds, Environmental Director
Disadvantaged Community	yes
Grant Funds Requested	\$46,950
Non-State Match	\$180,000
Total Budget	\$226,950
Watershed	Ackerman Creek/Russian River
County	Mendocino
Status of project design and bid solicitation efforts	Tarping Feasibility Study to be completed prior to contract Ackerman Creek Habitat Restoration Plan complete
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Ackerman Creek Habitat Enhancement Plan • <i>Arundo</i> Removal Technical Guide. Sotoyome Resource Conservation District. 2010 • California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual Volume II, Part XI Riparian Restoration Practices, October 2003.
Status of CEQA, NEPA, and other environmental laws	Original <i>Arundo</i> removal was tested under a nation-wide permit through the Natural Resources Conservation Service. It is expected that the work will continue under the same permit.
Work that will be completed prior to June 1, 2011 (assumed contract date)	We will have cut and tarped between 1,000 and 2,000 square feet of <i>Arundo</i> by the time a contract would be signed. The Ackerman Creek Habitat Restoration Plan will be updated. All permits will be in place. We will have one year or more of data on turbidity and bio-assessment of Ackerman Creek.
Merits of the building materials or computational methods that were or will be used for project development	We have chosen tarping techniques for invasive species removal to avoid spraying herbicides near Ackerman Creek impacting the native plants and fish found there. We are currently testing the tarping method for effectiveness at the project site. Our turbidity measurements are part of an EPA-approved quality assurance plan. The bio-assessment methods have been approved under a quality assurance plan of the Pyramid Lake Paiute Tribe of Nevada.
Procedures for coordination	We have monthly meetings that we attend with Vocational Rehabilitation and other tribal

GENERAL INFORMATION:	
with partner agencies and organizations	programs, and we have quarterly meetings with other tribes in our area. Our federal partners generally require annual or quarterly reports, though we often send them updates more frequently through email. We have frequent contact with the Mendocino Redwood Company and are developing contacts with Beckstoffer Vineyards, two large neighbors in the Ackerman Creek watershed.
A description of synergies or linkages between other NCIWMP projects	Control of invasive species is an important element in the projects proposed by the Mendocino County and Sotoyome RCDs. We will extend the impact of their efforts and remove a threat to their long-term success by removing one of the largest up-stream <i>Arundo donax</i> sources. To the extent our work improves fish habitat, we will also contribute to the long-term success of fish management along the Russian River – such as the Hopland Band’s Nissah Creek restoration efforts. Restoration efforts also reinforce the restoration efforts of the Mendocino County Water Agency, which has helped us with fish counts and is testing habitat restoration work in our area.
Status of acquisition of land or rights-of-way, if applicable	The project is within the historic boundaries of the Pinoleville Reservation, where the Tribe assumes managerial responsibility. We have contacted fee-holders to inform them of our intentions and most are strongly supportive.
Standards, such as construction standards that will be used in implementation	As noted, we will use 6 mil black tarp, stacked down, to eliminate <i>Arundo donax</i> . Himalayan blackberry will be removed by hand. Native plants will be irrigated with temporary tubing twice weekly in summers.
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	The project is part of a larger restoration project along Ackerman Creek that includes improvements to channel and banks, and may eventually include replacement of a fish ladder. Some of this work is already funded and underway. However, should the work be stopped, removal of invasives is a priority in itself, and will support other invasive removal projects within the Russian River.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Habitat restoration	<ul style="list-style-type: none"> Remove 5,280 square feet of <i>Arundo donax</i> Remove 9,000 square feet of Himalayan blackberry Plant 4 acres of native plant species Improvement in water quality with drop in turbidity of 20% Improvement in bio-assessment score of 20%
2.	Increase youth involvement	<ul style="list-style-type: none"> 10 youth can identify invasive species 10 youth learn eradication and planting methods 5 youth take long-term responsibility for project maintenance

Description of the Purpose and Need of the Project

The purpose of this project is to enhance existing habitat restoration efforts on Ackerman Creek. The first component of the project is to follow up on earlier non-native *Arundo* and Himalayan blackberry removal to ensure that the plants do not regrow after the initial removal by backhoe, hand and tarping. The backhoe removal was funded by a grant from Natural Resource Conservation Service. The follow-up funds were to come from another source, but that funding fell through unexpectedly in 2009. Without follow-up funds, the restoration of a native riparian forest will be jeopardized by regrowth of *Arundo*, Himalayan blackberry and other invasive plant species. The primary benefit of the project will be to native plant and animals species, particularly salmonids, and by extension, to the tribal people whose cultural practices depend on those species.

Besides improving Ackerman Creek within the reservation, the fulfillment of the whole restoration plan will make good on the promise of up-stream work already completed by the Mendocino Redwood Company (MRC) to restore fish habitat. Since 2001, the MRC has worked more than 3 miles of Masonite Road and Ackerman Creek, removing fish barrier culverts, reshape channels, install weirs, and plant trees. Currently, that work cannot fully benefit fish populations because the lower reaches managed by the PPN are in such poor shape.

Invasive plant eradication will also have clear benefits to the downstream efforts to restore habitat. The removal of *Arundo*, in particular, has been a high priority within the Russian River watershed that can't be realized while significant upstream patches remain. If follow-up eradication is not performed, the invasive plants will prevent the newly planted and existing riparian forest from protecting and feeding the salmonid population, both on the reservation and downstream. The poorly functioning portion of Ackerman Creek through the reservation will limit the restored upper reaches from functioning to their fullest extent to restore the salmonid population.

The PPN youth environmental education effort will be hampered, and a new generation will have limited knowledge of and connection to Ackerman Creek and its ecology.

Project Description

The Pinoleville Pomo Nation, Ackerman Creek Habitat Restoration project will restore habitat for culturally important species along a 0.63 mile degraded stretch of Ackerman Creek that flows through the Pinoleville Pomo Nation reservation. The plans include in-stream restoration and enhancement activities, pollution prevention, invasive plant removal and revegetation of the riparian zone. This riparian restoration proposal will implement two parts of the overall plan. The first part will be to assess and sustain initial efforts to eradicate *Arundo* and blackberry for several years after they have been first removed. The second part is to replant a riparian forest with native plants that have cultural value to tribal citizens and that improve in-stream habitat for salmonids and other aquatic species. The project will involve tribal youth in the removal and re-vegetation activities which will be reinforced by field-based science and culture lessons.

In 2002 two small patches of *Arundo* were dug out by hand. The two following growing seasons were needed to dig out the roots that regrew. On this much larger patch, more and larger pieces can be expected to take 3 to 5 years to eradicate. As traditional food plants and basket making roots, which are prepared in one's mouth, are part of the riparian restoration, control of the invasives by herbicide is not the preferred option. The follow-up will require one or two persons to walk the area of invasives 2 or 3 times each year, digging out all regrowths for 3 to 5 years.

Eradication of non-native plant species will allow proper functioning of the watershed process in this stretch of the river system and further downstream. Native vegetation will better filter stormwater runoff, and will stabilize banks without need for junk cars or other non-natural features. Because this patch of *Arundo* is the largest in the Ukiah Valley area, its eradication is critical to the watershed wide eradication effort.

The second component of the project is to replant the riparian forest, both to increase the availability of native plants for

cultural uses, and to create better habitat for salmonids and various bird, amphibian and mammal species. The tribe has secured funding to design channel improvements from U.S. Fish & Wildlife Service, and from NRCS and Fish & Wildlife to implement limited riparian planting. However, a key funding source for planting native species left the project. This proposal would fill that gap with funds to establish alder, cottonwood, buckeye, willow and other shading trees, as well as berry bushes, redbuds, dogwoods, sedges, rushes and other riparian plants used by Pomo peoples.

The third component of the project is to assure long-term maintenance of the riparian habitat by engaging tribal youth. We will involve youth in the identification and eradication of invasive species so that they understand their impact on riparian ecosystems and the difficulty of cleaning up *Arundo* and blackberry once they are established. We also want them to value native plant species as cultural resources and as habitat, and understand how to care for them. We expect to build short scientific and cultural lessons around field work, and to integrate this work into our existing cultural and environmental education programs.

Disadvantaged Community planning process:

The project to improve Ackerman Creek's habitat grew out of a strategic planning exercise held over a series of meetings with the tribe in January and February of 2006. Approximately 20 tribal staff and citizens participated in a ranking exercise for planning priorities during the meetings. Restoration of Ackerman Creek ranked among the top 5 priorities, with habitat improvements to support salmonid populations a key element of that priority. This priority was further elaborated in meetings with tribal staff and citizens over the course of 2007 and 2008, as the PPN drafted an Integrated Resource Management Plan (which is still waiting final approval after a review by the Bureau of Indian Affairs). The project also builds on a tribal effort from the early years of the decade to catalogue native plants and their uses, a project that produced the booklet *Native Plants of the Pomo*, and led to the planting of a native plant garden. We continue to hold public meetings about the restoration effort, scheduling a plan review for early in 2011 with our restoration engineering team.

Scientific and Technical Merit Discussion: Rationale for the Project

There is significant research indicating that invasive species such as giant reed and Himalayan blackberry have a negative impact on riparian ecosystems and the Salmonid and other wildlife species that depend on them. Impacts include reduced shade cover, decreased habitat diversity, poor habitat for insects, increased water usage and poor erosion control, and increased fire risk, among others. The two invasive species of concern here, giant reed and Himalayan blackberry, are considered aggressive, crowding out native species.

In contrast, native plant species have been shown to provide better shade, erosion control, insect habitat, and other wildlife habitat. Replacing non-native species with native species in the riparian corridor should improve habitat for Salmonids and other wildlife, and improve erosion control.

It should also be noted that native plant species are valued by tribal people in-and-of themselves. They are a source of fiber, medicines and wild foods important to tribal cultural practices and social life, and can be critical to subsistence when tribal families hit hard times.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	The PPN Environmental Program will create a detailed work plan allocating labor, materials, time to work plan tasks and geo-referencing the tasks	Sub-Contract Agreement
1.2	Project Performance Plan Development	In cooperation with the County of Humboldt, DWR and other appropriate agencies, develop a Project Performance Plan	Project Performance Plan
1.3	Quarterly Reports	The PPN Environmental Director will submit quarterly progress reports to County of Humboldt electronically. The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the agreement.	Quarterly reports describing work completed, challenges, and strategies for reaching remaining project objectives
1.4	Final Report	The PPN Environmental Director will submit a final report with full assessment of vegetation along the riparian area of Ackerman creek	Final reports with photos, surveys, expenditures and analysis of the project
1.5	Environmental Program and VR Program coordination	The PPN Environmental Program will work with the tribal education coordinator and the Vocational Rehabilitation (VR) program to identify youth to participate in the project	A list of youth involved
1.6	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	<p>Review of CEQA checklists and requirements</p> <ol style="list-style-type: none"> 1. Conduct preliminary project review 2. Determine is CEQA is required 3. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes 	<p>A letter to County of Humboldt regarding addressing CEQA concerns</p> <p>Prepared CEQA Documentation if required</p>

#	Work Task Title	Work Task Description	Deliverables
		<p>about the project and solicit input per PRC §75102</p> <p>4. Prepare Initial Study per CEQA Guidelines Section 15063 if required</p> <p>5. Prepare CEQA Documentation if required</p>	
2.2	NEPA Development	PPN will seek coverage for the work under the NRCS nation-wide permit that covered the development of the restoration plan with U.S.F.W.S. and NRCS funding.	<ul style="list-style-type: none"> • A letter from the PPN Tribal Historic Preservation Office approving the project. • A letter from NRCS indicating that the plan was developed under a nation-wide permit for restoration. • Completed archeological survey of the area. Restoration plan developed under NRCS nation-wide permit
3.	Planning/Design		
3.1	Assessment: <i>Arundo</i> control	Evaluate success of tarping method for <i>Arundo</i> control vs. chemical treatments.	Report on success rate of 8 –month pilot <i>Arundo</i> control project
3.2	Assessment: invasive plant location	Updated mapping of invasive locations	Revised map of invasive plant locations
3.3	Feasibility Study: Current Environmental Education	Evaluate PPN capacity to maintain restored areas	Report on current projects, including bioswale and oak woodland restoration Evaluations of existing projects, success, challenges
3.4	Feasibility Study: Current Youth Projects	The PPN Environmental Program will engage the PPN Vocational Rehabilitation (VR) Program to find experienced laborers	A review of current youth projects and environmental education and cultural education projects
3.5	Concept Design	Develop Concept Design	Concept Design
3.6	60% Design: Creek Restoration Design, Draft Eradication Plan	PPN will develop the 60% design phase, draft non-native plant species eradication plans (including locations for invasives, eradication techniques), work schedules, budgets, labor requirements. These will form the basis of a tribal and public review process that will lead to final design.	Creek Restoration Design: Draft Eradication Plan, reports on pilot eradication projects.
3.7	60% Design: Creek Restoration	PPN will develop the 60% design phase, with draft planting plans	Creek Restoration Design: Draft Planting Plan, reports from

#	Work Task Title	Work Task Description	Deliverables
	Design, Draft Planting Plan	(including locations for species), work schedules, budgets, labor requirements. These will form the basis of a tribal and public review process that will lead to final design.	current restoration projects
3.8	60% Design: Creek Restoration Design, Youth Training Plan	PPN will develop the 60% design phase for youth training. We will present for public comment a plan that includes a list of trainees, training schedules, hands-on learning experiences and other educational tools	A draft Youth Training Plan
3.9	Final Design/ Plans: Creek Restoration Design, Draft Eradication Plan	After a public review process that will involve a) a tribal general council meeting and b) consultation with others who have interests in the watershed, including county government and private landowners, we will revise the draft plans and create a final plan for invasive removal	Final plan for removing invasives
3.10	Final Design/ Plans: Creek Restoration Design, Planting Plan	After a public review process that will involve a) a tribal general council meeting and b) consultation with others who have interests in the watershed	Final plan for planting native species
3.11	Final Design/ Plans: Creek Restoration Design, Youth Training Plan	After a public review process that will involve a) a tribal general council meeting and b) consultation with others who have interests in the watershed	Final plan for youth training
4.	Construction/ Implementation		
4.1	Construction administration	<ul style="list-style-type: none"> Assure all permits are in place from NRCS Recruit and interview laborers Meeting with Vocational Rehabilitation Program about the restoration work 	<ul style="list-style-type: none"> Documentation from NRCS Laborer applications
4.2	Construction contracting	Develop contracts for labor support with Vocational Rehabilitation program	<ul style="list-style-type: none"> Interviews and selection process Signed contracts
4.3	Invasive removal	<ul style="list-style-type: none"> Assemble equipment and site preparation Conduct training in use of equipment, protocols for removing vegetation, disposing of vegetation through composting Remove vegetation 	<ul style="list-style-type: none"> Notes from training Photos of work being conducted

#	Work Task Title	Work Task Description	Deliverables
			<ul style="list-style-type: none"> Measurements of material removed, areas cleared
4.4	Re-vegetation	<ul style="list-style-type: none"> Propagate and purchase plants Assemble equipment and site preparation Conduct planting trainings Plant native species Assemble irrigation equipment Verify effectiveness of irrigation Planting hardware installed 	<ul style="list-style-type: none"> Notes from training Photos of work being conducted Measurements of plants installed, areas covered Results of irrigation tests
4.5	Youth training	<ul style="list-style-type: none"> Schedule classes and identify trainers within the PPN and partner institutions (including UC Berkeley) Hold class and field sessions 	<ul style="list-style-type: none"> Class descriptions Photos of training sessions Surveys of knowledge gained
5.	Project Performance Assessment		
5.1	Invasive plant suppression	<ul style="list-style-type: none"> Semi annual inspections of riparian area for invasives Measurements of areas re-colonized by invasives Assessment of invasive control measures 	Semi-annual Invasive suppression reports
5.2	Re-vegetation Assessment	<ul style="list-style-type: none"> Semi annual inspections of riparian area for re-vegetation success Measurements of areas re-colonized by native species, survival rates of plants installed Semi-annual bio-assessment of riparian and creek habitat Assessment of planting measures 	Semi-annual Re-vegetation Assessment reports
5.3	Youth Training impacts	<ul style="list-style-type: none"> Track the number of youth trained that remain active in restoration work Track the skill level and knowledge of youth involved 	Semi-annual Youth Training reports Photos of youth participation
6.	Site Repair		

#	Work Task Title	Work Task Description	Deliverables
6.1	Invasive plant suppression	<ul style="list-style-type: none"> • Semi annual inspections of riparian area for invasive plant reinfestation • Removal of invasives found 	<ul style="list-style-type: none"> • Semi-annual reports • Measurements of invasives removed, areas recovered • Assessment of removal techniques
6.2	Re-vegetation Site Repair	<ul style="list-style-type: none"> • Semi annual inspections of riparian area for native species • Bi-weekly inspections of irrigation support in dry months • Replacement of dead plants. Additional planting where riparian and creek habitat needs improvement 	<ul style="list-style-type: none"> • Semi-annual reports • Measurements of native species replanted, areas recovered, mortality of planted species • Assessment of planting techniques and overall planting plan

345 - Bodega Bay HU Water Resources Management Project, Gold Ridge RCD

GENERAL INFORMATION:	
Project Title	Bodega Bay HU Water Resources Management Project
Project Abstract	The Bodega Bay HU Water Resources Management Project combines a suite of approaches to restore a resilient riparian corridor and in-stream habitat for the benefit of fish and other aquatic organisms that dwell in Americano, Ebabias and Salmon Creeks. The project will adopt an integrated, community-based approach to address these critical issues and identified impairments to beneficial uses. Fine sediment delivery will be reduced by restoring actively eroding gullies that were identified in a UCCE study in 2007. Instream habitat will be enhanced through the implementation of Large Wood Structures. The streamflow augmentation and water conservation component of this project has been designed using lessons from Gold Ridge RCD's Save our Salmon (SOS) program completed in 2010. This project will expand on the SOS program to improve long-term water security throughout coastal Sonoma County. With salmonid populations dwindling, the time to implement aggressive measures to protect water quality and habitat is now. This project takes that aggressive approach, while at the same time respecting the critical partnerships between the private landowners and the RCD.
Organization	Gold Ridge Resource Conservation District
Contact Name and Title	Lisa Hulette, Executive Director
Disadvantaged Community	Bodega, Valley Ford and Bloomfield
Grant Funds Requested	\$700,000
Non-State Match	\$255,205
Total Budget	\$955,205
Watershed	Salmon Creek and the Estero Americano Watersheds within the Bodega Bay HU
County	Sonoma
Status of project design and bid solicitation efforts	<ul style="list-style-type: none"> • Instream Habitat Improvement: Conceptual designs (30%) are completed for the LWD structures in Tannery Creek; Designs for Ebabias Ck LWD to be developed as part of this program • Fine Sediment Delivery: Design for restoration of eroding gullies is currently in process. 100% designs (suitable for public bidding) will be completed prior to the start of the contract. • Riparian revegetation: Planting plans to be developed as part of the program • Streamflow Augmentation: Designs for the Bodega Water System Tank are currently in process. 100% designs (suitable for public bidding) will be completed prior to the start of this contract.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Save Our Salmon: Salmon Creek Instream Habitat Enhancement Plan, Tannery Creek Large Wood Structures, Conceptual Plan • Save Our Salmon: Salmon Creek Habitat Rehabilitation Program, Phase 1, Residential Garden and Small Agricultural Rainwater Collection System

GENERAL INFORMATION:	
	<ul style="list-style-type: none"> • Gold Ridge RCD, Salmon Creek Integrated Watershed Management Plan, 2010 • Prunuske Chatham, Inc, Salmon Creek Water Conservation Plan, Occidental Arts & Ecology Center, 2010
Status of CEQA, NEPA, and other environmental laws	CEQA compliance will be initiated at the start of the contract period. Background scoping for sensitive resources and the CEQA process determination will be completed within 6 months of the contract award. Other ecological permits will be acquired as needed.
Work that will be completed prior to June 1, 2011 (assumed contract date)	<ul style="list-style-type: none"> • Designs for the Bodega Water Company Storage Tank will be completed prior to June 1, 2011. A Water Conservation Task Force has been convened and priority selection criteria for recipients of rainwater catchment tanks will be developed prior to the contract start date. • Designs for the fine sediment delivery restoration sites will be completed prior to June 1, 2011.
Merits of the building materials or computational methods that were or will be used for project development	Streamflow Augmentation: The water treatment and storage facilities, as well as supply lines, will be replaced and consolidated to modernize and streamline the systems for the Bodega and Valley Ford Water Companies. Individual water storage tanks will utilize pre-fabricated American made tanks. These tanks have proven to be cost effective, require minimal permitting, and have been successfully utilized in GRRCD's Save Our Salmon (SOS) program funded by the NOAA Restoration Center.
Procedures for coordination with partner agencies and organizations	<p>This project is a continuation of efforts to improve water quality and habit for anadromous fish in the Estero Americano and Salmon Creek Watersheds by a group of collaborative partners including the Gold Ridge RCD, the USDA Natural Resources Conservation Services (NRCS), the Occidental Arts & Ecology Center, the Bodega Water Company, Western United Dairymen and the Salmon Creek Watershed Council. The group will ensure coordination with local, state and federal agency partners including NOAA Fisheries, the California Department of Fish & Game, the North Coast Regional Water Quality Control Board, the County of Sonoma, the Sonoma County Agricultural Preservation & Open Space District, the Sonoma County Water Agency, the North Coast Integrated Regional Watershed Management Plan (NCIRWMP) proponents, and other resource and/or regulatory agency staff. A Water Conservation Task Force has already been convened to ensure that proposed implementation actions are in-line with the Salmon Creek Integrated Coastal Watershed Management Plan (GRRCD, 2010). GRRCD will coordinate with the NCIRWMP by providing regular updates to the NCIRWMP Policy Review Panel and the Technical Peer Review committee via email, updates on the GRRCD website, and as requested.</p> <p>GRRCD and its partners will hold a minimum of 2 public meetings in order to engage the community in this process and to educate them about the role of the NCIRWMP and statewide priorities as they relate to program implementation throughout the Bodega Bay HU.</p>
A description of synergies or linkages between other NCIRWMP projects	<p>The implementation of this project will address the following goals and objectives as outlined in the NCIRWMP:</p> <ul style="list-style-type: none"> ▪ Conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality and watershed processes; ▪ Ensure adequate water supply while minimizing environmental impacts ▪ Support the implementation of Total Maximum Daily Loads (TMDLs), the NCRWQCB Watershed Management Initiative and the Non-Point Source Program Plan

GENERAL INFORMATION:	
	<ul style="list-style-type: none"> ▪ Address environmental justice issues as they relate to disadvantaged communities, drinking water quality and public health; and ▪ Providing an on-going, inclusive framework for efficient intraregional cooperation. <p>This project builds upon work done in the Mattole Watershed, as well as Gold Ridge RCD's own Save our Salmon program. In addition, this project can provide invaluable technology transfer to other NCIRWMP project proponents seeking to do similar work. By collaborating and working together, there will be synergistic benefits to all watersheds up and down the north coast.</p>
Status of acquisition of land or rights-of-way, if applicable	N/A
Standards, such as construction standards that will be used in implementation	<ol style="list-style-type: none"> 1. Riparian Revegetation: Riparian Revegetation will follow the Department of Fish and Game (DFG) approved practices. These practices are found in Part XI (Riparian Restoration) of DFG's Salmonid Stream Restoration Manual 2. Instream Habitat Enhancement: Large Woody Debris structures (LWD) will follow the methodologies outlines in Section VII of DFGs Salmonid Stream Restoration Manual
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	This project is a discreet stand-alone project.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Conserve and enhance native salmonid populations by reducing non-point source pollution, revegetating denuded riparian areas, installing instream habitat structures, and excluding livestock from stream corridors	<ul style="list-style-type: none"> • 6,200 cubic yards of sediment prevented from entering the Estero Americano Watershed • 23 LWD structures installed • 10,000 lf of riparian area planted • 3 mi of riparian pasture fence installed
2.	Conserve and enhance critical instream flows by reducing water withdrawals	<ul style="list-style-type: none"> • 570,000 gallons of water stored throughout the Bodega Bay HU, collected in the winter for use in the summer
3.	Provide water supply reliability for two disadvantaged communities	See above
4.	Ensure adequate and reliable water supply while minimizing environmental impacts	See above
6.	Expand Environmental Awareness & Stewardship	To increase public awareness (locally and nationally) about the importance of salmonid habitat preservation and rehabilitation, the role of water conservation, how rainwater catchment is a low-cost feasible solution to water supply reliability in rural communities.

Description of the Purpose and Need of the Project

Agricultural and rural residential land use practices in the Bodega Bay HU have resulted in altered stream channels, reduced riparian zones, and reduced access to suitable spawning habitat. Streambank alterations have resulted in a loss of natural habitat complexity, effectively limiting the capacity for freshwater streams to serve as spawning, rearing, and migratory habitat for viable coho salmon and steelhead trout populations. The removal of riparian vegetation has caused increases in temperature, fine sediment, as well as reduced instream complexity as a result of fewer sources of LWD. Effective restoration will address both impaired habitat functions and habitat forming processes and it will protect those habitats that presently function well. This long-term approach to instream flow protection and enhancement will also support the disadvantaged communities of Valley Ford and Bodega in their efforts to develop secure, sustainable water supplies. The Gold Ridge RCD will work throughout the Estero Americano and Salmon Creek Watersheds within the Bodega Bay HU to facilitate planning, project implementation and assessment efforts to restore and enhance water resources. This program combines a suite of approaches to restore a resilient, sustainable riparian corridor and in-stream habitat for endangered CCC coho and threatened steelhead trout. Initial assessments of water quality and in-stream habitat in both the Salmon Creek and Estero Americano Watersheds indicate that sediment delivery, diminished channel complexity, and low summer stream flows are the primary issues impairing ecological function of the estuary and its freshwater tributaries. Program components include: 1.Riparian Enhancement 2.Instream Habitat Improvement 3.Streamflow Augmentation 4.Sediment Reduction 5.Water Conservation (including local water company infrastructure upgrades and metering) 6.Education and 7.Project Performance Assessment.

As noted, the project combines a suite of approaches to restore a resilient riparian corridor and in-stream habitat for the benefit of fish and other aquatic organisms that dwell in Americano, Ebabias and Salmon Creeks. If our freshwater ecosystems are to remain intact, physical and social mechanisms must be implemented so that agricultural and residential landowners have the incentives to shift their water use away from instream pumps. The premise of this program is that water for people AND fish can be secured through planning and water resources managements, and that we have the technical capacity and knowledge to effectively restore riparian and instream habitats.

Project Description

The Bodega Bay HU includes three large and a number of coastal drainages feeding Bodega Bay. These areas drain to the ecologically significant Bodega Marine Life Refuge Critical Coastal Area (CCA), and the Gulf of the Farallones National Marine Sanctuary. Over the last decade, GRRCD has worked in close partnership with local, state and federal resource agency staff to characterize and assess the ecological processes and conditions of these watersheds, including developing a prioritized list of actions, that if implemented, will take the aggressive steps necessary to ensure that the watershed's ecosystems are intact, while at the same time working with the agricultural and rural residential landowners to increase water supply reliability. Much of our past planning work occurred during the development of the Estero Americano WMP, the Salmon Creek Estuary Enhancement Plan and the Salmon Creek Integrated Coastal Watershed Management Plan (SCICWMP). The proposed project will implement a number of key recommendations in the Estero WMP and the SCICWMP, and is supported by the agricultural community and partner agencies. In addition, GRRCD has worked with project partners and the NOAA Restoration Center to finalize a pilot program in Salmon Creek to implement a number of projects which demonstrate the effectiveness of different applications of rainwater catchment for community water security, streamflow augmentation and drought preparedness (Save our Salmon [SOS]- Salmon Creek Habitat Rehabilitation Program – Phase I). This currently proposed project will expand on the completed SOS program and will enable GRRCD to take steps to expand the program to other coastal watersheds. The project will develop roof-water catchment as an alternative water source to instream flows, provide local water companies with needed infrastructure, restore channel complexities and riparian corridor conditions, and implement a well-publicized water resources educational program that will be promoted both statewide and nationally. Finally, the project will develop a long-term performance assessment program to evaluate effectiveness.

Unlike many coastal wetlands throughout California, the Estero Americano has remained relatively undisturbed, due in large measure to the unique continuity of land ownership and land use patterns. Over 80% of the watershed remains agricultural, supporting ranchland and dairy operations that have preserved large tracts of open space and critical habitat for wildlife. However, these uses have also led to erosion and agricultural run-off from livestock that are affecting the habitat values of the estuary. The 2002 California Water Quality Assessment Report published by the State Water Resources Control Board listed 199 acres of the Estero Americano Watershed and the entire length of Americano Creek as impaired waterbodies due to nutrient pollution from agricultural sources. Just to the north of the Estero Americano, the Salmon Creek Watershed faces similar issues. Although Salmon Creek is not currently on the CWA §303(d) list of impaired waterbodies, recent studies indicate that there are a number of impairments to the beneficial uses of this coastal watershed. Once home to thriving salmonid populations, historic and current land uses have degraded riparian areas and increased sedimentation and water temperatures (GRRCD, 2010). Local flood management techniques saw the removal of LWD from the stream channel, compromising habitat complexity and pool formation needed by salmonids. Historically the primary local industry, salmon fisheries have as a consequence been decimated, with coho populations locally extirpated until being reintroduced in 2008/09 by the DFG Broodstock program. Coho salmon have now been identified in Fay, Tannery and Coleman Valley Creeks, all tributary to Salmon Creek.

The communities of Valley Ford and Bodega and the neighboring ranchers are committed to improving the way they live on the land in order to “bring back the salmon” and improve their water security for their operations. All riparian enhancement and instream habitat improvement sites will have signed access and maintenance agreements in place for 20 years. Many of the sites have existing riparian easements. The regulatory agencies are familiar with the program and have been consulted on the project components. We are focused on developing community and regional support for utilizing water conservation and rainwater catchment as alternatives to streamflows and showing that it is an economically viable and sustainable option. As in the majority of salmon-bearing streams in the Central Coast ESU, the factors that led to the coho and steelhead decline, and limit their recovery, are complex, cumulative and closely tied to historic land use practices. Agriculture, forest harvests, stream clearing practices, and residential development in throughout coastal watershed have simplified stream channels, limited riparian zones, and reduced instream flows. To effectively address these factors and make substantial, sustainable changes to habitat conditions both the form and physical processes of the streams must be restored. This project will effectively address these factors in a voluntary, pro-active and community driven way. GRRCD is focused on continuing to build upon community and regional support for utilizing water conservation and rainwater catchment as alternatives to stream flow withdrawals, by demonstrating that it is an economically viable and sustainable option.

Scientific and Technical Merit Discussion: Rationale for the Project

The Bodega Bay Hydrological Unit includes three large watersheds (Salmon Creek, Estero Americano, and Estero San Antonio) and a number of coastal drainages feeding Bodega Bay and the coastline to the north. These areas drain to the ecologically significant Bodega Marine Life Refuge Critical Coastal Area (CCA), and the Gulf of the Farallones National Marine Sanctuary. The California Unified Watershed Assessment identified the Bodega Bay HU as a Category 1 Priority Watershed due to excessive loading of sediment and nutrients. The Regional Water Quality Control Board’s Watershed Management Initiative also identified confined animal facilities throughout the HU as sources of nitrogen, phosphorous, organic matter, and sediment into the Bay itself.

The estuary of the 24,920-acre Estero Americano Watershed is an important coastal wetland for numerous plant and animal species of concern, providing rearing habitat for two federally listed fish species, the tidewater goby (*Eucyclogobus newberryi*) and the winter-run steelhead trout (*Onchorhynchus mykiss*). It provides food, shelter and nursery habitat for many marine and estuarine fish species. The mudflats, open water, and extensive marsh area of the estuary provide seasonally important foraging habitat for migratory waterfowl and shorebirds, and resident long-legged wading birds. The Estero Americano is at the heart of the Pacific Flyway and supports a very large and diverse winter and migratory bird community. The estuary was identified in the *Southern Pacific Shorebird Conservation Plan* (2003) as one of the only two “wetlands of importance” for migratory shorebirds and waterfowl in Sonoma County.

The Estero Americano is on the state's 303(d) list of impaired waterbodies due to excess nutrients and sedimentation/siltation. In 2004 the North Coast Regional Water Quality Control Board (NCRWQCB) directed staff to develop a regional sediment control strategy in lieu of developing the resource intensive watershed specific TMDL action plans in sediment impaired watersheds. The Work Plan to Control Excess Sediment in Sediment Impaired Watershed (Work Plan, NCRWQCB, 2008) is that sediment TMDL implementation strategy, and lists the Estero Americano as a priority watershed. It also details multiple tasks to address sedimentation issues including landowner outreach and coordination, priority site identification and the development of sediment control projects.

The Salmon Creek Watershed is a rural, coastal watershed with strong local support for protecting the environment, sustaining local communities, and restoring salmonid populations (PCI, 2010). The Salmon Creek Watershed drains a 35-square-mile area to the Pacific Ocean. Land use within the watershed is a mix of family owned ranches, rural residential development, and small vineyards. The California Department of Fish and Game has stated that Salmon Creek is a fully restorable salmonid stream (CDFG, 2005). On December 14, 2008 and December 19, 2009, CDFG, along with help from community residents, local ranchers, GRRCD, and other agency staff released approximately 800 adult coho salmon in Salmon Creek, which is now part of CDFG's annual coho broodstock program.

Assessment of water quality and instream habitat in Salmon Creek indicate that non-point source delivery, diminished channel complexity and low summer stream flows are the primary issues impairing the ecological function of the stream corridor and estuary (Prunuske Chatham, Inc, 2006 and Gold Ridge RCD, 2007). The Salmon Creek Integrated Coastal Watershed Management Plan was completed in 2010 (SWRCB Agreement No. 06-150-551), and combines GIS-based data compilation with SWAMP compatible water quality monitoring data, sediment related habitat data, a detailed geomorphic assessment, and other completed watershed assessments (land and natural use history, hydrologic monitoring, erosion inventory, water quality, biotic monitoring, and estuary dynamics) to establish prioritized watershed conservation and enhancement projects.

In 2009, GRRCD was awarded funding by the NOAA Restoration Center through the American Recovery and Reinvestment Act of 2009 (NOAA Agreement # NA09NMF4603236) to implement pilot water storage projects on agricultural and residential land to demonstrate that rain-water catchment is a viable water conservation option and ideally a solution to eliminating the use of near-channel wells for household non-potable water use.

The Salmon Creek Estuary Study and Enhancement Plan (PCI, 2006) lists eight high priority recommendations and action items for salmonid habitat improvement in the estuary and upper watershed based on a 2-year scientific study. The proposed project addresses four of the eight recommendations, including: (1) maintain beneficial streamflow by reducing summer withdrawals, (2) manage sediment through road assessment and improvement, (3) maintain high quality water quality, and (4) provide community education and outreach through a water conservation program (PCI, 2006).

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management		Sub-Contract Agreement
1.2	Project Performance Plan Development	<p>In cooperation with the County of Humboldt, DWR and other appropriate agencies, develop a Project Performance Plan that will address, at a minimum, the following elements:</p> <ol style="list-style-type: none"> 1. Identify project performance goals related to instream habitat enhancement, riparian restoration, streamflow augmentation and environmental stewardship and education. Define performance indicators for each goal as required by the NCRWQCB. 2. Identify the method, frequency, and schedule for collection of project performance data 3. Prepare a Draft Project Performance Plan 4. Provide a copy to Humboldt County and other participating agencies 5. Revise Project Performance Plan as per agency recommendations 6. Prepare Final Project Performance Plan 	Project Performance Plan
1.3	Quarterly Reports	<p>Reports will be submitted quarterly from October 2011 through completion date. The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the agreement.</p> <p>The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.</p> <ol style="list-style-type: none"> 1. Prepare progress reports every three months in accordance with County of Humboldt & DWR reporting format 2. Describe project progress, such as activities completed and problems encountered in current quarter 3. Provide percent complete status for all project tasks 	Quarterly Reports- submitted every 3 months until completion
1.4	Final Report	<p>A draft will be provided 60 days before the end of Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to comment source. The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a</p>	<p>Draft Report</p> <p>Final Report</p>

#	Work Task Title	Work Task Description	Deliverables
		<p>description of the approach and techniques used during the project.</p> <p>A list of the task deliverables.</p> <p>Determination of whether the purpose of the project has been met. Include information collected in accordance with the Project Performance and reporting (“assessment and evaluation”) plan.</p> <ol style="list-style-type: none"> 1. Track project activities, including photo monitoring 2. Summarize project activities, achievements and difficulties 3. Prepare Draft Project Report to include County of Humboldt & DWR report content requirements 4. Provide Draft report to appropriate agencies for review and comment 5. Prepare Final Project Report 	
1.6	Technical Advisory Committee	<p>Conduct at least 2 meetings each year. Agendas and minutes of TAC meetings prepared and submitted as required with reports</p> <ol style="list-style-type: none"> 1. Identify committee members 2. Determine meeting dates and times 3. Develop meeting agenda. 4. Conduct meetings and record minutes. 5. Repeat for additional meetings. 6. Provide meeting minutes with quarterly reports 	Conduct at least 2 meetings per year. Agendas and minutes of TAC meetings prepared and submitted as required with reports
1.7	Obtain landowner agreements	<p>Obtain signed landowner agreements</p> <ol style="list-style-type: none"> 1. Contact landowner(s) by letter describing project) 2. Conduct Public Meeting 3. Develop draft agreements 4. Provide agreements to land owners for signature 	Obtain signed landowner agreements
1.8	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.0	Environmental Documentation		
2.1	CEQA Development	<p>CEQA Documentation</p> <ol style="list-style-type: none"> 1. Select qualified consultant to complete the CEQA NEPA process through a qualification based 	NOE Draft MND

#	Work Task Title	Work Task Description	Deliverables
		<p>selection process</p> <ol style="list-style-type: none"> 2. Conduct preliminary project review 3. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 4. Prepare Initial Study per CEQA Guidelines Section 15063 5. Prepare NOE or MND 6. Prepare Monitoring Program per CEQA Guidelines 15097 	<p>MND</p> <p>NOE and/or MND</p>
2.3	Permit Development: DFG 1600	<p>Whether or not a DFG 1600 Agreement is needed for this project will be determined when the final site is selected for the project.</p> <p>If needed, the necessary agreement will be obtained from DFG.</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data and/or perform studies as deemed necessary for permit applications 3. Prepare Streambed Alteration Agreement application (Forms FG2023 and FG2024) and submit to the California Department of Fish and Game for approval 4. Incorporate agency comments 5. Obtain final approved permit 	<p>DFG 1600 Agreement</p> <p>(Permit need is dependent upon site selection)</p>
2.4	Permit Development: 404	<p>During the scoping phase of the CEQA process, consult with the US Army Corps of Engineers (ACOE) to determine the regulatory requirements of complying with Section 404 regarding dredging or filling waters of the U.S. for each of the potential alternatives.</p> <p>If a 404 permit is required, work with the COE to apply for a permit including a description of steps taken to minimize impacts to water bodies and wetlands and provide appropriate and practicable mitigation, such as restoring or creating wetlands, for any remaining, unavoidable impacts.</p> <p>ACOE will go through the necessary public notice and consultation steps to issue the permit.</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Complete wetland delineation, as deemed necessary, per Army Corp of Engineers (COE) 1987 Wetland Delineation Manual 4. Prepare necessary site plans for COE permit application 5. Submit application for COE Nationwide Permit (eng form 4345) if wetlands to be filled 6. Complete Mitigation and Monitoring Plan if deemed necessary for any wetlands fill 7. Conduct consultation with NOAA Fisheries—assume Formal Consultation and Biological 	<p>Clean Water Act Section 404</p> <p>Permit issued by the Army Corps of Engineers (COE), if necessary</p>

#	Work Task Title	Work Task Description	Deliverables
		<p>Assessment necessary, to be submitted to COE</p> <ol style="list-style-type: none"> 8. Provide additional information, as requested by the COE and/or NOAA, for application completeness, preparation of Public Notice, and final project approval 9. Obtain final permit 	
2.5	Permit Development: 401	<p>Acquire a 401 Water Quality Certification from the North Coast Regional Water Quality Control Board for this project. The 401 permit process can be conducted simultaneously to the COE and DFG process</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Coordinate with Regional Water Quality Control Board for at a minimum application for a Water Quality Certification (could require NPDES permit and/or SWPPP if soil and/or water discharge to water body or grading greater than 1 acre of land) 	RWQCB 401 Certification
2.9	Permit Development: Other	<p>Project representative will obtain a Coastal Development Permit, if required.</p> <ol style="list-style-type: none"> 1. Collect site resource data as deemed necessary for permit application 2. Perform pre-application site visit with permitting authority(ies) 3. Complete the Coastal Development Permit (CDP) application using information from the project proponent and the Initial Study; gather additional information as necessary 4. Submit application material to permitting authority 5. Provide any additional information/clarifications as necessary 6. Receive approved CDP 	County permits: Coastal Development Permit, if required.
3.	Planning/ Design		
3.1	Fine Sediment Final Design	<p>Review the design currently in development for the restoration of the actively eroding gullies. Designs will be completed to the 100% level, suitable for public bidding</p> <ol style="list-style-type: none"> 1. Finalize and/or develop earthwork calculations 2. Finalize and/or develop any needed hydraulic calculations 3. Finalize and/or develop final engineered designs and specifications 4. Provide preliminary design to appropriate agencies including DFG, NCRWQCB and ACOE for review and comment 5. Start permitting process 6. Incorporate agency comments 7. 100% designs and construction specifications 	Final Project Design and Construction Specifications
3.2	Instream Habitat Enhancement Survey and	<p>Develop a set of plans to the 70% level (suitable for permitting)</p> <ol style="list-style-type: none"> 1. Survey stream reaches to ensure that Large Wood Structures are placed in the most 	Stream Survey; Final LWD plans and maps Specifications

#	Work Task Title	Work Task Description	Deliverables
	Design	<p>appropriate to deepen pools, enhance riffles, create gravel bars, and provide riffle/cover for juveniles and adults</p> <p>2. Develop plans and submit to appropriate agencies for permitting</p>	
3.3	Riparian Restoration Final Design	Develop planting and fencing plans and specifications to the 70% level (suitable for permitting)	Final planting and fencing plans & maps
3.4	Bodega Water Company Storage Tank	<p>Review the design currently in development for the 200,000 gallon water storage tank for the Bodega Water Company. Designs will be completed to the 100% level, suitable for public bidding</p> <ol style="list-style-type: none"> 1. Finalize and/or develop earthwork calculations 2. Finalize and/or develop any needed hydraulic calculations 3. Finalize and/or develop final engineered designs and specifications 4. Provide preliminary design to appropriate agencies including DFG, NCRWQCB and ACOE for review and comment 5. Start permitting process 6. Incorporate agency comments 	Final LWD plans and maps Specifications
3.5	Water Company Infrastructure Upgrades	<ol style="list-style-type: none"> 1. Identify and map leaks to be eliminated 2. Develop project designs and bid packets for appropriate contractor to fix leaks 3. Install new water meters for customers that do not currently have them 	Map of leaks; Project designs; Water meters installed
3.6	Agricultural and Rural Residential Rainwater Catchment Tank Design	<ol style="list-style-type: none"> 1. Outreach to landowners for project participation 2. Develop project criteria 3. Design of catchment systems suitable for permitting 4. Landowner agreements to ensure that water will replace summer use, rather than augment use 	Project criteria; list of project participants; project designs; landowner agreements
4	Construction/ Implementation		
4.1	Construction contracting: Advertise and Contract Bidding	<p>Develop advertisement and contract documents for construction contract bidding, Includes bid analysis and recommendation of most qualified bidder.</p> <ol style="list-style-type: none"> 1. Prepare bid package including final plans and specifications 2. Advertise bid opening 3. Provide bid package to interested contractors and obtain bid bond 4. Reply to all contractors with any questions submitted 	Advertise project bid analysis Selection of Contractor

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 5. Analyze bids based on cost and contractor qualifications 6. Conduct interviews if needed 7. Select contractor 	
4.2	Construction contracting: Award	<p>Award of Contract to successful bidder, contract documents, bonds, insurance and other contract requirements.</p> <ol style="list-style-type: none"> 1. Notify successful contractor 2. Prepare contract documents 3. Obtain contractor performance bond and payment bond 4. Obtain copy of contractor insurance certificate 5. Execute contract documents 	Contract Award
4.3	Instream Habitat Enhancement	Installation of 23 LWD structures	LWD structures installed
4.4	Riparian Restoration	<p>Contract revegetation work with reputable ecological restoration organization to ensure successful implementation. Verify that plants used are propagated from locally collected native plant materials. Revegetation will follow the protocol outlined in the CDFG California Salmonid Stream Habitat Restoration Manual, Section 11.</p> <ol style="list-style-type: none"> 1. Contract with ecological restoration organization to develop revegetation/site restoration plans 2. Review planting specs to make sure that plants used are propagated from locally collected native plant materials 3. Implement planting when the site has been prepared and when the soil has been sufficiently wetted with seasonal rain. 4. Follow the protocol outlined in the CDFG California Salmonid Stream Habitat Restoration Manual, Section 11. 5. Install irrigation 6. Develop site repair plan 	Revegetation Inspection
4.5	Water Company Infrastructure Upgrades	<p>Implementation of identified project components to fix leaking water company infrastructure and installation of meters.</p> <ol style="list-style-type: none"> 1. Initiate project construction 2. Install meters 	Infrastructure Upgrades Complete
4.6	Bodega Water Company Water Supply Tank	<p>Construction of project components, including collection system, connections to properties, treatment system, and disposal system</p> <ol style="list-style-type: none"> 1. Initiate project construction 	Construction complete

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 2. Order project equipment and supplies 3. Assure project permits are in place 4. Construct project components 	
4.7	Agricultural and Rural Residential Rainwater Catchment Tanks	<p>Finalize plans and specifications with tank manufacturer, including collection system and connection to non-potable water distribution systems</p> <ol style="list-style-type: none"> 1. Initiate project construction 2. Assure project permits are in place 3. Construct project components 	Construction complete
4.8	General Construction Inspection and Management	<p>Conduct inspection of all of the project components, including reporting and project communication</p> <ol style="list-style-type: none"> 1. Assign qualified construction inspector/ engineer to the project 2. Keep daily records of construction activities, inspection, and progress 3. Conduct regular meeting between the contractor and the inspector 4. Verify that all work was completed in accordance with specifications 5. Procure as-built drawings 	<p>Inspection Reports, Pay Requests, Meeting Minutes, Contractor Log, Submittals</p>
5	Outreach and Education		
5.1	Outreach and Education	<ol style="list-style-type: none"> 1. 6 workshops developed to increase the awareness about the importance of salmonid habitat preservation and rehabilitation. 2. 100% of schools within jurisdictional boundaries are provided with water conservation materials 3. Two national and two state conference attended, including conference materials and abstracts 	<ol style="list-style-type: none"> 1. Agenda and schedules for workshops 2. Workshop Evaluations 3. School materials 4. Conference agendas and abstracts
6	Project Performance Assessment		
6.1	Photo Monitoring	<p>Photos and potentially video clips will be taken as the construction project progresses.</p> <ol style="list-style-type: none"> 1. Develop photo documentation plan using peer-reviewed protocol 2. Identify key construction steps to capture in photos 3. Set a regular schedule for collecting photos of the project. 	Project photo documentation

#	Work Task Title	Work Task Description	Deliverables
6.2	Stream flow gauge	<p>Assure the stream flow gauges are installed correctly. Use the monitoring plan developed under task 1.0 to collect stream flow data. Verify data results and make changes to the monitoring plan if necessary.</p> <ol style="list-style-type: none"> 1. Verify correct installation of stream flow gauges. 2. Review Stream Flow section of monitoring plan and use indicated procedures to collect data. 3. Verify collected data. 4. Revise monitoring plan if necessary. 	Stream flow data collection
6.3	Post Project Performance	Verification that all project components have been installed and functioning as specified, will be conducted as part of construction inspection and project closeout.	Construction inspection and project closeout report

292 - Lower Russian River Water Quality Improvement Project, Sotoyome Resource Conservation District

GENERAL INFORMATION:	
Project Title	Lower Russian River Water Quality Improvement Project
Project Abstract	The Lower Russian River Water Quality Improvement Project (Project) would improve the overall health and vitality of the lower Russian River Ecosystem with two complimentary programs that address water quality through education and repair of septic systems in the lower river and reduction of sediment in the Austin Creek Watershed. The two projects will address the Russian River TMDL for sediment, pathogen, and temperature through sediment reduction on rural roads, septic system repair, and water quality assessment of both projects. Habitat for endangered coho salmon and steelhead trout will be improved through sediment reduction in high priority streams in Austin Creek and improvement of water quality in the lower Russian River with subsidized septic system evaluations, educational workshops and resources, and a demonstration repair project for low income residents.
Organization	Sotoyome Resource Conservation District
Contact Name and Title	Kara Heckert, Executive Director
Disadvantaged Community	Cazadero and Guerneville in western Sonoma County
Grant Funds Requested	\$375,000
Non-State Match	\$41,500
Total Budget	\$416,500
Watershed	Russian River
County	Sonoma County
Status of project design and bid solicitation efforts	The planning and design for the sediment reduction program is nearly complete.
Titles of Plans and Specifications submitted in hard copy format	2010 Austin Creek Watershed Sediment Source Assessment, Sonoma County, California Sotoyome RCD, Russian River Coastal Tributary Improvement Program QAPP Final Report. 2006; Appendix C
Status of CEQA, NEPA, and other environmental laws	Sotoyome RCD will prepare environmental documentation (CEQA review) and permits from federal, state, and local agencies. The Project's Pathogen Pollution Prevention Program will most likely require CEQA and an Onsite Septic System Permit from the County of Sonoma. It may also require the following permits: DFG 1600, COE 404, RWQCB 401 The Austin Creek Sediment Reductions Program Phase I will require the following permits: grading permit exemption letter, DFG 1600, COE 404, and RWQCB 401.
Work that will be completed prior to June 1, 2011	The initial phase of the Project's pathogen pollution prevention program will focus on outreach to residents and landowners through distribution of Sotoyomes RCD's Homeowner's Guide to

GENERAL INFORMATION:	
(assumed contract date)	Septic System Operation
Merits of the building materials or computational methods that were or will be used for project development	<p>The Project will be using methodology and criteria accepted by the following:</p> <p>SWRCB and California Coastal Commission. Nonpoint Source Program Strategy and Implementation Plan, 1998-2013.</p> <p>California Department of Water Resources. California Water Plan Update 2005 Public Review Draft. April 2005.</p> <p>State Water Resources Control Board. NPS Program Plan Implementation Unit. The Plan For California's Nonpoint Source Pollution Control Program website. http://www.swrcb.ca.gov/nps/protecting.html</p> <p>California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual Volume II, Part X Upslope Assessment and Restoration Practices, January 2004.</p>
Procedures for coordination with partner agencies and organizations	<p>Sotoyome RCD has established relationships and partnerships with numerous local watershed groups, road associations, landowner associations, agricultural interest groups and other public interest groups. Implementation of this project will enable the RCD to strengthen these relationships and develop new relationships with community groups. These groups will provide a network for distributing information related to the Lower Russian River Water Quality Improvement Project and to solicit participation in project activities; for example including voluntary septic evaluations, assessment, permitting and design for septic repair, and implementation of a demonstration project. The SRCD will solicit input from these groups as to areas of concern and information gaps related to road related erosion issues, septic function and water quality. The SRCD will coordinate agency meetings, conference calls, and stakeholder meetings (with and without public interest groups) throughout the implementation of the Project, and will encourage agency input and participation in the Lower Russian River Water Quality Improvement Project. At a minimum, the Project will work with the following agencies: NCRWQCB, Sonoma County PRMD, Sonoma County Department of Health Services, Sonoma County Water Agency, Natural Resource Conservation Service, EPA, US Army Corps of Engineers, UC Cooperative Extension, Dept Fish and Game, Pacific Watershed Associates, and NOAA.</p>
A description of synergies or linkages between other NCIRWMP projects	<p>The Lower Russian River Water Quality Improvement Project is consistent with the intentions of the IRWM Program by:</p> <ul style="list-style-type: none"> • Conserve and enhance salmonid populations • Protect drinking water • Support TMDLs • Address environmental issues as they relate to disadvantaged communities
Status of acquisition of land or rights-of-way, if applicable	There will be no acquisition of land or rights-of-way necessary
Standards, such as construction standards that will be used in	Construction standards that will be used in implementation of the Project's programs will be based upon typical drawings, and erosion control designs created by Pacific Watershed Associates and are accepted as industry standard BMPs by state regulatory agencies, and also

GENERAL INFORMATION:	
implementation	the Sonoma County Permit and Resource Management Department Well and Septic Division.
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	The Lower Russian River Water Quality Improvement Project is the first phase of a multi-phased program. It can operate as a stand-alone project that will improve rural access for landowners of the region, decrease sediment inputs into the Austin Creek system, as well as educate landowners about the importance of safe septic. The scope of this proposal is strong enough to be a successful stand alone project. We plan, however, to continue the implementation of water quality improvement through erosion control and pathogen pollution prevention BMPs in this important drainage to create a multi phased program. We are currently assessing more rural road and creating erosion control plans in other regions of the watershed which we will implement in the future. We also plan to develop a continuing program for safe septic design and implementation beyond what is in the scope of this proposal.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Improve aquatic habitat for endangered salmon within the lower Russian River system by implementing road drainage treatments to reduce excessive sediment delivery into nearby salmonid bearing streams in the Austin Creek watershed.	Complete Upgrades, decommissioning stream crossings, and other drainage improvements to accommodate estimated 100-year storm flows on 11.7 miles of road, saving 13,000 cubic yards from entering nearby streams
2.	Educate Landowners and the public about the detrimental effects of rural roads on the ecosystem and the appropriate methodology for rural roads that are hydrologically sound	<ul style="list-style-type: none"> • Provide workshops on rural road improvement and the methodologies implementing in the project. • Complete project effectiveness assessment and share results with landowner participating in the program, resource agencies, and the public.
3.	Increase public awareness in relation to septic system function, pathogen pollution, and impacts to water quality and public health	Provide informational resources to public Inform the public and interested parties of present and future analysis efforts regarding the source and amount of pathogen pollution in the Russian River watershed through water quality monitoring and analysis
4.	Improve the function of existing onsite water treatment systems in the Lower Russian River	<ul style="list-style-type: none"> • Provide subsidies for septic evaluations • Control the non-point source pollution

Description of the Purpose and Need of the Project
To improve and preserve vital water quality in the Lower Russian River, the Project focuses on pollution prevention outreach efforts and projects that include subsidizing onsite wastewater treatment system evaluations, demonstrating a septic system repair, and addressing sediment sources through the treatment and upgrade of unpaved rural road systems. The Lower Russian River is a Category 1 impaired water body, listed as impaired for sedimentation and pathogens that affect both water quality

and aquatic habitat. The Project focuses on reducing pathogen loading, upslope erosion control and runoff processes resulting in a reduction in turbidity and sediment-related impacts to water quality and aquatic habitat. The beneficial uses of the Project are improvements to fish habitat; rare, threatened or endangered species; spawning and reproduction; water quality for human and recreational use; and an increase public knowledge about sediment reduction on rural roads and of septic system function, uses and permitting and repair resources.

Project Description

The Russian River contains 1483 square miles of drainage area in the Mendocino and Sonoma Counties. The Watershed is 92% privately owned and serves as the primary water source for more than 600,000 residents in Mendocino, Sonoma and Marin counties, and agricultural production in Mendocino and Sonoma counties. The watershed supports a variety of other economically important activities including agriculture, the production and processing of timber, gravel removal and processing, energy production, light industry, and commercial development. Water supply demands and agricultural practices in conjunction with urban development and other factors related to increasing population have affected the ecological integrity of the river and resulted in specific threats to fish populations and the degradation of the riparian habitat upon which they depend. The Russian River watershed once supported three species of salmon; coho (*Onchorhynchus kisutch*), chinook (*O. tshawutscha*), pink (*O. gorbuscha*), and one of the world's largest populations of steelhead trout (*O. mykiss*). Pink salmon are now extirpated from the system, coho is listed as endangered and at risk of extinction, and chinook and steelhead are listed threatened under the Federal Endangered Species Act. In 2009, the National Marine Fisheries Service released the draft Recovery Plan for the CCC Coho Salmon and identified the Russian River as a key component in species recovery. Another major resource issue in the Russian River that impacts sensitive fisheries, and other beneficial uses, is water quality. The North Coast Regional Water Quality Control Board (NCRWQCB) in its Watershed Planning Chapter, February 2005, lists sediment as one of the primary pollutants of concern affecting water quality in the Russian/Bodega Watershed Management Area. California's 2002 Section 303(d) List of Water Quality Limited Segments states the pollution and stressors in the Lower Russian River area as sedimentation and siltation, and pathogens. The Sotoyome RCD is proposing the Lower Russian River Water Quality Improvement Project which includes two integrated programs that will address pathogen and sediment pollution per the TMDL, will improve conditions for endangered coho salmon and the Steelhead trout, and will provide critical resources for septic system and rural road improvement to disadvantaged communities in Lower Russian River watersheds.

The Russian River Pathogen Pollution Prevention Program will work with disadvantaged communities in the lower river area to implement targeted community outreach, a river sampling program, voluntary subsidized septic system valuations, and a demonstration project for a septic system repair. The pathogen prevention program may ultimately set the stage for future phases of the program to not only expand into areas of the middle Russian River watershed by bringing forth systematic sanitary surveys, priority lists for repair, voluntary repair actions taken by private citizens, and a report based on sampling efforts which analyzes the extent of septic contributions to the pathogen loading of the river systems. Similar surveys and monitoring programs have led to such things as city sewer systems being extended to enfold areas of higher concern, or treatment plants being constructed in areas where septic system function may be less than ideal. The Austin Creek Sediment Reductions Program Phase I, a multi-phased education, sediment assessment and reduction program aimed at reducing sedimentation in the Austin Creek Watershed will Storm-proof 96 sediment source features on 11.74 miles of connected road resulting in sediment savings of 4,995 yd³ from episodic sources and 8,155 yd³ from hydrologically connected road surfaces. To date, Sotoyome RCD has worked with Pacific Watershed Associates, California State Parks, and private landowners to assess over 95 miles of road in the basin, a critical watershed to coho recovery in the Russian River system. Funding for this first phase of road improvement measures and septic system evaluation and demonstration project will be the catalyst to a long term watershed wide approach to habitat restoration and water quality improvement that can be applied through the North Coast Region.

Scientific and Technical Merit Discussion: Rationale for the Project

Pollutants and stressors in the Lower Russian River area are stated as sedimentation and siltation, and pathogens in California's 2002 Section 303(d) List of Water Quality Limited Segments. The Project addresses 303(d) listed pollutants and data collected through this project that will aid in the development of the Lower Russian River TMDL. The recommendations made in the Austin Creek Watershed Assessment (Sotoyome RCD, 2005), and the methodology in the Handbook for Forest Ranch and Roads, (Pacific Watershed Associates, 1994) are consistent with the goals proposed in this project. The project also implements recommendations consistent with the following plans: Recovery Strategy for California Coho Salmon, California Department of Fish and Game; Watershed Management Initiative, Russian/Bodega Watershed Area, RWQCB1; Water Quality Control Plan for the North Coast Region, RWQCB1.

Assessment activities shall be implemented on the Russian River, with specific emphasis in Monte Rio area from the confluence of Dutch Bill Creek to the confluence of Fife Creek, and Healdsburg Memorial Beach from the Hwy 101 crossing to the railroad crossing upstream of the Beach. This proposed program will monitor for total coliform, e.coli, and ambient water parameters (i.e. temperature, pH, and turbidity). Water quality monitoring shall be conducted in compliance with Appendix C, Monitoring Protocol: Water Quality Monitoring of the Coastal Tributary Improvement Program Quality Assurance Project Plan (QAPP) prepared by Sotoyome RCD for the SWRCB and the NCRWQCB. The SRCD will consult with other agencies that are monitoring for similar parameters (i.e. UC Cooperative Extension, Sonoma County Water Agency, county public health agencies) to ensure data compatibility and comparability.

The Austin Creek Sediment Reduction Implementation Project, Phase 1: This project integrates with the Russian River Coho Salmon Captive Broodstock Program (Broodstock Program) ongoing in tributaries to Austin Creek, as well as the Lower Austin Creek Migration Improvement Project (LACMIP). The Broodstock program was initiated in 2001 by CDFG, NMFS, USACE with the goal of re-establishing self-sustaining runs of coho salmon in tributary streams within the Russian River basin. In 2001, release tributaries included Ward Creek, a tributary of Austin Creek, as well as Mill Creek, and Sheephouse Creek. In 2004, two more tributaries of Austin Creek, Gray and Gilliam Creeks, were included in the release program. This focus on Austin Creek illustrates the importance of this vital watershed in the ongoing coho broodstock program within the Russian River system and the necessity to support these broodstock efforts with water quality improvement and sediment reduction programs. The LACMIP project has been an ongoing and evolving program since 2004 with funding from CDFG as well as the Coastal Conservancy. This project involves the placement of log, root wad, or boulder structures that scour gravel, generate pools, and improve vital migration and rearing habitat for Salmonids along the first mile of Austin Creek from its confluence with the Russian River. The Sotoyome RCD is working with NMFS, CDFG, SCWA, the Coastal Conservancy, gravel mining interests, local residents, and non-governmental organizations to not only place new structures, but also to modify existing structures to increase their function, to create additional alcoves via gravel extraction, and to improve fish migration capabilities through the sediment choked confluence of Austin Creek and the Russian River. This proposed sediment reduction project works alongside these important long-term programs geared toward the recovery of coho salmon populations across the Russian River basin by decreasing the amount of episodic and chronic sediment inputs into the waters of Austin Creek. This sediment decrease will both increase the viability of spawning habitat in the upper reaches of the watershed to support the broodstock program as well as increase the migration capabilities in the lower reaches in support of the LACMIP program. This proposal also supports sediment reduction recommendations in the SWQCB Sediment TMDL implementation Policy, the CDFG Russian River Basin Fisheries Restoration Plan, the NMFS Recovery Plan for the Evolutionary Significant Unit of California Central Coast Salmon, and the SWQCB North Coast Regional Water Management Plan.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	Develop contracts for subcontractors	Subcontract Agreement
1.2	Project Performance Plan Development	<ol style="list-style-type: none"> 1. Identify project performance goals related to sediment reduction and pathogen pollution prevention 2. Define performance indicators for each goal based on CEQA and the required permits 3. Identify the method, frequency, and schedule for collection of assessment data 4. Prepare a Draft Project Performance Plan 5. Revise Project Performance Plan as per agency and recommendations 6. Prepare Final Project Performance Plan 	Project Performance Plan
1.3	Monthly Reports	<p>Develop project progress reports every month from the date funding is acquired through project completion date. Reports will list project task achievements and any problems or relevant issues to the project. The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the agreement.</p> <p>The description of activities and accomplishments of each task during the month shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.</p>	Monthly reports submitted every month until project completion date.
1.4	Final Report	<p>The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a description of the approach and techniques used during the project.</p> <p>A list of the task deliverables.</p> <p>Determination of whether the purpose of the project has been met. Include information collected in accordance with the Project</p>	Final report

#	Work Task Title	Work Task Description	Deliverables
		<p>Performance Plan.</p> <ol style="list-style-type: none"> 1. Track project activities, including photo documentation 2. Summarize project activities, achievements and difficulties 3. Prepare final project report 	
1.5	Obtain landowner agreements	<p>Obtain signed landowner agreements</p> <ol style="list-style-type: none"> 1. Contact landowner(s) by letter describing project) 2. Conduct Public Meeting 3. Develop draft agreements 4. Provide agreements to land owners for signature 	Obtain signed landowner agreements
1.6	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	<p>Prepare CEQA Negative Declaration for both the sediment reduction and pathogen pollution prevention programs</p> <p>CEQA Documentation:</p> <ol style="list-style-type: none"> 1. Select qualified consultant to complete the CEQA NEPA process through a qualification based selection process 2. Conduct preliminary project review 3. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 4. Prepare Initial Study per CEQA Guidelines Section 15063 5. Prepare NOE or MND 6. Prepare Monitoring Program per CEQA Guidelines 15097 	<p>Notice of decision</p> <p>Completed NOE or MND</p>
2.2	NEPA Development	N/A	
2.3	Permit Development: DFG 1600	<p>A 1600 permit is required for the Project's sediment reduction program, and may be required for the pathogen pollution prevention program. The 1600 permit process will be as follows:</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data and/or perform studies as deemed necessary for permit applications 	Obtain DFG 1600 Agreement

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 3. Prepare Streambed Alteration Agreement application (Forms FG2023 and FG2024) and submit to the California Department of Fish and Game for approval 4. Incorporate agency comments 5. Obtain final approved permit 	
2.4	Permit Development: 404	<p>A 404 permit is required for the Project’s sediment reduction program, and may be required for the pathogen pollution prevention program. The 404 permit process will be as follows:</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Prepare necessary site plans for COE permit application 4. Conduct consultation with NOAA Fisheries—assume Formal Consultation and Biological Assessment necessary, to be submitted to COE 5. Provide additional information, as requested by the COE and/or NOAA, for application completeness, preparation of Public Notice, and final project approval 6. Obtain final permit 	Obtain a Clean Water Act Section 404 Permit issued by the Army Corps of Engineers (COE)
2.5	Permit Development: 401	<p>Acquire a 401 Water Quality Certification from the North Coast Regional Water Quality Control Board for the sediment reduction program.</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Coordinate with Regional Water Quality Control Board for a minimum application for a Water Quality Certification 	Obtain a RWQCB 401 Permit
2.6	Permit Development: grading	<p>SRCD will obtain necessary grading permits for the Project’s sediment reduction program from the County Planning Division. Grading permits are required by the California Building Code Section 106.3.1, and County Building Regulations. Fees will be assessed in accordance with the provisions of the fee schedule adopted by the County.</p> <ol style="list-style-type: none"> 1. Discuss projects with Sonoma County staff 2. Complete grading application 3. Provide application to Humboldt County with a description of the work and copies of plans 4. Receive permit approval from Sonoma County 5. Include any permit conditions in project specifications 	Grading permit exemption letter
2.7	Permit Development: pollution prevention	<p>SRCD will obtain necessary permits for the Project’s pathogen pollution prevention program from Sonoma County.</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 	Onsite Septic System Permit- County of Sonoma

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 2. Collect site resource data as deemed necessary for permit applications 3. Coordinate with Sonoma County 	
3.	Planning/Design		
3.1	Review PWA 2010 Austin Creek Watershed Sediment Source Assessment	<p>Conduct supplementary inventory assessment using PWA database as starting point. Confirm or reprioritize site needs based on assessment.</p> <ol style="list-style-type: none"> 1. Review PWA 2010 Inventory and Assessment Report. 2. Conduct field inspection of sites referenced in the PWA 2010 report and additional identified sites. 3. Document potential additional site needs developed since the PWA 2010 report. 4. Reprioritize sites using PWA and new data 5. Develop final prioritized list of improvement sites. 	2010 Austin Creek Watershed Sediment Source Assessment
3.2	Septic Evaluation	<p>Identify which systems need replacement based on site data and testing</p> <ol style="list-style-type: none"> 1. Develop a list of septic tanks to be tested 2. Collect data from project records, interviews with residents, and field inspections. 3. Conduct Field inspections to collect site data service characteristics (people served past performance data), tank characteristics (type, size, location, and maintenance efforts), site suitability data (soil types, limiting conditions, ponding) 4. Develop a list of septic tanks to be replaced 	Failing Septic System Map
3.3	Preliminary Design	<ol style="list-style-type: none"> 1. Collect all necessary site data from PWA 2010 Austin Creek Watershed Sediment Source Assessment. 2. Collect any necessary site data to verify utility locations and site obstacles and any other necessary design data 3. Develop earthwork calculations 4. Develop preliminary design details for road improvements 5. Develop costs for completion of project 6. Provide preliminary design to appropriate agencies such as DWR, Humboldt County, and NCRWQCB for review and comment 7. Incorporate agency comments 	<p>Earthwork Calculations Opinion of Probable Cost Preliminary Design and specifications (90% Complete)</p>
3.4	Final Design/ Plans	<p>Develop a set of final design plans and specifications ready to put out to bid. The plans and specifications will conform to all necessary requirements stipulated by the District and regulatory agencies to ensure a high quality product.</p> <ol style="list-style-type: none"> 1. Review comments from 90% specification deliverable 2. Prepare Construction Inspection Plan including mechanisms to 	Final design, plans and special provision specifications.

#	Work Task Title	Work Task Description	Deliverables
		<p>assure that project components are completed to specifications</p> <ol style="list-style-type: none"> 3. Prepare Final Specifications 4. Prepare 100% Plans ready for project bidding 	
4.	Construction/ Implementation		
4.1	Construction contracting: Award	<p>Award of Contract to successful bidder, contract documents, bonds, insurance and other contract requirements.</p> <ol style="list-style-type: none"> 1. Notify successful contractor 2. Prepare contract documents 3. Obtain contractor performance bond and payment bond 4. Obtain copy of contractor insurance certificate 5. Execute contract documents 	Contract Award
4.2	Mobilization and site preparation	<ol style="list-style-type: none"> 1. Move in heavy equipment to do road work. 2. Have all necessary materials delivered to work site (culvert, rock, etc). 3. Assure permits are in place. 	Heavy equipment and materials arrive on site
4.3	Safe Septic Demonstration	Grant funds will be used to demonstrate a repair of a failing septic system	Replacement of failing septic system
4.4	Construction	Construction of project components, including upgrading drainage on 11.7 miles of rural ranch road	Construction complete
4.5	Construction Inspection and Management	<p>Conduct inspection of the project including reporting and project communication</p> <ol style="list-style-type: none"> 1. Assign qualified construction inspector 2. Keep daily records of construction activities, inspection, and progress 3. Conduct regular meeting between the contractor and the inspector 4. Verify that all work was completed in accordance with specifications 5. Assure as-built drawings and other accumulated records are provided to the District 	Inspection Reports, Contractor Log, Submittals
4.4	Construction Project Close Out & Demobilization	<p>Inspect project components and establish that work is complete.</p> <ol style="list-style-type: none"> 1. Establish work is substantially complete by inspector 2. Prepare a notice of completion and provide to Humboldt County 3. Prepare recommendations concerning final payments to contractors and release of retained percentages and bonds 4. Clean work site and move out heavy equipment 	County Notice of Completion Move out heavy equipment
5.	Project Performance Assessment		
5.1	Photo Documentation	Photos and potentially video clips will be taken as the construction	Project photo documentation

#	Work Task Title	Work Task Description	Deliverables
		<p>project progresses.</p> <ol style="list-style-type: none"> 1. Identify key construction steps to capture in photos 2. Set a regular schedule for collecting photos of the project. 	
5.2	Water Quality Monitoring	<p>Water quality monitoring will be conducted pre-construction, during construction, and post-construction for both of the Project’s sediment reduction program and during the demonstration project task of the pathogen pollution prevention program. Water quality sampling will be conducted during the pathogen pollution prevention program. The monitoring and sampling will occur at pre-identified monitoring stations upstream and downstream of the Project areas. It includes the measuring and sampling of ambient water parameters such as temperature, pH, and turbidity, and may include an estimate of the sediment supply level.</p>	<p>A description of monitoring method, results summary, and a brief analysis will be a component to the final project report.</p>

364 - Mendocino Jumpstart Integrated Water Plan, Mendocino County Water Agency/ Planning Department

GENERAL INFORMATION:	
Project Title	Mendocino Jumpstart Integrated Water Plan
Project Abstract	<p>The Mendocino Jumpstart Integrated Water Plan, will implement seven LID and sustainable practice projects, linked to educational opportunities via college courses and county workshops.</p> <p>The County campus parking lot retrofit will treat storm water runoff with LID techniques before entering Orrs Creek. Recycling irrigation water from the sports fields irrigation will reduce potable water consumption, up to 1 million gallons per month during peak demand. Two rainwater catchment and xeric landscape conversions will demonstrate conservation for use at homes and businesses. Turf to xeric conversion at the County roundabout will demonstrate a beautiful landscape while saving water. The bioswale/wetland and vernal pool will create new habitat while treating storm water before entering Hensley Creek. Education opportunities at Mendocino College will promote learning and skill development with these and other sustainable techniques.</p>
Organization	Mendocino County Water Agency/ Planning Department
Contact Name and Title	Nash Gonzalez, AICP - Planning & Building Services Director
Disadvantaged Community	Yes
Grant Funds Requested	\$400,000
Non-State Match	\$51,050
Total Budget	\$451,050
Watershed	Russian River
County	Mendocino County
Status of project design and bid solicitation efforts	<p><u>County Campus</u>: Parking Lot Retrofit: Phase 1 - drainage review and treatment selection complete. Phase 2 - Rau and Associates Inc. site visit and submittal of "Opinion of Probable Construction Costs" on 3/26/09. Agriculture Building Rainwater Catchment and Xeric Landscape: Phase 1 - Area and rainfall calculations, site sketch and plant species selection complete. County Roundabout Turf to Xeric Conversion: Phase 1 - Area measurement and initial plant species selection complete.</p> <p><u>Mendocino College</u>: Sports Fields Irrigation Recycling: Phase 1 - Components/equipment requirements identified and costs estimated. Rough sketch of project complete.</p> <p>Vernal Pool: Phase 1 - Site and treatment identified, and initial cost estimates completed. Bioswale/Wetland: Phase 1 - Site and treatment identified, and initial cost estimates completed. Rainwater catchment and xeric landscape: Specific location to be determined, multiple options exist. Education: Phase 1 - Proposed course topics and schedule identified.</p>
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Mendocino College Sports Fields Irrigation Recycling Project, Conceptual Diagram • Conceptual Site Plan: College Campus • Conceptual Site Plan: Mendocino County Campus

GENERAL INFORMATION:	
	<ul style="list-style-type: none"> California Stormwater BMP Handbook: Constructed Wetlands U.S. Fish and Wildlife Service. Vernal Pool Construction Monitoring Protocol and Habitat Replacement Evaluation
Status of CEQA, NEPA, and other environmental laws	<p>County Campus parking lot retrofit: A CEQA Negative Declaration has been determined after consultation California Fish and Game.</p> <p>Mendocino College sports fields irrigation recycling and bioswale/wetland: Possible 1600 Fish and Game requirement for sports fields irrigation recycling. CEQA determination will be made after consultation with California Fish and Game.</p>
Work that will be completed prior to June 1, 2011 (assumed contract date)	<p>Secure final approvals from County administration and define schedule for parking lot retrofit.</p> <p>Secure final approvals from College administration for College projects.</p>
Merits of the building materials or computational methods that were or will be used for project development	<p><u>County Campus</u></p> <p>Parking Lot Retrofit: Pervious pavement over infiltration trenches and bioswales associated with curb cuts to infiltrate and treat storm water runoff. Design modeled from recently constructed auto dealership utilizing infiltration trenches capped by porous pavement to capture parking lot runoff with overflow routed to bioswale prior to discharge offsite. We used treated parking lot area and seasonal rainfall to calculate annual volume. All materials and techniques are LID standards and known to be effective.</p> <p>Agriculture Building Rainwater Catchment and Xeric Landscape: American Rainwater Catchment Systems Association guidelines and standard techniques proven to save water and demonstrate sustainable practices.</p> <p>Roundabout Turf to Xeric Conversion: UC Cooperative Extension - WUCOLS for plant species selection. Evapotranspiration and plant water requirements for irrigation water saved and implements standard techniques proven to save water and demonstrate sustainable practices.</p> <p><u>Mendocino College Campus</u></p> <p>Sports Fields Irrigation Recycling: Seasonal irrigation schedule and estimated runoff to storm water pond provided the initial estimate of potential volumes available for recycling.</p> <p>Vernal Pool: Sizing based on drainage area and soils type.</p> <p>Bioswale/Wetland: Rainfall and parking lot runoff to estimate surface flow volumes. LID standards for bioswale construction. Plant species selection based upon Mendocino College Agriculture Department expertise.</p> <p>Rainwater Catchment and Xeric Landscape: American Rainwater Catchment Systems Association guidelines. Plant species selection based upon Mendocino College Agriculture Department expertise.</p>
Procedures for coordination with partner agencies and organizations	<p>Mendocino County will enter into an agreement with Humboldt County regarding the dispersal of awarded funds. The County of Mendocino and Mendocino College will enter into a Memorandum of Agreement (MOA) to clarify the working relationship and details of this project.</p> <p>Outreach to partner agencies and disadvantaged communities will occur, inviting interested representatives to tour project sites before, during, and after implementation. Classes and workshops covering sustainable practices addressed by this project will occur through the College and the County Water Agency.</p>

GENERAL INFORMATION:	
A description of synergies or linkages between other NCIRWMP projects	<p>The County campus parking lot retrofit component is of interest to the Hopland and Coyote Valley Bands of Pomo Indians in regard to their housing and commercial development projects. Their representative, and others, will be invited/included in the pre/during/post construction process to determine applicability of this LID technique on their respective lands.</p> <p>Rainwater catchment and xeric landscapes will include opportunities for participation/review by local Tribal representatives, landscape contractors, and school districts,</p> <p>The College and County will coordinate with the Mendocino County Resource Conservation District on timing of workshops and educational offerings, and for information distribution via their mailing list.</p>
Status of acquisition of land or rights-of-way, if applicable	Not applicable
Standards, such as construction standards that will be used in implementation	California Building Code requirements will be fulfilled for electrical and plumbing components of the sports fields irrigation recycling project. County codes applicable to rainwater catchment and bioswale construction will be fulfilled. Professional standards for parking lot drainage and construction, especially applied to pervious pavement will guide the design.
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	Each component of this project can serve as a stand-alone project because they do not rely upon other efforts to achieve completion.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Create an expanded network of collaborative opportunities in sustainable practices through implementation of individual projects.	<ul style="list-style-type: none"> • Document the current and expanded list of collaborative partners in sustainable processes and include the RCD. • Document expanded educational opportunities through course work at Mendocino College.
2.	Improve watershed processes and ecosystems	<ul style="list-style-type: none"> • Calculate storm water volumes treated at LID sites (County parking lot, College bioswale/wetland) based upon rainfall events. • Document areas and plant species colonization of vernal pool and bioswale/wetland at Mendocino College. • Quantify reduction in irrigation volumes of potable water applied on Mendocino College sports fields and two turf to xeric conversion sites on the County campus.
3.	Improve Water Quality	<ul style="list-style-type: none"> • Photo documentation and/or turbidity results from County and College parking lot runoff pre- and post project.
4.	Promote adoption of water efficient practices	<ul style="list-style-type: none"> • Hold college classes, publicize, create media releases,

		<p>and host workshops highlighting individual projects.</p> <ul style="list-style-type: none"> • Document number and specialty fields of attendees.
5.	Assess the effectiveness of techniques for each project.	<ul style="list-style-type: none"> • Photo-documentation of before, during, and after implementation of each project. • Assess plant colonization of natural treatment sites. • Monitor water quality before and after implementation of County Parking lot retrofit, Mendocino College sports fields irrigation recycling, and bioswale/wetland.
6.	Provide high visibility examples of LID and sustainable practices.	<ul style="list-style-type: none"> • Mendocino College and County rainwater catchment and xeric landscape projects will provide visible examples to foot traffic at the College and Agriculture Building as well as hands-on experience for one College class and the Master Gardner Program.

Description of the Purpose and Need of the Project

The updated Mendocino County General Plan calls for sustainable practices in community development with the goal of improving long term water management for all species. The Mendocino County Water Agency and Mendocino College are poised to take the leadership role in demonstrating LID techniques that can serve to influence agencies and residents of the county to embrace these "new" measures. Mendocino Jumpstart has the potential to reach a large portion of the population through college classes, workshops, public accessibility to both campuses, and access to a wide range of experts available to spread the word that these techniques benefit the ecosystem and reduce long term costs.

Project Description

County Campus on Low Gap Road

- The County campus parking lot retrofit includes construction of approximately 1,500 feet of infiltration trenches and 100 feet of curb cuts to direct stormwater into rain gardens and bio-swales.
- The rainwater catchment project by the Agriculture Building will involve 500 square feet of turf to xeric plant conversion and installation of a 500 gallon tank to capture and store rainwater for irrigation purposes.
- The turf to xeric conversion at the County roundabout will involve 2,600 square feet of turf removal and water-loving ornamentals and installation of native xeric plant species.

Mendocino College

- Irrigation water recycling for the Mendocino College sports fields will include installation of a pre-filter intake in the stormwater pond, a surge tank, filter and pump by the pond, a 10,000 gallon storage tank near the pumphouse, and connection plumbing to complete the system.
- The bioswale/wetlands component below the Agriculture/Maintenance Complex will include construction of a 2,000 square feet contoured berm to capture and infiltrate storm water surface runoff from the parking lot.
- The vernal pool will be located near the main College entrance, and will involve construction of a contoured berm to capture seasonal surface runoff.
- Rainwater catchment will include a 500 gallon tank located next to the Agricultural Building, which will irrigate approximately 500 square feet of newly planted native vegetation.
- The education component at Mendocino College will include eight classes covering topics associated with LID and sustainable projects implemented on the College and County campuses.

Scientific and Technical Merit Discussion: Rationale for the Project

These projects are designed to be high profile demonstration projects that emphasize on-site storm water runoff treatment and water conservation using water capture and xeric landscaping techniques. These features will be the subject of various workshops at the County and classes at Mendocino College. The intent is to actively promote implementation of these techniques by local contractors, engineers, builders and to teach the techniques to a new generation of students for job skills development.

County Facilities Retrofit

Storm Water Treatment: This project implements standard, proven mechanisms to treat storm water runoff using onsite infiltration mechanisms. The primary measure includes: porous concrete capped infiltration trenches throughout the parking lot, with overflow into existing storm drain system, and final discharge into bio-retention area prior to discharge into Orr's Creek. In areas where permeable infiltration trenches will not be installed, the design involves curb cuts to direct surface flow from driving surfaces onto nearby landscapes for treatment and infiltration.

Rainwater Capture: This technique uses standard plastic tanks to capture roof runoff for use in irrigating xeric landscape at the Agriculture Building for demonstration, promotion and educational purposes. The College Agriculture class will perform the design of the system and plant selection.

Xeric Landscaping: Approximately 3,000 square feet of turf lawn will be removed and replaced by xeric landscaping at two high profile locations in the County facilities using designs and plant selection developed by a Mendocino College class.

Mendocino College

Irrigation recycling: The College is the single largest water user in the Millview Water District and this project will reduce water use by 200,000 – 1,000,000 gallons/month by recirculating the irrigation water. The four sports fields are irrigated with potable Millview water and, due to the sand substrate and high percolation rate, use an excessive amount of potable water for irrigation. This project uses standard pumping measures to recirculate the irrigation water and significantly reduce demand on potable water.

Vernal Pool Construction: This project utilizes an Agricultural Sciences class to design a high profile vernal pool and construct adjacent viewing deck at the site. The new plant and animal species hosted in the vernal pool will be the subject of continuing education and research beyond the termination of this grant.

Bioswale/Wetland Construction: This project utilizes an Agriculture Sciences class to design a high profile bioswale and two wetlands. The meandering bioswale treats runoff from the new parking lot and routes the storm water into the new wetlands. The bioswale will be augmented with riparian plantings as designed by a College class. The new plant and animal species hosted in the pool will be the subject of continuing education and research beyond the termination of this grant.

Rainwater Capture/Xeric Landscape Installation: A high visibility College location will be selected to install a rainwater harvest system using a standard tank and vegetation conversion to xeric landscaping to demonstrate water conservation and rain water harvesting techniques. The site will be designed by a College class and will serve as an on-going educational and research location.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	<ol style="list-style-type: none"> 1. Mendocino College and Mendocino County Memorandum of Understanding: April 30, 2011 2. County of Mendocino and County of Humboldt enter into agreement regarding dispersal of awarded funds. 3. Contract approval: June 1, 2011 	<p>Signed MOUs</p> <p>County Board of Supervisors approves contract</p>
1.2	Project Performance Plan Development	<p>In cooperation with the County of Mendocino, Mendocino College, DWR, and other appropriate agencies, develop a Project Performance Plan to address the following elements:</p> <ol style="list-style-type: none"> 1. Identify project performance goals related to the parking lot retrofit, sports fields irrigation recycling, vernal pool, bioswale/wetland, rainwater catchment and xeriscape, and turf to xeric conversion components. 2. Define performance indicators for each goal based on consensus of Performance Plan Team 3. Identify the method, frequency, and schedule for collection of monitoring data. 4. Identify parties responsible for the collection of data and data management. 5. Prepare a Draft Project Performance Plan and provide to County of Mendocino and Mendocino College for approval. 6. Revise Project Performance Plan per recommendations. 7. Complete Final Project Performance Plan 	Project Performance Plan
1.3	Quarterly Reports	<p>Quarterly reports will be submitted to DWR throughout the contract life by the Mendocino County Water Agency/Planning Department with the first quarter beginning September 1, 2011. Quarterly reports will describe activities and accomplishments for each task during the quarter, milestones achieved, and problems encountered in the performance of work under the agreement.</p> <p>The description of activities and accomplishments of each task during shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.</p> <ol style="list-style-type: none"> 1. Prepare progress reports every three months in accordance with Mendocino County and DWR reporting format. 2. Describe project progress, such as activities completed and problems encountered in current quarter. 	Quarterly reports will be submitted every 3 months until contract completion.

#	Work Task Title	Work Task Description	Deliverables
		3. Provide percent completion status for all project tasks in each progress report.	
1.4	Final Report	<p>A draft Final Report will be provided 60 days before the end of the Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to comment source. The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a description of the approach and techniques used to complete the project. A list of task deliverables.</p> <p>Determination of whether the purpose of the project has been met. Information collected in accordance with the Project Monitoring and Reporting Plan will be included.</p> <ol style="list-style-type: none"> 1. Track project activities, including photo monitoring 2. Summarize project activities, achievements, and difficulties 3. Prepare Draft Final Report to include County of Mendocino and DWR reporting requirements. 4. Provide Draft Final Report to appropriate agencies for review and comment 5. Prepare Final Project Report 	<p>Draft Final Report</p> <p>Final Report</p>
1.5	Land purchase/easement	Not applicable	
1.6	Education	<p>Hold at least 8 classes at Mendocino College during the Grant Agreement.</p> <ol style="list-style-type: none"> 1. Specify classes, instructors, and schedules applicable to project tasks. 2. Advertise classes through curriculum guide and other local media. 3. Contact partner agencies and entities on the availability of classes. 	Education of approximately 160 students; class lists
1.7	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	<p>County campus parking lot retrofit: Negative Declaration</p> <p>Mendocino College sports fields irrigation recycling, vernal pool, bioswale/wetland: Negative Declaration</p> <p>CEQA Documentation</p> <ol style="list-style-type: none"> 1. County of Mendocino to begin CEQA process as Lead Agency. 2. Conduct preliminary project review. 3. Conduct site review w/ F&G representative 	CEQA document

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 4. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 5. Prepare Initial Study per CEQA Guidelines Section 15063 6. Prepare CEQA documentation 	
2.2	Permit Development: DFG 1600	<p>Unclear if a DFG 1600 Agreement is needed for the sports fields irrigation recycling component.</p> <ol style="list-style-type: none"> 1. Contact DFG representative to perform site visit of proposed project. 2. If necessary, prepare Streambed Alteration Agreement for submittal. 3. Present Agreement application to County and Mendocino College administration for approval. 4. Revise and submit Agreement application if needed. 	F&G site review
3.	Planning/Design		
	Assessment Studies (complete)	<p>Assess the County campus parking lot installation of permeable infiltration trenches.</p> <ol style="list-style-type: none"> 1. Assess drainage patterns 2. Determine square foot areas of parking lot zones 3. Calculate potential treatment volumes 	Completed Assessment
3.1	Assessment Studies	<p>A detailed assessment of the sports fields irrigation system will be completed to specify design requirements for the irrigation recycling component.</p> <ol style="list-style-type: none"> 1. Determine irrigation efficiency of sports fields 2. Calculate plant water requirement of turf during irrigation season 3. Quantify volume and percent runoff based on average irrigation 4. Evaluate irrigation schedule 5. Quantify expected volume of runoff to pond available for recycling 6. Provide draft assessment for review by certified Irrigation Auditor 7. Update and finalize assessment of sports fields irrigation system 	Completed Assessment
3.2	Concept Design (40%)	<p>Create an initial sketch with rough estimates for review by irrigation professionals to narrow the focus on specific design components.</p> <p>Create plan view diagram of bioswale/wetland and vernal pool sites</p>	Plan view designs
3.3	Detailed Design (60%)	<p>Create an initial design of LID techniques on the County campus parking lot to identify locations and quantify lineal feet of treatment</p> <p>Create initial design for irrigation recycling, vernal pool and bioswale</p>	Aerial photograph with treatment layers

#	Work Task Title	Work Task Description	Deliverables
3.4	Construction Design (90%)	<p>Develop a set of plans and specifications to the 90% complete level and supply to interested parties for review and comment.</p> <ol style="list-style-type: none"> 1. Complete design details for sports fields irrigation recycling. 2. Complete design details for County parking lot retrofit 	Opinion of probable cost 90% Plans and Specifications
3.5	Final Design/ Plans	<p>Develop a set of final design plans with specifications to put project components out to bid.</p> <p>College sports fields irrigation recycling County parking lot retrofit College bioswale/wetland and vernal pool County roundabout turf to xeric conversion</p> <p>Plans and specifications of each project component will conform to all necessary requirements stipulated by the College, County and other regulatory agencies to ensure a high quality project.</p> <ol style="list-style-type: none"> 1. Review comments from 905 specification deliverables 2. Prepare Construction Inspection Plan including mechanisms to assure that project components are completed to specifications 3. Prepare Final Specifications 4. Prepare 100% Plans ready for project bidding 	Final project design and construction specifications
4.	Construction/ Implementation		
4.1	Construction administration	Define County's role in contract administration on Mendocino College project components.	College and County MOA
4.2	Construction contracting: Bid Process	<p>Develop advertisement and contract documents for construction contract bidding. Includes bid analysis and recommendations of most qualified bidder. Project components for bid include Mendocino College sports fields irrigation recycling and County campus parking lot retrofit.</p> <ol style="list-style-type: none"> 1. Prepare bid package including final plans and specifications. 2. Advertise bid opening 3. Provide bid packages to interested contractors and obtain bid bonds. 4. Reply to all contractors with any questions submitted. 5. Analyze bids based on costs and contractor qualifications. 6. Conduct interviews if needed. 	Selection of Contractor(s)
4.3	Construction Contracting:	Award contract(s) to successful bidder(s) for College sports fields irrigation recycling and County campus	Contract(s) Awarded

#	Work Task Title	Work Task Description	Deliverables
	Award	parking lot retrofit. <ol style="list-style-type: none"> 1. Notify successful contractor(s) 2. Prepare contract documents 3. Obtain contractor performance bond and payment bond 4. Obtain copy of contractor(s) insurance certificate 5. Execute contract agreements 	
4.4	Mobilization and site preparation	County campus parking lot retrofit <ol style="list-style-type: none"> 1. Pavement painting for treatments 2. Post informational signage on parking lot traffic diversions 3. Deliver equipment to site 	Milestone: Construction Initiated
4.5	Mobilization and site preparation	College sports fields irrigation recycling <ol style="list-style-type: none"> 1. Site painting and survey stakes installed 2. Coordinate schedule w/ Campus Facilities Director 3. Deliver equipment to site 	Milestone: Construction Initiated
4.6	Project Construction: County campus parking lot retrofit	<ol style="list-style-type: none"> 1. USA call for utilities detection 2. Initiate ground breaking and earth moving 3. Order and schedule materials delivery 4. Complete construction per project specifications 	Construction complete
4.7	Project Construction: College sports fields irrigation recycling	<ol style="list-style-type: none"> 1. USA call for utilities detection 2. Construct and pour foundations for filter, surge tank, and water tanks 3. Install pumps, filter, tanks, and connecting plumbing 4. Connect clear well tank to Millview water source (after double check) and to pumphouse. 5. Activate system to check proper function 	Construction complete
4.8	Project Construction: County Agriculture Building rainwater catchment and xeric landscape	<ol style="list-style-type: none"> 1. Remove turf and disconnect sprinkler system 2. Purchase water tank, roof to tank connection, and irrigation components. 3. Install tank, connect to roof, and install drip irrigation system.\ 4. Install approved plant species in spring 2012 	Construction complete

#	Work Task Title	Work Task Description	Deliverables
4.9	Project Construction: County Roundabout turf to xeric conversion	<ol style="list-style-type: none"> 1. Remove turf and convert sprinkler system to drip irrigation 2. Contour the soils to collect rainfall. 3. Install approved plant species in spring 2012 	Construction complete
4.10	Project Construction: College vernal pool construction (College course)	<ol style="list-style-type: none"> 1. Define vernal pool location 2. Dig soil depression based on class project results 3. Install approved plant species in spring 2012 	Construction complete
4.11	Project Construction: College bioswale/wetland construction (College course)	<ol style="list-style-type: none"> 1. Define bioswale/wetland size and location 2. Install berm with heavy equipment 3. Install approved plant species in spring 2012 	Construction complete
4.12	Project Construction: College rainwater catchment and xeric landscape (College course)	<ol style="list-style-type: none"> 1. Define xeric landscape location and rainwater catchment source 2. Purchase water tank, roof to tank connection, and drip irrigation components. 	Construction complete
4.13	Demobilization	<ol style="list-style-type: none"> 1. Inspect project components and establish that work is complete and BMPs are in place. 2. Prepare a notice of completion and provide to Humboldt County. 3. Prepare recommendations concerning final payments to contractors and release of retained percentages and bonds 4. County campus project components, College bioswale/wetland, vernal pool, rainwater catchment and xeric landscape. 5. College irrigation recycling 	As-Built and Record Drawings, Milestone: County Notice of Completion
5.	Project Performance		
5.1	Photo Monitoring	<ul style="list-style-type: none"> • County campus parking lot retrofit • College sports fields irrigation recycling • County Agriculture Building rainwater catchment and xeric landscape • County Roundabout turf to xeric conversion • College vernal pool construction (College course) • College bioswale/wetland construction (College course) • College rainwater catchment and xeric landscape (College course) 	Project photo documentation

#	Work Task Title	Work Task Description	Deliverables
5.2	Turbidity Monitoring	County campus parking lot retrofit: Storm drain outflow measurements before and after project implementation	Results included in final report
5.3	Water Quality Monitoring	College sports field irrigation recycling: Summer testing of pH, conductivity and turbidity.	Results included in final report
5.4	Vegetative Monitoring	<ol style="list-style-type: none"> College vernal pool, bioswale/wetland, rainwater catchment & xeric landscape, County rainwater catchment & xeric landscape, roundabout turf to xeric conversion: Documentation of: percent survival, species diversity, and plant condition. 	Results included in final report
5.5	Public/student Opinion Surveys	<ol style="list-style-type: none"> College classes and County workshops feedback Written surveys and verbal responses to projects 	Results included in final report
6.	Maintenance		
6.1	Operations and Maintenance (not funded with IRWMP funding)	<ol style="list-style-type: none"> County campus parking lot retrofit: Annual parking lot sweeping College sports fields irrigation recycling: Filter, tank cleaning and pump maintenance as needed Rainwater catchment and xeric landscapes (2): Annual intake filter and irrigation system filter cleaning County roundabout turf to xeric conversion: Seasonal test of irrigation system during plant establishment. 	Maintenance completed

374 & 376 - Nissa-kah Creek Fish Passage Removal, Hopland Band of Pomo Indians

GENERAL INFORMATION:	
Project Title	NissaKah Creek Fish Passage
Project Abstract	The Hopland Band of Pomo Indians tribe is working to restore its culture, land and water. In 2005 the tribe identified steelhead restoration as a high priority in its Environmental Master Plan. Since then the tribe has secured grant funding to do stream habitat typing and fish passage analysis, as well as improving stream and riparian habitat. The fish passage analysis identified two culverts as major impediments to upstream and downstream steelhead migration. Tribal EPA secured funding to develop designs for fish passage improvement for these two culverts on Nissakah Creek, one of two headwater streams on the reservation. These designs were developed to meet National Marine Fisheries Services' standards, and were completed in November 2009. The proposed project will build two fish passage improvements according to the engineering designs; this will increase the viability of the remnant population of steelhead that spawn in this stream, will help restore part of the cultural heritage of the Tribe, and will benefit the salmonid restoration efforts of the Russian River Watershed.
Organization	Hopland Band of Pomo Indians
Contact Name and Title	Allen Cooperrider, Tribal EPA Director
Disadvantaged Community	Hopland Band of Pomo Indians
Grant Funds Requested	\$803,000
Non-State Match	\$313,242
Total Budget	\$1,116,242
Watershed	Russian River Watershed
County	Mendocino County
Status of project design and bid solicitation efforts	Preliminary engineering designs complete
Titles of Plans and Specifications submitted in hard copy format	Steiner Environmental Consulting. 1996. A History of the Salmonid Decline in the Russian River. 86pp. Ross Taylor and Associates. 2006. Hopland Band of Pomo Indian Reservation—Stream Crossing Inventory and Fish Passage Evaluation. 53pp. Ross Taylor and Associates (RTA). 2008. Habitat Typing Surveys of Russian River Tributaries located on the Hopland Band of Pomo Indians Reservation. 26pp. Allen, Steven and Michael Love. 2009. Design Report for a Fish Passage Improvement Project on Nissa-Kah Creek at Nokomis Road. Winzler&Kelley and Michael Love & Associates, 24pp. Allen, Steven. Alternatives Analysis for Nissa-Kah Creek Crossing at Highway 175, Hopland, California. Winzler&Kelley. 11pp.
Status of CEQA, NEPA, and other environmental laws	Permitting and environmental review still to be done.
Work that will be completed prior to June 1, 2011	Stream habitat typing; Stream crossing inventory and fish passage evaluation. Preliminary fish

GENERAL INFORMATION:	
(assumed contract date)	<p>passage engineering design work.</p> <p>Steelhead surveys (2008) Steelhead Surveys (Spawners, Redds, Juveniles): February 1, 2011 – August 30, 2011</p>
Merits of the building materials or computational methods that were or will be used for project development	<p>Winzler and Kelly and Michael Love and Associates prepared the designs for the NissaKah Creek Fish Passage project and are firms with special expertise in engineering for fish passage. Preliminary designs were reviewed by National Marine Fisheries Service, California Department of Fish and Game, Mendocino County Department of Transportation, and Cal Trans.</p>
Procedures for coordination with partner agencies and organizations	<p>The tribe has coordinated with CalTrans, CDFG, NOAA-NMFS, US EPA, and Mendocino County Department of Transportation for review of design of fish passage improvements. The tribe regularly confers with all of these stakeholders for any habitat restoration work to be performed near public roads or state highways.</p>
Status of acquisition of land or rights-of-way, if applicable	<p>Not applicable.</p>
Standards, such as construction standards that will be used in implementation	<p>NMFS and CDFG standards for fish passage.</p>

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	<p>Restore viable populations of steelhead trout on the Hopland Reservation via fish passage improvements on NissaKah Creek</p>	<ul style="list-style-type: none"> • Improve passage through the Nokomis Road culvert for all age classes of steelhead trout while leaving the existing culvert in place. • Improve passage through the culvert at Highway 175 for all age classes of steelhead trout while leaving the existing culvert in place. • Increased count of spawning steelhead in Nissakah Creek and increased abundance of downstream migrants

Description of the Purpose and Need of the Project
<p>The Hopland Reservation is located in southeastern Mendocino county, and consists of 2013 acres. Two streams, which are headwaters of the Russian River watershed originate on the reservation. These streams historically supported vibrant populations of salmonids, particularly steelhead trout. These fish played an important role in the culture of the Hopland Band of Pomo Indians. However, steelhead have declined in these streams as in the Russian River watershed generally. The Central California Coast Steelhead DPS (which includes the Russian River steelhead) are now listed as threatened by NOAA's National Marine Fisheries Service (NMFS).</p> <p>The Hopland Tribe is working to restore their culture and their lands and waters. In 2005 the Hopland Band of Pomo Indians</p>

developed and adopted an Environmental Master Plan. Since that time the Tribal EPA department has actively worked to improve stream habitat and re-establish healthy populations of steelhead. The Tribal EPA has conducted annual stream cleanup activities and has cleaned up several illegal open dump sites adjacent to streams.

As a result of fisheries studies conducted by Ross Taylor and Associates, NissaKah Creek was identified as the stream with the most immediate potential for restoration of steelhead populations. NissaKah Creek is a second order stream with its headwaters entirely on the Hopland Reservation.

In 2008 the Tribal EPA contracted with Winzler and Kelly and Michael Love and Associates to prepare designs for fish passage for both culverts. These are firms with special expertise in engineering for fish passage. Preliminary designs were sent out for review to the National Marine Fisheries Service, California Department of Fish and Game, Mendocino County Department of Transportation, and Cal Trans. Engineering designs were provided to the Tribe in November 2009.

Improving fish passage will increase the viability of the remnant population of steelhead that spawn in this headwater stream, will help restore a part of the cultural heritage of the Hopland Tribe, and will benefit the salmonid restoration efforts of the Russian River Watershed.

Providing unimpeded upstream and downstream passage for all ages of steelhead to spawning and rearing waters is also critical to preparing for global climate change. At the current time both upstream and downstream passage can be impeded. In 2008 young of the year were unable to make it past the upper culvert due to low water flow and EPA staff and volunteers had to net and move them downstream. With global climate change one can expect more extreme weather events (very high winter flows; very dry spring/summer conditions) making passage for the steelhead populations even more problematic. Constructing these fish passage improvements will allow fish passage across a wide variety of stream and weather conditions for hundreds of years into the future.

Project Description

The objective of the project is to improve passage through the Nokomis Road culvert where it crosses Highway 175, as well as at the Nokomis Road culvert, for all age classes of steelhead/rainbow trout while leaving the existing culverts in place. Additionally, the project should not reduce the flood flow capacity of the culverts and the loss of riparian and large oak trees should be minimized or avoided. They are approximately ¼ mile apart and located where NissaKah creek leaves the reservation. Both are cement box culverts that are undersized by current standards. However, replacement of the culverts would be prohibitively expensive. Thus alternative methods for improving fish passage were sought.

Working with engineering firm Winzler and Kelly, the tribe developed designs for improving upstream fish passage while minimizing any loss of capacity to deal with storm flows. The designs prepared will accommodate both upstream and downstream passage for adult and juvenile steelhead trout and will provide a large improvement in passage conditions for all life stages of steelhead/rainbow trout.

NissaKah Creek at Nokomis Road: Step Pool / Roughened Rock Channel

Design. The proposed channel consists of distinct steps and pools with an overall slope of 6.0% extending approximately 170 feet. The upstream ending elevation for the proposed channel was determined in part by the water surface elevation required to maintain suitable hydraulic conditions in the culvert. The elevation at the downstream end of the proposed roughened channel was based on the elevation of the existing channel and potential for future vertical channel adjustments (i.e. future channel degradation).

Large rock structures span the channel to create steps. Steps are spaced 13 feet apart and the drop between steps is set to be no more than 0.8 feet. This design provides a balance between (1) minimizing the length of the roughened channel to avoid downstream construction impacts and (2) maintaining suitable fish passage conditions and bed stability within the constructed

channel.

NissaKah Creek at Highway 175: Outlet Sill with Boulder Weirs

Design. The proposed outlet sill will be installed inside the culvert outlet. The proposed sill is 1.1 X 1.1 X 6 feet, which spans the entire width of the culvert. The elevation of the outlet sill crest is 628.7 feet. The sill could be constructed with concrete or steel. Although the outlet sill can create favorable fish passage conditions within the culvert, the outlet sill itself can create a new jump barrier. Therefore, additional tailwater control measures are required to address the jump conditions. For this design alternative, boulder weirs are utilized as the tailwater control feature.

The proposed boulder weir dimensions have not been fully defined, but the elevation for each weir has been determined. In all there are four proposed boulder weirs, each set 1 foot lower than the proceeding in the downstream direction. The first proposed weir crest elevation is 628.7 feet, which is the same elevation as the outlet sill. This weir is 20 feet downstream of the culvert outlet. Each boulder weir is also separated by 20 feet.

The outlet sill and the boulder weirs were modeled as sharp crested weirs using equation (1). The model first evaluates that the depth conditions are met and then increases or decreases the boulder weir elevation so the jump criteria for the species/lifestages at the design flows are met. The hydraulic conditions were predicted at the three lower and upper fish passage design flows.

Scientific and Technical Merit Discussion: Rationale for the Project

The Hopland Reservation is located in southeastern Mendocino County and consists of 2013 acres which includes two streams that are part of the Russian River Watershed. These streams historically supported viable populations of steelhead. However, all salmonid populations in the Russian River have declined since 1950 (Steiner 1996) and the Central California Coast Steelhead DPS which includes the Russian River steelhead has been listed as threatened by the National Marine Fisheries Service.

In 2005 the Hopland Band of Pomo Indians developed and adopted an Environmental Master Plan. One of 13 “Issues of Concern” identified was “Wildlife Enhancement,” which required two actions:

- Conduct stream clean-up project; and
- Conduct habitat restoration and re-introduce steelhead to Reservation creeks.

Since that time the Tribal EPA department has actively worked to improve stream habitat and re-establish healthy populations of steelhead. The Tribal EPA has conducted annual stream cleanup activities and has cleaned up several illegal open dump sites adjacent to streams.

In 2006 the tribe contracted with Ross Taylor to conduct a fish passage evaluation of stream crossings within the Hopland Reservation. Fish passage was assessed using both state (Flossi and Reynolds 1994) and Federal (NMFS 2001) passage criteria by employing a first-phase evaluation filter and then using a computer software program (FishXing) for a more in-depth analysis of flow regimes and passage limitations for the various life stages. This report then ranked sites using criteria developed by the California Department of Fish and Game and provided general recommendations for improving fish passage conditions (Ross Taylor and Associates 2006).

In 2007 Tribal EPA contracted with Ross Taylor and Associates to conduct stream habitat typing surveys for the streams of the reservation. As a result of these two studies Nissa-kah Creek was identified as the stream with the most immediate potential for restoration of steelhead populations. The report of this survey (Ross Taylor and Associates 2007) recommended the following two actions:

- Secure funding to implement the fish passage treatment designed for the County-maintained culvert on NissaKah Creek

at Nokomis Road; and

- Secure funding to design a treatment for improving fish passage through the Highway 175 box culvert on lower NissaKah Creek.

In 2008 the Tribal EPA contracted with Winzler and Kelly to prepare designs for fish passage for both culverts. Preliminary designs at the 10% and 50% stage were sent out for review to National Marine Fisheries Service, California Department of Fish and Game, Mendocino County Department of Transportation, and Cal Trans. Designs were provided to the Tribe in November 2009 (Allen 2009; Allen and Love 2009). These consultants have in-depth experience in hydrology and engineering design for fish passage—and their designs incorporate the best available science on fish passage.

Assessments to determine the effectiveness of the fish passage improvements will be done via stream surveys replicating the ones that were conducted prior to construction. We anticipate that it may take up to ten years to see a significant increase in steelhead numbers since steelhead spend from one to 3 years in the ocean before returning to spawn and because it is likely to take several generations to recover populations.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	Tribal EPA Director and Assistant Director: Oversee project; ensure that timelines are met; oversee request for qualifications and quotes for contractors for “Permitting and Environmental Review”, “Final Engineering Design”, “Construction Management” and “Bidding Assistance”. Serve as liaison with tribe and tribal administration	Contracts signed for: <ul style="list-style-type: none"> • Permitting and Environmental Review; • Final Engineering Design; • Bidding Assistance; • Construction Management. • Construction completed • Final Report
1.2	Project Performance Plan Development	In cooperation with the County of Humboldt, DWR and other appropriate agencies, develop a Project Performance Plan	Project Performance Plan
1.3	Quarterly Reports	Tribal EPA will provide quarterly reports.	Quarterly reports provided for Jan-Mar, Apr-Jun, Jul-Sept, Oct-Dec within 30 days of end of quarter
1.4	Final Report	Tribal EPA will prepare final report.	Final report
1.5	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	<p>CEQA Documentation</p> <ol style="list-style-type: none"> 1. Select qualified consultant to complete the CEQA NEPA process through a qualification based selection process 2. Conduct preliminary project review 3. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 4. Prepare Initial Study per CEQA Guidelines Section 15063 	CEQA documentation

#	Work Task Title	Work Task Description	Deliverables
		5. Prepare NOE or MND	
2.2	Permit Development	<p>Contractor:</p> <ul style="list-style-type: none"> • Consultation with NMFS re: impact on Federal threatened species (Steelhead trout); • Environmental Review under CEQA and/or Tribal Environmental Review Process; • Development Permit from Hopland Band of Pomo Indians • 401 Permit from State Water Resources Control Board • Lake and Streambed Alteration (LSA) Program agreement from California Department of Fish and Game may be required; • Encroachment Permit from the County of Mendocino Department of Transportation for culvert at Nokomis Road • Encroachment Permit from CALTRANS for the culvert at State Highway 175. 	<ul style="list-style-type: none"> • CEQA documentation • Hopland Band of Pomo Indians Development Permit • 401 Permit • Lake and Streambed Alteration (LSA) Program agreement • County of Mendocino Encroachment Permit • CALTRANS Encroachment Permit
3.	Planning/Design		
3.1	Assessment and Feasibility Studies	Complete	Assessment and Feasibility Studies (completed)
3.2	Concept Design	Complete	Concept Design (completed)
3.3	60% Design	Complete	60% Design (completed)
3.4	Final Design/ Plans	<p>Develop a set of final design plans and specifications ready to put out to bid.</p> <p>The plans and specifications will conform to all necessary requirements stipulated by the Tribal EPA and regulatory agencies to ensure a high quality product.</p> <ol style="list-style-type: none"> 1. Review comments from 90% specification deliverable 2. Prepare Construction Inspection Plan including mechanisms to assure that project components are completed to specifications 3. Prepare Final Specifications 4. Prepare 100% Plans ready for project bidding 	Final Project Design and Construction Specifications
4.	Construction/ Implementation		
4.1	Construction administration	<p>Conduct inspection of the project including reporting and project communication</p> <ol style="list-style-type: none"> 1. Assign qualified construction inspector/ engineer to the project 2. Keep daily records of construction activities, inspection, and progress 	Inspection Reports, Meeting Minutes, Contractor Log, Submittals

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 3. Verify that all work was completed in accordance with specifications 4. Assure as-built drawings and other accumulated records are provided to the Tribal EPA and County of Humboldt 	
4.2	Construction contracting	<p>Develop advertisement and contract documents for construction contract bidding. Award of Contract to successful bidder, contract documents, bonds, insurance and other contract requirements.</p> <ol style="list-style-type: none"> 1. Prepare bid package including final plans and specifications 2. Analyze bids based on cost and contractor qualifications 3. Select contractor; Prepare contract documents 4. Execute contract documents 	Contract Award
4.3	Mobilization and site preparation	<ol style="list-style-type: none"> 1. Initiate project construction 2. Order project equipment and supplies 3. Assure project permits are in place 4. Prepare site 	Site prepared, 'Before' photo documentation
4.4	Project Construction	<ol style="list-style-type: none"> 1. Construct project components 	Construction complete
4.5	Demobilization	<p>Inspect project components and establish that work is complete. Prepare record drawings.</p> <ol style="list-style-type: none"> 1. Establish work is substantially complete by inspector 2. Prepare a list of unfinished work 3. Prepare a notice of completion and provide to Humboldt County 	As-Built and Record Drawings
5.	Project Performance Assessment		
5.1	Photo Documentation	<p>Photos will be taken as the construction project progresses and is completed.</p> <ol style="list-style-type: none"> 1. Develop photo documentation plan using peer-reviewed protocol 2. Identify key construction steps to capture in photos 3. Conduct 'before & after' project construction documentation 	Project photo documentation

393 - Russian River *Arundo donax* Removal and Riparian Enhancement Program, Sotoyome Resource Conservation District

GENERAL INFORMATION:	
Project Title	Russian River <i>Arundo donax</i> Removal and Riparian Enhancement Program
Project Abstract	The Russian River <i>Arundo donax</i> Removal and Riparian Enhancement Program will remove invasive <i>Arundo</i> from 150 infested acres on the mainstem of the Russian River, install several hundred native plants, and provide educational workshops to landowners throughout the watershed. The removal area has been strategically selected to create the best potential for riparian habitat improvement in this reach of the river and builds off previous treatment years and adjacent removal sites where <i>Arundo</i> is already controlled. The project will conserve and enhance salmonid populations by removing <i>Arundo</i> and increasing the abundance of native riparian plants throughout the riparian corridor. Removal of <i>Arundo</i> and replanted of native plant vegetation will reduce sediment delivery and improve water quality, keep water temperatures low, protect and enhance native plant communities. This project is supported by local, state and federal agencies and has been developed and implemented since 2001 based on a watershed approach and with the collaboration of many local landowners and organizations. Over the past decade, the Sotoyome RCD and its partners have made great strides in controlling <i>Arundo</i> in the Russian River, removing it from over 1,500 infested streamside acres.
Organization	Sotoyome Resource Conservation District
Contact Name and Title	Kara Heckert, Executive Director
Disadvantaged Community	No
Grant Funds Requested	\$225,000
Non-State Match	\$70,000
Total Budget	\$295,000
Watershed	Russian River Watershed
County	Sonoma County
Status of project design and bid solicitation efforts	60% Design – Complete Final Design/ Plans – 60% complete
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • <i>Arundo</i> Removal Technical Guide. Sotoyome Resource Conservation District. 2010 • Strategic Plan for the Russian River <i>Arundo donax</i> Removal and Restoration Project. 2008 • California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual Volume II, Part XI Riparian Restoration Practices, October 2003.
Status of CEQA, NEPA, and other environmental laws	NEPA is not applicable. A Mitigated Negative Declaration for the program was adopted by the Sotoyome RCD Board of Directors in 2001. Department of Fish and Game 1600 permits and the Regional Water Quality Control Board's 401 permit were also secured for the program in 2004 and extended in 2009.
Work that will be completed prior to June 1, 2011	<ul style="list-style-type: none"> • 60% Design • Final Design/ Plans: Completed specific location map for <i>Arundo</i> Removal and treatment techniques and removal priorities
Merits of the building materials or computational methods that were or will be used for project	The development of this program has utilized the expertise and experience of other programs and experts throughout California such as the Invasive Plant Council (Cal-IPC), the Sonoma County Ecology Center and thesis work done by Karen Gaffney. Also, removal methodology is based on work done by Team <i>Arundo</i> Del Norte, several Resource Conservation Districts and agencies working to remove large amounts of <i>Arundo</i> in the Santa Ana Watershed in Southern

GENERAL INFORMATION:	
development	California and by work that was done by the Center for Ecological Restoration and Stewardship, Circuit Rider Productions.
Procedures for coordination with partner agencies and organizations	Sotoyome is committed to strong communication with partner agencies, landowners and other stakeholders. The project manager is the lead for coordinating and managing the project and for organizing communication with others involved. Sotoyome RCD generally sends annual reports to permitting agency partners and funders. Also, Sotoyome RCD coordinates with the Mendocino RCD about upper watershed efforts for <i>Arundo</i> removal. The landowners we work with are an important partner and we send periodic email updates and also when applicable hold meetings and workshops.
A description of synergies or linkages between other NCIRWMP projects	This project is based on conserving and enhancing native salmonid populations by protecting and restoring required habitats, water quality and watershed processes. Also, this project supports the implementation of Total Maximum Daily Loads (TMDLs), the North Coast Regional Water Quality Control Boards (NCRWQCB) Watershed Management Initiative, and the Non-Point Source Program Plan, Provide an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation.
Status of acquisition of land or rights-of-way, if applicable	Not applicable. Landowner access agreements are secured for the project sites.
Standards, such as construction standards that will be used in implementation	No construction will taken place. Work will be done in accordance with the CEQA document and all permits.
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	<p>Sotoyome RCD's Strategic Plan for the Russian River <i>Arundo donax</i> Removal and Riparian Restoration Program is supported by local, state and federal agencies and has been developed and implemented since 2001 based on a watershed approach and with the collaboration of many agencies and organizations. Removing <i>Arundo</i> is ongoing and is based on the cooperation of local landowners, funders, subcontractors and regulatory agencies.</p> <p>This program is based on eradicating <i>Arundo</i> and completing the work on individual sites which are prioritized and strategically selected to maximize removal efforts.</p>

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Improve riparian habitat conditions in the Russian River watershed	SRCD will remove <i>Arundo</i> in 150 infested riparian acres primarily in Alexander Valley and along the mainstem of the Russian River
2.	Reduce the densest infestations of <i>Arundo</i>	Efforts will be focused on removing the densest infestation along the mainstem primarily between Asti and Geyserville.
3.	Educate landowners about the <i>Arundo</i> removal program and the negative effects of invasive species on riparian	Conduct outreach to secure access for future removal, and to maintain the momentum of public awareness and support for

	habitat and salmonids.	the program
4.	Improve riparian habitat through revegetation and native plant succession	Assess and document success to inform adaptive management and future <i>Arundo</i> control efforts.

Description of the Purpose and Need of the Project

The Russian River watershed contains a diversity of plants and wildlife, including endangered coho salmon and threatened Chinook salmon and steelhead trout, and has been identified by NMFS as a key area for recovery of Central Coast coho. The Russian River also supports a population of approximately 250,000 residents and several hundred thousand acres of productive agricultural land, but has been 303(d) listed for temperature and sediment impairments that threaten the river’s beneficial uses. The invasion of the Russian River watershed by *Arundo donax* is a major factor in the decline of riparian habitat that is critical to salmonids and other wildlife species, as well as water quality and the watershed’s ecological function.

This program will treat and control approximately 150 infested acres of *Arundo*. Through either native plant restoration or native plant succession these removal areas will become revegetated with native riparian plants that provide shade, contribute large woody debris, and integrate insect and other food source assemblages for salmonids. Removal of *Arundo* may increase available water supply, as *Arundo* is suspected of altering hydrological regimes and reducing soil water availability. Removal of *Arundo* will decrease fire risk, as the presence of *Arundo* typically shifts the local plant community from a non-fire adapted native riparian forest to a fire-adapted landscape of *Arundo* monoculture. Native riparian vegetation stabilizes soil and stream banks, decreasing sediment inputs into the river and increasing water quality. Riparian areas infested with *Arundo* frequently cause bank failures that contribute to excess sediment in Russian River streams and that can contribute to flooding.

If further removal efforts are not carried out, infestations in the Russian River Watershed could become comparable to Southern California infestations of *Arundo* which have been allowed to flourish, creating near monocultures on most streams in those watersheds. *Arundo* will become uncontrollable and will completely invade our natural riparian habitats, further displacing native vegetation, causing increased erosion and sediment deposit, up-taking increased amounts of water and increasing fire danger.

Project Description

Over the past decade, the Sotoyome RCD and its partners have made great strides in controlling *Arundo* in the Russian, removing it from over 1,500 infested streamside acres. Controlling *Arundo* and restoring native vegetation provides multiple benefits, including improved wildlife habitat, improved fish habitat as a result of native canopy

and high-quality woody debris, improved water quality through decreased erosion and decreased temperature inputs, increased water quantity due to native vegetation’s reduced water use (as compared to *Arundo*), increased carbon holding capacity of riparian areas, and protection of agricultural lands from fire, erosion and flooding. The proposed project, supported by landowners and partner agencies, will use an established systematic approach to remove *Arundo* from 150 infested acres strategically selected to have the greatest impacts on the watershed’s overall *Arundo* population. Removal areas will be re-vegetated through planting or natural recruitment, and project success will be assessed to determine effectiveness and facilitate adaptive management. Additionally, the RCD will conduct outreach to secure access for future removal, and to maintain the momentum of public awareness and support for the program.

According to the California Department of Fish and Game (Russian River Basin Plan, 2002), *Arundo donax* is the plant causing the most disturbance along the mainstem of the Russian River by suppressing the germination of all other seedlings, thereby eliminating entire populations of native plants in areas where the reed is left uncontrolled. In a watershed where temperature

and sediment pollution threaten beneficial uses, and habitat for salmonids and other wildlife is on the decline, control of *Arundo* and its devastating impacts is essential to the recovery of the river and its threatened and endangered salmonids

Building upon a decade of progress in combating the Russian River *Arundo* infestation, the Sotoyome RCD proposes to control *Arundo* on 150 infested riparian acres on the Russian River mainstem primarily within Alexander Valley. This area has been selected for its strategic importance in controlling the watersheds overall *Arundo* population. The goals of this project are: 1. To improve riparian habitat conditions in the Russian River watershed; 2. To reduce the densest infestations of *Arundo* along the mainstem of the Russian River; 3. To eradicate outlier populations of *Arundo* in the upper Russian River watershed, reducing the ability of *Arundo* to re-invade riparian areas; 4. To outreach to and educate landowners about the *Arundo* removal program and the negative effects of invasive species on riparian habitat and salmonids; 5. To improve riparian habitat through revegetation and native plant succession; 6. To assess and document success to inform adaptive management and future *Arundo* control efforts.

This project is guided by the Sotoyome RCD's Strategic Plan for the Russian River *Arundo donax* Removal and Riparian Restoration Program. Methods will include mechanical mowing of monoculture areas and large clumps, and hand labor to remove clumps in areas where equipment access is not feasible, or where sensitive resources are present. Following mowing and hand removal, re-growth will be controlled using herbicide formulations approved for aquatic use, applied using all appropriate best management practices. When herbicide application is not feasible, re-growth can also be controlled by covering removal areas with tarps to block out sun that would encourage re-growth of cut stems. Where appropriate, the removal areas will be replanted with locally propagated native riparian species such as willow (*Salix* sp.), cottonwood (*Populus fremontii*), and white alder (*Alnus rhombifolia*) and plantings will be irrigated and maintained as necessary. Project performance evaluation will consist of periodic re-assessment of the program areas for evidence of reinfestation by *Arundo*, and will also include pre-construction surveys required for CEQA compliance. Assessment methods will include surveying regrowth, updating geodatabases, ground-truthing infestations, and sharing information on project progress and effectiveness with contractors, landowners, regulators, and the general public.

The project area is composed of mixed riparian forest (approximately 160 acres) and gravel bars (approximately 40 acres), extending for approximately 2.5 miles along the mainstem of the Russian River. Width of removal areas varies, but averages approximately 750 feet. Removal areas typically consist of large areas of *Arundo* monocultures interspersed with mature native riparian forest, most often adjacent to vineyard agricultural operations. The riparian areas in which this program operates have historically supported extensive riparian forests. As this project is removing an exotic species and allowing local native plants to recolonize the removal areas in an effort to restore natural, historic processes, it can be expected that site conditions as they currently exist in the Russian River watershed will be appropriate for native riparian forest reestablishment, which is the ultimate goal of the program.

Currently, the Sotoyome RCD has landowner access to sufficient riparian acreages to achieve control of *Arundo* on the proposed 150 infested acres. The landowners within the program reaches have supported past program activities on their properties and have granted access for ten years to accommodate *Arundo* removal, follow-up treatment, and site monitoring. As such, these landowners have demonstrated a long-term commitment to the control of *Arundo* on their properties. The proposed initial start date is June 2011, with follow-up treatment proposed to continue through 2013.

Scientific and Technical Merit Discussion: Rationale for the Project

In October 2008 the Sotoyome RCD prepared a 10 year strategic plan for the Russian River *Arundo donax* Removal and Riparian Enhancement Program based on experiences from 2001 outlining the Program's future strategy. The initial approach to site prioritization was to begin removal efforts at the top of the watershed and move downstream, due to the fact that *Arundo* colonizes in a downstream direction. The past several years determined that it is most beneficial to remove the largest infestation in Alexander Valley in tandem with isolated stands upstream.

Initial approach to site prioritization was to start removal efforts at the top of the watershed and move downstream, due to the fact that *Arundo*, as a clonal propagator, colonizes in a downstream direction. This was considered an ecologically sound approach meant to ensure that removal sites would not be recolonized from upstream sources during flood events. It also allowed an “ecological triage” approach in which relatively intact riparian habitats with isolated infestations were prioritized. While ecologically sound, this approach required that the furthest, most dispersed, and most isolated, and therefore most expensive infestations, would be addressed first. This led to much smaller total quantities of *Arundo* being removed at higher project costs, particularly in the first few years of the project. Mainstem mechanical removal of heavily infested areas was not begun until summer 2007.

Site prioritization should reflect lessons learned to date about the speed of reinfestation from upper watershed sites. Disparate clumps in the upper watershed will typically not reinvade downstream removal areas quickly. While the possibility exists, it is more beneficial to remove the monstrous Alexander Valley (AV) mainstem infestations in tandem with isolated stands upstream. As the AV sites carry the bulk of the Russian’s *Arundo* population, this is where removal can have its greatest watershed wide beneficial impact. Removal of AV *Arundo* will keep the removal cost per stand within more consistent parameters and will decrease the greatest biomass of *Arundo* on the river.

Many of the removal techniques have been refined since the inception of this program in 2001, including new herbicide techniques and products that require smaller amounts of herbicide but produce more effective results. The program team has worked with regulators to maximize available removal tools and has improved approaches to better suit the characteristics of the Russian River’s *Arundo* population.

The development of this program has utilized the expertise and experience of other programs and experts throughout California such as the Invasive Plant Council (Cal-IPC), the Sonoma County Ecology Center and thesis work done by Karen Gaffney. Also, removal methodology is based on work done by Team *Arundo* Del Norte, several Resource Conservation Districts and agencies working to remove large amounts of *Arundo* in the Santa Ana Watershed in Southern California and by work that was done by the Center for Ecological Restoration and Stewardship, Circuit Rider Productions.

Project performance assessment is vital component of this project, as it is the primary means of determining removal scope and revegetation success. Assessment is based on determining pre-treatment conditions, the scope of the infestation and the most appropriate and effective means for removal at that site. Pre-treatment photo documentation will be done for each site. Surveys of regrowth at treated sites will be done on an annual basis until no regrowth of individual plants is noted. Geodatabases will be updated to catalog assessment and treatment efforts.

Generally, revegetation along the mainstem especially in the Alexander Valley reach of the Russian River, is not feasible because mainstem Russian River is too mobile to accommodate planting efforts. Plant hardware and drip irrigation materials would be washed out by annual floods, as would a fair amount of the plants themselves. Native plant recruitment is also highest in this disturbance-prone environment making revegetation less of a priority. With this in mind, revegetation is proposed on a terrace site where there is a low likelihood that nearby native riparian species will recruit naturally. A revegetation plan will be developed to show the extent of the planting area and the number of plants used within designated area. Before and after photo documentation will be carried out and will be conducted in conjunction with *Arundo* reintroduction assessment.

Plants that may be used in the revegetation activities include: *Salix exigua* (sandbar willow), *Salix laevigata* (red willow), *Salix lasiolepis* (arroyo willow), *Populus fremontii* (Fremont Cottonwood), *Aesculus californica* (California buckeye), *Acer negundo* (Box Elder), *Quercus agrifolia* (coast live oak) and *Quercus lobata* (valley oak).

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	Contract oversight will take place over the entire duration of the contract. Also, program coordination involves hiring subcontractors, communicating with landowners, invoicing and all other areas of program management.	1. Invoices or financial reports 2. Progress reports
1.2	Project Performance Plan Development	<ol style="list-style-type: none"> 1. Identify project performance goals related to the removal of <i>Arundo</i> and the reestablishment of native plants 2. Define performance indicators for each goal based on CEQA and the required permits 3. Identify the method, frequency, and schedule for collection of project performance data 4. Prepare a Draft Project Performance Plan 5. Revise Project Performance Plan as per agency and recommendations 6. Prepare Project Performance Plan 	Project Performance Plan: <ol style="list-style-type: none"> 1. Complete mapping showing areas of proposed <i>Arundo</i> removal 2. Draft revegetation plans for all proposed areas 3. Photo documentation of removal areas and pre-removal conditions
1.3	Monthly/Quarterly Reports	Monthly reports will be submitted agreement.	Monthly reports
1.4	Final Report	<p>A draft will be provided 60 days before the end of the Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to comment source. The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a description of the approach and techniques used during the project.</p> <ol style="list-style-type: none"> 1. Track project activities, including photo documentation points of the <i>Arundo</i> removal sites 2. Summarize project activities, achievements and difficulties 3. Provide Draft report to appropriate agencies for review and comment 4. Prepare Final Project Report 	Draft Report Final Report

#	Work Task Title	Work Task Description	Deliverables
1.5	Land purchase/easement	Land Access agreements are already acquired: 1. As needed land access agreements may be updated	Submittal of signed and updated Land Access Agreements
1.6	Labor Compliance Monitoring	1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	Permitting and CEQA Compliance CEQA Documentation 1. Each site will be surveyed for sensitive wildlife or plant species, as dictated by CEQA and permit requirements 2. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 3. Develop CEQA compliance sheets as described in Mitigated Negative Declaration	CEQA compliance sheets as described in the <i>Arundo donax</i> Mitigated Negative Declaration, Adopted October 2005 by Sotoyome RCD
2.2	Permit Development	The Mitigated Negative Declaration	Completion of the Mitigated Negative Declaration
2.3	Permit Development	1600 permit and the 401 Water Quality Permit are complete.	DFG 1600 permits 401 Water Quality Permits
3.	Planning/Design		
3.1	Assessment and Feasibility Studies	1. Review the Strategic Plan for the Russian River <i>Arundo donax</i> Removal and Restoration Project 2. Conduct site investigations and assess pre-project conditions	1. Strategic Plan for the Russian River <i>Arundo donax</i> Removal and Restoration Project 2. Updated maps of priority Arunodo Removal areas
3.2	60% Design	Already complete	
3.3	Final Design/ Plans	Completed specific location map for <i>Arundo</i> Removal and treatment techniques and removal priorities	Based on 3.2 a completed a concept design map that shows the specific locations of <i>Arundo</i> removal and

#	Work Task Title	Work Task Description	Deliverables
			treatment techniques and priorities
3.4	Final Revegetation Plans	<p>Revegetation will generally be done once the <i>Arundo</i> has been eradicated (following the 3 years of treatment). There are exceptions where areas of re vegetation will be phased throughout the project.</p> <ol style="list-style-type: none"> 1. Assess the areas of treatment and where revegetation may be necessary 2. Develop revegetation plan 	Final Revegetation Plans
4.	Construction/ Implementation		
4.1	Construction administration/Contracting	<ol style="list-style-type: none"> 1. Solicit bids from qualified contracts 2. Reply to all contractors with any questions submitted 3. Conduct interviews if needed 4. Select contractor 	Selections of contractor(s).
4.3	Mobilization and site preparation	<ol style="list-style-type: none"> 1. Ensure that all permits are completed and are to the contractors to keep on site. 2. Organize who will be providing oversight on the property and completing the Workers Environmental Awareness Program to all workers (WEAP) 3. Order project equipment and supplies as necessary. 	Provide completed WEAP Forms
4.4	Mechanical and Hand Removal	Mechanical and Hand Removal or <i>Arundo</i> will be completed	The <i>Arundo</i> will be removed. All reports and assessments will be completed.
4.5	Herbicide Application	<i>Arundo</i> will sprayed with herbicide for three years	The <i>Arundo</i> will be sprayed. All reports and assessments will be completed.
4.6	Revegetation	<p>Contract revegetation work with reputable ecological restoration organization to ensure successful implementation. Verify that plants used are propagated from locally collected native plant materials. Revegetation will comply with DFG protocols.</p> <ol style="list-style-type: none"> 1. Contract with ecological restoration organization to 	<ol style="list-style-type: none"> 1. Completed Revegetation plans 2. Assessment documents of completed revegetation locations

#	Work Task Title	Work Task Description	Deliverables
		develop revegetation/site restoration plans 2. Review planting specs to make sure that plants used are propagated from locally collected native plant materials 3. Implement planting when the site has been prepared and when the soil has been sufficiently wetted with seasonal rain. 4. Install irrigation where necessary 5. Identify qualified vegetation inspector 6. Develop site repair plan	
5.	Project Performance Assessment		
5.1	Project Performance Assessment	Update the Project Performance Plan based on the post-implementation results 1. Pre-treatment photo documentation, surveys of regrowth at treated sites on an annual basis until no regrowth of individual plants is noted. 2. Updating geodatabases. Any slope stabilizing revegetation will be assessed. 3. Verify techniques recommended in Project Performance Plan result in accurate data	1. Quarterly reports 2. Final reports 3. Photo documentation
5.2	Site Repair	Site repair tasks will overlap with project performance assessment	Final reports

396 - The Copeland Creek Watershed Detention/Recharge, Habitat Restoration, and Steelhead Refugia Project, Sonoma County Water Agency

GENERAL INFORMATION:	
Project Title	The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project
Project Abstract	<p>The Copeland Creek Watershed Detention/Recharge, Habitat Restoration and Steelhead Refugia Project Phase 1: Copeland Creek from Highway 101 east to Snyder Lane in the City of Rohnert Park 1) enhance and restore 21 acres of riparian habitat along 9,400 linear feet of Copeland Creek by strategically removing 10 acres of invasive species and replanting with 14,650 plants; 2) remove up to 11,000 cubic yards of sediment to foster the natural geomorphic functioning of this reach, mitigate flooding, and improve fish passage and water quality; 3) complete the 30% design and continue to advance the environmental review for two to three off-stream storm water detention basins located in the alluvial fan east of Petaluma Hill Road with up to 200 acre-feet in storage capacity and up to 150 acre-feet annual groundwater recharge potential.</p> <p>Remaining Phases With the Availability of Future Funding: Copeland Creek from Snyder Lane east 1) complete the design, environmental review, permitting, and construction of the storm water detention basins; 2) enhance and restore riparian habitat along 6,600 linear feet of Copeland Creek; 3) increase open space preserved by 75 to 90 acres; and 4) construct more than 6,000 linear feet of public trails and bike paths from Sonoma State University east to Crane Creek Regional Park.</p>
Organization	Sonoma County Water Agency
Contact Name and Title	Kent Gylfe, Principal Engineer
Disadvantaged Community	No
Grant Funds Requested	\$1,000,000
Non-State Match	\$333,333
Total Budget	\$1, 333,333
Watershed	Copeland Creek
County	Sonoma
Status of project design and bid solicitation efforts	Riparian habitat restoration is ready to proceed; storm water detention basin design and environmental review is at the conceptual planning phase.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Sonoma County Water Agency, Copeland Creek Draft Restoration Plan for Sonoma County, City of Rohnert Park Country Club Drive to Snyder Lane, 2010 • Sonoma County Water Agency, Copeland Project Plan Figure 1, December 2010. • Sonoma County Water Agency Copeland Project Plan Figure 2, Proposed Environmental Monitoring, December 2010. • Winzler & Kelly. Groundwater Recharge Map, City of Rohnert Park Final Water Supply Assessment, January 2005. • Sonoma County Water Agency, Copeland Project Plan, Subsequent Phases, Proposed

GENERAL INFORMATION:	
	<p>Crane Creek Regional Trail (Figures 2 & 3)</p> <ul style="list-style-type: none"> • Sonoma County Water Agency, Copeland Project Plan Figure 1, Subsequent Phases, Scientific and Technical Merit for Design of Detention/Recharge Basins • Sonoma County Water Agency, Stream Maintenance Program, January 2009. • ENGEO. Geotechnical Exploration, Anderson 128 Property Recycled Water Ponds, Rohnert Park, California. Submitted to University District LLC, September 2005.
Status of CEQA, NEPA, and other environmental laws	Riparian habitat restoration CEQA process is complete; a certified CEQA EIR exists for the proposed site locations for the storm water detention basins. Because the storm water detention basins were not included in the CEQA project description, additional CEQA documentation is required.
Work that will be completed prior to June 1, 2011 (assumed contract date)	25 % of habitat enhancement, restoration and revegetation, and 9,500 cubic yards of sediment removal; conceptual planning of storm water detention design and initial environmental review (see CEQA status above).
Merits of the building materials or computational methods that were or will be used for project development such as use of specific grades of building materials or use of specific, tested, and established models (or software).	Hydraulic modeling will be performed for storm water detention basin design. Sonoma County Water Agency Stream Maintenance Program (SMP) Manual developed in collaboration with an Inter-Agency Working Group (IAWG) including: U.S. Army Corps of Engineers, North Coast Regional Water Quality Control Board, San Francisco Bay Water Quality Control Board, California Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency. The IAWG reviewed the document and provided input. Habitat enhancement/riparian restoration and sediment removal activities are described in detail in the SMP manual.
Procedures for coordination with partner agencies and organizations	Monthly conference calls, quarterly meetings, and submission of design and environmental documents at key milestones for review and comment.
A description of synergies or linkages between other NCIRWMP projects	<p>The Sonoma County Water Agency in partnership with the Sonoma County Agricultural Preservation and Open Space District, Sonoma County Regional Parks, the County of Sonoma, the City of Rohnert Park, Sonoma State University, the Conservation Corps North Bay and the University District, LLC proposes to implement a regionally integrated project in the Copeland Creek Watershed. Phase 1 of the proposed project will provide habitat enhancement and restoration and sediment removal from Copeland Creek which will reduce nutrients and pollutants entering the channel, improve surface water quality, improve the quantity and quality of habitat available for native wildlife, improve stream conditions to support fisheries, and improve storm water management.</p> <p>The goals, objectives and outcomes of this Phase 1 Project align with many of the North Coast IRWMP projects. The results of each of the projects will culminate in cumulative habitat improvement and storm water management benefits to the region. A few of those projects include 1) the City of Santa Rosa's Sonoma County Water Recycling and Habitat Preservation Project that will restore habitat in the Santa Rosa Plain; 2) the Russian River Friendly Landscapes (RRFL) and Low Impact Development (LID) Demonstration Project that will pilot LID principles that control storm water runoff, maintain the pre-development volume of storm water runoff, and mimic the natural water balance through infiltration, evapo-transpiration, and through capture and reuse of storm water; and 3) the Rohnert Park Creek Master Plan that</p>

GENERAL INFORMATION:	
	<p>communicates coordinated goals to preserve, restore, and enhance the creeks in the Rohnert Park / Cotati area of the Southern Laguna Watershed, guides the development of public and private partnerships, and includes an assessment of the current condition of the creeks.</p> <p>These NCIRWMP projects also complement future phases of the proposed project (pending funding availability) that will include construction of storm water detention basins sited to capture runoff from the Copeland Creek headwaters which would reduce the impacts of future 100 year floods upon the regional downstream properties and structures. The regional and local impacts of a 100 year flood have been determined to affect at least one – quarter of the downstream City of Rohnert Park including Sonoma State University, Rancho Cotati High School, businesses, residences, and adjoining City arterial roadways, such as Rohnert Park Expressway and Snyder Lane.</p> <p>Historical groundwater level declines in the region have been a concern to many groundwater users in the area. The storm water detention/groundwater recharge basins (30% design completed during Phase 1 and final design and construction completed during subsequent phases pending funding availability) would be located over one of the few areas within the southern Santa Rosa Plain groundwater basin ranked as having a high potential for groundwater recharge, making it ideal in its potential to enhance the replenishment of local groundwater supplies. The groundwater benefits of the proposed project will be increased by the City of Rohnert Park’s NCIRWMP Urban Reuse Expansion Project that will offset the need for potable water by providing recycled water to Rohnert Park and ultimately the Cities of Santa Rosa and Cotati.</p>
Status of acquisition of land or rights-of-way, if applicable	Sonoma County Water Agency has access easement to Copeland Creek.
Standards, such as construction standards that will be used in implementation	<ul style="list-style-type: none"> • Best Management Practices that will be implemented for sediment removal, revegetation, invasive species removal and bank stabilization are identified in Tables 7-1 and 7-2 of the Sonoma County Water Agency Stream Maintenance Program Manual. • Numerous construction standards including: ASTM, AWWA, Caltrans, UBC, UPC, CBC, CMC, CEC, CCR. Examples include, but are not limited to: <ul style="list-style-type: none"> - ASTM D 1557 Tests for Moisture-Density Relations of Soils and Soil Aggregate Mixtures - California Building Code Appendix Chapter 33 Excavation and Grading - California Test Method 216 (mod) Relative Compaction of Untreated and Treated Soils and Aggregates - California Test Method 202 Sieve Analysis of Fine and Coarse Aggregates - California Test Method 217 Sand Equivalent - California Test Method 229 Durability Index - California Test Method 231 (mod) Relative Compaction of Untreated/Treated Soils and Aggregates (Area Concept Utilizing Nuclear Gauges) - Caltrans 26 Aggregate Base - Caltrans 72-2.02 Rock Slope Protection, Material - Caltrans 72-2.03 Rock Slope Protection, Placement • <u>Health and Safety Standards:</u> (1). Injury and Illness Prevention Program (IIPP): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (Section 6401.7). (2). Site-Specific Safety and Health Plan (SSHP): Describing health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a SSHP listed in CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5192, Item (b)(4) f., (3) Fire Protection Plan

GENERAL INFORMATION:	
	<ul style="list-style-type: none"> Comply with CCR Title 8, Division 1, Chapter 4, subchapter 4 (Construction Safety Orders), Section 1541.1
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	<p>The proposed project was designed to be implemented in stand-alone phases. Phase 1 of the proposed project will provide habitat enhancement and restoration and sediment removal from Copeland Creek. The project location is from Highway 101 west to Snyder Lane in Rohnert Park. Phase 1 will reduce nutrients and pollutants entering the channel, improve surface water quality, improve the quantity and quality of habitat available for native wildlife, improve stream conditions to support fisheries, and improve storm water management. Phase 1 also includes the 30% design of storm water detention basins to be constructed in later phases in the alluvial fan east of Petaluma Hill Road. Subsequent phases also include trail construction linking the Phase 1 area to Crane Creek Regional Park, bike path construction from Highway 101 to Sonoma State University, and open space preservation. The project benefits are cumulative through each of the phases and none of the phases is incomplete or adversely impacted by the others.</p>

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Provide adequate flood protection and channel conveyance capacity and conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality, and watershed processes	<ul style="list-style-type: none"> Enhancement and restoration of 21 acres of riparian habitat along up to 9,400 linear feet of Copeland Creek Removal of approximately 10 acres of non-native invasive shrubs and trees and replanting with up to 14,650 plants Reduce sediment deposition by removal of up to 11,000 cubic yards of sediment from Copeland Creek between Highway 101 and Petaluma Hill Road. Prepare 30% design and continue to advance the environmental review documents for storm water detention of up to 200 acre-feet in two to three off-stream basins located in the alluvial fan east of Petaluma Hill Road
2.	Provide an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation	<p>The Sonoma County Water Agency will work in partnership with the Sonoma County Agricultural Preservation and Open Space District, Sonoma County Regional Parks, the County of Sonoma, the City of Rohnert Park, Sonoma State University, the Conservation Corps North Bay and the University District, LLC to implement a regionally integrated project in the Copeland Creek Watershed that will include a collaborative process, sharing technical expertise, costs, and work products, monthly conference calls, quarterly meetings, and submission of design and environmental documents at key milestones for review and comment.</p> <p>Provide 1) education (hydrology, the water cycle, fish habitat, and geomorphic processes in the upper watershed) and 2) career building opportunities using focused Youth</p>

		Providers to involve schools in education and youth groups in assisting with the work (e.g. Conservation Corps North Bay (CCNB), Summer Youth Ecology Corps, SCAYD-Sonoma County Adult Youth Development, The Center for Social and Environmental Stewardship).
3.	Prop 84 Round 2: Implement energy independence, greenhouse gas emissions or climate change adaptation project elements	Prop 84 Round 2: Future phases of the project will include conserving energy resulting from reduced dependence on pumping and importation of potable surface water. If the City of Rohnert Park were to have to import an equivalent amount of additional water, the resulting greenhouse gas emissions would be approximately 200 tons CO2 per year. Gravity fed infiltration strategies are the most energy efficient means of recharging groundwater basins. Maintaining groundwater at higher levels also reduces pumping costs.
4.	Prop 84 Round 2: Ensure adequate water supply while minimizing environmental impacts	Prop 84 Round 2: Future phases of the project will include enhancing groundwater supply reliability with up to 150 acre-feet annual groundwater recharge potential which will decrease dependence on imported Russian River water and potentially result in reduced pumping and importation of potable surface water.
5.	Prop 84 Round 2: Acquisition, protection, and restoration of open space and watershed lands and enhancement of watershed educational and recreational opportunities	Prop 84 Round 2: Future phases of the project will include 1) construction of more than 6,000 linear feet of public trails from Sonoma State University east to Crane Creek Regional Park, and 6,000 linear feet of public bike paths from Sonoma State University west to Commerce Boulevard near Highway 101 to enhance recreational opportunities, provide alternate commute options for pedestrians and cyclists, and increase the quantity and quality of biking and hiking opportunities; and 2) Acquire, protect, and restore 75 to 90 acres of permanent preserved open space, including the upstream portion of Hinebaugh Creek and Copeland Creek

Description of the Purpose and Need of the Project
<p>The Phase 1 Project would restore degraded portions of Copeland Creek, thereby improving downstream water quality and riparian habitat. Copeland Creek is an important migratory corridor for fish that pass through the engineered Copeland Creek reaches toward upstream spawning sites. Phase 1 of the proposed project will provide habitat enhancement and restoration and sediment removal from Copeland Creek which will reduce nutrients and pollutants entering the channel, improve surface water quality, improve the quantity and quality of habitat available for native wildlife, improve stream conditions to support fisheries, and improve storm water management. Phase 1 Implementation will include the use of Conservation Corps Crews and a public outreach and education component.</p> <p>Future phases of the proposed project (pending funding availability) will include construction of storm water detention basins sited to capture runoff from the Copeland Creek headwaters which would reduce the impacts of future 100 year floods upon the regional downstream properties and structures. The regional and local impacts of a 100 year flood have been determined to</p>

affect at least one – quarter of the downstream City of Rohnert Park including Sonoma State University, Rancho Cotati High School, businesses, residences, and adjoining City arterial roadways, such as Rohnert Park Expressway and Snyder Lane.

Historical groundwater level declines in the region have been a concern to many groundwater users in the area. The storm water detention/groundwater recharge basins (30% design completed during Phase 1 and final design and construction completed during subsequent phases pending funding availability) would be located over one of the few areas within the southern Santa Rosa Plain groundwater basin ranked as having a high potential for groundwater recharge, making it ideal in its potential to enhance the replenishment of local groundwater supplies.

Project Description

The Sonoma County Water Agency in partnership with the Sonoma County Agricultural Preservation and Open Space District, Sonoma County Regional Parks, the City of Rohnert Park, Sonoma State University, the Conservation Corps North Bay and the University District, LLC proposes to implement a regionally integrated project in the Copeland Creek Watershed between Highway 101 at Rohnert Park east to Crane Creek Regional Park. This public-private partnership intends to implement the Project in three phases and accomplish the following:

Phase 1: From Highway 101 east to Petaluma Hill Road in the City of Rohnert Park 1) enhance and restore 21 acres of riparian habitat along 9,400 linear feet of Copeland Creek by strategically removing exotics and replanting with up to 14,650 plants; 2) remove up to 11,000 cubic yards of sediment to foster the natural geomorphic functioning of this reach, mitigate flooding, and improve fish passage and water quality; 3) complete the 30% design and continue the environmental review process for two to three off-stream storm water detention basins to be located in the alluvial fan east of Petaluma Hill Road with up to 200 acre-feet in storage capacity and up to 150 acre-feet annual groundwater recharge potential.

The main stem of Copeland Creek is 9.1 miles in length. The Copeland Creek watershed can be characterized by three zones largely dictated by topography, the steep cobble and boulder dominated upper headwaters, the moderately steep alluvial fan, and the entrenched flood control channel portion through urban areas below Petaluma Hill Road. These lower reaches of Copeland Creek in the urban areas (Phase 1 Project) are straightened, depositional, and degraded.

The Phase 1 Project would restore degraded portions of Copeland Creek, thereby improving downstream water quality and riparian habitat. Copeland Creek is an important migratory corridor for fish that pass through the engineered Copeland Creek reaches toward upstream spawning sites. Riparian habitat (21 acres) would be enhanced and restored through removal of approximately 10 acres of non-native invasive shrubs and trees, installation of approximately 1300 upland trees, 1620 riparian trees, 3,360 upland shrubs, 3,360 riparian shrubs, 3,360 upland grasses, and 3,360 instream graminoids to stabilize creek banks and reduce sedimentation in areas at risk of erosion; and re-grading of up to 2 miles of flood control channel bottom. Additionally, strategic sediment removal would be done to improve the natural geomorphic functioning of this reach (installation of low flow channels to concentrate flows, limit marginal habitat for cattails and Ludwigia), and improve fish passage and water quality. Phase 1 Implementation will include the use of Conservation Corps Crews and a public outreach and education component.

The Copeland Creek watershed area is 5.1 square miles, with about 3.9 square miles of that area upstream of the alluvial fan. Above Petaluma Hill Road, Copeland Creek is unconfined by levees (yet still entrenched), widens and forms a series of braided channels with little associated riparian vegetation. This headwater area provides the source areas for flood waters.

The regional and local impacts of a 100 year flood have been determined to affect at least one quarter of the downstream City of Rohnert Park including Sonoma State University, Rancho Cotati High School, businesses, residences, and adjoining City arterial roadways, such as Rohnert Park Expressway and Snyder Lane.

With the availability of additional funding, future phases of the project will: 1) construct up to three storm water detention basins located in the alluvial fan east of Petaluma Hill Road with up to 200 acre-feet in storage capacity and up to 150 acre-feet

annual groundwater recharge potential, 2) increase permanent preserved open space by 75 to 90 acres including the upstream portion of Hinebaugh Creek and Copeland Creek, and 3) construct more than 6,000 linear feet of public trails from Sonoma State University east to Crane Creek Regional Park, and 6,000 linear feet of public bike paths from Sonoma State University west to Commerce Boulevard near Highway 101 to enhance recreational opportunities and provide alternate commute options for pedestrians and cyclists.

Storm water detention basins sited to capture runoff from the Copeland Creek headwaters would reduce the impacts of future 100 year floods upon the regional downstream properties and structures. Furthermore, historical groundwater level declines in the region have been a concern to many groundwater users in the area. The storm water detention/groundwater recharge basins would be located over one of the few areas within the southern Santa Rosa Plain groundwater basin ranked as having a high potential for groundwater recharge, making it ideal in its potential to enhance the replenishment of local groundwater supplies.

This multi-phased project will improve flood protection, reduce sediment deposition downstream, recharge groundwater, improve salmonid habitat, provide salmonid refugia off-stream, conserve energy resulting from reduced pumping and importation of potable surface water, and create a site for public access and education about the hydrology, the water cycle, fish habitat, and geomorphic processes in the upper watershed.

Scientific and Technical Merit Discussion: Rationale for the Project

Habitat Enhancement/Restoration & Sediment Removal

Rationale and Feasibility

Copeland Creek is a depositional stream. The Sonoma County Water Agency has been required over the past ten years to conduct three large reach scale sediment removal projects to maintain hydraulic capacity. The straight trapezoidal shape and predominance of cattail in the bottoms and Himalayan blackberry along the edges encourages even greater rates of sedimentation. The proposed project provides an approach to establish a sustainable riparian corridor and instream environment where sediment removal is not needed at a large reach scale. This would be a major benefit to salmonid use of the area (largely migratory but with habitat enhancements possibly rearing opportunities), benefit the existing warmwater fisheries, establish more complex habitat for native wildlife, and provide recreational opportunities for walkers to observe, enjoy and learn from the riparian habitat.

The Sonoma County Water Agency began a restoration project in the Project Area in 1999 using internal Fisheries Enhancement Project funds (Copeland Creek Restoration Project Monitoring Plan, Sonoma County Water Agency, 2001). This effort involved attempts to reestablish the riparian corridor and monitor the results by conducting vegetation cover sampling, bird counts, monitoring ground water levels, and aquatic habitat typing. The depth to summer groundwater was determined to be the limiting factor dictating success of the riparian plantings. Restoration plans will account for this parameter, and utilize appropriate techniques to insure better planting survival (utilize large pole cuttings of deep rooted riparian flood plan species such as Fremont poplar, as well as red and pacific willow).

Fisheries habitat assessments, fish counts and fish rescue activities conducted by the Sonoma County Water Agency since 2000 indicate that greater complexity and improved passage conditions through the reaches could increase the frequency and duration of pool habitat, leading to improved conditions for both salmonids and native minnows. Copeland Creek within the Proposed Project Area serves primarily as a migration corridor for steelhead, although sections of this creek do provide habitat for a wide range of native fish species such as California roach, threespine stickleback, and riffle sculpin. In general, the Sonoma County Water Agency fish surveys along this channel have shown that significant stretches between Stony Point Road and Highway 101 often go dry during critical summer periods. The existing trapezoidal channel provides little in the way of habitat complexity, and opportunities for scour pools to form are rare. This is highlighted by the fact that the few juvenile steelhead that have been captured in lower Copeland Creek have been associated with these limited pools. In areas where pools have formed and perennial surface water exists, our data indicate that a 100 meter representative (similar size, topography,

vegetation) stream segment supports between 100-1,000 individuals of largely native species.

The Sonoma County Water Agency anticipates that conducting strategic sediment removal and installation of a “bankful” thalweg will improve the complexity of the existing fish habitat extensively and improve pool frequency through this reach. With improved pool habitat we would anticipate that the habitat could support similar numbers of fish. Besides the improvement to native minnows, the proposed project would improve upstream and downstream migration conditions for steelhead and if pools with sufficient depth and duration are established, possibly instream rearing habitat. The Sonoma County Water Agency proposes conducting some validation monitoring to track changes in instream habitat as well as tracking changes in invertebrate populations.

The Sonoma County Water Agency currently holds the permits needed for sediment removal, vegetation management and restoration enhancement and is ready to proceed with implementation upon grant agreement approval and execution. Additionally, the Sonoma County Water Agency maintains the technical expertise (fisheries, botany, ecology, geomorphology, public information, engineering, and resource planning) on staff to effectively implement the project and conduct outreach and monitoring, as well as prepare any needed environmental documents.

Location

Copeland creek is significant locally as one of the few urban streams that still supports threatened steelhead. Copeland Creek serves primarily as a migration corridor for steelhead, although sections of this creek do provide habitat for a wide range of native fish species such as California roach, threespine stickleback, and riffle sculpin. Copeland Creek is upstream of the Laguna De Santa Rosa which is one of the largest freshwater wetlands in Northern California, and provides 80,000 acre feet of flood attenuation on the Russian River. Sedimentation has been reducing the attenuating capacity of the Laguna considerably and aggravating flooding in the Rohnert Park Cotati area.

Upstream sediment reduction in Copeland Creek would improve conditions in the Laguna de Santa Rosa through decreased sedimentation, increased hydraulic storage capacity, improved water quality, and improved habitat. Capturing the sediment upstream will also reduce the need and frequency of sediment removal projects on the upper Laguna De Santa Rosa Flood Control Channel. Installation of focused instream sediment basins in Copeland Creek will prevent sediment from reaching the Laguna De Santa Rosa and help address the TMDL's.

Methodology

Restoration techniques that would be utilized for this Project are described in the Sonoma County Water Agency's Stream Maintenance Manual (SMP), (Sonoma County Water Agency, 2009). This document builds on and borrows concepts from typical sources of conventional wisdom regarding restoration and enhancement of riparian habitats including California Salmonid Stream Habitat Restoration Manual, 1998 3rd edition, and the California Riparian Habitat Restoration Handbook, Riparian Habitat Joint Venture, 2008. Chapter 7 describes built-in best management practices (BMPs) that reduce impacts associated with vegetation maintenance, bank stabilization and sediment removal and includes many special-status species specific requirements. Chapter 8 identifies methods used by the SMP to mitigate for program impacts. Appendix E of the SMP provides a useful discussion of the over arching and underlying guiding principles used by the SMP during implementation of vegetation maintenance.

The SMP manual provides a reasonably detailed approach to conducting riparian restoration and enhancement in the Sonoma County Water Agency flood control channels. In practice, restoration is individually tailored to each restoration site based on the characteristics that affect plant selection and placement (location in the watershed, existing site vegetation, vegetation upstream and downstream, instream conditions, dimensions, and other geomorphic characteristics). Largely this is accomplished using experienced staff familiar with the natural history and micro and macro-ecology of local native riparian and upland plant species to utilize existing and new planting locations to maximize diversity, canopy structure, and beneficial interactions of the installed material with high flows. Useful taxonomic and ecological references for this region include Terrestrial Vegetation of California (UC, 1988), Jepson Manual (Hickman, 1993), Flora of North America, (Flora of North America Committee, 1993+), Flora of Sonoma County (Best, Howell, Knight 1996), California Vegetation (Holland 1995), and Enhancing

and Caring for the Laguna (Laguna De Santa Rosa Foundation, 2006).

Phase 1 also includes re-configuration of the bottom of the stream channel through strategic sediment removal to create appropriately sized (bank-full) low-flow thalwegs, and install instream focused sediment collection areas. These features are defined and highlighted in the Sonoma County Water Agency's Stream Maintenance Manual (SMP), (the Sonoma County Water Agency, 2009) as the best approach to manage sediment and delay needed maintenance to allow habitat development. This approach has been implemented for the Sonoma County Water Agency sediment removal and re-vegetation efforts since 2008 and observed to restore some geomorphic function to straightened and depositional flood control channels. A useful reference for the function and utility of this channel arrangement is described in detail in Fischenich, C. (2002). "Design of low-flow channels," EMRRP Technical Notes Collection (TN EMRRP-SR-19), U.S. Army Engineer Research and Development Center, Vicksburg, MS. www.wes.army.mil/el/emrrp.

Program Assessment

The Sonoma County Water Agency would propose conducting some validation monitoring to track changes in instream habitat, fisheries use, wildlife (avian) use, as well as tracking changes in invertebrate populations. Many of the methods the Sonoma County Water Agency proposes to use are detailed in Copeland Creek Restoration Project Monitoring Plan (Sonoma County Water Agency, 2001). Specifically for this Project, the Sonoma County Water Agency proposes to conduct fish sampling and habitat assessment following methodologies detailed in California Salmonid Stream Habitat Restoration Manual. Avian use will be assessed following Point Reyes Bird Observatory (PRBO) methodologies. The Sonoma County Water Agency proposes to measure canopy development as a primary indicator of Project success by collecting line intersect cover data at established and representative locations along the project site. To monitor water temperature, the Sonoma County Water Agency will install temperature sensors (Hobos) and compare the results to historic Hobo data collected along the reach to evaluate temperature conditions following implementation of the sediment removal and habitat restoration. See Figure 2 for the approximate number and locations of proposed environmental assessment.

Some aspects of the water quality element of the project could be calculated from measured pollutant loads in the system from nearby streets. The future Phase 2 Municipal Storm Water (MS4) Permit is anticipated to require additional water quality monitoring. Consequently, the City of Rohnert Park may begin collecting such water quality data under a new permit. In the event that this monitoring does occur, we will use the monitoring data to try to correlate changes in water quality with riparian enhancement/restoration.

Storm Water Detention/Recharge Basin Design

Hydrology and Hydraulics

Based on the geographic size of its upstream watershed, Copeland Creek - through the City of Rohnert Park - is categorized as a "major waterway" in accordance with the Sonoma County Water Agency's Flood Control Design Criteria.

Consequently, standards require that flood control improvements be designed to provide sufficient capacity to protect against flooding for the 1% probability of exceedance storm event (100 year storm).

In recent years, the hydrologic and hydraulic characteristics of Copeland Creek have been analyzed multiple times in association with regional/city-wide drainage studies for the City of Cotati (2002) and the City of Rohnert Park (2006), as well as more current (2010) analyses associated with the University District Specific Plan in Rohnert Park. The studies have utilized a couple of different hydrologic methods to evaluate this watershed that is within a Mediterranean type climate (SCS Type 1A storm) with a Mean Annual Precipitation ranging from 30" in the valley floor to 45" at the headwaters. Both the SCS Unit Hydrograph Method with Muskingum-Cunge flood routing procedure and the SCWA Modified Rational Method have been utilized for developing estimates of runoff generation and peak stream flows. The most current evaluation utilizes HEC-HMS to model the hydrology. All three studies have utilized HEC-RAS to model the hydraulic conditions and simulate water surface profiles within Copeland Creek. The current analysis utilizes unsteady flow HEC-RAS to model existing break-out flow conditions along Copeland Creek and estimate the required volume of detention basin storage required to provide the necessary 100-year event flood protection capacity.

At the conceptual design stage of the detention basins, approximately 150 AF or more of storage has been determined to be

necessary. Phase 1 design will build upon the prior hydrologic and hydraulic analysis to identify the precise storage volume required. The geometric design of the basins will be configured to optimize hydraulic performance, facilitate groundwater recharge, and provide the desired refugia benefits.

Hydrogeology

The Project is located over the alluvial fan reach of Copeland Creek, which is characterized by relatively moderate slopes and permeable sand and gravel deposits (California Geologic Survey, 2003). Particle size analysis indicates that Copeland Creek contains the coarsest material and greatest percentage of gravel in comparison with other tributaries of the Laguna de Santa Rosa (Laurel Marcus & Associates, 2004). Consistent with these characteristics, mapping of groundwater recharge areas indicates the Project is located over one of the few areas within the southern Santa Rosa Plain groundwater basin ranked as having a high potential for groundwater recharge (Winzler & Kelly, 2005). Site-specific investigations at the Project site, which included the excavation and logging of eighteen test pits and the installation and gauging of 6 piezometers, indicate that subsurface materials are also predominantly coarse grained (e.g., clayey sands and gravels) and that shallow-zone groundwater levels range from 3 to 7 feet below ground surface in the winter and spring to 7 to 19 feet below ground surface in the late summer and fall (Engeo, 2005 and Winzler & Kelly, 2007).

Monitoring approaches for assessing groundwater recharge during subsequent phases of the project would include: (1) monitoring of groundwater levels from piezometers present in the project area; (2) evaluation of publicly available groundwater-level data collected and reported for nearby water wells; and (3) estimating the amount of groundwater recharge using a fully coupled surface water/groundwater flow model under development by the U.S. Geological Survey for the Santa Rosa Plain Groundwater Basin.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.0	Project Management		
1.1	Contract Management	<ol style="list-style-type: none"> 1. Arrange and participate in project coordination and progress meetings and conference calls with project partners. 2. Prepare and track budget, expenses, and schedule. 3. Coordinate and participate in meetings and conference calls with County of Humboldt. 4. Prepare invoices and backup documentation. 5. Review and track compliance with County of Humboldt & DWR contract requirements. 6. Prepare Requests for Proposals (RFPs), bidding documents, and construction documents, and procure consultants and contractors. 7. Award and administer contracts with consultants and contractors including reviewing and tracking scope, schedule and budget, and compliance with contract terms. 	<ul style="list-style-type: none"> -RFPs - Consulting Agreements - Contract documents
1.2	Project Performance Plan Development	<p>In cooperation with the County of Humboldt, DWR and other appropriate agencies, develop a Project Performance Plan that will address, at a minimum, the following elements:</p> <ol style="list-style-type: none"> 1. Identify project performance goals 2. Define performance indicators for each goal Identify the method, frequency, and schedule for collection of data 3. Identify the party responsible for the collection of data and data management 4. Prepare a Draft Project Performance Plan 5. Provide a copy to Humboldt County and other participating agencies 6. Revise Project Performance Plan as per agency recommendations 7. Prepare Final Project Performance Plan 	Project Performance Plan

#	Work Task Title	Work Task Description	Deliverables
1.3	Quarterly Reports	<p>Reports will be submitted quarterly from July 2011 through completion date. The progress reports will describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the agreement.</p> <p>The description of activities and accomplishments of each task during the quarter will provide a basis for payment of invoices and percent of task work completed for the purpose of calculating invoice amounts.</p> <ol style="list-style-type: none"> 1. Prepare progress reports every three months in accordance with County of Humboldt & DWR reporting format 2. Describe project progress, such as activities completed and problems encountered in current quarter 3. Provide percent complete status for all project tasks 	Quarterly Reports- submitted every 3 months until completion
1.4	Final Report	<p>A draft will be provided 60 days before the end of Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to comment source. The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a description of the approach and techniques used during the project.</p> <p>A list of the task deliverables.</p> <p>Determination of whether the purpose of the project has been met. Information collected in accordance with the Project Performance Plan.</p> <ol style="list-style-type: none"> 1. Track project activities, including photo documentation 2. Summarize project activities, achievements and difficulties 3. Prepare Draft Project Report to include County of Humboldt & DWR report content requirements 4. Provide Draft report to appropriate agencies for review and comment 	<p>Draft Report</p> <p>Final Report</p>

#	Work Task Title	Work Task Description	Deliverables
		5. Prepare Final Project Report	
1.5	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.0	Environmental Documentation		
2.1	CEQA Development – habitat enhancement and restoration	The Sonoma County Water Agency has completed CEQA for Copeland Creek habitat restoration and enhancement.	<p>Draft EIR</p> <p>Final EIR</p> <p>Notice of Determination</p>
2.2	CEQA Development – sediment removal	<p>If the sediment removal design describes activities not covered by the existing CEQA document, a CEQA document would be prepared.</p> <ol style="list-style-type: none"> 1. Select qualified consultant to complete the CEQA process through a qualification based selection process 2. Determine Lead Agency 3. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 4. Conduct preliminary project review 5. Prepare Initial Study per CEQA Guidelines Section 15063 6. Conduct pre-application consultation 7. Prepare Notice of preparation (NOP) Early public and agency consultation 8. Review National Oceanic and Atmospheric Administration (NOAA) Biological Opinion and U.S. Fish and Wildlife Service (USFWS) Biological Assessment and prepare Draft EIR and include response to comments on NOP 9. Conduct consultation concerning Draft EIR 10. Provide public notice of the availability of the Draft EIR and conduct a public meeting 	<p>Notice of Preparation</p> <p>Amended Draft EIR</p> <p>Final Amended EIR</p> <p>Notice of Determination</p>

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 11. Conduct evaluation of and response to comments 12. Re-circulate EIR prior to certification 13. Prepare Final EIR including response to comments on Draft EIR 14. Prepare Mitigation Reporting and Monitoring Program per CEQA Guidelines 15097, if necessary 15. Certification of Final EIR 16. File Notice of Determination 	
2.3	CEQA Development – Storm Water Detention Basins	<p>A certified CEQA EIR exists for the proposed site locations for the storm water detention basins. Because the storm water detention basins were not included in the CEQA project description, additional CEQA documentation is required.</p> <ol style="list-style-type: none"> 1. Select qualified consultant to continue to advance the CEQA documentation process through a qualification based selection process 2. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 3. Determine Lead Agency 4. Conduct preliminary project review 5. Commence preparation of Initial Study per CEQA Guidelines Section 15063 	CEQA Documentation
2.4	Permit Development: habitat enhancement and restoration	The Sonoma County Water Agency has obtained all permits for Copeland Creek habitat restoration and enhancement.	<ul style="list-style-type: none"> • NCRWQCB Section 401 Water Quality Certification/Waste Discharge Requirements Permit • U.S. Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 Permit • California Department of Fish and Game (CDFG) 1602 Agreement of Routine Maintenance (ARM) Permit.
2.5	Permit Development: sediment removal	If the sediment removal design describes activities not covered by the existing 401 Permit, acquire a 401 Water Quality Certification/Waste Discharge Requirements Permit from the North Coast Regional Water Quality Control Board for this project.	NCRWQCB Section 401 Water Quality Certification/Waste Discharge Requirements Permit

#	Work Task Title	Work Task Description	Deliverables
	NCRWQCB Section 401 Water Quality Certification/Waste Discharge Requirements Permit	<p>The 401 permit process can be conducted simultaneously to the USACE and DFG process</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Coordinate with NCRWQCB for at a minimum application for a Water Quality Certification. 4. File the WDR application forms with the NCRWQCB. 5. If a permit is needed and the application is complete, NCRWQCB staff prepares a draft and sends out a notice for a 30-day public comment period 6. Publish public notice for one day in the largest circulated paper in the county and submit proof of posting or publication to the NCRWQCB within 15 days after posting or publication 7. The NCRWQCB holds a public hearing after the 30-day public notification and adopts the permit 8. The permit issuance process takes approximately six months, but may take longer depending upon the nature of the discharge. 	
2.6	<p>Permit Development: sediment removal</p> <p>U.S. Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 Permit</p>	<p>If the sediment removal design describes activities not covered by the existing 404 Permit, consult with the US Army Corps of Engineers (USACE) to determine the regulatory requirements of complying with Section 404 regarding dredging or filling waters of the U.S. for each of the potential alternatives.</p> <p>If a 404 permit is required, work with USACE to apply for a permit including a description of steps taken to minimize impacts to water bodies and wetlands and provide appropriate and practicable mitigation, such as restoring or creating wetlands, for any remaining, unavoidable impacts.</p> <p>USACE will go through the necessary public notice and consultation steps to issue the permit.</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 	U.S. Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 Permit

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 3. Complete wetland delineation, as deemed necessary, per USACE 1987 Wetland Delineation Manual 4. Prepare necessary site plans for USACE permit application 5. Complete Mitigation and Monitoring Plan 6. Provide additional information, as requested by USACE, for application completeness, preparation of Public Notice, and final project approval 7. Obtain final permit 	
2.7	Permit Development: sediment removal California Department of Fish and Game (CDFG) 1602 Agreement of Routine Maintenance (ARM) Agreement	If the sediment removal design describes activities not covered by the 1602 Agreement, acquire a 1602 Agreement. <ol style="list-style-type: none"> 1. Prepare notification package and submit fee to CDFG 2. Conduct onsite assessment inspection with CDFG 3. Review draft agreement 4. Comply with agreement terms and conditions. 	California Department of Fish and Game (CDFG) 1602 Agreement of Routine Maintenance (ARM) Agreement
3.0	Planning/Design		
3.1	Design – Habitat Enhancement and Restoration (invasives removal and revegetation)	Design of Habitat Enhancement and Restoration will be 100% complete <ol style="list-style-type: none"> 1. Collected necessary site data 2. Developed invasives removal and revegetation designs, plans and drawings 3. Prepared and submitted annual notifications to regulatory/permitting agencies (USACE, CDFG, NCRWQCB) including designs, plans, and drawings to partners for review and comment 4. Incorporated comments and completed designs, plans, and drawings. Note: Brief annual notifications will be prepared for each year of implementation work	Habitat Enhancement and Restoration Plan
3.2	Design – Sediment Basins	Develop design for sediment basins. Prepare drawings. Evaluate CEQA and permitting requirements.	Sediment Basin Design
3.3	Land Surveying – storm water	A survey of proposed site locations will be conducted to collect	Site Topographic Map

#	Work Task Title	Work Task Description	Deliverables
	detention basins	<p>topographic data for design of the storm water detention basins.</p> <ol style="list-style-type: none"> 1. Develop a site plan 2. Conduct site survey. Survey to be prepared and tied to the California Coordinate System NAD 83 NAVD 88 3. Provide site topographic map 	
3.4	Geotechnical Evaluation – storm water detention basins	<p>The soils at the storm water detention basins proposed site locations will be evaluated. The collected data will be used to determine the design and any necessary embankment stabilization as well as any other significant construction requirements to be included on the plans and specifications.</p> <ol style="list-style-type: none"> 1. Develop a site plan 2. Hire a registered engineering geologist 3. Conduct soil testing, geotechnical, and hydrogeologic evaluations 4. Submit soil and foundation design data 	Geotechnical Evaluation of Detention Basins
3.5	Preliminary Design – storm water detention basins	<p>Complete a preliminary design to the 30% level.</p> <ol style="list-style-type: none"> 1. Send out request for qualifications to hire qualified engineering consultant 2. Collect any necessary site data 3. Develop earthwork calculations 4. Develop any needed hydraulic calculations 5. Develop preliminary design details 6. Develop outline specifications f 7. Develop an preliminary opinion of probable construction cost for completion of project 8. Provide preliminary design to partners and appropriate agencies including DFG, NCRWQCB and ACOE for review and comment 9. Start permitting process 	<p>Earthwork Calculations</p> <p>Hydraulic Calculations</p> <p>Opinion of Probable Cost</p> <p>Preliminary Design and specifications (30% Complete)</p>
4.0	Implementation – Habitat Enhancement and Restoration and Sediment Removal		
4.1	Contracting and Award	Sonoma County Water Agency may conduct sediment removal	Contract awards.

#	Work Task Title	Work Task Description	Deliverables
		<p>work with its own crew which has extensive experience in sediment removal projects. Habitat enhancement and restoration work will be performed under contract.</p> <ol style="list-style-type: none"> 1. Select contractor(s) and prepare contracts. 2. Award and administer contracts with contractors 	
4.2	Contract administration	<p>Conduct inspection of the project including reporting and project communication</p> <ol style="list-style-type: none"> 1. Assign inspector to the project 2. Keep daily records of construction activities, inspection, and progress 3. Conduct regular meeting between the contractor and the inspector 4. Verify that all work was completed in accordance with specifications 5. Assure drawings and other accumulated records are provided 	<p>Inspection Reports, Pay Requests, Meeting Minutes, Contractor Log, Submittals</p>
4.3	Mobilization and site preparation	<ol style="list-style-type: none"> 1. Initiate project implementation 2. Order project equipment and supplies and arrange delivery to the site 3. Assure project permits are in place 4. Site Pre-implementation Meeting 	<p>Pre-implementation Meeting</p>
4.4	Implementation – Invasive Species Removal	<p>25% of Invasive Species Removal work has been completed.</p> <ol style="list-style-type: none"> 1. Contract with invasive species removal contractor. 2. Review plans with contractor to ensure that invasive and exotic species are removed. 3. Implement removal in accordance with the Sonoma County Water Agency Stream Maintenance Manual (SMP) and permits. 4. Inspect removal 5. Make improvements as needed 6. Develop site repair plan 	<p>Invasive Species Removal Inspection</p>
4.5	Implementation Sediment Removal	<p>25% of Sediment Removal work has been completed.</p> <ol style="list-style-type: none"> 1. Remove sediment in accordance with the SMP, design plans, and permits. 	<p>Sediment Removal Inspection</p>

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 2. Implement sediment sampling and analysis. 3. Contract with hauler for sediment transport and disposal. 	
4.6	Implementation - Revegetation	<p>25% of Revegetation work has been completed.</p> <ol style="list-style-type: none"> 1. Contract with revegetation contractor. 2. Review planting specs to make sure that plants used are propagated from locally collected native plant materials 3. Implement planting in accordance with the Sonoma County Water Agency Stream Maintenance Manual (SMP) and permits. 4. Install irrigation 5. Inspect revegetation 6. Make improvements as needed 7. Develop site repair plan 	Revegetation Inspection
4.7	Implementation Project Close Out & Demobilization	<p>Inspect project components and establish that work is complete. Test the operation of the pipeline, sewer connections, and treatment facilities. Prepare record drawings.</p> <ol style="list-style-type: none"> 1. Establish work is substantially complete by inspector 2. Prepare a list of unfinished work 3. Test operation of distribution system, water tank, and well 4. Provide record drawings and accumulated documents to City 5. Prepare a notice of completion and provide to Humboldt County 6. Prepare recommendations concerning final payments to contractors and release of retained percentages and bonds 	<p>As-Built and Record Drawings</p> <p>Completion Reports</p>
5.0	Project Performance		
5.1	Photo Documentation	<p>25% of implementation work has been completed.</p> <p>Photos and potentially video clips will be taken as the construction project progresses.</p> <ol style="list-style-type: none"> 1. Develop photo documentation plan 2. Identify key construction steps to capture in photos 3. Set a regular schedule for collecting photos of the project. 	Project photo documentation
5.2	Revised Project Performance	Update the Project Performance Plan based on the post-	Revised Project Performance Plan

#	Work Task Title	Work Task Description	Deliverables
	Plan	<p>construction testing of the original Project Performance Plan</p> <ol style="list-style-type: none"> 1. Based on the use of identified monitoring techniques, update the Project Performance Plan if necessary 2. Provide a copy to partners and regulatory agencies if necessary 3. Incorporate comments 4. Final Project Performance Plan 	
5.3	Post Project Performance Assessment	Monitoring and testing will be conducted in accordance with the Project Performance Plan.	Completion Reports
6.0	Maintenance		
6.1	Operations and Maintenance (not IRWMP funded)	<ol style="list-style-type: none"> 1. Review SMP and permits for operations and maintenance requirements. 2. Implement SMP and permit O&M requirements. 	SMP and permits

B. Klamath Watershed Management Area

289 - Camp Creek Habitat Protection-Road Decommissioning Implementation Project, Karuk Tribe

GENERAL INFORMATION:	
Project Title	Camp Creek Habitat Protection-Road Decommissioning Implementation Project
Project Abstract	<p>The Camp Creek Habitat Protection -Road Decommissioning Project involves approximately 16.02 miles of road slated for decommissioning that is within the culturally significant and ecologically sensitive 26,994 acre Camp Creek Watershed.</p> <p>The overall project objective is to protect and enhance the habitat of Tribal trust species such as Spring Chinook, Coho Salmon, Summer Steelhead populations. This is to be accomplished by eliminating the present and future chronic sediment input caused by road failures and prevent catastrophic debris torrents within the Camp Creek Watersheds by removing unstable fill material and re-establishing natural hydrological patterns. The funding requested will provide funding for the removal of 13,000 yd³. Other funding partners are anticipated to contribute the necessary funding to accomplish the remaining 21,788 yd³. The funds if granted will be used to leverage other funds necessary to accomplish the overall goal of 34,788 yd³. In addition to the chronic sediment transport from these roads, the high number of stream crossings has a high potential for failure during a significant storm event. Stream crossing failures result in debris torrents that scour stream channels of riparian vegetation which is critical in maintaining lower water temperatures. Depending on slope position and channel gradient these debris torrents can trigger successive debris torrents as they move downstream. Debris torrents fills in pools, which are used by salmonids as rearing areas and as refugia.</p>
Organization	Karuk Tribe
Contact Name and Title	Earl Crosby, Watershed Restoration Coordinator
Disadvantaged Community	Yes
Grant Funds Requested	\$300,000
Non-State Match	\$ 75,000
Total Budget	\$375,000
Watershed	Klamath River (Camp Creek)
County	Humboldt/Siskiyou
Status of project design and bid solicitation efforts	Ongoing, early snowfall cut off access. We fully expect to have design element completed before start date.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Camp Creek Habitat Protection Road Decommissioning Implementation Project Site Plan • Treatment Log 11N50.1 Road Decommissioning • Road Assessment and Restoration Planning in the Camp Creek and Slate Creek Watersheds of the Klamath River Basin • Karuk Ecosystem Restoration Program Final Report

GENERAL INFORMATION:	
Status of CEQA, NEPA, and other environmental laws	Complete
Work that will be completed prior to June 1, 2011 (assumed contract date)	CEQA, NEPA, permitting, Conceptual Design completed
Merits of the building materials or computational methods that were or will be used for project development	Since the inception of the program in 1999, we have refined our implementation protocol to maximize efficiency through the proper sizing of heavy equipment.
Procedures for coordination with partner agencies and organizations	Monthly coordination meetings with USFS.
A description of synergies or linkages between other NCIRWMP projects	Happy Camp Community Services District Indian Creek Sewer Pipeline Crossing (00311) project also aims to protect water quality in the middle Klamath River and address mainstem Klamath TMDL issues, nutrients and sediment.
Status of acquisition of land or rights-of-way, if applicable	N/A
Standards, such as construction standards that will be used in implementation	<p>The prescribed treatments will include site-specific plans that will be implemented during the 2012-2013 field seasons to meet the objectives of sediment source reduction and habitat protection with maximum efficiency. This project will implement proven decommissioning methods to remove and stabilize unstable fill at road/stream crossings, swales and springs, and reestablish the natural hillslope drainage pattern along the entire road using heavy equipment and hand labor.</p> <p>Post-project erosion and sediment control measures and revegetation will include the sowing of native grass seed and fertilizer by hand and using a 750 gallon hydroseeder when feasible, followed by the spreading of onsite native mulch material (brush, trees). Willow cuttings/stakes maybe used in post-excavated stream crossings, swales, and seeps. In addition, each excavated stream crossing will be rock armored to minimize post project adjustments. The use of native mulch material eliminates the likelihood of introducing non-native invasive weed species that can be found in straw mulch.</p>
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	Each individual road proposed for decommissioning can be considered a stand-alone project.

Specific Goals and Objectives of the Project Table	
Goal	Measurable Objectives for each Goal

1.	Protect and enhance the habitat of Coho Salmon, Chinook Salmon and Steelhead Trout populations by decreasing the present and future erosion and subsequent sediment deposition.	<ul style="list-style-type: none"> Remove stream crossing fill volumes and perched fill along roadway utilizing proven techniques the funding provided will result in approximately 13,000 yd³ of material removed to a stable locations. The remaining material will be treated with other partner funds.
2.	Benefit local economically disadvantaged communities through the continuation of the restoration efforts.	<ul style="list-style-type: none"> Continue seasonal employment of approximately 10 local men and women
3.	Continue water quality improvements in Camp Creek while demonstrating cost-effective preventative treatment of sediment sources through continued cooperative partnerships in a 303 (d) listed water body.	<ul style="list-style-type: none"> Signed Memorandum of Understanding/Cooperative Agreement with USFS.
4.	Lower the potential for introduction of Port-Orford Cedar Root Disease in Camp Creek.	<ul style="list-style-type: none"> Prohibit vehicular access to intact stands, thus eliminating one vector.

Description of the Purpose and Need of the Project	
<p>Throughout much of the Pacific Northwest, natural runs of anadromous salmonids have significantly declined both in number and geographic range (Nehlsen et al. 1991; Higgins et al. 1992). Causes of these declines are often numerous. Elimination or degradation of habitat essential to support the life history needs of these species is frequently a contributing factor. The declining productivity and health of the Klamath River Watershed and the anadromous fish populations, which are central to Karuk cultural heritage, are the reasons for this effort. The federal "Threatened" listing of the coho salmon, current efforts to list the steelhead (currently a federal "Candidate" species), and potential future actions with the spring and fall Chinook salmon have caused significant concern to the Karuk Tribe. Other anadromous fish stocks that have cultural values and are at risk are the Pacific Lamprey and Green Sturgeon. These listings, coupled with the 2002 massive fish kill on the Lower Klamath River; have emphasized a need for quality watershed restoration efforts within our Ancestral Territory.</p> <p>The potential for landslides and other erosion-causing events are greatly increased in the project area. For example, according to data collected in the nearby Salmon River sub-basin, road related landslides rates range from 60-800 times greater than undisturbed soils (de la Fuente and Haessig 1991). Roads are an on-going source of sediment to our waterways by surface erosion and landslides. By 1944, there were about 188 miles of roads within the Salmon River watershed; by 1989, the miles of road on federal lands had increased to 762 miles or 3,639 acres. It is estimated that more than 90% of the human caused sediment is associated with roads (USFS 1993). In the Salmon Sub-basin, roads account for 43% of the model-estimated surface erosion. It is clear from the information that restoration work should focus primarily on road-related activities designed to reduce sediment impacts from eroding road prisms. Controlling sediment production by "erosion-proofing" roads (through decommissioning and upgrading) has the potential to provide the biggest "bang-for-the-restoration-buck" in terms of reducing sediment yield from management-related activities and lowering model-derived adverse cumulative watershed effects.</p> <p>Camp Creek Roads: The Karuk Tribe has determined the proposed road obliteration within this watershed is a high priority. This road and culverts were designed and constructed utilizing a 20-year flood standard. These culverts do not meet current design standards (100-year flood standard). It is predicted these culverts will fail during large storm events. It is predicted the future erosion risk from culvert failures and diversions within this watershed range from 23,400 to 3,500,000 cubic yards (<i>Orleans Transportation and Road Restoration Project Hydrology and Water Quality Report USDA 2007</i>). The Camp Creek drainage does not meet fines or embeddedness values for the National Marine Fisheries Service Matrix of Factors and Indicators, or reference streams. These road networks represent the primary threat to future function of salmonid refugia, spawning, rearing, overall water quality, negative impacts to wildlife and risk of spreading Port Orford Root Rot within these watersheds.</p> <p>A declining road management budget has decreased road maintenance leading to a degenerated road system throughout the</p>	

Ancestral Territory. Higher road densities associated with lands sensitive to accelerated erosion from mass wasting are of particular concern due to elevated risk of sediment production. These conditions are responsible for chronic resource impacts on rivers, streams, and riparian areas and to tribal trust species.

In addition to the chronic sediment transport from these roads, the high number of stream crossings has a high potential for failure during a significant storm event. Stream crossing failures result in debris torrents that scour stream channels of riparian vegetation which is critical in maintaining lower water temperatures. Debris torrents also smother redds (salmonid egg laying areas) and fills in pools, which are used by salmonids as rearing areas and as refugia. Depending on slope position and channel gradient these debris torrents can trigger successive debris torrents as they move downstream. As mentioned above, road related landslides rates in a nearby watershed ranges from 60-800 times greater than undisturbed soils (de la Fuente and Haessig 1991).

While the Karuk Tribe's Watershed Restoration Program has built upon eleven years of success, we find ourselves consistently having to reinforce confidence with our Federal partners due to the turnover rate amongst District Rangers and Forest Supervisors. In an atmosphere of outsourcing and contracting we need to demonstrate the ability to accomplish this work efficiently and most of all be cost effective. By awarding this proposal we can also demonstrate our ability to compete for, and garner the necessary funds to restore our once thriving fisheries. This ability to spread the project cost across a spectrum of State and Federal Agencies is imperative in this economic climate.

Project Description

The Camp Creek Habitat Protection -Road Decommissioning Project involves approximately 16.02 miles of road slated for decommissioning that is within the ecologically sensitive 26,994 acre Camp Creek Watershed. Specific management strategies suggest for the Camp Creek watershed are to minimize hydrologic and erosion concerns in this critical watershed by addressing the high road density (2.3 miles/square mile) and implementing restoration activities including decommissioning. Recovery and maintaining the high quality of water can be promoted primarily through road decommissioning.

The "Design/Prescription" Phase for this project will be completed during June-July 2011. The prescribed treatments will include site-specific plans that will be implemented during the 2011-2013 field seasons to meet the objectives of sediment source reduction and habitat protection with maximum efficiency. This project will implement proven decommissioning methods to remove and stabilize unstable fill at road/stream crossings, swales and springs, and reestablish the natural hillslope drainage pattern along the entire road using heavy equipment and hand labor.

Post-project erosion and sediment control measures and revegetation will include the sowing of native grass seed and fertilizer by hand and using a 750 gallon hydroseeder when feasible, followed by the spreading of onsite native mulch material (brush, trees). Willow cuttings/stakes may be used in post-excavated stream crossings, swales, and seeps. In addition, each excavated stream crossing will be rock armored to minimize post project adjustments. The use of native mulch material eliminates the likelihood of introducing non-native invasive weed species that can be found in straw mulch.

Since the inception of the Watershed Restoration Program in 1999, the Karuk Tribe and its partners have reduced the potential sediment input by 504,364 yd³ in the Lower Middle Klamath Region. The completion of these road decommissioning projects have demonstrated the Karuk Watershed Program is capable of performing the task-at-hand.

The Karuk Tribe has policies and procedures in place which encourages and support projects which have positive benefits; economically through direct employment and support of local merchants and culturally through the restoration of degraded habitats on local disadvantaged communities. Each project proposal is presented at a public Tribal Council Meeting and if found acceptable then a official Tribal Resolution is signed in support and authoring submittal to funding agency.

Scientific and Technical Merit Discussion: Rationale for the Project

The Camp Creek watersheds were identified in the "Orleans Road Analysis" (2006) as high potential sources of sediment contributing to the degradation of water quality within the Klamath River system. They have also experienced significant timber harvesting, high road densities, many stream crossings and large areas of dormant landslide deposits. Roads, timber harvest, and past wildfire contribute to accelerated erosion across the landscape such that the sensitivity of these watersheds has been determined to be critical.

A Long-Range Plan (Kier, 1991) has been approved for the Klamath Restoration Program (Public Law 99-552). The Plan states that "an intensive program of erosion control is needed in the basin..." in order to reduce the sediment coming off the slopes into the streams. The need to reduce the impacts of sediment has been recognized in the Presidents Northwest Forest Plan via designation of Camp Creek as "Tier 1 Key Watershed". The project area is also within an area designated as Late Successional Reserve (LSR).

The Karuk Tribe Non-Point Source Assessment and Management Plan also identify criteria, guidelines, and best management practices (BMP's) for the protection of waters within the Karuk Ancestral Territory. The Camp Creek watershed was ranked as high priority according to habitat condition requirements for salmonid and other Tribal fisheries. Watersheds with the most serious impacts, or potential impacts to spawning habitat were ranked highest and this ranking is supported by Forest Service prioritization of "Watersheds for Restoration".

Specific management strategies suggest for the Camp Creek watershed are to minimize hydrologic and erosion concerns in this critical watershed by addressing the high road density (2.3 miles/square mile) and implementing restoration activities including decommissioning. Recovery and maintaining the high quality of water can be promoted primarily through road decommissioning. Fisheries biologists have recognized the critical importance of cold water tributaries for the survival of juvenile and adult anadromous salmonids migrating up or down the Klamath River. Camp Creek provides critical thermal refugia for migrating juvenile and adult salmonids. Stream temperatures at the mouth of these creeks are typically 8-10° F lower during the summer months than in the mainstem Klamath. Camp Creeks provide about 19 miles of anadromous fish bearing streams supporting fall chinook salmon, winter coho salmon, steelhead trout, and resident trout.

This project assists the implementation of the *Karuk Tribe Non-Point Source Assessment and Management Plan* which identifies criteria, guidelines, and best management practices (BMP's) for the protection of waters and within the Karuk Ancestral Territory. This proposal also implements recommendations from; *Recovery Strategy for California Coho Salmon* (DFG 2004), *Road Assessment and Restoration Planning in the Camp Creek Watershed, Klamath River Basin* (Ledwith 2000) and *Orleans Roads Analysis and OHV Strategy* (USDA 2006).

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management		Agreements; Contract documents
1.2	Project Performance Plan Development		Project Performance Plan
1.3	Quarterly Reports	<p>The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the agreement.</p> <p>The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.</p> <ol style="list-style-type: none"> 1. Prepare progress reports every three months in accordance with County of Humboldt & DWR reporting format 2. Describe project progress, such as activities completed and problems encountered in current quarter <p>Provide percent complete status for all project tasks</p>	Quarterly Reports- submitted every 3 months until completion
1.4	Final Report	<p>A draft will be provided 60 days before the end of Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to comment source. The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a description of the approach and techniques used during the project.</p> <p>A list of the task deliverables.</p> <p>Determination of whether the purpose of the project has been met. Include information collected in accordance with the Project Performance Plan.</p> <ol style="list-style-type: none"> 1. Track project activities, including photo documentation 2. Summarize project activities, achievements and difficulties 3. Prepare Draft Project Report to include County of Humboldt & DWR report 	<p>Draft Report</p> <p>Final Report</p>

#	Work Task Title	Work Task Description	Deliverables
		<ul style="list-style-type: none"> content requirements 4. Provide Draft report to appropriate agencies for review and comment 5. Prepare Final Project Report 	
1.5	Labor Compliance Monitoring	<ul style="list-style-type: none"> 3. Solicit quotes from labor compliance monitoring (LCM) companies 4. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	Completed	CEQA Documentation
2.2	NEPA Development	Completed	NEPA Documentation
2.3	Permit Development: 401/404	Completed	Permit: 401/404
2.4	Permit Development: 1601-1603	Completed	Permit: 1601-1603
3.	Planning/Design		
3.1	Assessment and Feasibility Studies	Completed	Assessment and Feasibility Studies
3.2	Concept Design	Completed	Concept Design
3.3	90% Design	<p>Develop a set of road treatment logs to the 90% complete level</p> <ul style="list-style-type: none"> 1. Complete design details for road decommissioning 2. Provide 90% road treatment log 3. Review road treatment with USFS representatives and Tribal Equipment Operators. 	<p>Road/Stream Crossing Calculations</p> <p>90% Plans and Specifications</p>
3.4	Final Design/ Plans	<p>Develop a set of final road treatment logs.</p> <p>The road treatment logs will conform to all necessary requirements agreed to by the USFS and Tribal Representatives and regulatory agencies to ensure a high quality product.</p> <ul style="list-style-type: none"> 1. Review comments from 90% specification deliverable 2. Prepare Final Road Treatment Logs 	Final Road Treatment Logs
3.5	Tribal/Federal Cooperative Agreement	<p>Tribal/Federal Cooperative Agreement</p> <ul style="list-style-type: none"> 1. Develop Project Specific Financial Plan (Cooperative Agreement) with the USFS 	Signed copy of Cooperative Agreement

#	Work Task Title	Work Task Description	Deliverables
4.	Construction/ Implementation		
4.1	Construction administration	Construction administration	<ul style="list-style-type: none"> • Construction Management documents • Construction completed • Final Report
4.2	Road Decommissioning	Decommission roads slated for removal per road treatment logs	Implementation of road decommissioning design features
5.	Project Performance		
5.1	Photo Documentation	Photos will be taken Before, During and After photos taken during decommissioning to capture in work progression.	Project photo documentation
5.2	Project Performance Assessment	<p>Ongoing Project Performance Assessment</p> <p>1. USFS and Tribal Representatives onsite to evaluate progress and conformance with road treatment logs</p>	Project Performance Assessment Report
5.3	Post Project Performance Assessment	<p>Periodic Site Visits</p> <p>1. periodic site visits to evaluate treatments</p>	Project Performance Assessment Report

311 - Indian Creek Sewer Pipeline Crossing, Happy Camp Sanitary District

GENERAL INFORMATION:	
Project Title	Indian Creek Sewer Pipeline Crossing
Project Abstract	The Indian Creek Sewer Pipeline Crossing project provides critical infrastructure improvements to the wastewater collection system for an economically disadvantaged community. The project replaces an existing sewer pipeline crossing of Indian Creek with a new sewer pipeline crossing, attached to the adjacent State Highway 96 Bridge. The existing sewer pipeline crossing is currently exposed in the creek bed and is subject to damage due to loose rocks and trees or undermining during large flow events. Leakage or failure of the pipeline crossing would result in an accidental discharge of raw (untreated) sewage into Indian Creek and the Klamath River. This discharge has the potential for adverse impacts to fisheries (including salmonids), aquatic habitat, Native American subsistence fishing and basket material gathering, recreation, and water quality. The project would significantly reduce the potential for these impacts and flood damage potential to the only sewer pipeline crossing of Indian Creek.
Organization	Happy Camp Sanitary District
Contact Name and Title	Judy Hahn, Happy Camp Sanitary District Board Member
Disadvantaged Community	Happy Camp
Grant Funds Requested	\$542,000
Non-State Match	\$355,000
Total Budget	\$897,000
Watershed	Klamath River & Indian Creek
County	Siskiyou
Status of project design and bid solicitation efforts	To be initiated upon receipt of State funds and non-State match funds
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> Preliminary Summary, Indian Creek Sewer Pipeline Crossing, Happy Camp, Karuk Tribe in Cooperation with Happy Camp Sanitary District, November 29, 2010 Mid-Klamath Sub-Basin Fisheries Resource Recovery Plan, Karuk Tribe of California. Department of Natural Resources, Klamath River Basin Fisheries Task Force, 2003
Status of CEQA, NEPA, and other environmental laws	To be initiated upon receipt of State funds and non-State match funds
Work that will be completed prior to June 1, 2011 (assumed contract date)	Planning - Feasibility Study, Ground Design Survey, Geotechnical Services
Merits of the building materials or computational methods that were or will be used for project development	Materials and equipment used in the specifications for the project will be the most up-to-date, meeting current design and construction standards for sanitary engineering.
Procedures for coordination with partner agencies and	The following agencies are regularly coordinating by phone, email, and letter regarding the project: Happy Camp Sanitary District, Karuk Tribe, Siskiyou County, California North Coast

GENERAL INFORMATION:	
organizations	(Region 1) Regional Water Quality Control Board, California Department of Transportation (Caltrans), U.S. Environmental Protection Agency, Indian Health Service
A description of synergies or linkages between other NCIRWMP projects	<p>The project is linked to the Happy Camp Water Treatment System Upgrade Project. In the absence of the Indian Creek Sewer Pipeline Crossing Project, leakage or failure of the existing sewer pipeline crossing could cause a temporary voluntary shutdown or implementation of other measures for the community water system, to temporarily reduce wastewater generation and flows into the sewage collection system, until emergency measures to address the creek sewer pipeline crossing could be implemented. A loss of water treatment plant function during flooding could reduce wastewater flow generation and provide more solids and higher strength sewage to the sewer collection and treatment plant; this situation could create additional operation and maintenance issues, such as additional requirements for sewer main cleaning or flushing, adverse impacts to sewer lift station pumps, and operational changes at the treatment plant to address changing influent sewage quantity and quality. Operators for both systems work together to ensure that these community systems provide continuous water and sewer service.</p> <p>The project is also linked to the NCIRWM project Camp Creek Habitat Protection Road Decommissioning Implementation Project. Both the Indian Creek Sewer Pipeline Crossing Project and the Camp Creek project aim to protect water quality in the middle Klamath River and address mainstem Klamath TMDL issues, nutrients, and sediment.</p>
Status of acquisition of land or rights-of-way, if applicable	Caltrans and Siskiyou County Encroachment Permits are required. Work to be initiated upon receipt of State funds and non-State match funds
Standards, such as construction standards that will be used in implementation	Construction will follow Federal (U.S. Environmental Protection Agency and Indian Health Service), State (Department of Water Resources, North Coast (Region 1) Regional Water Quality Control Board, and California Department of Transportation (Caltrans)), Local (Siskiyou County and Happy Camp Sanitary District) and Tribal (Karuk Tribe) standards and requirements.
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	This project is Phase 1 of a potential two-Phase project. Phase 1 replaces and relocates an existing sewer pipeline crossing, currently exposed in Indian Creek, to above the 100-year floodplain, significantly reducing potential damage to the environment due to a sewer main break, and significantly reducing potential damage to wastewater infrastructure. Phase 2 will include provision of a new sewage flow master meter at the wastewater treatment plant to adequately measure and document flows for operational and reporting purposes. Phase 2 will also include provision of a new portable diesel emergency generator and modifications to existing sewer lift station electrical equipment to provide for quick connections of the portable generator to power the lift stations. Phase 1 is a stand-alone project. Phase 2 is also a stand-alone project. Phase 1 and Phase 2 projects may also be completed concurrently.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Primary Goal: Significantly reduce potential for accidental discharge of raw (untreated) sewage into Indian Creek and the Klamath River with associated reduction in potential	<ul style="list-style-type: none"> Replace and relocate existing pipeline crossing exposed in creek bed above 100-year floodplain on existing State Highway Bridge.

	adverse impacts to fisheries (including salmonids), aquatic habitat, Native American subsistence fishing and basket material gathering, recreation, and water quality.	
2.	Primary Goal: Significantly reduce flood damage potential to creek sewer pipeline crossing	<ul style="list-style-type: none"> Replace and relocate existing pipeline crossing exposed in creek above 100-year floodplain on existing State Highway Bridge.
3.	Primary Goal: Provide infrastructure benefits to an economically disadvantaged community	<ul style="list-style-type: none"> Provide project that benefits the town of Happy Camp, including a significant number of members of the Karuk and other Native American Tribes that use the community wastewater system.
4.	Secondary Goal: Provide minor creek restoration	<ul style="list-style-type: none"> After installation of new creek sewer pipeline crossing, remove existing exposed sewer pipeline crossing and associated items from creek.
5.	Secondary Goal: Provide job opportunity and job training benefits to the Karuk Tribe and other Native American Tribes	<ul style="list-style-type: none"> Comply with Karuk Tribal Employment Rights Ordinance (TERO) for eligible project contracts, provide the opportunity for Indian and Alaska Native preference in award of construction contracts, and provide the opportunity for Indian preference in employment opportunities under construction contracts per Indian Health Service requirements and guidelines.

Description of the Purpose and Need of the Project

The primary purpose of this project is to provide critical infrastructure improvements to the wastewater collection system for an economically disadvantaged community. The project will replace and relocate an existing creek sewer crossing, which is currently exposed in the bed (bottom) of Indian Creek, to a location above the 100-year floodplain on the adjacent State Highway 96 Bridge. Indian Creek is a tributary creek of the Klamath River. The project will significantly reduce the potential impacts for a sewer main break and associated accidental discharge to surface waters and will significantly reduce the potential for flood damage to the creek sewer pipeline crossing. Secondary purposes are to provide minor creek restoration by abandoning and removing the existing pipeline from the creek and to provide economic benefits to the Karuk Tribe, eligible Indian and Alaska Native construction firms, and eligible Indian construction workers during contracts for this work.

In the absence of the project, the existing sewer pipeline crossing is currently exposed in the creek bed and is subject to damage due to flows, debris (loose rocks and trees), or undermining during large flow events. Leakage or failure of the pipeline crossing would result in an accidental discharge of raw (untreated) sewage into Indian Creek and, about 500 feet downstream, the Klamath River. This discharge has the potential for adverse impacts to fisheries (including salmonids), aquatic habitat, Native American subsistence fishing and basket material gathering, recreation, and water quality. The project would significantly reduce the potential for these impacts and significantly reduce the flood damage potential to the only sewer pipeline crossing of Indian Creek, which carries about 2/3 (60,000 gallons per day (gpd)) of the daily sewage flows (90,000 gpd) for Happy Camp, an economically disadvantaged community. Emergency repair or replacement of the pipeline after a flood could be significantly more expensive than under the current project, and the wastewater system could be partially nonoperational until a temporary emergency sewage lift station and pipeline bypass were installed. If an accidental discharge were to occur, the California North Coast (Region 1) Regional Water Quality Control Board could pursue an Administrative Civil Liability Action, including potential fines against the Happy Camp Sanitary District.

The Indian Health Service (IHS) and the U.S. Environmental Protection Agency (EPA) provide wastewater system grants to Native American Tribes based on need and the magnitude of the deficiency. Since the IHS and/or EPA grant for this project

would cover only Tribal domestic usage, without a contribution from another source or sources, IHS and/or EPA do not have authority and funding for the nonresidential and non-Tribal domestic costs of the wastewater project, and therefore there would be no project.

Also, without the project, an opportunity to assist Native Americans with improving their construction skills and employment opportunities, in this case, in an economically depressed area, is not available.

Project Description

The project involves the abandonment of an existing sewer siphon and sewer main crossing of Indian Creek. Existing sewer main crossing consists of a 6" primary sewer main and a 6" bypass main, both currently exposed in the creek bed. The project provides replacement and relocation of the existing crossing with a new sewer bridge pipeline crossing (approximately 400 linear feet of 6-inch carrier pipe with a larger diameter casing pipe; pipe capable of deflection without leakage; including roller pipe supports, pipe expansion joints and additional seismic features), which would significantly reduce the potential future threat of contamination to fisheries habitat (salmonid populations) by wastewater entering the creek should damage/leakage occur to the existing pipeline crossing during high flow events and/or natural creek bed scour. Project actions in addition to abandonment and replacement of pipelines would require the temporary use of bridge scaffolding (fixed/mobile as determined); placement and removal of a temporary sewer bypass, pump, and appurtenances, as needed; traffic control; the construction and placement of a new lift station structure and equipment including electrical equipment and controls, and a fixed lift station emergency diesel generator; underground placement of approximately 250 linear feet of 6-inch sewer main; construction of one manhole for maintenance access; installation of two sewer connections to the existing system; removal of the existing creek sewer pipeline crossing and associated items from the creek for minor creek restoration; placement of fencing and gates for security/protection measures; and the employment of appropriate erosion and sediment control measures.

Previous preparatory work for an IHS/EPA grant, including design and cost work, has been ongoing on or before 4/2010. A separate grant for a feasibility study, to include refined design and cost work, and preliminary environmental work, was received from the EPA with study completion estimated as 4/2011. Upon receipt of the IHS/EPA grant and the NCIRWMP grant in 06/2011, design and formal environmental documentation work will be initiated with an estimated completion date of 3/2012. Construction/Implementation is anticipated for 2012 with an estimated completion date of 2/2013.

Disadvantaged Community Project Planning:

The Indian Health Service (IHS), a Federal agency under the U.S. Department of Health and Human Services, coordinates with Native American Tribes to determine sanitation (water, wastewater, and solid waste) deficiencies and create proposed projects to address these deficiencies. Deficiencies and associated proposed projects are incorporated into the IHS's Sanitation Deficiency System (SDS) list of priority projects, which are submitted annually to the U.S. Congress for potential funding. The list is also used by the U.S. Environmental Protection Agency and other Federal agencies for possible funding for water, wastewater, and solid waste projects.

Each year the IHS talks with Karuk Tribal and Happy Camp Sanitary District representatives to determine potential sanitation deficiencies and projects for the Happy Camp wastewater system. These projects are included with other Karuk Tribal sanitation projects, prioritized by the Tribe, and included by IHS in the annual SDS submittal.

Since the flood damage in 2006 and associated repairs, a replacement for the creek sewer pipeline crossing facilities had been contemplated for the Happy Camp community wastewater system, but the project had been deferred, since the repairs to the existing crossing seemed to be working, and pending additional studies on the scope and cost of the project, and the required non-IHS cost share. IHS only provides funding for the domestic Indian portion of sanitation projects (the portion of the project serving Indian homes). Wastewater projects in Happy Camp must be cost shared, since the wastewater system is non-Tribally

owned, operated, and maintained, and there are nonresidential units and non-Indian homes served by the system. Project planning, design, construction, and cost sharing requires significant coordinated efforts between the Karuk Tribe, IHS, the Happy Camp Sanitary District, and other funding agencies.

After the winter of 2009-2010, the sewer pipelines were once again exposed in the creek. Coordination was initiated between the Happy Camp Sanitary District, the Karuk Tribe, Siskiyou County, IHS, and the California Department of Transportation (Caltrans) to determine the possibility for a temporary fix and for a permanent repair. IHS focused efforts on assisting with the permanent repair for the pipeline crossing. With assistance from all of the above agencies, several alternatives were evaluated and the existing SDS project was revised to provide the least cost alternative that appeared engineering and environmentally feasible, and required minimal real estate work (encroachment permits from Caltrans and Siskiyou County). Concurrently, a previous separate IHS SDS project was funded for a feasibility study for the wastewater system. That study will provide additional design, cost, and preliminary environmental information to keep the project moving forward while waiting for the NCIRWMP grant availability in June 2011. In the event of leakage or catastrophic failure of the existing sewer pipeline crossing, existing information and information from the study may also be used to expedite repairs. Siskiyou County personnel identified the NCIRWMP as a possible funding source for the required non-IHS matching funding. Jointly, Happy Camp Sanitary District, Karuk Tribal, Siskiyou County and IHS staff assisted in the development of the project proposal previously submitted to the NCIRWMP. Caltrans also provided input to the project and will review the designs for hanging the new pipeline crossing on the State Highway 96 Bridge.

Scientific and Technical Merit Discussion: Rationale for the Project

- 1) **Rationale for the Project:** The Indian Health Service (IHS) is currently developing a planning (feasibility) study for the wastewater system, using the Architect/Engineer services of HydroScience Engineers, Inc. The purpose of the study will be to better identify deficiencies, develop alternatives and costs, and provide a recommended alternative for further consideration. IHS information available prior to study initiation and input from HydroScience Engineers, Inc. was incorporated into the IHS's Sanitation Deficiency System (SDS) list of priority projects to address Tribal sanitation deficiencies. The SDS list is updated each year for the U.S. Congress. The list is used by the IHS, the U.S. Environmental Protection Agency, and other Federal agencies for possible projects for water and wastewater project grants. A preliminary summary sheet (Preliminary Summary Sheet, 11/2010) was developed based on available information and is provided for reference. It is anticipated that the final version of the planning study report, available in 4/2011, will provide minor revisions to this document, which will be relatively insignificant. Letters of support from the Karuk Tribe (Karuk Tribal Letter of Support, 10/2010) and from the California North Coast (Region 1) Regional Water Quality Control Board (CNCRWQCB) (CNCRWQCB Letter of Support, 11/2010) are also included. The Karuk Tribal letter indicates that the Tribe supports the project and is pursuing grant funding through the IHS. The CNCRWQCB letter indicates that the State recognizes the current problems with the Indian Creek sewer pipeline crossing and that the CNCRWQCB supports the Happy Camp Sanitary District efforts in pursuing funding to address the issue. A letter of support for the Indian Creek sewer pipeline crossing project (and the Happy Camp water treatment system upgrade project) from the local DAC representative, the Happy Camp Chamber of Commerce, is also included. Note: During the initial scoping work for the planning study, it was determined that the project should be phased, based on funding constraints, and regulatory requirements. Phase 1 is the project described and discussed in this IRWMP application. Funding for Phase 2, which includes provision of a new sewage flow master meter at the wastewater treatment plant to adequately measure and document flows for operational and reporting purposes, and provision of a new portable diesel emergency generator and modifications to existing sewer lift station electrical equipment to provide for quick connections of the portable generator to power the lift stations, is not being requested under the current Phase 1 project; future funding for Phase 2 will be sought separately.
- 2) **Project's Feasibility:** Under the preliminary work for the Sanitation Deficiency Project submittal and the initial scoping work for the planning study, several alternatives were evaluated to address the sewer pipeline crossing issue, the primary

deficiency associated with the wastewater system. These alternatives are described in the preliminary summary sheet (Preliminary Summary Sheet, 11/2010). Based on preliminary information, of the four engineeringly feasible alternatives to address the existing sewer pipeline crossing issue; (a) directionally drill a new replacement pipeline under the creek bed, (b) build a separate bridge to carry a new replacement pipeline crossing over the creek, (c) attach a new replacement pipeline to the upstream side of the existing State Highway 96 Bridge, and (d) attach a new replacement pipeline to the downstream side of the existing State Highway 96 Bridge; the alternative to attach a new replacement pipeline to the upstream side of the existing State Highway 96 Bridge appeared to be the recommended alternative, since the pipeline would remain in approximately the same alignment, requiring only encroachment permits from Caltrans and Siskiyou County, and appeared to be less costly than the other alternatives. Ongoing coordination with Caltrans and Siskiyou County indicate that they support the project and are agreeable to the recommended alternative. Because minor creek restoration is contemplated, the focus of environmental permitting work will be on work in and adjacent to the creek to remove the existing pipeline crossing from the creek. It is anticipated that work for the replacement pipeline on either side of the creek and on the bridge will be done in a manner so as to not have significant impacts. The recommended alternative is a complete, effective, cost efficient, and acceptable (implementable) project.

- 3) Selection of Project/Site Location: Since the project involved the existing creek crossing, and moving the crossing any significant distance to a new location somewhere else on the creek would have incurred additional sewer collection system modifications and costs, as well as environmental impacts associated with a new crossing, the prudent solution was to replace the crossing at the same location. Work for the replacement pipeline would be done in previously disturbed areas or areas where impacts to the environment and cultural resources may be avoided, minimized, rectified or reduced to insignificance. Work for minor creek restoration to remove the existing pipeline crossing would provide a net benefit to the environment, by significantly reducing the potential for an accidental discharge of raw sewage to surface waters and by removing the pipeline crossing and restoring the creek bed to natural conditions.
- 4) Technical Methods and Project Performance Assessment Protocols/Approaches: The technical methods to be used include standard environmental engineering planning, design, and construction standards complying with Federal, State, Local, and Tribal requirements. Assessment protocols/approaches consist of photo documentation of pre- and post-project conditions to show that construction meets project purposes. Protocols/approaches also include compliance documentation that Tribal Employment Rights Ordinance (TERO) requirements and construction contractor and laborer Indian preference construction contract requirements were met.
- 5) Discussion of Project Performance Assessment System: Photo documentation will consist of pictures of the creek, the existing pipeline crossing, and the proposed replacement pipeline crossing before and after construction. The purpose will be to document that construction has taken place and that the facilities meet the project purpose requirements. Documentation for TERO and Indian preference requirements will consist of letters from the Happy Camp Sanitary District providing appropriate compliance certification and documentation.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Project Management	<ol style="list-style-type: none"> 1. Development and management of statements of work for Architect/Engineer tasks. 2. Management of the development of the project summary, memorandum of agreement, and environmental documentation. 3. Management of in-house planning, design, and construction management/inspection activities. 4. Development and management of project budget and schedule. 5. Coordination between stakeholders, agencies, and interested parties 	Agreements; Contracts; reports
1.2	Quarterly Reports	Complete quarterly reports for project through completion date.	Quarterly reports
1.3	Final Report	<p>Provide a draft report for agency comment 60 days before the end of the Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to the comment sources. The report shall include the following narrative sections.</p> <ol style="list-style-type: none"> 1. An introduction section, including a statement of the purpose and scope of the project 2. A summary of the planning, design, and construction tasks, 3. A project schedule, 4. Photo documentation of the pre- and post-construction conditions 5. A discussion of the project achievements and difficulties. 	<ol style="list-style-type: none"> 1. Draft Report 2. Final Report
1.4	Land purchase/easement	Obtain Caltrans and Siskiyou County Encroachment Permits	<ol style="list-style-type: none"> 1. Caltrans Encroachment Permit 2. Siskiyou County Encroachment Permit
1.5	Labor Compliance Monitoring	<ol style="list-style-type: none"> 5. Solicit quotes from labor compliance monitoring (LCM) companies 6. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	Incorporated into NEPA document task	

#	Work Task Title	Work Task Description	Deliverables
2.2	NEPA Development	<ol style="list-style-type: none"> 1. Complete Indian Health Service Environmental Review Documentation, including additional CEQA requirements. If NEPA CatEx and CEQA CatEx apply to project, environmental review done. 2. If NEPA CatEx or CEQA CatEx does not apply to project, complete Environmental Assessment, including additional CEQA requirements. <p>Note: As part of the U.S. Department of Health and Human Services, the Indian Health Service environmental review documentation process follows Federal guidelines and includes coordination on a variety of laws and regulations regarding environmental and cultural resource items including threatened and endangered species, wetlands, floodplains, and historic preservation.</p>	<p>Milestone:</p> <ol style="list-style-type: none"> 1. Indian Health Service Environmental Review Documentation 2. If required, Draft Environmental Assessment 3. If required, Final Environmental Assessment 4. If required, FONSI
2.3	Permit Development:	<p>Obtain Permits from Regulatory Agencies. Permits are primarily required to allow work in Indian Creek to provide minor environmental restoration for removal of sewer pipelines from creek and creek restoration</p>	<p>Milestone:</p> <ol style="list-style-type: none"> 1. US Army Corps of Engineers, Clean Water Act, Section 404 Permit 2. California Regional Water Quality Control Board, Clean Water Act, Section 401 Permit 3. US Fish and Wildlife Service, Threatened and Endangered Species Consultation 4. National Marine Fisheries Service, Threatened and Endangered Species Consultation 5. California Department of Fish and Game, Threatened and Endangered Species Consultation 6. California Department of Fish and Game, Streambed Alteration Agreement 7. Executive Order 11988, Floodplain Management, Compliance Documentation
3.	Planning/Design		
3.1	Planning - Feasibility Study	<p>Complete a feasibility study that presents potential deficiencies with the wastewater system, and develops alternatives and associated planning level designs and costs to address these deficiencies.</p>	<ol style="list-style-type: none"> 1. Draft Feasibility Study 2. Final Feasibility Study

#	Work Task Title	Work Task Description	Deliverables
3.2	Ground Design Survey	Complete topographic survey work needed for project design	Topographic Survey
3.3	Geotechnical Services	Complete geotechnical work needed for project design	Geotechnical Report
3.4	Preliminary Engineering Design Report	Complete preliminary engineering design for project.	1. Draft Preliminary Engineering Report 2. Final Preliminary Engineering Report
3.5	25% Design/Plans	Develop 25% version of construction contract documents	25% Design/Plans
3.6	90% Design/Plans	Develop 90% version of construction contract documents	90% Design/Plans
3.7	100% Design/ Plans	Develop 100% version of construction contract documents	100% Design/Plans
3.8	Other Costs – Legal Review Costs	If required, legal review of construction contract documents by Happy Camp Sanitary District attorney	Legal review of construction contract documents.
4.	Construction/ Implementation		
4.1	Construction contracting	Complete tasks necessary to advertise and award a construction contract for the project.	1. Advertise Contract Documents 2. Hold Pre-Bid Meeting and Site Visit 3. Hold Bid Opening 4. Evaluate Bids 5. Issue Notice of Award 6. Sign Agreement (Contract) 7. Issue Notice to Proceed
4.2	Construction administration	Complete tasks necessary to administer construction contract.	1. Monitor and manage correspondence and filing 2. Process construction payments 3. Manage and administer contract documents 4. Other office functions associated with contract administration
4.3	Project Construction	Complete construction of various project facilities including: 1. New sewer bridge pipeline crossing 2. Temporary bridge scaffolding 3. Temporary sewer bypass, pump, & appurtenances 4. Traffic control (during construction) 5. New sewer lift station structure and equipment	1. Mobilization 2. Contractor Submittals 3. Site preparation 4. Construction of project facilities 5. Final inspection 6. Completion of all final inspection punchlist items

#	Work Task Title	Work Task Description	Deliverables
		<ul style="list-style-type: none"> 6. New sewer lift station electrical equipment and controls 7. New sewer lift station emergency diesel generator 8. New underground sewer main 9. New manhole 10. New sewer connections to existing system 11. Abandonment of existing sewer siphon, creek sewer pipeline crossing, and sewer main (includes removal of creek sewer crossing and minor creek restoration) 12. New fencing and gates 13. Erosion and sediment control 14. Other appurtenances associated with the project 	<ul style="list-style-type: none"> 7. Demobilization
4.4	Construction Management and Inspection	Provide construction management and inspection to manage engineering and field compliance with the construction contract documents.	<ul style="list-style-type: none"> 1. Hold preconstruction meeting and monthly meetings with construction contractor 2. Develop and manage construction change and field orders, if needed. 3. Answer questions and provide guidance to construction contractor for completion of construction tasks. 4. Provide construction inspection.
4.5	Project Closeout	Complete tasks necessary to close out project	<ul style="list-style-type: none"> 1. Develop As-Built/Record Drawings 2. Complete transfer/acceptance for completed facilities with the Happy Camp Sanitary District.
5.	Project Performance		
5.1	Pre-Project Photo Documentation	Take photos to document pre-project conditions	Pre-Project Photos
5.2	Post-Project Photo Documentation	Take photos to document post-project conditions. Photos will show features installed including new sewer bridge crossing, new sewer lift station, minor creek restoration, and any other project accomplishments.	Post-Project Photos
5.3	TERO and Indian Preference Documentation	Provide documentation that TERO fees were paid to Karuk Tribe for all eligible contracts. If applicable, document award of construction	<ul style="list-style-type: none"> 1. TERO Fee Payment Documentation 2. (If Applicable) Documentation of eligible contract

#	Work Task Title	Work Task Description	Deliverables
		contracts to eligible Indian-owned Construction Contractors. Document that Construction Contractor was in compliance with contract requirements for Indian preference hiring.	awards to Indian-owned Construction Contractors 3. Documentation of Construction Contractor Compliance with Indian Preference Requirements
6.	Maintenance		
6.1	Conduct ongoing Operation and Maintenance of the Facilities (not funded with IRWMP funds)	Conduct ongoing operation and maintenance of the wastewater facilities, including features installed under the current project	Ongoing operation and maintenance

306 - Water Treatment System Upgrade, Happy Camp Community Services District

GENERAL INFORMATION:	
Project Title	Happy Camp Water Treatment System Upgrade
Project Abstract	The Happy Camp Water Treatment System Upgrade provides critical infrastructure improvements to the water treatment system for Happy Camp, an economically disadvantaged community. The project constructs a new roughing filter upstream of the two existing pressure filters. The project also provides additional upgrades including: inspection of the existing filters; upgrade of the existing wetwell pumps and electrical equipment to handle the additional hydraulic and electrical load; relocation of existing wetwell electrical equipment to place this equipment a safe distance outside the 100-year floodplain; improvements of the existing backwash disposal pond to handle additional filter backwashing cycles; and improvements of Supervisory Control and Data Acquisition (SCADA) for the existing water treatment plant and existing water storage tank for better control of water storage tank levels and wetwell pump operation.
Organization	Happy Camp Community Services District
Contact Name and Title	Gary Burnett, Operator/Manager
Disadvantaged Community	Happy Camp
Grant Funds Requested	\$253,000
Non-State Match	\$251,000
Total Budget	\$504,000
Watershed	Klamath River & Elk Creek
County	Siskiyou
Status of project design and bid solicitation efforts	To be initiated upon receipt of State funds and non-State match funds
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> Preliminary Water Treatment System Upgrade, Happy Camp, Karuk Tribe in Cooperation with Happy Camp Community Services District, November 30, 2010 Happy Camp Community Services District, Water Treatment Evaluation Study, HydroScience Engineers, Inc., 2010
Status of CEQA, NEPA, and other environmental laws	To be initiated upon receipt of State funds non-State match funds
Work that will be completed prior to June 1, 2011 (assumed contract date)	Ground Design Survey; Geotechnical Services; Water Treatment Evaluation Study
Merits of the building materials or computational methods that were or will be used for project development	Materials and equipment used in the specifications for the project will be the most up-to-date, meeting current design and construction standards for sanitary engineering.
Procedures for coordination with partner agencies and	The following agencies are regularly coordinating by phone, email, and letter regarding the project: Happy Camp Community Services District, Karuk Tribe, Siskiyou County, California

GENERAL INFORMATION:	
organizations	Department of Public Health, Indian Health Service
A description of synergies or linkages between other NCIRWMP projects	The project is linked to the Indian Creek Sewer Pipeline Crossing Project. A loss of water treatment plant function during flooding could reduce wastewater flow generation and provide more solids and higher strength sewage to the sewer collection and treatment plant; this situation could create additional operation and maintenance issues, such as additional requirements for sewer main cleaning or flushing, adverse impacts to sewer lift station pumps, and operational changes at the treatment plant to address changing influent sewage quantity and quality. In the absence of the Indian Creek Sewer Pipeline Crossing Project, leakage or failure of the existing sewer pipeline crossing could cause a temporary voluntary shutdown or implementation of other measures for the community water system, to temporarily reduce wastewater generation and flows into the sewage collection system, until emergency measures to address the creek sewer pipeline crossing could be implemented. Operators for both systems work together to ensure that these community systems provide continuous water and sewer service.
Status of acquisition of land or rights-of-way, if applicable	n/a, no land purchase or easements required for project
Standards, such as construction standards that will be used in implementation	Construction will follow Federal (Indian Health Service), State (Department of Water Resources and Department of Public Health), Local (Siskiyou County and Happy Camp Community Services District) and Tribal (Karuk Tribe) standards and requirements.
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	This project is Phase 1 of a potential three-Phase project. Phase 1 provides compliance with the U.S. Environmental Protection Agency Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) that is soon to be adopted by the State. Phase 1 will also relocate electrical equipment a safe distance outside of the 100-year floodplain; this electrical equipment runs the pumps that push water through the treatment plant. Phase 2 will include upgrades to the backwash systems and controls for the existing pressure filters and, based on inspections in Phase 1, repair or replace the older of the two pressure filters and repair the newer filter. Phase 3, a potential future phase that may be deferred if not required by the Department of Public Health, would include provision of additional water quality monitoring equipment and plant controls to provide additional monitoring and reporting capability for the treatment plant. Phase 1 is a stand-alone project. Phase 2 is dependent on work completed in Phase 1; once Phase 1 is completed, Phase 2 is a stand-alone project. Phase 1 and Phase 2 projects may also be completed concurrently. Phase 3 is dependent on work completed in Phase 1 and Phase 2; once these two phases are completed, Phase 3 is a stand-alone project.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Primary Goal: Comply with Upcoming State Drinking Water Requirements	<ul style="list-style-type: none"> Installation of new water treatment equipment and associated items to meet requirements.
2.	Primary Goal: Reduce potential damage to electrical equipment that runs the pumps that push water through	<ul style="list-style-type: none"> Upgrade and relocate electrical equipment a safe distance outside of the 100-year floodplain.

	the treatment plant	
3.	Primary Goal: Provide infrastructure benefits to an economically disadvantaged community	<ul style="list-style-type: none"> Provide project that benefits the town of Happy Camp, including a significant number of members of the Karuk Tribe and other Native American Tribes that use the community water system.
4.	Secondary Goal: Provide job opportunity and job training benefits to the Karuk Tribe and other Native American Tribes	<ul style="list-style-type: none"> Comply with Karuk Tribal Employment Rights Ordinance (TERO) for eligible project contracts, provide the opportunity for Indian and Alaska Native preference in award of construction contracts, and provide the opportunity for Indian preference in employment opportunities under construction contracts per Indian Health Service requirements and guidelines.

Description of the Purpose and Need of the Project

The purpose of this project is to provide critical infrastructure improvements to the water treatment system for an economically disadvantaged community. The project will install new water treatment equipment and associated items to comply with upcoming State Drinking Water requirements, and relocate critical electrical equipment that runs the plant a safe distance outside the 100-year floodplain.

A secondary purpose is to provide economic benefits to the Karuk Tribe, eligible Indian and Alaska Native construction firms, and eligible Indian construction workers during contracts for this work.

In the absence of the project, once the State adopts the current Federal Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), the water treatment system will be considered out of compliance by the State. The water treatment system uses direct filtration and is missing a flocculation step. The water system currently is considered to be more vulnerable to water borne pathogens, such as Giardia and Cryptosporidium than other water systems that use an approved treatment technology for filtration. The California Department of Public Health (CDPH) requires that a flocculation step be included within a water treatment system for that system to meet the requirements of direct filtration. Flocculation is the process where a coagulant is added to raw (unfiltered) water and the mixture is allowed time for small particles in the water to bind (floc) together. This process creates larger particles than found in the raw water, making it easier for pressure filters to remove the particles. Particle removal and associated reduction in turbidity is a goal of water filtration plants. Particle removal and subsequent disinfection purify water for drinking and other consumptive uses. The CDPH recognizes the addition of coagulant and a roughing filter upstream of pressure filters as an approved technology for meeting the flocculation requirement.

Flooding from Elk Creek could damage critical electrical equipment that runs the treatment plant pumps. The treatment plant is located adjacent to Elk Creek, which is a tributary creek of the Klamath River. Emergency repair or replacement after a flood could be significantly more expensive than under the current project, and the water system could be partially or total nonoperational until repairs/replacement were completed, requiring boil water notices or other emergency drinking water measures for community water system users. The Federal Emergency Management Agency (FEMA) Federal Insurance Rate Map (FIRM) for this location indicates that the wetwell floor elevation, where the pumps and associated equipment are located, may be just outside the 100-year floodplain. However information from the water treatment plant operator indicates that floodwaters have reached the wetwell during the floods of 1997 and 2006. Additionally, there is a local drainage channel that passes within about 30 feet of the wetwell, which caused flood erosion damage during the winter of 2002-2003 that would not be shown on the FEMA FIRM maps. Also, if a tree falls into the creek, providing the potential to create a temporary debris dam, flood waters behind the debris dam could rise higher than the published floodplain map elevation. According to the operator, the existing pressure filters, located between 5-20 feet higher in elevation than the wetwell floor, have never experienced flooding. Because of the uncertainty of being so close to the published 100-year floodplain for a small tributary creek of the

Klamath River in a rural/forested area, the accounts of recent flooding at the elevation of the wetwell floor, the potential for erosion damage from a local drainage channel, and the potential for trees and other debris to block the creek and affect local flood water elevations, the electrical equipment is considered to be at risk of damage during floods less frequent than the 100-year and therefore is considered to be within the 100-year floodplain.

The Indian Health Service (IHS) provides water system grants to Tribes based on need and the magnitude of the deficiency. Since the IHS grant for this project would cover only Tribal domestic usage, without a contribution from another source or sources, IHS does not have authority and funding for the nonresidential and non-Tribal domestic costs of the water treatment project, and therefore there would be no project.

Also, without the project, an opportunity to assist Native Americans with improving their construction skills and employment opportunities, in this case, in an economically depressed area, is not available.

Project Description

Construct a new roughing filter upstream of the existing filters. Provide additional upgrades including: provide inspection to the existing filters; upgrade the existing wetwell pumps and electrical equipment to handle the additional hydraulic and electrical load; relocate the wetwell electrical equipment to place this equipment a safe distance outside the 100-year floodplain; provide improvements to the existing backwash disposal pond to handle additional filter backwashing cycles; and provide Supervisory Control and Data Acquisition (SCADA) improvements for the existing water storage tank for better control of water storage tank levels and wetwell pump operation.

Previous preparatory work for an IHS grant, including design and cost work, has been ongoing since 4/2010. A separate grant for a planning study, to include refined design and cost work, was received from the IHS with study completion estimated as 12/2010. Upon receipt of the IHS grant and the NCIRWMP grant in 06/2011, design and formal environmental documentation work will be initiated with an estimated completion date of 3/2012. Construction/Implementation is anticipated for 2012 with an estimated completion date of 2/2012.

Disadvantaged Community Project Planning:

The Indian Health Service (IHS), a Federal agency under the U.S. Department of Health and Human Services, coordinates with Native American Tribes to determine sanitation (water, wastewater, and solid waste) deficiencies and create proposed projects to address these deficiencies. Deficiencies and associated proposed projects are incorporated into the IHS's Sanitation Deficiency System (SDS) list of priority projects, which are submitted annually to the U.S. Congress for potential funding. The list is also used by the U.S. Environmental Protection Agency and other Federal agencies for possible funding for water, wastewater, and solid waste projects.

Each year the IHS talks with Karuk Tribal and Happy Camp Community Services District representatives to determine potential sanitation deficiencies and projects for the Happy Camp water system. These projects are included with other Karuk Tribal sanitation projects, prioritized by the Tribe, and included by IHS in the annual SDS submittal.

For several years, an upgrade of the existing water treatment plant facilities had been contemplated for the Happy Camp community water system, but the project had been deferred, pending additional studies on the scope and cost of the project, and the required non-IHS cost share. IHS only provides funding for the domestic Indian portion of sanitation projects (the portion of the project serving Indian homes). Water projects in Happy Camp must be cost shared, since the water system is non-Tribally owned, operated, and maintained, and there are nonresidential units and non-Indian homes served by the system. Project planning, design, construction, and cost sharing requires significant coordinated efforts between the Karuk Tribe, IHS, the Happy Camp Community Services District, and other funding agencies.

Recently, an IHS SDS project was funded for a planning (evaluation) study for the water treatment system. That study provided

the additional scope and cost information needed to move forward with the project. Siskiyou County personnel identified the NCIRWMP as a possible funding source for the required non-IHS matching funding. Jointly, Happy Camp Community Services District, Karuk Tribal, Siskiyou County, and HIS assisted in the development of the project proposal previously submitted to the NCIRWMP.

Scientific and Technical Merit Discussion: Rationale for the Project

- 1) **Rationale for the Project:** The Indian Health Service (IHS) is currently completing a planning (evaluation) study for the water treatment system, using the Architect/Engineer services of HydroScience Engineers, Inc. The purpose of the study is to identify deficiencies, develop alternatives and costs, and provide a recommended alternative for further consideration. Information from the draft version of the study report was incorporated into the IHS's Sanitation Deficiency System (SDS) list of priority projects to address Tribal sanitation deficiencies. The SDS list is updated each year for the U.S. Congress. The list is used by the IHS, the U.S. Environmental Protection Agency, and other Federal agencies for possible projects for water and wastewater project grants. A preliminary summary sheet (Preliminary Summary Sheet, 11/2010) was developed based on available information and is provided for reference. It is anticipated that the final version of the planning study report, available in 12/2010, will provide minor revisions to these documents, which will be relatively insignificant. Letters of support from the Karuk Tribe (Karuk Tribal Letter of Support, 10/2010) and from the California Department of Public Health (CDPH) (CDPH Letter of Support, 11/2010) are also included. The Karuk Tribal letter indicates that the Tribe supports the project and is pursuing grant funding through the IHS. The CDPH letter indicates that the State will soon adopt the Federal Long Term 1 Enhanced Surface Water Treatment Rule, that the existing water treatment system will not comply with this water quality rule, and that the CDPH supports the Happy Camp Community Service District efforts in pursuing funding to address the compliance issue. A letter of support for the Happy Camp water treatment system upgrade project (and the Indian Creek sewer pipeline crossing project) from the local DAC representative, the Happy Camp Chamber of Commerce, is also included. Note: During the course of the planning study, it was determined that the project should be phased, based on funding constraints, and regulatory requirements. Phase 1 is the project described and discussed in this IRWMP application. Funding for Phase 2, which includes upgrades to the backwash systems and controls for the existing pressure filters and possible repair or replacement of the older of the two existing filters and repair of the newer filter, and for Phase 3, which includes additional upgrades to water quality monitoring equipment, is not being requested under the current Phase 1 project; future funding for Phase 2 and Phase 3 will be sought separately.
- 2) **Project's Feasibility:** Under the planning study, several alternatives were evaluated to meet compliance with the upcoming State requirements, the primary focus of the study. These alternatives are described in the preliminary summary sheet (Preliminary Summary Sheet, 11/2010). Of the three engineering feasible alternatives to address the water quality compliance issue, (a) install new roughing filter, (b) add a flocculation/clarification package treatment plant, and (c) replace the entire existing plant with a new package treatment plant, the alternative to install the new roughing filter was the least cost. Based on previous water treatment work done at the treatment plant and tank sites, environmental and cultural impacts are expected to be insignificant; work will be done in or adjacent to previously disturbed areas and in such a manner so as not impact wetlands, floodplains, threatened and endangered species, or other resources. No additional real estate lands or easements are required. The recommended alternative is a complete, effective, cost efficient, and acceptable (implementable) project.
- 3) **Selection of Project/Site Location:** Since the project involved the existing water treatment plant site with minor work occurring at the existing 1,000,000-gallon water storage tank site, the location for the work was required to be at these locations. Work would be done in previously disturbed areas or areas where impacts to the environment and cultural resources may be avoided, minimized, rectified or reduced to insignificance.
- 4) **Technical Methods and Project Performance Assessment Protocols/Approaches:** The technical methods to be used include standard environmental engineering planning, design, and construction standards complying with Federal, State, Local, and Tribal requirements. Assessment protocols/approaches consist of photo documentation of pre- and post-project

conditions to show water quality rule compliance and the meeting of other project purposes. Protocols/approaches also include compliance documentation that Tribal Employment Rights Ordinance (TERO) requirements and construction contractor and laborer Indian preference construction contract requirements were met.

- 5) Discussion of Project Performance Assessment System: Photo documentation will consist of pictures of the existing treatment plant and tank before and after construction. The purpose will be to document that construction has taken place and that the facilities meet the water quality rule and other project purpose requirements. Documentation for TERO and Indian preference requirements will consist of letters from the Happy Camp Community Services District providing appropriate compliance certification and documentation.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Project Management	<ol style="list-style-type: none"> 1. Development and management of statements of work for Architect/Engineer tasks. 2. Management of the development of the project summary, memorandum of agreement, and environmental documentation. 3. Management of in-house planning, design, and construction management/inspection activities. 4. Development and management of project budget and schedule. 5. Coordination between stakeholders, agencies, and interested parties 	Agreements; Contracts; reports
1.2	Quarterly Reports	Complete quarterly reports for project through completion date.	Quarterly reports
1.3	Final Report	<p>Provide a draft report for agency comment 60 days before the end of the Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to the comment sources. The report shall include the following narrative sections.</p> <ol style="list-style-type: none"> 1. An introduction section, including a statement of the purpose and scope of the project 2. A summary of the planning, design, and construction tasks, 3. A project schedule, 4. Photo documentation of the pre- and post-construction conditions 5. A discussion of the project achievements and difficulties. 	<ol style="list-style-type: none"> 1. Draft Report 2. Final Report
1.4	Labor Compliance Monitoring	<ol style="list-style-type: none"> 7. Solicit quotes from labor compliance monitoring (LCM) companies 8. Execute service agreement with most competitive LCM 	Provide copy of agreement with Labor Compliance Monitoring company

#	Work Task Title	Work Task Description	Deliverables
		company	
2.	Environmental Documentation		
2.1	CEQA Development	Incorporated into NEPA document task	
2.2	NEPA Development	<ol style="list-style-type: none"> 1. Complete Indian Health Service Environmental Review Documentation, including additional CEQA requirements. If NEPA CatEx and CEQA CatEx apply to project, environmental review done. 2. If NEPA CatEx or CEQA CatEx does not apply to project, complete Environmental Assessment, including additional CEQA requirements. <p>Note: As part of the U.S. Department of Health and Human Services, the Indian Health Service environmental review documentation process follows Federal guidelines and includes coordination on a variety of laws and regulations regarding environmental and cultural resource items including threatened and endangered species, wetlands, floodplains, and historic preservation.</p>	<p>Milestone:</p> <ol style="list-style-type: none"> 1. Indian Health Service Environmental Review Documentation 2. If required, Draft Environmental Assessment 3. If required, Final Environmental Assessment 4. If required, FONSI
2.3	Permit Development:	Check to verify that no permits are required for this project	Verify that no permits are required for this project
3.	Planning/Design		
3.1	Planning - Evaluation Study	Complete an evaluation study that presents potential deficiencies with the water treatment system, and develops alternatives and associated planning level designs and costs to address these deficiencies.	<ol style="list-style-type: none"> 1. Draft Technical Memorandum 2. Final Technical Memorandum
3.2	Ground Design Survey	Complete topographic survey work needed for project design	Topographic Survey
3.3	Geotechnical Services	Complete geotechnical work needed for project design	Geotechnical Report
3.4	Preliminary Engineering Design Report	Complete preliminary engineering design for project.	<ol style="list-style-type: none"> 1. Draft Preliminary Engineering Report 2. Final Preliminary Engineering Report
3.5	25% Design/Plans	Develop 25% version of construction contract documents	25% Design/Plans
3.6	90% Design/Plans	Develop 90% version of construction contract documents	90% Design/Plans

#	Work Task Title	Work Task Description	Deliverables
3.7	100% Design/ Plans	Develop 100% version of construction contract documents	100% Design/Plans
3.8	Other Costs – Legal Review Costs	If required, legal review of construction contract documents by Happy Camp Community Services District attorney	Legal review of construction contract documents.
4.	Construction/ Implementation		
4.1	Construction contracting	Complete tasks necessary to advertise and award a construction contract for the project.	<ol style="list-style-type: none"> 1. Advertise Contract Documents 2. Hold Pre-Bid Meeting and Site Visit 3. Hold Bid Opening 4. Evaluate Bids 5. Issue Notice of Award 6. Sign Agreement (Contract) 7. Issue Notice to Proceed
4.2	Construction administration	Complete tasks necessary to administer construction contract.	<ol style="list-style-type: none"> 1. Manage correspondence and filing 2. Process construction payments 3. Manage and administer contract documents 4. Other office functions associated with contract administration
4.3	Project Construction	<p>Complete construction of various project facilities including:</p> <ol style="list-style-type: none"> 1. New roughing filter 2. Existing pressure filter inspection 3. Existing wetwell pump station mechanical modifications (including new pumps) 4. Existing wetwell pump station electrical modifications and relocation 5. Site piping and tie-ins 6. Supervisory Control and Data Acquisition (SCADA) Upgrade 7. Backwash pond modifications and rehabilitation 8. Erosion and sediment control 9. Other appurtenances associated with the project 	<ol style="list-style-type: none"> 1. Mobilization 2. Contractor Submittals 3. Site preparation 4. Construction of project facilities 5. Final inspection 6. Completion of all final inspection punchlist items 7. Demobilization
4.4	Construction Management and	Provide construction management and inspection to manage	<ol style="list-style-type: none"> 1. Hold preconstruction meeting and monthly meetings

#	Work Task Title	Work Task Description	Deliverables
	Inspection	engineering and field compliance with the construction contract documents.	<ul style="list-style-type: none"> with construction contractor 2. Develop and manage construction change and field orders, if needed. 3. Answer questions and provide guidance to construction contractor for completion of construction tasks. 4. Provide construction inspection.
4.5	Project Closeout	Complete tasks necessary to close out project	<ul style="list-style-type: none"> 1. Develop As-Built/Record Drawings 2. Complete transfer/acceptance for completed facilities with the Happy Camp Community Services District.
5.	Project Performance Assessment		
5.1	Pre-Project Photo Documentation	Take photos to document pre-project conditions	Pre-Project Photos
5.2	Post-Project Photo Documentation	Take photos to document post-project conditions. Photos will show features installed for compliance with drinking water regulations (Long Term 1 Enhanced Surface Water Treatment Rule), relocation of critical water treatment plant electrical equipment a safe distance outside of 100-year floodplain, and any other project accomplishments.	Post-Project Photos
5.3	TERO and Indian Preference Documentation	Provide documentation that TERO fees were paid to Karuk Tribe for all eligible contracts. If applicable, document award of construction contracts to eligible Indian-owned Construction Contractors. Document that Construction Contractor was in compliance with contract requirements for Indian preference hiring.	<ul style="list-style-type: none"> 1. TERO Fee Payment Documentation 2. (If Applicable) Documentation of eligible contract awards to Indian-owned Construction Contractors 3. Documentation of Construction Contractor Compliance with Indian Preference Requirements
6.	Maintenance		
6.1	Conduct ongoing Operation and Maintenance of the Facilities (not funded with IRWMP funds)	Conduct ongoing operation and maintenance of the water treatment plant facilities, including features installed under the current project	Ongoing operation and maintenance

C. North Coast Rivers Watershed Management Area

408 - Del Norte Agricultural Enhancement Program, Del Norte Resource Conservation District

GENERAL INFORMATION: Del Norte Agricultural Enhancement Program	
Project Title	Del Norte Agricultural Enhancement Program
Project Abstract	The goal of this project is to help Del Norte County dairies in the Smith River and Lake Earl watersheds improve their waste management systems. The proposed project is a funding program for dairies in the Del Norte Resource Conservation District (DNRCD) that need financial assistance to improve stewardship. Individual dairies will submit applications to the DNRCD for projects relevant to waste collection and management. The DNRCD and the Natural Resource Conservation Service will facilitate the technical assistance necessary for project planning, prioritization and development.
Organization	Del Norte Resource Conservation District
Contact Name and Title	Andrea.souther@ca.usda.gov
Disadvantaged Community	Del Norte County
Grant Funds Requested	\$250,000
Non-State Match	\$240,000
Total Budget	\$490,000
Watershed	Smith River
County	Del Norte
Status of project design and bid solicitation efforts	Designs 50% complete
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • USDA Manure Transfer, High Pressure Underground PVC Mainline, Plans and Specifications. NRCS. 2008 • USDA High Pressure Underground PVC Mainline, Wheel Line Sprinkler System, Irrigation Water Management & Structure for Water Control, Plans and Specifications. NRCS. 2008 • USDA Riparian Forest Buffer, Conservation Practice Job Sheet, NRCS 1997
Status of CEQA, NEPA, and other environmental laws	<p>CEQA ND or MND will be filed</p> <p>NEPA is complete for 2 of the 3 projects</p> <p>A coastal development permit will be made once designs are finalized</p>
Work that will be completed prior to June 1, 2011 (assumed contract date)	Final Design for Dairy 1 and 3

GENERAL INFORMATION: Del Norte Agricultural Enhancement Program	
Merits of the building materials or computational methods that were or will be used for project development	Industry standards will be used dictated by NRCS standards and specifications.
Procedures for coordination with partner agencies and organizations	NRCS and the NCIRWMP are our major partners. Project meetings will be held in June 2011 bi monthly thereafter.
Status of acquisition of land or rights-of-way, if applicable	NA
Standards, such as construction standards that will be used in implementation	NRCS standards will be used to design and install work items
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	This is project includes construction of components of larger manure management systems on each of three dairies. Each phase increases the level of collection, storage, treatment and utilization manure water receives. All phases reduce contaminated storm water runoff and leaching to the benefit of water quality and it's beneficial uses including habitat and recreation.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Implement waste management plans	<ul style="list-style-type: none"> • sqft of area protected from storm water runoff /gallons of water diverted • increase in gallons of waste storage • increased # acres where manure is utilized at an agronomic rate

Description of the Purpose and Need of the Project
<p>The purpose of this project is to make the best use of manure resources while limiting landuse effects on other resources. This includes protecting and restoring required habitats of native salmonid populations, increasing water quality and enhancing watershed processes. The primary water quality improvements which will result from this project will be reduced contamination of surface and ground waters from nutrients and coliform bacteria associated with dairy waste.</p> <p>Without the project waste will continue to be at risk from stormwater runoff. Distribution will continue to be limited by current system storage, equipment and land available for application. The practices implemented through this project would be completed to the proposed degree without assistance.</p>

Project Description

Agricultural waste is recognized as a contributor to reduced water quality. Although the water of the Smith River Watershed is not impaired agriculture affect coastal water resources as well as estuarine and wetland habitat. The project will directly reduce runoff associated with animal waste. The resource management practiced by these landowners is critical to the health of these coastal areas. The goal of the project is to improve resource management by assisting local farmer in bringing their operations up to standards that meet a waiver for waste discharge requirements. Funding from this grant will be used to implement key components and practices of dairy waste management systems. Practices will include waste distribution/nutrient management systems, as well as heavy use area protection, roof runoff management, and waste storage structures. Dairies that wish to participate will make applications to the Del Norte RCD for financial support through these funds. The 8 dairies and associated operation in the area serviced by this proposal play a vital role in maintaining the social and economic fabric of the region and contribute a total gross value of over 11 million dollars to the local economy annually. A typical operation generates millions of gallon of manure waste water annually. If properly manage, this material is a vital resource to the health of the soil and plants of our farmland. However, most of the facilities were built or upgraded before the federal clean water act was implemented. Although significant improvement has been made manure may still runoff some slabs to adjacent pasture or may distributed at a higher than agronomic rate. Retro-fitting these operations to meet current water quality standards can be complex and expensive. This type of direct capital outlay is cost prohibitive for most of these dairies which are small, family owned farms. The Del Norte RCD will work cooperatively with the USDA-NRCS and other technical service providers to develop site specific plans and designs. These will meet the standard of the USDA-NRCS, as well as state and local law.

The project will protect water quality and the environment of Smith River and Lake Earl, local soil water of the Smith River Plain, as well as adjacent coastal waters. The objectives will be accomplished by assisting landowners install treatments that will contain and recycle agricultural waste to reduce pathogen and nutrient loading to surface and ground waters, thereby protecting and enhancing the water quality of the Smith River and Lake Earl. A plan would be developed to measure, evaluate and report the effectiveness of the practices installed through the program. A methodology for verifying pollutant load reduction estimates for the program will be developed and submitted. This project does not include a task item for surface water monitoring. Current monitoring by others will likely meet SWAMP requirements.

Scientific and Technical Merit Discussion: Rationale for the Project

The many studies verify the need for manure nutrient management in order to enhance water quality. Better manure nutrient management practices, in turn, help protect the drinking water resource upon which most of these operators depend for the family and herd, and upon which the rural communities depend, of which the dairies are an important economic part. Management of manure as described in NRCS standard and specifications for nutrient management, waste storage facility and heavy use are protection, can significantly reduce nutrients and pathogens running off or leaching from dairy crop fields.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management		Sub-Contract Agreement
1.2	Project Performance Plan Development	Develop performance plan	Project Performance Plan
1.3	Quarterly Reports	Provide quarterly progress reports	Financial Progress Summary
1.4	Final Report	Provide Final Project Report	Draft Final Report Final Report
1.5	Planning and Design Committee	<p>Conduct at least 2 meetings. Agendas and minutes meetings prepared and submitted with reports</p> <ol style="list-style-type: none"> 1. Identify committee members 2. Determine meeting dates and times 3. Develop meeting agenda 4. Conduct meetings and record minutes. 5. Repeat for additional meetings. 6. Provide meeting minutes with quarterly reports 	<p>Conduct at least 2 meetings. Agendas and minutes meetings prepared and submitted with reports.</p>
1.6	Labor Compliance Monitoring	<ol style="list-style-type: none"> 9. Solicit quotes from labor compliance monitoring (LCM) companies 10. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	<p>CEQA Documentation</p> <ol style="list-style-type: none"> 1. Select qualified consultant to complete the CEQA process through a qualification based selection process 2. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 3. Conduct preliminary project review 4. Prepare Initial Study per CEQA Guidelines Section 15063 	Notice of Determination

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 5. Conduct pre-application consultation 6. Prepare Notice of preparation (NOP) Early public and agency consultation 7. File Notice of Determination 	
2.2	NEPA Development	None	Record of Decision
2.3	Permit Development: grading	<p>The representative will obtain necessary grading permits for this project from the County Planning Division. Grading permits are required by the California Building Code Section 106.3.1, and County Building Regulations. Fees will be assessed in accordance with the provisions of the fee schedule adopted by the County.</p> <ol style="list-style-type: none"> 1. Discuss projects with Del Norte County staff 2. Complete grading application if required 3. Provide application to Del Norte County with a description of the work and copies of plans 4. Receive permit approval from Del Norte County 5. Include any permit conditions in project specifications 	Grading permit, if required
2.4	Permit Development: Other	<p>Project representative will obtain a Coastal Development Permit, if required.</p> <ol style="list-style-type: none"> 1. Collect site resource data as deemed necessary for permit application 2. Perform pre-application site visit with permitting authority(ies) 3. Complete the Coastal Development Permit (CDP) application using information from the project proponent and the Initial Study; gather additional information as necessary 4. Submit application material to permitting authority 5. Provide any additional information/clarifications as necessary 6. Receive approved CDP 	County permits: Coastal Development Permit, if required.
3.	Planning/Design		
3.1	Preliminary Design	<p>Complete a preliminary design to the 30% level.</p> <ol style="list-style-type: none"> 1. Engage NRCS engineering assistance 2. Collect any necessary site data including geotechnical evaluation 3. Develop preliminary design details for collection system, storage system, and utilization system 4. Develop preliminary specifications 5. Develop engineer cost estimates 	Preliminary Design and specifications (30% Complete)

#	Work Task Title	Work Task Description	Deliverables
3.2	Final design, plans and special provision specifications.	<p>Develop a set of final design plans and specifications ready to put out to bid.</p> <p>The plans and specifications will conform to all necessary requirements stipulated by the District and regulatory agencies to ensure a high quality product.</p> <p>Review comments from 90% specification deliverable</p> <ol style="list-style-type: none"> 1. Complete design details 2. Complete cost estimates 3. Complete specifications, and incorporate any permit conditions 4. Prepare Construction Inspection Plan including mechanisms to assure that project components are completed to specifications 5. Prepare Final Specifications 	<p>Milestone:</p> <p>Landowner/operator approved design plans/access agreements</p>
4.	Construction/ Implementation		
4.1	Project Construction	<p>Construction of project components</p> <ol style="list-style-type: none"> 1. Landowner constructs waste management project based on site-specific work plans 2. Monitor construction for compliance with NRCS standards, where appropriate. 3. Conduct 'As-built' survey and develop "as built" plans after completion, and certify compliance with NRCS Standards 4. Conduct final inspection to ensure that funds are used as intended 	<p>Milestone:</p> <p>"As built" plans</p>
5.	Project Performance Assessment		
5.1	Photo Documentation	<p>Photos will be taken as the construction project progresses.</p> <ol style="list-style-type: none"> 1. Develop photo documentation plan 2. Identify key construction steps to capture in photos 3. Set a regular schedule for collecting photos of the project. 	<p>Milestone:</p> <p>Project photo documentation</p>
5.2	Post Project Assessment	<p>System testing and verification of operation of all system components will be conducted as part of construction inspection and project closeout.</p>	<p>Milestone:</p> <p>Final field inspection form</p>
6.	Maintenance		
6.1	Operations and maintenance (not funded by IRWMP funds)	<p>Operations and maintenance will be conducted by others – Installations are to be maintained and operated for their useful life.</p>	<p>None</p>

352 - Gualala River Sediment Reduction Program, Gualala River Watershed Council

GENERAL INFORMATION:	
Project Title	352-Gualala River Sediment Reduction
Project Abstract	<p>Located in Mendocino and Sonoma Counties, the Gualala River is the largest watershed in the Mendocino Coast Hydrological Unit.</p> <p>Existing conditions in the basin indicate that 85% of anthropogenic sediment delivery is road related and there is a paucity of existing in-stream large wood debris (LWD) habitat required for salmonids (NCWAP 2003, NMFS 2010, GRWC 2010).</p> <p>The projects included in this proposal are elements of the GRWC Restoration Program. By implementing these projects through an existing and dynamic program we build upon partnerships and maximize the outcomes and costs associated with attainment of TMDL and Basin Plan goals.</p> <p>Through this proposal 12 miles of road will be hydrologically disconnected to a level of 95% in a high priority watershed reducing 30,000 yrd³ of pollution from entering watercourses. In conjunction with sediment reduction, a suite of habitat enhancement structures will be installed in tributary reaches where coho and steelhead currently spawn and rear and the Wheatfield Fork Stream Flow gauge will be repaired and maintained to assist the Stewarts Point Rancheria in monitoring in-stream flow levels.</p>
Organization	Gualala River Watershed Council
Contact Name and Title	Kathleen Morgan Coordinator
Disadvantaged Community	Kashia Band of Pomo Indians, Stewarts Point Rancheria
Grant Funds Requested	\$600,000
Non-State Match	\$308,280
Total Budget	\$908,280
Watershed	Gualala HUC
County	Sonoma and Mendocino
Status of project design and bid solicitation efforts	Project design is completed.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Robinson Creek Sediment Reduction 2010 • Gualala River Watershed Council Quality Assurance Project Plan for Monitoring Sediment Reduction (GRWC 2008)
Status of CEQA, NEPA, and other environmental laws	Permitting for two of the watersheds included in this project is in progress, but a programmatic permit is sought through this grant proposal for the GRWC Sediment Reduction Program.
Work that will be completed prior to June 1, 2011 (assumed contract date)	Permits for two watersheds, GRWC 2009 Inventory and Assessment, Final design, plans and special provision specifications
Merits of the building materials or computational	All road restoration planning and assessment was done in accordance with protocols developed by William Weaver, PhD. and Danny Hagans of Pacific Watersheds and Associates as outlined in

GENERAL INFORMATION:	
methods that were or will be used for project development	<p>the Hand Book for Forest and Ranch Roads, and California Salmonid Stream Habitat Restoration Manual (Flosi et. al., Part X: Upland Erosion Inventory and Sediment Control Guidance, March 2006).</p> <p>Trained personnel inspected all roads, including both maintained and abandoned routes, and all existing and potential erosion sites were identified and described. Sites include locations where there is direct evidence that future erosion or mass wasting could be expected to deliver more than 10 cubic yards of sediment to a stream channel.</p> <p>The placement of the unanchored logs in the streambed has been planned by using quantifiable data and is based on natural wood inventory levels, stream order, size of sub-watershed drainage, channel form, shelter ratings, Rosgen channel type, and accessibility. All LWD placement sites are in tributaries where GRWC has established or plan to establish in-stream monitoring reaches through GRWC Monitoring Program. LWD placement is consistent with the procedures recommended in the CDFG California Salmonid Stream Habitat Restoration Manual, Section VII.</p>
Procedures for coordination with partner agencies and organizations	The GRWC works collaboratively with local agencies, organizations and the individual landowners who comprise 80% of land holdings within the watershed. Coordination includes monthly meetings, TAC meetings and Memorandums of Understanding.
A description of synergies or linkages between other NCIRWMP projects	<p>This proposal implements an assessment inventory that was partially funded through the SWRCB Grant Agreement 07-541-550-0 SWRCB Project Component No. 2.18.</p> <p>The projects included integrate with other NC Watersheds projects to implement voluntary TMDL attainment for the region and work in conjunction with other projects for habitat enhancement specifically targeted at the California Central Coast Coho ESU.</p>
Status of acquisition of land or rights-of-way, if applicable	N/A
Standards, such as construction standards that will be used in implementation	<p>All work will be done in accordance with protocols developed by William Weaver, PhD. and Danny Hagans of Pacific Watersheds and Associates as outlined in the Hand Book for Forest and Ranch Roads. In addition, Pacific Watershed & Associates, specifically Danny Hagans will be hired as a consultant and will oversee and approve all road related treatments for this sediment source implementation.</p> <p>LWD placement is consistent with the procedures recommended in the CDFG California Salmonid Stream Habitat Restoration Manual, Section VII.</p>
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	Early program development within the GRWC has brought about a decade of executing sustainable projects throughout the watershed. Projects undertaken by the GRWC are always implemented as a component of a GRWC Program, are high priority projects for the watershed providing long-term benefits to the environment and are required to have long-term maintenance plans and agreements with the landowners.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Improve water quality and quantity and work	<ul style="list-style-type: none"> Implement NPS sediment reduction projects on 12 miles of

	towards the attainment goals of the TMDL.	<p>road within Robinson Creek CalWater Planning Watershed.</p> <ul style="list-style-type: none"> • Reduce 30,000 cubic yards of sediment delivery into the Gualala River and Gualala Estuary. • Enhance salmonid habitat on 12 miles of blue line streams by treating sediment sources. • Increasing TMDL attainment in Robinson Creek PW to 78%.
2.	Support restoration of natural systems through placement of large wood that will provide summer juvenile rearing habitat and juvenile and adult refuge during seasonal high flows, sort gravels and increase suitable spawning habitat, mitigate rapid inputs of sediment from point sources such as landslides and channel failures	<ul style="list-style-type: none"> • Increase wood loading levels in large wood reaches towards attainment levels of >6000 cubic ft per 1000 ft and piece level to >150 pieces per 1000 ft. • Increase primary pool quantity towards attainment level of >40% of reach length.
3.	Increase stakeholder and community education.	<ul style="list-style-type: none"> • Provide 4 educational forums for partners and landowners to learn about conservation and restoration programs, techniques, and cost sharing opportunities. • Provide information to landowners, agencies and the community to raise critical thought and analysis on issues that impact the watershed by publishing 4 newsletters and increasing GRWC Website capacity.

Description of the Purpose and Need of the Project	
<p>The North Fork basin serves as critical habitat for coho salmon and steelhead in the Gualala River Watershed. This restoration project will benefit juvenile summer and winter rearing habitat as well as adult migration and spawning habitat aiding in the recovery of viable California Central Coast coho populations in the Gualala.</p> <p>This proposal is part of a long-term comprehensive Restoration Program focused on decreasing anthropogenic sediment delivery and remediating the effects of anthropogenic sediment sources by creating summer and winter salmonid habitat, increasing floodplain connectivity, and re-establishing salmonid migration corridors.</p> <p>In 1993, the USEPA listed the Gualala River on its federal Clean Water Act §303(d) list of impaired water bodies due to declines in anadromous salmonids from excessive sedimentation. The listing was updated in 2003 and water temperatures in the basin are now considered impaired as well. <i>A Technical Support Document (TSD) for the Total Maximum Daily Load for the Gualala</i> was completed by the North Coast Regional Water Quality Control Board (NCRWQCB) in 2003. The Gualala River TSD estimates that 85% of the anthropogenic sediment sources impacting the river today are derived from poorly constructed timber and ranch roads.</p> <p>Erosion control and erosion prevention work is the first and perhaps the most important step to protecting and restoring watersheds and their anadromous fish populations. This is especially true for Gualala river tributaries where sediment is a limiting factor to fisheries production. Unlike many watershed improvement activities, erosion prevention and "storm-proofing" has an immediate benefit to the streams and the aquatic habitat of the basin. Roads are a major source of erosion and sedimentation on most managed forest and ranch lands (Weaver and Hagans, 1997).</p> <p>The Gualala River Synthesis Report, by The North Coast Watershed Assessment Program (NCWAP, 2003), determined pool depth and shelter to be the two highest limiting factors to salmonids in the Gualala. Furthermore, it determined that the "enhancement of in-stream structure" by LWD placement is the most important in-stream restoration tool to improve limiting</p>	

factors facing salmonids.

The Draft CCC Coho Recovery Plan (NMFS 2010) identifies key habitat attributes within the Gualala River Basin that are in poor condition and are the highest priorities for restoration, including 1) pool habitat complexity and frequency of pools, 2) off-channel habitat, and 3) amount of LWD in streams.

Five integrated project elements will address multiple habitat and water quality goals. First, complete the implementation of sediment source reduction on all roads in the within the Robinson Creek PW preventing approximately 30,000 yds³ of sediment from entering 12 miles of critical salmonid habitat. Second, expand the benefits of the GRWC Wood In the Stream Program by placing an additional 200 logs basin-wide improving salmonid habitat in 12 miles of streams. Third, implement a pilot wood project specifically to reconnect 8 miles of critical coho habitat in a designated core planning watershed (NMFS, CDF&G). Fourth, increase summer rearing shelter in the estuary, and fifth, apply our effectiveness monitoring components to determine project performance and future management.

Project Description

This project will treat 83 sediment sources on 12 miles of high priority roads that will prevent 30,000 yds³ from entering the watercourses in the North Fork basin and eventually the estuary. The project will complete all of the sediment source implementation work in the Robinson Creek PW.

Approximately 1.6 miles of road will be abandoned, .08 miles of road will be decommissioned and 10.32 miles of road will be storm proofed. All road segments will be outsloped, rolling dips installed, and berms and side-cast fill removed. On the abandoned and decommissioned segments; 15 culverts will be pulled and existing stream crossings will be excavated to grade, cobble will be placed in the channel to reduce erosion where necessary. Nine rocked fords will be installed with large rip-rap buttressing the base of the armor, and smaller rock on the road surface to reduce erosion. Storm proofed road segments will have 9 culverts upgraded to replace undersized culverts; fill will be removed and culverts will be installed as near to the natural gradient of the original stream channel as possible. At crossings, rock will be placed around the culvert outlet for energy dissipation and fill stabilization and critical dips will be installed to eliminate diversion potential. Specific site information and maps are attached in the technical documents.

In conjunction with the sediment source remediation this proposal will implement the sixth phase of the Large Wood in The Stream Program. To date, 530 logs, 76 logging truck loads have been placed (63,010 cubic ft. or 378,064 board ft.) in 9 tributaries (8 miles of blue line stream) within the watershed. This proposal will place an additional 200 logs and rootwads.

Twenty two sites within the Gualala River watershed have been selected for Large Wood enhancement, continuing an ongoing program to restore native salmonid populations. Program specific objectives are to increase pool frequency and depth, provide habitat in pools that are currently lacking cover, improve channel complexity, and supply velocity refuge to coho and/or steelhead during high flows.

The methodology developed for large wood placement attempts to mimic nature and allow project wood to adjust naturally to a stream's hydraulics. Wood pieces are placed in the stream "naturally keyed" using stream side vegetation and/or logs are placed purposely to float downstream during high winter flows and lodge naturally to create logjams. The placement of large wood in the basin is planned using a phased approach to replicate the natural recruitment process. Wood continues to be placed on an annual basis to reproduce (at an accelerated rate) the natural spatial patterns of large wood abundance across a channel network.

This project will also increase landowner participation in watershed BMPs and assist the Stewarts Point Rancheria with stream flow monitoring which is critically important to the quality and quantity of the Rancheria's water supply.

Scientific and Technical Merit Discussion: Rationale for the Project

The Gualala River is listed by the USEPA Clean Water Act Â§303(d) as an impaired water body due to declines in diadromous salmonids from excessive sedimentation and high water temperatures. The watershed lies within the Central California Coast Coho Salmon Evolutionary Significant Unit (ESU), which is listed as endangered under the Endangered Species Act (NMFS 2005).

The many scientific and technical reports included in this proposal consistently recommend three priority management strategies to enhance beneficial uses and improve watershed health; 1) reduce upslope NPS sediment inputs through road upgrades, repairs and decommissioning, 2) increase instream habitat diversity through sediment reduction and Large Woody Debris placement, 3) continue and expand the EPA approved GRWC monitoring program to increase understanding of watershed processes and evaluate resource management strategies.

The proposed projects incorporate and integrate these three priority recommendations. Planning watersheds have been prioritized and project watersheds have been selected for high road density, road proximity to streams, high watershed disturbance index, and quality of instream habitat.

The Robinson Creek Planning Watershed where 100% of the sediment reduction work will be performed is considered a “focus” watershed for the North Coast. The CCC Coho Salmon ESU Draft Recovery Plan (NOAA, 2010) includes the Robinson Creek Planning Watershed in the “core area” for immediate implementation. Under the heading *Immediate Needs* the plan states, “Support the ongoing efforts of the Gualala Redwoods Company [sic] to increase LWD abundance, and to *upgrade or decommission roads.*”

Many studies have been conducted on the Gualala River Watershed documenting the adverse conditions limiting salmonid populations. Two notable assessment plans have been completed for the watershed and are the basis for the Gualala River Watershed Council’s adaptive Gualala River Management and Enhancement Plan.

First, the Gualala River Watershed Assessment Report (Klamt, et al., 2003) was conducted by a multi-agency task force, the North coast Watershed Assessment Program (NCWAP) now known as the Coastal Watershed Planning and Assessment Program (CWPAP). The report states that pool depth and shelter are major limiting factors to salmonids throughout the watershed and the top restoration priority for all the subbasins is to increase in-stream habitat complexity. Key recommendations to achieve this goal are “Continue efforts such as road assessments, storm proofing, improvements, and decommissioning throughout the watershed to reduce sediment delivery to the Gualala River and its tributaries.” Specific recommendations for the North Fork basin include road sediment inventory and control as the second highest priority following Instream Enhancement. Robinson Creek is a targeted planning watershed in the North Fork basin for road sediment source analysis and control.

Second, the Gualala Estuary and Lower River Enhancement Plan (ECORP Consulting, Inc. et al., 2005) was a result of a partnership with Gualala River Watershed Council and the Sotoyome Resource Conservation District, funded by the California State Coastal Conservancy. In the estuary study, the factors limiting Coho populations in the watershed were attributed to “degraded habitat conditions in the upstream portions of the watershed” and a key recommendation is to “repair and retire logging roads and treat upslope sediment sources.”

The proposed projects incorporate and integrate these priority recommendations. Planning watersheds have been prioritized and project watersheds have been selected for high road density, road proximity to streams, high watershed disturbance index, and the quality of instream habitat.

Project performance will be verified through the GRWC Cooperative Monitoring Program. Monitoring protocols have been approved by the SWRCB/CALEPA and are contained in the GRWC Quality Assurance Project Plan for Monitoring Sediment Reduction (GRWC 2008). In-stream habitat will be evaluated through the GRWC Monitoring Program. Reaches established within the project area will be re-surveyed to evaluate improvements in channel morphology. Additional assessments will include a continuation of the snorkel surveys to estimate salmonid population trends. Gualala Redwoods, Inc., the landowner has an established road maintenance program that focuses on Best Management Practices and after completion of the project on-site monitoring will continue for erosion will be conducted by GRWC in conjunction with the landowner.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	Coordinate budgeting, scheduling, agreements, subcontract administration, and prevailing wage administration.	Sub-Contract Agreement
1.2	Project Performance Plan Development	<p>In cooperation with the County of Humboldt, DWR and other appropriate agencies, develop a Project Performance Assessment plan that will address, at a minimum, the following elements:</p> <ol style="list-style-type: none"> 1. Identify project performance goals related to habitat restoration. 2. Define performance indicators for each goal. 3. Identify the method, frequency, and schedule for collection of monitoring data 4. Identify the party responsible for the collection of data and data management 5. Prepare a Draft Project Performance Plan 6. Provide a copy to Humboldt County and other participating agencies 7. Revise Project Performance Plan as per agency recommendations 8. Prepare Final Project Performance Plan 	Project Performance Plan
1.3	Quarterly Reports	<p>Reports will be submitted quarterly from July 2011 through completion date. The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the agreement.</p> <p>The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.</p> <ol style="list-style-type: none"> 1. Prepare progress reports every three months in accordance with County of Humboldt & DWR reporting format 2. Describe project progress, such as activities completed and problems encountered in current quarter 3. Provide percent complete status for all project tasks 	Quarterly Reports- submitted every 3 months until completion
1.4	Final Report	<p>A draft will be provided 60 days before the end of Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to comment source. The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a</p>	<p>Draft Report</p> <p>Final Report</p>

#	Work Task Title	Work Task Description	Deliverables
		<p>description of the approach and techniques used during the project.</p> <p>A list of the task deliverables.</p> <p>Determination of whether the purpose of the project has been met. Include information collected in accordance with the Project Performance Assessment Plan.</p> <ol style="list-style-type: none"> 1. Track project activities, including photo documentation 2. Summarize project activities, achievements and difficulties 3. Prepare Draft Project Report to include County of Humboldt & DWR report content requirements 4. Provide Draft report to appropriate agencies for review and comment 5. Prepare Final Project Report 	
1.5	Land Acquisition	N/A	
1.6	Technical Advisory Committee	<p>Conduct at least 2 meetings. Agendas and minutes of TAC meetings prepared and submitted as required with reports</p> <ol style="list-style-type: none"> 1. Identify committee members 2. Determine meeting dates and times 3. Develop meeting agenda. 4. Conduct meetings and record minutes. 5. Repeat for additional meetings. 6. Provide meeting minutes with quarterly reports 	<p>Conduct at least 2 meetings. Agendas and minutes of TAC meetings prepared and submitted as required with reports</p>
1.7	Obtain landowner agreements	<p>Obtain signed landowner agreements</p> <ol style="list-style-type: none"> 1. Contact landowner(s) by letter describing project) 2. Develop draft agreements 3. Provide agreements to land owners for signature 	<p>Milestone: Obtain signed landowner agreements</p>
1.8	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	<p>Provide copy of agreement with Labor Compliance Monitoring company</p>
2.0	Environmental Documentation		
2.1	CEQA Development	Included as part of DFG 1600. EIR, Notice of Exemption, State Clearinghouse Publication	<p>Milestone: Final environmental documents</p>

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 1. Conduct preliminary project review 2. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 3. Prepare Initial Study per CEQA Guidelines Section 15063 4. Prepare CEQA Documentation 	
2.2	Permit Development: DFG 1600	<p>DFG 1600 Agreement is needed for this project</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data and/or perform studies as deemed necessary for permit applications 3. Prepare Streambed Alteration Agreement application (Forms FG2023 and FG2024) and submit to the California Department of Fish and Game for approval 4. Incorporate agency comments 5. Obtain final approved permit 	<p>DFG 1600 Agreement (Permit need is dependent upon site selection)</p>
2.3	Permit Development: 404	<p>Acquire a 404 Permit through NOAA Restoration MOU Permitting process:</p> <ol style="list-style-type: none"> 1. Conduct consultation with NOAA Fisheries—assume Formal Consultation and Biological Assessment necessary, to be submitted to COE 2. Provide additional information, as requested by the COE and/or NOAA, for application completeness, preparation of Public Notice, and final project approval 3. Obtain final permit 	<p>Clean Water Act Section 404 Permit issued by the Army Corps of Engineers (COE), if necessary</p>
2.4	Permit Development: 401	<p>Acquire a 401 Water Quality Certification from the North Coast Regional Water Quality Control Board for this project. The 401 permit process can be conducted simultaneously to the COE and DFG process</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Coordinate with Regional Water Quality Control Board for at a minimum application for a Water Quality Certification (could require NPDES permit and/or SWPPP if soil and/or water discharge to water body or grading greater than 1 acre of land) 	<p>RWQCB 401 Certification</p>
3.	Planning/ Design		
3.1	GRWC 2009 Inventory and Assessment	<p>Conduct supplementary inventory assessment using GRWC database as starting point. Confirm or reprioritize site needs based on assessment.</p> <ol style="list-style-type: none"> 1. Review GRWC 2009 Inventory and Assessment Report. 	<p>Review GRWC 2009 Inventory and Assessment</p>

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 2. Conduct field inspection of sites referenced in the GRWC 2009 report and additional identified sites. 3. Document potential additional site needs developed since the GRWC 2009 report. 4. Reprioritize sites using new data 5. Develop final prioritized list of improvement sites. 	
3.2	Final design, plans and special provision specifications.	<p>Compile the final design plans and specifications ready to put out to bid.</p> <p>The plans and specifications will conform to all necessary requirements stipulated by the District and regulatory agencies to ensure a high quality product.</p> <ol style="list-style-type: none"> 1. Prepare Construction Inspection Plan including mechanisms to assure that project components are completed to specifications 2. Prepare Final Specifications 3. Prepare 100% Plans ready for project bidding 	Final Project Design and Construction Specifications
4	Construction/ Implementation		
4.1	Construction contracting: Advertise and Contract Bidding	<p>Develop advertisement and contract documents for construction contract bidding, Includes bid analysis and recommendation of most qualified bidder.</p> <ol style="list-style-type: none"> 1. Prepare bid package including final plans and specifications 2. Advertise bid opening 3. Provide bid package to interested contractors and obtain bid bond 4. Reply to all contractors with any questions submitted 5. Analyze bids based on cost and contractor qualifications 6. Conduct interviews if needed 7. Select contractor 	Advertise project bid analysis Selection of Contractor
4.2	Construction contracting: Award	<p>Award of Contract to successful bidder, contract documents, bonds, insurance and other contract requirements.</p> <ol style="list-style-type: none"> 1. Notify successful contractor 2. Prepare contract documents 3. Obtain contractor performance bond and payment bond 4. Obtain copy of contractor insurance certificate 5. Execute contract documents 	Contract Award

#	Work Task Title	Work Task Description	Deliverables
4.3	Construction	<p>Construction of project components, including upgrading of road systems, placement of LWD, and installation of new data recorder for Wheatfield Fork Stream Gauge.</p> <ol style="list-style-type: none"> 1. Initiate project construction 2. Order project equipment and supplies 3. Assure project permits are in place 4. Construct project components 	Construction complete
4.4	Construction Inspection and Management	<p>Conduct inspection of the project including reporting and project communication</p> <ol style="list-style-type: none"> 1. Assign qualified construction inspector/ engineer to the project 2. Keep daily records of construction activities, inspection, and progress 3. Conduct regular meeting between the contractor and the inspector 4. Verify that all work was completed in accordance with specifications 	Inspection Reports, Pay Requests, Meeting Minutes, Contractor Log, Submittals
4.5	Construction Project Close Out & Demobilization	<p>Inspect project components and establish that work is complete.</p> <ol style="list-style-type: none"> 1. Establish work is substantially complete by inspector 2. Prepare a list of unfinished work 3. Prepare recommendations concerning final payments to contractors and release of retained percentages and bonds 	As-Built database
5	Project Performance Assessment		
5.1	Photo Documentation	<p>Photos and potentially video clips will be taken as the construction project progresses.</p> <ol style="list-style-type: none"> 1. Develop photo documentation plan using peer-reviewed protocol 2. Identify key construction steps to capture in photos 3. Set a regular schedule for collecting photos of the project. 	Project photo documentation
5.2	Project Performance Assessment	<p>Update the GRWC Monitoring Plan and QAPP based on finalized Project Plans</p> <ol style="list-style-type: none"> 1. Provide a copy to the NCRWQCB, DWR and other participating agencies 2. Incorporate agency comments 3. Final Project Performance Plan 	Project Performance Plan
5.3	Stream flow gauge	<p>Assure the stream flow gauges are installed correctly. Use the Project Performance Plan developed under task 1.0 to collect stream flow data. Verify data results and make changes to the monitoring plan if necessary.</p> <ol style="list-style-type: none"> 1. Verify correct installation of data recorder for gauge. 	Stream flow data collection

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 2. Review Stream Flow section of Project Performance Plan and use indicated procedures to collect data. 3. Verify collected data. 4. Revise Project Performance Plan if necessary. 	
5.4	Post Project Assessment (not funded by IRWM funding)	<p>Implement monitoring data quality control protocols and analyze monitoring data.</p> <ol style="list-style-type: none"> 1. Develop draft Project Performance Report 2. Provide a copy to GRWC TAC, NCRWQCB, County of Humboldt, DWR and other participating agencies for approval 3. Incorporate comments 4. Finalize Monitoring Plan 5. Continued project effectiveness monitoring will be conducted through the GRWC Monitoring Program 	Monitoring Report
6	Site Repair/ Maintenance		
6.1	Landowner Maintenance Program (not funded by IRWM funding)	Review landowner maintenance program and revise to include project as necessary.	Landowner Maintenance Program

444 - Mattole Integrated Watershed Management Initiative, Mattole Restoration Council

GENERAL INFORMATION:	
Project Title	Mattole Integrated Watershed Management Initiative
Project Abstract	The Mattole Integrated Watershed Management Initiative provides a comprehensive approach to watershed restoration in the Mattole through streamflow enhancement, riparian restoration, coho recovery rearing, streamflow, and turbidity monitoring, sediment stabilization, and removal of invasive plants. Seven water storage tanks will be installed in the Mattole headwaters totalling 350,000 gallons to augment summer stream flows in critical reaches of coho salmon habitat. Residents agree to turn off instream pumps when directed and begin using water from storage tanks. Recovery rearing of coho salmon will be implemented as a temporary measure to avoid extirpation until streamflow and habitat issues are more fully addressed in the headwaters. Downstream work to control sediment will take place through the installation of bioengineered willow fences, as well as reduce active erosion and increase streamside shade through the planting of native riparian trees, shrubs, and grasses. Invasive plants will be removed on project sites prior to implementation, and turbidity and streamflow assessment will ensure that project goals are met.
Organization	Mattole Restoration Council
Contact Name and Title	F. Jeremy Wheeler
Disadvantaged Community	Mattole watershed (towns of Petrolia, Honeydew, Whitethorn in Humboldt County)
Grant Funds Requested	\$300,000
Non-State Match	\$343,766 (other State funds: \$110,480)
Total Budget	\$754,256
Watershed	Mattole River watershed
County	Humboldt, Mendocino
Status of project design and bid solicitation efforts	<p>The Project Design phase of the Mattole Integrated Watershed Management Initiative components are more than 75% completed. These designs are contained within the <i>Mattole Watershed Plan</i>, <i>Mattole Integrated Coastal Watershed Management Plan</i>, <i>Options and Obstacles: Living with Low Water Flows in the Mattole Headwaters</i>, and the nearly completed <i>Mattole Headwaters Groundwater Management Plan</i>. All documents are available from the Mattole Restoration Council in Petrolia or Whitethorn.</p> <p>Vendors and subcontractors have been identified for each project component.</p>
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Mattole Restoration Council Flow Program: Water Storage and Forbearance Conceptual Plan • Rearing Site Preliminary Plan • Mattole Restoration Council, Sanctuary Forest, Mattole Salmon Group. Mattole Integrated Coastal Watershed Management Plan: <ul style="list-style-type: none"> ○ Sediment, Number 4 in the 2009 State of the Mattole Watershed Series. 2009 ○ Fisheries, Number 5 in the 2009 State of the Mattole Watershed Series. 2009 ○ Riparian Ecosystem Restoration, Number 7 in the 2009 State of the Mattole Watershed Series. 2009

GENERAL INFORMATION:	
Status of CEQA, NEPA, and other environmental laws	Permits listed in the Project Work Task Table are underway and will be completed prior to or shortly after the project start date of 6/1/2011.
Work that will be completed prior to June 1, 2011 (assumed contract date)	<p>Participants in the Tank and Forbearance program have been identified and signed letters of intent have been obtained. Site-specific permitting process for tank projects will commence. Analysis of and report summarizing streamflow monitoring data from 2010 will be completed.</p> <p>Three years of pre-treatment turbidity monitoring on Granny Creek and 3 other tributaries (two control sites, Saunders Creek and Lower Mill Creek, and Cook Gulch where treatment was completed summer of 2010), two years on the Upper North Fork of the Mattole River. Completed analysis of existing data and completion of Water Year 2011 turbidity monitoring report. Part of larger study of pre and post-treatment turbidity duration on a total of 11 lower river tributaries, which began in Water Year 2009.</p> <p>Propagation of 28,000 native plants; collection of 105 lbs. of seed; planting of 3500 trees on Granny creek</p> <p>The facility for the Mattole Recovery Rearing Program will continue to be set up and supplies ordered.</p>
Merits of the building materials or computational methods that were or will be used for project development	n/a
Procedures for coordination with partner agencies and organizations	A Technical Committee and Steering Committee have been formed for the Mattole Recovery Rearing Program consisting of the Mattole Salmon Group, NOAA Fisheries, California Department of Fish and Game, and the Bureau of Land Management. Meetings are currently held bi-weekly and regular meetings will be held during project implementation. Additionally, the 3 organizations partnering for this proposal (Sanctuary Forest, Mattole Restoration Council, Mattole Salmon Group) will continue to hold monthly meetings to coordinate efforts.
A description of synergies or linkages between other NCIRWMP projects	The Mattole Integrated Watershed Management Initiative does not directly partner with other NCIRWMP projects. However, the proposal is a collaborative effort of 3 organizations within the Mattole, requiring a great deal of cooperation and planning.
Status of acquisition of land or rights-of-way, if applicable	n/a
Standards, such as construction standards that will be used in implementation	DFG Salmonid Habitat Restoration Manual Habitat Inventory Methods and Project Evaluation and Monitoring
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	Each project can stand-alone as a discreet project though the Mattole Integrated Watershed Management Initiative provides a comprehensive approach to watershed restoration in the Mattole River watershed.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Increase summer water flows and increase water security	<ul style="list-style-type: none"> • Install seven 50,000 gallon storage systems in the upper mainstem Mattole River (between Bridge Creek and Ancestor Creek) • Assess summertime streamflows at minimum 5 sites to ensure adequate streamflows for salmonids and measure program effectiveness
2.	Improve salmonid habitat within the Mattole watershed	<ul style="list-style-type: none"> • Plant 28,000 native trees, shrubs, and grasses on implementation sites to reduce sedimentation and improve riparian shade • Collect 125 lbs of tree, shrub, and grass seed for use on riparian revegetation projects • Remove invasive plants in riparian and critical habitat areas • Install 750 ft. of willow fence to reduce the amount of instream sediment from active landslides
3.	Remove Mattole coho salmon from detrimental conditions and avoid extirpation of the population	<ul style="list-style-type: none"> • Rescue coho salmon from headwaters streams and begin recovery rearing program

Description of the Purpose and Need of the Project

In an area where there is no municipal water district, water supply enhancement activities will ensure adequate drinking water for members of the disadvantaged community as well as improve instream water flows for salmonids. The Mattole River is Section 303(d)-listed for excessive sediment and high summer water temperatures (USEPA, 2002, pg 3-1 to 3-35, 4-1). This project will reduce excess sediment and temperature through water security, erosion control projects, and riparian ecosystem restoration. During the last ten years, the Mattole watershed has seen extreme dry seasons, causing some areas of the headwaters to go completely dry in the summer months. This has caused water usage conflicts among residents and forced many to import water for home and agricultural use. Additionally, the watershed is home to three species of salmonids listed as threatened under the Federal Endangered Species Act (ESA): steelhead trout, coho salmon, and Chinook salmon. In addition, coho salmon are also listed as threatened under the California ESA. The current state of coho salmon within the Mattole is so imperiled, that not funding the project would likely lead to the extirpation of the Mattole population, and the loss of coho salmon in California. Streamflow enhancement projects work to provide adequate summer streamflow for threatened coho salmon, as well as human residents.

Project Description

The Mattole Integrated Watershed Management Initiative provides a comprehensive approach to watershed restoration in the Mattole through enhanced streamflows, riparian ecosystem restoration, coho recovery rearing, water quality monitoring, sediment stabilization, and removal of invasive plants in riparian and critical habitat areas. The work proposed is included in the Mattole Integrated Coastal Watershed Management Plan (2009) and North Coast Integrated Coastal Watershed Management Plan.

Extremely low summer streamflows in the Mattole have been a severe issue in the past decade, contributing to high rates of juvenile salmonid mortality in the headwaters, which is also home to the highest quality coho habitat within the watershed. Residents in the headwaters area have been forced to import water for their farming, ranching, and home-use needs. In order to

mitigate low flow issues, seven 50,000 gallon storage systems will be installed in the upper mainstem Mattole River (between Bridge Creek and Ancestor Creek), along with forbearance agreements with 6 private landowners to prevent summertime water diversion and provide a back-up water source. Tank storage and associated water conservation will provide an average 24-hour increase of 4.4 GPM of stream flow into coho and Chinook salmon-bearing river reaches during the summertime low flow period, and instantaneous streamflow benefits of up to 60 GPM when landowners participating in the forbearance program turn off in-stream pumps. September low-flows have been measured at 30 GPM to 0 GPM, so this level of increased flows makes a significant difference for instream flows. Although not part of this proposal due to budget restrictions, the planning and permitting process for groundwater recharge projects in the Mattole headwaters will begin, with the completed project assisting with revitalization of chronic summertime low flows. These projects will be focused in the Thompson Creek and Lost River sub-watersheds. All surfacewater augmentation efforts will be assessed via summertime low-flow monitoring at 5 mainstem Mattole headwaters sites.

All proposed water supply enhancement activities work to ensure adequate water supply for humans as well as salmonids. These activities will be complemented by the Mattole Coho Recovery Rearing Program within the Mattole headwaters. With dangerously low numbers of returning coho, it is critical that this program is implemented, and coho are rescued from non-properly functioning conditions and their survival is ensured. The program is a short-term solution while water supply issues and habitat are restored, allowing coho numbers to increase above their depensation level. Without this stop-gap measure, there is little chance that coho will recover to a viable population, which will lead to extirpation of Mattole coho salmon. The abovementioned Tank and Forbearance program to enhance streamflows will directly benefit coho salmon through improving summer streamflows in the highest quality habitat in the entire watershed.

Additional water quality and habitat enhancement activities include riparian restoration activities on chronic sediment source sites in the Upper North Fork of the Mattole and Granny Creek. Although not included in this project due to budget limitations, ranch road stormproofing, abandoned road decommissioning, and stabilization of active landslides will take place prior to riparian revegetation activities. Riparian revegetation activities will include the planting of 28,000 trees, shrubs, and grasses to stabilize landslides and increase riparian canopy cover, the collection of 125 lbs. of native seed for use in native plant propagation and broadcast seeding of slides, and the installation of 750 feet of willow fence to reduce the amount of sediment entering blue-line streams. All seed will be collected in the Upper North Fork watershed and nearby tributaries and plants will be grown at the MRC Native Plant Nursery in Petrolia, CA. Plants will be installed at site specific revegetation sites identified in riparian assessments conducted in April of 2009. Over 15 different riparian species will be installed on revegetation sites. All revegetation sites will be assessed one, two, and five years after project completion.

Turbidity monitoring following riparian and upslope restoration will measure the effectiveness of treatments at reducing sediment and water temperatures as well as improving salmonid habitat. On all aforementioned sites, preliminary project prescriptions will be to remove identified invasive plant species in order to prepare for post-project riparian planting.

Scientific and Technical Merit Discussion: Rationale for the Project

Background: The Mattole River watershed has been the subject of numerous watershed assessments and prioritization exercises, and is home to one of California's longest-running citizen-led watershed restoration efforts. In 1988, the Mattole Restoration Council published *Elements of Recovery* (MRC, 1988), which documented large-scale erosion sites throughout the Mattole River watershed, and prescribed early sediment control and reforestation treatments for many Mattole tributaries and associated upslope lands. In 1995, the Mattole Restoration Council published *Dynamics of Recovery* (MRC, 1995), a plan to restore the Mattole River estuary. *Dynamics* recommended a basin-wide upslope sediment treatment program, which will be taking place prior to riparian treatments, albeit not funded through IRWMP due to budget restrictions.

Regional Assessments and Plans: The Mattole River watershed has been evaluated for its regional role in salmonid recovery and water self-sufficiency. The CDFG Coho Salmon Recovery Strategy designates the Mattole River as one of the highest-priority

recovery basins, and states that the basin presents an excellent opportunity for coho recovery (CDFG 2003). The North Coast Basin Plan designates TMDL implementation within North Coast watersheds as central non-point source pollution control activity (NCRWQCB 1993).

NCWAP Watershed Assessment: More recently, an inter-agency watershed assessment of the Mattole River was completed (NCWAP, 2003). The resulting *Mattole River Watershed Assessment Report* presented a salmonid limiting factors analysis for the Mattole estuary and four sub-basins. The Report makes a variety of basin, sub-basin, tributary and reach level recommendations. The Mattole Watershed Management Initiative implements many of these recommendations, particularly for sediment reduction and riparian reforestation. The Report strongly recommends action to conserve in-stream flows in the Mattole River headwaters, which serve as a primary basis for the streamflow augmentation activities contained in task 4.2.

Mattole Watershed Plan: In 2009, the Mattole Restoration Council, Sanctuary Forest, and the Mattole Salmon Group published the *Mattole Integrated Coastal Watershed Management Plan*, which was based on the recommendations and assessment data of the NCWAP Report, experience implementing projects in the previous watershed plan (2005), as well as previous assessment efforts and community-led strategic planning. The updated 2009 plan lays out priority projects to be completed throughout the watershed through the year 2020. The Mattole Integrated Watershed Management Initiative implements projects contained within Chapters 3 (Goals and Objectives), 4 (Water Management Strategies), 7 (Implementation), 9 (Technical Analysis and Performance), and 10 (Data Management).

Streamflow Augmentation: Chapter 3 of the *Mattole Watershed Plan*, Chapter 7 of the *Mattole Integrated Coastal Watershed Management Plan (MICWMP)*, and related documents review existing assessment data, and present recommendations for Task 4.2 of the Mattole Integrated Watershed Management Initiative. There are no municipal water systems within the watershed and most residents are dependent on surface water withdrawals for their domestic and agricultural use (NCWAP, 2003 and MRRP, 2005). The Mattole River also hosts endangered coho, Chinook and steelhead salmonids are listed as threatened under ESA and CESA (CDFG, 2003, NCWAP, 2003 and MRRP, 2005). Low summertime stream flows in the Mattole headwaters are considered the most acute bottleneck to salmonid recovery (NCWAP, 2003 and CDFG, 2003). These low flows are also causing conflict among users (SFI, 2005). Enhancement of in-stream flows through a program of water rights acquisition is suggested by community members and agency personnel (NCWAP, 2003 and SFI, 2005). Such a program has the potential to maintain in-stream flows above critical thresholds (SFI, 2005). The Mattole headwaters region was prioritized for streamflow augmentation activities because human water use has had a greater impact on streamflow levels and water availability than in other sub-basins (NCWAP, 2003), and due to the area's status as the primary salmonid refugia in the basin (SFI, 2005).

Riparian Ecosystem Restoration: Historically, riparian areas within the Mattole River watershed were dominated by a hardwood and conifer canopy, providing much-needed riparian shade, streambank stability, and habitat complexity. With the advent of unchecked logging practices after World War II, many riparian areas were stripped of their vegetation, leaving eroding banks and exposed streams, contributing to increased sediment, water temperature, channel aggradation, resulting in overall decreases in water quality and salmonid habitat (MRC, 2005, 7-4). The 2005 *Mattole Watershed Plan* also details the specific strategy used for Riparian Restoration, specifically revegetation that mimics ecological processes of succession as well as site-appropriate species in order to increase the survival rates. This strategy was implemented after many years of a "one size fits all" approach to riparian restoration yielded relatively low success rates at establishing riparian species. In addition to following Good Roads, Clear Creeks sites, Riparian Restoration projects are developed according to a set of ranking criteria in order to assure that sites of the highest importance are being treated first. For a discussion of the technical basis of this ranking, please see Appendix B of the 2005 *Mattole Watershed Plan*. Section 7.5 (page 108) of the *Mattole Integrated Coastal Watershed Management Plan* (2009) mentions specific strategies and tasks to complete between 2010 and 2020. Included in this matrix are the tasks proposed for this project, which will treat areas from Grindstone Creek downstream to Petrolia, including the Upper North Fork watershed and Granny Creek.

Recovery Rearing of coho salmon: Mattole coho populations are lower than have ever been witnessed in the Mattole. 2 redds were observed over the winter of 2009-2010 and cohorts have been dramatically decreasing since 2002. The depensation level for coho salmon in the Mattole is set at 250 adults; it is below this level where extinction of the species may be irreversible. That is, unless, emergency measures are taken. The Draft *Mattole Coho Recovery Strategy* (MRRP 2011; to be final in January 2011)

lists the Recovery Rearing Program as one of five Tier 1 Recovery Strategies- those necessary to avoid extirpation of the species. As such, the Mattole Salmon Group has formed a Mattole Recovery Rearing Program Technical Committee and Steering Committee with NOAA Fisheries, DFG, BLM, and USFWS. These agencies have deemed this program necessary to not only avoid extirpation of the Mattole population but to aid in the recovery of the SONCC coho salmon ESU. DFG's *Recovery Strategy for California Coho Salmon* (DFG 2004) contains *Appendix H: Recommended Guidelines for Recovery Hatcheries*. Table H-1 and Figure H-1 within this document contain Decision Guidelines to determine if a recovery hatchery program is necessary. These documents were used by the Mattole Recovery Rearing Program Technical and Steering Committee to determine that a similar program is necessary in the Mattole watershed. These Guidelines are being used to determine specific protocols and operating procedures which will be outlined in the program's *Rescue Rearing Management Plan* (MSG 2011; to be final in January 2011).

Noxious Weed Eradication: Chapter 8 of the *Mattole Watershed Plan* identifies 12 Category A noxious weeds as a serious threat to native plant communities, riparian habitats, and natural hydrologic function (MRRP 2005). The *MICWMP* (pp. 130) also highlights the importance removing invasive species within the Mattole watershed. The King Range National Conservation Area Resource Management Plan (BLM 2005) highlights noxious weed eradication efforts as a high priority within the Mattole River watershed to maintain hydrologic function and habitat quality.

Mattole IWMP Monitoring Approaches: The Mattole IWMP employs several monitoring approaches to gauge effectiveness and to determine current water quality and aquatic habitat status within the basin. Streamflow monitoring within the Mattole River headwaters will gauge the effectiveness of the tank and forbearance program (MRRP 2005 and SFI 2005). This effort is designed as a control vs. treatment study, in which paired stream reaches with and without human water use will be compared to determine the effectiveness of water storage and forbearance. Monitoring of turbidity duration and magnitude in five tributaries to determine effectiveness of restoration treatments in reducing chronic turbidity will also take place. The methodology that will be used is described in the Mattole Restoration Council *Monitoring Plan For Turbidity Associated with Road Upgrading and Decommissioning In the Lower Mattole River, 2008-2012*, Randy Klein, 2008.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	Oversight of contract deliverables, reporting, budget management, liaison among partner groups, liaison between project partners and grant manager.	Final report
1.2	Quarterly Reports	Quarterly progress reports on work tasks	Quarterly reports
1.3	Final Report	Final report on work tasks and deliverables	Final report
1.4	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Provide copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	<p>Included as part of DFG 1600 permit and CESA MOU. EIR, Notice of Exemption, State Clearinghouse Publication</p> <ol style="list-style-type: none"> 1. Conduct preliminary project review 2. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 3. Prepare Initial Study per CEQA Guidelines Section 15063 4. Prepare CEQA Documentation 	Final environmental documents
2.2	NEPA Development	Included as part of NOAA Section 10 Permit	Final environmental documents
2.3	Permit Development: DFG 1600 DFG 1602	Lake and streambed alteration: water diversion for Recovery Rearing facility	Final environmental documents
2.4	Permit Development: RWQCB Waste Discharge permit	Development of Regional Water Quality Control Board Waste Discharge permit for recovery rearing tanks.	Final environmental documents
2.5	Permit Development:	Development of 5-year rearing plan for endangered coho salmon with	Copy of rearing plan in first quarterly report, due

#	Work Task Title	Work Task Description	Deliverables
	DFG 5 Year Rearing Plan DFG CESA MOU	the Department of Fish and Game. Development of Department of Fish and Game CA Endangered Species Act Memorandum of Understanding	10/1/2011 Final memorandum submittal
2.6	Permit Development: SWRCB Small domestic use	Small domestic use permit with CDFG-approved terms and conditions	Final environmental documents
2.7	Permit Development: County permits	Humboldt and Mendocino County grading and building permits for water storage tank installation	Final environmental documents
2.8	Permit Development: Botanical/archaeological clearance	Botanical and archaeological clearance of all water storage sites	Final environmental documents
2.9	Permit Development: NOAA Section 10	Permit to cover handling of fish and rearing operations for Federally listed species	Final environmental documents
2.10	Forbearance recordation fees	Legally binding agreement recording water forbearance agreement on property's title for 15 years, regardless of changes in ownership	Final copies of agreements
2.11	Property chain of title	Title due diligence necessary for recording forbearance agreements	Final copies of documents
3.	Planning/Design		
3.1	Land Surveying/ Tank Installation Design	Develop site preparation plans and tank installation specifications	Final Tank Installation Plan
3.2	Site Design	Based on landowner agreements, aerial photo analysis, and site assessments, create design plans for restoration sites. 1. Consult aerial photos, topographic maps, landowners, and site assessments. 2. Create site plans and longitudinal profiles where appropriate for each site. 3. Provide preliminary design to appropriate agencies such as DWR and Humboldt County for review and comment	Completed Site Plans.

#	Work Task Title	Work Task Description	Deliverables
		4. Incorporate agency comments	
4.	Construction/ Implementation		
4.1	Implementation administration	Administrative costs needed for coordination and completion of implementation	Administration documentation
4.2	Streamflow enhancement	Installation of seven water storage tanks on sites in critical stream reaches of the Mattole headwaters totaling 350,000 gallons of storage. The tank or tanks are installed along with other plumbing needed to facilitate use of the stored water. Installation tasks include site preparation; tank assembly; trenching and piping from tank to house; pressure pump and small pressure tank installation if needed; plumbing and electrical hook-ups; meter installation; CDFG/NOAA compliant fish screen installation; and filtration system installation. The filtration system prevents deterioration of stored water.	Executed forbearance agreements for 6 landowners submitted with final report by 6/2013
4.3	Riparian planting	Installation of 28,000 grass, trees, and shrubs in denuded riparian areas as described in CDFG's California Salmonid Stream Restoration Manual (CDFG, 1990, pages XI-17 to XI-24).	Revegetation Assessment Report, Pre- and Post-Project Photo-documentation, due in final report
4.4	Bioengineered fence	Installation of 750 linear feet of bioengineered willow fencing on sites previously identified to be contributing sediment to blueline streams.	Photo documentation, due in final report and in quarterly reports
4.5	Recovery rearing	Rescue coho salmon from headwaters streams and begin recovery rearing program at Mattole Salmon Group headquarters	Final report on numbers captured, survival rates, and facility operations
4.6	Invasive plant removal	Removal of noxious weeds in riparian habitat and critical stream reaches utilizing species-specific eradication techniques listed in the Mattole Watershed Plan (MRRP, 2005, pages 8-56 to 8-103)	Photo documentation, due in final report and quarterly reports
5.	Project Performance Assessment		
5.1	Turbidity monitoring	Monitor turbidity duration and magnitude in five tributaries to determine effectiveness of restoration treatments in reducing chronic turbidity. Description of methodology in <i>Mattole Restoration Council Monitoring Plan For Turbidity Associated with Road Upgrading and</i>	Two annual turbidity monitoring reports, due 6/2012 and 6/2013. Final Turbidity monitoring report, due 6/2013.

#	Work Task Title	Work Task Description	Deliverables
		<i>Decommissioning In the Lower Mattole River, 2008-2012</i> , Randy Klein, 2008.	
5.2	Streamflow monitoring	Monitor streamflow (GPM) throughout low-flow season at 5 mainstem Mattole locations. Flows will be measured in each critical reach using data logging pressure transducers calibrated to the site with a Marsh-McBirney meter (see Chapter 3, <i>Mattole Watershed Plan</i>)	Two annual streamflow monitoring reports due 6/2012 and 6/2013.
6.	Site Repair		
6.1	Revegetation assessment and site repair	Visit riparian restoration sites post-planting to provide watering and weeding, if necessary in order to increase survival rates. Follow protocols in the Mattole Restoration Council Seedling Survival and Growth Surveys (see Chapter 8, <i>Mattole Watershed Plan</i>) and CDFG protocols (CDFG, 1990, pages VIII-8 to VIII-21).	Photo documentation and data from revegetation assessment
6.2	Water system maintenance and compliance	<p>Compliance documentation will include a minimum of two site visits per year. Spring evaluation will ensure that water system maintenance has occurred, all conservation systems are in place for the low flow months, and that tanks are properly topped prior to the dry season. Fall monitoring will determine if objectives are being met by reviewing water meter records and data collected electronically regarding pumping time, duration and rate. Spot monitoring during the dry season.</p> <p>Emergency and adaptive management will include leaks or other equipment failures. All systems will be outfitted with leak safety devices; however, emergencies could still occur. Leaks will be handled by providing replacement water or managing a safe refilling plan. Adaptive management will help refine the seasonal water management program for maximum compliance and workability.</p>	Photo documentation, data from maintenance visits, due 6/2013

358 - Mendocino Headwaters Integrated Water Quality Enhancement Project, Mendocino County RCD

GENERAL INFORMATION:	
Project Title	Mendocino Headwaters Integrated Water Quality Enhancement Project
Project Abstract (1000 characters)	MCRCRD will implement water quality enhancement projects in three TMDL water bodies in Mendocino County, including; 1) Decommissioning 3 miles of roads in Jackson State Demonstration Forest to prevent an estimated 6,024 cubic yards of sediment delivery to the Little North Fork Big River; 2) Upgrade three fish passage barriers and two stream crossings, in the Upper Rancheria Creek sub basin of the Navarro River watershed, to prevent an estimated 790 cubic yards of sediment from delivering to streams and to open up an additional 1.26 miles of suitable habitat for migratory salmonids; and 3) Restore approximately two acres of riparian along the Upper main stem Russian River on the Yokayo Rancheria, by controlling invasive <i>Vinca major</i> (Periwinkle), <i>Arundo donax</i> , Himalayan blackberry and Harding grass and replanting with native plants which have cultural significance to the tribal community.
Organization	Mendocino County Resource Conservation district
Contact Name and Title	Janet Olave, Executive director
Disadvantaged Community	yes
Grant Funds Requested	\$400,000
Non-State Match	\$283,907
Total Budget	\$683,907
Watershed	Big River, Upper Russian River, and Upper Navarro River
County	Mendocino
Status of project design and bid solicitation efforts	Project design is 80% completed; contractors have been selected for the projects.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> Galbreath Preserve Road Inventory, 2007 Hare Creek and Little North Fork Big River, PWA Report #08081401, 2008 Lawson Ranch Road Inventory, NRCS' Yokayo Rancheria Trip Report, 2004 Upper Rancheria Preliminary Biogeomorphic Assessment, 2006
Status of CEQA, NEPA, and other environmental laws	CEQA is covered for the Navarro Projects under the Navarro Watershed Permit coordination Program, and Little North Fork Big River is covered under the DFG Fisheries Restoration Grant Program ND. Yokayo Rancheria is CEQA exempt.
Work that will be completed prior to June 1, 2011	Planning will be initiated for treatment of invasive exotic plants and re-vegetation on Yokayo Rancheria tribal lands.
Merits of the building materials or computational methods that were or will be used for project development	Local sources for materials will be secured wherever possible for project materials. Construction will follow Federal, State, Local (Mendocino County) and Tribal standards and requirements.
Procedures for coordination with partner agencies and organizations	Partner agencies are contacted and invited to attend pre-project site visits and meetings to coordinate stakeholders that will be held before, during and after project implementation.

GENERAL INFORMATION:	
A description of synergies or linkages between other NCIRWMP projects	<p>Linkages between this project and other North Coast IRWM Proposition 50 and 84 projects, include:</p> <ol style="list-style-type: none"> 1. Prop. 50--<u>Navarro Watershed Road Sediment Reduction Project</u>" fish passage and sediment reduction treatments will be conducted on the same and adjacent sites in the Upper Rancheria Creek sub basin of the Navarro River watershed—providing enhancement for the same steelhead runs as Prop. 50 funds were allocated for. 2. Prop. 50 ICWMP--Road Decommissioning in JDSF was a direct result of road assessments conducted through a grant to the Mendocino County Water Agency for the <u>Noyo-Big River Integrated Coastal Water Management Plan</u>. 3. Prop. 84—Riparian restoration in the upper main stem Russian River is associated with projects conducted through Sotoyome RCD in the <u>Russian River Arundo donax Removal and Riparian Enhancement Program</u> as both projects address controlling exotic invasive plant species in the Russian River. Upstream infestations migrate downstream if left untreated.
Status of acquisition of land or rights-of-way, if applicable	Not applicable
Standards, such as construction standards that will be used in implementation	PWA protocols will be followed for road decommissioning as described in the Handbook for Forest and Ranch Roads (Weaver and Hagens, 1994) and Chapter 10 of the DFG California Salmonid Habitat Restoration Manual. NOAA Guidelines for Fish Passage at Stream Crossings (2001) will be followed, as will Chapter 9 of the CDFG CA Salmonid Habitat Restoration Manual
If project is part of a multi-phased project complex, describe how the project can operate as a stand-alone project.	The Little North Fork Big River Road Decommissioning Project element is part of the Noyo-Big River Integrated Coastal Water Management Plan. As a stand-alone project it will benefit coho salmon habitat and enhance fish migration. The five stream crossing upgrades in the upper Navarro, Rancheria Creek to restore fish passage and implement sediment reduction are connected to the Prop. 50 Navarro Road Sediment Reduction Project; and provide an additional 1.26 mile of suitable salmonid habitat. The riparian restoration of 2 acres of the Upper Russian River is connected to the Upper Russian River Exotic Invasive Plant Control Project. As a stand-alone project it restores habitat and provides opportunities for ceremonial and gathering purposes for the Yokayo Rancheria Band of Pomo Indians.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Decommission three miles of unimproved road in the Little North Fork Big River/Berry Gulch	<ul style="list-style-type: none"> • Prevent an estimated 6,024 cubic yards of sediment from delivering to coho salmon streams
2.	Upgrade up to six stream crossings to restore fish passage and to reduce sediment delivery to streams	<ul style="list-style-type: none"> • Prevent an estimated 790 cubic yards of sediment from delivering to streams and restore approximately 1.26 miles of available salmonid habitat
3.	Restore two acres of riparian habitat along the upper Russian River on the Yokayo Rancheria	<ul style="list-style-type: none"> • Remove two acres of invasive, exotic species and replant with native, culturally significant site specific plant material

Description of the Purpose and Need of the Project

Background

The Mendocino Headwaters Integrated Water Quality Enhancement Project addresses the need of restoring water quality conditions in three upper, or headwaters, watersheds in Mendocino County by implementing Best Management Practices (BMPs) to control sediment delivery, improve fish passage, and to restore riparian connectivity. The three headwaters, all connected to TMDL water bodies, include: 1) the Little North Fork Big River—Road Decommissioning to enhance coho salmon and steelhead-trout habitat in Jackson Demonstration State Forest; 2) the Upper Rancheria Creek sub basin of the Navarro River—Fish Passage and Sediment Control, through upgrading five stream crossings, two of which are complete fish passage barriers; and 3) Upper Mainstem Russian River—Restore riparian connectivity, through eradication of invasive *Vinca major* (periwinkle), *Harding grass*, *Arundo donax*, and Himalayan blackberry and re-planting with native, culturally appropriate plant material on tribal land. These projects are all viable as stand-alone projects, and have other sources of matching funds, but need additional funding to be implemented successfully. MCRCD has provided the planning resources to launch and develop the planning and proposal development—and will be coordinating with project partners and stakeholders to ensure that implementation reflects BMPs and integrates within the larger framework for basin-wide and region-wide restoration goals.

Little North Fork Big River—Road Decommissioning

The Little North Fork Big River is an especially important coastal system for coho salmon and steelhead trout. As in other coastal watersheds, with highly erodable terrain, the natural risk for mass wasting has been amplified by road construction activities. Currently, road related erosion is a recognized threat to water quality and salmonid habitat in within the basin. To address road related erosion problems in the LNFBR watershed, the Mendocino County Resource Conservation District (MCRCD) contracted Pacific Watershed Associates Inc. (PWA) to assess a network of roads on Jackson Demonstration State Forest (JDSF) property, a publicly owned working forest approximately 20 miles west of Willits, California. PWA geologists completed an assessment of 15.2 mi of roads on the property during the summer of 2008. The goals of the assessment were to (1) identify and quantify all current and potential erosion problems associated with selected access roads and significant spur roads on the property; and (2) develop a prioritized plan for long-term erosion control and erosion prevention for these roads. The sustainability and preservation of salmonid habitat in the Big River watershed, and achievement of TMDL targets for reduction of anthropogenic related sediment discharge, will be enhanced through the implementation of road decommissioning for erosion remediation described in this proposal. At the request of the Mendocino County Resource Conservation District, Pacific Watershed Associates Inc. assessed 15.2 mi of forest roads in the watersheds of Big River and Hare Creek within the bounds of Jackson Demonstration State Forest. Using field inventories and data analysis, PWA identified a total of 27 individual sites and approximately 3 miles of roads with associated ditches and cutslopes that are currently eroding and delivering sediment to streams in the EBLNFBR watershed, or show a strong potential to do so in the future. Of these totals, PWA recommends treating 27 sites within approximately 3 miles of road decommissioning to prevent delivery of an estimated 6,024 cubic yards of sediment to streams in Jackson Demonstration State Forest during the next decade. The expected benefit of completing the erosion control and erosion prevention treatments is the reduction of long-term sediment delivery to Big River which is an important stream for salmonid production, including coho salmon, in northern California. The prioritized recommendations for cost-effective erosion prevention and erosion control, which, when implemented and employed in combination with protective land use practices, can be expected to significantly contribute to the long-term improvement of water quality and salmonid habitat in the area.

Upper Rancheria Creek sub basin of the Navarro River—Fish Passage and Sediment Control

Upper Rancheria Creek drains directly to the Navarro River, an important anadromous river basin in southern Mendocino County. Erosion and sediment delivery from forest roads is a recognized environmental threat to the Navarro River system, which is an important habitat for anadromous salmonids, including coho salmon and steelhead trout. Using field inventories and data analysis, PWA identified five impaired stream-crossings, two of which are complete fish migration barriers with the potential to deliver approximately 790 yd³ of sediment to streams, and to restore fish passage to 1.26 miles of suitable stream habitat. Sites are located on the Galbreath Wildlands Preserve (GWP) and Lawson Ranch. Sediment delivery to stream channels

from road networks has been extensively documented, and is recognized as a significant impediment to the health of salmonid habitat (Hagans and Weaver, 1987; Harr and Nichols, 1993; Flosie et al., 1998). By upgrading these stream crossings the project helps ensure that the biological productivity of the watershed's streams is minimally impacted by future road-related erosion, and that future storm runoff can cleanse the streams of accumulated coarse and fine sediment, rather than depositing additional sediment from managed areas. These sites are partially permitted through an existing Prop. 50 1600 Streambed Alteration Agreement and the Navarro Watershed Permit Coordination Program.

Upper Mainstem Russian River—Riparian Restoration

In consultation with the Natural Resources Conservation Service (NRCS) and Yokayo Rancheria Band of Pomo Indians tribal representatives, MCRCD will provide design, oversight, and project performance assessment to restore approximately two acres of riparian along the Upper main stem of the Russian River between Hopland and Talmage in Mendocino County. The Yokayo tribe outreached to the NRCS and the RCD for assistance with eradicating Vinca major from the riparian in order to replant the area with native plants historically used in basket-weaving. An existing permit will serve to cover project activities. "95% of the historic riparian has been lost in California..." and "when non-native species" such as Vinca major "dominate the riparian zone, native plants cannot become established" (CA Salmonid Stream Habitat Restoration Manual, Chapter XI). Currently, MCRCD has funding to remove invasive species in the Russian River watershed, and this project also allows the MCRCD to serve the Native American community. MCRCD has been working in partnership with Sotoyome RCD in the *Arundo Donax* eradication effort in the Russian River and its tributaries, and recently included other invasive species in its program. Vinca major is a known host of the blue-green sharpshooter which transmits Pierce's Disease, a fatal disease to grapes. Eradicating this invasive will reduce the potential transmission of the disease to neighboring vineyards, and could affect the economic viability of the local wine industry.

Project Description

Project Element 1: Description for Little North Fork Big River Road Decommissioning Project

The Project is based on the implementation of comprehensive road inventories funded by an Integrated Regional Water Management Plan, Proposition 50 grant to identify sediment sources delivering to coho salmon streams in the Noyo and Big River watersheds. The 27 road decommissioning sites are based on a prioritization process with stakeholders, including DFG Senior Biologist, Doug Albin, and recommended in the DFG Basin Plan. The Project objective is to decommission 3 miles of road to prevent sediment delivery to Berry Gulch, tributary to the Little North Fork of Big River. The decommissioning will prevent an estimated 6,024 cubic yards of sediment to streams in Jackson Demonstration State Forest during the next decade.

Project Element 2: Description for Rancheria Creek Fish Passage Restoration Project

Galbreath Wildlands Preserve (Sites 5 and 9)

Two existing bridge crossings on a Class 1 tributary to Rancheria Creek, are under-designed for peak storm flows and both also constrict the stream channel, resulting in upstream and downstream bank erosion. These crossings will be replaced with bridges with sufficient span to not constrict the active channel and provide crossing capacity for 100-year recurrence interval storm flow. Additional treatments at these sites include the removal of over 300 yd³ of road fill from the stream channel and approximately 600' of road shaping. In addition to improving fish passage, the upgrade of these two sites will result in preventing approximately 340 yd³ of future erosion and sediment delivery to a Class 1 stream.

Lawson Property (Sites 111, 163, and 173)

These three stream crossing culverts are located in Class 1 tributaries to Rancheria Creek and are vertical and velocity barriers to fish passage. Sites 163 and 173 will be replaced with 55' and 45' long bridges respectively. The existing 36" culvert at Site 111 will be replaced with an 84" diameter embedded culvert, providing a natural channel bed throughout the crossing and the capacity for 100-year recurrence interval storm flows. In addition to providing for fish passage and access to approximately 1.26 miles of

fish habitat, the road reconstruction at the 3 sites will result in preventing approximately 450 yd³ of future erosion and sediment delivery to Class 1 streams.

Project Element 3: Description for Yokayo Rancheria/Upper Russian River Riparian Restoration Project

In consultation with the Natural Resources Conservation Service (NRCS) and Yokayo Rancheria Band of Pomo Indians tribal representatives, MCRCD will provide design, oversight, and project performance assessment to restore approximately two acres of riparian along the Upper main stem of the Russian River between Hopland and Talmage in Mendocino County. An existing permit will serve to cover project activities. The Tribe has requested that no herbicides will be used, and re-planting will occur with site specific, appropriate plant material. MCRCD has designed, implemented, and conducted similar projects in Forsythe Creek in the Russian River watershed and Robinson Creek in the Navarro River watershed.

Scientific and Technical Merit Discussion: Rationale for the Project

Road Decommissioning: Sediment delivery to stream channels from roads and road networks has been extensively documented, and is recognized as a significant impediment to the health of salmonid habitat (Harr and Nichols, 1993; Flosi et al., 1998). Unlike many watershed improvement and restoration activities, erosion prevention through "storm-proofing" rural, ranch, and forest roads provides immediate benefits to the streams and aquatic habitat of a watershed (Weaver and Hagens, 1999; Weaver et al., 2006). It measurably diminishes the impact of road related erosion on the biological productivity of the watershed's streams, and allows future storm runoff to cleanse the streams of accumulated coarse and fine sediment, rather than allowing sediment delivery and in-stream deposition from managed areas. To reduce sediment input to stream channels, this project will implement priority site-specific treatments recommended by the *Noyo-Big River Watershed Management Plan Project, Part 1: Hare Creek and Little North Fork Big River Watersheds* (PWA, 2008). Little North Fork Big River (LNFBR) is a productive anadromous salmonid bearing stream tributary to Big River on the Mendocino Coast. This drainage contains steelhead trout and coho salmon (Flosi et al., 1998). Currently, road related erosion is a recognized threat to water quality and salmonid habitat in within the basin. To address road related erosion problems in the LNFBR watershed, the Mendocino County Resource Conservation District (MCRCD) contracted Pacific Watershed Associates Inc. (PWA) to assess a network of roads on Jackson Demonstration State Forest (JDSF) property, a publicly owned working forest approximately 20 miles west of Willits, California. PWA geologists completed an assessment of 15.2 mi of roads on the property during the summer of 2008. The goals of the assessment were to (1) identify and quantify all current and potential erosion problems associated with selected access roads and significant spur roads on the property; and (2) develop a prioritized plan for long-term erosion control and erosion prevention for these roads. The sustainability and preservation of salmonid habitat in the Big River watershed, and achievement of TMDL targets for reduction of anthropogenic related sediment discharge, will be enhanced through the implementation of road decommissioning for erosion remediation.

Stream Crossings and Fish Passage: Fieldwork included collecting survey data at most stream crossings using standard tape and clinometer techniques. These data were used to develop longitudinal profiles and cross sections for the stream crossings, and calculate sediment volume using the STREAM computer program. The survey data for these locations allow for quantitative, accurate, and reproducible estimates of: 1) future erosion volumes, which reflects the consequences of a possible storm-generated washout at the stream crossing; or 2) upgrading volumes, which estimates excavation requirements to complete a variety of road-upgrading and erosion-prevention treatments (i.e., culvert installation, culvert replacement, complete excavation, etc.). Where new or replacement stream crossing culverts were being recommended for installation, the culverts were sized using two different methods to predict the 24 hour, 100-year recurrence interval discharge. The culvert sizing calculations occurred at all stream crossings where the field estimated channel dimensions were greater than three foot by one foot in cross sectional area. The two methods were: 1) The Rational Method (Dunne and Leopold, 1978), an analytical approach based on rainfall intensity and watershed characteristics for drainage areas less than 80 acres; or for drainage areas larger than 80 acres, the empirical equations of the USGS Magnitude and Frequency Method (Wannanan and Crippen 1977), and 2) the Hasty Method, a field determination of predicted peak flow based on estimating flood flow channel dimensions. Data analysis

occurred when all the inventory information had been collected, properly entered in the database, and checked for completeness. The use of a relational database allows for rapid data analysis. Data searches were performed to isolate the nature, frequency and magnitude of a host of problems and treatments. Specific searches included analyses of the frequency and volume of potential sediment delivery associated with each sediment source, the frequency of undersized culverts, and stream crossings with a potential diversion or fish-passage barrier.

Riparian Restoration: Many non-native plants naturalize without regimes, interrupting successional processes, consuming a disproportionate amount of water, or otherwise interfering with ecosystem processes. Additionally, invasive non-native plants have socioeconomic costs associated with prevention, control, and mitigation, as well as indirect costs associated with impacts to ecological services. And causing perceptible harm to the system; however, some non-native plants possess both the potential to disrupt the structure and function of native ecosystems and the ability to rapidly expand their range and population size in their new habitat. These plants may pose a serious threat to native plant and animal communities by outcompeting native vegetation... (West Coast Watershed, *Upper Rancheria Preliminary Biogeomorphic Assessment*, 2006). *Vinca major* (Periwinkle) is an invasive plant that has the potential to negatively impact the upper Russian River watershed. Chapter XI of the *California Salmonid Habitat Restoration Manual* specifically identifies *Vinca*, "Species such as the invasive, nonnative periwinkle (*Vinca major*) are systemic hosts for the bacteria and a breeding/feeding host for the blue-green sharpshooter. These plants are a high priority for removal from an economic perspective, and their removal benefits native riparian habitat as well." Besides serving as a deleterious pest host to vineyards, invasive plants further impact the religious and traditional culture of Native American tribes, "Indigenous cultures have relied upon riparian plants for thousands of years, using streamside and wetland plants for basket-making, as a source of food, and for medicinal purposes."

http://www.elkhornsloughctp.org/uploads/1130370943CDFG_manual_XI_final_Part1.pdf

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	<ol style="list-style-type: none"> 1. Develop agreements with Pacific Watershed Associates (PWA), and Yokayo Rancheria for services; update/execute landowner access agreements 2. Develop access and maintenance agreements with landowners 	<ol style="list-style-type: none"> 1. Copy of agreements with PWA for fish passage restoration and road decommissioning projects, Yokayo Rancheria to assist with invasive removal and revegetation 2. Copies of access and maintenance agreements
1.2	Project Performance Plan Development	Develop project performance plan	Approved project performance plan
1.3	Quarterly Reports	Write quarterly progress reports	Quarterly progress reports
1.4	Final Report	Write final report documenting the work accomplished, any challenges, and results.	Final report
1.5	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring companies 2. Execute service agreement with most competitive LCM company 	Copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		
2.1	CEQA Development	<ol style="list-style-type: none"> 1. Request copy of FRGP permits from CDFG for road decommissioning project 2. Provide copy of NOD for Navarro Coordinated Permitting Program for fish passage restoration project 3. CEQA not required for invasive removal and revegetation 	<ol style="list-style-type: none"> 1. Copy of CDFG's regional programmatic permit 2. Approved CEQA 3. N/A
2.2	Permit Development: 401	<ol style="list-style-type: none"> 1. Request permitting documents from CDFG for road decommissioning 2. Apply for RWQCB 401 permit for fish passage restoration projects 3. N/A for riparian removal/revegetation 	<ol style="list-style-type: none"> 1. Submit CDFG's FGRP permitting documentation 2. Submit approved 401 permit 3. N/A for riparian removal/ revegetation

#	Work Task Title	Work Task Description	Deliverables
2.3	Permit Development: 404	<ol style="list-style-type: none"> 1. Copy Navarro Coordinated Permitting program documents for 404 for fish passage restoration projects 2. Request permitting documents from CDFG for road decommissioning 3. N/A for invasive removal and revegetation 	<ol style="list-style-type: none"> 1. Submit documentation from Navarro Coordinated Permitting program for 404 for fish passage restoration 2. Submit CDFG's FGRP permitting documentation 3. N/A for invasive removal and revegetation
2.4	Permit Development: 1600	<ol style="list-style-type: none"> 1. Amend existing CDFG 1600 Navarro Programmatic permit to include fish passage restoration projects 2. Request copy of 1600 from Landowners for road decommissioning project 3. Update existing 1600 for invasive removal in Russian River watershed 	<ol style="list-style-type: none"> 1. Provide updated 1600 permit for fish passage restoration projects 2. Submit approved 1600 for road decommissioning project 3. Submit 1600 for invasive removal in Russian River watershed
3.	Planning/Design		
3.1	Assessment and Feasibility Studies	<ol style="list-style-type: none"> 1. Copy completed assessment for road decommissioning 2. Copy completed assessments for fish passage restoration projects 3. Conduct Site Review and develop preliminary planning map 	<ol style="list-style-type: none"> 1. Provide copy completed assessment for road decommissioning 2. Provide copy completed assessments for fish passage restoration 3. Provide site map
3.2	60% Design	<ol style="list-style-type: none"> 1. Complete channel analysis for fish passage barrier removal projects; design 4 bridges 2. Preliminary draft road logs 3. Develop plan with Yokayo Rancheria and qualified restoration ecologist for invasive removal, and revegetation of riparian with culturally significant native species 	<ol style="list-style-type: none"> 1. Provide copy of completed channel analysis for fish passage restoration projects and preliminary bridge designs 2. Provide copy of draft road logs 3. Provide copy of plans for invasive removal and site revegetation
3.3	Final Design/ Plans	<ol style="list-style-type: none"> 1. Perform field layout of individual upgrade and decommissioning treatments. Develop detailed final road logs and maps describing the individual project treatments and their location. 2. Complete final site designs, including 4 bridge designs, for fish passage 3. Complete final site design for invasive removal and planting of culturally significant native species 	<ol style="list-style-type: none"> 1. Detailed road logs and tables with site maps 2. Final site and 4 bridge designs 3. Final site design for revegetation with culturally significant species

#	Work Task Title	Work Task Description	Deliverables
4.	Construction/ Implementation		
4.1	Construction administration	<ol style="list-style-type: none"> 1. Develop work schedule for road decommissioning; request access; order materials and supplies; schedule deliveries 2. Develop work schedule for fish passage barrier removal; request access; order materials and supplies; schedule deliveries 3. Develop work schedule with Yokayo Rancheria; request access; order materials and supplies; schedule deliveries 	<ol style="list-style-type: none"> 1. Work schedule; access agreements; copies of invoices
4.2	Construction contracting	<ol style="list-style-type: none"> 1. PWA will provide copies of subcontracts to MCRCD for road decommissioning 2. PWA will provide copies of subcontracts to MCRCD for fish passage projects 3. MCRCD will partner with Yokayo Rancheria to hire tribal members to remove invasive plants and replant with native vegetation 	<ol style="list-style-type: none"> 1. Copies of subcontracts 2. Copy of agreement for services with Yokayo Rancheria.
4.3	Mobilization and site preparation	<ol style="list-style-type: none"> 1. Designate staging area(s) for materials/equipment for each project or each project site 2. Move-in equipment for each project 	Project updates to be reported in quarterly progress report
4.4	Decommission 3 miles of Road	<ol style="list-style-type: none"> 1. Excavate approx. 11,100 yards of soil 2. Remove culvert or Humboldt crossing 3. Rip road surface to reduce surface run-off 4. Outslope or excavate unstable sidecast material 5. install cross-drains or deep water bars 6. Seed and mulch all exposed soils 	Project updates to be reported in quarterly progress reports
4.5	Fish Passage Barrier Removal	<ol style="list-style-type: none"> 1. Remove existing crossings and associated sediment 2. Install 4 bridges 3. Install 1 embedded culvert sized for 100-year storm event 4. Disconnect road surface run-off from sediment delivery sites 	Project updates to be reported in quarterly progress report
4.6	Yokayo Rancheria Riparian Restoration	<ol style="list-style-type: none"> 1. Flag areas for hand vs. mechanical removal 2. Remove vegetation by hand and/or mechanical methods 	Project updates to be reported in quarterly progress report

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 3. Seed and mulch exposed soils 4. Replant with native plants 5. Install irrigation as needed 	
4.7	Demobilization	<ol style="list-style-type: none"> 1. Move out of all heavy equipment from road decommissioning project 2. Move out of all heavy equipment from fish passage barrier removal sites 3. Remove equipment from invasive removal site 	Project updates to be reported in quarterly progress report or Final report
5.	Project Performance Assessment		
5.1	Photo documentation	<p>Take pre- and post- project photos of each site:</p> <ol style="list-style-type: none"> 1. Road Decommissioning sites 2. Fish Passage Barrier Removal sites 3. Riparian Restoration Site 	Before and after photos for each project site including views of 3 miles of decommissioned road, 4 bridge sites, one culvert site, and the invasive removal and riparian revegetation site.
5.2	Site Inspection	Evaluate Yokayo Rancheria sites for regrowth; remove and revegetate as prescribed for 3 years	Project updates to be included in quarterly reports
6.	Maintenance		
6.1	Maintenance Agreement Development	<ol style="list-style-type: none"> 1. Execute agreement with CalFire to provide project maintenance for a minimum of 10 years 2. Execute agreements with Lawson and Galbreath Wildland Preserve to provide project maintenance for a minimum of 10 years 3. Execute agreement with Yokayo Rancheria to provide maintenance of riparian restoration project for a minimum of 10 years 	Copies of each maintenance agreement

355 - Real-Time Weather Data for Irrigation Water Management, Del Norte Resource Conservation District

GENERAL INFORMATION: Real-Time Weather Data for Irrigation Water Management	
Project Title	Real-Time Weather Data for Irrigation Water Management
Project Abstract	<p>Del Norte Resource Conservation District (District) and its partners, through the Real-Time Weather Data for Irrigation Water Management Project, propose to link the northwest California irrigated pasture and specialty cropland within its district to a monitoring system typically used throughout the state. This will be done through the adoption of a CIMIS station. The California Irrigation Management Information System (CIMIS) is an integrated network of over 125 automated active weather stations located throughout California.</p> <p>The primary purpose of CIMIS is to make available to the public information useful in estimating crop water use for irrigation scheduling. Reference evapotranspiration (ET_o) is calculated from this data and stored in a database along with the collected climatic data. Users can access the stored data via the Internet. ET_o data gathered will be used to improve Natural Resources Conservation Service (NRCS) recommended irrigation schedules and water use budgets. The District will email a separate irrigation water management report to growers throughout the irrigation season and University of California Cooperative Extension will provide outreach to producers outside of our area that may find similar benefits. The efficient use of water resources benefits all by saving water, energy, and money. Station installation and maintenance will be a cooperative effort between the landowner, the District, and the California Department of Water Resources (DWR). CIMIS provides current conservation technology to a remote area for minimum investment.</p>
Organization	Del Norte Resource Conservation District
Contact Name and Title	Andrea.souther@ca.usda.gov
Disadvantaged Community	Del Norte County
Grant Funds Requested	\$5000
Non-State Match	\$5,420 (other State funds:\$4,440)
Total Budget	\$14,860
Watershed	Smith River
County	Del Norte
Status of project design and bid solicitation efforts	Complete
Titles of Plans and Specifications submitted in hard copy format	CIMIS Weather Station Overview, Siting Info, Sponsor Specs
Status of CEQA, NEPA, and other environmental laws	This is not a CEQA "project" NEPA is complete
Work that will be completed prior to June 1, 2011	Siting and 50% of Land Use Agreement has been completed
Merits of the building	The California Irrigation Management Information System (CIMIS) is a program in the Office of

GENERAL INFORMATION: Real-Time Weather Data for Irrigation Water Management	
materials or computational methods that were or will be used for project development	Water Use Efficiency (OWUE), California Department of Water Resources (DWR) that manages a network of over 120 automated weather stations in the state of California. CIMIS was developed in 1982 by the California Department of Water Resource and the University of California at Davis to assist California's irrigators manage their water resources efficiently.
Procedures for coordination with partner agencies and organizations	Complete
Status of acquisition of land or rights-of-way, if applicable	Land Use Agreement has been draft and waiting signature once funding is secured
Standards, such as construction standards that will be used in implementation	CIMIS Weather Station Siting Criteria and Equipment Requirements Standard

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Make local crop water use data available to land managers	Number of operations trained to use CIMIS information

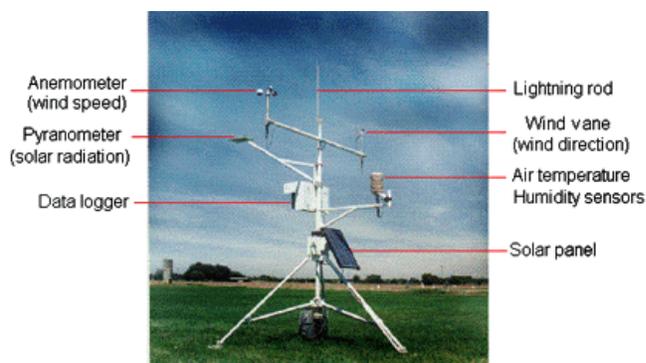
Description of the Purpose and Need of the Project
Lack of California Irrigation Water Management Information System data limits the scientific information available for our area. The primary purpose of CIMIS was to make available to the public, free of charge, information useful in estimating crop water use for irrigation scheduling. Although irrigation scheduling continues to be the main use of CIMIS, the uses have been constantly expanding over the years.

Project Description
Del Norte Resource Conservation District (DNRCD) proposes to link the northwest most corner of our state with the California Department of Water Resource's California Irrigation Management Information System (CIMIS). The unique climate of the Smith River Valley in Northwest California has allowed for the development of the Easter lily bulb industry and sustained small pasture based dairies since the 1850s. The valley is host to 10,000 acres of highly productive irrigated pasture, hay, silage and horticultural crop land. Due to Del Norte County's remote location, small size and limited quantity of farms it has a history of being underserved by the state and federal agencies including until recently NRCS. The area recently formed the conservation district and with that has come an NRCS soil survey, district management of public lands for wildlife habitat and the districts formation of a weed management area. NRCS, the DNRCD and local growers have identified wind speed, evapotranspiration, temperature (air and soil) and rainfall data as a necessary to producer's irrigation water and pest management programs. Now that the district has developed working relationships with individual producers, producer groups, and county/state government coordinating an effort such as the establishment of a weather station benefitting the land and resources of the area is within our scope.

Inefficient irrigation not only wastes water and resources, but also leaches or transport nutrients and other amendments. Conversely, if insufficient water is applied, productivity of the soil is impaired affecting plant development or possibly senescence. Therefore, a major part of irrigation management is deciding when to irrigate and how much water to apply. This requires a basic knowledge and understanding of soil-water-plant relationships.

The nearest weather station, Point St. George, measures maritime weather conditions on a prominent coastal bluff, providing no useful data for agricultural producers. Agrimet operates a station in Brooking, Oregon, but this area is known as a “banana belt” with an average temperature 4 degrees higher and common summer temperature differences greater than 10 degrees. Smith River Valley producers would use local data with more confidence and make inferences from local historical that better reflect our site. Solutions such as the purchase of a smaller locally managed weather station were considered. In this case, the management of data by DWR’s CIMIS network and ease of internet access to the data was a benefit that outweighed the lower cost of a individual.

The primary purpose of CIMIS was to make available to the public, free of charge, information useful in estimating crop water use for irrigation scheduling. Although irrigation scheduling continues to be the main use of CIMIS, the uses have been constantly expanding over the years. At present, there are approximately 6,000 registered CIMIS users from diverse backgrounds accessing the CIMIS computer directly. It is estimated requests for CIMIS information on the WWW average about 70,000 per year. There are also many secondary suppliers of CIMIS weather data, such as other web sites, radio, newspapers, consultants, and local water agencies.



DWR’s water use division manages the data received from stations and provides technical support to maintain the stations on the CIMIS network, however, DWR does not purchase the station or lease land the station is located on. A station meeting CIMIS specifications will cost \$7400 while our total project budget is \$14,860. The difference being the coordination, sighting, installation, maintenance, data processing, and education outreach in the first year of the stations adoption. The district is requesting \$5000 from the prop 84 and has already obtained pledges of a \$1000 cash match from the Smith River Rancheria, University of California Cooperative Extension and local donors. Additional, in-kind match is abundant. DWR staff time to site and install the station is estimated at over \$3260 in in-kind services. A producer, already identified will be signing a cooperative agreement with the state of California for station sighting on private land and monthly maintenance. This type of in-kind service is not easily quantifiable.

Identification and quantification of the input and output components of water to the plant root zone are very important in irrigation management. Water inputs to the plant root zone include rainfall, irrigation water, and capillary rise from ground water. The outputs include runoff, evapotranspiration, and deep percolation.

Determining the inputs and outputs of water, to and from the plant root zone, is a very complex process. CIMIS was established in 1982 to assist California’s irrigators in managing their water resources efficiently by providing estimated and measured values of some of the parameters mentioned above. Specifically, CIMIS provides estimated and measured values of evapotranspiration and rainfall, respectively. Users need to estimate the remaining parameters by utilizing a soil-water budget analysis method includes other factors such as soil type, plant type, slope, rooting depth, plant density, etc.

A mobile irrigation laboratory conducted audits in 2007 that aided in determining actual water application rates, distribution uniformities, inefficiencies and irrigation schedules across the valley. If installed, ETo and rainfall data would be used to follow-up on this audit. As the 2010 irrigation season starts NRCS will use CIMIS to develop soil water budgets with producers and irrigators demonstrating how CIMIS may assist in their decisions on when to irrigate and how much water to apply. The District will assist five producers in using this local weather data for irrigation water management.

Going beyond irrigation management, soil moisture and climatic conditions from this station will be monitored and analyzed by

the Easter Lily Research Foundation and distributed to growers via email leading to adjustments to inputs and labor while having the potential to increase crop quality through soil moisture and pest management adjustments.

To develop an understanding of how producers will realistically use the data producers were asked for their input. Although, producer interest in a local weather station has been high concerns have been raised as to the relevance of data without historical data for comparisons. There is a general curiosity in rainfall totals and developing historical weather data for the area. Grass growers also stated they would like to use weather information to determine if there was enough rain to delay irrigation and adjust schedules. Bulb growers will use weather data make production predictions based on climatic factors.

Project oversight and inspection will be conducted by the Resource Conservation District directors.

- District Manager RCD - Project management will be conducted by RCD District Manager, who will coordinate partners to meet the work plan timeline, document data collection and prepare reports
- Andrea Souther – NRCS District Conservationist lead the development of irrigation schedules and budgets. Monthly station maintenance will also be organized by Andrea.
- Producer 1 – will work with DWR and the RCD to site the station in a location that meets DWR’s requirements and producers limited area they are willing to sacrifice.
- Deborah Giraud, University of California Cooperative Extension, will provide outreach through Humboldt/Del Norte County Farm Advisor newsletter.
- Mark Rivera, Associate Land and Water Use Scientist Land and Water Use Section Department of Water Resources will assist the district in site selection, agreement facilitation, installation and maintenance.

Benefits would include increased irrigation efficiencies on over 3000 acres of irrigated pasture and use of best management practices for pesticide drift on 200 acres of cropland within an agriculture urban landscape. Outreach to producers outside of Smith River will be done through a UCCE newsletter.

Applications of CIMIS data in the planning and management of resources include not only water use, but are also transferable to water quality, planning water balances, water shed maintenance, air resources monitoring and predicting, and forestry management. Modeling is becoming ever more important with CIMIS data being automatically downloaded into degree-day, pest management, and plant and weather models. These uses are being applied at the local, regional, State, and Federal level. Some of the users and uses of the CIMIS data include:

- Farm commodity purchasers for predicting product quality
- Waste water facilities planning and management
- Local and state water planners and managers
- Legal and Insurance Firms for documentation and litigation
- High schools for educational purposes
- Homeowner associations for water conservation
- Air quality monitoring assistance
- Federal Agencies for resource management and studies
- Users from other countries for planning and development of similar networks

- California State Department's providing public assistance and water use planning
- Automated Severe Weather Warning Systems
- Solar and wind power design
- Hydrological modeling for water availability
- University of California Integrated Pest Management Project for degree-day calculations and pest and plant modeling
- Urban landscape planning and managing

Successful completion of this project will include the installation of a CIMIS weather station and adaption of its data as part of agricultural Best Management Practices. To evaluate the adaption producer's use of weather data by growers, a verbal survey will be conducted to document any changes in management that occurred or are being considered.

To assist with irrigation efficiency improvements NRCS will offer to develop irrigation season soil water budgets with producers. At the end of the season a review of irrigation vs. weather data with five of the producers will be considered successful for this task.

Scientific and Technical Merit Discussion: Rationale for the Project

The two models that are used in CIMIS are the Penman-Monteith and a version of Penman's equation modified by Pruitt/Doorenbos (Proceedings of the International Round Table Conference on "Evapotranspiration", Budapest, Hungary. 1977). The Modified Penman employs a wind function developed at UC Davis. The version used in

CIMIS uses hourly weather data to calculate ETo instead of daily weather data. Hourly averages of weather data are used in the "model" to calculate an hourly ETo value. The 24 hourly ETo values for the day (midnight to midnight) are summed to result in daily ETo. Air temperature, wind speed, and relative humidity are measured directly at each weather station. Vapor pressure is calculated from relative humidity and air temperature. Hourly net radiation is estimated using a method developed by the University of California. This method uses solar radiation, vapor pressure, air temperature, and a calculated monthly cloud coefficient (CK).

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management		Sub-Contract Agreement
1.2	Project Performance Plan Development	Develop performance plan	Performance Plan
1.3	Quarterly Reports	Provide quarterly progress reports	Financial Progress Summary
1.4	Final Report	Provide Final Project Report	Final Project Report
1.5	Obtain cooperative agreement	Obtain signed cooperative agreement 1. Contact landowner 2. Develop draft agreements 3. Sign agreements	Cooperative agreement
2.	Environmental Documentation		
2.1	CEQA Development	1. Determine whether the activity is subject to CEQA 2. Conduct preliminary project review 3. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 4. Prepare Initial Study per CEQA Guidelines Section 15063 if needed 5. Prepare a notice of determination ND	Notice of Determination
2.2	NEPA Development	Prepare environmental evaluation	EQIP EA and FONSI January 2010
3.	Planning/Design		
3.1	Assessment and Feasibility Studies	Site selection	Location Map
3.4	Final Design/ Plans	Identification of materials/equipment	CIMIS weather station equipment standard

#	Work Task Title	Work Task Description	Deliverables
4.	Construction/ Implementation		
4.1	Mobilization and site preparation	<ol style="list-style-type: none"> 1. Procure materials/equipment 2. Receipt of CIMIS weather station 	Shipping Receipt
4.2	Project Construction	<ol style="list-style-type: none"> 1. Prepare site and implement operation and maintenance plan (landowner, RCD) 2. Install Data Transfer Line (contractor) 3. Install weather station (DWR) 	Photo of installed station and data sheet from the CIMIS website
4.3	Implement Use	Outreach - Inform irrigators	Meeting agenda, newsletter or documentation of individual analysis
5.	Project Performance Assessment		
5.1	Post Project Assessment	Request website use history from DWR	Website activity analysis
6.	Maintenance		
6.1	Maintain data transfer Calibration and site check	System testing and verification of operation of all system components will be conducted as part of maintenance and operation.	Summary Report from DWR

441 - Waterfall Gulch Transmission Main, City of Fort Bragg

GENERAL INFORMATION:	
Project Title	Waterfall Gulch Transmission Main Project
Project Abstract	Waterfall Gulch Transmission Main Project includes the replacement of a 50 year old existing 8" Waterfall Gulch Raw Water Transmission Main with 10" PVC. There is limited access to the existing main line and replacement will incorporate solutions for better access to the line in case of emergency, along with carrying a guarantee of a service life of not less than 75 years. Construction of a new main line will reduce the amount of water pumped from the Noyo River, which is a critical habitat for salmon.
Organization	City of Fort Bragg
Contact Name and Title	Crystal Prairie, Public Works Project Analyst
Disadvantaged Community	Fort Bragg
Grant Funds Requested	\$550,000
Non-State Match	\$238,305
Total Budget	\$788,305
Watershed	Noyo River
County	Mendocino
Status of project design and bid solicitation efforts	Design complete, ready to go to bid as soon as funds are identified.
Titles of Plans and Specifications submitted in hard copy format	Waterfall Gulch Transmission Main State Highway 20 to Brush Creek Road Plans and Technical Specifications
Status of CEQA, NEPA, and other environmental laws	CEQA complete, Categorical Exemption. NEPA not required.
Work that will be completed prior to June 1, 2011 (assumed contract date)	None
Merits of the building materials or computational methods that were or will be used for project development	Construction will follow Federal, State, Local (Mendocino County) and Tribal standards and requirements.
Procedures for coordination with partner agencies and organizations	Partner agencies are contacted and invited to attend pre-project site visits and meetings to coordinate stakeholders that will be held before, during and after project implementation.
Status of acquisition of land or rights-of-way, if applicable	Existing easement and Right-of-way
Standards, such as	City of Fort Bragg Standard Specifications and Plans, and most recent Standard Specifications of

GENERAL INFORMATION:	
construction standards that will be used in implementation	the State of California, Department of Transportation, Division of Highways.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Improve System Reliability	<ul style="list-style-type: none"> • Install pipe that is certified to provide a service life of not less than 75 years. • Use improved quality of material for new pipe in order to eliminate possibility of breaks causing damage to surrounding sensitive areas due to limited access to current main.
2.	Maintain Critical Water Supply for DAC	<ul style="list-style-type: none"> • Avoid Stage Water Emergencies by replacing pipeline allowing spring fed Waterfall Gulch to supply more water to City.
3.	Improve System for on-going Operation & Maintenance	<ul style="list-style-type: none"> • Re-establish currently restricted access to pipeline. • Relocate sections of easement to existing public roadways & utility easements wherever possible. • Control regrowth of vegetation within limits of pipeline easement where construction requires clearing. • Install copper locating wire to facilitate pipe location after construction.

Description of the Purpose and Need of the Project
<p>Replacement of existing asbestos cement pipe that is exposed to the elements along a portion of the line being replaced will reduce risk of contamination of the surrounding environment and Scholars Bog (Wetland Area). New piping will eliminate the leaks that have occurred numerous times causing loss of raw water from one of the City's main water sources. Loss of water requires additional water to be drawn from other sources, such as the Noyo River which increases pump costs and reduces the water available for fisheries. Realignment of the pipe will provide better access from public right of way which will also reduce potential damage to the Pygmy Forest when materials and equipment need to be brought on site to repair damaged or leaking pipe as it currently exists. A hydraulic model was completed during the preliminary design process and the new pipe will be sized to maximize capacity of water allowed from Waterfall Gulch under the current license. This source is all gravity flow and the more the use can be maximized the less energy and cost will be required from the Noyo River source.</p>

Project Description
<p>The Project includes replacement of the existing 8" water main between State Route 20 and Brush Creek Road with 5400 lineal feet of new 10" PVC C900 Class 235 pipe from Highway 20 along the existing pipeline easement to a point where the line crosses Thomas Lane, just south of the Scholars Bog (wetland), then on a new alignment along the easterly side of Thomas Lane to Brush Creek Road, then east along Brush Creek Road to a point that intersects the existing raw water transmission line and tie into that point. The remainder of the main line will be replaced from Brush Creek Road to a proposed new reservoir approximately 1500' to the northeast of the intersect location, but this will occur at the time of reservoir construction. This project may be phased so that the portion between Thomas Lane and Brush Creek Road (+/- 3400 lineal feet along a proposed</p>

alternative alignment) be considered Phase I, and the section of the project between State Highway 20 and Thomas Lane (+/- 1600 lineal feet along the existing alignment) be considered Phase II.

As far as the planning process for the DAC of Fort Bragg, the City has a Capital Improvement Program incorporated into the annual budget and the program is updated and modified during the budget process. Capital projects are recommended by City staff as well as by the Public Works and Facilities Committee, which is a subcommittee to the City Council. Projects are identified and prioritized during the review at staff and sub-committee level, but finalized for inclusion within the Capital Program by the City Council. In the current fiscal year the Waterfall Gulch Raw Water Line replacement was approved by the City Council for engineering design and preparation of plans and specifications so the project will be shovel ready in the event a funding source is identified and replacement of the old raw water main line can occur within a shorter timeframe.

Scientific and Technical Merit Discussion: Rationale for the Project

The City of Fort Bragg contracted with KASL Consulting Engineers from Citrus Heights to evaluate the existing raw water pipeline running between State Route 20 and Brush Creek Road to determine hydraulic needs and potential design and routing for replacement of the old existing main line. The City followed a Request for Proposal (RFP) process and after evaluation of submittals selected KASL Engineering to complete the work as outlined within the RFP. A series of Technical Memorandums were generated by KASL including evaluation of Constraints and Opportunities; Design Criteria; and Preliminary Design, Mapping and Project Descriptions to Support Environmental Permitting Process. These memorandums fully evaluated existing right of way and opportunities to utilize alternate public right of way, constraints for construction, avoiding sensitive habitat areas and sizing and hydraulics of any new line proposed. Based upon field surveys and evaluations KASL prepared plans and specifications for replacement of approximately 5300 lineal feet of pipeline and prepared improvement drawings and technical specifications ready to bid this project for construction.

The plans include general construction notes and specific details, plan and profile sheets of the entire section of pipe to be installed, details for connection to existing piping at each end of the project, typical trench sections, detail and location for air release valves, detail and location for flushing connection and drain, numerous details of City Standards applicable to this project and a final sheet for Erosion Control Notes and Details.

Also provided are Technical Specifications that provide all necessary technical data to all components of construction that can be added to the City's standard contract that will provide any underground contractor with the adequate detail to be able to fully construct the project as designed.

KASL Engineering is an experienced Civil Engineering firm and City Staff is confident that the evaluation provided and the preparation of plans and technical specifications are quality work and prepared by a professional firm.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Quarterly Reports	<p>Reports will be submitted quarterly from June 2011 through completion date. The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the agreement.</p> <p>The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.</p> <p>Provide percent complete status for all project tasks</p>	Quarterly Reports- submitted every 3 months until completion
1.2	Final Report	<p>A draft will be provided 30 days before the end of Grant Agreement.. The report shall include the following narrative sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a description of the approach and techniques used during the project.</p> <p>A list of the task deliverables.</p> <p>Determination of whether the purpose of the project has been met.</p> <ol style="list-style-type: none"> 1. Track project activities 2. Summarize project activities, achievements and difficulties 3. Prepare Draft Project Report 4. Provide Draft report to appropriate agencies for review and comment 5. Prepare Final Project Report 	Final Report
1.3	Labor Compliance Monitoring	Conduct Labor Compliance monitoring	Labor Compliance Report
2.	Environmental Documentation		
2.1	CEQA Development	<p>CEQA Documentation</p> <ol style="list-style-type: none"> 1. Conduct preliminary project review 2. Notify Native American Heritage Commission to determine if tribal traditional 	CEQA Document

#	Work Task Title	Work Task Description	Deliverables
		lands are in the project area; notify tribes about the project and solicit input per PRC §75102 3. Prepare Initial Study per CEQA Guidelines Section 15063 4. Prepare CEQA Documentation	
2.3	Permit Development	Obtain Mendocino County Encroachment permit prior to construction.	Mendocino County Encroachment Permit
3.	Planning/Design		
3.1	Final Design/ Plans	Develop a set of final design plans and specifications ready to put out to bid. 1. Prepare Construction Inspection Plan including mechanisms to assure that project components are completed to specifications 2. Prepare Final Specifications 3. Prepare 100% Plans ready for project bidding	Final Project Design and Construction Specifications
4.	Construction/ Implementation		
4.1	Construction administration	Conduct inspection of the project including reporting and project communication 1. Assign qualified construction inspector/ engineer to the project 2. Keep daily records of construction activities, inspection, and progress 3. Verify that all work was completed in accordance with specifications 4. Test operations 5. Assure as-built drawings and other accumulated records are provided to the City 6. Prepare and record a notice of completion with the county clerk	Inspection Reports, Pay Requests, Meeting Minutes, Contractor Log, Submittals
4.2	Construction contracting: Advertise and Contract Bidding	Develop advertisement and contract documents for construction contract bidding, Includes bid analysis and recommendation of most qualified bidder. 1. Prepare bid package including final plans and specifications 2. Advertise bid opening 3. Provide bid package to interested contractors and obtain bid bond 4. Reply to all contractors with any questions submitted 5. Analyze bids based on cost and contractor qualifications	Selection of Contractor
4.3	Construction contracting: Award	Award of Contract to successful bidder, contract documents, bonds, insurance and other contract requirements.	Contract Award

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 1. Notify successful contractor 2. Prepare contract documents 3. Obtain contractor performance bond and payment bond 4. Obtain copy of contractor insurance certificate 5. Execute contract documents 	
4.4	Project Construction	<p>Construction of project components</p> <ol style="list-style-type: none"> 1. Initiate project construction 2. Order project equipment and supplies 3. Assure project permits are in place 4. Construct project components 	Construction complete
4.5	Demobilization	<p>Inspect project components and establish that work is complete. Prepare record drawings.</p> <ol style="list-style-type: none"> 1. Establish work is substantially complete by inspector 2. Prepare a list of unfinished work 3. Test operation 4. Provide record drawings and accumulated documents to City 5. Prepare a notice of completion and provide to Mendocino County 6. Prepare recommendations concerning final payments to contractors and release of retained percentages and bonds 	As-Built and Record Drawings, County Notice of Completion
5.	Maintenance		
5.1	Annual Maintenance (not IRWMP funded)	Have City Personnel walk the line twice yearly to check for leaks in new pipeline.	Maintenance reports

D. Humboldt Bay Watershed Management Area

362 – Blue Lake Fieldbrook Pipeline Support Retrofit, Humboldt Bay Municipal Water District

GENERAL INFORMATION: Project 362 - HBMWD-Blue Lake Fieldbrook Pipeline Support Retrofit	
Project Title	Project 362 - HBMWD-Blue Lake Fieldbrook Pipeline Support Retrofit
Project Abstract	Humboldt Bay Municipal Water District (HBMWD) currently supplies domestic water to the Fieldbrook Glendale Community Services District (FGCSD) and the City of Blue Lake. The water supply pipeline to those communities crosses the Mad River via a 14-inch ductile iron pipe attached to a 1930's era North Coast Railroad Authority (NCRA) bridge, which was not built to modern seismic standards. The bridge has not been used or maintained for many years, and if it fails, it will damage the HBMWD's pipeline and interrupt the sole domestic water service to Fieldbrook and Blue Lake. An inspection of the NCRA bridge was completed by Winzler & Kelly in 2007, which found the condition of the bridge to be substandard and near the end of its functional life. This project replaces the bridge with an aerial overcrossing designed to meet current seismic codes. This project addresses the critical water supply needs of the disadvantaged communities of FGCSD and Blue Lake.
Organization	Humboldt Bay Municipal Water District
Contact Name and Title	Ms. Carol Rische, General Manager
Disadvantaged Community	Blue Lake and Glendale
Grant Funds Requested	\$700,000
Non-State Match	\$903,579
Total Budget	\$1,603,579
Watershed	Mad River
County	Humboldt
Status of project design and bid solicitation efforts	A feasibility study and conceptual designs have been developed for the project but final design plans and specifications need to be completed prior to bid solicitations.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • HBMWD Mad River Pipeline Replacement Preliminary Plan Set • HBMWD Blue Lake Fieldbrook Pipeline Retrofit Project Benefit Cost Analysis
Status of CEQA, NEPA, and other environmental laws	CEQA, NEPA and other necessary permits have not been completed for this project.
Work that will be completed prior to June 1, 2011 (assumed contract date)	Feasibility study of alternatives to construct secondary pipeline across the Mad River to supply water to Fieldbrook and Blue Lake was completed by Winzler & Kelly , May 2009.
Merits of the building materials or computational methods that were or will be used for project development	The project will be designed and constructed per the 2007 California Building Code requirements and standard engineering principals. The preliminary design proposes to use new 14" flanged ductile iron pipe in conjunction with modern seismic couplers, such as the Force Balanced FLEX-TEND, which will allow movement of the pipe during an earthquake event.

GENERAL INFORMATION: Project 362 - HBMWD-Blue Lake Fieldbrook Pipeline Support Retrofit	
Procedures for coordination with partner agencies and organizations	The District will assume lead role in coordination with partner agencies. The project will be reviewed with the Blue Lake and Fieldbrook CSD staff during the monthly HBWMD “MUNI” (Municipalities) meetings. The project will also be coordinated with HBMWD’s California Department of Public Health Representative. The District has also applied for a Pre-Disaster Mitigation grant from FEMA and if the grant is obtained, the District will coordinate NEPA/CEQA and other environmental permitting as well as all other project issues.
A description of synergies or linkages between other NCIRWMP projects	<p>The project addresses loss of water service to the FGCS and the City of Blue Lake, which would result from collapse of the 1930’s era trestle bridge that supports the sole 14-inch supply line for both communities, which are part of the regional Humboldt Bay Municipal Water District (HBMWD). The area serviced by HBMWD as a whole is classified as disadvantaged, and all 7 municipal customers share costs for major repairs, thus this project secures a critical water supply to a disadvantaged community, assures a reliable supply, and addresses distribution deficiencies. The current trestle bridge is located in the 100-year flood plain; whereas the new aerial crossing would have no effect on the flood plain, which benefits regional flood planning. In addition, the HBWMD system benefits the watershed by controlling releases from Matthews dam to assure flow during the dry months, reducing temperature impairments in the Mad River and benefitting river conditions for salmonids.</p> <p>All of the projects that use water from or affect beneficial use of the Mad River and associated watershed are linked to this project. This includes the district wide water quality improvement projects, the habitat restoration projects, and the district to district intertie projects. All of the projects of the HBMWD, proposed and ongoing, are linked to this project because the money that funds these projects is reflected in the rates charged for the water delivered.</p> <p>Two NCIRWMP projects are closely linked to this project. Projects 00389 and 00381, Ranney Collector 1, 2 & 4 Lateral Replacement and Ranney Collector 3 Lateral Replacement respectively. These three projects will occur at the same time and address critical water supply to the same disadvantaged communities. All three of these projects are critical, necessary and urgent because the longer they are postponed, the higher the probability that a failure will occur that could result in a supply deficiency.</p>
Status of acquisition of land or rights-of-way, if applicable	<p>The District owns the adjacent land or has the necessary Right-of-way for the construction of the project.</p> <p>The construction phase of this project will require access to be created to the channel for a crane and hoists to complete the placement of the waterline and hangers on the tensioned cable. Construction access would include the creation of access points to the river, and temporary access roads on the river bar. Access could be created from the west side of the river on the District property near Collector 4 and would require two temporary bridges to access the location of the waterline Alternatively, a construction easement could be obtained across private property north of the proposed crossing along an existing river access, and would require only one temporary river crossing.</p>
Standards, such as construction standards that will be used in implementation	The 2007 California Building Code will be followed as well as all other applicable construction and environmental standards.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Support and improve local and regional water supply reliability	<ul style="list-style-type: none"> The goal of this project is to avoid loss of water service to residents in the communities of Fieldbrook, Glendale, and Blue Lake, CA as a result of either a seismic event or flood event within the Mad River. The objective is to construct a new crossing adjacent to the existing crossing that meets current seismic design standards and removes the crossing structure from the river channel, and therefore greatly diminishes the potential for flood damage
2.	Contribute to the long-term attainment and maintenance of water quality	<ul style="list-style-type: none"> The proposed project addresses the potential loss of water service to two communities that serve approximately 2,880 residents. By constructing a new crossing, the receiving communities will likely continue to receive potable water during flood conditions or after an earthquake. Currently, their water source is vulnerable to both these natural disasters. It is not a matter of if these disasters will happen, but when they will happen. Therefore, constructing a new crossing will address the vulnerability problems of the existing crossing's infrastructure.
3.	Provide regional environmental, recreation and other multiple benefits (social, cultural, economic).	<ul style="list-style-type: none"> This project will ensure that the District's distribution system will reliably serve the drinking water needs of the Humboldt Bay region well into the future.
4.	Provide local environmental, recreation and other multiple benefits (social, cultural, economic)	<ul style="list-style-type: none"> This project will ensure that the District's distribution system will reliably serve the local drinking water needs of the District's service area well into the.

Description of the Purpose and Need of the Project
<p>Humboldt Bay Municipal Water District (HBMWD) currently supplies domestic water to the City of Blue Lake and the Fieldbrook Glendale Community Services District (FGCSD). The Blue Lake/ FGCSD pipeline crosses the Mad River via a 14-inch ductile iron pipeline attached to a North Coast Railroad Authority (NCRA) bridge. The bridge has not been used or maintained for many years, and if it fails or collapses, it will damage the District's pipeline and interrupt the sole domestic water service to these communities. An inspection of the NCRA bridge was completed by Winzler & Kelly in December 2007. Winzler & Kelly found the condition of the bridge to be substandard and near the end of its functional life. The report also identified that the main sources of vulnerability to the bridge are an earthquake or potential damage to the footings during a flood. The proposed project is needed to ensure the safe reliable delivery of potable water to FGCSD and Blue Lake. This region of California is very seismically active and receives large storm events several times a year; both are serious threats to the existing pipeline. It is only a matter of time before the bridge crossing collapses and leaves these communities without potable water. Now is the opportunity to correct the pipeline crossing to ensure safe, reliable water delivery for years to come. The proposed project is an aerial crossing for a new 14-inch diameter pipeline, which will be designed to meet modern seismic codes and will be located out of the 100 - year flood plain.</p>

Project Description

This proposed project consists of an aerial crossing with a 14-inch diameter flanged ductile iron pipe spanning the width of the Mad River for a distance of approximately 362 - 460 feet. A steel tower with concrete footings will be built on either side of the river, above the flood plain elevation. The towers will be approximately 28 feet tall and 20 feet wide, with 12-inch diameter steel pipe columns. From each of the top corners of the tower, a 1¼-inch galvanized steel cable will span across the river to the opposite tower. The cables will extend backwards, away from the river approximately 50 feet, to the ground elevation, and will be secured to a "dead man" or anchor structure. The dead man will consist of approximately 1,600 cubic feet of concrete buried in the ground. From these cables, in a suspension bridge type style, 3/8-inch diameter cables will hang down and support the ductile iron pipe at 20-foot intervals over the river. The project will be designed to the 2007 California Building Code, which includes modern seismic provision to avoid the problems associated with the existing railroad trestle bridge crossing.

Disadvantaged Community Project Planning

HBMWD holds monthly meetings with representatives of all the municipalities, community service districts and industrial customers; termed "Muni" meetings. Many of these "Munis" qualify as disadvantaged communities including Glendale and Blue Lake. The monthly Muni meetings are a forum for discussion of operations, water quality and supply concerns, anticipated outages, infrastructure upgrades as well as product pricing. Projects are proposed and discussed in depth at these "Muni" meetings. If necessary, special planning meetings are scheduled where input from the affected customers is recorded and validated. The input garnered from these meetings becomes the basis of the planning and design for all projects that impact or are funded by the customers and clients of the HBMWD. The Blue Lake Fieldbrook pipeline project has been discussed at these meetings and the need is recognized by all Munis, and letters of support have been explicitly provided by these communities.

Scientific and Technical Merit Discussion: Rationale for the Project

Humboldt Bay Municipal Water District (HBMWD) currently supplies domestic water to the City of Blue Lake and the Fieldbrook Glendale Community Services District (FGCSD). The Blue Lake/ FGCSD pipeline crosses the Mad River via a 14-inch ductile iron pipeline attached to a North Coast Railroad Authority (NCRA) bridge. The bridge has not been used or maintained for many years, and if it fails, it will damage the District's pipeline and interrupt the sole domestic water service to these communities.

An inspection of the NCRA bridge was completed by Winzler & Kelly in December 2007. Winzler & Kelly found the condition of the bridge to be substandard and near the end of its functional life. The report also identified that the main sources of vulnerability to the bridge are an earthquake or potential damage to the footings during a flood.

The proposed project is needed to ensure the safe delivery of potable water to the receiving communities. This region of California is very seismically active and receives large storm events several times a year, both a serious threat to the existing pipeline. It is only a matter of time before the bridge crossing collapses and leaves these communities without potable water. Now is the opportunity to correct the pipeline crossing to ensure safe water delivery for years to come.

The goal of this project is to avoid loss of water service to residents in the communities of Fieldbrook, Glendale, and Blue Lake, CA as a result of either a seismic event or flood event within the Mad River. The objective is to construct a new crossing adjacent to the existing crossing that meets existing seismic design and removes the crossing structure from the river channel, and therefore eliminates the potential for flood damage. Letters of support for the project from both the City of Blue Lake and the Fieldbrook/ Glendale Community Services District are included with this attachment.

The proposed project addresses the potential loss of water service to two communities that serve approximately 2,880 residents. By constructing a new crossing, the receiving communities will continue to receive potable water during flood conditions or after an earthquake. Currently, their water source is vulnerable to both these natural disasters. It is not a matter of if these disasters will happen, but when they will happen. Therefore, constructing a new crossing will address the vulnerability problems of the

existing crossing's infrastructure.

The proposed project includes an aerial pipeline crossing with a 14-inch diameter flanged ductile iron pipe spanning the width of the river for a distance of approximately 460 feet. A steel tower with concrete footings will be built at either side of the river, above the floodplain elevation. The towers will be approximately 28 feet tall and 20 feet wide, with 12-inch diameter steel pipe columns. From each of the top corners of the tower, a 1¼-inch diameter galvanized steel cable will span between the two towers. Additional cables will extend away from the river channel for approximately 50 feet and will be secured to a "dead man" or similar anchor structure at the ground level. The dead man will consist of approximately 1,800 cubic feet of concrete buried in the ground. In a suspension bridge style application, 3/8-inch diameter galvanized steel hanger cables will then hang from the 1¼-inch galvanized steel cable to support the ductile iron pipe at 20-foot intervals over the river. A preliminary plan set of the proposed crossing is included as Attachment D in the attached Work Plan.

This project is very important to the communities of Fieldbrook, Glendale, and Blue Lake. In addition, the project is important to all the customers of HBMWD because a pipe failure at the existing crossing will likely affect them in ways other than the delivery of potable water. Other effects include the diversion of emergency equipment to fix this crossing after a natural disaster when other areas within the HBMWD system have suffered losses as well or the economic strain placed on other customers caused by the added costs of fixing a pipeline under emergency conditions as opposed to the costs associated with a planned replacement.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	Ongoing coordination with the funding and regulatory agencies as well as the project stakeholders	Correspondence as required
1.2	Project Performance Plan Development	<p>In cooperation with the County of Humboldt, DWR and other appropriate agencies, develop a Project Performance Plan that will address, at a minimum, the following elements:</p> <ol style="list-style-type: none"> 1. Identify project performance goals related to the design, permitting and construction of an aerial crossing. 2. Define performance indicators for each phase of the project. 3. Identify the method, frequency and schedule for collection of data. 4. Identify the party responsible for each phase of the project. 5. Prepare a Draft Project Performance Plan Provide a copy to all stakeholders, Humboldt County and other participating agencies 6. Revise Project Performance Plan as per agency recommendations 7. Prepare Final Project Performance Plan 	Project Performance Plan
1.3	Quarterly Reports	<p>Reports will be submitted quarterly from June 2011 through completion date. The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and problems encountered in the performance of the work under the agreement.</p> <p>The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.</p> <ol style="list-style-type: none"> 1. Prepare progress reports every three months in accordance with County of Humboldt & DWR reporting format 2. Describe project progress, such as activities completed and problems encountered in current quarter <p>Provide percent complete status for all project tasks</p>	Quarterly Report
1.4	Final Report	A draft will be provided 60 days before the end of Grant Agreement. Comment period on draft will be 30 days and Final Report will incorporate comments to the extent possible or provide explanation to comment source. The report shall include the following narrative	<p>Draft Report</p> <p>Final Report</p>

#	Work Task Title	Work Task Description	Deliverables
		<p>sections:</p> <p>An introduction section including a statement of purpose, the scope of the project, and a description of the approach and techniques used during the project.</p> <p>A list of the task deliverables.</p> <p>Determination of whether the purpose of the project has been met. Include information collected in accordance with the Project Performance Plan</p> <ol style="list-style-type: none"> 1. Track project activities, including photo documentation 2. Summarize project activities, achievements and difficulties 3. Prepare Draft Project Report to include County of Humboldt & DWR report content requirements 4. Provide Draft report to appropriate agencies for review and comment 5. Prepare Final Project Report 	
1.5	Land purchase/easement	<ol style="list-style-type: none"> 1. Identify land that is not currently part of the existing easements that will be required to connect the underground pipeline with the new suspended pipeline overcrossing. 2. Obtain agreement from property owners 3. Create legal documentation (Record of Survey, Legal Description of Property). 4. Execute easement and file with county office of records. 	<p>Milestone:</p> <p>Executed Easement Agreement filed with Humboldt County Recorder's Office</p>
1.6	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	<p>Copy of agreement with Labor Compliance Monitoring company</p>
2.	Environmental Documentation		
2.1	CEQA Development	<p>CEQA Documentation</p> <ol style="list-style-type: none"> 1. Select qualified consultant to complete the CEQA process through a qualification based selection process 2. Verify Lead Agency will be HBMWD 3. Notify Native American Heritage Commission to determine if tribal traditional lands are in the project area; notify tribes about the project and solicit input per PRC §75102 4. Conduct preliminary project review 5. Prepare Initial Study per CEQA Guidelines Section 15063 6. Conduct pre-application consultation 	<p>Notice of Preparation</p> <p>Milestone:</p> <p>Draft Negative Declaration</p>

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 7. Prepare Negative Declaration per CEQA guidelines Article 6 (Sections 15070 through 15075) 8. Circulate Notice of Intent to Adopt Proposed Negative Declaration 9. Conduct evaluation of and response to comments 10. Circulate response to comments 11. Prepare Final Negative Declaration 12. Prepare Mitigation Reporting and Monitoring Program per CEQA Guidelines 15097 13. Consideration by Lead Agency to adopt Negative Declaration 14. File Notice of Determination 	<p>Final Negative Declaration</p> <p>Notice of Determination</p>
2.2	NEPA Development	<p>NEPA may be necessary if federal funds are used to fund a portion of the project</p> <p>The basic steps of developing a Finding of No Significant Impact (FONSI) are similar to the CEQA process including but not limited to:</p> <ol style="list-style-type: none"> 1. Determine Federal Lead Agency 2. Identify project purpose and need, goals and objectives and collect site data 3. Initiate public and agency scoping 4. Identify alternatives and potential impacts 5. Prepare Draft FONSI 6. Conduct public comment period 7. Prepare response to comments 8. Issue a Record of Decision 	<p>Draft FONSI</p> <p>Final FONSI</p> <p>Record of Decision</p>
2.3	Permit Development: DFG 1600	<p>Whether or not a DFG 1600 Agreement is needed for this project will be determined when the final site is selected for the project.</p> <p>If needed, the necessary agreement will be obtained from DFG.</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data and/or perform studies as deemed necessary for permit applications 3. Prepare Streambed Alteration Agreement application (Forms FG2023 and FG2024) and submit to the California Department of Fish and Game for approval 	<p>DFG 1600 Agreement</p> <p>(Permit need is dependent upon site selection)</p>

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 4. Incorporate agency comments 5. Obtain final approved permit 	
2.4	Permit Development: 404	<p>During the scoping phase of the CEQA/NEPA process, consult with the US Army Corps of Engineers (COE) to determine the regulatory requirements of complying with Section 404 regarding dredging or filling waters of the U.S. for each of the potential alternatives.</p> <p>If a 404 permit is required, work with the COE to apply for a permit including a description of steps taken to minimize impacts to water bodies and wetlands and provide appropriate and practicable mitigation, such as restoring or creating wetlands, for any remaining, unavoidable impacts.</p> <p>COE will go through the necessary public notice and consultation steps to issue the permit.</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Complete wetland delineation, as deemed necessary, per Army Corp of Engineers (COE) 1987 Wetland Delineation Manual 4. Prepare necessary site plans for COE permit application 5. Submit application for COE Nationwide Permit (eng form 4345) if wetlands to be filled 6. Complete Mitigation and Monitoring Plan if deemed necessary for any wetlands fill 7. Conduct consultation with NOAA Fisheries—assume Formal Consultation and Biological Assessment necessary, to be submitted to COE 8. Provide additional information, as requested by the COE and/or NOAA, for application completeness, preparation of Public Notice, and final project approval 9. Obtain final permit 	Clean Water Act Section 404 Permit issued by the Army Corps of Engineers (COE), if necessary
2.5	Permit Development: 401	<p>Acquire a 401 Water Quality Certification from the North Coast Regional Water Quality Control Board for this project. The 401 permit process can be conducted simultaneously to the COE and DFG process</p> <ol style="list-style-type: none"> 1. Request pre-application site meeting with agencies 2. Collect site resource data as deemed necessary for permit applications 3. Coordinate with Regional Water Quality Control Board for at a minimum application for a Water Quality Certification (could require NPDES permit and/or SWPPP if soil and/or water discharge to water body or grading greater than 1 acre of land) 	RWQCB 401 Certification
3.	Planning/Design		

#	Work Task Title	Work Task Description	Deliverables
3.1	Assessment and Feasibility Studies	<p>Develop a feasibility study to evaluate alternatives that optimally balance the project objectives with the project costs within the temporal and environmental constraints.</p> <ol style="list-style-type: none"> 1. Define problem statement 2. Identify project objectives and scope 3. Identify and develop project alternatives 4. Analyze costs and benefits for each alternative 5. Identify preferred alternative 	Feasibility study with preferred alternative defined
3.2	Concept Design	Continue developing the preferred alternative to the point that the design can be presented to the regulatory and funding agencies. Include environmental mitigations and compliance with seismic and flood plain design criteria	
3.3	90% Design	<p>Develop a set of plans and specifications to the 90% complete level</p> <p>90% plans and specifications will be supplied to all interested parties for review and comment.</p> <ol style="list-style-type: none"> 1. Complete design details for suspension system, coupling system, and conveying system 2. Update earth work calculations 3. Prepare opinion of probable cost for bidding 4. Complete draft specifications and incorporate any permit conditions into the specifications 5. Provide 90% design plans and specifications and cost estimate to appropriate agencies for review and comment, including RWQCB and County 	<p>Structural Calculations</p> <p>Opinion of Probable Cost</p> <p>90% Plans and Specifications</p>
3.4	Final Design/ Plans	<p>Develop a set of final design plans and specifications ready to put out to bid.</p> <p>The plans and specifications will conform to all necessary requirements stipulated by the District and regulatory agencies to ensure a high quality product.</p> <ol style="list-style-type: none"> 1. Review comments from 90% specification deliverable 2. Prepare Construction Inspection Plan including mechanisms to assure that project components are completed to specifications 3. Prepare Final Specifications 4. Prepare 100% Plans ready for project bidding 	Final Project Design and Construction Specifications
4.	Construction/ Implementation		
4.1	Construction contracting:	Develop advertisement and contract documents for construction contract bidding, Includes	Advertise project bid analysis

#	Work Task Title	Work Task Description	Deliverables
	Advertise and Contract Bidding	<p>bid analysis and recommendation of most qualified bidder.</p> <ol style="list-style-type: none"> 1. Prepare bid package including final plans and specifications 2. Advertise bid opening 3. Provide bid package to interested contractors and obtain bid bond 4. Reply to all contractors with any questions submitted 5. Analyze bids based on cost and contractor qualifications 6. Conduct interviews if needed 7. Select contractor 	Selection of Contractor
4.2	Construction contracting: Award	<p>Award of Contract to successful bidder, contract documents, bonds, insurance and other contract requirements.</p> <ol style="list-style-type: none"> 1. Notify successful contractor 2. Prepare contract documents 3. Obtain contractor performance bond and payment bond 4. Obtain copy of contractor insurance certificate 5. Execute contract documents 	Contract Award
4.3	Construction	<p>Construction of project components, including collection system, connections to properties, treatment system, and disposal system</p> <ol style="list-style-type: none"> 1. Initiate project construction 2. Order project equipment and supplies 3. Assure project permits are in place 4. Construct project components 	Construction complete
4.4	Construction Inspection and Management	<p>Conduct inspection of the project including reporting and project communication</p> <ol style="list-style-type: none"> 1. Assign qualified construction inspector/ engineer to the project 2. Keep daily records of construction activities, inspection, and progress 3. Conduct regular meeting between the contractor and the inspector 4. Verify that all work was completed in accordance with specifications 5. Test operations 6. Assure as-built drawings and other accumulated records are provided to the District 7. Prepare and record a notice of completion with the county clerk 	<p>Inspection Reports, Pay Requests, Meeting Minutes, Contractor Log, Submittals</p>
4.5	Re-vegetation	<p>Contract revegetation work with reputable ecological restoration organization to ensure successful implementation. Verify that plants used are propagated from locally collected</p>	Re-vegetation Inspection

#	Work Task Title	Work Task Description	Deliverables
		<p>native plant materials. Revegetation will follow the protocol outlined in the CDFG California Salmonid Stream Habitat Restoration Manual, Section 11.</p> <ol style="list-style-type: none"> 1. Contract with ecological restoration organization to develop revegetation/site restoration plans 2. Review planting specs to make sure that plants used are propagated from locally collected native plant materials 3. Implement planting when the site has been prepared and when the soil has been sufficiently wetted with seasonal rain. 4. Follow the protocol outlined in the CDFG California Salmonid Stream Habitat Restoration Manual, Section 11. 5. Install irrigation 6. Identify qualified vegetation inspector 7. Determine if re-vegetation completed to specifications 8. If yes, task complete 9. If no, have contractor make improvements 10. Develop site repair plan 	
4.7	Construction Project Close Out & Demobilization	<p>Inspect project components and establish that work is complete. Test the operation of the pipeline, sewer connections, and treatment facilities. Prepare record drawings.</p> <ol style="list-style-type: none"> 1. Establish work is substantially complete by inspector 2. Prepare a list of unfinished work 3. Test operation of distribution system, water tank, and well 4. Provide record drawings and accumulated documents to City 5. Prepare a notice of completion and provide to Humboldt County 6. Prepare recommendations concerning final payments to contractors and release of retained percentages and bonds 	<p>As-Built and Record Drawings, Milestone: County Notice of Completion</p>

E. Eel River Watershed Management Area

405 - Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project, Redwood Forest Foundation Inc.

GENERAL INFORMATION:	
Project Title	Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project
Project Abstract	<p>The Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project will work with the Woody Biomass Work Group (WBWG) to be the first step in developing a regional industry to convert excess woody biomass to a carbon sequestering, soil amendment product known as biochar to improve watershed-wide water quality and quantity.</p> <p>Project Steps:</p> <ol style="list-style-type: none"> 1. Remove excess biomass from overcrowded stands on the Usal Redwood Forest 2. Convert biomass into biochar through a process called pyrolysis 3. Sell biochar locally as an amendment to soil 4. Use net revenue to finance further biomass removal <p>Project Benefits:</p> <ol style="list-style-type: none"> 1. Removing excess biomass increases water recharge, in-stream flow, and reduces the risk of catastrophic forest fire events which are detrimental to terrestrial and aquatic habitat. 2. At least one Native American acorn harvesting orchard will be created through the removal of excess biomass and cause high levels of GHG emissions. 3. Biochar is a soil amendment, increasing water and nutrient retention and simultaneously sequesters carbon. 4. Net revenue from the sale of biochar will pay for variable costs of the project creating an economically sustainable model for restoration.
Organization	Redwood Forest Foundation Inc. (RFFI)
Contact Name and Title	Judith Harwood, Project Coordinator
Disadvantaged Community	Whitethorn, Piercy, Leggett, and Hales Grove
Grant Funds Requested	\$250,000
Non-State Match	\$78,040
Total Budget	\$328, 040
Watershed	South Fork Eel River
County	Mendocino
Status of project design and bid solicitation efforts	Planning and permitting, we have identified biochar conversion equipment for purchase. Project planning and partner coordination are well established. Equipment supplier has been identified from potential sources based on technical feasibility and appropriate scale. Initial quotes have been obtained from supplier. Emissions data is forthcoming and permitting will initiate upon

GENERAL INFORMATION:	
	commitment of suitable funding.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Diagram of Assembly: U3 Assembly • Sustainable Forests Demonstration Project on Usal Redwood Forest: Preliminary Plan
Status of CEQA, NEPA, and other environmental laws	N/A- all biomass removal will occur in areas that have already been approved for a THP and therefore have already gone through the CEQA process.
Work that will be completed prior to June 1, 2011 (assumed contract date)	Subject to funds available, machinery will be purchased, operators will be trained, air quality permits will be obtained
Merits of the building materials or computational methods that were or will be used for project development	Project planning reveals a unique niche for low volume, high value biomass usage that supports needed sustainable forestry activities and increases water yield and seasonal low stream flow.
Procedures for coordination with partner agencies and organizations	<p>RFFI and WBWG Procedures:</p> <ol style="list-style-type: none"> 1. Selected members of the RFFI board / advisory committee, Campbell Timber Management Company and the WBWG will make up “Sustainable Forest Demonstration” working group that will meet monthly 2. The Sustainable Forest Demonstration working group will consist of at least one Native American member who represents stakeholder tribes to be chosen at the discretion of the tribes. 3. Final project decisions will be made by this group on a consensus basis 4. RFFI and the WBWG will collaborate and share information with the NCIRWMP Policy Review Panel, Technical Peer Review Committee and the NCIRWMP Climate & Energy Advisory Committee <p>WBWG and MendoFutures Procedures:</p> <ul style="list-style-type: none"> • MendoFutures will receive a Sustainable Forest Demonstration update at existing monthly meetings for the length of the project
A description of synergies or linkages between other NCIRWMP projects	The Sustainable Forests Demonstration project impacts all grant funded watershed level restoration project by creating a model that will fund future watershed restoration efforts and lessen reliance on finite grant dollars. For example, the Gualala River Watershed Council, a recipient of several prop 50 and 84 grants is currently looking for ways to create a sustainable funding stream for their restoration efforts. The Sustainable Forests Demonstration Project model will be presented to the Gualala River Watershed Council in the Spring of 2011. In addition, the WBWG worked with a several water related groups in Mendocino County to submit the “Jumpstart Integrated Water Plan” under the Mendocino County Water Agency for prop 84 funding. Both urban projects and watershed wide projects are needed to substantially improve water quality and quantity countywide.

Specific Goals and Objectives of the Project Table

	Goal	Measurable Objectives for each Goal
1.	Improve forest health (waterflow, fire prevention, larger growing trees etc.)	<ul style="list-style-type: none"> Remove excess biomass from several stands throughout the Usal Redwood Forest Involve stakeholders and forest experts in the selection of targeted stands Document the transformation of forest stands via photo-monitoring and quantitative monitoring Conduct at least six tours per year to demonstrate benefits 18.5 acres/ yr. will be treated on URF (3BDT/day x 250 days/ 40BDT/acre)
2.	Create an acorn harvesting orchard	<ul style="list-style-type: none"> Select a precise location with large oak species (tribes will be involved in this process) Remove excess biomass from this specific location Convert biomass into biochar and sell it in order to pay for the project 18.5 acres/yr. will be treated total on URF (3BDT/day x 250 days/ 40BDT/acre)
3.	Convert excess biomass into a usable value added product that has environmental and social benefits	<ul style="list-style-type: none"> Purchase a biochar facility and related equipment Receive appropriate air quality permits Locate the facility on, or adjacent to the Usal Redwood Forest Hire an operator Sequester 562.5 tons of CO₂/yr. (1ton biochar=3tons of carbon x 187.5 tons of biochar/yr.)
4.	Off-set the Cost of the Biomass Removal Net yearly revenue = \$168,750 (Variable Cost/BDT=\$275 vs. Revenue/ BDT = \$500)	<ul style="list-style-type: none"> Educate the public about the benefits of biomass removal and of biomass Obtain commitments from local retailers to carry the product Use any revenue to finance the project- excess revenue will finance additional biomass removal
5.	Replicate this project regionally	<ul style="list-style-type: none"> Work with U.C. Extension, HSU and Mendocino College to document the demonstration Conduct community, stakeholder and technical outreach events

Description of the Purpose and Need of the Project

Water quality and quantity in a watershed is directly related to upstream land use practices. In the past, forest health throughout Mendocino County has been impacted by unsustainable management practices, with significant negative impacts to aquatic ecosystems and their dependent species. Catastrophic forest fire events have created large tracts of overcrowded small diameter trees and brush. This excess woody biomass impacts the entire forest ecosystem- using more water than well spaced forests, making it difficult for species to hunt and forage, stunting tree growth, and increasing forest vulnerability to catastrophic forest fire events which devastate terrestrial and aquatic habitat, and create large amounts of GHG emissions and represent a public health threat. While forest overcrowding has well-known negative impacts, removing excess biomass is costly and the monetary benefits are virtually non-existent in the short-term because waste wood does not have an economic value high enough to pay for the cost of removal and transportation.

The proposed Demonstration Project creates a model that will help landowners pay for the cost of removing biomass through the sale of biochar. Biomass that is selectively removed from demonstration plots in the Usal Redwood Forest will be converted

into biochar and sold as a soil amendment and carbon sequestration tool. Biochar production from waste wood will demonstrate how we can create a product that provides a local input to agriculture (reducing transportation costs and carbon emissions), enhance forest health and the viability of forest habitats and species, drive local economic benefits, and help mitigate climate change through carbon sequestration.

Finally, the location of the project on the Usal Redwood Forest presents a unique opportunity to address the cultural needs of Native American Tribes that have traditionally used to area for ceremonial purposes as well as for a source of food. Under the ownership of the Redwood Forest Foundation Inc. a commitment has been made to open up sections of the forest for Native American access and for the creation of one of more acorn harvesting orchards. There are a multitude of suitable areas in the Usal Redwood Forest, but these potential sites are overcrowded and will require costly biomass removal in order to convert them into orchards ideal for acorn production. The Sustainable Forests Demonstration Project will target at least on area for acorn orchard creation.

In summary, the proposed Demonstration Project addresses the environmental/ecological needs of the watershed and local farmers, cultural needs of people who live near the forest and the economic support required to make these improvements. This project demonstrates the concept of a “restoration economy”- where livelihoods (economically, environmentally and spiritually) rely on our most abundant natural resources and the community serves as the resource stewards ensuring watershed health in perpetuity.

Project Description

Usal Redwood Forest (URF) comprises more than 50,000 acres of working timberland, located just north of Fort Bragg in Northern California's Mendocino County. The area was once a thriving ancient redwood and Douglas fir forest. It contains more than 18 creeks and tributaries, many of them historically important and currently crucial spawning and rearing habitat for listed salmon and steelhead species, including Usal Creek and the South Fork Eel River, and tributaries such as Indian and Standley Creeks. The area is also part of the historic home of the Sinkyone / Wailaki Indians and continues to be used for hunting, gathering and ceremonial purposes.

Over logged for its valuable redwood in the 1970s, 1980s and earlier, the URF is now dominated by second growth Douglas fir and Tan Oak. The URF has yet to recover from this historic damage. Massive erosion and channel blockages damaged salmon and steelhead habitat and runs have become drastically depleted. It is feared that Usal Creek has lost two of its three cohorts (age classes) of Coho salmon.

The proposed Demonstration Project seeks to model how a biochar facility can help restore timberland ecosystems in the region. The project consists of the following elements:

1. Locate a small scale biochar facility on or adjacent to the URF. Four locations are currently being analyzed, three in the URF and one in Piercy.
2. Purchase a small scale, mobile facility from Bio-char engineers, and install it at selected location. Purchase or lease other necessary equipment, i.e. chipper.
3. Hire two full time employees to operate the machinery.
4. Work with stakeholders, including local Indian tribes to choose demonstration stands for biomass removal. One stand will be chosen for the purposes of creating an acorn harvesting area.
5. Hire the Campbell Timberland Management Company to deliver biomass from pre-selected stands.
6. Convert the waste biomass into biochar and package the product at the facility.

7. Deliver biochar to local markets and sell as a soil amendment and carbon sequestration tool.
8. Work with school gardens and the UC Extension to demonstrate benefits of biochar in soil.
9. Use proceeds to pay for the operation and pay down the capital costs. Excess revenue will be utilized for further forest restoration projects.
10. Utilize Humboldt State University (HSU), Mendocino College and the UC Cooperative Extension to document the project.
11. Conduct tours of the facility and the demonstration forest stand as a community education tool and for future replication of the project throughout the region.

This project will demonstrate the benefits of biomass removal to watershed health, the benefits of biochar to soil and as a carbon sequestration tool and the ability to pay for these benefits through the sale of biochar. At least one area that will be targeted for biomass removal will be converted into a native American acorn harvesting area.

The WBWG will be the organization charged with insuring that these benefits are well understood throughout the community. The education piece will consist of the following information:

- Several northern California studies demonstrate a strong inverse relationship between groundwater or in-stream flows and surface vegetation. Biomass removal will increase hydrologic flows to groundwater and in-stream flows, one of the primary goals of NCIRWMP is increased in-stream flows to positively impact salmonid populations.
- Removing excess biomass from overcrowded stands reduces the risk of catastrophic forest fire events. Large fire events destroy habitat and leave barren tracks of forestland that are then vulnerable to erosion and runoff that impact water quality.
- Removing excess biomass allows remaining trees to grow larger. Larger growing trees are a better source of shade for streams and tributaries, improving salmonid habitat. In addition, a ground-breaking study by HSU shows that larger growing trees put on more volume per year than small trees and therefore sequester more carbon.
- Biochar is a fine-grained, highly porous charcoal that helps soils retain nutrients and water. Biochar is found in soils around the world as a result of vegetation fires and historic soil management practices. Biochar improves water quality and quantity by increasing soil retention of nutrients and agrochemicals for plant and crop utilization. More nutrients stay in the soil instead of leaching into groundwater and causing pollution. In addition, biochar burial sequesters carbon.
- The purchase of biochar created from sustainable biomass removal will pay for the cost of forest restoration, create jobs as well as a Native American acorn-harvesting orchard.

Because of the small scale, mobile and value added nature of this conversion process, it is reasonable to assume that a successful demonstration may well be adopted by others as an emerging industry to perform a similar function in other watersheds.

Scientific and Technical Merit Discussion: Rationale for the Project

1) Estimates of increased water flow per acre from Elizabeth T. Keppeler. The Summer Flow and Water Yield Response to Timber Harvest, USDA Forest Service, 1998, p 168. Average increase in discharge after selective harvest in Casper Creek watershed was $932 \text{ m}^3 \cdot \text{ha}^{-1} \cdot \text{yr}^{-1} = 99,639 \text{ gallons/ acre/ year}$. We assume that excess biomass will be removed from 18.5 acres/year for two years ($3 \text{ BDT} \cdot \text{day}^{-1} \times 250 \text{ days} \cdot \text{yr}^{-1} \cdot 40 \text{ BDT} \cdot \text{acre}^{-2}$). Total gallon per year = 1,843,324

2) Estimates of increased minimum discharge are from Elizabeth T. Keppeler. The Summer Flow and Water Yield Response to Timber Harvest, USDA Forest Service, 1998, p 168. Average increase in minimum discharge seven years after selective harvest in

Casper Creek watershed was $.25L.s^{-1}.Km^{-2}$.

3) Estimates for increased groundwater recharge are taken from Smerdon et, al., a literature review of studies related to forest management and groundwater recharge. One study found an increase in groundwater recharge of 5% for six seasons after a forest was partially cut. Another study found an increase in groundwater recharge of 6% for three seasons after a forest was partially cut. We assumed an increase of 5-6% for four years.

3) Estimates for avoided increased sedimentation through catastrophic forest fire prevention are from Dahlgren et, al. Watershed Research Examines Rangeland Management Effects on Water Quality, California Agriculture, Volume 55, number 6, 2001. This study looks at increase in sedimentation when all vegetation is removed from an area and find a 17.2 ton per acre per year increase. This does not take into account heat induced changes to the soil that increase erosion and sedimentation.

4) Beneficial Uses for the South Fork of the Eel River come from <http://www.epa.gov/region9/water/tmdl/eel/eel.pdf> Pg. 8

5) Habitat restoration estimates are based on the assumption that the biochar facility will process 3BDT/day x 250 days/yr. Approximately 40 BDT will be removed from each treated acre = 18.5 acres treated per year

6) Carbon sequestration benefits are estimated from Biochar Engineering: Biochar." Biochar Engineering :: Home. Web. 15 Oct. 2010. <http://www.biocharengineering.com/biochar/index.html>. One ton of biochar is the equivalent to 3 tons of carbon. Also, the market value of Carbon in Oct. 2010 was \$3.41 per ton according to the Chicago Climate Exchange. Biochar production = 3BDT/day x 250 days/yr. x .25 efficiency of converting biomass to biochar x 3 tons of carbon for 1 ton of biochar= 562.5 tons of carbon x \$3.41 per ton = \$1,918

7) Enhanced fire fighting capability is based on the assumption that the biochar facility will process 3BDT/day x 250 days/yr. Approximately 40 BDT will be removed from each treated acre = 18.5 acres treated per year. Acres that receive treatment will be less prone to catastrophic forest fire events and can serve as a fuel break.

8) Decreased operational costs are estimated from a variable cost vs. revenue analysis on biochar production.

9) The cost of fighting fires is estimated from http://www.fire.ca.gov/index_incidents_mendocino.php.

10) The cost of fire prevention was estimated from current cost of creating shaded fuel breaks on the Usal Redwood Forest which equals \$600 per acre.

11) Baseline average flow for the South Fork of the Eel River was taken from 2009 Miranda gage information http://waterdata.usgs.gov/ca/nwis/annual/?referred_module=sw&site_no=11476500&por_11476500_2=2210185,00060,2,1940_2009&year_type=W&format=html_table&date_format=YYYY-MM-DD&rdb_compression=file&submitted_form=parameter_selection_list

12) Baseline minimum discharge for the South Fork of the Eel River was taken from 2009 Miranda gage information <http://wdr.water.usgs.gov/wy2009/pdfs/11476500.2009.pdf>

13) Baseline sedimentation for the South Fork of the Eel River was provided through a report by the EPA <http://www.epa.gov/region9/water/tmdl/eel/eel.pdf> pg.

14) Net revenue calculations were done in house and are labeled "Biochar Net Revenue Calculations"

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Procure suitable biomass to biochar conversion unit and supporting equipment	Contract with Biochar engineering for construction and delivery of suitable biochar production and support equipment.	<ul style="list-style-type: none"> Contingency contract subject to receipt of grant funds and equipment performance Obtain one primary conversion unit
1.2	Procure Mendocino Air Quality Management Permit for Biochar Unit	Air quality permits are required for the primary conversion unit and possibly material handling equipment that could produce dust.	Apply for and receive appropriate Air Quality Permits
1.3	Quarterly Reports	A quarterly update on project progress	Four reports per year for three years
1.4	Final Report	A final report upon project completion	Final Report
1.5	Labor Compliance Monitoring	<ol style="list-style-type: none"> Solicit quotes from labor compliance monitoring (LCM) companies Execute service agreement with most competitive LCM company 	Copy of agreement with Labor Compliance Monitoring company
2.	Planning/Design		
2.1	Technical and Economic Feasibility Analysis	Cost benefit and equipment functionality analysis	<ul style="list-style-type: none"> Cost benefit spreadsheet Verbal and written contact with equipment manufacturer. Appropriate scaled equipment is available for purchase
2.2	Choose location for Biochar facility to be located	There are currently three possible locations on the Usal Redwood Forest to locate the biochar facility and one location adjacent to the property in Piercy	Location selected
2.3	Choose Acorn Harvesting Orchard Location	At least one area will be chosen to create a Native American acorn harvesting orchard	<ul style="list-style-type: none"> Hold two Usal Redwood Forest tours with representation Native American tribes Choose one location for forest thinning
2.4	Final Design	Develop Final Plans and Specifications	

#	Work Task Title	Work Task Description	Deliverables
			Final Design
3.	Construction/ Implementation		
3.1	Install biochar conversion unit	Biochar Engineering will install the conversion unit at chosen location	<ul style="list-style-type: none"> • Installation contract • Machinery operational at chosen location
3.2	Recruit and Train Staff	Recruit and train two staff for operations. Specialty training for the thermo conversion unit and product packaging	<ul style="list-style-type: none"> • Two staff members hired • Biomass successfully converted to biochar
3.3	Test Run	Integrate and test run materials handling, thermo conversion and product packaging equipment operations. Establish operation synergy between the various mechanical components to achieve acceptable biomass feedstock flow rates through the biochar production process	One ton of biochar created
3.4	Forest Thinning	Coordinate with RFFI to schedule and perform forest maintenance thinning to achieve a reliable biomass feedstock supply	3 BDT of biomass removed from the Usal Redwood Forest and delivered to the biochar facility in one day
3.5	Full Production	Establish biochar production and graduate to full time production mode	1,500 lbs of biochar produced in one day
3.6	Product Sales	Product packaging and labeling complete. Product accepted for retail sales	<ul style="list-style-type: none"> • Statement of intent to carry RFFI Biochar at 5 retailers in Mendocino County Milestone: <ul style="list-style-type: none"> • One ton of biochar sold
3.7	Project Replication	Create technical transfer for intra-regional cooperation in reproducing this approach to forest restoration	Milestone: <ul style="list-style-type: none"> • One written white paper describing small scale biomass to biochar production model • Two technical transfer workshops • Five project tours or open houses
3.8	Outreach/ Education and Marketing	Hold public outreach events to educate the public about the project including the benefits of biomass removal to forest health, water quantity and quality and the benefits of biochar to soil health	One outreach, education or marketing event per quarter
4.	Project Performance Assessment		

#	Work Task Title	Work Task Description	Deliverables
4.1	Monitoring for air quality permit compliance	Perform sufficient equipment monitoring to comply with Mendocino Air Quality permit requirements	Milestone: Compliance with Mendocino Air Quality regulations and permit.
4.2	Stream Gauge Monitoring	Stream gauge data for the South Fork of the Eel river can be found online	<ul style="list-style-type: none"> • Documented annual flow each year from 2011-2014 • Documented minimum discharge each year from 2011-2014
4.3	Ecosystem Assessment	The WBWG is pursuing a partnership with Humboldt State University and or the Hopland U.C. Extension to study the impacts of biomass removal on the forest ecosystem in the demonstration forest sites selected	<ul style="list-style-type: none"> • Baseline conditions measured • Standardized measurements of ecosystem health created • Changes documented
4.4	Supply and Demand Assessment	Measurement of lbs. of biochar produced vs. sold	Monthly documentation of biochar produced and sold, monthly difference and aggregate difference
4.5	Product Evaluation	Before commercial sale of biochar Control Laboratories will test biochar for purity	One report on biochar purity before commercial sale

F. Trinity River Watershed Management Area

357 - Hwy 96 Stormceptor, Willow Creek Community Services District

GENERAL INFORMATION: WWCSO Highway 96 Interceptor	
Project Title	Willow Creek Highway 96 Interceptor
Project Abstract	The Willow Creek Highway 96 Interceptor project includes installation of a pre-fabricated sand and oil interceptor tank, perforated pipe, and construction of a storm water detention basin.
Organization	Willow Creek Community Services District
Contact Name and Title	Lonnie Danel, Water Operator
Disadvantaged Community	Yes
Grant Funds Requested	\$110,000
Non-State Match	\$99,024
Total Budget	\$209,024
Watershed	Trinity River
County	Humboldt
Status of project design and bid solicitation efforts	The project 60% design shall be complete in 60 days, and the final design civil plan set shall be complete in 120 days. Bid documents will be drafted in concert with design and creation of the civil plan set and shall be ready for release for bid by March 2011. A successful bid and contractor shall be secured by April 2011 and construction activities shall commence shortly after contractor selection.
Titles of Plans and Specifications submitted in hard copy format	<ul style="list-style-type: none"> • Detention Pond Data Sheet • Willow Creek Highway 96 Interceptor Conceptual Design
Status of CEQA, NEPA, and other environmental laws	Caltrans championing CEQA. To be complete in 90 days.
Work that will be completed prior to June 1, 2011 (assumed contract date)	All preliminary work to be complete, including bid process and tentative selection of a successful contractor.
Merits of the building materials or computational methods that were or will be used for project development	<p>Building Materials: All building materials proposed to be implemented for this project are industry standard, designed and constructed for storm water applications, and within strict conformance with applicable manufacturing and testing standards including: ASTM, ANSI, AASHTO, and Caltrans.</p> <p>Computational Methods: All calculations for sizing the storm water facilities are in accordance with standard engineering practice. Storm water flow data is based on the rain fall intensity for a 100 year storm event using historical rain fall data and the USDA WinTR 55 small watershed hydrology calculations. Conduit sizing is based on manufacturer specifications and hydrologic calculations.</p>
Procedures for coordination with partner agencies and	The WCCSD will be partnering with Caltrans for this project. All applicable permitting agencies will have a certain level of involvement in the project that may include project review and

GENERAL INFORMATION: WWCS D Highway 96 Interceptor	
organizations	approval.
A description of synergies or linkages between other NCIRWMP projects	<p>Karuk Tribe: Camp Creek Habitat Protection-Road Decommissioning Implementation Project</p> <p>This project has the potential of having positive impacts to the Klamath River which is the receiving water body for the Trinity River.</p> <p>Happy Camp Sanitary District (HCSD): Indian Creek Sewer Pipeline Crossing</p> <p>This project has the potential of having positive impacts to the Klamath River which is the receiving water body for the Trinity River.</p>
Status of acquisition of land or rights-of-way, if applicable	All impacted land is currently under the control of the WCCSD.
Standards, such as construction standards that will be used in implementation	CBC, UPC, Caltrans, Humboldt County, and Willow Creek Community Services District.

Specific Goals and Objectives of the Project Table		
	Goal	Measurable Objectives for each Goal
1.	Protect Domestic Water Intake	<ul style="list-style-type: none"> • Install storm water interceptor for state Highway 96 drainage. • Install storm water conveyance system • Construct storm water detention pond • Maintain storm water infrastructure
2.	Protect Trinity River (fish inhabited stream)	<ul style="list-style-type: none"> • Same as item 1 above.

Description of the Purpose and Need of the Project
<p>Purpose:</p> <p>The purpose of this project is to create a protective barrier between potentially harmful contaminants originating within the commercial district and from automobiles using the two state highways serving the community and the domestic water facilities that pull drinking water from the willow creek.</p> <p>Need:</p> <p>Currently, storm water from the commercial district and the two state highways serving the community is directed through a network of culverts to a point near the bridge for state highway 96 across the willow creek. The storm water is allowed to flow from that point down the mountain side directly into the willow creek. The storm water is deposited up stream of the existing domestic water intake in the willow creek. All potential contaminants from the commercial district and the highways are allowed to flow freely to the domestic water intake and potentially contaminate the drinking water and damage the filtration hardware for the treatment system.</p>

Project Description

The project includes construction of a storm water capture, treatment, conveyance, and storage network that will help protect the existing Willow Creek domestic water system. The project is comprised of three primary components: storm water interception, conveyance, and detention.

Interception:

The existing storm water conduit near the highway 96 bridge over the willow creek will be directed to an underground interceptor tank where storm water will have particulate matter and oils removed from the water. The tank will be placed in a long term maintenance program that allows scheduled removal of the contaminants via pumping and treatment.

Conveyance:

The cleaned storm water will be transferred from the interceptor tank for approximately xx linear feet through a perforated conduit in a drain rock lined trench that allows storm water to percolate into the ground and recharge the surrounding water table. Excess water will be conveyed to a stabilized outlet into a detention basin.

Detention:

The earth basin will be created in a low lying region adjacent to the willow creek. The basin will be sized to maximize the amount of storm water temporary storage. Storm water will be allowed to accumulate in the basin and percolate and evaporate. Percolated water will seep through the ground recharging the water table and eventually be deposited into the willow creek. Storm water entering the creek should be sufficiently cleaned of sediment and harmful contaminants alleviating the threat to the domestic water system, the willow creek, and the Trinity River.

Scientific and Technical Merit Discussion: Rationale for the Project

The proposed project has been developed and presented using current methods for designing such facilities as are typical in similar circumstances throughout the United States. Key points of interest of the problem area include removal of particles and free born oils from storm water prior to deposit of such water into an existing tributary and 303d listed, fish bearing river. Data acquired for design of the proposed facilities include rainfall intensity records compiled by the Western Regional Climate Center, IDF32 Intensity Duration Frequency Charting for the area, contributing area calculations based on recorded acreage for the contributing property, United States Department of Agriculture WinTR55 Small Watershed hydrology calculations for runoff based on the existing development types and proximity to the receiving water body, manufacturer specifications and recommendations for applicable hardware (including interceptor) developed specifically for such applications.

The Storm Drain Study for the project includes calculations used to determine sizing of project components. All proposed components are along industry standard facilities sized adequately to harbor a minimum of 125% of the calculated flows from a storm event comparable to a one-hundred year frequency and a two-hour continuous intensity accumulation. Contaminant and particulate treatment has been determined given the contributing area, types of activities harbored within the area and along manufacturer specifications and recommendations.

The selection of the proposed project site has been determined given existing infrastructure and current WCCSD property ownership/management. The property proposed for use is already under the control of the WCCSD eliminating potential costs of acquiring additional property. The location of existing storm water conveyance facilities has a convenient termination point adjacent to the project property within the Caltrans right of way.

Technical methods of project performance assessment to be implemented for the project include periodic sampling of storm water at the outlet point of the interceptor, the outlet point of the detention basin, and the inlet point of the domestic water facilities. Sampling of the three key points of interest will afford the WCCSD vital information regarding the levels of

contaminants and particulates that are entering the system, being treated (removed) from storm water by the system, and presenting any adverse effects regardless of the system. Testing and monitoring shall be specific to free born oils and turbidity. Monitoring results shall be used to evaluate the effectiveness of the implemented system and determination of its continuance, modification, or termination.

Project Work Task Table

#	Work Task Title	Work Task Description	Deliverables
1.	Project Management		
1.1	Contract Management	Secure project management entity capable and competent in construction design, management, inspection, quality assurance, and implementation.	Sub-contract agreement with Trinity Valley Consulting Engineers, Inc.
1.2	Project Performance Plan Development	Develop a comprehensive testing and project performance program for the storm water that accurately provides information that can be used to determine the implemented project's effectiveness. The program shall be established for a timeframe sufficient to determine the systems effectiveness and to develop an efficient maintenance program that supports the system efficiency for the expected useful life.	Testing and Project Performance Plan
1.3	Quarterly Reports	Quarterly reports shall be submitted starting April 2011 (or the onset of construction activities) and continue until completion of the project. Reports shall include, at a minimum, a description of completed tasks (bid items), revised progress schedule, field encountered challenges, change order items (if applicable), and revised anticipated completion date.	Quarterly report submitted every three months until completion of the project.
1.4	Final Report	A final report shall be submitted in two phases. Upon completion of the project including contractual completion of all bid items and final punch list items a "draft" final report shall be submitted for review and comment. Upon receipt of comment items an official final report will be submitted. The final report shall summarize activities and items of interest submitted in quarterly reports, provide evaluations for the contractor and the project overall, an evaluation of the bid items of the project and suggested continued use or modification for future projects, and as-builts of the completed project.	<ul style="list-style-type: none"> • Draft final report Milestone: <ul style="list-style-type: none"> • Final report
1.5	Land purchase/easement	All impacted land is currently in possession and control of by the WCCSD.	
1.6	Labor Compliance Monitoring	<ol style="list-style-type: none"> 1. Solicit quotes from labor compliance monitoring (LCM) companies 2. Execute service agreement with most competitive LCM company 	Copy of agreement with Labor Compliance Monitoring company
2.	Environmental Documentation		

#	Work Task Title	Work Task Description	Deliverables
2.1	CEQA Development	Caltrans is taking the initiative for completing all applicable CEQA clearance including Native American tribal notification	Milestone: CEQA final ruling (anticipated Negative Declaration).
2.2	Permit Development: TR0100	Caltrans Encroachment Permit: a standard encroachment permit for improvements within a state highway right-of-way shall be secured to accommodate all construction activities for the project within such location.	Caltrans Encroachment Permit
2.3	Permit Development: 401	A 401 Water Quality Certification shall be secured from the North Coast Regional Water Quality Control Board for this project.	RWQCB 401 Certification
2.4	Permit Development: NPDES permit	An NPDES permit shall be secured for the project and a SWPPP shall be developed for the project.	<ul style="list-style-type: none"> • SWPPP • NPDES Permit
2.5	Permit Development: Grading	A grading permit shall be secured for the project from the Humboldt County Planning Division.	Grading Permit
3.	Planning/Design		
3.1	Assessment and Feasibility Studies	An assessment and feasibility analysis is completed for the project. The proposed project is determined to be the most economical and advantageous option.	complete
3.2	Concept Design	A concept design for the project is complete.	complete
3.3	60% Design	60% design, including calculations, civil plan set, and bid package will be completed within the next 60 days.	<ul style="list-style-type: none"> • 60 % Design Civil Plan Set • Calculations • Bid package
3.4	Final Design/ Plans	Final design; calculations, civil plan, and complete bid package set shall be complete in 120 days.	Milestone: <ul style="list-style-type: none"> • Final Civil Plan Set • Calculations • Bid package
4.	Construction/ Implementation		
4.1	Construction administration	1. Request for Bid advertised in two local newspapers and the Humboldt	Contractor Bids

#	Work Task Title	Work Task Description	Deliverables
		<ul style="list-style-type: none"> Builders exchange for a two week period. 2. Pre-bid conference including site investigation. 3. Contract addendums (if required derived from Request for Information and pre-bid conference). 4. Public bid opening. 5. Notice of Award 	
4.2	Construction contracting	<ul style="list-style-type: none"> 1. Secure contractor performance and payment bonds. 2. Contact contractor references. 3. Verify contractor insurance and coverage. <p>Contract execution</p> <ul style="list-style-type: none"> 4. Notice to proceed 5. Submittals: all required contractor submittals delivered to project engineer, reviewed, and accepted. 6. Construction Staking: vital components staked in the field and available for contractor review. 	Milestone: Contract for Work
4.3	Mobilization and site preparation	<ul style="list-style-type: none"> 1. Mobilization to site. 2. Implementation of site security measures. 3. Installation of temporary sanitary facilities. 4. Implementation of site BMPs. 5. Clearing and grubbing. 6. Stockpile and material storage designation. 7. Traffic Control. 	Photo documentation
4.4	Project Construction	<ul style="list-style-type: none"> 1. Construction and installation of all bid items. 2. Final grading of site. 3. Re-vegetation of impacted ground. 4. Removal of non-permanent BMPs. 5. Removal of security measures. 	Milestone: Photo documentation
4.5	Demobilization	<ul style="list-style-type: none"> 1. Removal of all debris and construction spoils from the site. 	Milestone:

#	Work Task Title	Work Task Description	Deliverables
		<ol style="list-style-type: none"> 2. Removal of excess materials. 3. Removal of temporary sanitary facilities. 4. Removal of equipment. 5. Transfer of site responsibility back to owner. 	Photo documentation
5.	Project Performance Assessment		
5.1	Pre-Construction	<ol style="list-style-type: none"> 1. Storm water testing shall occur for contaminant and turbidity levels. 2. Photo inventory of the project site prior to construction activity. 	<ul style="list-style-type: none"> • Pre-construction test results • Photo report
5.2	Construction	<ol style="list-style-type: none"> 1. Compaction testing for all installed aggregate materials. 2. Concrete: slump and compression 3. BMP inspections 4. Tank: hydrologic test for leaks 5. Daily documentation of construction activities, bid item work and completion, contractor personnel, equipment, materials installed, noteworthy events, field modifications to designed project (if applicable), and challenges to construction activities. 6. Daily photo inventory of construction activities. 	<ul style="list-style-type: none"> • Test results • Daily reports • Photo report
5.3	Post-Construction	<ol style="list-style-type: none"> 1. Storm water testing shall occur within 30 days of completion of work. 2. Photo inventory of completed project. 	<ul style="list-style-type: none"> • Test results • Photo report
6.	Maintenance		
6.1	Interceptor (not IRWM funded)	Interceptor removal of deposited particulates and contaminants shall occur as needed based on inspection of the system in conformance with an applicable maintenance schedule.	Maintenance schedule
6.2	Basin (not IRWM funded)	Basin shall be inspected semi-annually and be cleaned of excessive deposits as needed.	Maintenance schedule