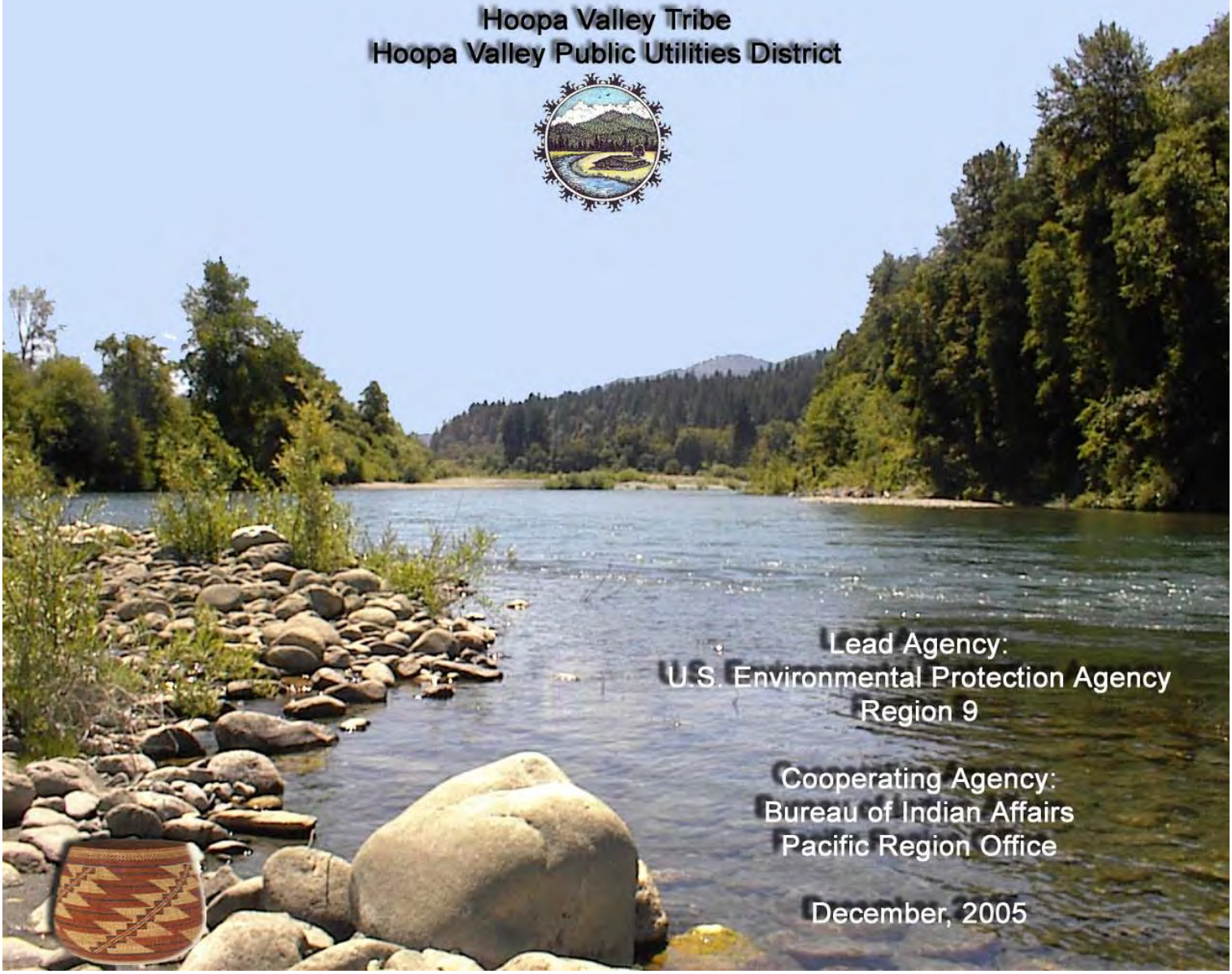
Environmental Assessment

Extension of Domestic Water Supply, Bald Hills, Hoopa Valley Indian Reservation, Humboldt County, California

Applicant:

Hoopa Valley Tribe
Hoopa Valley Public Utilities District



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SECTION 1 – PURPOSE & NEED

1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to comply with the National Environmental Policy Act (NEPA) (40 CFR § 1500-1508). This EA documents the environmental review of the proposed Bald Hills water system construction. The U.S. Environmental Protection Agency (EPA) is the principal federal agency with jurisdiction over the proposed project. The Bureau of Indian Affairs (BIA) is participatory as a Cooperating Agency. The EPA as Lead Agency and the BIA as Cooperating Agency will use this EA to determine if the approval of the construction of the Bald Hills water system would result in significant effects to the human environment. The Applicant for the proposed project is the Hoopa Valley Tribal Council. The purpose of this Environmental Assessment (EA) is to satisfy the environmental review process of NEPA as well as to document the need for the Hoopa Valley Tribe through its instrumentality, the Hoopa Valley Public Utilities District to develop the proposed water system. It provides a detailed description of the Proposed Action and an analysis of the potential consequences associated with development of the proposed project. This document also includes a discussion and analysis of project alternatives, impact avoidance, and mitigation measures. These mitigation measures are incorporated into the Proposed Action.

1.1 Project Description

The project under consideration is located on the Hoopa Valley Indian Reservation. Figure 2-1 shows the regional site location. Proposed is the extension of an existing community water supply system to the Bald Hills region of the Hoopa Valley Indian Reservation. The proposed project at full buildout includes the installation of approximately 13.5 miles of water distribution lines of various sizes on the south flank of Bald Hills in the north-central portion of the Hoopa Valley Indian Reservation. The proposed project is funded by EPA and IHS for the development of 8.5 miles of water main service lines. However, the eventual installation of approximately five miles of distribution lines is analyzed to assess the full buildout impacts associated with the project.

The proposed distribution lines follow the routes of existing roads (Pine Creek, Bald Hills, Dowd, Translator and Bloody Camp Roads) and various driveways, beginning at a tie-in to the existing community-wide system at the intersection of Moon Lane and Pine Creek Road. In addition, four booster pumping stations and five water storage tanks will be constructed along key areas of the distribution system along with 31 individual water distribution lines to residential units. Electrical power line extensions to serve the booster pumping stations will also be necessary.

Finally, some easements and right-of-ways would need to be obtained for waterlines and power lines associated with this project. Given the multi-jurisdictional areas involved such as Tribal trust land, individual allotments, fee-simple parcels, and BIA road classifications, all easements and right-of-ways obtained will need to be recorded appropriately. Within trust lands, easements will need to be obtained pursuant to 25 CFR Part 169--Rights-of-Way over Indian Lands.

Funding for this endeavor is from the U.S. Environmental Protection Agency (EPA) Drinking Water Tribal Set-Aside Grant Program and the Indian Health Service (IHS) Sanitation Facilities Construction Program.

1.2 Purpose and Need for the Proposed Action

1.2.1 Purpose

The Hoopa Valley Public Utilities District (HVPUD) is a chartered instrumentality of the Hoopa Valley Tribe that provides domestic and irrigation water to the majority of residents of the Hoopa Valley Indian Reservation.

Since Federal funds are involved in the proposed extension of Domestic Water Supply to residents of the Bald Hills region of the Hoopa Valley Indian Reservation as well as associated infrastructure, this environmental assessment embodies Federal environmental regulations pursuant to the National Environmental Policy Act (NEPA).

The reader should be advised that Federal NEPA requirements differ slightly from those required under Tribal and State law under the California Environmental Quality Act (CEQA) as CEQA does not apply within Indian Country.

This EA analyzes the effects of the proposed development on various components of the environment. Preliminary conceptual alternative plans are utilized for the basis of environmental analysis. Conceptual plans have been analyzed to represent the maximum level of development associated with the proposed action.

1.2.2 Need

The Bald Hills area in the northwestern region of the Hoopa Valley Indian Reservation is currently home to approximately 93 residents. Residents in this area are forced to get their own water through the use of wells, surface water and springs which are generally untreated individual water sources. The quantity of water available in the drier summer and fall months sometimes are not sufficient to meet resident's daily water needs. During drought conditions, it has been necessary to truck water to affected Bald Hills residences. The quality of water obtained from these methods is highly variable and at times the water used by residents may be responsible for adverse health effects since it involves water that is untreated.

The potential health effects from consuming untreated water from springs or surface water sources can be serious because the water frequently is contaminated with bacteria, including fecal and other disease-causing bacteria. In addition, springs and surface water can be subject to runoff of pesticides and fertilizers used to control vegetation. Gastrointestinal illness, or diarrhea, is the most common illness caused by bacteriological contamination, but certain pathogens cause hepatitis A infections that may lead to jaundice and liver damage.

The National Primary Drinking Water Regulations (NPDWRs or primary standards) would apply to the proposed project thereby assuring that the safety of drinking water to the residents of Bald Hills.

SECTION 2 – PROPOSED ACTION & ALTERNATIVES

2.0 INTRODUCTION

This section of the assessment relating to the Hoopa Valley Tribe's proposed water system expansion options is intended to satisfy the requirements of the Federal NEPA process. NEPA regulations require the applicant to consider alternatives for the proposed project. For this proposed action, the following four alternatives are presented: extend the valley wide water system to Bald Hills; use Big Creek as a new supply source, use Pine Creek as a new Supply Source; or the no action alternative.

2.1 Alternative 1-Proposed Action (Preferred Alternative) Extend the Valley Wide Water System

Under this alternative the existing valley wide water system would be extended to the Bald Hills region from its current terminus at Soctish Field. Proposed is the extension of an existing community water supply system to the Bald Hills region of the Hoopa Valley Indian Reservation. The proposed project at full buildout includes the installation of approximately 13.5 miles of water distribution lines on the south flank of Bald Hills in the north-central portion of the Hoopa Valley Indian Reservation. The proposed distribution lines follow the routes of existing roads (Pine Creek, Bald Hills, Dowd, Translator and Bloody Camp Roads) and various driveways. In addition, four booster pumping stations and five water storage tanks will be constructed along key areas of the distribution system along with 31 individual water distribution lines. Electrical power line extensions to serve the booster pumping stations will also be necessary.

The primary water supply for the existing valley wide water system consists of a Ranney-Type collector in the Trinity River, a water treatment plant, and a pump station near the center of the urban zone of the Hoopa Valley community. This system has the capacity to provide water to the project now and well into the future inclusive of projected growth for the Reservation. The Ranney-Type collector is a large (approximately 13') diameter concrete cylinder that is excavated into the river gravels to bedrock. Radial infiltration lateral lines are excavated from the hub of the Ranney collector like spokes in a wheel. Water is then pumped from the Ranney collector. A backwash system is in place to correct the likelihood of silt build-up in the intake system. The valley wide water system utilizes existing infrastructure such as electricity to power the pump station and treatment plant, existing water distribution mains, and access for operations and maintenance. A metal building approximately 40' X 30' in size houses the water treatment equipment. Hypo-chloride is used to treat the raw water. The existing system uses two storage tanks, one contains untreated water for back-washing the intake system, and one contains treated water that is released into the water line distribution system. A diesel back-up generator with a one-day fuel supply is used to power the system in the event of power failure. All backwash operations involve the use of untreated water. As backwash operations take place, this water is stored in a storage tank until sediments are settled, and the raw water is then re-circulated back into the intake pipe. When sediment levels reach a certain level within the backwash tank, the material is pumped from the tank and deposited in an approved uplands site. Since surface waters were not impacted except during construction, a NPDES permit was not required. However, both 401 and 404 permits are in place.

One "valley-wide" community water system currently serves the Hoopa Valley east and west of the Trinity River. According to the Hoopa Valley Public Utilities District, there were a total of 539 metered service connections, with about 280 connections on the east, and 259 on the west in 2004. Approximately 2,100 people are served by the water system. The water system has various surface and groundwater sources, with varying manners of treatment.

Overall, about 50 percent of the annual domestic water supply is gravity fed, and the remainder pumped. Storage tanks are located along the valley benches and are connected to the systems throughout the valley. The distribution system generally includes main water trunk lines extending the length of the valley on both sides of the river, with smaller lateral pipes and some main loops. Pressure booster pump stations and water storage tanks higher on the valley benches locally serve the upper portions of the Reservation.

The east side historically had adequate water supply in the winter and spring months, but fell short in the late summer and fall. The former major source, Captain John Gulch, tended to have reduced flow rates or occasionally dried up in the summer and fall months due to its small watershed (less than two square miles). To compensate, untreated water was pumped into the system from the Mill Creek irrigation flume then was treated and distributed to consumers. Recently, the Captain John system was taken off line and was replaced with the Trinity River collector. The west side generally has year round surface water, but high winter and springtime turbidity levels in Campbell Creek preclude operation of the water treatment plant during this period. Well water normally meets winter and spring demands, but there was insufficient capacity to satisfy summer demand. That deficiency was also ameliorated with the installation of the Trinity River collector.

The existing Valley-wide water system provides water service to the north end of Soctish Field through an eight inch pipeline. The elevation of the pipeline in Soctish Field is approximately 320 feet.

Any water distribution system providing water from lower elevations to the Bald Hills area will require a series of pump stations and storage tanks positioned at strategic locations. Alternative 1 calls for the construction of five storage tanks that range in elevation from 492 feet to 2,342 feet. Figure 3 shows the map locations of the five storage tanks. In addition to the storage tanks, four booster pumps will be required to pump water from the base elevation to the series of five storage tanks.

Under this alternative approximately 13.5 miles of pipe of varying sizes will be laid to extend the Valley wide water service to the Bald Hills area. Residences will be connected to this pipeline through individual meters. Some houses within each of the five pressure zones will require individual pressure reducing valves if the pipeline pressure is over 80 pounds per square inch (psi).

2.2 Alternative 2-Utilize Big Creek as a Water Supply

Big Creek is a perennial stream located on the eastern side of Bald Hills. It is comprised of several smaller streams that converge about 0.7 miles upstream of its discharge into the Trinity River.

As part of the *Bald Hill Water System Feasibility Analysis,* done by Spencer Engineering and Construction Management, flow in Big Creek was measured at three locations in the summer and fall of 2001. 2001 is considered to be a relatively dry year. The flow in the main stem of Big Creek was measured at an elevation of about 1,000 feet below the point where the creek's major tributaries come together. The flows at this point reached a low of about 70 gallons per minute (gpm) in late-August/early-November. The two largest tributaries to Big Creek were also measured during this time period. The south fork of Big Creek at an elevation 1,960 feet had a low flow of 22 gpm. On the north fork of Big Creek at an elevation of about 1,900 feet surface flow disappeared on August 14.

Flow in the main stem of Big Creek at an elevation of 1,000 feet appears to be sufficient to provide a water system for the Bald Hills region under current conditions; however it would be insufficient for projected future demands. Neither of the main upper branches could provide reliable supply for current demands in the Bald Hills area.

The potential main-stem water diversion site is approximately one mile from the nearest residence. Under this alternative, water would be diverted to a raw water storage tank, treated, stored in a treated water tank, and then pumped to a transmission pipeline and distribution system. This alternative would require a backwash storage tank and a pre-treatment sediment basin. This alternative would also require the use of Hypo-chloride in the treatment facility that would have to be constructed in a remote and undeveloped region of the Hoopa Valley Indian Reservation. Alternative 2 would require the duplication of water collection, treatment, and distribution infrastructure that already exists to supply the valley wide water system in a remote roadless area. Alternative 2 would also require storage tanks and booster pumps to reach elevations above the Big Creek intake elevation.

Alternative 2 could have serious impacts on the Big Creek ecosystem. A main concern is the effect of removing a significant portion of the creek's total flow for water system use.

The environmental implications of building, operating, and maintaining a water intake, treatment, and pumping facility in a remote roadless area are severe. In the short term the negative environmental implications of constructing the needed infrastructure, such as roads, power lines, pipelines, intake and treatment facilities, in a remote roadless area are considerable. In the long term, the project has an estimated lifespan of 60 years; the negative environmental impacts of the operation and maintenance of the above facilities in a remote location are significant considering the excess energy, vehicle fuel and electricity, required. The costs associated with the construction, operation, and maintenance of the above facilities and infrastructure make this alternative cost prohibitive. *The Bald Hill Water System Feasibility Analysis* estimated the cost of construction for this alternative to be $4.46 million. Alternative 2 would cost al least $820,000 more than Alternative 1

In addition to higher cost, and more significant environmental impacts, Alternative 2 would also be vulnerable to water source interruption in drought conditions. Alternative 2 would also not provide enough water for future needs in the Bald Hills region. Based on its negative environmental impacts, failure to provide sufficient water for future needs, and prohibitive costs, the utilization of Big Creek as a water supply for the Bald Hills region of the Hoopa Valley

Indian reservation is no longer considered as a viable alternative to the proposed project.

2.3 Alternative 3 - Utilize Pine Creek as a Water Supply

In Alternative 3 Pine Creek would be utilized as the water source for the Bald Hills area water system. Pine Creek is a perennial creek that runs along the western base of Bald Hills and eventually drains into the Klamath River. Records indicate that flows in Pine Creek generally do not fall below 400 gpm in the summer dry season. The Hoopa Tribal Fisheries Department has indicated that Pine Creek supports resident Rainbow Trout, even in the upper sections. The lower section of the creek supports migratory salmonids, including Chinook, Coho, and Steelhead Salmon. A series of waterfalls provide a natural barrier to upstream migration of the salmonid species.

Under Alternative 3 water would be diverted from Pine Creek with an infiltration gallery. This water would then be treated. The required treatment plant would consist of an infiltration gallery, a sediment basin, a water treatment plant, a backwash tank, and a treated water storage tank. This alternative would also require the use of Hypo-chloride to treat raw water in the water treatment plant.

This facility would have to be built in a remote location that would require extensive travel time for the construction, operation, and maintenance phases of this alternative.

The potential site for diversion to a Bald Hills Area Water System would be about 1.5 miles from the area where water service is needed; as a result pipeline at least 1.5 miles long would have to be built. Additionally because of the location of the water source and the topography of the area, getting water to the area of service requires pumping all water to an elevation of 1,500 feet. This is a significant expenditure of energy over and above the other described alternatives, and necessitates the construction of several holding tanks and booster pumping stations. Over the lifetime of the project, approximately 60 years, the additional energy expenditure required to pump the all water to this additional elevation amounts to a significant environmental impact.

In addition to higher energy consumption, the potential for negative impacts on salmonid species is also higher for Alternative 3 than the other described alternatives. There is no record of migratory salmon reaching the proposed water infiltration gallery and diversion site in Pine Creek. However the withdrawal of water from Pine Creek may have an adverse impact on the life functions of migratory salmonids in the creek. The assessment and monitoring of impacts on these species is cost prohibitive, and may require imposing limits on the quantity of water available for use in the Ball Hills area water system. If limits are imposed, it is possible community water needs will not be met. In addition to greater environmental impacts, *The Bald Hill Water System Feasibility Analysis* done in 2001 indicated that this alternative would cost about $4.85 million dollars, and is the most costly alternative discussed in this analysis. The construction phase of Alternative 3 costs approximately $1,210,000 more than Alternative 1. Based on its negative environmental impacts, possible failure to provide sufficient water for future needs, and prohibitive costs, the utilization of Pine Creek as a water supply for the Bald Hills region of the Hoopa Valley Indian reservation is no longer considered as a viable alternative to the proposed project.

2.4 Alternative 4 - No Action Alternative

The no action alternative is an unacceptable consideration for the Hoopa Valley Tribe. In order to meet the current as well as future growth patterns of the Reservation, the Tribe needs to extend safe, reliable domestic water to the Bald Hills Area. Under current conditions residents must rely on untreated drinking water from wells, springs, and surface water sources. These supplies are apt to run dry during the late summer and fall.

The annual domestic water consumption in the Hoopa Valley has averaged 106,638,000 gallons or approximately 292,000 gallons per day over the past four years. The Land-use Plan for the Hoopa Valley Indian Reservation projects a population increase of 29.8% over the next ten years or an annual growth rate of 2.64%. Assuming the 2.64% annual population growth rate, the maximum daily usage in the year 2021 is expected to rise to about 1.68 times the current maximum daily water usage. Residents in the Bald Hills area do not have reliable access to safe drinking water.

The No Action Alternative would maintain the status quo of the site and economic conditions of the Bald Hills Area of the Hoopa Valley Indian Reservation. The No Action Alternative will involve the non-approval of the proposed project at any level and the continuation of the land with its existing management and use.

If this alternative were selected, the site will remain in moderate productivity. Existing wildlife values, vegetation, and land use will not be disturbed.

The No Action Alternative is considered unacceptable by the Tribe since it fails to meet the goal of self-sufficiency of the Hoopa Valley Tribe.

Figure 2-1 Regional Site Location

Figure 2-2 Topographic and Site Map

Source: USGS Hoopa Quad (Not to Scale)

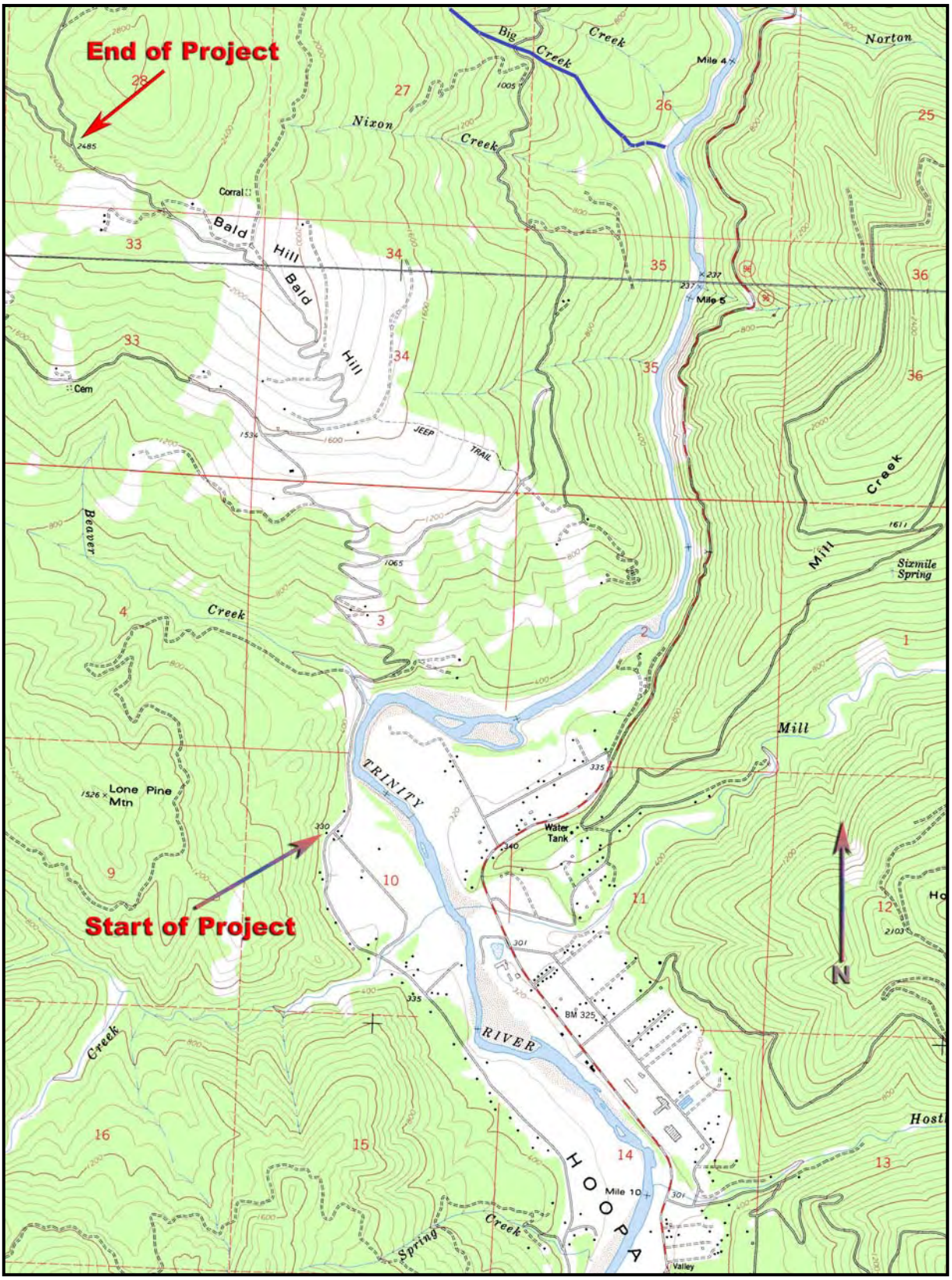
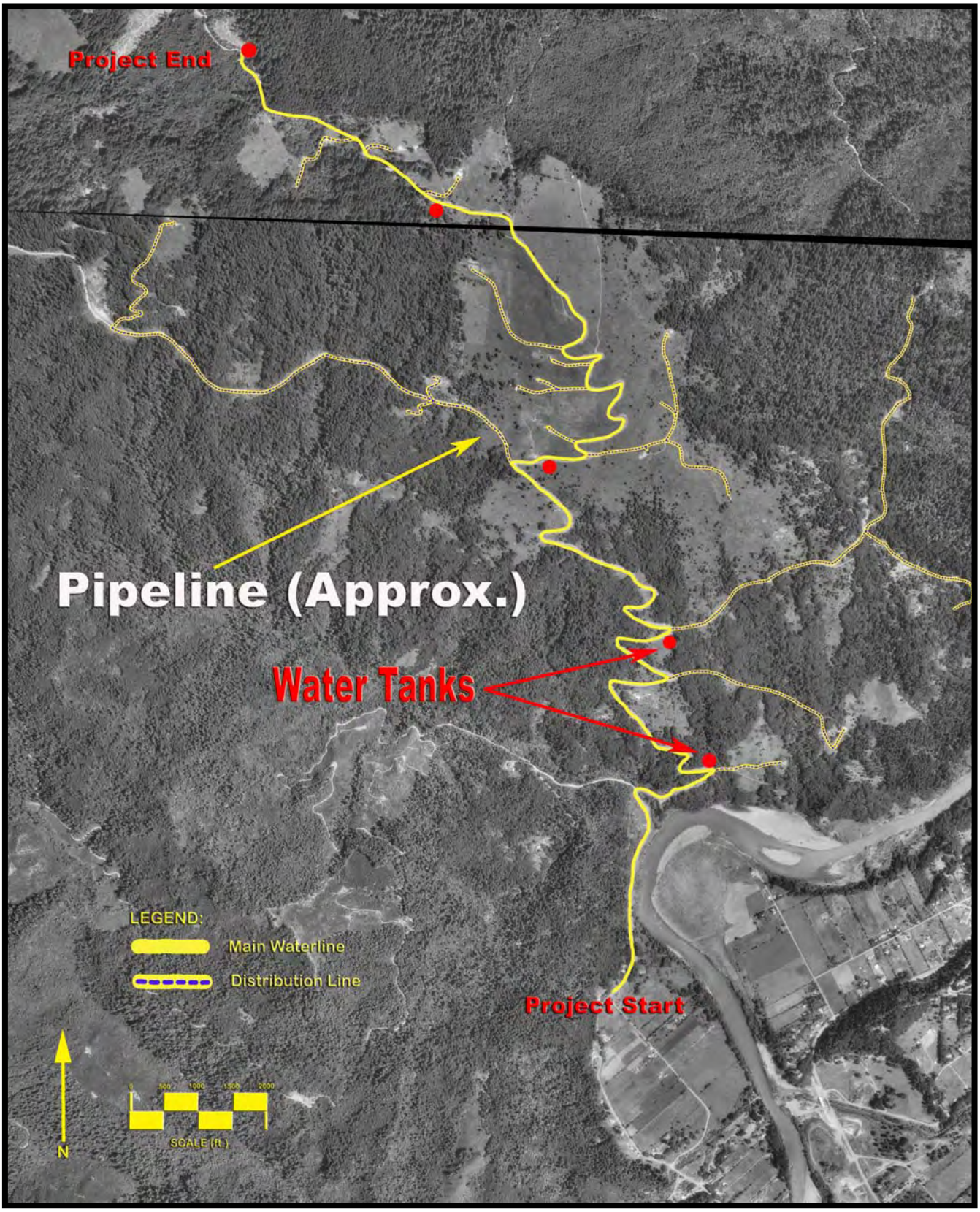


Figure 2-3 – General Project Features (See Appendix "D" for Detailed Features)



SECTION 3 – DESCRIPTION OF AFFECTED ENVIRONMENT

3.0 INTRODUCTION

The purpose of this chapter of the environmental assessment relating to the Hoopa Valley Tribe's proposed water system expansion to the Bald Hills area is to describe the existing environment in the proposed project area. This chapter contains eleven sections each of which may include pertinent subsections.

3.1 Land Resources

3.1.1 Topography

The Hoopa Valley Indian Reservation, the State's largest Indian Reservation, is located in the northeastern portion of Humboldt County (Figure 1.1). The Reservation is shaped geometrically similar to a square with sides approximately 12 miles in length. The valley itself lies near the center of the Reservation. Hoopa Valley is located about 65 miles east of Eureka and 120 miles west of Redding. It is 12 miles north of Willow Creek and 10 miles south of Weitchpec, where the Trinity River flows into the Klamath River. The valley floor, an alluvial plain approximately 6 miles long by 1 mile wide, is bisected in a north-south direction by the meandering Trinity River. The Hoopa Reservation is separated into 8 districts, or fields, which represent traditional villages of the Hupa People. The field names are Norton, Soctish/Chenone, Mescat, Hostler, Agency, Bald Hills, Matilton and Campbell. Except for the relatively flat Hoopa Valley, most of the Reservation is steep and heavily forested.

The Bald Hills area is on the northwest side of Reservation. The east side of the region slopes steeply into the Trinity River which defines the area's eastern border. The western side of the area is defined by the change in slope to Hupa Mountain and French camp ridge.

3.1.2 Soil Types & Characteristics

Past geologic conditions, the steep terrain and high amount of precipitation have all contributed significantly to soils formation in the Hoopa Valley.

These factors have combined to produce erosion, which resulted in thicker soil mantle along the Trinity River and thinner soil layers on the mountain valley slopes. The valley contains a series of terraces; each composed generally of differing relationship of soils. The Agency and Chenone soils lie at the lower terraces along the Trinity River. These are the most recently formed and are coarse textured. They also lack profile development and have a high base saturation. On the next terrace level are the Soctish soils, which are older than the Agency and Chenone soils. They are finer textured, have a very weak profile development, and a medium base saturation.

Above the Soctish soils are the Norton soils, which are the oldest. These soils are finer in texture, have a weak profile development and have low base saturation. Matilton soils are also found at the higher terraces and, like the Norton soils, support heavy forest vegetation. Above the higher terraces are the steep upland areas of the valley, which support forest vegetation (see Figure 3.1).

Soil types have been extensively mapped for the Hoopa Valley Indian Reservation. A soil survey conducted in 1975 by Agricultural Extension Service and the University of California at Davis classifies agricultural soils on the valley floor as follows:

Grade 1 soils (excellent)	707 acres
Grade 2 soils (good)	323 acres
Grade 3 soils (fair)	357 acres
Grade 4 soils (marginal)	1,613 acres

Grade 1 soils are suitable for a wide range of crops with excellent yields. Grade 2 soils are suitable for a myriad of crops with average yields. Grade 3 soils have a limited range of crop suitability but specialized crops may give good results. Grade 4 soils are either marginal in production, or have been developed for human use. Soil surveys conducted on the Hoopa Valley Indian Reservation are classified as Order III, or reconnaissance level surveys. Soil characteristics, qualities, and ratings of interest to land managers on the Hoopa Valley Indian Reservation were presented in a report entitled Soils of the Hoopa Valley Indian Reservation, Humboldt County, California, Annette Parsons, 1985.

The proposed project includes a water pipeline. This pipeline will follow the existing roadbeds in the project area. The following descriptions of soils describe the native soils in the project area. The reader should note that the actual soils in the vicinity of the pipeline may include imported gravel and other fill material associated with past road construction and maintenance.

The project commences at the terminus of the existing valley wide water system in Soctish field. The soil mapping unit in the area where the water system extension will occur is Matilton very gravelly course sandy loam. The soil mapping symbol in this area is Ma2. The soils in this area are characterized by 3-10 percent slopes.

Matilton series soils consists of deep, somewhat excessively drained very gravely moderately coarse textured soils developed from alluvium derived from sedimentary and meta-sedimentary rocks. Matilton is the most extensive soil in the Hoopa Valley, and it occurs in all fields. The Matilton series soils are grade three soils, and are suitable for orchard crops if irrigation is used. The Matilton series soils are generally not suitable for row crop agriculture due to the gravelly texture of the soil and the fact that it is considered somewhat excessively drained. Erosion hazard for Matilton soils is considered slight.

The proposed water system extension may pass through the extreme western frontier of the Soctish silt loam soil mapping unit. The soil mapping symbol in this area is Sc1. The soils in this area are characterized by 0-3 percent slopes.

Soctish series soils consist of deep moderately well drained to well-drained, medium textured soils developed from alluvium derived from sedimentary and meta-sedimentary rocks. Soctish soil series are the most extensive agricultural soils in the Hoopa Valley. With sufficient irrigation Soctish soils are excellent agricultural soils and are well suited to the cultivation of a wide variety of vegetable, grain, orchard, vineyard or forage crops.

The remaining soils in the project area are upland soils. Four soil series have been identified in the proposed project area. These soils are identified with a three digit mapping symbol used in the adjacent Six Rivers National Forest. All soil series in the proposed project area are 200 series soils developed primarily from meta-sedimentary rock, phyllite and schist. The three digit numerical symbol is followed by one or more letter symbols that indicate slope and stoniness. The slope designations in the project area range from gentle (g) 5-10 percent slope to precipitous (p) over 65 percent. The four upland soil series in the proposed project area are Atwell, Josephine, Neuns, and Sites. Atwell variant Xerochrepts are typically somewhat poorly drained fine textured soils consisting of clay, loam, and gravel. Josephine variant soils consist of deep well drained, moderately fine textured soils consisting of clay, loam, gravel, and rocks. Neuns series consists of moderately deep, well drained soils composed of loam and gravel. Sites series soils consist of deep, well-drained fine textured soils composed of clay and loam.

The hydrologic soil group indicates the soil's potential for runoff. Factors considered in determining the hydrologic soil group include structure and texture of surface horizon, permeability of surface horizon, and the depth at which a reduction in permeability begins. The groups are classified as follows[1]:

Group A - very low runoff potential
Group B - low runoff potential
Group C - moderate runoff potential
Group D - high runoff potential

In general, the surface features of the soil at the project sites are considered Group C.

3.1.3 Geologic & Mineral Resources

The Hoopa Indian Reservation is in the Klamath Mountains geologic province. A northerly trending, generally steep, thrust fault, the South Fork Mountain fault, separates the Klamath Mountain from the Coast Range (Irwin, 1966). On the upper, or eastern, plate are mildly metamorphosed shale, phyllite, thin-bedded chert, and altered volcanic rocks assigned to the Galice Formation of the western Jurassic belt. Together with other metamorphosed clastic sediments, chert, and volcanic rocks of the western plate are metagraywacke, chert, and volcanic rocks of the Franciscan Formation that are more fully described in the section on geology of the Coast Ranges. Just below the thrust these underlying rocks are somewhat more metamorphosed than elsewhere and are referred to as the South Fork Mountain schist (Irwin, 1966). Along the sole of the thrust is a sheet of serpentinized peridotite of variable thickness that comprises a nearly continuous belt extending northward into Oregon. Other thinner bands of serpentine, with northerly trend found farther east, are believed to have been injected along steep faults. The east edge of the Hoopa Valley Reservation cuts across a bulge on the western side of the extensive granitic Ironside Mountain batholith. The rock here is chiefly quartz diorite or diorite and has been radiometrically dated as 165-167 million years old (Jurassic).

[1] From the Order III Soil Resource Inventory, Six Rivers National Forest (1980) as adapted from U.S. Conservation Service guidelines, 1972.

Along Beaver Creek, about 4 miles north of Hoopa, are small patches of sandstone, shale, conglomerate, and lignite that are poorly known. They may be Oligocene equivalents of the Weaverville Formation that contains coal near Hyampom and Hayfork, or they may be a landward extension of the Miocene Wimer Formation of Maxson.

Depth to bedrock along the proposed waterline route is not known and will require a more detailed geotechnical investigation. However, based on previous waterline installations along Pine Creek Road, rock was encountered in some areas that did require heavy scarification and in some cases minor blasting.

The sand and gravel deposits of the Hoopa Reservation have been mined for use nearby in road or building construction by Hoopa Aggregates, a Tribal enterprise. The quantity available is enormous, and no doubt this material will continue to be used wherever there is sufficient local demand. It is probable that some aggregate from Reservation resources will be utilized on the proposed project in form of bedding material for pipeline distribution, aggregate for concrete mixing and sub-base for road re-construction.

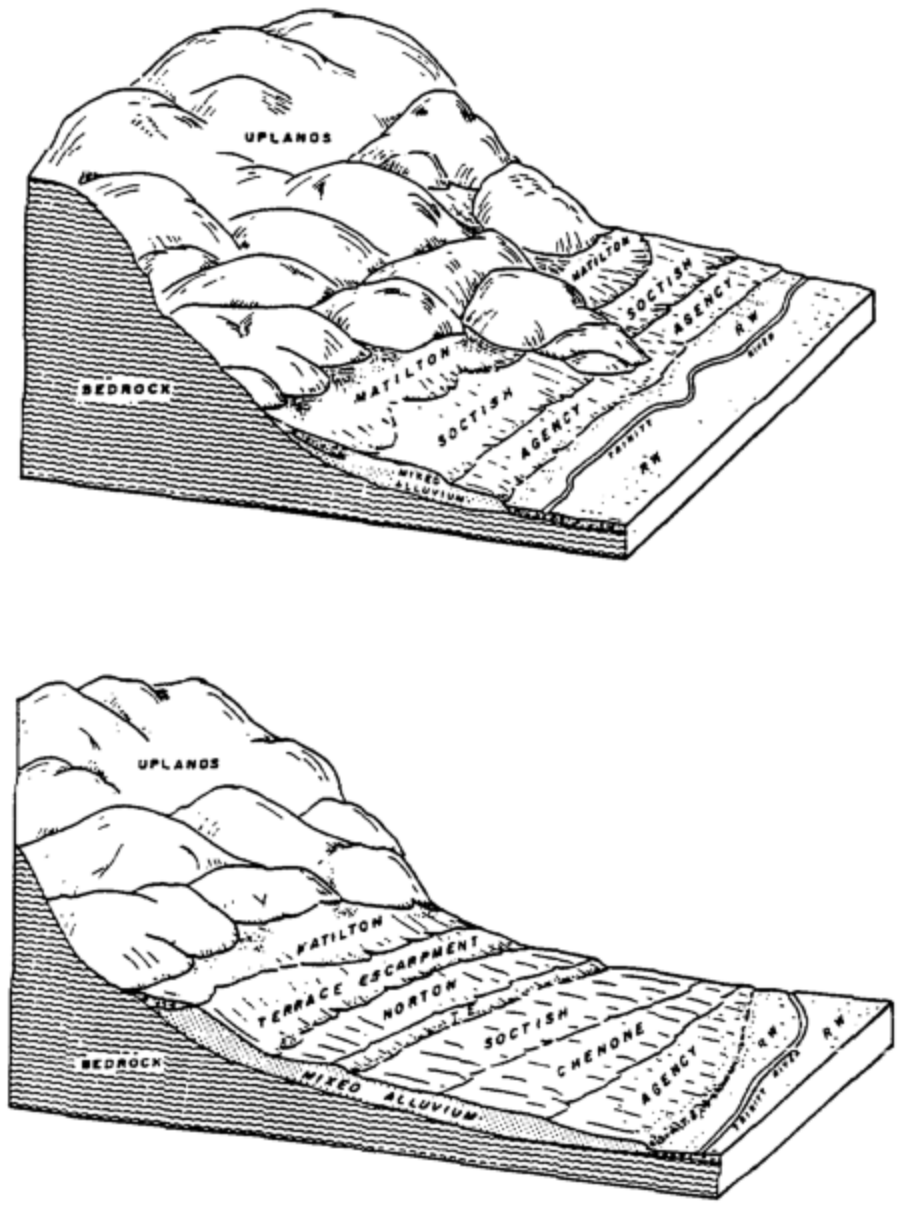
3.1.4 Seismic Conditions

The sites are not located within an Alquist-Priolo special study zone as classified by the California Division of Mines and Geology (CDMG) thus indicating that no "active faults" (movement occurring in the last 10,000 years) or "potentially active faults" (movement occurring in the last 2.0 million years) are identified or significantly close to the site. Furthermore, review of the Preliminary Fault Activity Map of California, CDMG Report 92-03, 1992 indicates that no known active faults are mapped either in the site boundaries or on nearby land. There is however an inactive fault known as the Beaver Creek Fault located near Beaver Creek at the base of Pine Creek Road.

Therefore, the study area could experience "Very Violent" to "Strong" ground shaking (equal to a Seismic Zone 4). The majority of the site would experience "Very Strong" ground shaking. Very strong shaking corresponds to Modified Mercalli IX, in which masonry buildings can be severely damaged, wood frame buildings are racked (twisted), underground pipes are broken, branches are broken from trees, reservoirs are damaged, and spring flows change. The cost-damage factor for capital improvements is 5%. A damage-cost factor of 5% means that the cost of repairs to a structure is equal to 5% of the cost of replacement. For example, Alternative 1 (preferred) would require repairs costing up to 5 percent of $3.6 million dollars or $180,000.

The intensity of ground shaking and earthquake damage is influenced by the underlying geologic formations. Mesozoic formations would perform better than any other formation on the site. It will experience more intense shaking than most other bedrock formations found in the area. Unconsolidated deposits are subject to more intense shaking than any material especially where the deposits are thick.

Figure 3 -1 Terraces of the Reservation



3.2 Water Resources

Prior to the completion of the Trinity and Lewiston Dams in 1963, flows in the Trinity River were substantial year-round. Flows of the minor tributaries to the Trinity River within the Hoopa Reservation are directly related to seasonal distribution of precipitation in the area, and over 80 percent of the flows of these streams occur during the months of November through March. Low summer flows in these tributaries have often been inadequate to meet demands of water users for whom the tributary constitutes a sole water source. The Hoopa Valley East and West water systems were interconnected by the Trinity River Bridge connection and the pipeline through Blue Slide to form the Hoopa Valley-Wide system. With these connections, the ability to move water between the east and west of the Trinity River alleviated some of the water shortages. The Telescope springs water system was incorporated into the Valley-Wide system when the Campbell Creek water treatment plant was constructed.

The groundwater basin of the Hoopa Indian Reservation is confined to the terraces adjacent to the river in the valley itself. The storage capacity of the Hoopa Valley has been estimated by the Department of Water Resources, State of California, at approximately 19,000 acre feet, has a maximum well yield of 300 gpm, and does provide a usable source of "small plot" agricultural water.

Hoopa Valley, in Humboldt County, is a 5 square-mile basin drained by the Trinity River. Trinity River flow data has been collected by the USGS since the 1960's. The Hoopa Tribal Environmental Protection Agency has been collecting data on the Trinity River and priority streams on the Reservation since 1989. Data from the lowest recorded flows indicate that creek flows recorded in October can be less than half than the flows recorded in June. Creek flow data from 1995 to present are recorded utilizing real-time continuous data recorders.

When Congress authorized construction of the Trinity River Division (TRD) of the Central Valley Project (CVP) in 1955, the expectation was that surplus water could be exported to the Central Valley without harm to the fish and wildlife resources of the Trinity River. The TRD began operations in 1963, diverting up to 90 percent of the Trinity River’s average annual yield at Lewiston, California. Access to 109 river miles of fish habitat and replenishment of coarse sediment from upstream river segments was permanently eliminated by Lewiston and Trinity Dams. Within a decade of completing the TRD, the adverse biological and geomorphic responses to TRD operations were obvious. Riverine habitats below Lewiston Dam degraded and salmon and steelhead populations noticeably declined.

In 1981, the Secretary of the Interior directed that a Trinity River Flow Evaluation (TRFE) study be conducted to determine how to restore the fishery resources of the Trinity River. The TRFE study provides recommendations to the Secretary to fulfill fish and wildlife protection mandates of the 1955 Act of Congress that authorized the construction of the Trinity River Division of the Central Valley Project. In June of 2000, the TRFE was issued and the Secretary of Interior signed the Record of Decision (ROD) in the fall of 2000 authorizing the release of additional water into the Trinity River, equivalent to 48 percent of the river’s original natural flows. Thus, the recently approved Record of Decision (ROD) for the preferred alternative of the Trinity River Flow Evaluation Report (TRFE) EIS will not be impacted by the extension of the Hoopa Valley Water supply to the Bald Hills region of the Hoopa Valley Indian Reservation.

There are several tributary creeks in the Ball Hills watershed. Some creeks are named perennial creeks, others are unnamed seasonal creeks. The named perennial creeks in the vicinity of the proposed action are:

> Beaver Creek is a perennial tributary creek to the Trinity River. Beaver Creek has a total watershed area of 2,095 acres, and an estimated water yield (acre feet) of 6,824. Bald Hills Road crosses Beaver Creek approximately 800 feet upstream of its confluence with the Trinity River. This culverted road crossing is also where the proposed water pipeline will cross Beaver Creek.
>
> Pine Creek is a perennial creek which runs along the western base of Bald Hills and flows into the Klamath River northwest of the confluence of the Trinity and Klamath Rivers. Pine Creek has a total watershed area of 31,412 acres, of that 12,559 is on the Hoopa Valley Indian Reservation. Pine Creek has an estimated water yield of 104,174 Acre-feet. The preferred alterative will have no direct impact on Pine Creek.
>
> Big Creek is a perennial tributary creek to the Trinity River. Big Creek has a total watershed area of 1,157 acres, and an estimated water yield (acre feet) of 3,827. The preferred alternative will have no direct impacts on Big Creek.

The Hoopa Valley groundwater area is approximately 7 miles in length and 0.7 miles wide with narrow, gorge-like canyons at both ends of the valley. Surface waters from the Trinity River and springs along the edge of the valley provide the principal source of water supply to the valley. The terraces bordering the river on each side slope gently upward from the river to merge with alluvial sands near the edge of the valley. The alluvial deposits are generally less than 65 feet in depth along the center of the valley and consist mostly of terrace deposits bordering each side of the river. (Winzler & Kelly, 1974)

The groundwater within the valley area occurs principally in unconsolidated alluvial deposits. The water table appears highest at the edge of the valley near the tributary streams and slopes away from them toward the Trinity River. Examples of this are the wells supplying the Agency system adjacent to Supply Creek and to a lesser extent wells that were constructed along Mill Creek which are of high yield but of low water quality. The rate of groundwater movement, because alluvial deposits are highly permeable, is quite rapid. The groundwater moves in relatively thin sheets above the underlying bedrock, creating a zone of saturation which is quite thin, resulting in notoriously low yields with high drawdowns during late summer months.

The recharge of groundwater in the Hoopa Valley is dependent upon two factors: direct infiltration of precipitation which falls on the terrace deposits, and the infiltration of runoff derived from the various perennial streams. Groundwater can be recharged very rapidly because of the high permeability of the material that composes the alluvial terraces. The high permeability of the alluvial terrace deposits also allows for the rapid movement of groundwater to points of discharge; therefore groundwater is retained on the alluvial terraces for only short periods of time.

The alluvial terrace areas are only a small portion of the project area. The majority of the project area is in the upland areas. Upland areas are characterized by thin layers of surface soils exiting over bedrock. Soil depths in upland areas vary with topography but are generally less than sixty inches. The relatively shallow depth to lithic contact in upland areas means that groundwater is sporadically present in limited quantities. The low amounts of available groundwater in upland areas makes the use of wells as a source of domestic water problematic or impossible

Like most of California, Hoopa Valley enjoys a Mediterranean type climate with hot dry summers and cool moist winters. The mean annual temperature is 57°F. Recorded extremes include a low of 7°F and high of 118°F. The mean annual precipitation is 57 inches with 90 percent occurring between October and April. Snowfall on the valley floor is rare but elevations above 4,000 feet, in the adjoining mountainous areas, receive substantial amounts.

During the winter of 1992-93, the area experienced an end of California's seven-year drought. Precipitation for the period ending December 30, 1992 exceeded 47 inches.

The Hoopa Valley Indian Reservation and surrounding areas sometimes receive warm rains during the winter months, which quickly melt existing snowpacks. When this happens, rivers and streams overflow their banks and flooding occurs. Major floods occurred in 1955 and 1964. The flood of 1955 was declared the 100-year flood (has a one percent chance of occurrence in any given year) and the 1964 flood was declared a 1000-year flood. These flood zone areas have been mapped by the U.S. Bureau of Reclamation and entered into the Tribe’s GIS database. The majority of the Bald Hills area is outside of the 100-year floodplain as mapped by the Bureau of Reclamation.

Local regulations controlling activities within flood plains are contained in the reservation's draft comprehensive plan, land-use volume. The flood plain zone is intended to be applied in areas subject to inundation by the 100-year flood and areas subject to high liquefaction potentials as delineated in the Tribe's 100-year flood plain map and/or the U.S. Bureau of Reclamation's 100-year flood plain for the Trinity River. Land use is regulated within these areas to protect lives and property from destruction and damage due to liquefaction, floodwaters and the transportation by water of wreckage and debris, to protect the community from the cost that may be incurred when unsuitable or premature development occurs in such areas, and to allow uses which are appropriate in such areas.

A small portion of the project resides in the 100-year flood plain. Approximately 300 feet south of the Beaver Creek crossing, Bald Hills Road is in, or abuts, the 100-year flood plain for approximately 200 feet. In this area, the proposed project consists of a buried 8-inch welded steel water pipeline. Because the proposed action in this area is a buried water pipeline no floodplain related impacts can be reasonably expected.

3.3 Air Quality

The overall air quality of the Hoopa Valley Indian Reservation and general vicinity is excellent since topography and wind conditions usually limit the infiltration of outside pollutants. When the right climatic conditions occur (a low inversion layer and a gentle north or northeasterly wind); air pollution may be noticeable and possibly objectionable.

The major influence upon air quality in the area is from slash burning, cars and logging trucks, with most of the vehicle generated pollutants occurring on the unpaved roads on the Reservation. Dust pollutants are generated during the summer months from major logging haul roads.

Residential generators also have a minor influence, with most of the pollutants created by fireplaces, woodstoves, and residential burning. With the proper atmospheric conditions and sufficient densities, smoke may be noticeable and even objectionable at certain times. However, even under these conditions, the Hoopa Valley Indian Reservation remains "in attainment" of standards under the Clean Air Act.

The Tribal Environmental Protection Agency (TEPA) monitors air quality when inversion layer conditions exist, or when forest fires may create objectionable air quality conditions. TEPA utilizes mini-volume portable PM10 on-site samplers and a Tapered Element Oscillating Microbalance (TEOM) to monitor air quality on the Hoopa Valley Indian Reservation.

Air quality as a result of the proposed undertaking is not projected to be impacted since particulate matter will be controlled through wetting.

3.4 Living Resources

It is a policy of the Hoopa Valley Tribal Council through the Hoopa Forest Management Plan (FMP) to actively protect and conserve non-market resources associated with the commercial forestlands on the Reservation. The management plan goes beyond state and federal listings of rare and endangered species by identifying and providing for culturally significant plant and animal life. In addition, the Endangered Species Act (ESA) requires that consultation be conducted involving Federally-assisted activities in an area identified by USGS Quad maps that contain or have the potential to contain habitat or species listed under ESA.

Since the Tribe actively manages the forest resources of the Reservation, the Hoopa Tribal Forestry Department has initiated a comprehensive wildlife management program. This program includes over twelve years of biological surveys, a Spotted Owl Habitat survey and wildlife assessments, which are performed prior to all projects. As a result, wildlife data on the Reservation is comprehensive as well as creditable.

3.4.1 Wildlife

3.4.1.1 Threatened Species

Three threatened species under the Federal Endangered Species Act (ESA) are known to occur on the Hoopa Valley Indian Reservation: the Northern Spotted Owl, the Bald Eagle, and the Southern Oregon/Northern California Coasts Coho Salmon. The Marbled Murrelet is another threatened species that may occur on the Hoopa Valley Indian Reservation. Extensive surveys of potential Murrelet habitat on the reservation, occurring between 1992 and 2002, have not discovered any Murrelets. The presence of Marbled Murrelets on the Hoopa Valley Indian reservation is considered highly unlikely. Other wildlife species on the Reservation that are afforded special protection under the Migratory Bird Treaty Act include Peregrine Falcon, which was recently de-listed under the ESA.

The Bald Eagle

The Bald Eagle is a rare but regular winter visitor to the lower Trinity River. Occasionally individuals forage along the rivers and streams of the Reservation, especially during salmon spawning seasons. At this time there are no known nests of Bald Eagles on the Reservation. Management considerations for this species on the Reservation should include leaving snags and other perching sites along streams and rivers that have salmon and steelhead runs (both present and potential).

The Northern Spotted Owl

The Northern Spotted Owl deserves special consideration because the subspecies that occurs in the Pacific Northwest depends entirely on old-growth Douglas-fir forests. Its population is considered to be declining because of the demise in its habitat due to timber harvesting. Approximately forty-seven (47) Spotted Owl activity centers and 70 acres of nesting habitat have been identified on forested lands in the Reservation. Spotted Owl habitat constraints include large areas of old-growth Douglas-fir, the minimum size of which has not been accurately identified. In a study conducted on Six Rivers National Forest land adjacent to the Reservation by David Solis, (Masters Thesis, Humboldt State University, June, 1983) Spotted Owls were found to concentrate most of their foraging and roosting activities in stands of mature/old-growth timber greater than 250 acres in size with an average stand size of over 500 acres. Nesting stands could apparently be smaller. This should <u>not</u> be confused with minimum total area requirements however, as these may be even larger. The geometric shape of stands managed for Spotted Owls can be variable, but the following considerations may be useful:

1) Larger habitat areas are more useful than smaller areas.
2) Continuous habitats should be circular rather than linear.
3) Continuous habitats should be close and equally spaced from each other.
4) Fragmented habitats should be close and equally spaced from each other.
5) Corridors of suitable habitat should connect fragmented habitat areas.

Micro-habitat requirements for Northern Spotted Owls generally include the following:

1) Hardwood and conifer trees combine to form multi-layered stands with dense canopy closures.
2) Most Northern Spotted Owl stands are not characterized as being decadent, even though older trees are present.
3) Tanoak is the dominant shrub layer.
4) Habitat areas are generally located on north to east facing slopes, with roosting sites at lower elevations than other sites.

Coho Salmon

The Southern Oregon/Northern California Coasts (SONCC) Coho Salmon (Oncorhynchus kisutch) Evolutionary Significant Unit (ESU) was listed as threatened under the ESA on May 6, 1997 (62 FR 24588). The species was listed as threatened due to numerous factors including habitat degradation, over harvest, water diversions, and artificial propagation that have exacerbated the effects of natural disturbances such as floods, drought, and poor ocean conditions. Designated critical habitat for SONCC coho salmon encompasses accessible reaches

of all rivers, estuarine areas, and tributaries between the Mattole River in California and the Elk River in Oregon.

Coho salmon exhibit a relatively simple three-year life cycle. Adult coho salmon travel from the ocean into river mouths traveling upstream. In non-winter months, many California streams have sandbars that block the mouths of such rivers, and thus the entry of adult coho salmon typically occurs between September and February. The precise timing of these entries is determined by the species history and by annual river flows. Once upstream, spawning takes place. Spawning typically occurs from November to January, but occasionally occurs as late as February or March. Coho eggs incubate for 35 – 50 days between November and March. The success of incubation is dependant on several factors, including dissolved oxygen levels, temperature, substrate size, amount of sediment, and water velocity. Fry begin to emerge from the gravel two to three weeks after hatching and move into shallow areas with vegetative or other cover. As fry grow larger, they disperse throughout their resident streams, both up and downstream. In summer, coho salmon fry prefer pools – or other slower velocity areas such as alcoves – with woody debris or overhanging vegetation. Juvenile coho salmon over-winter in slow water habitat with cover as well. Juveniles may rear in fresh water for up to 15 months, whereafter they migrate to the ocean as smolts from March to June. Coho salmon adults typically spend two years in the ocean before returning to their natal streams to spawn as three-year-olds. While in the ocean, coho salmon remain closer to their natal river than do Chinook salmon.

Similar species to coho salmon include Upper Klamath-Trinity Rivers (UKT) Chinook salmon (O. tshawytscha) and Klamath Mountains Province (KMP) steelhead (O. mykiss). These species may occur in the action area but are not listed under the ESA. These species have similar habitat and biological requirements as coho salmon, thus, the BA's effects analysis considers effects to Chinook salmon and steelhead habitat within the action area. However, determinations regarding project effects to unlisted species are not included in this document.

Other Threatened and De-listed Species

A breeding pair of Peregrine Falcons is known to have nested in the Rock Creek drainage for the past three years. Other occurrences have been known in the Campbell Creek drainage. Both of these drainages are not in the proposed project area.

The Marbled Murrelet (MAMU) is a small seabird that nests in coastal forests of Pacific Northwest and is listed as threatened under the Endangered Species Act in California, Oregon, and Washington. It is also listed as endangered under the California Endangered Species Act. Habitat destruction through forest harvest is generally regarded as the main cause of population decline, although mortality in gill-nets, in oil spills, or as a result of predation are also thought to play significant roles.

Marbled Murrelets need substantial tracts of mature conifer forests within 30 miles of the coast. Within these tracts, they need to be able to find large horizontal limbs, covered in mosses, with screening above. This may be the only species to have adapted a direct dependency on the old growth forest and the near shore marine waters.

As a part of the standard environmental review of all projects within the Reservation, focused surveys for MAMU's are conducted in all habitats which may support nesting activity.

No potential nesting habitat for MAMU's occurs on or near the preferred alternative project area as determined by a biological evaluation conducted as a course of this environmental assessment.

Sensitive Species

The Tribe currently follows all conservation recommendations issued by the U.S. Fish & Wildlife Service on all projects submitted for consideration. Three sensitive species of wildlife exist locally: Goshawk, Osprey and Golden Eagle. No Golden Eagle nests are known on the Reservation, but the remaining two species have nesting populations of unknown size on the Reservation.

Project operations in the vicinity of Osprey nests should be done during non-breeding seasons (September –February). Goshawks depend on old-growth Douglas fir forests to some extent and are therefore important indicator species for assessing the overall health of Douglas fir stands. Goshawk habitat requirements have been studied locally by Pat Hall (Location and Identification of Essential Habitat for Goshawks (*Accipiter gentilis*) on Six Rivers National Forest. Recommendations for this species include maintaining closed canopy stands around nest sites, alternate nest sites, plucking sites and roost sites. The protection zone should include coniferous stands contiguous with riparian and open habitats. Nesting habitat was characterized as:

1) Predominately Douglas-fir with 8-10% hardwoods.
2) Northwest to east exposure for stands and nest sites.
3) Even-aged stands of small to large saw-timber with over-mature nest trees.
4) Canopy closure and stems per acre were lower at the nest tree then in the rest of the stand allowing for easy access to the nest by the birds.
5) Low decadence throughout stand except for nest tree.
6) Open shrub or brush layer with mostly litter and small dead and down material on the ground.
7) Scattered mature or over-mature trees throughout stand, used for plucking perches.

Goshawk nests have been identified on the reservation. Known nests are in the Snow Camp and Sugar Pine mountain areas. These areas are not in the area of the proposed action.

Special Interest Species

Four special interest species occur on the reservation, Great Blue Heron, Sharp-shinned Hawk, Cooper's Hawk and Pileated Woodpecker. The first three of these species require only protection around their nesting sites. The Pileated Woodpecker has some special requirements in old-growth forests, and is considered a culturally important species for the Hupa people. In a study performed in the Blue Mountains of Oregon, Evelyn Bull (Master Thesis, Oregon State University, 1975) found the following optimum habitat characteristics for Pileated Woodpeckers:

1) Snags greater than 16" diameter at 31' above ground (greater than 20" dbh).
2) Two storied stands with 70% canopy closure.
3) Presence of Carpenter ants; therefore presence of logs with heart rot.

4) Stands large enough to contain 300-acre territories.
5) A density of snags above 7 snags/100 acres greater than 20" dbh in 100% forested stands. A density of 12/100 acres in 60% forested areas.
6) At least 50% forested areas in territories. Pileated Woodpeckers were absent in areas with 35% forested habitat.

None of the special interest species mentioned above are known to have nesting sites in or around the area of the proposed action, which is the Bald Hills region of the Hoopa Valley Indian Reservation.

3.4.1.2 Other Species

Species that are not endangered, but require special consideration include: steelhead, sturgeon, eels, deer, elk and neotropical migrant birds.

There are several fish stocks of concern on the reservation. Surveys conducted by the Fisheries Department have focused on the Trinity mainstem. The Trinity River currently contains Coho (*Oncorhynchus kisutch*) in this Southern Oregon/Northern California Evolutionary Significant Unit, which are listed as threatened species under the Federal Endangered Species Act (ESA) (Federal Register. Vol. 62, No. 87). Klamath Mountains Province ESU steelhead (*O. mykiss*) were formerly a candidate species for ESA listing (Federal Register. Vol. 63, No. 53). Both species have been documented in the Trinity River and Reservation tributaries. (Hoopa Tribal Fisheries, unpublished data).

The National Marine Fisheries Service reviews any management action that can impact the water quality or fisheries resource. Such management actions are reviewed to ascertain the degree of potential impacts to the ESA listed species.

Other fish species of cultural significance are green sturgeon and Pacific lamprey eels. Green sturgeons are found mainly in the Trinity River and have reduced populations as a result of the construction of the Trinity dam and regulated river flow. Pacific lamprey eels frequent the mainstem Trinity River, as well as several tributaries on the reservation. They are generally less abundant today than they have been historically due to degraded habitat conditions. Protection of streamside zones from further encroachment of new roads or development would aid in the maintenance recovery of the fisheries.

Based on a combination of literature, field review, and consultation with NOAA Fisheries and the U.S. Fish and Wildlife Service conducted in relation to this assessment, listed, threatened or endangered species of wildlife are not likely to be adversely affected by adoption and implementation of the Preferred Alternative of the proposed action and should not have a significant impact on the habitat of wildlife and fisheries resources on the Hoopa Valley Indian Reservation.

3.4.2 Vegetation

One sensitive plant species can be found in the proposed project area. The species of concern is Bald Hill Locoweed. This species is found in disturbed soils along roadsides in the Bald Hills area of the Hoopa Valley Indian Reservation. Therefore, as long as the seed source for Bald Hills Locoweed is not destroyed, the current populations could easily survive the construction of the

pipeline, storage tanks, pump stations and access roads as described in the preferred alternative. In 1986 only four (4) separate California sites were documented to contain populations of Bald Hill Locoweed, three of these sites were on the Hoopa Valley Indian Reservation (Theiss, 1986)

Based on a combination of literature and field reviews conducted as a task of this assessment, no endangered, rare or threatened botanical species will be impacted by construction of the Preferred Alternative.

3.4.3 Sensitive Species & Habitats

Based on a combination of literature and field reviews conducted as a task of this assessment, no endangered species, or habitat of endangered species will be impacted by construction of the Preferred Alternative.

3.5.4 Agricultural Resources

Through the ages, the Hupa's superior hunting and fishing skills insured them a stable food supply. They supplemented their diet with berries, acorns, chinquapin and pine nuts gathered by the women. Little was grown other than tobacco used for pipe smoking.

In 1890, about the time the government school was started, the Agency began to raise crops in an effort to teach the Indians how to farm. Grains, mainly wheat and oats, were the principal crops grown. Much of the land was cleared, houses were constructed of mill-sawed lumber, and hogs, cattle and horses were raised. The Valley was especially adapted to raising hogs, and by 1935 hogs were a very important source of cash income. They were allowed to run free on the Reservation and many wild hogs still exist in the area. Besides raising hogs, cattle and horses, the Indians also raised chickens, turkeys, waterfowl, goats, dairy cows, sheep and mules.

The preferred alternative does not involve prime agricultural soils. Therefore, the Farmland Protection Act (7 CFR Part 658) will not be affected by the proposed action.

3.5 Cultural Resources

3.5.1 Archaeological, Historic & Religious

Significant historical and cultural sites are abundant on the Hoopa Valley Indian Reservation. Conservation and protection of prehistoric, historic and contemporary sites are important to the people of the Hoopa Valley for historic, religious, ceremonial, and subsistence purposes.

Surface investigations of approximately 23% of the timber producing land on the Reservation have revealed at least 13 prehistoric sites. All have been assigned State of California identification numbers. Findings at these sites range from sparse scatterings of chipping debris to dense concentrations of artifacts. Recommendations for inclusion on the National Register of Historic Places would require subsurface investigations. To date no subsurface investigations are planned.

In addition, the entire valley floor of the Reservation has been surveyed. Archaeological/ historical sites within the valley floor have been recorded and trinomials have been issued. According to archaeological surveys conducted on the valley floor including a cultural resource investigation for the proposed project, known archaeological or historical sites will not experience “conditional adverse effects” as a result of the proposed action.

The extension of the valley-wide domestic water system to the Bald Hills region as specified in the Preferred Alternative will not impact Tribal Members cultural gill net fisheries as the construction activities will be coordinated with family heads that control fishing areas.

The White Deerskin Dance trail is known to cross Bald Hills Road at several locations. The proposed pipeline construction will not affect the trail because work will be in existing roadways which are previously disturbed areas. In the four locations where the trail crosses the road, the trail is only evident beyond the road shoulder and beyond the limits of any work or storage areas. None of the tank locations are near the historic trail. Coordination with the cultural committee will also be completed prior to commencement of the project to insure that construction activities will not involve camping areas that are used during the White Deerskin Dance. Moreover, the Hoopa Tribe is well aware of the trail's location and its importance, and is prepared to protect its integrity throughout the proposed project.

On July 12, 2005 the State Historic Preservation Officer was consulted by the Lead Agency pursuant to 36 CFR Part 800 on July 13, 2005. The SHPO stated that the proposed project would not adversely affect historic properties.

3.6 Socioeconomic Conditions

The 2000 U.S. Census indicated that there are 2,633 people residing on the Hoopa Valley Indian Reservation. 2000 Census survey data indicates the median household family income for Reservation residents was $23,384. The unemployment rate on the Hoopa Valley Indian Reservation is 14 percent, and 29 percent of families, and 39 percent of individuals residing on the reservation are below the poverty level. 46.4 percent of families with a female householder and no husband present are below the poverty level (U.S. Census, 2000).

Seasonal tourism, logging, the school district, tribal operations, the Federal government, and the private sector provide most of the employment opportunities on the Reservation. By January 1981, all five lumber mills that once existed on the Hoopa Valley Indian Reservation had either closed down or had relocated to other areas. This situation is largely due to the declining timber industry in Humboldt County. The Hoopa Valley Indian Reservation is currently experiencing an extreme economic depression. In years past, the Reservation population has been significantly dependent upon the logging and timber production industry for non-professional employment opportunities. However, in recent years, over production, increased automation, and environmental impact priorities have crippled the timber industry. The lumber mills on the Reservation that once employed many Indian people have been shut down. The available employment opportunities in the field of logging have been reduced by approximately 85%. The Hoopa Valley Indian Reservation represents an isolated pocket of extremely high unemployment. Recent analysis of the situation indicates that access to employment is a major problem. The nearest job market for residents of the Reservation is a more than 120 mile round-trip commute to the Eureka/Arcata area.

The age distribution of Reservation residents indicated in the 2000 Census presents a dynamic trend to rapid growth due to the median age of 26 years. As the level of growth increases, so will be the demand for water.

In projecting population growth and therefore the projected need for housing, infrastructure, and related sociological factors, the conventional planning technique and process will not work effectively in the Tribal spatial environment. For the purposes of this assessment, the assumption has been made that the projected population growth will increase by 29.8 percent in the next decade. For this reason, projected domestic water demands have been projected to increase at 5 percent per year for the next decade. Coupled with the current domestic water needs, the projected future needs of domestic water resulted in the draw down design of 0.9 cfs for all alternatives.

3.7 Attitudes, Expectations, etc.

Tribal government on the Hoopa Valley Indian Reservation is being dramatically changed due to the Tribe's designation as a Self-Governance Demonstration Tribe in 1988. Since designation, the Hoopa Valley Tribe entered into a "Compact" with the United States government in July, 1990 pursuant to Title III of P.L. 100-472. Thus, in a little more than ten years, the Hoopa Tribe has moved from a position of being one of the most regulated tribes controlled by the United States to a position of freedom from such regulation unprecedented among Indian Tribes. This radical change of circumstance is bound to have a considerable effect on all branches of Hoopa Tribal Government including domestic water supply.

3.8 Community Infrastructure

3.8.1 General

The business sector of Hoopa includes a restaurant, one delicatessen, a fast-food restaurant, two gas stations, auto repair shop, an office supply store, a credit union, an independent logging company, and a self-storage facility. Community facilities housed in the Neighborhood Facilities Center include the Tribal Recreation and Day Care Programs, tribal administrative offices, and the Tribal Council. Adjacent buildings house the Public Utilities District, the Senior Meals/Volunteer Program, the Hoopa Housing Authority, the Adult Education/Career Center, and the Tribal Education Center. The Tribal Shopping Center houses the Tribal Museum, the Radio Station, a grocery store, the Hoopa Tsewenaldin Motel and Lucky Bear Casino. Private vehicle transportation is required for virtually all travel. Klamath Trinity Non Emergency Transportation (K/T NET) commenced transit operations in January 2003. K/T NET is a non-profit community based organization in eastern Humboldt County which provides transit services in underserved areas, including tribal lands in Hoopa, with connections to other existing transit systems, such as Humboldt Transit Authority. The nearest commercial air service is 65 miles away. There is only one paved road (Highway 96 between the Reservation and other population centers. The Tribal Radio Station, KIDE FM, (a 250-watt educational facility, the only Indian owned and operated radio station in California) began broadcasting in December 1980. Other radio and TV reception is poor to fair because of the mountain ranges between the nearest transmitter (in Eureka/Arcata, 65 miles away) and the Reservation.

3.8.2 Fire Protection

The Hoopa Valley Volunteer Fire Department provides structural fire services to the Reservation Community and also provides wildland fire protection and suppression.

Public protection classification is designated by the Insurance Services Office (ISO). The ISO bases its classifications on a number of factors, including fire department location, equipment, and staffing; water supply; and communications abilities. Ratings range from 1 to 10, with 1 being the best possible fire protection, and 10 being the worst. The Hoopa Valley Indian Reservation is classified with a rating of 7. Access to water in the area of the proposed action is limited. In most cases water for fire suppression in the project area must be trucked in. The proposed project could possibly augment the current water supply for fire protection purposes and fire protection agencies might benefit from the proposed action. However, the system will not be designed for fire flow protection.

Under current conditions in the project area fire suppression activities, for both residential and wildland fires, must be conducted by trucking water into the project area.

3.8.3 Law Enforcement

Law enforcement in the unincorporated areas of the County is provided by the Humboldt County Sheriff's Department. A County Sheriff's Department sub-station and jail is maintained by the County on the Reservation. In nearby Willow Creek, the California Highway Patrol maintains a field office.

The Hoopa Valley Tribe is one of only a handful of Tribes in California which operate a Tribal Police department. The Tribal Police Department is subject to the same training, policies and procedures as any municipal police department and through a landmark agreement with the Humboldt County Sheriffs Department have been cross-deputized as Sheriff Deputy's. In addition, the Tribe exerts law enforcement jurisdiction on trespass involving timber and fisheries by providing Resource Protection Officers.

3.8.4 Schools

The Klamath-Trinity Unified School District encompasses both the Reservation and surrounding areas, with district offices and elementary and high schools located in Hoopa. The Klamath-Trinity Unified School District serves a total of 1,076 students. The school district has primary responsibility for education through high school. The Hoopa Valley Elementary School has 440 students, 91.1% of whom are Indian. The Hoopa Valley High School has 267 students, 69.7% of whom are Indian. This data is from the 2003-2004 school year and comes from the California Department of Education Educational Demographics Unit. The proposed undertaking would improve the provision of clean water delivery to the some local students at their residences and is deemed beneficial.

3.8.5 Solid Waste Disposal

Solid waste management is a serous problem on the Reservation. The Tribe once operated a modified landfill near the Supply Creek drainage to serve the Tribal Membership. This landfill has reached capacity and was closed by the Tribe in October 1998. Currently, solid waste is being disposed of at the Tribe's transfer facility located in the center of the valley on Highway 96. The Hoopa Valley Transfer Station is operated by Hoopa Valley Public Utilities District. The proposed undertaking is not expected to impact solid waste management on the Reservation.

3.8.6 Telephone

Verizon (formerly GTE) provides telephone service to the Reservation. Local ISP providers now provide a local Internet exchanges. The proposed undertaking will not affect telecommunications. The Tribe installed a cellular tower in the Bald Hills area in 2004 and cell phone coverage is now available to Reservation residents. The proposed project is not expected to impact the cell tower or land lines.

3.8.7 Gas and Electric

Pacific Gas and Electric provides electrical service to the Reservation. Underground natural gas is not available on the Reservation. Propane gas service is provided by Amerigas and Campora two local propane gas providers. As indicated in the Project Alternatives section of this document, alternatives 2 and 3 will require three-phase electrical power for pumping water. Alternative 3 will require additional environmental tiering to access the impact that four miles of electrical transmission line installation will have on the environment. Alternative 1 (Preferred) will utilize existing rights-of-way in disturbed areas to supply power to the pump(s) through underground power lines, thus the impact to the environment will be minimal.

3.8.8 Water and Sewer

The Hoopa Valley Public Utilities District (HVPUD) provides municipal water service to 92 percent of the Reservation residents. The balance of the population obtains water from individual wells and springs, these water sources may be intermittent and of dubious quality. The Hoopa Valley Public Utilities District aims to increase the access to safe reliable domestic water on the Reservation. The proposed undertaking will beneficially impact the human environment in respect to providing clean and safe drinking water in conformance with the National Primary Drinking Water Regulations.

3.9 Resource Use Patterns

3.9.1 Hunting, Fishing & Gathering

Natural resource subsistence is a very important aspect of contemporary Hupa culture. A majority of Hupa Tribal members and their families rely on hunting, fishing and gathering to supplement their diets.

Pursuant to Tribal law, ordinances have been written which regulate resource uses for the fisheries, mushrooms, hunting and other gathering. The proposed action will not impact these subsistence use patterns.

3.9.2 Timber

Timber harvesting is the single most critical aspect of resource management on the Hoopa Valley Indian Reservation. The Tribe almost exclusively depends on the timber resources of the Reservation for its income and employment opportunities. The timber industry in Hoopa is the single largest sector of the Reservation economy.

The Tribe has assumed all of the non-Trust responsibilities of forest management on the Hoopa Valley Indian Reservation under the Self-Governance Demonstration Project.

The Tribe prepared a Forest Management Plan (FMP) which was subsequently approved on September 20, 1994 by the Bureau of Indian Affairs. This plan covers the period of 1994 through the year 2010. The purpose of the FMP is to manage the approximately 75,000 acres of commercial timberland with an estimated volume of 1.2 billion feet of commercially important timber. The proposed project is not expected to impact merchantable timber stands within the project area.

3.9.3 Agriculture

Agriculture uses in the Hoopa Valley include the cattle industry, the raising of feed crops and subsistence gardening/orchards.

Of the agricultural uses, cattle raising and the growing of feed crops account for a significant economic sector of the local economy. Several families utilize Big Hills, Bald Hills and occasionally Mill Creek Roads to drive cattle to the summer grazing ranges in the high country of the Reservation or in the Six Rivers National Forest where grazing permits allow for range access. The extension of the valley-wide municipal water system to supply domestic water to the Bald Hills Region of the Hoopa Valley Indian Reservation will not negatively impact the agricultural resources of the Reservation. Instead the use of domestic water for subsistence gardening is highly probable and the proposed undertaking is therefore deemed beneficial.

3.9.4 Land Use Patterns

The Hoopa Valley Indian Reservation is comprised of 93,702.73 acres with 88,840.40 acres held in tribal trust, 2,947.14 acres allotted to tribal members, and 1,968.16 acres in fee or government use status. It should be noted that the term fee status includes lands owned by Tribal members in fee, non-Indian fee lands, and in some case fee lands owned by the Hoopa Valley Tribal Council. In addition, the Hoopa Valley Tribal Council owns 224.2 acres of fee lands outside the reservation. Of the Reservation's total gross acreage 48,332 acres is regarded as the forest component available for intensive forest management, 29,137 acres is designated as special or limited management forest zones. The balance or 16,233.73 acres is unsuitable for forest management because of landslide potential, cultural use or residential, commercial, and agricultural uses.

Approximately 2% of the Hoopa Valley Indian Reservation lands are in fee status. The Reservation fee lands were at one time allotted land upon which a fee patent was issued. Most, but not all, of this land is "alienated" --owned by non-Indians. The Hoopa Valley Tribal Council has either purchased or has been gift deeded 600 acres of land that once was in fee status and in some cases has retained the fee status for various reasons.

According to the Tribe’s draft Land-use Plan, the Ball Hills Planning District covers a spatial area of 2,773.5 acres of surveyed land on 164 parcels. The parcels in the Bald Hills Planning District average 17 acres in size as compared to the valley parcels averaging 2.5 acres in size. This planning district is the largest in gross acreage of any of the planning districts on the Hoopa Valley Indian Reservation and is comprised of the following tenure characteristics:

Allotted Land	740.5 acres
Tribal Land	725.8 acres
Assignments	390.4 acres
Fee Land	916.8 acres

This planning district because of its large lot characteristics and sloping terrain is currently utilized as Residential Agriculture with a small area in a Special Protection Zone along the Trinity River. The majority of the proposed project falls within the Residential Agriculture (R-A) designation. The R-A District is intended to be applied in areas suitable for very low-density residential uses where agricultural activities would also be suitable. Conditionally Permitted Uses may be permitted upon the granting of a conditional use permit by the Hoopa Tribal Council including those that involve utilities including storage tanks and pumping stations.

The Hoopa Tribal Council shall require that sufficiently detailed plans for and descriptions of the construction activities to be undertaken be submitted for assessment under Tribal and Federal law.

The following Standards Relating to Impacts as a result of the proposed project would be applicable pursuant to the draft Land-use Plan:

(a) All noise generating operations shall be buffered so that they do not exceed the ambient noise level by more than 5 dB(A), or comprise over 70 dB(A) maximum in any residential area during daytime operations or 65 dB(A) maximum in any residential area during nighttime operations (7:00 pm to 7:00 am).

(b) All developments shall conform to the maximum permissible standards established by the North Coast Unified Air Pollution Management District. Nothing in this section should be construed that the North Coast Unified Air Pollution Management Control District retains jurisdiction on the Hoopa Valley Indian Reservation; simply, the air quality control standards of the State are those of the Reservation.

(c) No perceptible vibrations shall be permitted off the building site.

(d) No visual or audible interference of radio or television reception by operations shall be permitted.

(e) All operations which involve storage and use or transport of flammable or hazardous materials must be conducted in a manner which meets the approval of the proper authorities; all facilities must contain such emergency protection and fire fighting equipment as are deemed necessary by the proper authorities.

3.9.5 Recreation

Recreation opportunities on the Hoopa Reservation include areas designated for specific active recreational uses such as swimming, fishing, boating and camping. Two types of recreational levels exist; one for the local resident Indian population and one for the occasional tourist. The adoption of the Wild and Scenic Rivers Act (16 USC 1273) has classified the Trinity River as a

recreational river from the southern boundary of the Reservation to a location approximately opposite Carpenter Lane. From Carpenter Lane to the confluence of the Trinity with the Klamath, the designation is scenic with the short segment of the Klamath River within the Hoopa Valley Indian Reservation classified as recreational. The proposed project is not located in areas that fall within the Wild and Scenic Rivers Act designation. The Preferred Alternative, if implemented, will be coordinated so that temporary construction activities will not affect the recreational character of the area.

3.9.6 Transportation Network

State Highway 96, which runs north/south through the center of the Hoopa Valley, is both the principal road within the valley and the chief access route to areas outside the reservation. Highway 96 connects to U.S. 299 at one extreme and Interstate 5 at the other. The only other road providing year round access is Bair Road, which ties into U.S. 299. Other roads leading out of the valley are unimproved forest access roads.

The Hoopa road system conforms to the natural topography of the area. Various loop roads off of Highway 96 provide access to residential and commercial development on the valley floor and within the low-lying hills. Access to Reservation timberlands and spur roads off Highway 96 provide access to adjacent national forest land or other valley roads.

The roads that are directly involved in the proposed project area are Bald Hills Road, Bloody Camp Road, Dowd Road, and Translator Road. Bald Hills and Bloody Camp Roads are paved within the project area.

Humboldt County currently maintains an airstrip on the Reservation. This airstrip, located on Matilton Field, can accommodate only small non-commercial aircraft. The nearest commercial air service is 65 miles away.

State, County, BIA, and Tribal Roads serve the Hoopa Valley Indian Reservation. The Tribe has contracted road maintenance and betterment from the BIA and is responsible for road maintenance activities of BIA roads.

3.9.7 Mining

Both lode and placer deposits have been mined successfully on the Hoopa Reservation in the past and sand and gravel has been scooped up for local use. The Reservation has some potential for copper (including byproduct gold and zinc) and mercury lode deposits, and for recovery of gold and platinum from placer deposits. Resources of sand, gravel, and stone are large, but their use depends on local requirements. Less likely to be usable are small or low-grade deposits of manganese, chromite, coal, and graphite. The proposed undertaking will not impact mining resources.

3.10 Sound and Noise

The Noise Control Act of 1972, in addition to its specific tasking to EPA, tasked all Federal agencies to administer their programs in ways that reduce noise pollution. Current noise assessment guidelines require that for a project of this nature one must consider all military/civilian airports within 15 miles of the project, all "significant" roads within 1,000 feet

and all railroads within 3,000 feet. No sound attenuation measures need be developed providing exterior noise levels do not exceed 65 LdN. EPA regulations do not contain standards for interior noise levels. Rather a goal of 45 decibels is set forth and the attenuation requirements are geared towards achieving that goal.

There is one airport within a 5-mile radius of the project site. The closest airport is the Hoopa Airport, which is not a commercial airport. The proposed project is not within the flight zone for this airport.

There should be no impacts to the project from off-site noise sources. However, the project itself will incrementally impact the surrounding area by increasing the ambient noise level experienced by neighboring parcels. There is the additional potential of some temporary impacts to the surrounding neighborhood in terms of increased noise during construction of the project. However, these impacts are easily mitigated as described in the Environmental Consequences of this document. Therefore, the proposed action will not have significant effect on the human environment due to increased noise and sound generation.

3.11 Hazardous and Toxic Waste

According to the Regional Water Quality Control Board (RWQCB), the Tribal Environmental Protection Agency (TEPA) and the California Environmental Protection Agency (Cal-EPA), there are no recorded hazardous materials releases in the proposed project area of the preferred alternative.

The project area for the preferred alternative was inspected for obvious signs of chemicals, drums, containers, distressed vegetation, stained soils and other debris. No evidence of contamination was observed in the area.

Other data sources from the California Department of Health Services and the Environmental Protection Agency were reviewed. The subject property was not listed on any of the databases reviewed.

No aboveground or underground storage tanks were observed on or adjacent to the preferred alternative project sites, nor were any leaking transformers observed.

Additionally, EnviroFacts an EPA database was queried to identify EPA regulated facilities in or near the preferred alternative project area. Vista Information Solutions conducted an ASTM E-1527 Report that covered the project area for the preferred alternative in 1999. For the project area of the preferred alternative none of the following were found: properties with known contamination, properties with potential contamination, or properties with Environmentally Sensitive Business Activities.

SECTION 4.0 – ENVIRONMENTAL CONSEQUENCES

4.0 INTRODUCTION

This section of the EA analyzes the effects of the proposed extension of the existing community water supply system to the Bald Hills region of the Hoopa Valley Indian Reservation on various components of the environment. Preliminary conceptual development plans are utilized for the basis of environmental analysis.

For the purposes of this analysis, both direct and indirect impacts were reviewed. Direct effects, are those caused by the proposed action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR 1508.8)

Alternative 1 has been selected as preferred alternative for the following reasons:

- Minimizes habitat impacts to the coho and steelhead fisheries currently protected under the Endangered Species Act.
- System has a life-span 40 to 60 years with proper maintenance.
- This alternative can be expanded to accommodate future domestic water demands.
- Cost for development is estimated at between $3.2 to $3.8 million.
- Minimizes construction of new roads in roadless areas.
- Minimizes impacts on wildlife habitat and timber production zones.
- This alternative is the most efficient, of the action alternatives, in terms of energy consumption and infrastructure utilization.

Local jurisdictional impacts will occur and some impacts to both the biotic and human environment will be the net effect. These impacts are discussed below.

4.1 Land Resources

The direct effects of the proposed action will have an impact to topography, soil types & characteristics, geologic setting and mineral resources. The indirect effect of construction of the water system would also impact land resources as booster pumps, water storage tanks and pipelines are constructed.

Mitigation Measures

Soil Types and Characteristics

The construction of the proposed project would remove native vegetation, grasses and would involve minor grading and earth moving activities. This would increase the potential for erosion impacts. Therefore, implementation of the best management practices (BMP) would be required.

> *BMP 1: An erosion and sedimentation control plan for the proposed project shall be prepared by a qualified civil or geotechnical engineer and implemented during the construction of the proposed project. The erosion and sedimentation control plan shall include best management practices to reduce potential erosion and sedimentation impacts.*

With the implementation of the above BMP, impacts related to erosion would be reduced to less

than significant levels during the construction of the project and mitigation measures would not be required. After construction of the proposed project, native soils would be covered by landscaping and vegetation or by impervious surfaces, such as concrete or asphalt. This would stabilize soils and reduce the potential for erosion.

Seismic Hazards

Planning of the development in the study area should consider the seismic activity (Zone 4) of the area. The proposed area would be subject to ground shaking if a seismic hazard were to occur. Compliance with the Uniform Building Code and standard engineering design techniques would help to reduce potential impacts related to ground shaking. These site conditions would increase the potential for geotechnical hazards. Therefore, BMPs would be required.

> *BMP 2: Prior to construction, a final geotechnical investigation shall be prepared for the proposed project. The design of the project shall incorporate the engineering recommendations from the geotechnical investigation. Recommendations may include (but are not limited to) excavation options involving bedrock, the export of unstable soils, the use of engineering fill, foundation and retaining wall design requirements, and other related engineering design measures to lessen potential geotechnical hazards at the site.*

With the implementation of the above BMP, impacts would be considered less than significant and mitigation measures would not be required.

Mineral Resources

There are no known mineral or energy resources of local, regional, or national importance on the proposed project site. Therefore, no impacts to mineral or energy resources would occur as a result of the proposed project.

No-Action Alternative

Under the No Action Alternative, the proposed water system would not be constructed. Existing environmental conditions on the site would remain unchanged.

4.2 Water Resources

The direct effects of the proposed action could have an impact to water quality.

The construction of the proposed project would involve the removal of native vegetation and grading and earth moving activities. This would expose native soils and increase the potential for erosion and sedimentation, which could have a negative impact on stormwater runoff and offsite water bodies such as the Trinity River. In addition, construction sites can also introduce water pollutants to stormwater runoff, including paints, solvents, concrete, drywall, pesticides and fertilizers, construction debris and trash, and spilled oil, fuel, and other fluids from construction vehicles. These activities will be covered by the EPA's NPDES General Storm Water Discharge Permit for Construction Activities that the Tribe will obtain. A storm water pollution prevention plan (SWPPP) would be required under the NPDES Storm Water Discharge Permit and should be included in the engineering or construction contract. Therefore, best management practices would be required. Additionally, after construction, the water system will need to be pressure tested and disinfected prior to use. The disposal of wastewater generated during these tests

should be disposed of properly and not allowed to drain into off site bodies of water.

BMP 3: The following best management practices shall be implemented during the construction of the proposed project site to reduce potential water quality impacts:

- *Phase grading operations to reduce disturbed areas and time of exposure. Avoid grading and excavation during wet weather.*
- *Construct diversion dikes and drainage swales to channel runoff around the construction site.*
- *Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive of unnecessary disturbances and exposure.*
- *Plant vegetation on exposed slopes or use erosion control blankets (e.g., jute matting, glass fiber or excelsior matting, mulch netting) to reduce the potential for erosion.*
- *Once grading is complete, stabilize the disturbed areas with permanent vegetation as soon as possible.*
- *Cover stockpiled soil and landscaping materials with secured plastic sheeting and divert runoff around them.*
- *Protect drainage courses, creeks, or catch basins with straw bales, silt fences, and/or temporary drainage swales.*
- *Protect storm drain inlets from sediment-laden runoff with sand bags barriers, filter fabric fences, block and gravel filters, and excavated drop inlet sediment traps.*
- *Use dry-sweep methods to clean sediments from streets, driveways, and paved areas of the construction site.*
- *Maintain all construction vehicles and equipment. Inspect frequently for and repair leaks.*
- *Designate specific areas of the construction site, located well away from creeks or storm drain inlets, for auto and equipment parking and routine vehicle maintenance.*
- *Perform major maintenance, repair, and vehicle and equipment washing off site or in designated and controlled area. Clean up spills immediately.*
- *When vehicle fluids or materials such as paints, solvents, fertilizers, and other materials are spilled, cleanup immediately. Use dry cleanup techniques whenever possible.*
- *Store wet and dry building materials that have the potential to pollute runoff under cover and/or surrounded by berms when rain is forecast or during wet weather months.*
- *Cover and maintain dumpsters.*
- *Collect and properly dispose of construction debris, plant and organic material, trash, and hazardous materials as soon as possible.*
- *Plan roadwork and pavement construction to avoid stormwater pollution during wet weather months.*
- *Disposal of chlorinated water generated during pressure tests and chlorination of water lines shall be in accordance with all Federal, State, and local laws, ordinances, and regulations*

With the implementation of the above best management practices measures, water quality impacts during construction would be reduced to a less than significant level and mitigation measures would not be required.

After construction of the proposed project, the site would include paved surfaces, landscaped areas with vegetation and ground cover. This would greatly reduce the potential for water quality impacts related to erosion and sedimentation. However, the conceptual plan for the water system construction indicates the development would introduce impervious surfaces to the proposed project site. These impervious surfaces would increase the amount and rate of stormwater runoff on the site. This could result in potential impacts to the existing storm drain system along Pine Creek Road. In addition, the introduction of access roads to water storage tanks would also increase the potential for stormwater quality impacts. Access roads would collect oil, grease, transmission and brake fluid, solvents, heavy metals, and other pollutants that are typically concentrated on surface streets. Because these pollutants are typically washed directly from impervious surface areas and are transported to storm drains, and creeks, the increase of impervious surfaces on the site would result in minor water quality impacts. Therefore, best management practices specified below would be required.

> *BMP 4: The drainage plan for the proposed project shall include feasible post construction stormwater quality control measures. Such measures shall include any combination of the following techniques:*
>
> - *Design the proposed project to locate impervious surfaces as far away from natural drainage channels as possible and utilize vegetation and grass swales to decrease runoff velocity and filter stormwater pollutants.*

With the implementation of the above BMPs, stormwater quality impacts would be considered less than significant and mitigation measures would not be required.

Wetlands

The proposed project area does not include dominant hydrophytic vegetation contained in the inventory of vascular plants. Hydric soils are soils are not present in the proposed project area, nor does the hydrology of the proposed project area indicate a jurisdictional wetland. Therefore the proposed project does not qualify as a jurisdictional wetland under the Army Corps of Engineers (COE) and the Environmental Protection Agency (EPA) definition.

No-Action Alternative

Under the No Action Alternative, the proposed water system would not be developed and existing water resource and water quality conditions would remain unchanged. No impacts related to water resources would occur with the No Project Alternative.

4.3 Air Quality

The direct effects of the proposed action could impact air quality thresholds.

For the indirect effect of the project, air quality impacts will not require evaluation. The 1990 amendments to federal Clean Air Act Section 176 required the EPA to promulgate rules to

ensure that federal actions conform to the appropriate State Implementation Plan (SIP). These rules, known together as the *General Conformity Rule* (40 CFR §§ 51.850-.860 and 40 CFR §§ 93.150-160), require any federal agency responsible for an action in a nonattainment or maintenance area to determine that the action is either exempt from the General Conformity Rule's requirements or positively determine that the action conforms to the applicable SIP. In addition to the roughly 30 presumptive exemptions established and available in the General Conformity Rule, an agency may establish that forecast emission rates would be less than the specified emission rate thresholds, known as *de minimis* limits. An action is exempt from a conformity determination if an applicability analysis shows that the total direct and indirect emissions from the project would be less than the applicable *de minimis* thresholds and would not be regionally significant, which are defined as representing 10 percent or more of an area's emissions inventory or budget.

The indirect effects of the proposed project would not result in the emission of pollutants, and would therefore not contribute cumulatively to the regional and local pollutant concentrations. For a cumulative impact to be significant, the contribution must be substantial or considerable (*de minimis*). It has been determined that anticipated emissions related to the proposed water system project would be less than significant using the State of California's URBEMIS Software for screening potential impacts to air quality.

In order to address short-term emission issues during construction, best management practices are incorporated in the project design.

The construction of the proposed project would involve grading and earth moving activities. These activities would generate construction emissions of particulate matter (PM_{10} and $PM_{2.5}$). Any addition to the current PM_{10} problem could be considered significant. However, the EPA has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of EPA, compliance with the control measures described in BMP 5 below would constitute sufficient best management practices to reduce PM_{10} and $PM_{2.5}$ impacts to a level considered less than significant.

> *BMP 5: The following control measures shall be implemented during the construction of the proposed project to reduce construction emissions of* PM_{10} and $_{2.5}$*:*
>
> - *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover, or vegetative ground cover.*
> - *All on-site unpaved pipeline trenches and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
> - *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
> - *When materials are transported off-site, all materials shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of container shall be maintained.*

- *All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden).Following the addition of materials to, or the removal of materials from, the surface or outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer or suppressant. Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each work day.*
- *Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.*
- *Suspend excavation and grading activities when winds exceed 20 mph.*

With the implementation of the above measures, construction emission impacts would be considered less than significant and mitigation measures would not be required.

No-Action Alternative
Under the No Action Alternative the proposed water system would not be developed. Existing air quality conditions in the project area would remain unchanged.

4.4 Living Resources

As a direct effect, the proposed water system construction is not expected to impact rare or endangered plant or animal species.

For indirect effects, the proposed project will potentially result in significant impact to the northern spotted owl and various tree nesting raptors if construction occurs during the breeding season and breeding pairs have established nests in suitable habitat within or adjacent to the project site. The Hoopa Valley Tribe has completed protocol surveys for northern spotted owls Reservation wide and has monitored occupancy, survival and reproduction at all known territories annually with an intensive survey, monitoring and banding program since 1992. One currently occupied northern spotted owl activity center is within ¼ mile of the project area for the preferred alternative. The nesting season for the northern spotted owl is defined as February 1 to July 31 for instances where disturbances without habitat modification are involved. The Hoopa Valley Tribe will have a qualified biologist survey suitable habitat within ¼ mile of the project area for nesting raptors within 30 days prior to the start of construction if construction is to occur during the raptor breeding season. Project operations in the vicinity of Osprey nests should be done during non-breeding seasons (September –February). If nesting northern spotted owls are within ¼ mile of proposed construction areas construction will be halted and will be resumed only after nests are vacated.

According to a Biological Assessment (BA) conducted for the Hoopa Valley Public Utility District on September 15, 2005 by Alice Berg & Associates, direct effects to coho salmon are not expected because all of the proposed activities would occur outside of stream channels, and none of the proposed pipelines would cross habitat accessible to SONCC coho salmon (or Chinook salmon). In addition, the project would not result in water quality impacts, would not alter vegetation that provides shade to steams, would not affect instream habitat elements, and would

not alter channel conditions or dynamics. NOAA Fisheries concurred with the BA prepared for the proposed project on their November 18, 2005 letter to EPA which states "*Based on our review of the documents you have provided, NMFS concurs with your determination that the proposed funding of the HVPUD's Bald Hills Water Supply Project* *is not likely to adversely affect* *Federally threatened SONCC coho salmon.* (emphasis added)"

It has been determined by EPA that the mitigation guidelines outlined above will not likely to adversely effect regional special status plants and animal species populations, and a less than significant effect on the remaining populations. The project will result in a less than significant impact to native wildlife habitat, wildlife movements and sensitive biological communities, including riparian areas, wetlands and other Waters of the United States and therefore mitigation measures would not be required.

No-Action Alternative
Under the No Action Alternative the proposed water system would not be developed. Existing living resource conditions in the project area would remain unchanged.

4.5 Cultural Resources

The White Deerskin Dance trail is known to cross Bald Hills Road at several locations. The proposed pipeline construction will not affect the trail because work will be in existing roadways which are previously disturbed areas. In the four locations where the trail crosses the road, the trail is only evident beyond the road shoulder and beyond the limits of any work or storage areas. None of the tank locations are near the historic trail. Coordination with the cultural committee will also be completed prior to commencement of the project to insure that construction activities will not involve camping areas that are used during the White Deerskin Dance. Moreover, The Hoopa Tribe is well aware of the trail's location and its importance, and is prepared to protect its integrity throughout the proposed project.

It is possible that unrecorded prehistoric and historic cultural resources exist in parts of the proposed project area based upon a recent survey report, historic and ethnographic information, and consideration of settlement patterns. In the event of accidental discovery of archaeological materials in the proposed project area all soil disturbing work will be stopped. Subject to the implementing regulations under Section 106 of the NHPA (36 CFR Part 800) and the Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470 aa-mm) and it's implementing regulations on Indian Trust lands (25 CFR 262); a qualified archaeologist will complete a significance evaluation of the find(s) before any soil disturbing activities are resumed. The proposed construction of the water system extension will not have any foreseeable direct impacts on cultural resources.

On July 12, 2005 the State Historic Preservation Officer was consulted by the Lead Agency pursuant to 36 CFR Part 800 on July 13, 2005. The SHPO stated that the proposed project would not adversely affect historic properties.

Mitigation Measures

Since there is a possibility unknown cultural resources will be discovered in the course of the preferred alternative, the Tribe will include the following requirement in the contract

specifications for the construction of the proposed water system extension to mitigate impacts:

> *BMP 6: In the event that any prehistoric, historic, or paleontological resources are discovered during construction-related earth moving activities, all work affecting the resources will be halted and the Tribe shall consult with a qualified archaeologist and the State Historic Preservation Office to access the significance of the find. If any find is determined to be significant by the qualified archaeologist and the State Historic Preservation Office, then representatives from the Tribe will meet to determine the appropriate course of action.*

No-Action Alternative
Under the No Action Alternative the proposed water system would not be developed. Existing cultural resource conditions in the project area would remain unchanged.

4.6 Socioeconomic Conditions

The proposed project would have no significant adverse economic impacts on social organization, employment or income. The project might have a short-term beneficial impact by providing employment opportunities as a result of the construction of the project.

Mitigation Measures
No mitigation measures are required.

No-Action Alternative
Under the No Action Alternative the proposed water system would not be developed. Existing social organization, employment and income conditions in the project area would remain unchanged.

4.7 Attitudes, Expectations and Cultural Values.

The proposed project will have no direct negative impacts on attitudes and expectations in the proposed project area

No-Action Alternative
Under the No Action Alternative the proposed water system extension would not be developed. Existing attitudes and expectations in the project area would remain unchanged.

4.8 Community Infrastructure

4.8.1 General

The proposed project will have no direct negative impacts on general community infrastructure in the proposed project area. The proposed project will have a beneficial impact on the provision of reliable, safe, treated domestic water in the project area and mitigation measures would not be required.

4.8.2 Fire protection

The proposed project will have no direct negative impacts on in the proposed project area. Beneficial impacts may be realized by providing limited water supply during structural fires. Therefore, mitigation measures would not be required.

4.8.3 Law enforcement

The proposed project will have no direct negative impacts on law enforcement in the proposed project area.

4.8.4 Schools

The proposed project will have no direct negative impacts on schools in the proposed project area. Therefore, no mitigation measures would be required.

4.8.5 Solid Waste Disposal

The proposed project will have no direct negative impacts on solid waste disposal in the proposed project area. Therefore, no mitigation measures would be required.

4.8.6 Telephone

Construction related activities may cause short term disruption in telephone service for residents in the Bald Hills area. Therefore, no mitigation measures would be required.

Mitigation Measures

Residents will be notified in advance of any planned disruptions of telephone service; this will minimize inconvenience to residents.

4.8.7 Gas & Electric Services

Construction related activities may cause short term disruption in electrical service for residents in the Bald Hills area. Pacific Gas & Electric Company would provide additional service to the proposed project components. Electric lines currently exist in the project area. The carrying capacity of electric service provided by Pacific Gas & Electric is adequate to meet the proposed project. The Tribe must coordinate activities with Pacific Gas & Electric Company in order to secure the needed utilities for the project.

Mitigation Measures

Residents will be notified in advance of any planned disruptions of electric service; this will minimize inconvenience to residents.

4.8.8 Water and Sewer

The proposed project will have no direct negative impacts on water or sewer service in the proposed project area but will provide direct beneficial impacts to residents of the Bald Hills area that do not have access to treated and safe drinking water. Therefore, no mitigation measures would be required.

No-Action Alternative

Under the No Action Alternative the proposed water system would not be developed. Existing community infrastructure in the project area would remain unchanged.

4.9 Resource Use Patterns

4.9.1 Hunting Fishing and Gathering

The proposed project will have no direct negative impacts on hunting, fishing, or gathering in the proposed project area. Therefore, no mitigation measures would be required.

4.9.2 Timber
The proposed project will have no direct negative impacts on timber production in the proposed project area. Therefore, no mitigation measures would be required.

4.9.3 Agriculture
The proposed project will have no direct negative impacts on agriculture in the proposed project area. Therefore, no mitigation measures would be required.

4.9.4 Land Use Patterns
The proposed project will have no direct negative impacts on current land use patterns in the proposed project area. Therefore, no mitigation measures would be required. In the future, land patterns might be changed due to increased housing densities that would be supported through access to a reliable and safe drinking water supply. However, the Tribe's Land-use Plan currently allows for a minimum lot area of two and one-half (2 1/2) acres for the Bald Hills District which is consistent with a projection of 160 single family units in Bald Hills in the Water System Feasibility Study (Spencer Engineering).

4.9.5 Recreation
The proposed project will have no direct negative impacts on recreation in the proposed project area. Therefore, no mitigation measures would be required.

4.9.6 Transportation Networks
Construction related vehicle trips would temporarily increase vehicular traffic in the proposed project area. Pine Creek Road and Bloody Camp Road would see increases in construction related traffic and the use of heavy equipment along road right-of-ways could create short-term impacts No significant impacts to local or regional transportation networks would occur as a result of construction related vehicle trips in the project area.

Indirect effects may increase traffic impacts to Bald Hills Road and Bloody Camp Road. According to the Institute of Transportation Engineers (ITE) Trip Generation Handbook the existing roads will effectively accommodate any limited increase in traffic impacts.

Mitigation Measures
Traffic control measures including the use of flaggers will be utilized when heavy equipment is within road right-of-ways. Appropriate safety signage will also be utilized during the construction of waterlines.

No-Action Alternative
Under the No Action Alternative the proposed water system extension would not be developed. Existing transportation networks in the project area would remain unchanged.

4.9.7 Mining
The proposed project will have no direct negative impacts on mining in the proposed project area. Therefore, no mitigation measures would be required.

4.10 Sound and Noise
Since construction is proposed as part of this direct effects action, there would be some

construction-level noise associated with the proposed project. It is not expected that such noise will cause the site to exceed noise goals, guidelines, and standards as adopted by Noise Reduction Act. However, during construction of the proposed water system extension the following mitigation measure will be implemented.

Mitigation Measures
Construction noise will be mitigated by limiting construction to daylight hours so as not to impact the quiet enjoyment of local residents.

No-Action Alternative
Under the No Action Alternative the proposed water system would not be developed. Existing sound and noise in the project area would remain unchanged.

4.11 Hazardous and Toxic Waste

The proposed project will not cause an increase in the negative impacts associated with hazardous and toxic waste in the proposed project area. Therefore, no mitigation measures would be required.

No-Action Alternative
Under the No Action Alternative the proposed water system would not be developed. Existing hazardous and toxic waste conditions in the project area would remain unchanged.

4.12 Aesthetic Value

Since construction is proposed as part of this direct effects action, the roadsides on the proposed project area would be temporarily disrupted while the pipeline is under construction. The proposed project would have temporary and long-term effects on the viewshed along Bald Hills and Bloody Camp Roads. Storage tanks and pump stations will be somewhat visible from the road. From the long-range vantage points, development on the site should not be visible. The effect of this change will depend on the viewer; most viewers will be residents of the area who are generally in favor of the proposed project.

Mitigation Measures
The proposed project area is characterized by hilly and mountainous terrain. Site views provide the basis for assessment of visual quality and determination of the site sensitivity to development. Visual sensitivity is an important concern for the visual corridor of the area in general. For that reason, design of structures, and if applicable, fencing at the water storage tanks should be based upon visual compatibility with the existing landscape. Building materials and colors should harmonize with the surrounding environment. Proposed project design intends to reduce the visual impact of water tanks in the project area.

No-Action Alternative
Under the No Action Alternative the proposed water system would not be developed. Existing aesthetic values in the project area would remain unchanged.

4.13 Environmental Justice

Environmental Justice issues encompass a broad range of impacts covered by NEPA, including

impacts on the natural and physical environment and related social, cultural, and economic effects. Environmental Justice concerns may arise from impacts to such things as human health on minority populations, low-income populations, and Indian Tribes. Executive Order 12898 (Environmental Justice, 59 Fed. Reg. 7629 [1994]) requires each federal agency to achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations."

The question of whether a proposed project raises environmental justice issues is highly sensitive to the history or circumstances of a particular community or population, the particular type of environmental or human health impact, and the nature of the proposed project itself. There is no standardized methodology for identification or analysis of Environmental Justice issues.

The demographics of the affected area have been examined to determine whether minority populations, low-income populations, or Indian tribes are present in the area impacted by the proposed project. Based on the demographics of the area, a determination was made that the extension of the Hoopa valley-wide water system to the Bald Hills area will not cause a disproportionately high or adverse impact on human health or environmental effects on minority populations, low-income populations, or the Hoopa Valley Tribe.

There is no indication that the extension of the Hoopa valley-wide water system to the Bald Hills area would impact a higher minority population component or low-income population component than the general population of the surrounding area.

The proposed project would extend safe, reliable drinking water to the residents in the project area, and there is evidence to indicate that the drinking water provided would be made available to Tribal members, other Native Americans and residents of the Reservation - a significant portion of which could be considered minority and low-income populations. No mitigation measures would be required.

No-Action Alternative
Under the No Action Alternative access to safe, reliable, drinking water in the Bald Hills area of the Hoopa Valley Indian Reservation would remain unchanged

4.14 Cumulative Impacts
NEPA guidance documents require the evaluation of environmental consequences including cumulative impacts. Cumulative impacts are broadly defined as those that "result from the incremental impacts of an action when added to other past and reasonably foreseeable future actions" (40 CFR 1508.7). Cumulative impacts by their nature can be difficult to identify and quantify. This section accounts for past actions within the Hoopa Valley Indian Reservation, and factors in the foreseeable future as well as the direct consequences of proposed action.

The following cumulative impacts and the associated mitigation measures are projected to occur because of the proposed undertaking and those in the immediate vicinity.

4.14.1 Land Resources
The proposed action in combination with the mitigation measures and best management practices

described in section 4.1 will result in less than significant cumulative impacts on land resources in the project area. The proposed project is not expected to result in any substantial geotechnical hazards or impacts related to construction of structures and internal roads. Applicable Federal regulations regarding control of erosion will be adhered to. Land-use patterns may be impacted due to increased housing densities. The present level of density on Bald Hills is one housing unit per 17 acres. The projected density is expected to change to one housing unit per 12 acres in the foreseeable future. The cumulative impacts involving land-use are therefore less than significant and mitigation measures would not be required.

4.14.2 Water Resources

The proposed action will not result in a cumulative noncompliance of floodplain or water quality regulations. Capacity of water for the project will need to be demonstrated prior to development in order to meet the drinking water demands. The proposed project will represent an increase in the overall quantity of impervious surfaces within the project vicinity. Project features designed to protect water quality include the compliance with the NPDES permit requirements. The minor drainage facilities associated with the project that will be constructed are designed to prevent adverse effects to surface and groundwater quality. No significant cumulative impacts to hydrology and water quality are anticipated and no mitigation measure would be required.

4.14.3 Air Quality

The construction of the proposed project will result in the net increase of particulate matter during construction. The project will feature construction specifications in the design specifically to limit the creation of particulate emissions during construction. It has been ascertained that the proposed project will comply with the Clean Air Act and as such, no significant cumulative impacts to air quality are anticipated based on URBEMIS computer modeling. Therefore, no mitigation measures would be required.

4.14.4 Living Resources

Impacts to the biological environment occur incrementally through destruction of habitat. Since the region is either developed or at least disturbed from previous agricultural or residential uses, the potential for major impacts is limited. Therefore, some cumulative impacts to biological resources will occur but the proposed extension of the domestic water supply to the Bald Hills region of the Hoopa Valley Indian Reservation must be in compliance with the Endangered Species Act based on the regulatory requirements of the funding agency (EPA) and therefore cumulative impacts will not be significant in scope and mitigation measures would not be required.

4.14.5 Cultural Resources

The mitigation measures and best management practices outlined in section 4.5 will ensure the proposed water system extension will not conditionally adversely effect eligible or listed historic properties, thus cumulative impacts are not anticipated and mitigation measures would not be required.

4.14.6 Socioeconomic Conditions

In addition to the social benefits of safe reliable drinking water, there may be cumulative environmental impacts associated with residential development spurred by the preferred

alternative and the infrastructure created by the proposed project. There may also be some cumulative impacts associated with additional Tribal economic development endeavors.

The proposed action will solve the Tribe's need for safe reliable drinking water, which in turn will create demand for public health, social services, and infrastructure. However, Tribal programs are readily available on the Reservation and can accommodate the projected demand. The proposed action will foster the Tribe's goal of self-determination in water supply to tribal members.

The proposed action will not have negative impacts on the socioeconomic conditions on the Hoopa Valley Indian Reservation; therefore a less than significant cumulative impact is anticipated and no mitigation measures would be required.

4.14.7 Attitudes, Expectations and Cultural Values

The proposed action will not have negative impacts on the attitudes, expectations and cultural values on the Hoopa Valley Indian Reservation; therefore a less than significant cumulative impact is anticipated and mitigation measures would not be required.

4.14.8 Community Infrastructure

The proposed action will not have negative impacts on community infrastructure on the Hoopa Valley Indian Reservation; therefore a less than significant cumulative impact is anticipated and no mitigation measures would be required.

4.14.9 Resource Use Patterns

The proposed project will not have a reasonably foreseeable cumulative impact on resource use patterns on the Hoopa Valley Indian Reservation. Therefore, no mitigation measures would be required.

4.14.10 Transportation Network

The proposed project will generate traffic mainly in the form of vehicles traveling to the area of planned water system extension and the construction of said water system. The traffic generated will occur mainly during the construction phase of the project and will not be significantly greater than traffic generated by residents or timber related activities which are endemic to the area. The proposed project will not have a cumulative impact on transportation networks on the Hoopa Valley Indian Reservation. Therefore, no mitigation measures would be required.

4.14.11 Sound and Noise

The proposed project will generate noise mainly in the form of vehicles traveling to the area of planned water system extension and the construction of said water system. The noise generated will occur mainly during the construction phase of the project and will not be significantly greater than noise generated by residents or timber related activities which are endemic to the area. There will be some noise increase associated with the operation of the proposed action, but probably not measurable. Thus, Cumulative impacts to noise will be less than significant and mitigation measures would not be required.

4.14.12 Hazardous and Toxic Waste

There are no hazardous materials on the project site and it is not anticipated that hazardous

materials will be used or stored on site. The proposed action will not contribute cumulatively to the demand for hazardous materials or hazardous materials handling capacity and, therefore, no mitigation measures are required.

4.14.13 Aesthetic Value

Since construction is proposed as part of this direct effects action, the roadsides on the proposed project area would be temporarily disrupted while the pipeline is under construction. The proposed project would have temporary and long-term effects on the viewshed along Bald Hills and Bloody Camp Roads. Storage tanks and pump stations will be somewhat visible from the road. From the long-range vantage points, development on the site should not be visible. The effect of this change will depend on the viewer; most viewers will be residents of the area who are generally in favor of the proposed project. The mitigation measures for visual impacts described in section 4.12 will reduce aesthetic impacts of the proposed project to less than significant levels; therefore the cumulative impacts of the proposed actions will be reduced to less than significant levels and mitigation measures would not be required.

4.14.14 Environmental Justice

The proposed project is not seen to have any negative consequences in terms of Environmental Justice; instead the project is seen as means to empower the Hupa people in their quest for health and prosperity. Therefore any cumulative effects of the project in relation to Environmental Justice can only be seen as positive. As such, no mitigation measures would be required.

Summary of Mitigation Measures		
Section	Resource	Mitigation Measures
	Living Resources	
3.4.1.1	1	Project operations in the vicinity of Osprey nests should be done during non-breeding seasons.
4.4	2	The Hoopa Valley Tribe will have a qualified biologist survey suitable habitat within ¼ mile of the project area for nesting raptors within 30 days prior to the start of construction if construction is to occur during the raptor breeding season. If nesting northern spotted owls are within ¼ mile of proposed construction areas construction will be halted and will be resumed only after nests are vacated.
	Cultural Resources	
4.5	1	Coordination with the cultural committee will also be completed prior to commencement of the project to insure that construction activities will not involve camping areas that are used during the White Deerskin Dance.
4.5	2	Since there is a possibility unknown cultural resources will be discovered in the course of the preferred alternative, the Tribe will include the following requirement in the contract specifications for the construction of the proposed water system extension to mitigate impacts: BMP 6: In the event that any prehistoric, historic, or paleontological resources are discovered during construction-related earth moving activities, all work within 50 feet of the resources will be halted and the Tribe shall consult with a qualified archaeologist and the State Historic Preservation Office to access the significance of the find. If any find is determined to be significant by the qualified archaeologist and the State Historic Preservation Office, then representatives from the Tribe will meet to determine the appropriate course of action.
	Land Resources	
4.1	1- Soils	BMP 1: An erosion and sedimentation control plan for the proposed project shall be prepared by a qualified civil or geotechnical engineer and implemented during the construction of the proposed project. The erosion and sedimentation control plan shall include best management practices to reduce potential erosion and sedimentation impacts.

4.1	2- Seismic	BMP 2: Prior to construction, a final geotechnical investigation shall be prepared for the proposed project. The design of the project shall incorporate the engineering recommendations from the geotechnical investigation. Recommendations may include (but are not limited to) excavation options involving bedrock, the export of unstable soils, the use of engineering fill, foundation and retaining wall design requirements, and other related engineering design measures to lessen potential geotechnical hazards at the site.
	Water Resources	
4.2	1	BMP 3: The following best management practices shall be implemented during the construction of the proposed project site to reduce potential water quality impacts: - Phase grading operations to reduce disturbed areas and time of exposure. Avoid grading and excavation during wet weather. - Construct diversion dikes and drainage swales to channel runoff around the construction site. - Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive of unnecessary disturbances and exposure. - Plant vegetation on exposed slopes or use erosion control blankets (e.g., jute matting, glass fiber or excelsior matting, mulch netting) to reduce the potential for erosion. - Once grading is complete, stabilize the disturbed areas with permanent vegetation as soon as possible. - Cover stockpiled soil and landscaping materials with secured plastic sheeting and divert runoff around them. - Protect drainage courses, creeks, or catch basins with straw bales, silt fences, and/or temporary drainage swales. - Protect storm drain inlets from sediment-laden runoff with sand bags barriers, filter fabric fences, block and gravel filters, and excavated drop inlet sediment traps. - Use dry-sweep methods to clean sediments from streets, driveways, and paved areas of the construction site. - Maintain all construction vehicles and equipment. Inspect frequently for and repair leaks. - Designate specific areas of the construction site, located well away from creeks or storm drain inlets, for auto and equipment parking and routine vehicle maintenance. - Perform major maintenance, repair, and vehicle and equipment washing off site or in designated and controlled area. Clean up spills immediately. - When vehicle fluids or materials such as paints, solvents, fertilizers, and other materials are

		spilled, cleanup immediately. Use dry cleanup techniques whenever possible. - Store wet and dry building materials that have the potential to pollute runoff under cover and/or surrounded by berms when rain is forecast or during wet weather months. - Cover and maintain dumpsters. - Collect and properly dispose of construction debris, plant and organic material, trash, and hazardous materials as soon as possible. - Plan roadwork and pavement construction to avoid stormwater pollution during wet weather months. - Disposal of chlorinated water generated during pressure tests and chlorination of water lines shall be in accordance with all Federal, State, and local laws, ordinances, and regulations
4.2	2	BMP 4: The drainage plan for the proposed project shall include feasible post construction stormwater quality control measures. Such measures shall include any combination of the following techniques: Design the proposed project to locate impervious surfaces as far away from natural drainage channels as possible and utilize vegetation and grass swales to decrease runoff velocity and filter stormwater pollutants.
	Air	
4.3	1	BMP 5: The following control measures shall be implemented during the construction of the proposed project to reduce construction emissions of PM_{10} and $_{2.5}$: - All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover, or vegetative ground cover. - All on-site unpaved pipeline trenches and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant. - All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. - When materials are transported off-site, all materials shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of container shall be maintained.

SECTION 5.0 – CONSULTATION AND COORDINATION

The following agencies have been contacted and/or provided a copy of the Environmental Assessment

Larry Blevins
Dept. of the Interior
Bureau of Indian Affairs
2800 Cottage Way
Sacramento, CA 95825

Dan Hall, Regional Archaeologist
Dept. of the Interior
Bureau of Indian Affairs
2800 Cottage Way
Sacramento, CA 95825

Clancy Tenley
Tribal Programs Manager
U.S. EPA
75 Hawthorne Street (E-4)
San Francisco, CA 94105

U.S. Fish & Wildlife Serv.
Arcata Field Office
1655 Heindon Road
Arcata, CA 95521
Atten: Amedee Brickley

Milford Wayne Donaldson, SHPO
Dept. of Parks & Recreation
P.O. Box 94296-0001
Sacramento, CA 94296-0001

Barbara Ferris, Superintendent
HVPUD
P.O. Box
Hoopa, CA 95546

National Marine Fisheries Service
Southwest Region
1655 Heindon Road
Arcata, CA 95521
Atten: Ketra Meyer

Sara Jacobs
U.S. EPA
75 Hawthorne Street (WTR-6)
San Francisco, CA 94105

Kathleen Sartorius
Caltrans District 1
1656 Union Street
Eureka, CA 95501

Humboldt County
Department of Public Works
1106 Second Street
Eureka, CA 95501

John Hamilton
Indian Health Service
Two Renaissance Square
40 N. Central Ave., Suite 600
Phoenix, AZ 85004

Spencer Engineering
1585 Heartwood Drive, Suite F
McKinleyville, CA 95519
Atten: Scott Kelly. P.E.

SECTION 6.0 - REFERENCES

A California Flora Supplement, University of California Press, 1968.

A Cultural Resources Survey and Evaluation of 7752 Acres on the Hoopa Valley Indian Reservation, Hoopa, Humboldt County, California, Origer, T.M Sonoma State University, 1984.

A Discussion Of The Ecology And Uses Of Selected Traditional Hupa Species, Karen Theiss and Associates Biological and Environmental Consultants, 1995.

A Field Guide to Pacific States Wildflowers, Theodore F. Niehaus and Charles Ripper, February, 1992.

A Field Guide to the Mammals, William Henry Burt and Richard Philip Grossenheider, 1976.

An Archaeological Survey of Hoopa Valley, Hoopa Indian Reservation, Humboldt County, California, Offermann, J.K., Origer, T.M. and Frederickson, D.A. Sonoma State University, Anthropological Studies Center. 1976.

Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants, State of California, Department of Fish and Game, 1992.

BIA Transportation Plan Northern California Agency. Bureau of Indian Affairs, Sacramento, California., Cooper Consultants in association with CH2M Hill, 1986.

Biological Assessment, Hoopa Valley Indian Reservation Forest Management Plan, 1994-2003, Hoopa Valley Tribe, Higley, J.M., 1997.

Biological Opinion For the Hoopa Valley Indian Reservation Forest Management Plan, 1994-2003, U.S. Fish and Wildlife Service, 1997.

California Athabascan Groups, In Anthropological Records 16: 5. Baumhoff, Martin A.,1958.

California Flood Management: An Evaluation of Flood Damage Prevention Programs, Bulletin 199, California Department of Water Resources, 1978.

California Patterns: A Geographical and Historical Atlas, David Hornbeck, Phillip Kane, David L. Fuller, Mayfield Publishing Company, 1993.

California's Wild Heritage - Threatened and Endangered Animals in the Gold State, Peter Steinhart, California Department of Fish and Game, 1990.

CDMG Report 92-03, California Division of Mines and Geology, 1992

Cultural Resource Survey and Evaluation of Portions of the Hoopa Valley Indian Reservation, Humboldt County, California. Sonoma State University: U.S. Department of Interior, National Park Service. Frederickson, D.A.,1982.

De-No-Te: A Study of Hupa Indian Use of the Trinity Summit Area, Winter, J, K. Hefner, and L. Weigel, Six Rivers National Forest. Eureka, California, 1979.

Districts of California, State of California, Division of Mines and Geology, 1970.

Environmental Assessment Proposed Road Surfacing and Reconstruction, Hoopa Valley Indian Reservation, Ulibarri, Robert , VISIONS Enterprises, 1995.

Flatlands Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning. U.S. Geological Survey (USGS), 1979. Professional Paper 943.

Geology of the Klamath Mountains Provence. California Division of Mines and Geology Bulletin 190: 19038. Irwin, W.P., 1966.

Hoopa Valley Business Council Draft Comprehensive Plan 1985-2000, Ulibarri, Robert, Hoopa Valley Business Council, 1985.

Hoopa Valley Indian Reservation Forest Management Plan, 1994-2003, Hoopa Valley Tribe, 1995.

Hoopa Valley Indian Reservation, Hoopa Valley Tribe, Land Use Plan and Development Standards, Land Management Department, Ulibarri, Robert, 1997.

Hoopa Valley 208 Water Plan, 1982 Update. Ulibarri, Robert , Hoopa Valley Business Council, 1982.

Hoopa Valley Tribe, Draft Integrated Resource Management Plan, Ulibarri, Robert and Glen, David , VISIONS Enterprises and Natural Resources Management, Inc., 1996.

Hoopa Valley Indian Reservation Transportation Plan, 1996-2001, Hoopa Valley Tribe, 1996

Hoopa Valley Tribe, Draft Integrated Resource Management Plan, Desired Future Conditions and Framework Goals, Ulibarri, Robert and Glen, David, VISIONS Enterprises and Natural Resources Management, Inc., 1996.

Hoopa Valley Water Supply Feasibility Analysis Update, Spencer Engineering and Construction Management, April 2001.

History of the Hoopa Tribe, Hostler, Patricia and Byron, Hoopa Valley Business Council. 1967.

Hupa Stories, Anecdotes, and Conversations by the Hoopa Valley Tribe, 1984. Told by Louise Jackson, Ned Jackson, and Minnie Reeves. Recorded, transcribed, and translated by Victor Golla.

Indian Land and Forest Resources: An Issue of Federal Trust: A Forest History of the Hoopa Valley Indian Reservation of Northwestern California, American Indian Technical Services, Inc. Prepared for U.S. Department of Interior, Bureau of Indian Affairs, Sacramento, California, 1983.

Inventory of Rare and Endangered Vascular Plants of California, California Native Plant Society, 1980.

Mineral Resources of Humboldt County, California,. California Journal of Mines and Geology, v. 37, No. 4: 499-528. Averill, C.V., 1941.

Our Home Forever: A Hupa Tribal History, Nelson, Byron Jr., Salt Lake City: University of Utah Printing Service, 1978.

Soils of the Hoopa Valley Indian Reservation, Humboldt County, California. Parsons, Annette, Hoopa Valley Business Council, 1985.

Soil Survey, Hoopa Valley, California, Singer, B.C. and Begg, Eugene L., University of California at Davis: Agricultural Extension Service, 1975.

Solid Waste Management Plan of the Hoopa Valley Indian Reservation, Tribal Environmental Protection Agency and the Hoopa Valley Public Utilities District, 1998 Update.

Status of Mineral Resource Information for Twenty-One Indian Reservations in Cascade Range, Klamath Mountains, Northern Coast Ranges, and Great Valley Provinces, California. U.S. Geological Survey & U.S. Bureau of Mines BIA, Administrative Report BIA-49: 27-37, 1979.

Surface Water Hydrology of Coastal basins of Northern California, Rantz, S.E, USGS, Geological Survey Water Supply Paper 1758. Washington, D.C., 1964.

Technical Assistance to the Hoopa Valley Indian Reservation for Solid Waste Management Planning, SCS Engineers , U.S. Environmental Protection Agency, 1981.

The Hoopa Valley Indian Reservation in Northwestern California: A Study of Its Origins, Anderson, George L., Humboldt State California. Masters Thesis., 1956.

The Noise Guidebook, U.S. Department of Housing and Urban Development, No Date Noted, Washington, D.C.

Trinity River Flood Plain Information, Junction City to Weitchpec, U.S. Bureau of Reclamation, 1979

Water Quality Control Plan for the Hoopa Valley Indian Reservation, Hoopa Valley Tribe, August 1997.

Water Resources and Future Water Requirements, State of California, The Resources Agency, Dept. of Water Resources, Bulletin No. 142-1, April 1965.

Wetland Values: Concepts and Methods for Wetlands Evaluation, U.S. Army Corps of Engineers, February 1979.

Wildlife Surveys, 1984 Timber Sale Units. LeValley, Ron, Hoopa Valley Business Council, 1984.

ENVIRONMENTAL ASSESSMENT
HOOPA VALLEY TRIBE, EXTENSION OF DOMESTIC WATER SUPPLY TO THE BALD HILLS AREA, HUMBOLDT COUNTY, CALIFORNIA

Appendix A:
Cultural & Historical Resources Consultation & Documentation

Appendix B:
Endangered Species Consultation & Documentation

Appendix C:
List of Preparers

Appendix D:
Bald Hills Water System Preliminary Design

Appendix A:
Cultural & Historical Resources Consultation & Documentation

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

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September 13, 2005

Reply to: EPA05071A

Ms. Sara Jacobs
Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Dear Ms. Jacobs:

RE: Hoopa Valley Bald Hill Drinking Water Tribal Set-Aside Project

Thank you for requesting my comments on the above cited project. My staff has reviewed the documentation that you provide and I would like to offer the following comments.

You have identified the area of potential effect for this project to be 50 foot wide corridor along existing roadways and 25 foot corridor along private driveways. In addition, 1000 square foot area for each to the three tank locations has been delineated as the area of potential effect. I do not object to how the area of potential effect has been defined for this undertaking.

The area of potential effect was subject to an historic property survey. This survey examined all areas within the area of potential effect. I concur that your efforts to identify historic properties are sufficient.

Based on the information gathered during the current historic properties survey effort, you have identified one potential historic property, White Deerskin Dance Trail, is located with the area of potential effect. For the purposes of this undertaking, you will treat the site as eligible for the National Register of Historic Places. In you letter of July 13, 2005, you have included documentation demonstrating consultation with the Cultural Committee and a letter signed Mr. Mervin George, Sr. concurring that the proposed project would not adversely affect this historic property. I concur with your determination of that the proposed project will not adversely affect historic properties.

If my staff can be of any further assistance, please contact Dwight Dutschke at 916-653-9134.

Sincerely,

Milford Wayne Donaldson, F.A.I.A.
State Historic Preservation Officer

Appendix B:
Endangered Species Consultation & Documentation

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

NOV 1 8 2005

In response refer to:
151422SWR2005AR00161:KM

Ms. Sara Jacobs
Project Officer
Region IX
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901

Dear Ms. Jacobs:

Thank you for your October 4, 2005, request to initiate informal Endangered Species Act (ESA) section 7 consultation with NOAA's National Marine Fisheries Service (NMFS) regarding the U.S. Environmental Protection Agency's (EPA) proposed funding of the Hoopa Valley Public Utility District's (HVPUD) Bald Hills Water Supply Project (Project) in Hoopa, California. This letter serves to complete informal consultation on the Project, which may affect but is not likely to adversely affect Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*) Evolutionarily Significant Unit (ESU), listed on May 6, 1997 (62 FR 24588). The final rule designating SONCC coho salmon critical habitat (May 5, 1999, 64 FR 24049) excluded tribal lands. Because the entire action area is within the Hoopa Valley Indian Reservation, critical habitat will not be included in this consultation.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267; U.S.C. 1801 *et seq.*) and its implementing regulations [50 CFR § 600.920(a)] require that before a Federal agency may authorize, fund, or carry out any action that may adversely affect Essential Fish Habitat (EFH), that agency must consult with NMFS. Pacific Coast salmon EFH is likely to be in the action area of the Project and was considered in this consultation. Because Project activities will not adversely affect EFH, EFH consultation is not warranted.

DESCRIPTION OF PROJECT

The HVPUD is proposing to extend the existing valley-wide water distribution system up to residences on Bald Hill, within the Hoopa Valley Indian Reservation. All water will be drafted from existing diversions which adhere to the NMFS Water Drafting Specifications (NMFS 2001, Ferris 2005). A water pipeline would tie into an existing pipeline at the intersection of Moon Road and Pine Creek Road, and extend, within existing road alignments, along approximately 49,000 feet of road, including Pine Creek Road, Bald Hills Road, and several roads that intersect Bald Hills Road. In addition, 31 service lines and power extensions will be installed along residential roads to connect to the main water lines. Also, five pressure zones would be constructed, each with a pump and storage tank. Pine Creek Road runs adjacent to the Trinity

River. Bald Hills Road runs through the Beaver Creek watershed, crossing Beaver Creek and associated tributaries.

The pipeline will be installed in existing road alignments and no in-channel work is required. The pipeline will cross one Class I stream, Beaver Creek, at an existing culvert, which is believed to be a barrier to anadromous salmonids, and consequently the upstream extent of anadromous salmonid habitat in Beaver Creek. The pipeline will be laid in the 6 feet of fill that rests between the culvert and the road. In addition, the pipeline will cross several other Class II and Class III streams, in the existing road alignment. Class II and Class III streams are not fish-bearing. The exact number of Class II and Class III crossings is unknown at this time, as EPA's funding is needed for the final engineering designs. HVPUD will not receive EPA's funding until all environmental documents, including this letter of concurrence, is completed. Regardless, silt fences will be installed between work areas and streams (including all dry streams and those carrying surface flows) at all crossings. Silt fences will be anchored such that no soils would be able to fall into stream channels. The silt fences will remain in place for the duration of construction activities, and all soils that accumulate behind the fence will be removed and either used to backfill the pipeline ditch or hauled to an approved upland storage site.

The pressure zones will be located on large clear areas along roads. An area approximately 2500 square feet is needed for each of the five pressure zones. However, only minor brush removal is needed along with the removal of 5-10 small diameter trees. No riparian vegetation will be removed.

Project activities will be implemented between April 15 and November 15. Implementation is expected to begin in 2006 and take two seasons to complete.

PROJECT EFFECTS

The potential impacts from the Project could result from disturbed sediments entering Beaver Creek and the Trinity River. However, because the pipeline will be laid within an existing road alignment, no in-channel work will occur, sediment control measures will be in place, and work will be implemented during the dry season, NMFS expects an insignificant amount of sediment to enter Beaver Creek or the Trinity River. Therefore, we do not expect that any impacts from the Project would adversely affect SONCC coho salmon.

CONCLUSION

Based on our review of the documents you have provided, NMFS concurs with your determination that the proposed funding of the HVPUD's Bald Hills Water Supply Project is not likely to adversely affect Federally threatened SONCC coho salmon.

This concludes informal consultation in accordance with 50 CFR § 402.13 for the Project. However, further consultation may be required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) new information reveals effects of the action that may affect listed species or EFH in a manner or to an extent not

previously considered, (2) the action is subsequently modified in a manner that causes an effect to the listed species or EFH that was not considered, or (3) a new species is listed or critical habitat is designated that may be affected by the action.

Please contact Ms. Keytra Meyer at (707) 825-5168 or via e-mail at keytra.meyer@noaa.gov if you have any questions regarding this consultation.

Sincerely,

Anthony G Morton

for Rodney R. McInnis
Regional Administrator

cc: Clifford Lyle Marshall, Hoopa Valley Tribe
Barbara Ferris, Hoopa Valley Public Utility District
Alice Berg, Alice Berg & Associates

References Cited

Ferris, B. 2005. Electronic mail from Barbara Ferris, Hoopa Valley Public Utility District, to Keytra Meyer, NMFS, regarding water drafting specifications. November.

National Marine Fisheries Service. 2001. Water Drafting Specifications. NMFS, Southwest Region, Long Beach, CA. August. 3 p.

BIOLOGICAL ASSESSMENT FOR SOUTHERN OREGON/NORTHERN CALIFORNIA COASTS COHO SALMON BALD HILL WATER SUPPLY

SEPTEMBER 15, 2005

PREPARED FOR:
HOOPA VALLEY PUBLIC UTILITY DISTRICT
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1.0 Introduction and Background

The Hoopa Valley Public Utilities District (HVPUD) operates domestic and irrigation water systems on the Hoopa Valley Indian Reservation (HVIR). There is no community water system to residences on Bald Hill. These residences currently use individual wells or springs and have requested a public water system since at least the 1970's. Water system feasibility investigations were conducted in 1974, 1978 and 1990, and these earlier investigations focused on getting water from one of the creeks on Bald Hill. Extending the existing Valley-wide water system was identified as the preferred alternative in the most recent feasibility study (Spencer Engineering 2002). The existing Valley-wide water system uses water from the recently upgraded Trinity River treatment facility. The proposed project includes installation of a system of water pipes that will tie into existing pipelines starting in Soctish Field and continuing up to residences on Bald Hill, including installation of associated pressure zones, each with a pump and storage tanks.

1.1 Action Area

The action area is linear and follows along existing roads including Pine Creek Road, starting at the intersection of Moon Road, continuing up Bald Hill Road and including Dowd Road, Bloody Camp Road and Translator Road (Refer to Figure 1 Amended System Plan Map in Appendix A). The action area is within the Trinity River watershed, Beaver Creek watershed, and face drainages of the Trinity River.

1.2 Listed Species and Evaluation Methods

This Biological Assessment (BA) analyzes effects to Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) coho salmon (*Oncorhynchus kisutch*) listed under the Endangered Species Act (ESA). The BA compiles the best available scientific and commercial data for the action area, considers the current environmental baseline, species information and key habitat elements in the action area that may be affected by the proposed action. The BA's effects determination is based on this information and uses this information to determine whether the proposed action is likely to adversely affect listed species.

1.3 Other Species Considered

Upper Klamath-Trinity Rivers (UKT) Chinook salmon (*O. tshawytscha*) and Klamath Mountains Province (KMP) steelhead (*O. mykiss*) may occur in the action area but are not listed under the ESA. These species have similar habitat and biological requirements as coho salmon, thus, the BA's effects analysis considers effects to Chinook salmon and steelhead habitat within the action area. However, determinations regarding project effects to unlisted species are not included herein.

2.0 Proposed Action

2.1 Project Description

The HVPUD is proposing to extend the existing Valley-wide water distribution system up to residences on Bald Hill, within the HVIR. The existing Valley-wide system was recently upgraded to obtain water from the Trinity River. HVPUD is proposing to run water pipelines within existing road alignments to service Bald Hill residences. The pipeline would tie into an existing pipeline in Soctish Field (beginning at the intersection of Moon Road with Pine Creek Road) and would continue up Pine Creek Road to Bald Hill Road. Water pipes would also be run along roads that intersect Bald Hill Road including Dowd Road, Bloody Camp Road and Translator Road to service residential areas. Thirty-one service lines and power extensions will be installed along residential roads to connect to the main water lines. In addition to laying the water pipes along existing roads, five pressure zones would be constructed, each with a pump station and storage tank. The footprint of each pressure zone (includes pump and water storage tank) would be 2500 square feet. The pressure zones are necessary to move water up the mountain: there is a large elevation difference between existing pipelines in Soctish Field (320 ft.) and the highest residence on Bald Hill area (2,342 ft.).

Since the pipeline would be placed within existing road alignments, no in-channel work is required to lay the pipeline. The new pipeline would cross one perennial stream, Beaver Creek, however no in-channel work is required due to the existing road crossing. The existing road crossing, where Pine Creek Road crosses Beaver Creek, consists of a large amount of dirt fill on top of a 6' culvert. The proposed water pipeline would be set into the existing fill, adjacent to Pine Creek Road. Several other Class II and III streams would be crossed by the pipeline, however, all crossings have existing culverts and fill material. The proposed pipeline would be installed within the existing road alignment and fill material. Thus, no in-channel modifications would be required.

The pressure zones will be located on wide areas along roads, and on old skid roads adjacent to the main roads (refer to map in Appendix A). Access to storage tank sites is existing with the exception of minor brush removal. Vegetation removal for the tank locations will be minimal, as the area required (50 square feet for each of the five pressure zones) for each tank is minimal. From 5-10 small diameter trees may need to be removed along with brush; no merchantable size trees would be removed. The sites chosen for the pressure zones are existing open areas along roads. Trees would not be removed from Riparian Protection Zones (RPZs). The Project will be implemented during the dry season between April 15 and November 15. Implementation is dependent on completion of planning and contracting requirements. Implementation would begin in 2006 and it is likely that two seasons would be required to complete the Project.

2.2 Effects Minimization Measures

1. Erosion control and construction material containment structures will be in place for all stream pipeline crossings prior to commencing construction activities. It is expected that the following or similar systems will be in place by the Contractor and approved by HVPUD:

    Material control fences will be installed on existing fill material along all stream crossings. Silt fences will be installed between work areas and streams (including all dry streams and those carrying surface flows) by staking (stakes or straw bales

can be used to anchor the bottom of silt fences) silt fence fabric along the length of the road crossings. Silt fences will be anchored such that no soils would be able to fall into stream channels. Silt fences would remain in place for the duration of construction activities and all soils that accumulate behind silt fences will be removed and either used to backfill the pipeline ditch or hauled to an approved upland storage site.

2. All soils from pipeline construction activities that are not used to backfill the pipeline ditch shall be hauled to an approved storage site. All soils storage sites shall be located in an upland location, outside of Riparian Management Zones (RPZs). No disturbed soils shall be left on road alignments or placed off of road alignments in undesignated areas.

3. The Project would occur during the dry season to avoid an increase in the potential for soil erosion during wet weather.

4. The Project design team has coordinated with the Roads Department to ensure that the water pipeline construction would not affect slide stabilization along Pine Creek Road.

3.0 Species Account

The following section summarizes coho salmon life history information, biological requirements, limiting factors and available information about the species use of habitat within the action area. The SONCC coho salmon ESU was listed as threatened under the ESA on May 6, 1997 (62 FR 24588). The SONCC coho salmon ESU was listed as threatened due to numerous factors including habitat degradation, harvest, water diversions and artificial propagation, which have exacerbated the effects of natural disturbances such as floods, drought and poor ocean conditions.

3.1 Coho Salmon (*Oncorhynchus kisutch*)

General life history information and biological requirements of SONCC coho salmon have been described in various documents (Shapovalov and Taft 1954; Hassler 1987; Sandercock 1991; CDFG 1994; Weitkamp et al. 1995) as well as National Marine Fisheries Services' (NMFS) final rule listing SONCC coho salmon (May 6, 1997; 62 FR 24588). Available historical and most recent published coho salmon abundance information are also summarized in NMFS' coast-wide status review (Weitkamp et al. 1995).

Coho salmon exhibit a relatively simple three-year life cycle. Adult coho salmon typically enter rivers between September and February, and river entry timing is influenced by river flows. Many California streams have sandbars that block their mouths in non-winter months. Spawning occurs from November to January (Hassler 1987), but occasionally as late as February or March (Weitkamp et al. 1995). Coho salmon eggs incubate for 35-50 days between November and March. Successful incubation depends on several factors including dissolved oxygen levels, temperature, substrate size, amount of fine sediment, and water velocity. Fry start emerging from the gravel two to three weeks after hatching and move into shallow areas with vegetative or other cover. As fry grow larger, they disperse up or downstream. In summer, coho salmon fry prefer pools or other slower velocity areas such as alcoves, with woody debris or overhanging vegetation. Juvenile coho salmon over-winter in slow water habitat with cover as well. Juveniles may rear in fresh water for up to 15 months then migrate to the ocean as smolts from March to June (Weitkamp et al. 1995). Coho salmon adults typically spend two years in the ocean before returning to their natal streams to spawn as three-year olds. While in the ocean, coho salmon remain closer to their natal river than do Chinook salmon (Weitkamp et al. 1995).

The status review (Weitkamp et al. 1995) noted that natural runs of coho salmon ESUs are substantially below historical levels. The rivers and tributaries in the California portion of this ESU were estimated to have average recent runs of 7,080 natural spawners and 17,156 hatchery returns, with 4,480 identified as native fish occurring in tributaries having little history of supplementation with non-native fish.

Relative to the Trinity River, coho salmon inriver escapement estimates for the decade of the 1990's (excluding 1996, 1997 when data were not available) averaged 390 naturally produced fish above Willow Creek and data indicate the coho population is predominantly of hatchery origin (EPA 2001).

The Trinity River within the HVIR provides migration habitat for adult and juvenile SONCC coho salmon. HVTFD (2001) has conducted mainstem spawning surveys and reported that coho salmon spawning has not been observed in the mainstem, and that the lack of mainstem spawning was consistent with known life history information. The Trinity River face drainages that lie within the action area are not accessible to coho salmon. The action area includes Beaver Creek,

a tributary to the Trinity River, which is blocked just upstream of its mouth at a large culvert located under Pine Creek Road near the intersection of Pine Creek Road and Beaver Creek Road.

3.2 Formal Habitat Designations

Critical Habitat

Designated critical habitat for SONCC coho salmon encompasses accessible reaches of all rivers (including estuarine areas and tributaries) between the Mattole River in California and the Elk River in Oregon, inclusive (May 5, 1999, 64 FR 24049). The area described in the final rule represented the current freshwater and estuarine range of SONCC coho salmon. Land ownership patterns within the SONCC coho salmon ESU (spanning southern Oregon and northern California) are 53% private lands; 36% Federal lands; 10% State and local lands; and 1% Tribal lands.

Based on consideration of the Federal Government's trust responsibilities to Indian tribes, particularly as addressed in the Secretarial Order and following government to government consultation with affected Indian tribes, NMFS determined that tribal lands should be excluded from the final critical habitat designation for SONCC coho salmon (May 5, 1999, 64 FR 24049). SONCC coho salmon designated critical habitat does not occur within the action area.

Essential Fish Habitat

Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Act (MSA) require heightened consideration of fish habitat in resource management decisions. The Pacific Fishery Management Council (PFMC) designated EFH for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Chinook salmon, coho salmon and Puget Sound pink salmon (PFMC 1999). The action area includes areas designated as EFH for various life-history stages of coho salmon, Chinook salmon, and starry flounder. EFH is defined in Section 3 of the MSA as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity." NMFS interprets EFH to include aquatic areas and their associated physical, chemical and biological properties used by fish that are necessary to support a sustainable fishery and the contribution of the managed species to a healthy ecosystem. The MSA and its implementing regulations at 50 CFR 600.92(j) require that before a federal agency may authorize, fund or carry out any action that may adversely effect EFH, it must consult with NMFS. The Trinity River contains EFH for Chinook and coho salmon. All references to "habitat" in this BA include, by definition, EFH since "habitat" is the functional equivalent to EFH.

4.0 Environmental Baseline

This section describes existing conditions of SONCC coho salmon habitat in the Trinity River, which includes the effects of past and ongoing human and natural factors leading to the current status of the species, their habitat and ecosystems. Beaver Creek is not accessible past the existing culvert on Pine Creek Road, thus no baseline description is described herein. Face drainages of the Trinity River that are within the action area are also not accessible.

4.1 Trinity River

The Trinity River is the largest tributary to the Klamath River, draining an area approximately 3,000 square miles in size. The Basin is predominately mountainous and forested and the majority of the basin (approximately 70%) is under public ownership. The HVIR encompasses 144 square miles of the lower Trinity River basin. The Trinity River provides habitat for SONCC coho salmon and unlisted fish including UKT Chinook salmon and KMP steelhead. Much of the following information was excerpted or summarized from the *Trinity River Total Maximum Daily Load for Sediment* (EPA 2001). Unfortunately, many of the references cited were not listed in the document's (EPA 2001) reference section, thus, are cited herein as "… *in* EPA 2001."

Water Quality

In 1992, the Environmental Protection Agency (EPA) added the Trinity River to California's 303(d) impaired list due to elevated sedimentation. The North Coast Water Quality Control Board has continued to identify the Trinity River as impaired in subsequent listing cycles. The primary adverse impact with respect to excessive sediment pertains to salmonid habitat.

Habitat Access

Distribution of salmonids in the Trinity River Basin has changed dramatically from historic levels. Access is blocked to approximately 109 miles of steelhead habitat and 59 miles of Chinook habitat (USFWS 1999 *in* EPA 2001). Due to the presence of dams, current available habitat represents a fraction of what was available historically. Past and ongoing human activities in tributaries, such as road construction and water diversions, have also influenced the numbers and distribution of Pacific salmonids and their habitat in tributary watersheds within the basin.

Habitat Elements

Data [Graham Mathews & Associates (GMA) 2001 *in* EPA 2001] collected from the upper middle portion of the Trinity River indicate that spawning gravel quality generally declines in a downstream direction from just below Lewiston Dam (river mile 111.5) to river mile 80.3 (upstream of the action area). Samples taken in the mainstem and tributaries (2001) indicate that percent fines <0.85 are below threshold levels indicating that fines of this size class may not be a limiting factor in the upper middle part of the basin. Percent fines <2.0 mm (sand particles) in mainstem sampling sites were close to the threshold of 30% indicating that this size class is potentially a limiting factor for salmonid production. GMA (2001) also found that permeability generally declined in a downstream direction from Lewiston to Junction City. Benthic food production does not appear to be a major factor in limiting fish production (USFWS 1999 *in* EPA 2001). Substrate data for the Trinity River within the action area is not available.

Instream habitat conditions, with respect to pool quality and other morphological features, in the mainstem Trinity River within the HVIR are relatively static/stable because the channel is bedrock controlled throughout much of its length.

Channel Conditions and Dynamics
Current conditions in the Trinity River are the accumulation of more than a century of various impacts including mining, timber harvest, dams, and water resources development, which have altered and impacted channel conditions.

The USFWS and HVT (1999 *in* EPA 2001) described the changes in the middle portion of the mainstem Trinity River from an alternate bar morphology which provided velocity, substrate and topographic diversity to monotypic channel lacking such diversity. Further information can be found in the Trinity River Flow Study (McBain and Trush 1997 *in* EPA 2001) and the Trinity River Flow Evaluation Final Report (USFWS and HVT 1999 *in* EPA 2001).

Flow/Hydrology
Controlled releases from Trinity Lake have altered the natural hydrologic regime in the river and resulted in the diversion of flows to the Central Valley and southern California water purveyors. Water development has altered the hydrology, and magnitude and timing of water flows. Construction and operation of dams has altered the natural hydrographs of the Trinity River.

Watershed Conditions
A road inventory conducted as part of the Five County Salmon Conservation Program identified 787 stream crossings as potential sediment delivery sites from county roads throughout Trinity County (PWA 2001 *in* EPA 2001). Several of the sites are located within tributaries of the Trinity River. The USFS (De la Fuente et al. 2000 *in* EPA 2001) has conducted watershed condition assessments, which included several road related values that illustrate which subwatersheds represent higher road hazard potential with regard to sediment delivery. The lower Trinity portion of the basin (includes the action area) was rated 4th lowest in terms of the hazard rating (relative to the composite rating of road hazard potential) out of 13 subwatersheds.

5.0 Effects of the Proposed Action

Direct effects to coho salmon are not expected because all of the proposed activities would occur outside of stream channels, and none of the proposed pipelines would cross habitat accessible to SONCC coho salmon (or Chinook salmon).

The Project would not result in water quality impacts. Installation of the pipeline would occur on existing road alignments. There would be one perennial stream crossing at Beaver Creek, and several other Class II and III crossings. Pipeline would be installed in the existing road alignments to avoid disturbance to stream channels. Sedimentation that may be associated with ground disturbance will be minimized through installation of silt fences. Silt fence barriers would prevent soils from entering stream channels. All soils dug from road alignments for purposes of laying the water pipeline would be used either to backfill the pipeline ditches or would be hauled to an approved upland storage site.

The Project would not alter vegetation that provides shade to streams as the pipelines will be installed within existing road alignments that have already been cleared and maintained for vehicle use. The pressure zones and water storage tanks will be located on wide areas along roads, and on old skid roads adjacent to the main roads. Vegetation removal for the tank locations will be minimal as the areas are relatively small (50 square feet) and existing open areas were chosen for the pressure zones sites. The Tribe has recently changed the location of Tank Nos. 1 and 4 to avoid having to remove trees. However, removal of small trees and brush may occur. Removal of trees would be limited to from 5-10 small diameter (unmerchantable) trees and outside of RPZs.

The Project would not affect instream habitat elements. Stream substrates would not be degraded or otherwise altered as a result of the Project. Sediment associated with ground disturbance would not enter stream channels because disturbance would be limited to existing road alignments to avoid disturbance within stream channels. All stream crossings would have silt fences installed to prevent sediment from work areas (within road alignments) from entering stream channels. Thus, pool frequency and quality would not be changed as a result of the Project. The removal of from 5-10 small trees outside of RPZs would not affect large wood loading. The Project would not alter instream flows, or create a barrier to migrating salmonids because all activities would occur outside of stream channels along existing road alignments.

The Project would not alter channel conditions or dynamics. Streambanks would not be disturbed as the pipeline would be installed well above the active channel within existing fill materials. Thus, a loss of function (stability or confinement) would not occur because streambank integrity would not be changed.

The pipeline would be installed at the base of an active slide along Pine Creek Road. The Tribe has conducted a study to identify stabilization measures for this slide. These measures (including getting water sources piped off of the slide area) would be implemented prior to this project. The pipeline construction has been factored into the stabilization plans and would occur at the base within the existing road alignment. Installation of the pipeline would not affect or compromise planned stabilization measures.

6.0 Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur within the action area. Past and ongoing activities within the Trinity River Basin have influenced the hydrology and morphology of channels, changed the distribution and abundance of riparian vegetation, and generally changed the quality of instream habitat. These factors combined contribute cumulatively to degradation of aquatic habitat. The dominant land use activities on non-federal lands are forestry. It is expected that future private and state land management practices will continue at similar intensities as in recent years. Future projects that require Federal permitting or funding are not reviewed here, as they would be subject to section 7 consultation in the future. This project is not expected to add cumulatively to short- or long-term degradation of habitat quality. This project may result in a net benefit to aquatic habitat by reducing the amount of water that is diverted from small tributary streams within the project area.

7.0 Determination

Based on the information presented in this BA, it is my determination that the Bald Hill Water Supply Project may affect, but is not likely to adversely affect SONCC coho salmon, or EFH for Chinook and coho salmon.

8.0 References

Bryant, G. J. 1994. Status review of coho salmon in Scott Creek and Waddell Creek, Santa Cruz County, California. Natl. Mar. Fish. Serv., SW Region, Protected Species Management Division, 102 p. (Available from Natl. Mar. Fish. Serv., Southwest Region, 501 W. Ocean Blvd., Suite 4200, Long Beach, CA 90802.)

Busby, P.J., T.C. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino. 1996. Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California. Technical Memorandum NMFS-NWFSC-27. August 1996

California Department of Fish and Game (CDFG). 1994a. Petition to the California Board of Forestry to list coho salmon (Oncorhynchus kisutch) as a sensitive species. Calif. Dep. Fish Game Rep., 35 p. plus appendices. (Available from the California Board of Forestry, 1416 Ninth, Sacramento, CA 95814.

Environmental Protection Agency (EPA). 2001. Trinity River Total Maximum Daily Load for Sediment. U.S. Environmental Protection Agency Region IX.

Hassler, T.J. 1987. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (Pacific Southwest)--coho salmon. U.S. Fish and Wildl. Serv. Biol. Rep. 82(11.70). 19 pages.

Hoopa Valley Tribal Fisheries Department (HVTFD). 2001. Results of Mainstem Spawner Surveys Conducted from 1996 to 2000 by Hoopa Valley Tribal Fisheries Department.

Myers, J.M. R.G. Kope, G.J. Bryant, D.Teel, L.J. Lierheimer, T.C. Wainwright, W. S. Grant, F.W. Waknitz, K. Neely, S.T. Lindley, and R.S. Waples. 1998. Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California. NOAA Technical Memorandum NMFS-NWFSC-35. February 1998

National Marine Fisheries Service (NOAA Fisheries). 1996. Making endangered species act determinations of effect for individual or grouped actions as the watershed scale. National Marine Fisheries Service Environmental and Technical Services Division Habitat Conservation Branch.

Pacific Fishery Management Council (PFMC) 1998a. Final Environmental Assessment/Regulatory Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan. Pacific Fishery Management Council, Portland, Oregon, (October 1998). http://www.pcouncil.org/groundfish/gffmp/gfall.html

Pacific Fishery Management Council (PFMC). 1998b. The Coastal Pelagic Species Fishery Management Plan: Amendment 8. Pacific Fishery Management Council, Portland, Oregon (December 1998). http://www/pcouncil.org/cps/cpsfmp.html

Pacific Fishery Management Council (PFMC) 1999. Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Pacific Fishery Management Council, Portland, Oregon (March 1999). http://www.pcouncil.org/salmon/salfmp/a14.html

Sandercock, F.K. 1991. Life history of coho salmon (Oncorhynchus kisutch). Pages 395-446 in Groot and Margolis (ed). Pacific Salmon Life Histories. UBC Press, Vancouver, Canada

Shapovalov L. and A.C. Taft. 1954. The life histories of steelhead rainbow trout (Salmo Gairdneri gairdneri) and silver salmon (Oncorhynchus kisutch) with special reference to Waddel Creek, California, and recommendations regarding their management. Calif. Dep. Fish Game, Fish Bull. 98, 375 p.

Spencer Engineering, Inc. 2002. Bald Hill Water Supply – Energy Cost Estimate. Spencer Engineering & Construction Management, Inc. 1933 Central Ave. Suite C, Mckinleyville, CA 95519-3668.

Weitkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D. J. Teel, R.G. Kope, and R.S. Waples. 1995. Status Review of Coho Salmon from Washington, Oregon, and California NOAA Technical Memorandum NMFS-NWFSC-24 September 1995. NOAA.

APPENDIX A
Project Map

APPENDIX B
Effects Matrix

BASELINE MATRIX & CHECKLIST
Trinity River

Pathways: Indicators	Environmental Baseline			Effects of the Action(s)					
				Short Term			Long Term		
	Properly Functioning	At Risk	Not Properly Functioning	Restore	Maintain	Degrade	Restore	Maintain	Degrade
Water Quality: Temperature		X			X			X	
Sediment		X			X			X	
Chemical Contam./Nutrients	X				X			X	
Habitat Access: Barriers			X		X			X	
Habitat Elements: Substrate		X			X			X	
Large Woody Debris		X			X			X	
Pool Frequency*		X			X			X	
Pool Quality*		X			X			X	
Off-Channel Habitat		X			X			X	
Refugia		X			X			X	
Channel Cond./Dynamics: Width/Depth Ratio*	X				X			X	
Streambank Condition	X				X			X	
Floodplain Connectivity	X				X			X	
Flow/Hydrology: Peak/Base Flows		X			X			X	
Drainage Network Increase		X			X			X	
Watershed Conditions: Road Density and Location		X			X			X	
Disturbance History		X			X			X	
Riparian Reserves		X			X			X	

Hoopa Valley Tribal Council

Natural Resources Department
Forestry Division

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RECEIVED
FEB 09 2005
WK - EUREKA

DATE: January 29, 2005

TO: Barbara Ferris, General Manager, HVPUD

FROM: J. Mark Higley, Wildlife Biologist

SUBJECT: Bald Hills water development project, Affects to Threatened and Endangered Wildlife.

I received the Bald Hills water line and water tank project description and map and I have evaluated the potential impacts to T&E wildlife. The wildlife species of concern include the northern spotted owl, bald eagle and marbled murrelet. I have concluded that implementation of this project will have no adverse effect on any of these three species because no suitable habitat will be modified and no breeding season disturbance will occur as long as the required seasonal restriction is implemented in the vicinity of owl activity center 81035_95. I have included more detail below and a map which supports my conclusions. Because of the "No Effect" determinations there is no need for the Federal Agencies involved with this project to initiate Section 7 Consultation with the U.S. Fish and Wildlife Service (USFWS).

Potential impacts to other wildlife and plant species may occur once the water project is completed if it stimulates urban development of the bald hill area where growth has been limited by water supply.

Northern Spotted Owl

Disturbance of breeding owls and potential adverse effects are expected when ambient noise levels are exceeded by disturbance activities, such as heavy machinery, within 0.25 mile of known nest sites or un-surveyed nesting habitat. The spotted owl breeding season is defined as Feb. 1 to July 31 for instances where disturbance without habitat modification are involved. The Tribe has completed protocol surveys for northern spotted owls Reservation wide and has monitored occupancy, survival and reproduction at all known territories annually with an intensive survey, monitoring and banding program since 1992. There are two historic territories with in relatively close proximity to the water line and water tank development sites. Both of these territories were occupied in 2004 and one site nested. One currently occupied activity center (81035_95), which are based on nest sites and roost locations, is within the ¼ mile buffer distance used to protect owl reproduction efforts from disturbance (see owl map). This activity center is located along Dowd Road at the north east extreme of the project area. The following seasonal restriction will be required within the ¼ mile buffer surrounding activity center 81035_95 (see owl map):

- **Seasonal restrictions will apply to all disturbance activities (use of heavy machinery) within ¼ miles of any known owl pair at least until nesting status is determined from February 1, until July 31.**

No forest habitat modification is proposed during implementation of this project. The waterlines will be within the road right of way and the water tanks will be placed in existing open areas.

Determination: Because no suitable habitat will be removed and because nearly all disturbance activities expected are outside of ¼ mile of any known owl activity center or un-surveyed habitat, and seasonal restrictions will be imposed near activity center 81035_95, there will be "No Affect" to northern spotted owls.

Bald Eagle

Bald eagles are regular winter residents of the Hoopa Valley along the Trinity River, however, no nesting bald eagles are known to occur on the reservation or nearby.

Determination: Because no nesting or roosting habitat will be removed and because there are no nesting bald eagles within close proximity of the Bald Hills water development site there will be "No Affect" to bald eagles.

Marbled Murrelet

The Tribe has intensively surveyed for marbled murrelets on over 85% of all of the potential murrelet habitat within the Reservation with 2190 survey visits being completed between 1992 and 2002. No occupied sites have been found and presence of murrelets is highly unlikely. The U.S. Fish and Wildlife relieved the Tribe from further surveying requirements east of the Trinity River in a letter dated July 17, 2000 (Reference # 1-14-1997-61.2) and sent to the U.S. Forest Service and Bureau of Indian Affairs. There are no occupied murrelet sites within ¼ mile of the proposed Bald Hills water development site nor is there any un-surveyed potential habitat with ¼ mile.

Determination: Because there are no occupied murrelet sites or un-surveyed potential murrelet habitat within ¼ mile of the extraction sites and because no suitable murrelet habitat will be removed, there will be "NO Affect" to marbled murrelets.

400 0 400 800 Meters

Northern spotted owl activity centers, 1/4 restriction buffers, proposed water lines, and water tanks in the Bald Hill Urban Zone area on the Hoopa Valley Indian Reservation, Humboldt County, CA.

1/4 mile owl buffer
1/4 mile Disturbance Buffer
H20 Tanks
Owl Activity Centers
Proposed Water Lines
Trinity River

Bob Ulibarri

From: Jacobs.Sara@epamail.epa.gov
Sent: Tuesday, March 29, 2005 11:23 AM
To: babsferris@yahoo.com; Bob Ulibarri
Subject: Fw: Hoopa Valley Bald Hill Project

Attachments: Wildlife.pdf

Wildlife.pdf (661 KB)

FYI. FWS has concurred with the "No Effect" determination.

Sara Jacobs
U.S. Environmental Protection Agency
75 Hawthorne St. (WTR-6)
San Francisco, CA 94105-3901
Ph: 415-972-3564
Fx: 415-947-3549
E-mail: jacobs.sara@epa.gov

----- Forwarded by Sara Jacobs/R9/USEPA/US on 03/29/2005 11:18 AM -----

Amedee_Brickey@
fws.gov
To
03/29/2005 Sara Jacobs/R9/USEPA/US@EPA
10:19 AM cc

Subject
Re: Fw: Hoopa Valley Bald Hill
Project

Hello Sara,

I have reviewed the attached documents regarding the Hoopa Valley Bald Hills Project, and concur with Mark Higley's Endangered Species Act, Section 7 determination that the proposed action, including imposing seasonal restrictions during the breeding season for the purpose of protecting northern spotted owls, would result in "no effect" to this federally listed species.

Jacobs.Sara@epam

ail.epa.gov To:

amedee_brickey@fws.gov

cc:

03/25/2005 12:59 PM

Subject: Fw: Hoopa Valley Bald Hill Project

Hi Amedee,

I am sending this e-mail in follow-up to our phone conversation yesterday. Attached is the two-page memorandum and project map from Mark Higley, Wildlife Biologist for the Hoopa Valley Tribe regarding the effect of the Bald Hill drinking water infrastructure construction project on listed species. A brief description of the project is included below. Mark recommends a no effect determination since no suitable habitat will be removed and seasonal restrictions will be imposed near Northern Spotted Owl activity centers.

Based on my limited experience complying with ESA requirements, a construction project within the vicinity of a known activity center for a listed species and requiring the implementation of mitigation measures (such as limiting construction during breeding season) would warrant a determination of not likely to adversely effect. However, the FWS has already been through the Biological Opinion process with the Hoopa Valley Tribe which includes disturbance of up to 60 acres for urban development and we will be complying with the terms and conditions in that document. With a programmatic agreement already in place between FWS and the Hoopa Valley Tribe, would a finding of no effect be more appropriate for this project?

(See attached file: Wildlife.pdf)

Project Description

The project under consideration is located on the Hoopa Valley Indian Reservation. Proposed is the extension of an existing community water supply system to the Bald Hills region of the Hoopa Valley Indian Reservation. The proposed project at full buildout includes the installation of approximately 13.5 miles of water distribution lines on the south flank of Bald Hills in the north-central portion of the Hoopa Valley Indian Reservation. The proposed distribution lines follow the routes of existing roads (Pine Creek, Bald Hill, Dowd, Translator and Bloody Camp
Roads) and various driveways, beginning at a tie-in to the existing community-wide system at the intersection of Moon Lane and Pine Creek Road. In addition, five water storage tanks will be constructed along key areas of the distribution system. Funding for this endeavor is from the U.S. Environmental Protection Agency (EPA) Drinking Water Tribal Set-Aside Grant Program and the Indian Health Service (IHS) Sanitation Facilities Construction Program.

Sara Jacobs
U.S. Environmental Protection Agency
75 Hawthorne St. (WTR-6)
San Francisco, CA 94105-3901
Ph: 415-972-3564
Fx: 415-947-3549
E-mail: jacobs.sara@epa.gov(See attached file: Wildlife.pdf) (See attached file: Wildlife.pdf)

Appendix C:
List of Preparers

ENVIRONMENTAL ASSESSMENT
HOOPA VALLEY TRIBE, EXTENSION OF DOMESTIC WATER SUPPLY TO THE BALD HILLS AREA, HUMBOLDT COUNTY, CALIFORNIA

List of Preparers

Federal Agency's (Lead and Cooperating Agencies)

U.S. Environmental Protection Agency
Sara Jacobs, P.E.
Region 9
75 Hawthorne Street
Mail Code: WTR-6
San Francisco, CA 94105

Bureau of Indian Affairs
Larry Blevins
Pacific Region Office
2800 Cottage Way
Sacramento, CA 95825

Applicant

Hoopa Valley Public Utilities District
Barbara Ferris, General Manager
P.O. Box 656
Hoopa, CA 95546

Hoopa Valley Tribe – Natural Resources Department
Mark Higley, Biologist
P.O. Box 368
Hoopa, CA 95546

Consultant Team

Winzler & Kelly Consulting Engineers
L. Robert Ulibarri, AICP/REA
Senior Environmental & Policy Planner

Robert Holmlund, Environmental Planner

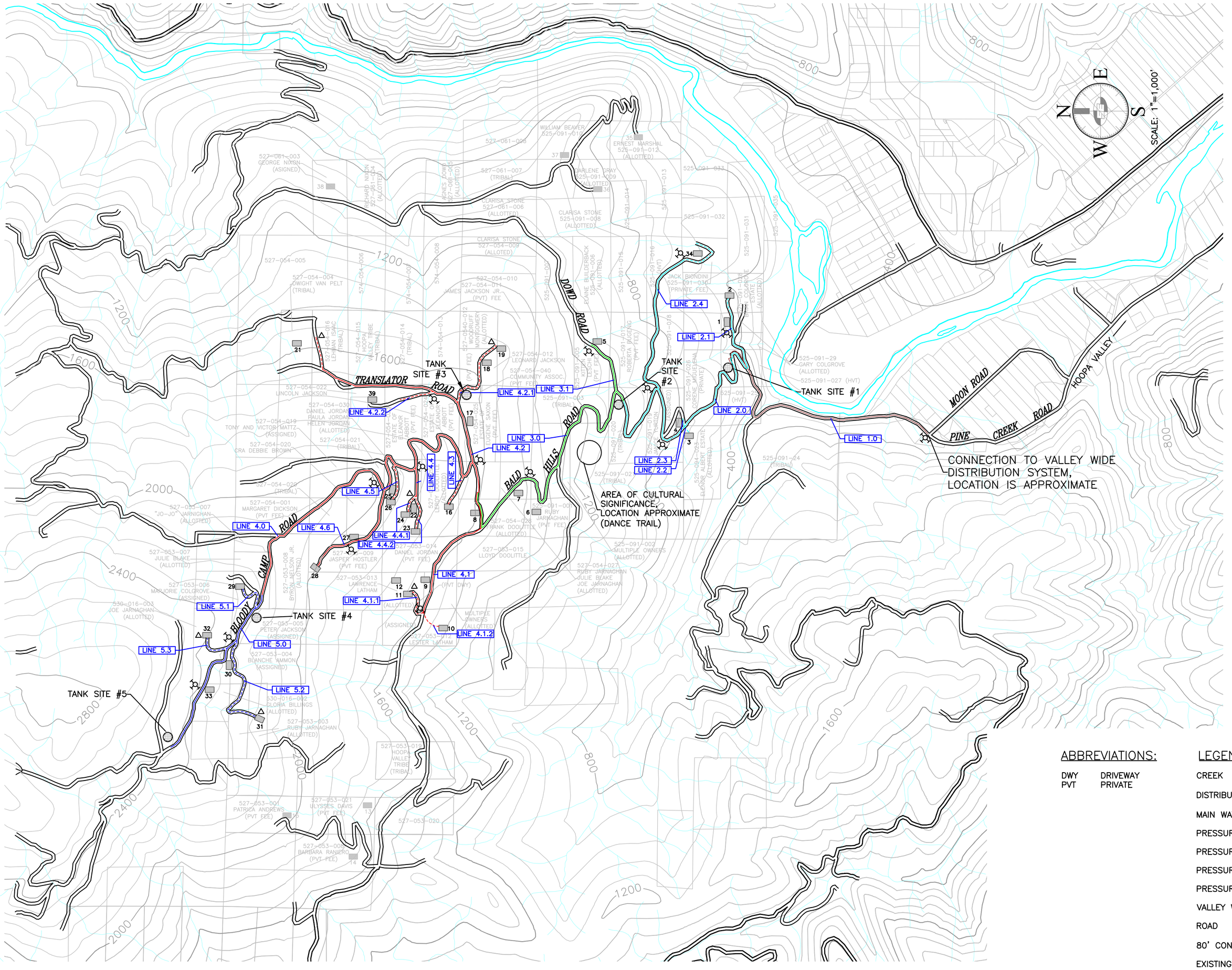
Andrew Whitney, Environmental Planner

633 Third Street
Eureka, CA 95501

Tom Origer & Associates
Vicki Beard, Senior Associate
P.O. Box 1531
Rohnert Park, CA 94927

Alice Berg & Associates, LLC
Consulting Fisheries Biologists
P.O. Box 1091
Ferndale, CA 95536

Appendix D:
Bald Hills Water System Preliminary Design



ABBREVIATIONS:

DWY	DRIVEWAY
PVT	PRIVATE

LEGEND:

- CREEK
- DISTRIBUTION LINE (2" PVC)
- MAIN WATER LINE (6" PVC AND DIP)
- PRESSURE ZONE 1
- PRESSURE ZONE 2
- PRESSURE ZONE 3
- PRESSURE ZONE 4
- VALLEY WIDE
- ROAD
- 80' CONTOUR LINE
- EXISTING HOUSE
- EXISTING FIRE HYDRANT
- PROPOSED TANK SITE
- PROPOSED FIRE HYDRANT
- PROPOSED FLUSH HYDRANT
- PIPE LINE DESIGNATION

NOTES:

1. HOUSE LOCATIONS ARE APPROXIMATE.
2. SERVICE LINES TO HOUSES ARE NOT SHOWN.
3. APN AND OWNER NAMES SHOWN ARE AS PER HVPUD AND HVTF DOCUMENTS AND MAPS.
4. HOUSES 13, 14, 15, 20, 35, 36, 37 AND 38 HAVE BEEN REMOVED FROM THIS PROJECT

SPENCER ENGINEERING & CONSTRUCTION MANAGEMENT, INC.
1586 REDWOOD DR., SUITE F • McKINLEYVILLE, CA 95519
TELEPHONE (707) 839-4386 • FAX (707) 839-4618

Designed: T. S. KELLY
Drawn: J. BAKER
Checked: T. S. KELLY

PREPARED FOR:
HOOPA VALLEY P.U.D.

FIGURE 1 – AMENDED SYSTEM PLAN
AMENDMENT TO BALD HILL WATER SYSTEM PRELIMINARY DESIGN

File Name: 4-23-04_SITE
Date: AUGUST 23, 2005

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

Job No. 00202
Sheet No. 1